Rochester City School District

Design & Technical Standards

7/18/17

Rochester Schools Modernization Program
Rochester City School District Design Standards

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Introduction

The **Rochester Joint Schools Construction Board (RJSCB)** was established by legislation to oversee the **Rochester School Modernization Program (RSMP)** which is a multi-phase joint initiative of the **Rochester City School District (RCSD)** and the **City of Rochester** to update and improve their school facilities. The goal of the program is to update aging schools to meet 21st Century educational standards, providing quality spaces and equitable services for students throughout the Rochester City School District. The RSMP will channel $1.3 billion in strategic investment over a 15-year period.

The RSMP was challenged with updating dated RCSD facility standards for distribution to design consultants for use in the Program. These standards would replace the current RCSD Standards document. Construction specifications are a highly technical document, tightly aligned to the work occurring in each individual project. Though "boilerplates" are useful to design professionals, best practice is that the final specifications must be generated on a project by project basis to reflect the nuances of each individual building and project.

The RSMP considered the prospect of new design standards more broadly, in the hopes of developing a *living document* that could serve the RSMP projects over the next decade, as well as serve the RCSD Facilities Department during capital improvement projects for the District buildings. Design standards will promote equity district-wide, and streamline facility maintenance and material "attic stock" moving forward. The resulting document, developed by the RSMP in conjunction with the RCSD Administration and Facilities Departments, is the result of this effort. The overall goal of this effort is to ensure district wide uniformity and equity, establish a level of construction quality, and provide safe and functional environments conducive to learning.

Educational trends, classroom and technology configurations, program offerings and aidability strategies may evolve and improve. In conjunction with the individual Design Consultant teams of architects and engineers (i.e. A/E's) for a specific school, the A/E team will develop project-based test fit concepts and renovation schemes that can artfully modernize the school and introduce new or improved offerings. These should use the appropriate design "themes" to reflect the architectural typology of an existing building or the blank canvas of a new facility. These decisions are rooted in an individual project, as interpreted by the talented design professional working on that project. Examples of current Best Practices and Emerging Educational Trends are included in an appendix to this document, to serve as a conversation starter between design consultants and the District. Using these visual tools and their own best practices, the design consultants will begin the process of preparing plans and specifications for individual capital projects.

Section 2 identifies the minimum Design Standard criteria for each space found in Elementary School facilities, typically Pre-K through 8. It lists features found in each room, including typical finish materials, equipment or system requirements and District

Wide Technology (DWT) requirements. This section is arranged by types of spaces and includes ancillary spaces often necessary to the particular use. For example, library science at the Elementary School level involves more than the library. Requirements of computer classrooms, reading/stack areas, circulation, staff offices, book storage, seminar space are all include in the Elementary School Library Group. Minimum room sizes noted were derived from the New York State Education Department "State Building Aid for Public School Districts and BOCES, 2004". Design consultants can use this as a checklist for a specific space to initiate conversation about, and identify programming criteria for, each of these spaces.

Section 3 is similarly arranged, with the focus being on classroom types in Secondary Schools. These schools are defined as 7 through 12 or 9 through 12 schools.

There are other space types that are unique or rare to RCSD's space inventory (e.g. Auto Body Tool Room) and the RSMP typical design standards will not provide adequate guidance on such specialty design. In those instances, the design decisions must be reviewed to a higher degree of scrutiny, usually by a larger number of educational experts.

Section 4 provides narratives that define the technical considerations for the materials and systems used in the RSMP and RCSD projects. These Technical Design Standards outline the minimum acceptable requirements for products, materials and systems used in all facility improvements, including new construction, reconstruction, renovation, and maintenance.

The numbering for the Technical Standards generally follows current CSI MasterSpec® format, 32 Division format. ***Under no circumstances are the Technical Standards to be used as unedited project specifications***.

Both RSMP and the RCSD seek to procure products and materials through open, competitive bidding to the greatest degree possible. However, the District prefers known or proven products and materials to unknown or experimental ones. Where brands and model numbers are shown, they are included to illustrate the type, quality and performance required. They ***are not*** intended to exclude other equal products, except where specific products are required for compatibility with existing, and noted to be required as a brand name product standard with no substitutions allowed, per the RCSD Board of Education approved resolution of standardization.

Architects, engineers and other design professionals are expected as a professional standard of practice to inform the District project management staff contacts of any errors or conflicts between this document, code requirements and/or best professional practices. This is a 'living' document and will reflect regular updates, additions and improvements based on project experience, district priorities, budget constraints and best practice. As a living document, regular updating by the District Facilities Design Group will also capture industry changes, as manufacturer and product availability may change over time. Such updates should be noted through revision dates in the upper right corner.

Section 5 contains "Classroom Requirements – Collaborative Learning Spaces" as drafted by the RCSD. This section serves to benchmark emerging trends in educational spaces as identified by the Rochester Central School District-- from the simple changes

in mind-set and expectations, to bolder initiatives that encourage creativity and embody collaborative cross-curricular, project-based learning. In all cases, the guiding principle in these benchmarks is durability, quality and flexibility for all students, faculty and staff in the Rochester Central School District. It is important to recognize, however, these are not cookie cutter solutions, but instead examples of thought leading ideas and prototypes that would have to be transformed to address the specific circumstances and opportunities in the Rochester City Schools.

Section 6 provides Design Professionals with District identified specialty contacts for certain project components. This includes food service, technology and safety and security.

NEXT STEPS: The intention of this document was never to satisfy every conceivable condition, nor decision-point the District will face. Rather, it attempts to provide some great possibilities as a catalyst to the best practices in space standards, as well as new issues, as of yet not envisioned, that will arise. Accordingly, the District should expect that in the absence of a written standard for something unknown, future consultants to the District should present new options during the Schematic (20% complete) Design, and Design Development (60% complete) Phase Milestones to RCSD, or RSMP so that an informed decision can occur to provide the appropriate direction. In the case where end users, school administrators or A/E consultants conclude the current written design standards contained herein are not sufficient for a particular project, and thus the desire is to deviate from these standards… then such stakeholders as participants in a coordinated process should follow the RCSD approved protocols to obtain a formal 'sign-off' to vary from these written standards.

It is an expectation that all future projects be designed and constructed using sustainable building principals. It is an expectation that new buildings be designed to minimize use of non-renewable energy sources.

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ES 1.1 Pre-K and Kindergarten Classrooms
Description: Pre-Kindergarten and Kindergarten Classrooms. Minimum of 900 sf.

FINISHES:	
Flooring: ○ 30% Carpet ○ 70% Vinyl Composition Tile (including at wet areas: cubbies, sink, entry door)	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 24-25 individual open cubbies- coat hooks, shelf, w/o doors (FF&E item, long lead time) ○ Built-in closet ○ 3' of tall cabinets w/tote trays (FF&E) ○ 9' of wall & base cabinets w/ countertop ○ 3' base cabinet w/ countertop, w/ sink ○ Base cabinets under windows on exterior wall when no HVAC equipment ○ 16' of marker board (total) ○ 20' of tack board (total) ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ Pull down projection screen (Kindergarten only) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans ○ American flag/holder	Plumbing: ○ Sink w/ bubbler ○ Verify Fire Protection System requirements HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad receptacle @ teacher station ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Charging cart for 28 1:1 devices ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ Classroom door with vision panel, continuous hinge, lockdown hardware. ○ Door closer to be set to close door slower. ○ Verify other FF&E furniture items to coordinate in space.

ES 1.2 Pre-K and Kindergarten Toilet Rooms
Description: Pre-Kindergarten and Kindergarten Toilet Rooms.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryer ○ Tilt mirror (24" x 30") ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Waste receptacle (built-in) ○ Hook on door ○ 18" of wall cabinets	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatories ○ Fire Protection System ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Illumination level: See Div. 26V ○ 1- Duplex GFCI receptacle ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Frosted windows. ○ Use mold and mildew grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Dutch door between classroom and toilet room (w/ dutch door bolt.) ○ Door hardware to be set to close slowly (to reduce finger pinches.)

ES 1.3 Elementary Classrooms
Description: General classroom spaces in elementary schools. Minimum of 770 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Open casework- coat hooks, shelf, w/o doors (Grades 1-5) (FF&E item, long lead time) ○ Lockers (Grades 6-8) ○ Built-in closet ○ 9' of wall cabinets ○ 3' base cabinets w/ countertop, w/ sink (Grades 1-4) ○ 6' of base cabinets w/ countertop (Grades 1-4) ○ 9' of base cabinet s w/ countertop (Grades 5+) ○ Base cabinets under windows on exterior wall when no HVAC equipment ○ 16' of marker board (total) ○ 20' of tack board (total) ○ Towel dispenser (Grades 1-4) ○ Soap dispenser (vendor provided) (Grades 1-4) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans ○ American flag/holder	Plumbing: ○ Sink w/ bubbler (Grades 1-4) ○ Verify Fire Protection System requirements HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad electrical outlet at teacher station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Means of egress lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Charging cart for 28 1:1 devices ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ Classroom door with vision panel, continuous hinge, lockdown hardware. ○ Verify other FF&E furniture items to coordinate in space.

ES 2.1 Small Group Instruction Classrooms
Description: Small group instruction classrooms. Minimum 500 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 12’ of marker board (total) ○ 16’ of tack board (total) ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ Supply/return air system ○ NO new unit ventilators ○ Air conditioning if windowless room
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets/closet to be lockable. ○ Classroom door with vision panel, continuous hinge, lockdown hardware. ○ Verify other FF&E furniture items to coordinate in space.

ES 2.2 Art Classrooms
Description: Art instruction classrooms in elementary schools. Minimum of 770 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Alternative: Tile backsplash at sink locations if GWB approved

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 24’ of 30” deep base cabinets w/ stainless steel countertop ○ 2- 6’ of 30” deep sink base cabinets w/ stainless steel countertop ○ 24’ of wall cabinets ○ Additional base cabinets under windows on exterior wall when no HVAC equipment ○ 16’ of marker board (total) ○ 20’ of tack board (total) ○ 2- Towel dispenser ○ 2- Soap dispenser (vendor provided) ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ 2- Double sinks (deep) ○ 1- Clay trap (Solids Interceptor) ○ 1- Grease trap ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ Supply/return air system ○ NO unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI near sink) ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad receptacle @ ea. data/video port ○ Receptacle(s) (GFCI) @ pottery wheel(s) ○ Dedicated Kiln receptacle (where kiln is, may be located in separate room) ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Presentation Monitor ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Solid hardwood casework
- Cabinets/closet to be lockable.
- Classroom door with vision panel, continuous hinge, lockdown hardware.
- Display case for 2-D and 3-D art in corridor adjacent to Art Classroom.
- Kiln(s).
- Verify other FF&E furniture items to coordinate in space.

ES 2.3 Music Classrooms
Description: Vocal and instrumental music instruction classrooms in elementary schools. Minimum 770 sf.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group o Acoustical Wall Panels

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Built-in closet o 14’ of tall storage cabinets (FF&E) o Base cabinets under windows on exterior wall when no HVAC equipment, minimum 16’ when not located at windows o 16’ of marker board w/ staff lines o 4’ of marker board o 16’ of tack board (total) o 8’ bookcases, 12” deep, 36” high (FF&E) o 3’ base cabinets w/ countertop, w/ sink o Towel dispenser o Soap dispenser (vendor provided) o 8.5” x 11” frame - evacuation map o 8.5” x 11” holder - emergency response plans o American flag/holder	Plumbing: o Sink, 10” deep o Drinking fountain o Verify Fire Protection System requirements HVAC: o Independent temperature control o Supply/return air system o NO new unit ventilators Electrical: o Occupancy sensor/dimming o LED lighting o Illumination level: See Div. 26V o 4- Duplex receptacles o 1- Quad receptacle @ ea. data/video port o Central sound system o Fire alarm devices o Clock o Emergency lighting
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Interactive white board o Charging cart for 28 1:1 devices o Wireless Access Point o Data & Voice Drops o Classroom Amplification System

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* o Cabinets/closet to be lockable. o Classroom door with vision panel, continuous hinge, lockdown hardware. o Soundproof door to room. o Doors to room to have acoustical trim accessories.

ES 2.4 Science Classrooms
Description: Science instruction classrooms in elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 30’ of wall and base cabinets w/ countertop, w/ sink (total) ○ 16’ of marker board (total) ○ 20’ of tack board (total) ○ 8’ of bookcases, 12” deep (FF&E item) ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ Demonstration table w/ chemical resistant top, quad receptacle (H.C. accessible) and overhead mirror ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder ○ Flammable blanket cabinet (with blanket) ○ Chemical storage cabinets	Plumbing: ○ Sink in demonstration table ○ 3- student use sinks & 1 accessible student use sink ○ Eye wash sink ○ Drinking fountain ○ Natural gas connections (verify with RCSD Facilities Design Group) ○ Compressed air ○ Master shut-off (Gas and Air) @ teacher station / exit door ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ Supply/return air system ○ Room exhaust ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teacher’s station ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad receptacle (GFCI) @ demo table ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Charging cart for 28 1:1 devices ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Cabinets/closet to be lockable.
- Portable fire extinguisher with minimum rating of 2A, 20BC where chemicals are to be stored.
- Solid hardwood casework/demo table w/ epoxy resin tops/sinks
- Classroom door with vision panel, continuous hinge, lockdown hardware.

ES 2.5 Tech Education Classrooms/Workroom/Storage
Description: Rooms associated with Tech Ed spaces in elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	
Fixed Equipment: ○ Built-in closet ○ 16’ of marker board (total) ○ 20’ of tack board (total) ○ 3’ of base cabinet ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ Utility sink ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad receptacle @ teacher station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency electrical disconnect
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Charging cart for 28 1:1 devices ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets/closet to be lockable. ○ Classroom door with vision panel, continuous hinge, lockdown hardware. ○ Maker Space - TBD

ES 3.1 Special Education Classrooms
Description: Special Education Classrooms for elementary schools. 12:1, 15:1, 12:1:1 to be minimum 770 sf. 6:1:1 to be minimum 450 sf. 8:1:1 to be minimum 550 sf. 12:1 + 3:1 minimum 900 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Open cubbies – coat hooks, shelf, w/o doors with wall cabinets above (FF&E item, long lead time) ○ 12'-24' of storage unit with plastic bins on shelves (depending on how many occupants) ○ 12'-24' of adjustable storage shelving (depending on how many occupants) ○ 12' computer work surface (total) ○ Built-in closet ○ 2- 4 drawer metal file cabinets (FF&E) ○ 9' of wall and base cabinets ○ 3' of base cabinet with sink ○ 16' of marker board (total) ○ 20' of tack board (total) ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans	Plumbing: ○ Accessible Sink with bubbler ○ Verify Fire Protection System requirements HVAC: ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1-Quad electrical outlet @ teacher station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Charging cart for 28 1:1 devices ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ Classroom door with vision panel, continuous hinge, lockdown hardware.

ES 3.2 Special Education Toilet Rooms/Shower
Description: Special Education restrooms with shower in elementary schools. Space to allow for generous maneuverability of multiple occupants.

FINISHES:	
Flooring ○ Restroom: Tile (sloped to drain) ○ Shower: Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Shower: GWB
Base: ○ Tile (sanitary cove)	Walls: ○ Restroom: Tile (full height) ○ Shower: Tile (full height)

FEATURES:	**SYSTEMS**
Fixed Equipment: ○ 6’ of storage unit with plastic bins on shelves ○ 3’ of adjustable storage shelving ○ Mirrors (18” x 36”) ○ Toilet tissue holder ○ Grab bars (18”, 36” and 42”) ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ ADA shower accessories ○ Waste respectable (built-in) ○ Hook on door ○ Cubicle curtain track	Plumbing: ○ Verify Fire Protection System requirements ○ ADA shower controls and head ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Shower fixtures/seat ○ Floor drain ○ Hose bibb
	HVAC: ○ Supplemental heat as required ○ Exhaust heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Duplex receptacle (GFCI) ○ Central sound system ○ Fire alarm devices ○ Emergency call button
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets/closet to be lockable. ○ Use mold and mildew resistant grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Cubicle curtain (washable). ○ Heavy duty shower curtain and rod. ○ Lift system (if required). ○ Room to be larger than typical accessible toilet/shower room. ○ Room to be adjacent to Special Education Laundry Room.

ES 3.3 Special Education Resource Room
Description: Special Education Classrooms for elementary schools. Minimum 300 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of storage unit with plastic bins on shelves ○ 6’ of adjustable storage shelving ○ Built-in closet ○ 9’ of wall and base cabinets ○ 10’ of marker board (total) ○ 10’ of tack board (total) ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1-Quad electrical outlet @ teacher station ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Charging cart for 28 1:1 devices ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets/closet to be lockable. ○ Corridor door with vision panel, continuous hinge, lockdown hardware.

ES 3.4 Special Education Laundry
Description: Special Education Laundry equipment room for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 9’ of wall cabinets ○ 3’ of base cabinets	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Utility sink
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system (easily accessible)
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Connections for washer and dryer
Acoustics Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Washer and Dryer.

ES 4.1 Auditorium
Description: Auditoriums in elementary schools.

FINISHES:	
Flooring: ○ Aisles: Carpet ○ Under Seats: Sealed concrete	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid ○ GWB ○ Painted exposed structure ○ Reflector panels
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB, upon approval of RCSD Facilities Design Group ○ Acoustical CMU on back wall ○ Acoustical wall treatment

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Auditorium Seating ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/stand	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Multilevel switching with dimming ○ LED lighting ○ Dimmable quartz lighting ○ Illumination level: See Div. 26V ○ Theatrical lighting ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Auditorium sound system ○ Assistive listening system ○ Fire alarm devices ○ Emergency lighting ○ Means of egress lighting per code ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ IP Video Cameras

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Main doors with continuous hinges and panic hardware.
- Sloped floor (accessible route)
- Grab bars as required
- Daylight not recommended

ES 4.2 Auditorium Production Room
Description: Production Rooms for Auditoriums in elementary schools. Preference for room to be in Auditorium on ground floor behind the audience.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Impact Resistant GWB with sheet metal (see Technical Chapter 9) ○ Acoustical wall treatment

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 10’ of equipment/work surface ○ 8’ of tack board (total) ○ Operable window to Auditorium	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Single level switching ○ LED lighting: overhead ○ Illumination level: See Div. 26V ○ Dimmable incandescent task lighting on work surface ○ Duplex receptacles ○ Auditorium Lighting wired through stage dimmer panel ○ Provisions for hard-wired equipment ○ Central sound system ○ Fire Alarm Devices ○ Clock ○ Empty communications conduit with pull cable from stage for future video projection control ○ Auditorium sound system control panel ○ Stage dimming system control panel
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ IP Video Cameras

MISCELLANEOUS:
○ Daylight not recommended. ○ ADA access.

ES 4.3 Stage (Auditorium)
Description: Stages for auditoriums in elementary schools.

FINISHES:	
Flooring: ○ Wood	Ceiling: ○ N/A
Base: ○ Resilient Wall Base (vented - if required by stage floor manufacturer)	Walls: ○ Painted CMU (flat black)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Front curtain, track, and valance and/or grand border ○ Rear curtain with track ○ Leg curtains, tracks, and/or pivots ○ Border curtains ○ Mid-stage traveler ○ Projection screen ○ Sound control console ○ Lighting control console ○ Light pipes ○ Stairs and handrails ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Supply/return air system ○ Independent temperature control Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Stage dimming system ○ Theatrical lighting ○ Illumination level: See Technical Standards, Table XX Section XX ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire Alarm Devices ○ Emergency lighting ○ Means of egress lighting per code ○ Auditorium sound system ○ Stage outlets
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Stage to be ADA accessible. ○ All stage curtains to be fire treated fabric. ○ Verify stage curtain types with RCSD Facilities Design Group. ○ Fire extinguisher(s) as required by code. ○ 8’ x 12’ coil door to Stage Storage room (if Stage Storage is adjacent to Stage.)

ES 4.4 Cafeteria
Description: Cafeterias in elementary schools. Minimum size 36’ x 52’.

FINISHES:	
Flooring: ○ District Preference: Vinyl Composition Tile ○ Alternative: Epoxy Terrazzo (Stone polished), upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ District Preference: Painted CMU ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group ○ Alternative: Epoxy Terrazzo if Epoxy Terrazzo floor is used	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB, w/ ½ wall tile, upon approval of RCSD Facilities Design Group ○ Acoustical Wall Panels

FEATURES:	
Fixed Equipment: ○ Soap dispenser (vendor provided) ○ Towel dispenser ○ 3’ of base cabinet for sink ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans	Plumbing: ○ Drinking Fountain/Bottle Filler with lead filters, dual level ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Independent temperature control ○ Supply/Return air system ○ NO new unit ventilators
	Electrical: ○ Multi-zone switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles adjacent to each data and video port ○ Receptacle devices throughout room at 36” +/- AFF for student use ○ Receptacles for portable fans throughout room ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting ○ Local Student dining sound systems
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ IP Video Cameras

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Daylight required. ○ Cabinet to be lockable. ○ Vision strip recommended – 50% of linear length of outside wall of room. ○ Entrance doors with vision panels, continuous hinges, panic hardware.

ES 4.5 Cafetorium
Description: Existing Cafetorium (cafeteria/auditorium) for elementary schools. NO new Cafetoriums.

FINISHES:	
Flooring: ○ District Preference: Vinyl Composition Tile ○ Alternative: Epoxy Terrazzo (Stone polished), upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ District Preference: Painted CMU ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group ○ Alternative: Epoxy Terrazzo if Epoxy Terrazzo floor is used	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB, w/ ½ wall tile, upon approval of RCSD Facilities Design Group

FEATURES:	
Fixed Equipment: ○ Soap dispenser (vendor provided) ○ Towel dispenser ○ 3’ of base cabinet for sink	Plumbing: ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Independent temperature control ○ Supply/Return air system ○ NO new unit ventilators
	Electrical: ○ Multi-zone switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles adjacent to each data and video port ○ Receptacle devices throughout room at 36” +/- AFF for student use ○ Receptacles for portable fans throughout room ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting ○ Local Student dining sound systems
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ IP Video Cameras ○ POS Data Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinet to be lockable. ○ Entrance doors with vision panels, continuous hinges, lockdown hardware.

ES 4.6 Stage/Platform (Cafetorium)
Description: Stage/Platform (Cafetorium) for elementary schools.

FINISHES:	
Flooring: ○ Wood	Ceiling: ○ N/A
Base: ○ Resilient Wall Base (vented - if required by stage floor manufacturer)	Walls: ○ Painted CMU (flat black)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Stage curtains and tracks ○ Projection screen ○ Light pipes ○ Stairs and handrails	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control with student dining area
	Electrical: ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Emergency lighting ○ Floor outlets as required ○ Outlets in face of stage wall
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Stage to be ADA accessible. ○ All stage curtains to be fire treated fabric. ○ Verify stage curtain types with RCSD Facilities Design Group. ○ Fire extinguisher(s) as required by code. ○ Note: This area is intended to be the raised Platform of a cafetorium.

ES 4.7 Stage Storage
Description: Auditorium Stage Storage for elementary schools.

FINISHES:	
Flooring: ○ Sealed concrete	Ceiling: ○ Exposed structure ○ Optional (if needed for fire rating)
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 18’ – 30’ (varies by available area) of open metal shelving (total) 84” high 12” deep, 24” deep, or 30” deep (FF&E) ○ 16’ – 26’ (varies by available area) of tall storage cabinets (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data port ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets to be lockable.

ES 4.8 Table & Chair Storage
Description: Cafeteria Table & Chair Storage for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile ○ Sealed Concrete, upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ N/A	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26 ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*

ES 4.9 Staff Dining/Lounge
Description: Staff Lounge in elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 3’ sink base cabinet w/ counter, District material preference: Plastic Laminate ○ 5’ of base cabinets w/ counter, District material preference: Plastic Laminate ○ 8’ of wall cabinet ○ 4’ of tack board ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5” x 11” frame – evacuation map ○ 8.5” x 11 holder – emergency response plans	Plumbing: ○ Sink ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ Supply/Return air system
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Receptacles for vending machines, refrigerator, and microwave.
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Windows recommended. ○ Door vision strip. ○ Refrigerator. ○ Microwave. ○ Vending machine (vendor provided.)

ES 4.10 Gymnasium
Description: Gymnasiums for elementary schools. Minimum size 36’ x 52’.

FINISHES:	
Flooring: ○ Gymnasium: Maple Wood Flooring with cushioned base on concrete deck ○ Drinking Fountain Alcove: Vinyl Composite Tile/ Tile (depending on adjacent material)	Ceiling: ○ Gymnasium: Acoustic Metal Deck w/ flat bottom ○ Drinking Fountain Alcove: GWB
Base: ○ Gymnasium: Vented Resilient Wall Base ○ Drinking Fountain Alcove: Resilient Wall Base	Walls: ○ Painted CMU (lower) ○ Safety wall pads (lower) ○ Acoustical CMU (upper) ○ Acoustic Wall Panels (upper) (if required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Operable windows ○ Volleyball sleeves and standards with cart ○ 6- Basketball backstops, adjustable height ○ Wood Bleachers with electric operation ○ Divider Wall (Vinyl over metal folding panels w/ pass through door, electric) ○ 8.5” x 11” frame – evacuation map ○ 8.5” x 11 holder – emergency response plans ○ American flag/holder ○ Court markings for basketball (full and cross court), and volleyball courts	Plumbing: ○ Verify Fire Protection System requirements ○ Drinking Fountain/Bottle Filler with lead filters, dual level
	HVAC: ○ Independent temperature control ○ Air Conditioning (to be determined on a case by case basis by RCSD Facilities Design Group) ○ Supply/Return air system (Indestructible) ○ Heavy duty wall grilles
	Electrical: ○ Duplex receptacles ○ Single level switching LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock with wire guards ○ Gymnasium sound system ○ Emergency lighting w/ wire guards
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point w/ wire guard ○ Data & Voice Drops ○ Phone handset w/ wire guard

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Daylight required.
- Clerestory windows and skylight windows (as appropriate) to provide natural light.
- Double doors to have removable center mullion.
- Doors with vision panels (interior doors), continuous hinges, panic hardware.
- Provide wire guards at all equipment as appropriate.
- Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.

ES 4.11 Physical Education Storage Room
Description: Physical Education Storage Rooms for elementary schools.

FINISHES:	
Flooring: ○ Sealed concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 18' – 30' (varies by available area) of open metal shelving (total) 84" high 12" deep, 24" deep, or 30" deep (FF&E) ○ 16' – 26' (varies by available area) of tall storage cabinets (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*

ES 4.12 Physical Education Student Locker Rooms
Description: Physical Education Student Locker Rooms in elementary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ GWB with access panels ○ Tectum with clips
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Lockers – Double tier, heavy duty, and diamond plate end panels, hoods (sloped), and backs. Able to accept padlock. Provide one locker per student enrollment (grades 7-8 only) ○ Accessible lockers ○ Locker benches – Wood on cast iron pedestal legs anchored to floor. ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level ○ Hose bibb ○ Floor drain
	HVAC: ○ Exhaust air system ○ Independent temperature control ○ Supply air system
	Electrical: ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics ○ Refer to Technical Standards, XX-	DWT: ○ NA

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.

ES 4.13 Physical Education Student Toilet Rooms/Showers
Description: Physical Education Student Showers/Restrooms in elementary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Suspended Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Restroom: Tectum ○ Shower: GWB
Base: ○ Restroom: Tile (sanitary cove) ○ Shower: Tile (sanitary cove)	Walls: ○ Restroom: Tile (full height) ○ Shower: Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryers ○ Waste receptacle (built-in, large capacity) ○ Tilt mirror (18" x 36") with shelf ○ Mirrors (18" x 36") with shelves ○ Toilet tissue holders ○ Grab bars (18", 36" and 42") ○ Soap dispensers (vendor provided) ○ Towel hooks (1 per shower) ○ ADA shower accessories ○ Sanitary product dispensers (girls only) ○ Sanitary product receptacles (girls only) ○ Heavy duty shower curtain and rod ○ Toilet partitions, phenolic, floor and ceiling mounted, clothes hooks on toilet partition doors ○ Hooks on toilet partition doors ○ Modesty shower partitions, phenolic, floor and ceiling mounted ○ Urinal screens, phenolic, floor and ceiling mounted	Plumbing: ○ Verify Fire Protection System requirements ○ Wall-mounted water closets ○ Wall-mounted lavatories ○ Wall-mounted urinals ○ ADA shower controls and head ○ Shower fixtures/seat ○ Floor drains ○ Hose bibb
	HVAC: ○ Supply/return air system ○ Exhaust air system
	Electrical: ○ Single level switching ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.

ES 4.14 Physical Education Instructor's Office/Locker Room
Description: Physical Education Instructor's Office/Locker Room in elementary schools. One room per each gender.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 4' of tack board ○ 4' of marker board ○ Mirrors with shelf (18" x 36") ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ ADA shower accessories ○ Waste respectable (built-in) ○ Hook on door ○ Cubicle curtain track	Plumbing: ○ Verify Fire Protection System requirements ○ ADA shower controls and head ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Shower fixtures/seat ○ Floor drain
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ Single level switching ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Use mold and mildew resistant gypsum board and grout. ○ Vision glass to Gymnasium/ Student Locker rooms (male instructor office to male locker room, female instructor office to female locker room) w/ metal horizontal blinds.

ES 4.15 Natatorium
Description: Natatoriums for elementary schools. Minimum size 25 meters x 7 feet lanes.

FINISHES:	
Flooring/Deck: ○ Mosaic tile (sloped to drain) ○ Pool/deck markings as required by NYSDOH	Swimming Pool: ○ Sidewalls: Ceramic tile – down 5', white or light colored ○ Sidewalls and Floors: Ceramic tile, non-slip finish – below 5', white or light colored
Base: ○ Tile (sanitary cove)	
Walls: ○ Tile on CMU – up to 8' minimum ○ Painted acoustical CMU – above tile	Ceiling: ○ Acoustical deck

FEATURES:	
Fixed Equipment: ○ TDB by Design Professional ○ Multiple depth reinforced concrete pool ○ Built-in closet ○ 4' of tack board ○ 4' of marker board ○ Spectator seating – plastic seats, ADA cutouts, galvanized under structure, stainless steel hardware ○ Lifesaving equipment ○ Pool ladders – stainless steel ○ Diving board(s) ○ Lane lines (ropes) ○ Starting blocks ○ Elevated lifeguard chairs ○ Pool maintenance equipment & connections ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans ○ American flag/holder ○ Skylights/clerestory windows (no glare) ○ AED/ cabinet	Plumbing: ○ TDB by Design Professional ○ Verify Fire Protection System requirements ○ Hose bibs every 75' of room perimeter ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level ○ Floor drain ○ Pool drain
	HVAC: ○ TDB by Design Professional
	Electrical: ○ Continuous overhead lighting – no glare on water surface ○ Single level switching ○ Duplex receptacles (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock w/ wire guard* ○ Emergency Lighting w/ wire guards ○ Telephone adjacent to pool
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops with Cage

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Cabinets/closet to be lockable.
- Use mold and mildew resistant grout.
- Stainless steel or FRP doors and stainless steel frames.
- Doors with vision panels (interior doors), continuous hinges, panic hardware.
- Portable Pool lift per ADA guidelines.
- All finishes and surfaces to be corrosion resistant.
- Provide wire guards at all equipment as appropriate.
- See NYSDOH requirements, Part 6, Subpart 6-1 Swimming Pools.
- See IBC requirements.
- Equipment and fixtures to be high humidity resistant.
- Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.
- Student must enter pool from Shower area.
- Perforated metal acoustical panels as needed.
- Verify all pool equipment and pool accessories

ES 4.16 Natatorium First Aid Room
Description: First aid room in elementary school's natatoriums. Provide if swimming pool is over 4,000 SF.

FINISHES:	
Flooring: ○ Mosaic tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Painted CMU

FEATURES:	
Fixed Equipment: ○ First Aid cabinet ○ Built-in closet	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Clock ○ Telephone
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Phone Handset

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ Stainless steel or FRP doors and stainless-steel frames. ○ All finishes and surfaces to be corrosion resistant. ○ Vision glass to Natatorium w/ metal horizontal blinds.

ES 4.17 Natatorium Storage Room
Description: Storage room for swimming class equipment in elementary schools.

FINISHES:	
Flooring: ○ Sealed concrete ○ Tile sloped to drains	Ceiling: ○ Open to structure ○ Unless need ceiling for fire rating
Base: ○ Ceramic tile (sanitary cove)	Walls: ○ Painted CMU

FEATURES:	
Fixed Equipment: ○ Plastic storage - TBD	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bib
	HVAC: ○ Supply/return air system
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Stainless steel or FRP doors and stainless-steel frames.

ES 4.18 Pool Equipment Room(s)
Description: Pool equipment room(s) in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Receptacles (GFCI) ○ LED lighting (corrosion resistant) ○ Illumination – See Div. 26V ○ PVC coated conduit system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Stainless steel or FRP doors and stainless steel frames.

ES 4.19 Pool Chemical Room
Description: Pool chemical storage room in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional ○ Emergency shower/eye-face wash ○ Floor drain
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Receptacles (GFCI) ○ LED lighting (corrosion resistant) ○ Illumination – See Div. 26V ○ PVC coated conduit system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Stainless steel or FRP doors and stainless steel frames.

ES 5.1 Computer Classroom
Description: Media Center (Library) Computer Classroom for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile ○ Carpet, upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet (shelves and file drawers) ○ 6' of wall cabinets (total) ○ 6' of base cabinet (total) ○ 16' of marker board (total) ○ 16' of tack board (total) ○ Counters (plastic laminate w/ square edge) with integral backsplash along walls ○ Grommets (plastic) in counters ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans ○ American flag/holder (if separate from library circulation area)	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Independent, packaged system ○ Supply/return air system ○ Air Conditioning ○ NO new unit ventilators Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting ○ Receptacle for printer ○ Raceway power under counters (coordinate with support brackets) ○ NO receptacles in floor ○ NO power poles
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets to be lockable. ○ Classroom door with vision panel.

ES 5.2 Reading/Stacks/Circulation
Description: Media Center (Library) Reading/Stacks/Circulation for elementary schools. Minimum size of 900 sf.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Library casework - book shelves, 15 volumes per enrolled student (FF&E) ○ 10'-15' of circulation desk w/ counter, District material preference: Solid Surface ○ 12' of marker board (total) ○ 16' of tack board (total) ○ Risers for seating for 30 students (optional) ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans ○ American flag holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Air Conditioning ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ 1 quad receptacle at teaching wall and 3 quad receptacles at opposite wall ○ 1 quad receptacle electrical outlet at teacher's station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting ○ Means of egress lighting per code
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ Interactive white board

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Circulation desk drawers to be lockable. ○ Corridor door with vision panel (if accessible from corridor.) ○ Book security device system. ○ Daylight required. ○ Solid hardwood casework, verify in FF&E contract. ○ Provide blocking in walls to attach library casework.

ES 5.3 Library Office/Workroom
Description: Library Office/Workroom for elementary schools.

FINISHES:	
Flooring: Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 10’ of work surface with file drawers (total) o 4’ of marker board o 4’ of tack board o Built-in closet o 6’ of wall cabinets (total) o 3’ base cabinets w/ countertop, w/ sink o 3’ bae cabinet w/ countertop	Plumbing: o Verify Fire Protection System requirements o Sink
	HVAC: o Supply/return air system o Independent temperature control o Air Conditioning o NO new unit ventilators.
	Electrical: o Occupancy sensor o Duplex receptacles o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to each data and video port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* o Cabinets/closet to be lockable. o Classroom door with vision panel. o Vision glass to Library w/ metal horizontal blinds. o Cart storage.

ES 5.4 Conference/Seminar Room
Description: Conference/Seminar Room for elementary schools. Sized to accommodate 12 chairs at a conference table and 14 chairs at perimeter of room.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 8’ of marker board (total) ○ 8’ of tack board (total) ○ 6’ of base cabinets w/ counter, District material preference: Plastic Laminate	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Air conditioning ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting (if over 50 occupants)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Interactive white board ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets to be lockable. ○ Large screen television – wall mounted (coordinate with DWT consultant.) ○ Vision glass to Reading/Stack/Circulation. ○ Podium.

ES 5.5 Book Storage
Description: Book Storage for elementary schools including equipment, devices, and books.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional ○ Tall shelving (total), 84" high, 30" deep ○ Tall shelving (total), 84" high, 24" deep ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Air Conditioning
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cart storage.

ES 5.6 Teacher's Reference Library
Description: Teacher's Reference Library for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB, upon review and approval of RSMP

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 12' – 15' of base cabinets (total) ○ 12' – 15' of wall cabinets (total) ○ 8' of tack board (total) ○ 15' – 18' of bookcases (total)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Independent, packaged system ○ Air Conditioning
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ As the RCSD is focused on technology, this type of space will be phased out as technology progresses.

ES 5.7 Technology Equipment Room
Description: Technology Equipment Room for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 16’ of open metal shelving (total) 84” high, 12” deep or 24” deep (FF&E) ○ 4’ of tack board ○ 4’ of marker board	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Independent, packaged system ○ Air Conditioning
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Fire alarm devices ○ Clock ○ Clean power distribution equipment with an equipment electrical ground
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.*

ES 6.1 Serving Area
Description: Serving Area for elementary schools.

FINISHES:	
Flooring: ○ Quarry Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Food service equipment ○ Towel dispenser ○ Soap dispenser (vendor provided)	Plumbing: ○ Verify Fire Protection System requirements ○ Hand Sink ○ Floor drain(s) ○ Connections to food serve equipment
	HVAC: ○ Independent temperature control ○ Supply/return air system
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI) as required for equipment ○ Central sound system ○ Clock ○ Connections to food service equipment ○ Night light ○ Duplex receptacle at each cash register ○ Emergency Lighting ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ POS Data Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Use mold and mildew resistant grout. ○ Equipment connection requirements to be coordinated with actual connections. ○ Department of Health to approve. ○ Connections for cash register.

ES 6.2 Kitchen
Description: Kitchen for elementary schools. Minimum size 36’ x 52’.

FINISHES:	
Flooring: ○ Quarry Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Food service equipment ○ Towel dispenser ○ Soap dispenser (vendor provided)	Plumbing: ○ Plumbing and gas connections ○ 3 Basin sink ○ 2 Basin sink ○ Hand sink ○ Grease trap ○ Floor drain(s) ○ Floor sink(s) ○ Emergency gas shut-off valve ○ Verify Fire Protection System requirements ○ Hose bibb
	HVAC: ○ Independent temperature control ○ Supply/return air system ○ Kitchen canopy exhaust system ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor ○ Duplex receptacles (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Dedicated receptacles as required for equipment ○ Central sound system ○ Emergency Lighting ○ Connections to food service equipment ○ Clock ○ Night light ○ Exit light ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:

- Use mold and mildew resistant grout.
- Adjacent space allocated for walk-in cooler and freezer.
- Locate Janitor's closet w/direct access from kitchen.
- Door vision strip recommended.
- Skylights/clerestory windows recommended.

ES 6.3 Kitchen Office
Description: Kitchen Office for elementary schools.

FINISHES:	
Flooring: ○ Quarry Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of work surface with file drawers (total) ○ File cabinets (FF&E) ○ Built-in closet ○ 4’ of tack board ○ 4’ of marker board	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Dimming control ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Vision glass to Kitchen w/ metal horizontal blinds.

ES 6.4 Cook's Locker Room
Description: Cook's Lockers for elementary schools.

FINISHES:	
Flooring: ○ District Preference: Quarry Tile ○ Alternative: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove) ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Mirror (24" x 60") ○ 10- Lockers, single tier, (including 1-accessible)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Central sound system ○ Clock
Acoustics ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Movable bench at locker.

ES 6.5 Cook's Toilet Room
Description: Cook's Toilet room for elementary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryer ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Waste receptacle (built-in) ○ Hook on door ○ 18" of wall cabinet	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant grout. ○ All water closets and lavatories to be vitreous china.

ES 6.6 Kitchen Laundry
Description: Kitchen laundry equipment room for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 9’ of wall cabinets ○ 3’ of base cabinets	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system, easily accessible for cleaning, duct < 3’ long
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Dedicated connections for washer and dryer
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Washer and Dryer.

ES 6.7 Kitchen Janitor's Closet
Description: Kitchen Janitor's Closets for janitorial equipment and supplies in elementary schools. Sized to accommodate floor cleaning machine, custodial rolling cart, and occupant to use basin simultaneously.

FINISHES:	
Flooring: ○ Sealed Concrete (slope to drain)	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Mop holder ○ Metal shelves (6'-8' high) (FF&E) ○ Lockable metal cabinet (FF&E)	Plumbing: ○ Verify Fire Protection System requirements ○ Mop service basin ○ Floor drain w/ bucket strainer ○ Hose bibb
	HVAC: ○ Exhaust air system
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ 1- Duplex receptacles (GFCI) ○ Fire alarm devices
Acoustics ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Floor cleaning machine to drain directly to floor drain.

ES 7.1 Principal's Office
Description: Principal's Office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Closet (built-in)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/Return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ Duplex receptacle for security monitors ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Acoustically isolate room; walls to underside of deck/ floor above.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/ closet to be lockable. ○ Panic button. ○ Wall mounted security monitors. ○ Door vision strip.

ES 7.2 Main Office Toilet Room
Description: Toilet room for main office staff at elementary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Towel dispenser ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Hook on door ○ 18" of wall cabinets	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain
	HVAC: ○ Exhaust air system (best quality) ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets and lavatories to be vitreous china. ○ Waste receptacle (free standing) ○ "Vacant"/"Occupied" indicator on door. ○ Toilet room to be located where it is not visible from the reception/waiting or clerical office, but located in main office suite.

ES 7.3 Reception/Waiting Room
Description: Reception/Waiting room of main office suite for elementary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of tack board o Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section-maximize length of counter, District Preference for material: Solid surface	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacles o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to video port o Central sound system o Fire alarm devices o Means of egress lighting per code o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* o Panic button. o Vision glass to corridor and main entrance vestibule. o Main entrance vestibule traffic to go through Reception/Waiting Room. o Door with vision panel, continuous hinge, and lockdown hardware.

ES 7.4 Clerical Office
Description: Clerical Office of main office suite for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section-maximize length of counter, District Preference for material: Solid surface ○ 24' of work surface with file drawers (total), District Preference for material: Solid surface ○ Small safe for petty cash (built-in) ○ 3' base cabinets w/ countertop, w/ sink (in kitchenette) ○ 6' base cabinets w/ countertop (in kitchenette) ○ 9' wall cabinets (in kitchenette) ○ Towel dispenser (in kitchenette) ○ Soap dispenser (vendor provided, in kitchenette) ○ 4' of tack board (in kitchenette) ○ 20' of tack board (total, clerical) ○ Built in closet with shelves ○ Built in closet for staff outerwear ○ American flag holder	Plumbing: ○ Verify Fire Protection System requirements ○ Sink (kitchenette) HVAC: ○ Supply/return air system ○ Temperature control with reception area ○ NO new unit ventilators Electrical: ○ Dimming control ○ Duplex receptacles ○ Additional receptacles for staff to charge devices at workstations ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Emergency lighting /night light ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Kitchenette for coffee maker, water cooler, microwave and full-size refrigerator to be within main office suite (in alcove.) ○ Wall mounted security monitors.

ES 7.5 Assistant Principal's Office
Description: Assistant Principal office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Closet (built-in)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Acoustically isolate room; walls to underside of deck/ floor above.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Panic button. ○ Door vision strip.

ES 7.6 Counselor's Office
Description: Counselor's Office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Closet (built-in)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Acoustically isolate room; walls to underside of deck/ floor above.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Door vision strip.

ES 7.7 C&E Social Worker
Description: C&E Social Worker for elementary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Occupancy sensor o Duplex receptacles o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Cabinets/closet to be lockable.

ES 7.8 Conference Room
Description: Conference Room for elementary schools. Locate near main office suite. Sized to accommodate 8 chairs at a conference table.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 8' of marker board (total) ○ 8' of tack board (total) ○ 6' of base cabinets w/ counter, District material preference: Plastic Laminate	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting (if over 50 occupants)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ Large Screen Monitor

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Large screen television – wall mounted (coordinate with DWT consultant.) ○ Cabinet to be lockable. ○ Door vision strip.

ES 7.9 Workroom/Copy/Mail
Description: Workroom/Copy/Mail of main office suite for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 10' of wall cabinets (total) ○ 10' of base cabinets w/ counter, District material preference: Plastic Laminate ○ 6' of tall storage cabinets (total) ○ 10' of mail cubicles (total) ○ 10' of open base cabinets (total)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Dedicated receptacle(s) for copier(s) ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Data and Voice Drops

MISCELLANEOUS:
○ Shelving to be sized to accommodate books/notebook/binders w/o items overhanging shelf.

ES 7.10 Records Vault
Description: Records Vault room of main office suite for elementary schools. Examination materials are stored here.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4’ of open metal shelving (total), 84” high, 12” deep, 24” deep, or 30” deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements ○
	HVAC: ○ Exhaust air system
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Located where not accessible to public and under constant supervision. ○ Metal door/frame w/ minimum medium duty hardware, consisting of hinges inside the vault otf welded pin hinges, and classroom function lock set with dead locking latch bolt. ○ No windows or access panels. ○ Ductwork penetrations in walls foe ventilation must be approved by SED. ○ This room shall be constructed as a 2-hour fire rated space. This includes all openings and assemblies. ○ Floors to be poured concrete. ○ Walls to be reinforced concrete or reinforced cement block sealed to poured concrete floor and also to the structural floor or roof above.

ES 7.11 Storage Room
Description: Storage Room for main office suite for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 18' minimum of open metal shelving (total), 84" high 12" deep, 24" deep, or 30" deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ 1- duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

ES 7.12 Truancy Officer's Office
Description: Truancy Officer's office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Built-in closet	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control with reception area ○ No new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ Illumination level: See Div 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Data and Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Door vision strip.

ES 8.1 Nurse's Office
Description: Nurse's Office in clinic suite in elementary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of base cabinets w/ sink w/ counter, District material preference: Solid Surface ○ 6' of wall cabinets (total) ○ 2- 4 drawer file cabinets ○ 4' of marker board ○ 4' of tack board ○ Built-in closet ○ Medicine storage cabinet ○ 8.5" x 11" frame – evacuation map ○ 8.5 x 11" holder – emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements ○ 2 basin sink ○ Ice Machine connections
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ Refrigerator. ○ Ice machine. ○ Door vision strip.

ES 8.2 Exam Room
Description: Exam Room for clinic suite in elementary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' sink base cabinet ○ 4' of wall cabinets ○ Built-in closet ○ Cubicle curtain track ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ Waste receptacle ○ 4' of tack board ○ AED cabinet	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Receptacle for refrigerator ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets to be lockable. ○ Curtain (washable). ○ Storage area for eye/ear screen station/cart(s). ○ Emergency call notification.

ES 8.3 Toilet Room
Description: Toilet Room for clinic suite in elementary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Towel dispenser ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Waste receptacle ○ Hook on door	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ 1- duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets and lavatories to be vitreous china.

ES 8.4 Waiting Area
Description: Waiting Area for clinic suite in elementary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ N/A	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ 2- duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Vision glass to Nurse's Office.

ES 8.5 Speech and Hearing Therapy Office
Description: Speech and Hearing Therapy office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (design wall for acoustical isolation, no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of work surface with file drawers (total) ○ 4’ of marker board ○ 4’ of tack board ○ Built-in closet ○ 6’ of wall cabinets (total) ○ 8.5” x 11” frame – evacuation map ○ 8.5 x 11” holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ 4-duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets to be lockable. ○ Door with vision strip. ○ Provide door seals for acoustical isolation.

ES 8.6 Occupational/Physical Therapy Office
Description: Occupational/Physical Therapy Office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of work surface with file drawers (total) ○ 4' of marker board ○ 4' of tack board ○ Built-in closet ○ 6' of wall cabinets (total) ○ 8.5" x 11" frame – evacuation map ○ 8.5 x 11" holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ No new unit ventilators
	Electrical: ○ Dimming control ○ 4-duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data and Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets to be lockable. ○ Door with vision strip.

ES 8.7 Psychologist's Office
Description: Psychologist's Office for elementary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of work surface with file drawers (total) ○ 4' of marker board ○ 4' of tack board ○ Built-in closet ○ 6' of wall cabinets (total) ○ 8.5" x 11" frame – evacuation map ○ 8.5 x 11" holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control with reception area ○ No new unit ventilators
	Electrical: ○ Dimming control ○ 4-duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access point ○ Data & Voice Drops

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets/closet to be lockable. ○ Entrance door with vision panel.

ES 9.1 Corridors/Stairs/Elevators
Description: Building circulation support areas in elementary schools.

FINISHES:	
Corridor Flooring: ○ District Preference: Terrazzo ○ Alternative: Vinyl Composition Tile (on floor level 2+), upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
	Elevator (by elevator manufacturer): ○ Walls: High pressure laminate ○ Ceiling: Suspended (diffused light) ○ Flooring: TBD, consult RCSD Facilities Design Group
Stair Flooring: ○ Sealed Concrete	Stair Treads: ○ Precast Terrazzo w/ embedded nosing ○ Sealed Concrete w/ embedded nosing or precast, upon approval of RCSD Facilities Design Group
Vestibule Entrance Flooring: ○ Walk-off mats – recessed (w/ floor drain)	Walls: ○ Painted CMU
Base: ○ District Preference: Terrazzo ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group	Interior Ramps: ○ District Preference: Terrazzo ○ Alternative: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Corridor lockers (recessed) ○ Semi-recessed fire extinguisher cabinets ○ AED cabinets ○ Handrails/guards	Plumbing: ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level (in corridor alcoves) ○ Floor drain at water coolers ○ Floor drain at walk-off mats ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control ○ NO new unit ventilators
	Electrical: ○ Automatic switching system ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacles adjacent to each video port ○ Central sound system ○ Fire alarm devices ○ Means of egress lighting per code ○ Clock ○ Emergency lighting

Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- All Corridors shall be as follows: Without lockers -8'-0" minimum clear. Lockers on one side - 10'-0" minimum clear from face of wall to face of locker Lockers on both sides – 12'-0" minimum clear from face of locker to face of locker.
- Display cases.
- Doors to classroom/ student spaces/ offices to have vision strips.

ES 9.2 Public/Student Multiple User Toilet Rooms
Description: Public and student toilet facilities in elementary schools.

FINISHES:	
Flooring: o Tile (sloped to drain)	Ceiling: o 2x2 Acoustical Ceiling Tile (cleanable) o Aluminum Grid
Base: o Ceramic tile (sanitary cove)	Walls: o Tile (full-height) on CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Hand dryers o Soap dispenser (vendor provided) o Tilt mirror (18" x 36") with shelf o Mirrors (18" x 36") with shelves o Toilet tissue holders o Grab bars (18", 36" and 42") o Toilet partitions, phenolic, ceiling and floor mounted, full hinge, 30 degree open when unoccupied o Urinal screens, phenolic (males only) o Sanitary product dispenser (females only) o Sanitary product receptacles (females only) o Hooks on all toilet partition doors o Waste receptacle o Baby changer (Public toilet rooms)	Plumbing: o Wall-mounted water closets o Wall-mounted urinals (males only) o Wall-mounted lavatories o Wall hydrants w/ locking cover o Verify Fire Protection System requirements o Floor drain(s)
	HVAC: o Exhaust air system o Supplemental heat as required
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o 1- Duplex receptacle (GFCI) o Central sound system o Fire alarm devices o Emergency Lighting o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* o Provide minimum of one Accessible toilet stall. o Provide one Ambulatory stall for every 5 water closets exceeding 5 water closets. o All water closets, lavatories, and urinals to be vitreous china. o Separate different gender toilet room entrances by distance. o Frosted windows (if applicable). o Use mold and mildew resistant grout.

ES 9.3 Teaching/ Staff Toilet Rooms
Description: Single user toilet facilities for school staff in elementary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Ceramic tile (sanitary cove)	Walls: ○ Tile (full-height) on CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryer ○ Soap dispenser (vendor provided) ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Sanitary product dispenser ○ Sanitary product receptacle ○ Hook on interior of door ○ Waste receptacle	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ 1- Duplex receptacle (GFCI) ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Frosted windows (if applicable). ○ Use mold and mildew resistant grout. ○ Water closet and lavatory to be vitreous china.

ES 9.4 Custodial Office
Description: Custodial office in elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4’ of marker board ○ 4’ of tack board ○ 6’ of wall cabinets (total) ○ 3’ of base cabinets (total) ○ 3’ of sink base cabinet (total) ○ Built-in closet ○ Lockers ○ Shelving	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacles adjacent to data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Vision glass into office from corridor. ○ View of loading dock from office. ○ Locate Fire Alarm Control Panel in office upon review and approval of SED.

ES 9.5 Janitor's Closet
Description: Closets for janitorial equipment and supplies in elementary schools. Sized to accommodate floor cleaning machine, custodial rolling cart, and occupant to use basin simultaneously.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Mop holder ○ Metal shelves (6'-8' high) (FF&E) ○ Lockable metal cabinet (FF&E)	Plumbing: ○ Verify Fire Protection System requirements ○ Mop service basin ○ Floor drain w/ bucket strainer ○ Hose bibb
	HVAC: ○ Exhaust air system
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ 1- Duplex receptacles (GFCI) ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Floor cleaning machine to drain directly to floor drain.

ES 9.6 Laundry
Description: General laundry equipment room for elementary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of wall cabinets (total) above washer/dryer ○ 3’ base cabinet	Plumbing: ○ Verify Fire Protection System requirements ○ Utility sink ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system, easily accessible for cleaning, duct < 3’ long
	Electrical: ○ Single level switching ○ Duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Dedicated connections for washer and dryer
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Washer and Dryer. ○ Locate near Custodial Office.

ES 9.7 Building Storage
Description: Building storage in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD' of open metal shelving (total) ○ 84" high, 12" deep, 24" deep or 30" deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Hazardous and flammable materials to be stored according to SED and applicable codes.

ES 9.8 Building Receiving
Description: Building receiving area in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Loading dock leveler and dock bumpers or Dock lift ○ Caged area	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hot & Cold hose bib w/ freezeproof sillcock (at loading dock exterior)
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Full height covered dock. ○ Overhead doors. ○ Double doors.

ES 9.9 Trash Room
Description: Building receiving area in elementary schools. Large enough to roll trash carts into space.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ N/A	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hot & Code hose bib w/ freezeproof sillcock (at loading dock exterior)
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

ES 9.10 Dispersed Storage Room
Description: Building dispersed storage rooms in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 10’ – 16’ of open metal shelving (total), 84” high, 12” deep, 24” deep, or 30” deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hot & Cold hose bib w/ freezeproof sillcock (at loading dock exterior)
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Double door with keyed removable mullion. ○ Total storage goal is 10% of total building area.

ES 9.11 Workshop
Description: Custodial workshop in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resistant Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 16’ - 24’ of open metal shelving (FF&E) 84” high, 12” deep, 24” deep or 30” deep ○ 4 – 6 lockers (full height) ○ Mop holder	Plumbing: ○ Verify Fire Protection System requirements ○ Floor service sink ○ Floor drain
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Exhaust system
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ 4- Duplex receptacles (minimum) ○ Electrical receptacles for custodial equipment ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

ES 9.12 Technology Closets
Description: Closet for technology equipment in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resistant Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Data racks bolted to floor	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Exhaust system ○ Air conditioning
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ 4- Duplex receptacles (minimum) ○ Central sound system ○ Fire alarm devices ○ Clock ○ Clean power circuits
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Refer to DWT System requirements for facility for both quantity and distribution.

MISCELLANEOUS:
○ Door louver. ○ All cables to be labeled and tie wrapped.

ES 9.13 Electrical Substation Room
Description: Room for electrical substation equipment in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TDB by Design Professional	Plumbing: ○ TDB by Design Professional
	HVAC: ○ TDB by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Maintenance receptacles (emergency power) ○ Fire alarm devices ○ Sound system
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ See SED and code requirements for room rating, door hardware, safety signs, and minimum height. ○ Door(s) not keyed on the building master system. ○ Equipment pads.

ES 9.14 Electrical Closets
Description: Closets for electrical equipment in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TDB by Design Professional	Plumbing: ○ TDB by Design Professional
	HVAC: ○ TDB by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Maintenance receptacles (emergency power) ○ Fire alarm devices ○ Sound system
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Door(s) not keyed on the building master system. ○ Backer boards for panels. ○ All panel labels to be typed.

ES 9.15 Electrical Generator Room
Description: Room for electrical generator equipment in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Fire alarm devices ○ Maintenance receptacles (emergency)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○

MISCELLANEOUS:
○ Equipment pads. ○ Fresh air intake.

ES 9.16 Mechanical Equipment Spaces
Description: Room for mechanical equipment in elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete ○ Water proof membrane on floors above other building spaces for rooms with pumps, boilers and units with heating and cooling coils	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional ○ Hose bibb
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Maintenance receptacles ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Concrete pads for equipment.

ES 9.17 Outdoor Equipment Storage
Description: Outdoor maintenance equipment storage areas within school building for elementary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ N/A	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb w/ freeze cocks
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Double exterior door with removable mullion.

ES 9.18 Security/Main Entrance Vestibule
Description: Security/Main entrance vestibule for building in elementary schools. Door to exterior, main corridor, and Main Office Suite's Reception/Waiting room. User forced to enter through Main Office Suite during specific times of the day.

FINISHES:	
Vestibule Entrance Flooring: ○ Walk-off mats – recessed (w/ floor drain) ○ Terrazzo perimeter (if applicable)	Ceiling: ○ Painted GWB
Base: ○ Resilient Wall Base (if applicable) ○ Terrazzo Base (if applicable)	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Storefront systems with security glass film	Plumbing: ○ Floor drain at walk-off mats ○ Verify Fire Protection System requirements
	HVAC: ○ TBD by Design Professional
	Electrical: ○ TBD by Design Professional ○ LED lighting ○ Illumination level: See Div. 26V ○ Means of egress lighting per code ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Security intercom/ camera. ○ Storefront door to have continuous hinges, and panic hardware. ○ Provide canopy from bus loop to Main Entrance Vestibule (if possible.)

ES 10.1 Outdoor Play Areas

Description: Outdoor play areas at elementary schools.

MATERIALS:

- Play equipment (including ADA accessible equipment, ramps to equipment)
- Fencing
- Fall protection tiles
- Site paving (asphalt, concrete, pavers)
- Storage (for playground/ sports equipment)
- Shade trees
- Plantings

FEATURES:

- Fenced play areas for Pre-Kindergarten age children located just outside the Pre-K room
- Separate Kindergarten play area (if possible) located just outside the K room; min 5,000 sf
- All-weather surface play area
- Minimum of one age-appropriate play structure for 5 to 12 year olds
- All-weather surface and play equipment combined to accommodate half of the school capacity
- All-weather surface play area to include game lines and equipment for activities such as kick-ball, soccer (minimum 360' x 250'), track, half-court basketball, wall-ball, four-square, hopscotch, tetherball, and classroom line-up markings
- Stainless-steel slides (not facing sun)
- Fast-growing shade trees on perimeter of playground area (all levels)
- Locate structured play areas near grade level areas, with consideration to noise
- Easily accessible from indoor PE teaching area
- Do NOT cross streets, roadways, or driveways to access playgrounds/fields
- Locate near parking area
- Provide handicapped accessible equipment and play areas
- Barrier-free accessible route from school to outdoor play area
- Multipurpose grass turfed field(s) (195 feet wide and 360 feet long)
- Softball field with radius 180-200 feet, benches, backstop, and spectator stands (RSMP to approve)
- Soccer field (RSMP to approve)
- Asphalt pad with adjustable height Basketball hoops (45 feet wide and 30 feet long) (RSMP to approve)
- Confirm with RCSD Facilities Design Group if playing fields are available for community use and if so design access, security, and accessories accordingly

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*

ES 10.2 Outdoor Courtyards
Description: Outdoor courtyard areas at elementary schools for student instruction and/or leisure activities.

FINISHES:	
"Flooring": ○ Pavers (stone, brick, decorative, concrete) ○ Concrete (porous and non-porous) ○ Asphalt (porous and non-porous) ○ Grass ○ Mulch ○ Gravel ○ Planting Beds ○ Catch Basin ○ Storm Drainage Piping	"Ceiling": ○ Shading Device District Preference: Tree canopies ○ Shading Device Alternatives: Canvas, wood trellises, pergolas, arbors, metal canopies, roof overhangs, tensile fabric, upon review and approval of RSMP
	Walls: ○ Brick ○ Concrete

FEATURES:	**SYSTEMS:**
○ Provide handicapped accessible equipment and play areas ○ Barrier-free accessible route from school to outdoor play area ○ Provide additional view opportunities from classrooms ○ Provide additional daylighting opportunities ○ Preference for natural deciduous shade trees ○ Stormwater collection system shall be provided to prevent ponding or standing water to accumulate within the courtyard in accordance with the NYS Stormwater Management Design Manual.	Plumbing: ○ Cold hose bib w/ freezeproof sillcock ○ Drains
	HVAC: ○ NO exhaust into courtyard below 8'
	Electrical: ○ Illumination level: See Technical Standards Table, See Div 26 ○ Provide GFCI exterior outlets ○ Central sound system ○ Life safety devices per IBC ○ Clock (exterior) ○ Means of egress lighting per code
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Consideration to noise and adjacency to building windows	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Materials and equipment suppliers must be listed on the current version of the NYSDOT Approved Materials and Equipment List (where applicable).

ES 10.3 Site Furnishings

Description: Site furnishings (benches, picnic tables, bicycle racks, trash receptacles, and bollards) at elementary schools.

MATERIALS:

- Metal benches
- Metal picnic tables
- Metal bicycle racks, min. 2-inch Sch. 40, ASTM A500 steel pipe, galvanized finish on all components
- Metal trash/recycling receptacles
- Metal and concrete bollards

FEATURES:

- Metal benches with backs and no arms
- Metal picnic tables with integral benches
- Bicycle racks designed to lock wheel only
- Bicycle racks that are bolted to ground surface
- Bicycle racks to accommodate 5% of the children enrolled
- Metal trash/recycling receptacles with secured lids or tops
- Metal or concrete bollards; lit or non-lit

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*

ES 10.4 Parent Drop-Off/ Pick-Up Drive

Description: Parent Drop-Off and Pick-Up Drives at elementary schools.

MATERIALS:

- Asphalt
- Concrete
- Granite curbs
- Pavement Marking Material
- Subgrade Materials
- Steel Reinforcement
- Catch Basin
- Storm Drainage Piping

FEATURES:

- Separate from bus circulation
- One-way traffic
- Driveway to be a minimum of 24 feet wide
- Locate near main building entrance, close to administration office
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual.

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Materials and equipment must be listed on the current version of the NYSDOT Approved Materials and Equipment List.

ES 10.5 Bus Loop

Description: Bus loop/bus drop-off and pick-up areas at elementary schools.

MATERIALS:

- Asphalt
- Concrete
- Heavy duty concrete pavement
- Pavement Marking Material
- Subgrade Materials
- Detectable Warning Material
- Catch Basin
- Storm Drainage Piping
- Granite curbs

FEATURES:

- Separate car and bus circulation
- Diagonal bus parking spaces 13 feet in width by length of bus; either at 45 or 60-degree angle to curb
- Locate bus parking close to main school entrance
- Buses should not have to back up
- Provide paved barrier-free accessible walkways connecting all school activity areas
- Designed pavement and subsurface for required structural loads
- Heavy duty concrete (at least one bus length) at end of loop and heavy duty concrete apron to street.
- Bus parking area with over-stripping for after-school, special event parking (Car stripping 4-inch wide white lines; bus stripping 4-inch-wide yellow lines)
- All school bus drives should have a minimum 40-foot radius turn on the inner edge of pavement with at least a 100-foot tangent section provided between reverse curves
- Mountable curbing, with suitable drainage, should be constructed on all roads utilized by school buses within the school site
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual.
- LED lighting at loop

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Attention should be given in planning school bus parking, loading, and unloading areas to assure that backing a school bus will never occur and students are never permitted to walk between or behind school buses during loading or unloading, and while they are parked.
- Materials and equipment suppliers must be listed on the current version of the NYSDOT Approved Materials and Equipment Suppliers List.

ES 10.6 Parking Lots

Description: Parking Lots at elementary schools.

MATERIALS:

- Asphalt
- Concrete
- Pavement Marking Paint
- Subgrade Materials
- Catch Basin
- Storm Drainage Piping
- Granite Curbs

FEATURES:

- Accessible Parking Spaces complying with ANSI 117
- Address code requirements for ADA parking, such as quantity, location, and special spacing of ADA parking spaces
- Concrete curb ramps complying with ANSI 117
- Provide paved barrier-free accessible walkways connecting all school activity areas
- Yellow identification striping on asphalt paving in parking lots
- 4” wide blue pavement markings for accessible parking space(s)
- Blue ADA symbol at accessible parking space(s)
- Conventional curbs without integral gutters
- Planting areas as paving cut-outs with granite edging
- Wheel stops only at locations where necessary to protect planting, buildings, or walkways without curbs
- Bollard barriers to prevent vehicular traffic from entering upon non-vehicular pavement areas (optional)
- Staff parking space for each employees of school, including full-time staff, part-time staff, and student teachers, with signage designating them as such
- Minimum of 8 parking spaces near building receiving area for Food Service and Custodial Staff
- Visitor parking space for 5% - 7% of the student population, with signage designating them as such
- And 3 parent parking spaces, with signage designating them as such
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual.
-

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.*
- Materials and equipment suppliers must be on the NYSDOT Approved Materials and Equipment Suppliers List.

ES 10.7 Site Paving

Description: Site paving (including driveways, roadways, parking lots, walkways, ramps, and curbs) at elementary schools.

MATERIALS:

- Asphalt
- Concrete
- Paint
- Pavement Marking Material
- Subgrade Materials
- Steel Reinforcement
- Detectable Warning Material
- Metal Handrails
- Catch Basin
- Storm Drainage Piping

FEATURES:

- Provide paved barrier-free accessible walkways connecting all school activity areas
- Walks to be reinforced concrete, minimum 4 inches thick, with light broom finish perpendicular to the slope
- Ramps to be broom finish perpendicular to the slope
- Sanitary drain at all dumpster pads
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Materials and equipment suppliers must be on the NYSDOT Approved Materials and Equipment Suppliers List.

ES 10.8 Site Lighting

Description: Site lighting at elementary schools.

MATERIALS:

- LED fixtures
- Light poles

FEATURES:

- Provide exterior LED lighting to enhance site security, including area lighting, walkway lights, and building perimeter illumination
- Parking lots to have minimum illumination level of 1-foot candle
- Walkways and general exterior areas to have illumination level of 2-foot candles
- Parking lot lighting poles to have a maximum height of 20'
- Lighting poles to be designed by a professional engineer
- All exterior lighting fixture assemblies including luminaire, pole, and base to be constructed to withstand 100 mph wind force
- All fixtures to be UL listed, minimum 22-gauge metal with a factory-applied corrosion resistant finish
- Eliminate direct-beam projection off-site or glare off buildings into adjoining occupancies
- All exterior fixtures to be night-sky compliant and vandal-resistant
- All underground power wiring to be in conduit
- Raceways on the building exterior are not acceptable
- Main building signage MUST be approved by RCSD Facilities Design Group. Signage should reflect neighborhood conditions (no electronic message board signs in residential areas.) Appropriate signage may be externally illuminated monument/ground sign (w/ substantial base made of masonry materials reflective of the school building), externally illuminated dimensional letter wall signage, or electronic message board signs (w/ substantial base made of masonry materials reflective of the school building). All signs to be orientated to be readable by vehicular traffic.

MISCELLANEOUS:

- N/A

ES 10.9 Landscaping

Description: Landscaping at elementary schools.

MATERIALS:

- Trees
- Shrubs
- Grass
- Mulch

FEATURES:

- Seasonal shade tree at perimeter of fields and courts where there is no visual obstruction for spectators
- Tall deciduous trees to shade school building on southern exposures
- Wind break trees on western exposures
- Preserve existing trees and shrubs (if possible)
- Provide trees to shade parking and other large paved areas to reduce heat-island effect
- Keep trees out of drainage flow lines
- Avoid trees that drop fruit, excessive leaves or pods
- Space trees to have a maximum of 5' overlap at full canopy size
- Locate trees to avoid providing access to upper floors, roof and impacting building foundation and walkways
- No trees with a caliper less than 3"
- Provide 12" wide, 6" deep with 2 number 3 bars spaced at 10-foot lengths concrete mow strips at grass when adjacent to fences, raised planters, buildings, walls, and curbs
- Use native plant materials that do not need irrigation after established
- Use native plant materials that is low maintenance and does not need trimming
- Use perennial plants rather than annual plants

MISCELLANEOUS:

- N/A

ES 10.10 Flagpole

Description: Flagpole at main entrance to elementary schools.

MATERIALS:

- One anodized aluminum pole for an American flag

FEATURES:

- Commercial grade
- Minimum 20’ height
- One piece construction
- Tapered straight pole
- Internal halyard (vandal resistant)
- Ball finial
- Coordinate structural design and wind speed rating with professional engineer; minimum 90 mph
- Satin finish
- In ground set style
- Flag

ELECTRICAL:

- LED light(s) to illuminate flag during the hours of darkness (1- pole mounted downlight or 2-vandal resistant ground lights)

ES 10.11 Fences

Description: Fencing at elementary schools.

MATERIALS:

- Aluminum or steel decorative fencing and gates
- Metal chain-link fencing and gates, vinyl coated, heavy duty 9-gauge fabric, 2" galvanized posts and frames with color coating
- Wood/composite wood fencing (screening)
- CMU fencing
- NO barbed wire or razor ribbon at top of fence, unless directed by RCSD Facilities Design Group

FEATURES:

- At adjacent residential areas, provide metal chain-link fencing
- Enclose the Trash Yard with solid walls or fencing and gates. Locate for easy access and trash pick-up, away from student areas, and out of direct view of neighboring property owners.
- Enclose Pre-Kindergarten outdoor play areas
- Enclose Kindergarten playground (if separate)
- Separate playground areas from parking areas by fencing (if applicable)
- Fence height to discourage hurdling
- Paving strip below fences to facilitate mowing and cleaning (optional)
- Heavy duty hinges and hasps for padlocks at all gates
- Welded ties for fabric on fences attached to poles and rails

MISCELLANEOUS:

- Allowable fence heights are location specific depending on adjacent property use
- RCSD Facilities Design Group to approve fence height(s) and materials

ES 10.12 Building Security (exterior)

Description: Building Security at elementary schools.

MATERIALS:

- Refer to Chapter 28 – Electronic Safety and Security

FEATURES:

Electrical:

- Access control system
- Video surveillance system
- Intrusion detection system

MISCELLANEOUS:

- N/A

ES 10.13 Site Utilities/Hot Box/Regulators/Etc.

Description: Site Utilities at elementary schools.

MATERIALS:

- Refer to Chapter 21 – Fire Protection
- Refer to Chapter 22 – Plumbing
- Refer to Chapter 26 – Electrical

FEATURES:

Electrical:

- Dedicated 20A, 120V circuit from standby power
- GFI maintenance receptacle

MISCELLANEOUS:

- N/A

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SS 1.1 General Classroom
Description: General classroom spaces in secondary schools. Minimum of 770 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 16’ of marker board ○ 16’ of tack board ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad electrical outlet at teacher station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Means of egress lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Operable room divider partition upon approval of RCSD Facilities Design Group. ○ Classroom door with vision panel, continuous hinge, lockdown hardware.

SS 1.2 Science Classroom/Laboratory
Description: Science instruction classrooms/labs in secondary schools. General Science & Earth Science rooms – minimum 1,000 sf. Biology, Chemistry, and Physics rooms – minimum 1,200 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 6’ of tall storage cabinet ○ Demonstration table w/ chemical resistant top, quad receptacle (H.C. accessible) ○ 16’ of marker board (total) ○ 20’ of tack board (total) ○ 14 perimeter work stations with - 3’ sink base cabinets w/ 12” drawer base cabinet ○ 1 accessible work station – 3’ sink base cabinets w/ 12” drawer base cabinet ○ 30’ of wall cabinets ○ 12’ of wall shelving (total) ○ Soap dispenser @ each sink (vendor provided) ○ Towel dispenser @ each sink ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder ○ Flammable blanket cabinet (with blanket) ○ Chemical storage cabinets	Plumbing: ○ Verify Fire Protection System requirements ○ Emergency shower/eyewash ○ Floor drain @ emergency shower/eyewash ○ Master shut-off for gas & compressed air @ teacher station / exit door ○ Fixed gas and compressed air connections @ student work stations ○ Chemical resistant waste and vent system (as required by instructional program) ○ Chemical neutralization basin (as required by instructional program) ○ 14- lab sinks & 1 accessible lab sink ○ Fire extinguisher
	HVAC: ○ Independent temperature control ○ Separate ventilation system ○ Fume hood and connections ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Quad receptacle (GFCI) @ student work stations ○ Quad recessed floor receptacles (GFCI) w/ metal covers (@ table locations) ○ Duplex receptacle adjacent to each data and video port ○ Quad receptacle (GFCI) @ demo/ teacher station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting

Acoustics ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:

- Cabinets to be lockable.
- Portable fire extinguisher with minimum rating of 2A, 20BC where chemicals are to be stored.
- Solid hardwood casework/demo table w/ epoxy resin tops/sinks
- Classroom door with vision panel, continuous hinge, panic hardware.

SS 1.3 Science Teacher's Prep/Storage
Description: Science prep/storage room in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of tack board ○ 4' of marker board ○ 15' of lab station with sink base (total) w/ epoxy resin counter ○ 10' of wall cabinets (total) ○ Drying racks with pegs ○ Towel dispenser ○ Soap dispenser ○ 2- 3' acid storage cabinets (ventilated) ○ 3' of tall storage cabinets for flammables ○ 12' of tall storage cabinets (total) ○ 4' of tall storage cabinet with pull out tote trays below shelving (total)	Plumbing: ○ Verify Fire Protection System requirements ○ Chemical resistant waste and vent system (as required by instructional program) ○ Chemical neutralization basin (as required by instructional program) ○ Gas and compressed air connections ○ 1 Lab sink ○ Emergency shower/eyewash ○ Floor drain at emergency shower/eyewash
	HVAC: ○ Independent temperature control ○ Separate ventilation system ○ 24-hr exhaust for acid storage cabinets ○ Fume hood and connections
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI) @ lab station ○ Duplex receptacles (GFCI), at perimeter ○ Duplex receptacle at each data and video Central sound system ○ Fire alarm devices ○ Clock ○ Receptacle for refrigerator/freezer
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Portable fire extinguisher with minimum rating of 2A, 20BC where chemicals are to be stored. ○ Solid hardwood casework/demo table w/ epoxy resin countertops/sinks ○ Classroom door with vision panel, continuous hinge, lockdown hardware. ○ Refrigerator.

SS 1.4 Special Education Classroom
Description: Special Education Classrooms for secondary schools. Minimum of 770 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Open casework – coat hooks, shelf, w/o doors with wall cabinets above ○ 12'-24' of storage unit with plastic bins on shelves (depending on how many occupants) ○ 12'-24' of adjustable storage shelving (depending on how many occupants) ○ Built-in closet ○ 2- 4 drawer file cabinets (FF&E) ○ 9' of wall and base cabinets ○ 3' of base cabinet with sink ○ 16' of marker board (total) ○ 20' of tack board (total) ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans ○ American flag/holder	Plumbing: ○ Accessible sink with bubbler ○ Verify Fire Protection System requirements HVAC: ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1-Quad electrical outlet @ Teacher's Station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets to be lockable. ○ Classroom door with vision panel, continuous hinge, lockdown hardware. ○ Easily convertible to General Classroom space.

SS 1.5 Special Education Life Skills Room
Description: Special Education life skills room for secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 12’ of base cabinets, w/ counter, District preference: Plastic Laminate ○ 15’-18’ of wall cabinets ○ 3’ sink base cabinet, w/ counter, District preference: Plastic Laminate ○ 16’ of marker board (total) ○ 16’ of tack board (total) ○ 12’ computer work surface w/ counter, District material preference: Plastic Laminate ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ Full length mirror ○ American flag/holder	Plumbing: ○ Accessible sink w/ bubbler ○ Verify Fire Protection System requirements HVAC: ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad electrical outlet @ teacher station ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children’s Use – 1998.* ○ Cabinets to be lockable. ○ Corridor door with vision panel, continuous hinge, lockdown hardware. ○ Operable room divider partition upon approval of RCSD Facilities Design Group. ○ Electric stove. ○ Refrigerator. ○ Washer and electric dryer. ○ Adjacent to Special Education Toilet Room. ○ Space allocated for a twin bed.

SS 1.6 Special Education Toilet/Shower Room
Description: Special Education restroom with shower in secondary schools. Space to allow for generous maneuverability of multiple occupants.

FINISHES:	
Flooring: ○ Restroom: Tile (sloped to drain) ○ Shower: Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Shower: GWB
Base: ○ Tile (sanitary cove)	Walls: ○ Restroom: Tile (full height) ○ Shower: Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of storage unit with plastic bins on shelves ○ 3' of adjustable storage shelving ○ Mirrors (18" x 36") ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ ADA shower accessories ○ Waste respectable (built-in) ○ Hook on door ○ Cubicle curtain track	Plumbing: ○ Verify Fire Protection System requirements ○ ADA shower controls and head ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Shower fixtures/seat ○ Floor drain ○ Hose bibb
	HVAC: ○ Supplemental heat as required ○ Exhaust heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ 1- Duplex receptacles (GFCI) ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets to be lockable. ○ Use mold and mildew resistant grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Cubicle curtain (washable). ○ Heavy duty shower curtain and rod. ○ Lift system (if required). ○ Room to be larger than typical accessible toilet/shower room. ○ Room to be adjacent to Special Education Laundry Room and Life Skills Rooms

SS 1.7 Special Education Laundry
Description: Special Education Laundry equipment room for secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 9’ of wall cabinets ○ 3’ of base cabinets	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Utility sink
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system (easily accessible)
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Connections for washer and dryer
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Washer and electric dryer.

SS 1.8 Multipurpose Classrooms
Description: Multipurpose Classrooms in secondary schools. Small group instruction rooms – minimum 500 sf. Large group instruction rooms – minimum 1,200 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	
Fixed Equipment: ○ Built-in closet ○ 16’ of marker board ○ 16’ of tack board ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder ○ Tiered seating (optional), upon approval of RCSD Facilities Design Group	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Independent temperature control ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 1- Quad electrical outlet @ teacher station ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ Central sound system ○ Life safety devices per IBC ○ Clock ○ Emergency lighting ○ Means of egress lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Operable room divider partition upon approval of RCSD Facilities Design Group. ○ Classroom door with vision panel, continuous hinge, small group - lockdown hardware, large group – panic hardware, 2 exits.

SS 1.9 Computer/Flex Lab
Description: Instructional Spaces – Computer/Flex Lab in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile ○ Carpet, upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 16’ of marker board ○ 16’ of tack board ○ TBD length computer work surface, District material preference: Plastic Laminate ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Independent temperature control ○ Air Conditioning ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ 1- Quad receptacle @ teaching wall ○ 3- Quad receptacles @ opposite wall ○ 1- Quad electrical outlet @ teacher station ○ 15- Quad recessed floor receptacles w/ metal covers (@ table locations) ○ Emergency lighting ○ Fire alarm devices ○ Raceway power under counters (coordinate with support brackets) ○ NO receptacles in floor ○ NO power poles
Acoustics ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Classroom door with vision panel.

SS 1.10 Book Room
Description: Book storage room in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Minimum of 24' of open metal shelving (total), 84" high, 12" deep, 24" deep, or 30" deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ Exhaust air system ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex Receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

SS 1.11 Home & Career Skills Classroom
Description: Home & Careers classrooms in secondary schools. Minimum of 1,200 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ Student Kitchens – minimally consisting of: 12' of wall cabinets, 14' of base cabinets, 3' sink base cabinet, countertop material preference: solid surface with integral backsplash, cabinetry material preference: Solid Phenolic, verify number of kitchens per room Building Advisory Committee ○ Teaching Station - countertop material preference: solid surface, cabinetry material preference: Solid Phenolic ○ 12' of marker board (total) ○ 12' of tack board (total) ○ Towel dispenser @ ea. sink ○ Soap dispenser @ ea. sink (vendor provided) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements ○ Sinks, verify number of kitchens w/ Building Advisory Committee ○ Floor drain(s) HVAC: ○ Independent temperature control ○ Separate ventilation system ○ Supply/return air system ○ Range hoods and connections ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ 2- Duplex receptacles (GFCI) per sink ○ Quad receptacles @ teaching wall ○ 3-quad receptacles @ opposite wall ○ 1-Quad electrical outlet @ teacher station ○ Receptacles for appliances ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Student Kitchens and Teaching Station to be solid hardwood casework. ○ Electric ranges. ○ Refrigerators. ○ Corridor door with vision panel, continuous hinge, lockdown hardware. ○ Fire extinguisher.

SS 2.1 Art Classroom
Description: Art instruction classrooms in secondary schools. Minimum of 770 sf.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Alternative: Tile backsplash at sink locations if GWB approved

FEATURES:	
Fixed Equipment: ○ Built-in closet ○ 24' of 30" deep base cabinets w/ stainless steel countertop ○ 2- 6' of 30" deep sink base cabinets w/ stainless steel countertop ○ 24' of wall cabinets ○ Additional base cabinets under windows on exterior wall when no HVAC equipment ○ 8' of tall storage cabinet with pull out tote trays below shelving (total) ○ 8' of Art storage cabinet with horizontal drying shelves on bottom half ○ 16' of tack board (total) ○ 16' of marker board (total) ○ 2- Towel dispenser ○ 2- Soap dispenser (vendor provided ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11" holder – emergency response plans ○ American flag/holder	Plumbing: ○ 2- Double sinks (deep) ○ 1- Clay trap (Solids Interceptor) ○ 1- Grease trap ○ Verify Fire Protection System requirements HVAC: ○ Supply/return air system ○ Independent temperature control ○ Manually controlled general exhaust ○ NO unit ventilators Electrical: ○ Multilevel dimming/occupancy sensor ○ LED Lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI @ sinks) ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ 1- Quad receptacle at teaching wall ○ 3 -Quad receptacles at opposite wall ○ 1- Quad receptacle at teacher station ○ Receptacle(s) (GFCI) @ pottery wheel(s) ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Presentation Monitor ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Solid hardwood casework.
- Cabinets to be lockable.
- Classroom door with vision panel, continuous hinge, lockdown hardware.
- Display case for 2-D and 3-D art in corridor adjacent to Art Classroom.

SS 2.2 Art Storage
Description: Art room storage in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 18’ – 30’ of open metal shelving (total) 84” high 12” deep, 24” deep, or 30” deep (FF&E) ○ 16’ – 26’ of tall storage cabinets (FF&E) ○ 6’- Art storage cabinet with horizontal drying shelves on bottom half	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system
	Electrical: ○ Occupancy sensor ○ LED Lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Door vision panel required.

SS 2.3 Kiln Room
Description: Art Kiln Room in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of base cabinets (total) ○ 6' of wall cabinets (total) ○ 20' of tall shelving - drying (total) ○ 3' of tall shelving - clay storage (total) ○ 6' of vertical rack storage for kiln shelves (36" deep) ○ 6' of open shelving for kiln accessories (12" deep)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Temperature controlled exhaust ○ Kiln hood(s) & connections
	Electrical: ○ Occupancy sensor ○ LED Lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle ○ Electrical connection for kiln(s) ○ Fire alarm devices ○ Central sound system ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Solid hardwood casework. ○ Kiln(s). ○ Door vision strip required.

SS 3.1 Instrumental Music Room
Description: Instrumental music rooms in secondary schools. Minimum of 1,400 sf.

FINISHES:	
Flooring: ○ Carpet ○ Optional: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group if meets acoustical requirements	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Acoustical Wall Panels

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ Base cabinets under windows on exterior wall when no HVAC equipment, minimum 16' when not located at windows ○ 16' of marker board w/ staff lines ○ 4' of marker board ○ 16' of tack board (total) ○ 3' base cabinets w/ countertop, w/ sink ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans ○ American flag/holder	Plumbing: ○ Sink, 10" deep ○ Drinking Fountain/Bottle Filler with lead filters ○ Verify Fire Protection System requirements
	HVAC: ○ Independent temperature control ○ Supply/return air system ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ 4- Duplex receptacles ○ 1- Quad receptacle @ ea. data/video port ○ Emergency lighting ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:

- Cabinets to be lockable.
- Soundproof door to room.
- Doors to room to have 48-inch wide door leaf or double door w/o center mullion.
- Doors to room to have acoustical trim accessories.
- Classroom door with vision panel, continuous hinge.
- Raised step flooring (District Preference) or Portable Risers with fall guard (Alternative upon approval of RCSD Facilities Design Group.) Verify not in FF&E contract.
- Adjacent to the Auditorium.
- Coordinate furniture with Consultant.

SS 3.2 Instrumental Music Storage Room
Description: Instrumental music storage in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Miscellaneous instrument storage cabinets, solid hardwood (FF&E) ○ 10'-21' of base cabinets (total) ○ 10'-21' of wall cabinets (total)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Doors to room shall have 48-inch wide door leaf or double door w/o center mullion. ○ Door vision strip required.

SS 3.3 Vocal Music Classroom
Description: Vocal music classrooms in secondary schools. Minimum of 1,200 sf.

FINISHES:	
Flooring: ○ Carpet ○ Optional: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group if meets acoustical requirements	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Acoustical Wall Panels

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 30' x 5' mirror mounted 12" above floor, at teaching wall ○ 16' of marker board with staff lines ○ 4' of marker board ○ 16' of tack board (total) ○ 6' of base cabinets (total) ○ 6' of wall cabinets (total) ○ 6' of tall storage cabinet ○ 12' bookcases (FF&E) ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11" holder – emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements ○ Drinking Fountain/Bottle Filler with lead filters
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Emergency lighting ○ Means of egress lighting by code ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustic:s ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:

- Cabinets to be lockable.
- Solid hardwood bookcases.
- Soundproof door to room.
- Doors to room to have acoustical trim accessories.
- Classroom door with vision panel, continuous hinge.
- Raised step flooring (District Preference) or Portable Risers with fall guard (Alternative upon approval of RCSD Facilities Design Group.)

SS 3.4 Music Tech Lab
Description: Music Tech Labs in secondary schools.

FINISHES:	
Flooring: ○ Carpet ○ Optional: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group if meets acoustical requirements	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Acoustical wall treatment

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 10’ of work surface with file drawers ○ 4’ tall storage cabinet (FF&E) ○ 8.5” x 11” frame – evacuation map ○ 8.5” x 11” holder – emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimmer ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ 8- Quad recessed floor receptacles w/ metal covers (@ table locations) ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ 6 device charging station ○ Large Display Monitor ○ Classroom Amplification System

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Solid hardwood casework. ○ Soundproof door to room. ○ Doors to room to have acoustical trim accessories. ○ Classroom door with vision panel, continuous hinge, lockdown hardware.

SS 3.5 Instrument Repair Shop
Description: Instrument repair shop in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o TBD by Design Professional w/ District o Work surfaces o File drawers in a variety of sizes o Tall storage cabinets o Deep shelving for instrument cases o Shelving for manuals/binders o Miscellaneous shelving o Peg boards o Fatigue mats at work stations o 8.5” x 11” frame – evacuation map o 8.5” x 11” holder – emergency response plans	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Occupancy sensor/dimming o LED lighting o Ceiling hung/mounted task lighting over work surfaces o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to each data and video port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o N/A

SS 3.6 Uniform/Robe Storage Room
Description: Uniform/Robe storage in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 30’ of adjustable open casework with clothes rods and shelves (to ceiling) ○ 20” x 60” mirror	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Fluorescent lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Door vision strip.

SS 3.7 Music Office (Vocal & Instrumental)
Description: Music Offices (Vocal & Instrumental) in secondary schools.

FINISHES:	
Flooring: ○ Carpet ○ Textile Composite Flooring	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Closet (built-in)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Door vision strip.

SS 3.8 Practice Room Suite
Description: Music practice rooms organized in a suite in secondary schools.

FINISHES:	
Flooring: ○ Carpet ○ Optional: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group if meets acoustical requirements	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Acoustical Wall Treatment

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 3’ wide x 5’ high mirror mounted 12” above finish floor ○ 8.5” x 11” frame - evacuation map @ suite entrance ○ 8.5” x 11” holder - emergency response plans @ suite entrance	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Provide acoustic vision panel in wall	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Acoustical vision glass from teacher room (centrally located) to each practice room. ○ One practice room to be designated for a piano (owner provided.) ○ Soundproof doors. ○ Doors to have acoustical trim accessories.

SS 4.1 Auditorium
Description: Auditoriums in secondary schools. Design for 7 sf per/person.

FINISHES:	
Flooring: o Aisles: Carpet o Under Seats: Sealed concrete	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid o GWB o Painted exposed structure o Reflector panels
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB, upon approval of RCSD Facilities Design Group o Acoustical CMU on back wall o Acoustical wall treatment

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Auditorium Seating o 8.5" x 11" frame - evacuation map o 8.5" x 11" holder - emergency response plans o Freestanding American flag	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Multilevel switching with dimming o LED lighting o Dimmable quartz lighting o Illumination level: See Div. 26V o Theatrical lighting o Duplex receptacles o Duplex receptacle adjacent to each data and video port o Central sound system o Auditorium sound system o Assistive listening system o Fire alarm devices o Emergency lighting o Means of egress lighting per code o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for	DWT: o Wireless Access Point o Data & Voice Drops o IP Video Cameras

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* o Main doors with continuous hinges and panic hardware. o Sloped floor (accessible route) o Grab bars as required o Daylight not recommended

SS 4.2 Stage
Description: Stages in secondary schools.

FINISHES:	
Flooring: ○ Stage: Wood	Ceiling: ○ Painted exposed structure (flat black)
Base: ○ Resilient Wall Base, vented if required by stage floor manufacturer	Walls: ○ Painted CMU (flat black), back stage only

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Front curtain, track, and valance or grand border ○ Projection screen ○ Rear curtain with track ○ Leg curtains, tracks, and/or pivots ○ Light pipe ○ Border curtains ○ Mid-stage traveler ○ Stairs and handrails ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Supply/return air system ○ Independent temperature control Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Stage dimming system ○ Theatrical lighting ○ Illumination level: See Technical Standards, Table XX Section XX ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire Alarm Devices ○ Emergency lighting ○ Means of egress lighting per code ○ Auditorium sound system ○ Stage outlets
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ 8’ x 12’ coil door to Scenery Shop (if applicable) or Storage room. ○ All stage curtains to be fire treated fabric. ○ ADA access. ○ Fire Extinguisher(s) as required by code.

SS 4.3 Scenery Shop
Description: Scenery Shops in secondary schools.

FINISHES:	
Flooring: ○ Sealed concrete	Ceiling: ○ Painted exposed structure
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 8'- 10' of tall lockable storage cabinets ○ 10'- 12' of tall storage cabinets ○ 4' of tack board ○ 4' of marker board ○ 8' of peg board ○ 16'-24' work bench (4'-8 wide), maximize depending on room size, storage shelves/drawer beneath ○ Scrap material storage ○ Scenery racks ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans	Plumbing: ○ Verify Fire Protection System requirements ○ Utility Sink HVAC: ○ Supply/return air system ○ Independent temperature control ○ Exhaust Fan Electrical: ○ Occupancy sensor ○ LED lighting: ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Wall raceway for large stationary tools (ie. table saw, band saw, miter saw, etc.) ○ Drop down or ceiling mounted (depending on ceiling height) receptacles for hand-held power tools ○ Central sound system ○ Fire Alarm Devices ○ Clock ○ 1- Duplex receptacle at sink (GFCI)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ High ceiling ○ 8' x 12' coil door to Stage. ○ Anchor tall shelves to wall. ○ Door with vision panel, continuous hinge. ○ Dust collection system, upon review and approval of RCSD Facilities Design Group.

SS 4.4 Dressing Rooms
Description: Dressing rooms in secondary schools. One room for each gender.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Built-in closets (12'- 18' total length for costume storage) o 10' of wall mounted garment racks o Towel dispenser o Soap dispenser (vendor provided) o 4' of tack board (total) o 18'-36' of countertops, District Preference: solid surface, maximize length depending on room size o 24" x 36" makeup mirrors, length of countertops o 20" wide x 60" high dressing mirror o 8.5" x 11" frame - evacuation map o 8.5" x 11" holder - emergency response plans	Plumbing: o (1-2) Wall mounted sink(s) o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control
	Electrical: o Occupancy sensors o LED lighting: overhead o Incandescent lighting: over makeup mirrors o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle at each makeup station under mirror o Central sound system o Fire Alarm Devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Cabinets/closet to be lockable.

SS 4.5 Orchestra Pit/ Instruction Space
Description: Orchestra pits in secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ N/A
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Acoustical wall treatment

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Guard between pit and Auditorium Stage	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Dimmable LED lighting ○ Theatrical lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Auditorium sound system ○ Assistive listening system ○ Fire Alarm Devices ○ Emergency lighting ○ Clock
Acoustics: Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ ADA access. ○ Acoustics: Analysis shall be performed in conjunction with Auditorium.

SS 4.6 Control Room
Description: Control/production space for Auditoriums in secondary schools. Preference for space to be in Auditorium on ground floor behind the audience.

FINISHES:	
Flooring: ○ Vinyl Composition Tile ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted Impact Resistant GWB with sheet metal (see Technical Chapter 9) ○ Acoustical Wall Panels

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 12'- 20' of equipment/work surface (total) ○ 4' of tack board (total)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Single level switching ○ LED lighting: overhead ○ Illumination level: See Div. 26V ○ Dimmable incandescent task lighting on work surface ○ Duplex receptacles ○ Auditorium Lighting wired through stage dimmer panel ○ Provisions for hard-wired equipment ○ Central sound system ○ Fire Alarm Devices ○ Clock ○ Empty communications conduit with pull cable from stage for future video projection control ○ Auditorium sound system control panel ○ Stage dimming system control panel
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ ADA access. ○ Vision glass to Auditorium.

SS 4.7 Green Room
Description: Theater Green Room in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle ○ Fire Alarm Devices ○ Clock
Acoustics: Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Monitors for Stage Performance

MISCELLANEOUS:
○ N/A

SS 4.8 Stage Storage
Description: Stage storage rooms in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 22’ of 108” high costume storage cabinets ○ 4’ of tack board (total) ○ Corner guards	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Illumination level: See Div. 26V ○ Duplex receptacle ○ Central sound system Fire Alarm Devices
Acoustics: Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ 8’ x 12’ coiling door to Stage (if applicable.) ○ Room for auditorium music stand, riser storage, and additional costume storage.

SS 4.9 Theater Staff Office
Description: Theatre staff offices in secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Closet (built-in)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ Duplex receptacle for security monitors ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Door vision strip.

SS 5.1 Gymnasium
Description: Gymnasiums in secondary schools. Minimum size 48’ x 66’.

FINISHES:	
Flooring: ○ Gymnasium: Maple Wood Flooring with cushioned base on concrete deck ○ Drinking Fountain Alcove: Vinyl Composite Tile/ Tile (depending on adjacent material)	Ceiling: ○ Gymnasium: Acoustic Metal Deck w/ flat bottom ○ Drinking Fountain Alcove: GWB
Base: ○ Gymnasium: Vented Resilient Wall Base ○ Drinking Fountain Alcove: Resilient Wall Base	Walls: ○ Painted CMU (lower) ○ Safety wall pads (lower) ○ Acoustical CMU (upper) ○ Acoustic Wall Panels (upper) (if required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Operable windows; NO Kalwall panels ○ Wood Bleachers with electric operation ○ 6- Basketball backstops, adjustable height ○ Volleyball sleeves and standards with cart ○ Divider Wall (Vinyl over metal folding panels w/ pass through door, electric) ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder ○ Court markings for basketball (full and cross court), and volleyball courts	Plumbing: ○ Verify Fire Protection System requirements ○ Drinking Fountain/Bottle Filler with lead filters, dual level
	HVAC: ○ Independent temperature control ○ Air Conditioning (to be determined on a case by case basis by RCSD Facilities Design Group) ○ Supply/Return air system (Indestructible) ○ Heavy duty wall grilles
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Gymnasium sound system ○ Emergency lighting ○ Means of egress lighting by code ○ Electrical connections to P.E. equipment where necessary ○ Fire alarm devices ○ Clock with wire guard ○ Scoreboard (control outlets in the face of bleachers) ○ Provide wire guards on light fixtures and wall-mounted electrical devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops w/ cage ○ Phone handset w/ cage

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*
- Daylight required.
- Clerestory windows and skylight windows (as appropriate) to provide natural light.
- Double doors to have removable center mullion.
- Entrance doors from corridor with vision panels, continuous hinges, panic hardware.
- Provide wire guards at all equipment as appropriate.
- Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.
- Vision glass to Physical Education Office.
- Perforated metal acoustical panels as needed.
- Verify all pool equipment and pool accessories
- Student must enter pool from Shower area.

SS 5.2 Gymnasium Lobby
Description: Gymnasium lobbies (part of Corridor outside Gymnasium) in secondary schools.

FINISHES:	
Flooring: ○ District Preference: Terrazzo ○ Alternative: Vinyl Composition Tile (on floor level 2+), upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built in Trophy Cases (30 linear feet)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system
	Electrical: ○ Lighting control system ○ Fluorescent lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Lights in Trophy Cases
Acoustics: Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ IP Video Cameras

MISCELLANEOUS:
○ Door vision strips (if applicable.)

SS 5.3 Weight/Fitness/Cardio Room
Description: Weight/Fitness/Cardio rooms in secondary schools.

FINISHES:	
Flooring: ○ Carpet ○ Athletic Flooring	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid ○ Painted exposed structure
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group ○ Mirrored

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 16’ of marker board (total) ○ 8’ of tack board (total) ○ 6’ of work surface with file drawers ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans	Plumbing: ○ Verify Fire Protection System requirements ○ Drinking Fountain/Bottle Filler with lead filters
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Dimming control ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ 10- Quad recessed floor receptacles w/ metal covers @ exercise equipment locations ○ Central sound system ○ Emergency lighting ○ Fire alarm devices ○ Clock with wire guard
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Door vision strips required. ○ Floor to be rated for free standing equipment. Additional stabilizing mats not permitted.

SS 5.4 Gymnasium Storage
Description: Gymnasium storage in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete (sloped to drain)	Ceiling: ○ Painted exposed structure
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 32'- 48' of open metal shelving (total), 84" high, 12" deep, 24" deep, or 30" deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ 1- Duplex receptacle ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

SS 5.5 Boy's Locker Room
Description: Physical Education boy's locker room in secondary schools.

FINISHES:	
Flooring: o Tile (sloped to drain)	Ceiling: o GWB with access panels o Tectum with clips
Base: o Tile (sanitary cove)	Walls: o Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Locker benches – Wood o Lockers – Double tier, heavy duty, and diamond plate end panels, hoods (sloped), and backs. Able to accept padlock. Provide one locker per student enrollment o Accessible lockers o Locker benches – Wood on cast iron pedestal legs anchored to floor. o 8.5" x 11" frame - evacuation map o 8.5" x 11" holder - emergency response plans	Plumbing: o Fire Protection System o Drinking Water Cooler/Bottle Filler with lead filters, dual level
	HVAC: o Supply/return air system o Exhaust air system o Independent temperature control
	Electrical: o LED lighting o Illumination level: See Div. 26V o Duplex receptacles (GFCI) o Emergency lighting o Means of egress lighting by code o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Frosted windows. o Use mold and mildew resistant gypsum board and grout. o Provide Tectum ceiling. o Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms. o Exit door to athletic fields.

SS 5.6 Boy's Student Toilet Room/Shower
Description: Physical Education boy's student restroom/shower in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Suspended Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Restroom: Tectum ○ Shower: GWB
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryers ○ Waste receptacle (built-in, large capacity) ○ Tilt mirror (18" x 36") with shelf ○ Mirrors (18" x 36") with shelves ○ Toilet tissue holders ○ Grab bars (18", 36" and 42") ○ Soap dispensers (vendor provided) ○ Towel hooks (1 per shower) ○ ADA shower accessories ○ Heavy duty shower curtain and rod ○ Toilet partitions, phenolic, floor and ceiling mounted, clothes hooks on toilet partition doors ○ Hooks on toilet partition doors ○ Modesty shower partitions, phenolic, floor and ceiling mounted ○ Urinal screens, phenolic, floor and ceiling mounted	Plumbing: ○ Verify Fire Protection System requirements ○ Wall-mounted water closets ○ Wall-mounted lavatories ○ Wall-mounted urinals ○ ADA shower controls and head ○ Shower fixtures/seat ○ Floor drains ○ Hose bibb
	HVAC: ○ Supply/return air system ○ Exhaust air system
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI) ○ Emergency lighting ○ Means of egress lighting by code ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.

SS 5.7 Girl's Locker Room
Description: Physical Education girl's locker room in secondary schools.

FINISHES:	
Flooring: o Tile (sloped to drain)	Ceiling: o GWB with access panels o Tectum with clips
Base: o Tile (sanitary cove)	Walls: o Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Locker benches – Wood o Lockers – Double tier, heavy duty, and diamond plate end panels, hoods (sloped), and backs. Able to accept padlock. Provide one locker per student enrollment o Accessible lockers o Locker benches – Wood on cast iron pedestal legs anchored to floor. o 8.5" x 11" frame - evacuation map o 8.5" x 11" holder - emergency response plans	Plumbing: o Fire Protection System o Drinking Water Cooler/Bottle Filler with lead filters, dual level
	HVAC: o Supply/return air system o Exhaust air system o Independent temperature control
	Electrical: o LED lighting o Illumination level: See Div. 26V o Duplex receptacles (GFCI) o Emergency lighting o Means of egress lighting by code o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. -	DWT: o N/A

MISCELLANEOUS:
o Frosted windows. o Use mold and mildew resistant gypsum board and grout. o Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms. o Exit door to athletic fields.

SS 5.8 Girl's Student Toilet Room/Shower
Description: Physical Education girl's student restroom/shower in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Suspended Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Restroom: Tectum
Base: ○ Restroom: Tile (sanitary cove) ○ Shower: Tile (sanitary cove)	Walls: ○ Restroom: Tile (full height) ○ Shower: Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryers ○ Waste receptacle (built-in, large capacity) ○ Tilt mirror (18" x 36") with shelf ○ Mirrors (18" x 36") with shelves ○ Toilet tissue holders ○ Grab bars (18", 36" and 42") ○ Soap dispensers (vendor provided) ○ Towel hooks (1 per shower) ○ ADA shower accessories ○ Sanitary product dispensers ○ Sanitary product receptacles ○ Heavy duty shower curtain and rod ○ Toilet partitions, phenolic, floor and ceiling mounted, clothes hooks on toilet partition doors ○ Hooks on toilet partition doors ○ Modesty shower partitions, phenolic, floor and ceiling mounted	Plumbing: ○ Verify Fire Protection System requirements ○ Wall-mounted water closets ○ Wall-mounted lavatories ○ ADA shower controls and head ○ Shower fixtures/seat ○ Floor drains ○ Hose bibb
	HVAC: ○ Supply/return air system ○ Exhaust air system
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI) ○ Emergency lighting ○ Means of egress lighting by code ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.

SS 5.9 Unisex Visitor Student Locker Room
Description: Physical Education unisex visitor student locker rooms in secondary schools. May not be applicable to all schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Suspended Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Restroom: Tectum ○ Shower: GWB
Base: ○ Restroom: Tile (sanitary cove) ○ Shower: Tile (sanitary cove)	Walls: ○ Restroom: Tile (full height) ○ Shower: Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Locker benches – Wood ○ Lockers – Double tier, heavy duty, and diamond plate end panels, hoods (sloped), and backs. Able to accept padlock. Provide one locker per student enrollment ○ Accessible lockers ○ Locker benches – Wood on cast iron pedestal legs anchored to floor. ○ 8.5" x 11" frame - evacuation map ○ 8.5" x 11" holder - emergency response plans	Plumbing: ○ Verify Fire Protection System requirements ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level
	HVAC: ○ Supply/return air system ○ Exhaust air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Emergency lighting ○ Means of egress lighting by code ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ Both Natatorium and Gymnasium to have direct access to Visitor Locker Rooms and Visitor Shower/Restrooms (if possible.) ○ Exit door to athletic fields.

SS 5.10 Unisex Visitor Student Toilet Room/Shower
Description: Unisex visitor student restroom/showers in secondary schools. May not be applicable to all schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Suspended Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Restroom: Tectum ○ Shower: GWB
Base: ○ Restroom: Tile (sanitary cove) ○ Shower: Tile (sanitary cove)	Walls: ○ Restroom: Tile (full height) ○ Shower: Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryers ○ Waste receptacle (built-in, large capacity) ○ Tilt mirror (18" x 36") with shelf ○ Mirrors (18" x 36") with shelves ○ Toilet tissue holders ○ Grab bars (18", 36" and 42") ○ Soap dispensers (vendor provided) ○ Towel hooks (1 per shower) ○ ADA shower accessories ○ Sanitary product dispensers ○ Sanitary product receptacles ○ Heavy duty shower curtain and rod ○ Toilet partitions, phenolic, floor and ceiling mounted, clothes hooks on toilet partition doors ○ Hooks on toilet partition doors ○ Modesty shower partitions, phenolic, floor and ceiling mounted	Plumbing: ○ Verify Fire Protection System requirements ○ Wall-mounted water closets ○ Wall-mounted lavatories ○ ADA shower controls and head ○ Shower fixtures/seat ○ Floor drains ○ Hose bibb
	HVAC: ○ Supply/return air system ○ Exhaust air system ○ Hand dryers
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI) ○ Emergency lighting ○ Means of egress lighting by code ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets, lavatories, and urinals to be vitreous china. ○ Both Natatorium and Gymnasium to have direct access to Visitor Locker Rooms and Visitor Shower/Restrooms (if possible.)

SS 5.11 Natatorium
Description: Natatoriums in secondary schools. Minimum size 28 meters x 7 feet lanes.

FINISHES:	
Flooring/Deck: ○ Mosaic tile (sloped to drain) ○ Pool/deck markings as required by NYSDOH	Swimming Pool: ○ Sidewalls: Ceramic tile – down 5', white or light colored ○ Sidewalls and Floors: Ceramic tile, non-slip finish – below 5', white or light colored
Base: ○ Tile (sanitary cove)	
Walls: ○ Tile on CMU – up to 8' minimum ○ Painted acoustical CMU – above tile	Ceiling: ○ Acoustical deck

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TDB by Design Professional ○ Multiple depth reinforced concrete pool ○ Built-in closet ○ 4' of tack board ○ 4' of marker board ○ Spectator seating – plastic seats, ADA cutouts, galvanized under structure, stainless steel hardware ○ Lifesaving equipment ○ Pool ladders – stainless steel ○ Diving board(s) ○ Lane lines (ropes) ○ Starting blocks ○ Elevated lifeguard chairs ○ Pool maintenance equipment & connections ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans ○ American flag/holder ○ Skylights/clerestory windows (no glare) ○ AED/ cabinet	Plumbing: ○ TDB by Design Professional ○ Verify Fire Protection System requirements ○ Hose bibs every 75' of room perimeter ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level ○ Floor drain ○ Pool drain
	HVAC: ○ TDB by Design Professional
	Electrical: ○ Continuous overhead lighting – no glare ○ Single level switching ○ Duplex receptacles (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting ○ Telephone adjacent to pool
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops with Cage

MISCELLANEOUS:

- Cabinets/closet to be lockable.
- Use mold and mildew resistant grout.
- Stainless steel or FRP doors and stainless steel frames.
- Entrance doors from corridor with vision panels, continuous hinges, panic hardware.
- Portable Pool lift per ADA guidelines.
- All finishes and surfaces to be corrosion resistant.
- Provide wire guards at all equipment as appropriate.
- See NYSDOH requirements, Part 6, Subpart 6-1 Swimming Pools.
- See IBC requirements.
- Equipment and fixtures to be high humidity resistant.
- Both Natatorium and Gymnasium to have direct access to Physical Education Student Locker Rooms and Physical Education Student Shower/Restrooms.
- Student must enter pool from Shower area.
- Vision glass to Physical Education Office.

SS 5.12 Natatorium First Aid Room
Description: First aid room in secondary school's natatoriums. Provide if swimming pool is over 4,000 SF.

FINISHES:	
Flooring: ○ Mosaic tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Painted CMU

FEATURES:	
Fixed Equipment: ○ First Aid cabinet ○ Built-in closet	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Clock ○ Telephone
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Phone Handset

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Stainless steel or FRP doors and stainless-steel frames. ○ All finishes and surfaces to be corrosion resistant. ○ Vision glass to Natatorium w/ metal horizontal blinds.

SS 5.13 Natatorium Storage Room
Description: Storage room for swimming class equipment in secondary schools.

FINISHES:	
Flooring: ○ Sealed concrete ○ Tile sloped to drains	Ceiling: ○ Open to structure ○ Unless need ceiling for fire rating
Base: ○ Ceramic tile (sanitary cove)	Walls: ○ Painted CMU

FEATURES:	
Fixed Equipment: ○ Plastic storage - TBD	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bib
	HVAC: ○ Supply/return air system
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Stainless steel or FRP doors and stainless-steel frames.

SS 5.14 Pool Equipment Room(s)
Description: Pool equipment room(s) in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Receptacles (GFCI) ○ LED lighting (corrosion resistant) ○ Illumination – See Div. 26V ○ PVC coated conduit system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Stainless steel or FRP doors and stainless steel frames.

SS 5.15 Pool Chemical Room
Description: Pool chemical storage room in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional ○ Emergency shower/eye-face wash ○ Floor drain
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Receptacles (GFCI) ○ LED lighting (corrosion resistant) ○ Illumination – See Div. 26V ○ PVC coated conduit system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Stainless steel or FRP doors and stainless steel frames.

SS 5.16 Athletic Training/Treatment Room
Description: Athletic training and treatment rooms in secondary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 6' of base cabinet w/ counter, District material preference: Solid Surface ○ 3' sink base cabinet w/ counter, District material preference: Solid Surface ○ 9' of wall cabinets (total) ○ 4' of marker board (total) ○ 4' of tack board (total) ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ Waste receptacle	Plumbing: ○ Verify Fire Protection System requirements ○ Sink ○ Whirlpool ○ Floor drain
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data port ○ Electrical power for ice machine and whirlpool (GFCI) ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Door vision strip. ○ Ice machine.

SS 5.17 Athletic Director's Office
Description: Athletic Director's office in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of marker board o 4' of tack board o Built-in closet	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to data and video port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Door vision strip.

SS 5.18 Physical Education Staff Office/Locker
Description: Physical Education Staff Office/Lockers in secondary schools. One room per gender.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet ○ 4' of tack board ○ 4' of marker board ○ 4- Lockers, single tier	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Vision glass to Gymnasium / Student Locker rooms (male instructor office to male locker room, female instructor office to female locker room) w/ metal horizontal blinds.

SS 5.19 Physical Education Staff Restroom/Shower
Description: P.E. Staff restroom/showers in secondary schools. One room per gender.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ Restroom: 2x2 Acoustical Ceiling Tile (cleanable) ○ Restroom: Aluminum Grid ○ Shower: GWB
Base: ○ Tile (sanitary cove)	Walls: Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Towel dispenser ○ Waste receptacle ○ Tilt mirror (24" x 30") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispensers ○ Towel hooks (at shower) ○ Heavy duty shower curtain and rod ○ 3- Athletic lockers (including 1-accessible) ○ Locker benches – Wood ○ ADA shower accessories	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ ADA shower controls and head ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) ○ Duplex receptacle adjacent to data port ○ Central sound system Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets, lavatories, and urinals to be vitreous china.

SS 5.20 Physical Education Laundry
Description: Physical Education laundry rooms in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of wall cabinets (total) above washer/dryer	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Utility Sink
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system
	Electrical: ○ Occupancy sensor ○ Duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Connections for washer and dryer
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Washer and electric dryer. ○ Door vision strip.

SS 5.21 Interscholastic Sports Storage Room
Description: Storage room for interscholastic sports program equipment in secondary schools. One per track, lacrosse, football, and one for miscellaneous other sports including tennis, swim, soccer, wrestling, bowling, cheerleading, and golf.

FINISHES:	
Flooring: ○ Sealed concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	
Fixed Equipment: ○ TBD by Design Professional ○ Open metal shelving (total), 84” high, 12” deep, 24” deep, or 30” deep (FF&E) ○ Sport equipment storage racks and carts ○ Sports uniform storage	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb
	HVAC: ○ Supply/return air system
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ NA

MISCELLANEOUS:
○ Door to athletic fields for outdoor sports storage rooms.

SS 6.1 Reading/Circulation
Description: Media Center (Library) Reading/Circulation rooms in secondary schools. To be sized to accommodate a portion of the student population during study halls.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Library casework - book shelves, 15 volumes per enrolled student (FF&E) o 10'-15' of circulation desk w/ counter, District material preference: Solid Surface o 12' of marker board (total) o 16' of tack board (total) o Risers for seating for 30 students (optional) o 8.5" x 11" frame – evacuation map o 8.5" x 11 holder – emergency response plans o American flag holder	Plumbing: o Verify Fire Protection System requirements HVAC: o Supply/return air system o Independent temperature control o Air Conditioning o NO new unit ventilators Electrical: o Occupancy sensor/dimming o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to data and video port o Central sound system o Emergency lighting o Means of egress lighting per code o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* o Circulation desk drawers to be lockable. o Corridor door with vision panel (if accessible from corridor.) o Book security device system. o Daylight required. o Solid hardwood casework, verify in FF&E contract. o Provide blocking in wall to attach shelves.

SS 6.2 Computer Lab
Description: Media Center (Library) Computer Lab in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile ○ Carpet, upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet (shelves and file drawers) ○ 6' of wall cabinets ○ 6' of base cabinet w/ counter, District material preference: Plastic Laminate ○ 3' of low base cabinet for printer(s), w/ counter, District material preference: Plastic Laminate ○ 16' of marker board (total) ○ 16' of tack board (total) ○ Counters (plastic laminate w/ square edge) with integral backsplash along walls ○ Grommets (plastic) in counters ○ 8.5" x 11" frame – evacuation map ○ 8.5" x 11 holder – emergency response plans ○ American flag/holder (if separate from library circulation area)	Plumbing: ○ Verify Fire Protection System requirements HVAC: ○ Supply/return air system ○ Independent temperature control ○ Air Conditioning ○ NO new unit ventilators Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to data and video port ○ Emergency lighting ○ Central sound system ○ Fire alarm devices ○ Clock ○ Receptacle for printer ○ Raceway power under counters (coordinate with support brackets) ○ NO receptacles in floor ○ NO power poles
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* ○ Cabinets to be lockable. ○ Classroom door with vision panel.

SS 6.3 Periodicals Collections
Description: Media Center (Library) Periodicals Collections in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU o Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Library casework – including book shelves, periodical shelving, newspaper shelving (FF&E)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o Air Conditioning
	Electrical: o Multilevel switching o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to data and video port o Central sound system o Emergency lighting o Means of egress lighting per code o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* o Corridor door with vision panel (if accessible from corridor.) o Solid hardwood casework, verify in FF&E contract. o Provide blocking in walls to attach library casework. o Vision Glass to Reading/Circulation if separate room.

SS 6.4 Media Center Staff Office
Description: Media Center (Library) Media Center staff office in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Built-in closet	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o Air Conditioning o NO new unit ventilators
	Electrical: o Occupancy sensor/dimming o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to data port o Central sound system o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Vision glass to Reading/Circulation, w/ horizontal metal blinds.

SS 6.5 Conference/Seminar Room
Description: Media Center (Library) Conference/Seminar rooms in secondary schools. Sized to accommodate 12 chairs at a conference table and 14 chairs at perimeter of room.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 8' of marker board (total) ○ 8' of tack board (total) ○ 6' of base cabinets w/ counter, District material preference: Plastic Laminate	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Air Conditioning ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting (if over 50 occupants)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Large Display Monitor ○ Wireless Access Point ○ Data & Voice Drops ○ Classroom Amplification System

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Large screen television – wall mounted (coordinate with DWT consultant.) ○ Vision glass to Reading/Circulation. ○ Podium

SS 7.1 Cafeteria
Description: Cafeteria in secondary schools. Design for 15 sf / person.

FINISHES:	
Flooring: ○ District Preference: Vinyl Composition Tile ○ Alternative: Epoxy Terrazzo (Stone polished), upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid ○ Acoustical Metal Deck
Base: ○ District Preference: Painted CMU ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group ○ Alternative: Epoxy Terrazzo if Epoxy Terrazzo floor is used	Walls: ○ District Preference: Epoxy Painted CMU ○ Alternative: Impact Resistant GWB w/ glazed wall tile to top of door frame, upon review and approval of RSMP Acoustical Wall Panels

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Soap dispenser (vendor provided) ○ Towel dispenser ○ 3’ of base cabinet for sink ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans	Plumbing: ○ Drinking Fountain/Bottle Filler with lead filters, dual level ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Multi-zone switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles adjacent to each data and video port ○ Receptacle devices throughout room at 36” +/- AFF for student use ○ Receptacles for portable fans throughout room ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency lighting ○ Local Student dining sound systems
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Acoustical Wall Panels from door head to underside of ceiling	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ IP Video Cameras ○ Data drop for POS systems

MISCELLANEOUS:

- Daylight required.
- Vision strip recommended – 50% of linear length of outside wall of room.
- Cabinet to be lockable.
- Entrance doors with vision panels, continuous hinges, panic hardware.

SS 7.2 Serving Area
Description: Food Service serving areas in secondary schools.

FINISHES:	
Flooring: ○ Quarry Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Food service equipment ○ Towel dispenser ○ Soap dispenser (vendor provided)	Plumbing: ○ Verify Fire Protection System requirements ○ Hand Sink ○ Floor drain(s) ○ Connections to food serve equipment
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Duplex receptacles (GFCI @ sinks) ○ Fire alarm devices ○ Clock ○ Connections to food service equipment ○ Night light ○ Emergency lighting ○ Duplex receptacle at each cash register(s) ○ Emergency Lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Use mold and mildew resistant grout. ○ Equipment connection requirements to be coordinated with actual connections. ○ Department of Health to approve. ○ Connections for cash register.

SS 7.3 Kitchen
Description: Kitchens in secondary schools.

FINISHES:	
Flooring: ○ Quarry Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Food service equipment ○ Towel dispenser ○ Soap dispenser (vendor provided)	Plumbing: ○ Plumbing and gas connections ○ 3 Basin sink ○ 2 Basin sink ○ Hand sink ○ Grease trap ○ Floor drain(s) ○ Floor sink(s) ○ Emergency gas shut-off valve ○ Verify Fire Protection System requirements ○ Hose bibb
	HVAC: ○ Independent temperature control ○ Supply/return air system ○ Kitchen canopy exhaust system ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor ○ Duplex receptacles (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Dedicated receptacles as required for equipment ○ Central sound system ○ Emergency Lighting ○ Connections to food service equipment ○ Clock ○ Night light ○ Exit light ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Use mold and mildew resistant grout. ○ Adjacent space allocated for walk-in cooler and freezer. ○ Locate Janitor's closet w/direct access from kitchen. ○ Door vision strip recommended. ○ Skylights/clerestory windows recommended.

SS 7.4 Cook's Lockers
Description: Cook's Lockers in secondary schools.

FINISHES:	
Flooring: ○ District Preference: Quarry Tile ○ Alternative: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove) ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Mirror (24" x 60") ○ 10- Lockers, single tier, (including 1-accessible)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle ○ Fire alarm devices ○ Central sound system
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Movable bench at locker.

SS 7.5 Cook's Toilet Room
Description: Cook's Toilet room in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryer ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Waste receptacle (built-in) ○ Hook on door ○ 18" of wall cabinet	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V 1- Duplex receptacle (GFCI) ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant grout. ○ All water closets and lavatories to be vitreous china.

SS 7.6 Food Service Office
Description: Food service offices in secondary schools.

FINISHES:	
Flooring: ○ Quarry Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Quarry Tile Base (sanitary cove)	Walls: ○ District Preference: Structural Glazed Tile ○ Alternative: Masonry with full height tile ○ NO GWB

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of work surface with file drawers (total) ○ File cabinets (FF&E) ○ Built-in closet ○ 4’ of tack board ○ 4’ of marker board	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Vision glass to Kitchen w/ metal horizontal blinds.

SS 7.7 Table Storage
Description: Table storage rooms in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Corner guards	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

SS 7.8 Staff Dining/Lounge
Description: Staff dining/lounge in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 3’ sink base cabinet w/ counter, District material preference: Plastic Laminate ○ 5’ of base cabinets w/ counter, District material preference: Plastic Laminate ○ 8’ of wall cabinet ○ 4’ of tack board ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 8.5” x 11” frame – evacuation map ○ 8.5” x 11 holder – emergency response plans	Plumbing: ○ Sink ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI @ sink) ○ Duplex receptacle adjacent to each video port ○ Receptacles for vending machines, refrigerator, and microwave ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Windows recommended. ○ Door vision strip. ○ Refrigerator. ○ Microwave. ○ Vending machine (vendor provided.)

SS 8.1 Principal's Office
Description: Principal's offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	
Fixed Equipment: o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/Return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacles o Duplex receptacle for security monitors o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Cabinets/ closet to be lockable. o Panic button. o Wall mounted security monitors. o Door vision strip.

SS 8.2 Main Office Toilet Room
Description: Toilet room for main office staff in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Towel dispenser ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Hook on door ○ 18" of wall cabinets	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED ighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets and lavatories to be vitreous china. ○ Waste receptacle (free standing) ○ "Vacant"/"Occupied" indicator on door. ○ Toilet room to be located where it is not visible from the reception/waiting or clerical office, but located in main office suite.

SS 8.3 Assistant Principal's Office
Description: Assistant Principal's offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacle o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to each data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Panic button. o Door vision strip.

SS 8.4 Clerical Office
Description: Clerical Office of main office suite for secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section-maximize length of counter, District Preference for material: solid surface ○ 24' of work surface with file drawers (total), District Preference for material: solid surface ○ Small safe for petty cash (built-in) ○ 3' base cabinets w/ countertop, w/ sink (in kitchenette) ○ 6' base cabinets w/ countertop (in kitchenette) ○ 9' wall cabinets (in kitchenette) ○ Towel dispenser (in kitchenette) ○ Soap dispenser (vendor provided, in kitchenette) ○ 4' of tack board (in kitchenette) ○ 20' of tack board (total, clerical) ○ Built in closet with shelves ○ Built in closet for staff outerwear ○ American flag holder	Plumbing: ○ Verify Fire Protection System requirements ○ Sink (kitchenette) HVAC: ○ Supply/return air system ○ Temperature control with reception area ○ NO new unit ventilators Electrical: ○ Dimming control ○ Duplex receptacles ○ Additional receptacles for staff to charge devices at workstations ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Emergency lighting /night light ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Kitchenette for coffee maker, water cooler, microwave and full-size refrigerator to be within main office suite (in alcove.) ○ Wall mounted security monitors.

SS 8.5 Itinerant Staff Room
Description: Itinerant (Traveling) Staff room in secondary schools.

FINISHES:	
Fixed Equipment: o 4' of marker board o 4' of tack board o Built-in closet	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Temperature control with reception area o No new unit ventilators
	Electrical: o Dimming control o Duplex receptacles o Illumination level: See Div 26V o Duplex receptacle adjacent to each data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Data and Voice Drops

MISCELLANEOUS:
o Cabinets/closet to be lockable. o Door vision strip.

SS 8.6 Supply/Storage
Description: Supply/storage room for administration in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 18' minimum of open metal shelving (total), 84" high 12" deep, 24" deep, or 30" deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ 1- duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

SS 8.7 Workroom/Copy/Mail
Description: Workroom/Copy/Mail of main office suite for secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 10' of wall cabinets ○ 10' of base cabinets w/ counter, District material preference: Plastic Laminate ○ 6' of tall storage cabinets (total) ○ 10' of mail cubicles (total) ○ 10' of open base cabinets (total)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Dedicated receptacle(s) for copier(s) ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Data and Voice Drops

MISCELLANEOUS:
○ Shelving to be sized to accommodate books/notebook/binders w/o items overhanging shelf.

SS 8.8 Reception/Waiting Room
Description: Reception/Waiting room of main office suite for secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of tack board o Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section- maximize length of counter, District Preference for material: solid surface	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacles o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to video port o Central sound system o Fire alarm devices o Means of egress lighting per code o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Panic button. o Vision glass to corridor and main entrance vestibule. o Main entrance vestibule traffic to go through Reception/Waiting Room. o Door with vision panel, continuous hinge, and lockdown hardware.

SS 8.9 Records Vault
Description: Records Vault room of main office suite for secondary schools. Examination materials are stored here.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4’ of open metal shelving (total), 84” high, 12” deep, 24” deep, or 30” deep (FF&E)	Plumbing: o Verify Fire Protection System requirements o
	HVAC: o Exhaust air system
	Electrical: o Occupancy sensor o Duplex receptacle o LED lighting o Illumination level: See Div. 26V o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Located where not accessible to public and under constant supervision. o Metal door/frame w/ minimum medium duty hardware, consisting of hinges inside the vault otf welded pin hinges, and classroom function lock set with dead locking latch bolt. o No windows or access panels. o Ductwork penetrations in walls foe ventilation must be approved by SED. o This room shall be constructed as a 2-hour fire rated space. This includes all openings and assemblies. o Floors to be poured concrete. o Walls to be reinforced concrete or reinforced cement block sealed to poured concrete floor and also to the structural floor or roof above.

SS 8.10 Conference Room
Description: Conference Room for secondary schools. Locate near main office suite. Sized to accommodate 8 chairs at a conference table.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 8' of marker board (total) ○ 8' of tack board (total) ○ 6' of base cabinets w/ counter, District material preference: Plastic Laminate	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting (if over 50 occupants)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ Large Screen Monitor

MISCELLANEOUS:
○ Large screen television – wall mounted (coordinate with DWT consultant.) ○ Cabinet to be lockable. ○ Door vision strip.

SS 8.11 School Store
Description: School stores in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 24'- 60' of open casework shelves (total) 12" deep, 84" high ○ 8'-20' of base cabinets ○ 8'- 20' of slatwall panels (4' height)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ NO new unit ventilators
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Clock ○ Dedicated receptacle for cooler/ refrigerator ○ Fire alarm devices ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops ○ POS Data Drops

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Pass through opening (w/ accessible countertop height section) with metal roll-up counter shutter (rated per code.)

SS 8.12 Parent Volunteer Room
Description: Parent volunteer rooms in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of tac kboard ○ 4' of marker board ○ Built-in closet with shelving ○ 3' sink base cabinet ○ 3' of base cabinets ○ 6' of wall cabinets ○ Towel dispenser ○ Soap dispenser (vendor provided)	Plumbing: ○ Sink ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI at sink) ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Door vision strip.

SS 9.1 Dean of Student's Office
Description: Dean of Student's offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacle o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to each data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.* o Door vision strip.

SS 9.2 Reception/ Waiting Area
Description: Reception/Waiting room of Dean of Student's suite in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of tack board o Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section- maximize length of counter, District Preference for material: solid surface	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to video port o Central sound system o Fire alarm devices o Means of egress lighting per code o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Panic button. o Vision glass to corridor. o Door with vision panel, continuous hinge, and lockdown hardware.

SS 9.3 Clerical
Description: Clerical office in Dean of Student's suite in secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section- maximize length of counter, District Preference for material: Solid surface ○ 12' of work surface with file drawers (total), District Preference for material: Solid surface ○ 8' of tack board (total) ○ Built in closet with shelves ○ Built in closet for staff outerwear ○ American flag/ holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control with reception area
	Electrical: ○ Occupancy sensor/dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ N/A

SS 9.4 Conference Room
Description: Dean of Students conference rooms in secondary schools. Sized to accommodate 8 chairs at a conference.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 8' of marker board (total) o 8' of tack board (total) o 6' of base cabinets w/ counter, District material preference: Plastic Laminate	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control
	Electrical: o Occupancy sensor/dimming o LED lighting o Illumination level: See Div. 26V o 3- Duplex receptacles o Duplex receptacle adjacent to each data and video port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Cabinets to be lockable. o Large screen television – wall mounted (coordinate with DWT consultant.) o Door vision strip recommended.

SS 9.5 De-escalation Room
Description: De-escalation rooms in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

SYSTEMS:	
Fixed Equipment: ○ 8’ of marker board (total) ○ 8’ of tack board (total) ○ 6’ – 12’ of base cabinets ○ 6’ – 12’ of book selves ○ 8.5” x 11” frame - evacuation map ○ 8.5” x 11” holder - emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Dimming control ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Door vision strip required. ○ Raised step flooring, verify with RCSD Facilities Design Group.

SS 9.6 Toilet Room
Description: Dean of Student's suite restroom in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Towel dispenser ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Soap dispenser (vendor provided) ○ Hook on door ○ 18" of wall cabinets	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED ighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) ○ Central sound system ○ Fire alarm devices
Acoustics Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets and lavatories to be vitreous china. ○ Waste receptacle (free standing) ○ "Vacant"/"Occupied" indicator on door. ○ Toilet room to be located where it is not visible from the reception/waiting or clerical office, but located in Dean of Student's suite.

SS 10.1 Security Room
Description: Security rooms in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 9' of work surface with file drawers (total) o 4' of marker board o 4' of tack board o Built-in closet	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control
	Electrical: o Dimming control o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to data and video port o Central sound system o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o TBD by DWT Consultant

MISCELLANEOUS:
o N/A

SS 10.2 Security Camera Room
Description: Security camera rooms in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 19' of open metal shelving (total), 84" high, 12" deep, 24" deep, or 30" deep (FF&E)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Exhaust air system o Supplemental heat as required
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o 1- Duplex receptacle o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o TBD by DWT Consultant

MISCELLANEOUS:
o N/A

SS 10.3 Security Equipment Storage
Description: Security equipment storage in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 20' of open metal shelving (total), 84" high, 12" deep, 24" deep, or 30" deep (FF&E)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Exhaust air system o Supplemental heat as required
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o Duplex receptacle o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o TBD by DWT Consultant

MISCELLANEOUS:
o N/A

SS 11.1 School Guidance Counselor's Office
Description: School Guidance Counselor's offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o File cabinets (FF&E) o 4' of marker board o 4' of tack board Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Occupancy sensor/dimming o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Cabinets/closet to be lockable. o Door vision strip.

SS 11.2 Truancy Officer's Office
Description: Truancy Officer's offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o File cabinets (FF&E) o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Exhaust air system o Supplemental heat as required o NO new unit ventilators
	Electrical: o Occupancy sensor/dimming o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Door vision strip. o Cabinets/closet to be lockable.

ES 11.3 School Psychologist's Office
Description: Psychologist's offices in secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' of marker board ○ 4' of tack board ○ Closet (built-in)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Occupancy sensor/dimming ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Acoustically isolate room; walls to underside of deck/ floor above.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Door vision strip. ○ Closet to be lockable.

ES 11.4 School Social Worker's Office
Description: Social worker's offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacle o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to each data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Door vision strip.

SS 11.5 Coordinating Administrator of Special Education (CASE)'s Office
Description: CASE offices in secondary schools.

FINISHES:	
Flooring: o Carpet	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of marker board o 4' of tack board o Closet (built-in)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control o NO new unit ventilators
	Electrical: o Dimming control o Duplex receptacle o LED lighting o Illumination level: See Div. 26V o Duplex receptacle adjacent to each data port o Central sound system o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. o Acoustically isolate room; walls to underside of deck/ floor above.	DWT: o Wireless Access Point o Data & Voice Drops

MISCELLANEOUS:
o Door vision strip.

SS 11.6 Clerical
Description: Clerical office in Counselor's suite in secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 10' of work surface with file drawers (total), District Preference for material: Solid surface ○ Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section-maximize length of counter, District Preference for material: Solid surface ○ 4' of tack board (total) ○ Built in closet with shelves ○ Built in closet for staff outerwear ○ American flag/ holder	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control with reception area
	Electrical: ○ Dimming control ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ N/A

SS 11.7 Waiting Room
Description: Waiting room in Counselor's suite in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 4' of tack board o Physically divide Reception/Waiting Room from Clerical Office by 42" high countertops w/ ADA height section-maximize length of counter, District Preference for material: Solid surface	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Supply/return air system o Independent temperature control
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Duplex receptacle adjacent to video port o Central sound system o Means of egress lighting per code o Fire alarm devices o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o N/A

SS 11.8 Student Success Center
Description: Student Success Centers in secondary schools. For tutoring, computer access, and study space.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU ○ Alternative: Impact Resistant GWB with sheet metal (see Technical Chapter 9), upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Built-in closet w/ shelving ○ 20' of marker board (total) ○ 6' of tack board ○ 3' of low base cabinet for printer(s) ○ Plastic Laminate ○ 6' of wall cabinets ○ 6' of base cabinet ○ Counters (plastic laminate w/ square edge) with integral backsplash along walls ○ Grommets (plastic) in counters	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Multilevel dimming ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Raceway power under counters (coordinate with support brackets) ○ NO receptacles in floor ○ NO power poles ○ Receptacle for printer ○ Central sound system ○ Fire alarm devices ○ Clock ○ Emergency Lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Door vision strip required.

SS 11.9 Records Room
Description: Counselor's records rooms in secondary schools.

FINISHES:	
Flooring: o Vinyl Composition Tile	Ceiling: o 2x2 Acoustical Ceiling Tile o Aluminum Grid
Base: o Resilient Wall Base	Walls: o Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: o 36'- 80' of open metal shelving (total) 12" deep, 84" high (FF&E)	Plumbing: o Verify Fire Protection System requirements
	HVAC: o Exhaust air system o Supplemental heat as required
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o Duplex receptacles o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o N/A

SS 12.1 Nurse's Office
Description: Nurse's offices in clinic suite in secondary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of work surface with drawers (total) ○ 6' of base cabinets w/ sink (total) ○ 6' of wall cabinets (total) ○ 2- 4 drawer file cabinets ○ 4' of marker board ○ 4' of tack board ○ Built-in closet ○ Medicine storage cabinet ○ 8.5" x 11" frame – evacuation map ○ 8.5 x 11" holder – emergency response plans ○ American flag/holder	Plumbing: ○ Verify Fire Protection System requirements ○ 2 basin sink ○ Ice Machine connections
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor/dimming ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Refrigerator. ○ Ice machine. ○ Vision Glass to Clinic Waiting Room.

SS 12.2 Exam Room
Description: Exam Room for clinic suite in secondary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4' sink base cabinet ○ 4' of wall cabinets ○ Built-in closet ○ Cubicle curtain track ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ Waste receptacle ○ 4' of tack board ○ AED cabinet	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to each data port ○ Central sound system ○ Receptacle for refrigerator ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Curtain (washable). ○ Storage area for eye/ear screen station/cart(s). ○ Emergency call notification.

SS 12.3 Boy's Rest Area
Description: Boy's resting area in clinic suite in secondary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of base cabinet ○ 3' sink base cabinet ○ 3' of wall cabinets ○ Cubicle curtain track ○ Towel dispenser ○ Soap dispenser (vendor provided) ○ 4' of tack board	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Curtain (washable). ○ Door vision strip. (Or no door.)

SS 12.4 Girls' Rest Area
Description: Girl's resting area in clinic suite in secondary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of base cabinet ○ 3' sink base cabinet ○ 3' of wall cabinets ○ Cubicle curtain track ○ Towel dispenser ○ Soap dispenser ○ 4' of tack board	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Curtain (washable). ○ Door vision strip. (Or no door.)

SS 12.5 Toilet Room
Description: Clinic toilet room in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Tile (sanitary cove)	Walls: ○ Tile (full height)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Towel dispenser ○ Tilt mirror (24” x 30”) ○ Toilet tissue holder ○ Grab bars (18”, 36” and 42”) ○ Soap dispenser (vendor provided) ○ Sanitary product dispensers ○ Waste receptacle ○ Hook on door ○ 18” of wall cabinets	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ Duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows. ○ Use mold and mildew resistant gypsum board and grout. ○ All water closets and lavatories to be vitreous china. ○ Waste receptacle (free standing) ○ “Vacant”/”Occupied” indicator on door.

SS 12.6 Waiting Area
Description: Waiting areas in clinic suite in secondary schools.

FINISHES:	
Flooring: ○ Resilient Sheet Flooring (w/ heat welded seams)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (washable) ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ N/A	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Occupancy sensor ○ Duplex receptacle ○ LED lighting ○ Illumination level: See Div. 26V ○ Central sound system ○ Fire alarm devices ○ Means of egress lighting per code ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Vision glass to corridor. ○ Vision glass to Nurse's Office.

SS 12.7 Speech and Hearing Therapy Office
Description: Speech and Hearing Therapy office in secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (design wall for acoustical isolation, no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of work surface with file drawers (total) ○ 4’ of marker board ○ 4’ of tack board ○ Built-in closet ○ 6’ of wall cabinets (total) ○ 8.5” x 11” frame – evacuation map ○ 8.5 x 11” holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ NO new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Door vision strip. ○ Provide door seals for acoustical isolation.

SS 12.8 Occupational/Physical Therapy Office
Description: Occupational/Physical Therapy Office for secondary schools.

FINISHES:	
Flooring: ○ Carpet	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted GWB (1 layer of 5/8", no sheet metal required)

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6' of work surface with file drawers (total) ○ 4' of marker board ○ 4' of tack board ○ Built-in closet ○ 6' of wall cabinets (total) ○ 8.5" x 11" frame – evacuation map ○ 8.5 x 11" holder – emergency response plans	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ No new unit ventilators
	Electrical: ○ Dimming control ○ Duplex receptacles ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle adjacent to data and video port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data and Voice Drops

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Door with vision strip.

SS 13.1 Corridors/Stairs/Elevators
Description: Building circulation support areas in secondary schools.

FINISHES:	
Corridor Flooring: ○ District Preference: Terrazzo ○ Alternative: Vinyl Composition Tile (on floor level 2+), upon approval of RCSD Facilities Design Group	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
	Elevator (by elevator manufacturer): ○ Walls: High pressure laminate ○ Ceiling: Suspended (diffused light) ○ Flooring: TBD, consult RCSD Facilities Design Group
Stair Flooring: ○ Sealed Concrete	Stair Treads: ○ Precast Terrazzo w/ embedded nosing ○ Sealed Concrete w/ embedded nosing or precast, upon approval of RCSD Facilities Design Group
Vestibule Entrance Flooring: ○ Walk-off mats – recessed (w/ floor drain)	Walls: ○ Painted CMU
Base: ○ District Preference: Terrazzo ○ Alternative: Resilient Wall Base, upon approval of RCSD Facilities Design Group	Interior Ramps: ○ District Preference: Terrazzo ○ Alternative: Vinyl Composition Tile, upon approval of RCSD Facilities Design Group

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Corridor lockers (recessed) ○ Semi-recessed fire extinguisher cabinets ○ AED cabinets ○ Handrails/guards	Plumbing: ○ Drinking Water Cooler/Bottle Filler with lead filters, dual level (in corridor alcoves) ○ Floor drain at water coolers ○ Floor drain at walk-off mats ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Temperature control ○ NO new unit ventilators
	Electrical: ○ Automatic switching system ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacles adjacent to each video port ○ Central sound system ○ Fire alarm devices ○ Means of egress lighting per code ○ Clock ○ Emergency lighting

Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ All Corridors shall be as follows: Without lockers -8'-0" minimum clear. Lockers on one side - 10'-0" minimum clear from face of wall to face of locker Lockers on both sides – 12'-0" minimum clear from face of locker to face of locker. ○ Display cases. ○ Doors to classroom/ student spaces/ offices to have vision strips.

SS 13.2 Public/Student Multiple User Toilet Rooms
Description: Multiple user public and student toilet facilities in secondary schools.

FINISHES:	
Flooring: o Tile (sloped to drain)	Ceiling: o 2x2 Acoustical Ceiling Tile (cleanable) o Aluminum Grid
Base: o Ceramic tile (sanitary cove)	Walls: o Tile (full-height) on CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Hand dryers o Soap dispenser (vendor provided) o Tilt mirror (18" x 36") with shelf o Mirrors (18" x 36") with shelves o Toilet tissue holders o Grab bars (18", 36" and 42") o Toilet partitions, phenolic, ceiling and floor mounted, full hinge, 30 degree open when unoccupied o Urinal screens, phenolic (males only) o Sanitary product dispenser (females only) o Sanitary product receptacles (females only) o Hooks on all toilet partition doors o Waste receptacle o Baby changer (Public toilet rooms)	Plumbing: o Wall-mounted water closets o Wall-mounted urinals (males only) o Wall-mounted lavatories o Wall hydrants w/ locking cover o Verify Fire Protection System requirements o Floor drain(s)
	HVAC: o Exhaust air system o Supplemental heat as required
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o 1- Duplex receptacle (GFCI) o Central sound system o Fire alarm devices o Emergency Lighting o Clock
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Provide minimum of one Accessible toilet stall. o Provide one Ambulatory stall for every 5 water closets exceeding 5 water closets. o All water closets, lavatories, and urinals to be vitreous china. o Separate different gender toilet room entrances by distance. o Frosted windows (if applicable). o Use mold and mildew resistant grout.

SS 13.3 Teaching/ Staff Toilet Rooms
Description: Single user toilet facilities for school staff in secondary schools.

FINISHES:	
Flooring: ○ Tile (sloped to drain)	Ceiling: ○ 2x2 Acoustical Ceiling Tile (cleanable) ○ Aluminum Grid
Base: ○ Ceramic tile (sanitary cove)	Walls: ○ Tile (full-height) on CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Hand dryer ○ Soap dispenser (vendor provided) ○ Tilt mirror (18" x 36") with shelf ○ Toilet tissue holder ○ Grab bars (18", 36" and 42") ○ Sanitary product dispenser ○ Sanitary product receptacle ○ Hook on interior of door ○ Waste receptacle	Plumbing: ○ Wall-mounted water closet ○ Wall-mounted lavatory ○ Verify Fire Protection System requirements ○ Floor drain
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacle (GFCI) ○ Central sound system ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Frosted windows (if applicable). ○ Use mold and mildew resistant grout. ○ Water closet and lavatory to be vitreous china.

SS 13.4 Custodial Office
Description: Custodial office in secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 4’ of marker board ○ 4’ of tack board ○ 6’ of wall cabinets (total) ○ 3’ of base cabinets (total) ○ 3’ of sink base cabinet (total) ○ Built-in closet ○ Lockers ○ Shelving	Plumbing: ○ Verify Fire Protection System requirements ○ Sink
	HVAC: ○ Supply/return air system ○ Independent temperature control
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Duplex receptacles adjacent to data port ○ Central sound system ○ Fire alarm devices ○ Clock
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Wireless Access Point ○ Data & Voice Drops

MISCELLANEOUS:
○ Cabinets/closet to be lockable. ○ Vision glass into office from corridor. ○ View of loading dock from office. ○ Locate Fire Alarm Control Panel in office upon review and approval of SED.

SS 13.5 Custodial Workshop
Description: Custodial workshop in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 16’ - 24’ of open metal shelving (FF&E) 84” high, 12” deep, 24” deep or 30” deep ○ 4 – 6 full height lockers ○ Mop holder	Plumbing: ○ Verify Fire Protection System requirements ○ Floor service sink ○ Floor drain
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Exhaust system
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Electrical receptacles for custodial equipment ○ Central sound system ○ Fire alarm devices ○ Clock ○ Telephone
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

SS 13.6 Building Storage
Description: Building storage in Secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD' of open metal shelving ○ 84" high, 12" deep, 24" deep or 30" deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Hazardous and flammable materials to be stored according to SED and applicable codes.

SS 13.7 Building Receiving
Description: Building receiving area in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Loading dock leveler and dock bumpers or Dock lift ○ Caged area	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hot & Cold hose bib w/ freezeproof sillcock (at loading dock exterior)
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Full height covered dock. ○ Overhead doors. ○ Double doors.

SS 13.8 Information Technology - Independent Distribution Facility (IDF) Closet
Description: Closet for technology equipment in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resistant Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ Data racks bolted to floor	Plumbing: ○ Verify Fire Protection System requirements
	HVAC: ○ Supply/return air system ○ Independent temperature control ○ Exhaust system ○ Air conditioning
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ 4- Duplex receptacles (minimum) ○ Central sound system ○ Fire alarm devices ○ Clock ○ Clean power circuits
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ Refer to DWT System requirements for facility for both quantity and distribution.

MISCELLANEOUS:
○ Door louver. ○ All cables to be labeled and tie wrapped. ○ Locate each closet no further than 300 feet from the furthest drop they service.

SS 13.9 Janitor's Closet
Description: Closets for janitorial equipment and supplies in secondary schools. Sized to accommodate floor cleaning machine, custodial rolling cart, and occupant to use basin simultaneously.

FINISHES:	
Flooring: o Sealed Concrete	Ceiling: o Exposed structure o Optional if needed for fire rating
Base: o Resilient Wall Base	Walls: o Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Mop holder o Metal shelves (6'-8' high) (FF&E) o Lockable metal cabinet (FF&E)	Plumbing: o Verify Fire Protection System requirements o Mop service basin o Floor drain w/ bucket strainer o Hose bibb
	HVAC: o Exhaust air system
	Electrical: o Occupancy sensor o LED lighting o Illumination level: See Div. 26V o 1- Duplex receptacles (GFCI) o Fire alarm devices
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Floor cleaning machine to drain directly to floor drain.

SS 13.10 Dispersed Storage Room
Description: Building dispersed storage rooms in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 10’ – 16’ of open metal shelving (total), 84” high, 12” deep, 24” deep, or 30” deep (FF&E)	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hot & Cold hose bib w/ freezeproof sillcock (at loading dock exterior)
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Double door with keyed removable mullion. ○ Total storage goal is 10% of total building area.

SS 13.11 Trash Room
Description: Trash room in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ N/A	Plumbing: ○ Verify Fire Protection System requirements ○ Floor drain ○ Hot & Code hose bib w/ freezeproof sillcock (at loading dock exterior)
	HVAC: ○ Exhaust air system ○ Supplemental heat as required
	Electrical: ○ Occupancy sensor ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles ○ Fire alarm devices
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ N/A

SS 13.12 Electrical Closets
Description: Closets for electrical equipment in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TDB by Design Professional	Plumbing: ○ TDB by Design Professional
	HVAC: ○ TDB by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Maintenance receptacles (emergency power) ○ Fire alarm devices ○ Sound system
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Door(s) not keyed on the building master system. ○ Backer boards for panels. ○ All panel labels to be typed.

SS 13.13 Electrical Generator Room
Description: Room for electrical generator equipment in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Fire alarm devices ○ Maintenance receptacles (emergency)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○

MISCELLANEOUS:
○ Equipment pads. ○ Fresh air intake.

SS 13.14 Electrical Substation Room
Description: Electrical Substation rooms in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TDB by Design Professional	Plumbing: ○ TDB by Design Professional
	HVAC: ○ TDB by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Emergency lighting ○ Maintenance receptacles (emergency power) ○ Fire alarm devices ○ Sound system
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ See SED and code requirements for room rating, door hardware, safety signs, and minimum height. ○ Door(s) not keyed on the building master system. ○ Equipment pads.

SS 13.15 Mechanical Equipment Room
Description: Room for mechanical equipment in secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete ○ Water proof membrane on floors above other building spaces for rooms with pumps, boilers and units with heating and cooling coils	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ Resilient Wall Base	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional ○ Hose bibb
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Maintenance receptacles ○ Emergency lighting
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Concrete pads for equipment.

SS 13.16 Outdoor Equipment Storage
Description: Outdoor maintenance equipment storage areas within school building for secondary schools.

FINISHES:	
Flooring: ○ Sealed Concrete	Ceiling: ○ Painted exposed structure ○ Optional if needed for fire rating
Base: ○ N/A	Walls: ○ Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ TBD by Design Professional	Plumbing: ○ TBD by Design Professional ○ Verify Fire Protection System requirements ○ Floor drain ○ Hose bibb w/ freeze cocks
	HVAC: ○ TBD by Design Professional
	Electrical: ○ Single level switching ○ LED lighting ○ Illumination level: See Div. 26V ○ Duplex receptacles (GFCI)
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Double exterior door with removable mullion.

SS 13.17 Security/Main Entrance Vestibule
Description: Security/Main entrance vestibule for building in secondary schools. Door to exterior, main corridor, and Main Office Suite's Reception/Waiting room. User forced to enter through Main Office Suite during specific times of the day.

FINISHES:	
Vestibule Entrance Flooring: o Walk-off mats – recessed (w/ floor drain) o Terrazzo perimeter (if applicable)	Ceiling: o Painted GWB
Base: o Resilient Wall Base (if applicable) o Terrazzo Base (if applicable)	Walls: o Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: o Storefront systems with security glass film	Plumbing: o Floor drain at walk-off mats o Verify Fire Protection System requirements
	HVAC: o TBD by Design Professional
	Electrical: o TBD by Design Professional o LED lighting o Illumination level: See Div. 26V o Means of egress lighting per code o Emergency lighting
Acoustics: o Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: o N/A

MISCELLANEOUS:
o Security intercom/ camera. o Storefront door to have continuous hinges, and panic hardware. o Provide canopy from bus loop to Main Entrance Vestibule (if possible.)

SS 13.18 Laundry
Description: General laundry equipment room for secondary schools.

FINISHES:	
Flooring: ○ Vinyl Composition Tile	Ceiling: ○ 2x2 Acoustical Ceiling Tile ○ Aluminum Grid
Base: ○ Resilient Wall Base	Walls: ○ District Preference: Painted CMU

FEATURES:	**SYSTEMS:**
Fixed Equipment: ○ 6’ of wall cabinets (total) above washer/dryer ○ 3’ base cabinet	Plumbing: ○ Verify Fire Protection System requirements ○ Utility sink ○ Floor drain ○ Hose bibb
	HVAC: ○ Exhaust air system ○ Supplemental heat as required ○ Dryer vent system, easily accessible for cleaning, duct < 3’ long
	Electrical: ○ Single level switching ○ Duplex receptacle (GFCI) ○ LED lighting ○ Illumination level: See Div. 26V ○ Fire alarm devices ○ Dedicated connections for washer and dryer
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements.	DWT: ○ N/A

MISCELLANEOUS:
○ Cabinets to be lockable. ○ Washer and electric dryer. ○ Locate near Custodial Office.

SS 14.1 Athletic Fields/ Open Areas

Description: Athletic fields and unprogrammed outdoor open areas at secondary schools.

MATERIALS:

- Site paving (asphalt, concrete, pavers)
- Athletic and recreational surfacing
- Fencing
- Bleachers (metal)
- Plantings
- Shade trees
- Site drainage

FEATURES:

- Do NOT cross streets, roadways, or driveways to access fields
- Provide fast-growing shade trees on perimeter of open fields and where allowable as to not interfere with courts/programmed fields/spectators
- Barrier-free accessible route from school to athletic fields
- Locate athletic fields near school building grade level areas (if possible), with consideration to noise
- Locate athletic fields near exterior Locker Room exits
- Locate athletic fields near Interscholastic Sport Storage Room in school building
- Locate athletic fields near parking area
- Provide handicapped accessible sections in bleachers
- Outdoor drinking fountains, freeze resistant, accessible
- Physical Education multipurpose grass turfed field, 280 feet x 320 feet
- Physical Education multipurpose grass turfed field, 350 feet x 380 feet
- Programmed fields and courts designed for interscholastic competition; verify all field size requirements
- One-fourth mile oval track, at least 10 feet away from the side of a playing field, with adjacent high jumping pits and pole vault area. If an oval track cannot be accommodated provide a straight-away 380 feet long x 20 feet wide track
- Football field, 400 feet x 220 feet; may place in oval track on exterior of football field - in which case plan for 600 feet x 280 feet
- Soccer field, 400 feet x 220 feet (may take place of multipurpose field)
- Asphalt pad with Basketball hoops for full court and half court games, 84 feet x 50 feet
- Confirm all outdoor space sizes with RCSD Facilities Design Group
- If playing fields are available for community use (verify), design access, security, and accessories accordingly

MISCELLANEOUS:

- N/A

SS 14.2 Outdoor Courtyards
Description: Outdoor courtyard areas at secondary schools for student instruction and/or leisure activities.

FINISHES:	
"Flooring": ○ Pavers (stone, brick, decorative, concrete) ○ Concrete (porous and non-porous) ○ Asphalt (porous and non-porous) ○ Grass ○ Mulch ○ Gravel ○ Planting Beds ○ Catch Basin ○ Storm Drainage Piping	"Ceiling:" ○ Shading Device District Preference: Tree canopies ○ Shading Device Alternatives: Canvas, wood trellises, pergolas, arbors, metal canopies, roof overhangs, tensile fabric, upon review and approval of RSMP
	Walls: ○ Brick ○ Concrete

FEATURES:	**SYSTEMS:**
○ Provide handicapped accessible equipment and play areas ○ Barrier-free accessible route from school to outdoor play area ○ Provide additional view opportunities from classrooms ○ Provide additional daylighting opportunities ○ Preference for natural deciduous shade trees ○ Stormwater collection system shall be provided to prevent ponding or standing water to accumulate within the courtyard in accordance with the NYS Stormwater Management Design Manual.	Plumbing: ○ Cold hose bib w/ freezeproof sillcock ○ Drains
	HVAC: ○ NO exhaust into courtyard below 8'
	Electrical: ○ Illumination level: See Technical Standards Table, See Div 26 ○ Provide GFCI exterior outlets ○ Central sound system ○ Life safety devices per IBC ○ Clock (exterior) ○ Means of egress lighting per code
Acoustics: ○ Refer to *ANSI/ASA S12.60 - latest edition* and the *NYSED Manual of Planning Standard – 1998,* Section S301 for requirements. ○ Consideration to noise and adjacency to building windows	DWT: ○ N/A

MISCELLANEOUS:
○ Materials and equipment suppliers must be listed on the current version of the NYSDOT Approved Materials and Equipment List (where applicable).

SS 14.3 Site Furnishings

Description: Site furnishings (benches, picnic tables, bicycle racks, trash receptacles, and bollards) at secondary schools.

MATERIALS:

- Metal benches
- Metal picnic tables
- Metal bicycle racks, min. 2-inch Sch. 40, ASTM A500 steel pipe, galvanized finish on all components
- Metal trash/recycling receptacles
- Metal and concrete bollards

FEATURES:

- Metal benches with backs and no arms
- Metal picnic tables with integral benches
- Bicycle racks designed to lock wheel only
- Bicycle racks that are bolted to ground surface
- Bicycle racks to accommodate 5% of the children enrolled
- Metal trash/recycling receptacles with secured lids or tops
- Metal or concrete bollards; lit or non-lit

MISCELLANEOUS:

- N/A

SS 14.4 Parent Drop-Off/ Pick-Up Drive

Description: Parent drop-off and pick-up drives at secondary schools.

MATERIALS:

- Asphalt
- Concrete
- Granite curbs
- Pavement Marking Material
- Subgrade Materials
- Steel Reinforcement
- Catch Basin
- Storm Drainage Piping

FEATURES:

- Separate from bus circulation
- One-way traffic
- Driveway to be a minimum of 24 feet wide
- Locate near main building entrance, close to administration office
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual.

MISCELLANEOUS:

- Materials and equipment must be listed on the current version of the NYSDOT Approved Materials and Equipment List.

SS 14.5 Bus Loop

Description: Bus loop/bus drop-off and pick-up areas at secondary schools.

MATERIALS:

- Asphalt
- Concrete
- Heavy duty concrete pavement
- Pavement Marking Material
- Subgrade Materials
- Detectable Warning Material
- Catch Basin
- Storm Drainage Piping
- Granite curbs

FEATURES:

- Separate car and bus circulation
- Diagonal bus parking spaces 13 feet in width by length of bus; either at 45 or 60-degree angle to curb
- Locate bus parking close to main school entrance
- Buses should not have to back up
- Provide paved barrier-free accessible walkways connecting all school activity areas
- Designed pavement and subsurface for required structural loads
- Heavy duty concrete (at least one bus length) at end of loop and heavy duty concrete apron to street.
- Bus parking area with over-stripping for after-school, special event parking (Car stripping 4-inch wide white lines; bus stripping 4-inch-wide yellow lines)
- All school bus drives should have a minimum 40-foot radius turn on the inner edge of pavement with at least a 100-foot tangent section provided between reverse curves
- Mountable curbing, with suitable drainage, should be constructed on all roads utilized by school buses within the school site
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual.
- LED lighting at loop

MISCELLANEOUS:

- Attention should be given in planning school bus parking, loading, and unloading areas to assure that backing a school bus will never occur and students are never permitted to walk between or behind school buses during loading or unloading, and while they are parked.
- Materials and equipment suppliers must be listed on the current version of the NYSDOT Approved Materials and Equipment Suppliers List.

SS 14.6 Parking Lots

Description: Parking lots at secondary schools.

MATERIALS:

- Asphalt
- Concrete
- Pavement Marking Paint
- Subgrade Materials
- Catch Basin
- Storm Drainage Piping
- Granite Curbs

FEATURES:

- Accessible Parking Spaces complying with ANSI 117
- Address code requirements for ADA parking, such as quantity, location, and special spacing of ADA parking spaces
- Concrete curb ramps complying with ANSI 117
- Provide paved barrier-free accessible walkways connecting all school activity areas
- Yellow identification striping on asphalt paving in parking lots
- 4” wide blue pavement markings for accessible parking space(s)
- Blue ADA symbol at accessible parking space(s)
- Conventional curbs without integral gutters
- Planting areas as paving cut-outs with concrete edging
- Wheel stops only at locations where necessary to protect planting, buildings, or walkways without curbs
- Bollard barriers to prevent vehicular traffic from entering upon non-vehicular pavement areas (optional)
- Staff parking space for each employees of school, including full-time staff, part-time staff, and student teachers
- Minimum of 8 parking spaces near building receiving area for Food Service and Custodial Staff
- Visitor parking space for 5% - 7% of the student population
- And 3 parent parking spaces, with signage designating them as such
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual.

MISCELLANEOUS:

- Materials and equipment suppliers must be on the NYSDOT Approved Materials and Equipment Suppliers List.

SS 14.7 Site Paving

Description: Site paving (including driveways, roadways, walkways, ramps, and curbs) at secondary schools.

MATERIALS:

- Asphalt
- Concrete
- Paint
- Pavement Marking Material
- Subgrade Materials
- Steel Reinforcement
- Detectable Warning Material
- Metal Handrails
- Catch Basin
- Storm Drainage Piping

FEATURES:

- Provide paved barrier-free accessible walkways connecting all school activity areas
- Reinforced concrete walks shall be a minimum 4 inches thick, with light broom finish perpendicular to the slope
- Ramps to be broom finished perpendicular to the slope
- Sanitary drain at all dumpster pads such that the drain only collects water from the dumpster pad
- Site grading/stormwater collection system shall be provided to prevent ponding or standing water to accumulate in accordance with the NYS Stormwater Management Design Manual

MISCELLANEOUS:

- Materials and equipment suppliers must be on the NYSDOT Approved Materials and Equipment Suppliers List.

ES 10.8 Site Lighting

Description: Site lighting at secondary schools.

MATERIALS:

- LED fixtures
- Light poles

FEATURES:

- Provide exterior LED lighting to enhance site security, including area lighting, walkway lights, and building perimeter illumination
- Parking lots to have minimum illumination level of 1-foot candle
- Walkways and general exterior areas to have illumination level of 2-foot candles
- Parking lot lighting poles to have a maximum height of 20'
- Lighting poles to be designed by a professional engineer
- All exterior lighting fixture assemblies including luminaire, pole, and base to be constructed to withstand 100 mph wind force
- All fixtures to be UL listed, minimum 22-gauge metal with a factory-applied corrosion resistant finish
- Eliminate direct-beam projection off-site or glare off buildings into adjoining occupancies
- All exterior fixtures to be night-sky compliant and vandal-resistant
- All underground power wiring to be in conduit
- Raceways on the building exterior are not acceptable
- Main building signage MUST be approved by RCSD Facilities Design Group. Signage should reflect neighborhood conditions (no electronic message board signs in residential areas.) Appropriate signage may be externally illuminated monument/ground sign (w/ substantial base made of masonry materials reflective of the school building), externally illuminated dimensional letter wall signage, or electronic message board signs (w/ substantial base made of masonry materials reflective of the school building). All signs to be orientated to be readable by vehicular traffic.

MISCELLANEOUS:

- N/A

SS 14.9 Landscaping

Description: Landscaping at secondary schools.

MATERIALS:

- Trees
- Shrubs
- Grass
- Mulch

FEATURES:

- Seasonal shade tree at perimeter of playground areas
- Tall deciduous trees to shade school building on southern exposures
- Wind break trees on western exposures
- Preserve existing trees and shrubs (if possible)
- Provide trees to shade parking and other large paved areas to reduce heat-island effect
- Keep trees out of drainage flow lines
- Avoid trees that drop fruit, excessive leaves or pods
- Space trees to have a maximum of 5’ overlap at full canopy size
- Locate trees to avoid providing access to upper floors, roof and impacting building foundation and walkways
- No trees with a caliper less than 3”
- Provide 12” wide, 6” deep with 2 number 3 bars spaced at 10-foot lengths concrete mow strips at grass when adjacent to fences, raised planters, buildings, walls, and curbs
- Use native plant materials that do not need irrigation after established
- Use native plant materials that is low maintenance and does not need trimming
- Use perennial plants rather than annual plants

MISCELLANEOUS:

- N/A

SS 14.10 Flagpole

Description: Flagpole at main entrance to secondary schools.

MATERIALS:

- One anodized aluminum pole for an American flag

FEATURES:

- Commercial grade
- Minimum 20’ height
- One piece construction
- Tapered straight pole
- Internal halyard (vandal resistant)
- Ball finial
- Coordinate structural design and wind speed rating with professional engineer; minimum 90 mph
- Satin finish
- In ground set style
- Flag

ELECTRICAL:

- LED light(s) to illuminate flag during the hours of darkness (1- pole mounted downlight or 2- vandal resistant ground lights)

SS 14.11 Fences

Description: Fencing at secondary schools.

MATERIALS:

- Aluminum or steel decorative fencing and gates
- Metal chain-link fencing and gates, vinyl coated, heavy duty 9-gauge fabric, 2” galvanized posts and frames with color coating
- Wood/composite wood fencing (screening)
- CMU fencing
- NO barbed wire or razor ribbon at top of fence, unless directed by RCSD Facilities Design Group

FEATURES:

- At adjacent residential areas, provide metal chain-link fencing
- Enclose the Trash Yard with solid walls or fencing and gates. Locate for easy access and trash pick-up, away from student areas, and out of direct view of neighboring property owners.
- Enclose Pre-Kindergarten outdoor play areas
- Enclose Kindergarten playground (if separate)
- Separate playground areas from parking areas by fencing (if applicable)
- Fence height to discourage hurdling
- Paving strip below fences to facilitate mowing and cleaning (optional)
- Heavy duty hinges and hasps for padlocks at all gates
- Welded ties for fabric on fences attached to poles and rails

MISCELLANEOUS:

- Allowable fence heights are location specific depending on adjacent property use
- RCSD Facilities Design Group to approve fence height(s) and materials

SS 14.12 Building Security

Description: Building Security at secondary schools.

MATERIALS:

- Refer to Chapter 28 – Electronic Safety and Security

FEATURES:

Electrical

- Access control system
- Video surveillance system
- Intrusion detection system

MISCELLANEOUS:

- Review space for applicability of the *ADA Accessibility Guidelines for Building Elements Design for Children's Use – 1998.*

SS 14.13 Site Utilities/Hot Box/Regulators/Etc.

Description: Site Utilities at secondary schools.

MATERIALS:

- Refer to Chapter 26 – Electrical
- Refer to Chapter 22 – Plumbing
- Refer to Chapter 21 – Fire Protection

FEATURES:

Electrical

- Dedicated 20A, 120V circuit from standby power
- GFI maintenance receptacle

MISCELLANEOUS:

- N/A

Rochester Schools Modernization Program
Rochester City School District Technical Standards

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RCSD Technical Standard
Chapter 3: Concrete

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for all Cast-In-Pace Concrete. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

A. SUMMARY

a. This section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

b. All installation of structural concrete shall be designed and/or reviewed by a structural engineer.

c. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

B. DEFINITIONS

a. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

C. DESIGN CONSIDERATIONS

a. No conduit shall be placed in concrete slabs without approval by the RCSD.

b. Consideration must be given to the precast connection to the superstructure, prior to commencement of construction.

c. Precast camber – minimum thickness of topping shall be measured at the high point of camber

d. Do not use gypsum-based products for anchorage into exterior exposed concrete.

e. Epoxy coat all reinforcing in exterior permanently-exposed face of concrete.

f. Coordinate brick ledges and exterior grades so that soils are not placed against exterior façade materials (e.g. stone, precast concrete, or masonry).

g. Form tie depressions shall be patched on all vertically formed concrete surfaces that are either exposed to view or are to receive damp-proofing or waterproofing.

h. Perimeter foundation walls shall receive, at minimum, fluid-applied dampproofing. Foundation walls that form the perimeter of a basement or crawl space, and elevator pit walls, shall be waterproofed. Provide a footing / wall water stop at waterproofed locations.

i. Pipe, conduit, and other penetrations through perimeter basement walls shall be provided with an appropriate seal as manufactured by Link-Seal or approved equal.

j. The minimum reinforcing for slab-on-grade and slab-on-deck concrete shall be WWF 6x6 – W2.1 x W2.1, with the WWF supplied in sheets, not rolls.

k. The minimum allowable vapor barrier under interior slabs-on-grade shall be a 12 mil reinforced polyethylene product (“Moistop” or approved equal.) The joints in the vapor barrier shall be sealed with the manufacturer’s recommended tape.

l. Concrete placement during cold weather conditions shall be performed in strict accordance with the ACI Standard Specification for Cold Weather Concreting.

m. Concrete slabs (exclusive of mud slabs) shall receive a minimum of a float finish; if indicated to be broomed, the slab shall be floated and then broomed.

n. Apply an acrylic curing compound similar to Sonneborn “Kure-N-Seal” to cast-in-place slab concrete. If there is a specified surface finish product or adhesive that is not compatible with the curing compound, it shall be the finish installer’s responsibility to remove the compound (sand, etch, bead blast, etc. as needed) prior to their installation.

D. SUBMITTALS

a. Concrete Mix Designs: Submit mix designs for each class of concrete. Indicate locations to be used. Include names and brands of materials, proportions, slump, strength, gradation of aggregates. Include laboratory test reports of trial strength and shrinkage tests.

b. Product Data: Submit manufacturer's product data for proposed products, including epoxy adhesive, grout, and concrete admixtures.

c. Shop Drawings:

i. Submit drawings that indicate the locations of all joints in concrete, including construction joints, expansion joints, isolation joints, and contraction joints. Coordinate with the requirements specified in Section 03100, Concrete Forming.

ii. Submit drawings that indicate concrete placement schedule, method, sequence, location, and boundaries. Include each type and class of concrete, and quantity in cubic yards.
iii. Submit drawings that detail the type, size, and location of all pipes, conduit, embeds, blockouts, and recesses for all vertical and horizontal concrete construction.
iv. Reproductions of contract drawings are unacceptable.

d. Submit for the Engineer's approval the name, address, and telephone number of the laboratory, agency, mill, or ready-mix plant which the Contractor intends to engage to design the concrete mixes.

E. PREINSTALLATION CONFERENCE: Architect/Engineer shall review requirements for pre-installation conference with RCSD Project Manager.

F. MOCKUPS: Architect/Engineer shall review requirements for mock-ups with RCSD Project Manager.

a. Cast concrete slabs-on-grade mockup to demonstrate typical joints, surface finish, texture, tolerances, and standard of workmanship.

b. Obtain Architect/Engineer's approval of mockups before starting construction.

c. If Architect/Engineer determines that mockups do not meet requirements, demolish and remove them from the site and cast another until the mockup is approved.

d. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

e. Demolish and remove mockups when directed.

f. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

G. DELIVERY, STORAGE, AND HANDLING

a. Deliver, store, and handle steel reinforcement to prevent bending and damage.

b. Avoid damaging coatings on steel reinforcement. Repair damaged epoxy coatings on steel reinforcement.

H. ACCESSORIES

a. Vapor Retarder: not less than 15 mils thick.

b. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand.

c. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel.

III. CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases.

B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.

C. Architect/Engineer shall specify a NYSDOT approved design mix with a minimum compressive strength of 3,000 psi at 28 days.

a. CONCRETE MIXING

b. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

D. EMBEDDED ITEMS

a. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.

IV. VAPOR RETARDERS

A. Place, protect, and repair vapor-retarder sheets.

B. Fine-Graded Granular Material: Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

C. Granular Fill: Cover vapor retarder with granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

V. STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating.

VI. JOINTS

A. Typically, joints are to be constructed true to line with faces perpendicular to surface plane of concrete. Special requirements shall be indicated on the drawings.

VII. CONCRETE PLACEMENT

E. Before placing concrete, contractor shall be required to verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

VII. CONCRETE SURFACE REPAIRS

A. Filling In: Contractor shall be required to fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place.

B. Defective Concrete: Contractor shall be required to repair and patch defective areas when approved by Architect/Engineer. Remove and replace concrete that cannot be repaired and patched to Architect/Engineer's approval.

C. Patching Mortar: It is recommended to mix dry-pack patching mortar, consisting of one-part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.

D. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

   a. Immediately after form removal, Contractor shall be required to cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

   b. Contractor shall be required to repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

c. Contractor shall be required to repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect/Engineer.

E. Repairing Unformed Surfaces: Contractor shall be required to test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

a. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks more than 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

b. After concrete has cured at least 14 days, correct high areas by grinding.

c. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

d. Correct other low areas scheduled to receive floor coverings with a repair underlayment.

e. Correct other low areas scheduled to remain exposed with a repair topping.

f. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete.

g. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar.

IX. POLISHED CONCRETE FLOOR FINISHING

A. The desired results of a ground, polished floor should be specified in three categories:
   a. Flatness and levelness of the concrete: Manufacturers typically recommend F(f)40 and F(l)25.

   b. Aggregate Exposure: Please note that each finish below will have some percentage of all four finishes. The finish choices are described as:
      i. Cream: No exposed aggregates.
      ii. Salt and Pepper: Exposed sand and small aggregate.
      iii. Medium: 1/8-inch to 1/4-inch exposed aggregate.
      iv. Heavy: 1/4-inch to 1/2-inch exposed aggregate.

B. The depth of the grind to achieve the desired results is dependent on the techniques used for finishing, the concrete mix, and the amount of time between concrete pouring and grinding. To avoid disputes later, however, it is necessary

to specify a minimum required depth of the grind of at least 1/4-inch. That gives the contractor a starting point to achieve the desired finish results.

C. Utilize a mock-up to determine the final technique. d. Do not grind and polish lightweight concrete. Shale aggregates will be pulled from the surface resulting in pits.

X. FIELD QUALITY CONTROL – TESTING AGENCY

A. Typically, the RCSD will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Architect/Engineer shall review project specific requirements with the RCSD Project Manager during the Design Phase of the project.

i. Testing Agency Qualifications: Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

ii. Testing Services: The following are recommended minimums for field quality control and testing. Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency:

a. Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.

b. Obtain at least one composite sample for each 100-cu. yd. (76 cu. m) or fraction thereof of each concrete mix placed each day.

c. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used. ii. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete

2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite

sample, but not less than one test for each day's pour of each concrete mix.

4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.

5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.

6. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.

    a. Cast and field cure one set of four standard cylinder specimens for each composite sample.

7. Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at 7 days and two at 28 days.
    a. Test two field-cured specimens at 7 days and two at 28 days.
    b. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.
    c. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
    d. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).

8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.

iii. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect/Engineer but will not be used as sole basis for approval or rejection of concrete.

iv. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect/Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect/Engineer.

END OF CHAPTER 3

RCSD Technical Standard
Chapter 4: Unit Masonry

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for miscellaneous metal items and their related components. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

I. This section includes concrete masonry units (CMU), face brick, including solids and mortar, grout, reinforcement, anchorages, flashing, and accessories shown, specified, or required to complete Work.

J. The architect should use all applicable references, codes and National industry standards to specify and complete work performed in this chapter.

K. Quality Assurance

a. Where indicated or required, provide materials and construction which are identical to assemblies whose fire endurance has been determined by testing in compliance with ASTM E119 by U.L.

b. Single Source Responsibility:
   A. Obtain masonry units of uniform texture and color, or a uniform blend within the accepted ranges for those characteristics, from one manufacturer.
   B. Brands of cementitious materials and admixtures, and the source of supply of sand and aggregates shall remain the same throughout the Work.

L. Required Tests, Inspections, and Coordination
   a. Require for the materials and installation of masonry shall be subject to testing and inspection by an independent testing laboratory. Such tests and inspections shall not relieve Contractor of responsibilities for providing materials and procedures which comply with Contract Documents.
   b. Openings and chases for heating, plumbing, electrical ducts, pipes, and conduits shall be built into masonry walls as required. Provide for installation of bolts, toggles, flashings, beams, anchors, hangers, nailing strips, wall plugs, and frames as required. Consult other trades in advance and make provisions for installation of their work to avoid cutting and patching. Coordinate installation of steel reinforcement for reinforced masonry. Coordinate placement of concrete in masonry beams, lintels, soffits, and pilasters.
   c. Require coordination with work of Section 07 11 00, Damp proofing above Grade and all Sections of Work built-in, adjacent to, or applied to unit masonry work.

M. Require a warranty for the work specified for one year against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials or workmanship.
    a. Defects shall include noticeable deterioration of unit or mortar finish, chalking or dusting excessively, changing color in irregular fashion, cracking or spalling, releasing from substrate and staining or discoloring, including efflorescence.
    b. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

III. PRODUCTS

A. Where products are named in the design guidelines, they are considered basis of the guidelines. Other approved manufacturers must have supplied a 500,000 brick project in the last 5 years within the purposed project area to be considered.

B. MATERIALS
    1. Concrete Masonry Units (CMU/Block):
        A. Type/Sizes: H
            1. Concealed cavity block and interior block, unless otherwise noted shall be regular smooth face units with 8 inch by 16 inch face dimensions as required, 4 inch, 6 inch, and 8 inch depths as indicated on drawings.
            2. Exterior exposed block shall be integrally colored face units with 8 inch by 16 inch face dimensions or required, 4 inch, 6 inch, and 8 inch depths as indicated on drawings.
    2. Integral Water Repellant (In exterior exposed CMU) shall be a “Dry-Block Block Admixture” as manufacturer by W.R. Grace & Co., or equal. Require liquid polymeric, integral water-repellant admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E514 as a wall assembly made with mortar containing integral water-repellent manufacturer’s mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
    3. Comply with ASTM C90 (Class D-2 (2 hour) and Class B-4 (4 hour)) block at rated walls) with a type N grade for the highest standard for typical cavity block and interior use. Type S, for exterior exposed masonry walls. Aggregate should be lightweight in accordance with ASTM C331.
    4. Curing should be a rotary kiln process.
    5. Provide bullnose units at all outside corners, except where ceramic wall tile is scheduled.
    6. Provide graffiti protection on split faced CMU.
    7. Provide bond beams, control joints, jambs, lintels, soaps, cap blocks, and fillers to match and compliment block units as shown or required.
    8. Large assembly spaces like cafeterias, auditoriums and natatoriums will use acoustical CMU on the upper portion of the back walls.

C. Face brick, complying with the requirements of ASTM C216 or C652, Grade SW.
    1. Specify brick that has an initial rate of absorption less than 30g/30 sq. in. per minute when tested per ASTM C67.

D. Mortar:
    1. Mortar, unless stated otherwise in structural drawings, should be made of portland cement: ASTM C150, Type 1, hydrated lime: ASTM C207, TYPE “N”, typical (TYPE “S” for load-bearing masonry), aggregate: sand conforming to ASTM C144, and clean and potable water.
        A. Admixtures for Mortar include spectrum mortar color for face brick and concrete masonry units. In general, do not use calcium chloride.
    2. Mix Design: (Proportions by volume) (Unless stated otherwise on Structural Drawings)
        A. Typical, Non-load bearing masonry shall comply with ASTM C270, Type “N” with proportions of 1 part cement, 1 part hydrated lime and 6 parts sand to provide a compressive strength of 750 psi in 28 days. Do not use calcium chloride.
        B. Load bearing structural masonry shall comply with Type: ASTM C270, Type “S” with proportions of 1 part cement, 1/2 part hydrated lime and 4-1/2 parts sand to provide a compressive strength of 1800 psi in 28 days. Do not use calcium chloride.
    3. Grout:
        A. Grout shall be made of hydrated lime: ASTM C207, TYPE “S”, Portland cement: ASTM C150, Type 1, clean, potable water and aggregates. Course aggregate shall conform to ASTM C404 and fine aggregate shall conform to ASTM C144.
        B. Mix Design shall comply with ASTM C476 to provide a compressive strength of 2,500 psi in 28 days, unless noted otherwise. Do not use calcium chloride.
            1. Fine grout conforming to ASTM C476 and consisting of 1 part Portland cement, 0 to 1/10 part lime and 2-1/4 to 3 parts sand by volume.
            2. Course grout conforming to ASTM C476 and consisting of 1 part Portland cement, 0 to 1/10 part lime and 2-1/4 to 3 parts sand, and 1 to 2 parts course aggregate.

E. Reinforcement, Anchors, and Tie Systems:
    1. Reinforcement shall be used in all wythes shall be galvanized after fabrication in accordance with ASTM A153, Class B-2.
    2. Pre fab corners and tees shall be used at all wall corners and intersections.
    3. Anchors detailed on Structural Drawings supersede.

F. Block Insulation:
    1. Rigid Core Inserts shall be “U” shaped insulation inserts conforming to ASTM C578, replacing Federal Specification (FS) HH-I-524C, Type I, specification for Preformed Cellular Polystyrene Thermal Insulation. Sizes, as required for 6 inch, 8 inch, 10 inch, and 12 inch blocks as shown or required.

2. Loose Core Fill should be loose perlite or vermiculite insulation conforming to ASTM C332, Standard Specification for Lightweight Aggregates for Lightweight Concrete. Loose fill insulation shall be certified asbestos-free.
3. Foamed-In Place Block Insulation shall be a two component system consisting of amino-plast resin and a catalyst foaming agent surfactant. a. It should be designed to completely fill irregular or hard-to-reach spaces, can be installed in both new and existing concrete masonry unit construction, have excellent energy and sound insulation values, have no settling or expansion after installation, superior fire and safety performance, no CFC's or HFC's and is safe for the environment.
4. Sand Fill should be clean, dry sand of type recommended to suit application.

G. Precast Concrete U-Lintels
1. Concrete Materials are portland cement: ASTM C150 Type I or III, gray color, Aggregates: ASTM C33, potable water and shall contain calcium chloride or chloride ions.
2. Reinforcing include deformed reinforcement: ASTM A615 Grade 40 or 60 and prestressing strand: ASTM A416 270 ksi LL.
3. Fabrication, unless specified otherwise, shall conform to PCI MNL-116. U-lintel units 14 feet in overall length and shorter shall be made of concrete with a minimum strength of 3500 psi at 28 days. U-lintel units exceeding 14 feet in overall length shall be made of concrete with a minimum strength of 6000 psi at 28 days and shall be prestressed concrete. Units shall be sand block finish except prestressed, 6-inch wide, and 12 inch wide U-lintels shall be smooth form finished. Tolerances shall be per PCI MNL-116. Minor patching in plant is acceptable provided structural adequacy of units is not impaired.

H. Miscellaneous Materials:
1. Reinforcing Steel: ASTM A615, Grade 60.
2. Form grade plywood with wood studs and wales as required.
3. Patented shores of design and manufacture sufficient to safely support imposed loads.
4. Premolded Filler shall be fibrous mastic strips containing 35 percent to 50 percent asphaltic impregnation, ASTM D1751.
5. Flashing Cement shall be "Nervaplast" cold setting mastic
6. Building Felt shall be No. 15 asphalt saturated felt, ASTM D226.
7. Request 16 gauge galvanized dovetail corrugated masonry anchor, 1 inch x 3-1/2 inch.
8. Headed Stud Anchor shall be welded by full-fusion process.
9. Bolts shall comply with ASTM A307. Furnish with carbon steel washers.
10. Deformed Bar Anchors shall be welded by full-fusion process.
11. Reinforcing Bars to be welded per ASTM A706.
12. Cavity Drainage Protection shall be 2 inches thick by 10 inch high by 5 feet long recycled polyester/ polyethylene mesh, trapezoidal-shaped, continuous at foundation, at heads above openings, and shelf angles.
13. Masonry Color should be an iron oxide pigment conforming to ASTM C979 shall be inert, stable to atmospheric conditions, sunfast, weather

resistant, alkali resistant, water insoluble, and free of fillers and extenders.

14. Weep Hole Vents are injection molded vent made from flexible polyvinyl chloride in an offset "T" shape, inserted in head joints, the slotted leg of the vent allows air to pass in and out allows water to weep out and prevents water from penetrating in. Weep hole vents shall be sized to match masonry (possible custom sizing).

I. MASONRY CLEANING MATERIALS
   1. Water: Clean, potable, and free of oils, acids, alkalis, salts, and organic matter. Use to rinse masonry surfaces and dilute concentrated cleaners.
   2. Chemical cleaner may be used, verify product use based on masonry color being cleaned as instructed by manufacturer.
   3. Muriatic acid is not permitted.

IV. EXECUTION

A. The architect/engineer should include the following requirements in their specifications and include directives as necessary to fulfill the project specific requirements.
   1. Provide forms and shores sufficiently strong and rigid as required to support soffits, beams, and lintels during construction.
   2. Build forms to conform to shape, line, and dimension of masonry members as detailed, substantial and sufficiently tight to prevent leakage of mortar, grout or concrete. Properly brace or tie together so as to maintain position and shape.
   3. Concrete Masonry Units, where cutting is required, masonry shall be cut with a sharp masonry saw. Ensure concrete masonry units to receive sand fill are ready for filling and cutouts are protected from material spillage.
   4. Dampen brick before laying in a manner consistent with the nature of the brick, the mortar, and the weather conditions.
   5. Mortar and Grout:
      A. Use suitable containers for material measurement. Measuring sand by the shovel is not acceptable. Thoroughly machine mix a min. of five minutes after all materials are in mixer. Consistency will completely fill all spaces intended to receive grout. Use within 2-1/2 hours of initial mixing. Mortar or grout shall not be used if curing has progressed to yield a stiff consistency.
   6. Reinforcement:
      1. Reinforcement shall be free from loose rust and other coatings that would reduce the bond. Cut accurately to length and bend by such methods as will prevent injury to the material. Straighten out kinks or bends.
   7. General:
      1. Do not use chipped or cracked concrete masonry units (CMU) and face brick, where exposed to view.
      2. Use masonry saws to cut and fit exposed units.
      3. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide

units without cores or frogs and with exposed surfaces finished.

4. Exposed masonry at exterior corners shall be solid units.
5. Clean surface of masonry smooth and free from projections which might puncture or otherwise damage flashing material.
6. Place through-wall flashing as follows:
    a. Place on bed of mortar and cover with mortar.
    b. Provide at steel columns and beams in exterior masonry walls and elsewhere as indicated on the drawings or required.
    c. Install asphalt laminated copper membrane as base flashing at all exterior cavity walls below weep holes.
    d. Install at material transitions inside exterior cavity walls, roof edge/exterior wall transitions, masonry joints (control/expansion) inside exterior cavity walls, exterior wall sill/weep conditions, exterior door and window frame perimeters, roof deck/exterior wall transitions, exterior wall penetrations (i.e. pipe, conduit, ducts, etc.). Provide membrane at all joints, holes, gaps or openings to ensure a continuously sealed building envelope.
7. Lay masonry units plumb, true to line, and with level courses accurately spaced within allowable tolerances.
8. Do not furrow bed joints.
9. Stop off horizontal run by racking back in each course; toothing is not permitted.
10. Adjust units to final position while mortar is soft and plastic.
11. If units are displaced after mortar has stiffened, remove, clean joints and units and re-lay with fresh mortar.
12. When joining fresh masonry to set or partially set masonry, remove loose masonry units and mortar and clean and lightly wet exposed surface of set masonry prior to laying fresh mortar.

8. Fill Metal Door jamb frames with solid with mortar. Build in anchors.

9. For Lintels and Bond Beams, provide reinforced unit type, except where steel lintels are shown. Use reinforcing bars as shown on the drawings. Completely fill in lintel block and bond beams with grout. Provide 8 inch bearing at end of lintels.

10. Connect corners with No. 9 galvanized wire or corrugated tie using one tie for each 4 inches of nominal wall thickness.

11. Allow space at top of horizontal spanning walls for compressible joint back-up and sealant as specified in Sealant section. Anchor top of walls to deck or structure.

12. Mortar Beds:
    A. Place mortar in a manner which will result in the development of adequate bond between the masonry and the reinforcement.
    B. Lay units with full mortar coverage on horizontal and vertical joints in all courses.
    C. Provide sufficient mortar on ends of masonry unit to fill head joints.
    D. Rock closures into place with head joints thrown against two adjacent masonry units in place.
    E. Do not pound corners or jambs to fit stretcher units after setting in place.
    F. Where adjustment to corners or jambs must be made after mortar has started to set, remove mortar and replace with fresh mortar.

13. Mortar Joints and Patterns:
    1. Lay CMU in running one-half (1/2) bond pattern, unless noted otherwise.
    2. Lay brick in running one-third (1/3) bond pattern, unless noted otherwise on drawings. Refer to drawings for accent coursing.
    3. Provide flush joints where concealed from view and where dampproofing is scheduled.
    4. Provide standard concave tooled joint where masonry is exposed to view for brick and CMU, typically.
    5. All mortar joints to be of consistent size.
    6. Provide soldier courses where indicated, refer to the elevations.
    7. All horizontal joints shall be concave tooled joint at face of units, unless noted otherwise.

14. Reinforcement, Anchor and Tie Systems:
    1. Completely embedded in mortar or grout.
    2. All reinforcement consisting of bars or wire 1/4 inch or less in diameter embedded in the horizontal mortar joints shall have no less than 5/8 inch mortar coverage from the exposed face.
    3. Where modular brick is used with brick coursing at 16 inches on center, provide ladder reinforcing within each wythe at 16 inches o.c. vertically for exterior wythe and back-up wythe, whether detailed or not.
    4. Veneer anchors at exterior sheathed covered metal stud exterior walls shall be attached on outside face of sheathing using cadmium plated sheet metal screws. Spacing shall be same as stud spacing o.c. horizontally and 16 inches o.c. vertically.
    5. Veneer anchors at Interior brick walls with metal stud back-up shall be the same as Paragraph “d” above, except anchors shall be attached directly to metal stud with

recommended corrosion resistant fasteners in accordance with manufacturer's recommendations.

6. At intersection of all perpendicular masonry walls provide two vertical rows of ladder type reinforcing at 16 inches o.c. vertically.
7. Weld veneer anchors to structural steel in accordance with manufacturer's recommendations. Touch-up steel shop paint and galvanized coating on anchor with proper touch-up paint to match damaged coating in accordance with manufacturer's recommendations.
8. In cavity walls with CMU back-up, embed truss type horizontal reinforcement with integral adjustable pintle wall ties every 16 inches o.c. vertically.
9. Splices in reinforcement: Splices may be made only at such points and in such manner that the structural strength of the member will not be reduced. Lapped splices shall be eight inches. Welded or mechanical connection shall develop the strength of the reinforcement.
10. Corrugated strap ties shall not be used as veneer anchors at exterior or where subject to moisture. Their use in interior, dry conditions are acceptable.
11. Place joint reinforcement in the first two bed joints above and the first two bed joints below masonry openings. Extend extra reinforcing two feet beyond jambs. Provide masonry ties at floor and roof decks as indicated.

15. Lay masonry units plumb, level, and true to line with full head and bed joints. Butter ends of masonry with sufficient mortar to fill head joints. Do not furrow bed joints. Slope top of bed joint toward center of wall to minimize amount of mortar forced into grout space. Remove mortar, protruding from joints into grout space, before pouring grout.

16. Reinforcing Bars:
    1. Hold vertical bars in position at top and bottom and at intervals not exceeding eight 8 feet-0 inches with a minimum clearance of 1/4 inch from masonry and not less than one bar diameter between bars.
    2. When a foundation dowel is not in alignment with a vertical block cell or pilaster, slope it not more than one horizontal in six vertical to bring it into proper alignment before grouting.
    3. Place horizontal reinforcing bars in continuous masonry courses, consisting of bond-beam or trough block units, and solidly grout in place.
    4. Use straight reinforcing bars except for bends around corners and where bends or hooks are detailed on plans.
    5. Lap reinforcing steel 40 bar diameters minimum where spliced and wire together.

17. Where detailed place grout in reinforced masonry beams, walls, columns, and pilasters. All cells and spaces containing reinforcing bars shall be

filled with grout. Wherever possible grouting shall be done from inside face of masonry. Exercise extreme care to prevent grout from staining face of masonry. Immediately remove any spilled grout from face and top of masonry.

1. Prior to grouting clean space so that all spaces to be filled with grout do not contain mortar projections greater than 1/2 inch, mortar droppings or other foreign material. Grout shall be placed so all spaces designated to be grouted shall be filled with grout and grout shall be confined to those specific spaces.
2. Grout materials and water content shall be controlled to provide adequate fluidity for placement, without segregation of constituents and shall be mixed thoroughly.
3. Between grout pours a horizontal construction joint shall be formed by stopping all wythes at the same elevation and with grout stopping a minimum of 1-1/2 inches below a mortar joint, except at top of wall. Where bond beams occur, stop grout pour a minimum of 1/2 inch below top of masonry.
4. Reinforcement shall be placed prior to grouting. Bolts shall be accurately set with templates or equivalent means and held in place to prevent movement.
5. Segregation of grout materials and damage to masonry shall be avoided during the grouting process. Adequately brace masonry to prevent displacement or cracking during grouting operations.
6. Grout shall be consolidated by mechanical vibrator during placing, before loss of plasticity, in a manner to fill grout space. Grout pours greater than 12 inches shall be reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours 12 inches or less in height shall be mechanically vibrated, or puddled. Grout shall not be handled nor pumped utilizing aluminum equipment.
7. Size and height limitations of grout space or cell shall be as follows:

GROUT TYPE	GROUT POUR MAX HEIGHT (FT)	LEAST CLEAR DIMENSIONS		CLEANOUTS REQUIRED
		Width of Grout Space (IN)	CMU Cell Dimensions (IN x IN)	
Fine	1	3/4	1-1/2 x 2	No
Fine	5	1-1/2	1-1/2 x 2	No
Fine	8	1-1/2	1-1/2 x 3	Yes
Coarse	1	1-1/2	1-1/2 x 3	No
Coarse	5	2	2-1/2 x 3	No
Coarse	8	2	3 x 3	Yes

1. Clear dimension is the cell or grout space width less mortar projections.
2. Grout space width shall be increased by the horizontal projection of the diameters of horizontal bars within the cross section of the grout space.

8. Place grout in lifts not exceeding 8 feet-0 inches.

18. Concreting: Supervise placing of concrete in cores of masonry beams and lintels and over masonry soffits where structural concrete is detailed. Report discrepancies or procedures which may adversely affect performance of masonry work.

19. Brick Weepholes:
    1. Provide weepholes above all thru-wall flashings where weepholes occur at the base of the wall. The mason shall coordinate the location of the thru-wall flashings with the location of the sidewalks on the civil engineering drawings. Both weepholes and thru-wall flashings shall be above the first course of brick above the sidewalks. Pay particular attention to areas near exterior doors.
    2. Ensure cavity drainage protection is properly installed.
    3. Leave head joint free and clean of mortar.
    4. Spacing: 20 inches on center maximum for king sized brick, and 24 inches on center for modular brick and block, unless shown otherwise.
    5. Keep weepholes and area above flashing free of mortar droppings.
    6. Coordinate weep holes to be located above sidewalks and paving.

20. Sealant Joints:
    1. Allow for sealant joints around outside perimeters of exterior doors, window frames and other wall openings. Have a uniform depth of 3/4 inch and a uniform width as shown on the drawings but not less than 1/4 inch.

21. Movement Joints (Expansion Joints and Control Joints):
    1. Locate expansion and control joints as shown on drawings, or if not shown, comply with the following: a. Vertical expansion joints shall be placed in the brick wythe and control joints shall be placed in the concrete masonry wythe, although they do not necessarily have to be aligned.
    2. Mortar and joint reinforcement shall not bridge brick movement joints.
    3. Mortar joints which stop at the expansion joint cavity shall be struck flush with the masonry unit, producing a continuous flat surface for the sealant to adhere to.
    4. Vertical Expansion Joints should be located on long straight walls without openings maximum 25 feet-0 inches.

5. Locate expansion joints at the corner of walls perpendicular to one another. In instances, where the joint is not desired at the corner, the expansion joint shall be located within 10 feet-0 inches of the corner in either wall, but not necessarily both. The spacing of expansion joints around a corner shall not exceed the spacing of expansion joints in a straight wall. For example, if the 7spacing between expansion joints on a straight wall is 25 feet-0 inches, then the spacing of expansion joints around a corner could be 10 feet-0 inches on one side of the corner and 15 feet-0 inches on the other side. Joint reinforcement may be added around wall corners to provide added tensile strength to the corner, but joint reinforcement shall not bridge the expansion joint.
6. Offsets and Setback expansion joints shall be located at 10 feet-0 inches maximum on one side of the offset or setback. The spacing of expansion joints around an offset or setback shall not exceed the spacing of expansion joints in a straight wall. See expansion joints at corners of perpendicular walls to one another above for example of spacing.
7. Openings (Doors and Windows):
    a. Locate vertical expansion joints along the edge or jamb of the opening of windows and doors. Single opening windows and doors under 6 feet-0 inches in width shall have expansion joint on one side of the edge or jamb of the opening, unless shown otherwise on drawings. Windows and doors 6 feet-0 inches and over in width shall have expansion joints on both sides of the edge or jamb of the opening.
    b. Where masonry above an opening is supported by shelf angles attached to the structure, a vertical expansion joint shall be located alongside the opening, continuing through the horizontal support.
    c. Where masonry above the opening is supported by loose lintels (unattached to the structure), special detailing and construction is required. If the expansion joint runs alongside the opening, the loose steel lintel shall be allowed to expand independently of the masonry. To accomplish this, form a slip plane with flashing located above and below the angle. A backer rod and sealant shall be installed in front of the toe of the angle, and space shall be left at the end of the angle. Thus, a pocket will be formed which will allow movement of the steel angle within the brickwork. If the joint cannot be built in this manner, then the vertical expansion joint shall not be located alongside the opening, but rather, the joint shall be located halfway between the openings.

8. Intersections and Junction expansion joints shall be located at intersections of masonry walls and walls which serve different functions. If the masonry is not required to be bonded at the intersection, an expansion joint shall be incorporated. Walls which intersect at other than right angles are also vulnerable to cracking at the intersection. Locate expansion joint to separate adjacent walls of different heights to avoid differential movement, especially if the difference is very large.
9. All vertical expansion joints shall be carried through the parapets. Additional expansion joints shall be halfway between those running full height, unless the parapet is reinforced. These additional expansion joints shall continue down to a horizontal expansion joint, or continue to the base of the wall.
10. Locate horizontal expansion joints at shelf angles supporting brick masonry.
11. Locate CMU control joints directly over concrete slab control joints. Whenever possible, lay out CMU so that control joint will coincide with CMU module (25 feet-0 inch maximum spacing between control joints), unless noted otherwise on drawings. Locate control joints at structural columns to isolate movement from continuing or intersecting walls and columns. Install backer rod and sealant in accordance with manufacturer's instructions.

22. Block Insulation: (As shown or required)
    1. Rigid Core Inserts: Fill concrete masonry unit cells completely with insulation in accordance with manufacturer's instructions.
    2. Loose Core Fill: Fill concrete masonry unit cells shown or required completely with loose core fill. Ensure concrete masonry units to receive loose core fill are ready for filling and cutouts are protected from material spillage. Place signs on filled walls stating, "Do Not Cut Openings or Drill In This Wall" once fill is placed.
    3. Foamed-In Place Block Insulation: Make sure concrete masonry units to receive foamed in place block insulation are ready for drilling and filling. Drill holes and fill concrete masonry unit cells completely with insulation in accordance with manufacturer's instructions. Plug holes with cement mortar and leave surface smooth in accordance with manufacturer's instructions.
    4. Sand Fill: Fill concrete masonry unit cells shown or required completely with sand. Ensure concrete masonry units to receive sand fill are ready for filling and cutouts are protected from material spillage. Place signs on filled walls stating, "Do Not Cut Openings or Drill In This Wall" once fill is placed.

B. Allowable Tolerances

1. Maximum variation from plumb:
    1. In lines and surfaces of columns, walls and at rises:
        a. 1/4 inch in 10 feet (1:480)
        b. 3/8 inch in 20 feet (maximum)
        c. 1/2 inch in 40 feet (1:960)
    2. For external corners, expansion joints and other conspicuous lines:
        a. 1/4 inch in 20 feet (maximum)
        b. 1/2 inch in 40 feet (1:960)
2. Maximum variation from level:
    1. 1/4 inch in any bay or 20 feet
    2. 1/2 inch in 40 feet (1:960)

C. Removal of Forms and Shores
1. Do not remove shores and forms under reinforced masonry beams, lintels, and soffits until members have hardened sufficiently to carry their own weight and other super imposed loads. Providing that sufficient curing has taken place, leave forms and shores in place as follows: Beam and lintels: Minimum ten (10) days.
2. Allow 16 hours to elapse after completion of masonry columns and walls before placing floor or roof construction loads on them. Allow an additional 48 hours before applying concentrated loads such as trusses, girders, and beams.

D. Repairing, Pointing, and Cleaning
1. All holes in exposed masonry shall be pointed, and defective joints shall be cut out and re-pointed with mortar.
2. Before applying any cleaning agent to the entire wall, it shall be applied to a sample wall area of approximately 20 square feet. Sash, metal lintels and other corrodible parts shall be thoroughly protected.
    1. Clean all exposed surfaces of new masonry of excess mortar, efflorescence, stains, and job dirt, using materials specified.
    2. Clean from bottom up; prevent cleaning materials and rinse water from contacting non-cementitious materials.
    3. Clean in accordance with manufacturer's instructions and recommendations, product data, and container label instructions.
    4. Mix materials in strict accordance with manufacturer’s instructions; do not dilute unless permitted by manufacturer.
    5. Prevent overspray, wind drift, and splash onto surfaces not to be treated.
    6. No high pressure washers are permitted.
    7. Low pressure spray for wetting and rinsing is permitted. Pressure should be in the range of 400-1000 psi. Equipment should produce 6-8 gallons of water per minute using a 15-40 degree fan tip (no fan tip less than a 15 degree is allowed).

8. No metal tools or wire brushes are allowed for cleaning of masonry. Use a waste piece of same masonry material for scraping of installed material.

3. Imperfect or damaged work, or any material damaged or determined to be defective before final completion and acceptance of the entire job, shall be satisfactorily replaced at Contractor's expense and in conformity with all requirements of drawings and specifications. Removal and replacement of masonry work shall be performed in such a manner as not to impair the appearance or strength of the structure in any way.

END OF CHAPTER 4

RCSD Technical Standard
Chapter 5: Metal

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for miscellaneous metal items and their related components. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

N. This section includes miscellaneous metal items and their related components.

O. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

P. For all manufactured items, request all layouts, sizes, methods of construction and installation including sizes and types if all fastening devices. For custom fabricated items, submit design calculations for the materials and their connections designed by the Contractor, prior to or with the shop drawings. Calculations shall bear the seal of a Licensed Professional Engineer with the State of New York.

Q. Metal Roof Decking
   a. Hot dip galvanized metal roof decking with G90 coating, shall be specified with the appropriate gauge for the span.
   b. Metal decking used for concrete slab forms should be of sufficient gauge to support concrete placement without buckling or deformation from traffic.
   c. Flutes of metal decking supporting rigid insulation should be of proper size to accommodate the span capability of the specified insulation.
   d. Acoustical metal deck is to be used in gymnasiums. This deck is to have a flat bottom where visible.
   e. Architectural metal deck is to be used in applications where it will remain visible in all other locations.

R. No field painted handrails, bollards, bike racks, etc. Only factory finishes are acceptable.

S. All handrails shall be anchored to each substrate type with appropriate anchor type and blocking.

T. All handrails shall meet applicable code requirements.

III. PRODUCTS

A. Materials

1. Structural steel shapes shall comply with ASTM standards and the preferred material specification listed in the current version of the AISC Steel Construction Manual.

2. Welding guidelines include Finish #1 for interior handrails and guardrails, Finish #2 for typical ornamental metals exposed to view, and Finish #3 for miscellaneous exposed metals in non-public spaces per NOMMA.
3. Bolts shall comply with ASTM A307 and be sized at 3/4 inch, unless otherwise noted.
4. Expansion bolts include 1/4 inch or less and greater than 1/4 inch. Minimum embedment shall be per manufacturers recommendations.
5. Molly screw anchors in walls 1/16 inch to 5/8 inch thick should be “S” length, in walls 5/8 inch to 3/4 inch thick, “L” length, and in walls 1-1/4 inch to 1-3/4 inch thick, “XL” length.
6. Any ungalvanized ferrous metal with primer to be shop coated, except for those to receive application of spray-applied fireproofing. Overall application of a brush or spray coat of red oxide primer shall be in accordance with SSPC – Paint 25.
7. Galvanized metal should comply with ASTM A123. All steel sections which are fully or partially exposed to weather should be galvanized. Hot-dip galvanization should occur after fabrication. Silicone protective coating shall not be used at galvanized items scheduled to receive paint.
8. Stainless steel should comply with ASTM Standards and be Type 302 or 304 with a concealed No. 2D finish.
9. Aluminum should be type 6061 or 6063 with a mill finish if concealed and a milled, anodized or PVDF resin finish if exposed.

B. Miscellaneous Metal Items

1. Provide hot-dip galvanized or shop painted steel pipe bollards filled with 2,500 PSI in concrete footing.
2. For removable bollards, provide a hot-dipped galvanized steel pipe sleeve with a steel angle with hole for lock welded to pipe and place in concrete footing and a smaller hot-dipped galvanized steel pipe insert with a steel angle with a hole for lock welded to pipe. Fill smaller diameter pipe with 2,500 PSI concrete after installation and round off concrete top.
3. Accessible Parking Sign Posts should be 2 inch by 2 inch galvanized steel tube with integral welded galvanized post cap, painted. The post should have two galvanized stud anchor bolts welded to steel tube front and back.
4. All Steel Pipe Handrails and Brackets shall be Schedule 40 steel pipe rails as required. Brackets shall be wall type and all other components required for finished installation should be included.
5. Aluminum Handrails and Brackets shall be aluminum pipe rails as required. Brackets shall be wall type and all other components required for finished installation should be included.
6. Steel Ladders shall be fabricated from flat bar steel stringer with steel rod rungs let into stringers, welded and ground smooth. Provide all angle supports and anchoring devices for bolting to wall, floor, or structure as required.
7. Steel Ships Ladders shall be fabricated from steel shapes as shown, weld joints and grind smooth. Provide cages where shown.
8. All ladders shall be designed with required wall standoff and meet all OSHA requirements (OSHA 1926.1053).

9. Masonry Anchors (At steel columns shall be fabricated from 5/16 inch dia. steel, field welded to columns, spaced not more than 24 inches o.c. vertically to coincide with horizontal mortar joint elevations.
10. Loose Lintels shall be fabricated from steel shapes, weld joints and grind smooth.
11. Frame Supports shall be constructed above ceiling frame supports for aluminum entrances and storefronts, hollow metal frames of channels and/or tubes, with all anchorage devices as detailed or required.
12. Below and Above-Ceiling Supports shall be constructed of UNISTRUT members with an 1/8 inch accuracy. Provide supports complete with fastenings to structure for overhead equipment.
13. Shelf Angles for Masonry shall be galvanized steel for angles on exterior walls.
14. Foot scrapers shall be made from steel shapes, weld joints and grind smooth.
15. Condenser Water Pump Base Plate shall be fabricated from a steel plate with holes for anchor bolts as required. Provide stainless steel anchor bolts of size, type, and finish as shown or recommended by fabricator to suit application.
16. Provide stair safety nosings at concrete and steel pan stairs as required.
17. Stairs shall require embedded or mechanically fastened metal nosings that work with specified flooring in lieu of surface applied resilient nosings.
18. Conduit trench pans should be a heavy metal form pan with a 12 inch interior trench width and four inch depth. Covers shall be set 1/8 inch above concrete floor so that the finished top is flush with the finished floor.
19. Provide trench covers and frames at sidewalks where required.
20. Bicycle Racks shall consist of unitized welded spreader frame constructed from galvanized steel. All hardware and labor shall be provided to install the units in the concrete sidewalk as required by the manufacturer.
21. Catwalk Structure should be steel. Fabricate the floor from standard metal bar grating with rectangular bearing bars and cross bars of size and spaced as required and recommended by NAAMM. Cross bars shall be welded or fused to bearing bars. Ends of grating shall be banded at supports. Weld grating to supports at bearing bars and banded ends. Align all bars in adjacent panels. Provide attachments and all catwalk accessories and miscellaneous supports as indicated. Weld all joints and grind smooth.

IV. EXECUTION

E. The architect/engineer should include the following requirements in their specifications and include directives as necessary to fulfill the project specific requirements.
    1. Separate all dissimilar materials
    2. Welded Joint Finishes: Where welding is exposed to view, welds shall be executed neatly then ground smooth. Pits and blemishes are not acceptable. Provide joints as stated above in accordance with NOMMA Guideline 1.

3. For manufactured items, adhere to printed manufacturer's installation instructions.
4. Refer to painting section for all items that are to receive paint.

END OF CHAPTER 5

RCSD Technical Standard
Chapter 6: Wood, Plastics and Composites

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for Wood, Plastics and Composites This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

This section includes

A. Rough Carpentry for use to back up other material installations, underlayment, plywoods, blocking and framing.
B. Finish Carpentry – where installation will be visible.
C. Architectural Woodwork – including built in wood work and trim. The District prefers Red Oak finish trim.
D. Phenolic casework to be used in areas that would be exposed to a lot of abuse or moisture.

III. ROUGH CARPENTRY

A. LUMBER

Lumber Standards - Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Reviews.

Provide lumber of the following species - Hemlock Fir or WCLIB or WWPA.

- Light Framing; 2 inches through 4 inches thick, less than 6 inches wide: Standard and Better grade, except Stud grade for stud framing.
- Structural Framing; 2 inches through 4 inches thick, 6 inches wide and wider: No. 2 grade.

Pressure treated lumber should be used in the following locations: When lumber is in contact with masonry, such as wood cants, nailers, blocking, stripping and similar members in connection with roofing, flashing, vapor barriers and waterproofing; when in contact with soil; When exposed to weather.

- Pressure treat with water-borne preservatives to comply with AWPA-U1. Use Category UC2 for interior construction not in contact with ground. Use Category UC3b for exterior construction not in contact with ground, and Use UC4a for items in contact with ground. After treatment, kiln dry lumber to a maximum moisture content of 19 percent.

B. PLYWOOD

Sheathing and Subflooring: APA RATED SHEATHING, EXPOSURE 1. Furnish APA PS 1 veneered panels, with span ratings for the required thicknesses as listed below:

THICKNESS	SPAN RATING
3/8 inch	24/0
1/2 inch	32/16

THICKNESS	SPAN RATING
5/8	40/20
3/4	48/24

Underlayment for VCT when installed over existing wood floor, subfloor and wood joists: 3/8" thick Baltic Birch plywood.

Performance requirements are to include the Fire resistance ratings as tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency. Indicate design designation from UL's "Fire Resistance Directory" of from the listing of another qualified testing agency.

Wall sheathing to be Glass Mat Gypsum sheathing complying with ASTM C 1177/1177M. Type and thickness to be Type X, 5/8 inch thick. Acceptable Manufacturer's

- Certainteed Corporation; GlasRoc.
- Georgia Pacific Building Products; Dens-Glass Gold.
- National Gypsum Company; Gold Bond eXP Extended Exposure Sheathing.
- USG Corporation; Securock.

C. ENGINEERED WOOD PRODUCTS

Laminated Veneer Lumber to be structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior type adhesive complying with ASTM D 1559. Extreme fiber stress in bending, edgewise to be 3100 psi for 12-inch nominal depth members. Modulus of elasticity, edgewise to be 2,000,000 psi.

Parallel Strand Lumber to be structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with and exterior type adhesive complying with ASTM 2559. Extreme fiber stress in bending, edgewise to be 2900 psi for 12-inch nominal depth members. Modulus of elasticity, edgewise to be 2,200,000 psi.

D. MISCELLANEOUS LUMBER

Dimension lumber items to be Standard, Stud or No. 3 grade lumber of Hem-fir, WCLIB for blocking, nailers and cants.

For blocking not used for attachment of other construction, Utility, Stud or No 3 grade lumber of any species may be used provided that is it cut and selected to eliminate defects that will interfere with it is attachment and purpose.

For blocking and nailers used for attachment of other construction select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

Exterior sheathing to be either DOC PS 1 or DOC PS 2 as determined by design professional.

Equipment backing panels to be plywood, DOC PS 1, Exterior, A-C fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4 inch nominal thickness.

E. FASTENERS AND ANCHORS

Provide fasteners and anchorage with a hot-dip zinc coating (ASTM A-153). Where rough carpentry is exposed to weather, in ground contact, pressure-treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

Nails, brads and staples as per ASTM F 1667.

Power Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, 1CC-ES AC58, AC58, ICC-ES AC193, or ICC-ES AC308 as appropriate for the substrate. Material for interior use, Carbon steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5. Material for exterior, exposed to weather, in ground contact, pressure-preservative treated or in area of high relative humidity, use, Stainless steel with bolts and nuts complying with ASTM F 593
and ASTM F 594, Alloy Group 1 or 2.

Screws for fastening Wood Structural Panels to Cold Formed Metal Framing shall comply with ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacture for material being fastened.

Screws for Fastening Gypsum Sheathing to Cold Formed Metal Framing use steel drill screws in length recommended by sheathing manufacturer for thickness of sheathing material to be attached. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002. And for steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

F. METAL FRAMING ANCHORS

Allowable design loads, as published by manufacturer, shall meet or exceed those of indications on Drawings as basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.

Galvanized Steel Sheet to be hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653 M, G60 coating designation. Use for interior locations unless otherwise indicated.

G. MISCELLANEOUS MATERIALS

Flexible Flashing to be composite, self-adhering, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene

film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

Adhesives for Field Gluing Panels to wood framing, formulation complying with APA AFG-01 that is approved for use with type construction panel indicated by manufacturers of both adhesives and panels.

IV. FINISH CARPENTRY

A. STANDING AND RUNNING TRIM

Plain Sawn Red Oak manufactured to sizes and patterns (profile) required for the project, from selected First Grade Lumber 9NHLA). Grade to be "Custom".

Fasteners and Anchorage - Provide nails, screws and other anchoring devices of the type, size and finish required for application indicated and to provide secure attachment, concealed in final installation.

V. ARCHITECTURAL WOODWORK

A. INTERIOR WOOD FOR OPAQUE FINISH

Plywood, to be any closed-grain hardwood plywood with exterior glue complying with requirements for specified woodwork grade. Trim to be Clear Poplar.

B. FIRE RETARDANT MATERIALS

Where fire-retardant treated lumber and veneer core plywood is indicated, provide materials which comply with applicable AWPA standards for pressure impregnation with fire-retardant chemicals and with the following requirements.

Use cured organic resin solution for fire-retardant treatment which is relative insoluble in water, is suitable for exterior applications, will not bleed through or otherwise adversely affect types of finishes indicated, and permits milling of lumber after treatment and kiln drying by a treatment or woodworking plant certified by UL.

Provide panels with fire-retardant chemicals incorporated at time of manufacture to achieve surface-burning characteristics of 25 for flame spread, 10 for fuel contributed and 25 for smoke developed when tested in accordance with ASTM E84. Comply with ANSI A l08.1 for Grade 1-M-1 panels with density of 48 lbs./cu. ft. for thicknesses of 3/4" and less, 44 lbs./cu. ft. for thicknesses of 13/16" to 1-1/4"; except as follows:

Fiber Stress and modulus of elasticity: 1600 psi and 35,000 psi for 48 lb. density, 1300 psi and 275,000 psi for 44 lb. density.

Linear expansion of 0.50 for 44 lb. density.

Screw-holding capacity, face and edge, of 300 lbs., respectively, for 44 lb. density.

C. PLASTIC SHEET PANELING (FRP)

Glass Fiber Reinforced Plastic Paneling: Gel-coated finished, glass fiber reinforced plastic panels complying with ASTM D 5319. Panels shall be USDA accepted for incidental food contact. Acceptable manufacturers:

- Crane Composites, Inc.
- Nudo Products, Inc.
- Parkland Plastics, Inc.

Surface Burning Characteristics when tested by a qualified testing agency according to ASTM E 84, to be identified with markings of applicable testing agency and include:

- Flame spread index of 25 or less.
- Smoke Developed Index of 450 or less.
- Normal Thickness shall not be less than 0.09 inches.
- Surface Finish to be smooth.
- Color to be selected by Architect from manufacturer's full range.

D. ACCESSORIES

Manufacturer's standard one-piece or two-piece, snap-on vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

- Color to be selected by Architect from manufacturer's full range.
- Adhesive per recommendation of plastic paneling manufacturer.
- Sealant to be mildew resistant, single component, neutral curing silicone sealant as recommended by plastic paneling manufacturer.

VI. CABINETS

A. GENERAL

Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI), except as otherwise indicated. Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI), except as otherwise indicated.

B. CABINETRY AND SHELVING UNITS

Comply with WIC Section II "Miscellaneous Interior Millwork" and as detailed. Materials for transparent finish - Comply with the following requirements:

- Grade to be Custom
- Plywood, premium grade, plain sliced Red Oak Veneer, or solid oak to be indicated.
- Edge Board to be Red Oak. Backer Board to be Red Oak.
- Finish to be 3 coats of urethane varnish, factory or field finish.

C. ADJUSTABLE SHELF

Adjustable Shelf Standards and Related Supports - Provide standards and supports of type indicated which comply with ANSI/BHMA 156.9.

- Horizontal Slotted Type - Surface mounted zinc plated steel, heavy duty; K and V No. 255, or approved equivalent.
- Shelf Brackets - Closed shelf rest, zinc plated steel heavy duty; K and V No. 256, or approved equivalent.

D. COUNTERTOP

Countertop to be 1 1/4" thick or as indicated on drawings; constructed of medium density particleboard, containing no formaldehyde. Provide water resistant, hardwood faced, fir core plywood where fixtures are installed in countertop. Faces shall be 0.050" high pressure plastic laminate; edge shall be red oak. Colors as selected by the Project Architect from Manufacturer's full range. All surfaces receiving plastic laminate shall have balancing sheet on entire back.

VII. PHENOLIC CASEWORK - SOLID PLASTIC FABRICATIONS

A. GENERAL

Comply with applicable fabrication requirements and installation from the phenolic panel manufacturer and with applicable requirements published by the Architectural Woodwork Institute (AWI). Fabricators and installers shall be certified by the manufacturer.

Provide solid phenolic core with high pressure melamine matte finish surface made as an integral part of core material. All panel material shall be constructed with Athlon DSC, countertops shall be Athlon DSQ, scratch and wear resistant. Countertop shall be 1" thick. All other components, except as noted shall be 3/4" thick. Phenolic casework product material shall comply with the following:

- Modulus of Elasticity, 15 Million psi minimum
- Shear Strength, 2000 psi minimum
- Compression, 24000 psi minimum
- Weight 93 pounds per cubic foot maximum
- Flammability: Self Extinguishing
- Flame Spread 25 (16 mm thick)
- Smoke Developed 70 (16 mm thick)
- Water Absorption 3% maximum
- Use temperature 350°F maximum
- Non-porous surface and edges
- Will not support fungus or bacteria
- Uniform load deflection ¼" maximum - 800 lbs (base cabinet), 300 lbs (cabinet)
- Screw Pull out Strength Minimum - 600 lbs. minimum.

Design and construction features to comply with manufacturer's details and as shown for profile and construction of architectural millwork.

Fabricate architectural millwork with pre-cut openings, where possible, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs and, where located in countertops and similar exposures seal edges of cutouts with a water resistant coating.

B. HARDWARE

- Door pulls for upper cabinets: Provide finder pull access by having upper cabinets overhang the bottom of the cabinet, therefore not requiring hardware.
- Other door or drawer pulls to be Heavy duty, Rockwood fastened through concealed plate.
- 5 Knuckle Hinges:
- Hinges shall be 0.95" steel five-knuckle hospital-tip institutional grade quality with 0.187" diameter tight pin. Doors shall have three hinges; base cabinets, two hinges.
- Door catches for base and wall cabinets to have 7 lb. magnetic catch. Tall Cabinets to have (2) 7-lb. magnetic catches mounted on sidewall of cabinet top and bottom.
- Adjustable shelf supports shall be injected molded clear plastic, with a double pin engagement 32 mm on center and shall have 3/4" and 1" anti-tip locking tabs.
- Locks to be National Lock five disc tumbler cam locks in chrome finish.

END OF CHAPTER 6

RCSD Technical Standard
Chapter 7: Thermal and Moisture Protection

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for Thermal and Moisture Protection. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

The information contained herein shall be used by the design professionals to provide construction products that will create a weather and thermally resistant building envelope that is economical and easy to maintain.

U. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

V. For the proposed roofing system, provide a design which includes: roof plan, roof penetration locations, roof slope, drainage direction, insulation layout, relief scuppers, roof ladders, roof curbs, smoke hatches and vents through roof.

W. Warranties for the roofing system shall be a 20 year warranty on roofing system and accessories. A 30 year roof warranty on the roofing system and accessories should be considered as an alternate.

X. Roof access shall be provided in order for service and maintenance personnel to safely access in order to maintain the roof, HVAC and other equipment that is on the roof. For security and safety, access shall be provided to all roof areas so that free standing ladders are not required to access the roof. This shall be accomplished through use of a door (highest preference) or a roof hatch (minimum preference) with a ladder assist post and safety railing. Once on the roof, other roof levels shall be accessible by use of roof ladders with security cages and or platforms. Cross over ladders are to be provided per Building Code of New York State.

Y. SBS roofing system is the preferred system. In this section other alternatives are provided.

Z. For any roofing system selected, all roofing components and accessories should be from one manufacturer.

AA. The design consultant should select and use materials that are consistent with requirements of the State Historic Preservation Office (SHPO). Asphalt, slate and metal roof types should be honored when replacing with material in-kind.

BB. To reduce heat gain a white roof material is preferred over black roof material.

III. INSULATION

H. POLYISOCYANURATE BOARD INSULATION

Polyisocyanurate foam core, closed-cell insulation. Product shall have an aged R-value at 75ºF mean temperature of 7.2, in accordance with ASTM C236. Polyisocyanurate shall meet ASTM 1289, Type II, Class 1, Grade 2.

I. BATT INSULATION

Mineral or glass fiber blanket insulation shall be inorganic (non-asbestos) fibers formed with binders into resilient flexible blankets or semi-rigid batts; ASTM C665, densities of not less than 0.5 lb. per cu. ft. for glass fiber units and not less than 2.5 lb. per cu. ft. for mineral wool units, k-value of 0.27.

Where insulation is installed in metal stud partitions, fasten nailing flange of insulation to face of metal studs with adhesive, lapping one flange over the other to provide a complete vapor barrier. Adhesive shall be as recommended by insulation manufacturer and shall comply with fire-resistive requirements.

Insulation material shall be UL listed, have a flame spread of not over 75 and meet ASTM E84 Class 1 requirements.

J. SOUND ATTENUATION BATT INSULATION

Semi-rigid mineral fiber blanket without membrane, Class 25 flame spread, ASTM C-665, Type I.

K. EXTERIOR INSULATION AND FINISH SYSTEM

Material must be approved by RCSD Facilities Design Group. Material will only be considered above the first-floor level.

Basis of Design: Dryvit Systems Inc.; Quartzputz finish. Other finishes may be considered but need to be reviewed and approved by the RCSD.
Extruded polystyrene insulation board ASTM C 578, Type I, aged (air dried) a minimum 6 weeks before use. Flame Spread: Less than 25; ASTM E 84 or UL723.
To be mechanically fastened to substrate. Fabric lath mechanically fastened through insulation board to substrate. Fiber reinforced polymer modified base coat applied over fiber lath. Finish coat with integral color and texture over base coat.

Ultra High Impact Resistance over 150 inches-pound to be used from grade to second floor. High Impact Resistance 90-150 inches-pound to be used above second floor and up.

Performance Ratings

- Abrasion Resistance: ASTM D 968; no cracking, checking, or loss of film integrity at 528 quarts of sand.
- Accelerated Weathering: ASTM G 23 or ASTM G 53; no cracking, checking, crazing, erosion, rusting, blistering, peeling, or delamination after 2000 hours when viewed under 5x magnification.
- Freeze/Thaw Resistance: EIMA 101.01 (modified ASTM C 67); no cracking, checking, crazing, erosion, rusting, blistering, peeling, or delamination after 50 cycles.

- Mildew Resistance: ASTM D 3273; no growth supported during 28 day exposure period.
- Tensile Adhesion: EIMA 101.03 (modified ASTM C 297); no failure in the adhesive, base coat, or finish coat. Minimum 5 psi tensile strength before and after freeze/thaw and accelerated weathering tests.
- Water Penetration: EIMA 101.03 (modified ASTM E 331); no water penetration beyond the plane of the base coat/ESP board interface after 15 minutes at 6.24 psf, or 20 percent of positive design pressure, whichever is greater.

Installer shall have a minimum of 5 years of experience with system. Installer shall certify the substrate is suitable for application of the System.

EIFS system shall have a 5 year Manufacturer's Warranty.

IV. ROOFING TYPES

A. SHINGLES

Square tab strip shingles, fiberglass mat, self-sealing, 3 tab asphalt shingles bearing UL Class "A" external fire exposure label and UL "Wind Resistant" label. Color as selected by Architect.

Submit to compliance with requirements, provide one of the following:

- Bird Inc. Fireline
- Certainteed Corp.
- GAF Corporation
- Georgia Pacific

Asphalt-Saturated Roofing Felt: No. 30, unperforated organic felt, complying with ASTM D 226, 36" wide.

Ice Protection Underlayment: In addition to felt underlayment along eaves to a point 12" minimum beyond wall line, minimum 36" width. Set in continuous bed of asphalt plastic cement and secure with roofing nails at 6" centers along all edges. Provide 2" laps where required, set in roofing cement. If head laps are required, install so head lap occurs 12" before wall line.

Asphalt Plastic Cement: Fibrated asphalt cement designed for trowel application.

Ridge Shingles: Manufacturer's standard factory pre-cut units to match shingles.

Nails: Aluminum or hot-dip galvanized 11 or 12 gauge sharp pointed conventional roofing nails with barbed shanks, minimum 3/8" diameter head and of sufficient length to penetrate minimum ¾" into solid decking or to penetrate through plywood sheathing.

Nailboard: Provide nailboard insulation as manufactured by NRG. Nailboard to have an R-value of 19.3.

Metal Drip Edge: Minimum .024" mil finish sheet aluminum. Job-cut sizes and configurations required.

Shingles shall have a 50-year warranty for roof shingles and include all accessories.

B. SYNTHETIC SLATE ROOF

Material must be approved by RCSD Facilities Design Group as an alternative to a natural slate roof.

All components of the Majestic Slate – Class A Tile Roof System are to be products manufactured or supplied by EcoStar, a Division of Carlisle SynTec Incorporated, or equal.

Note: Only products supplied by EcoStar, a Division of Carlisle SynTec Incorporated are included in the warranty unless otherwise specified and approved in writing.

Majestic Slate – Class A Tiles made of Starloy, recycled rubber and plastic compound, 12" wide by 18" long with a nominal thickness of ¼". Project shall have a 7" tile exposure (258-276 lbs. per square). Product must have a minimum of 75% recycled materials in its composition.

Majestic Slate – Class A Tile color as per the following: 10% midnight gray, 40% Smoke Gray, 25% Earth Green, 25% Cedar Brown. A 4' x 8' mockup will be supplied to the owner by the successful bidder as part of this contract to insure proper color blend selection. Percentages may vary slightly.

Underlayment: VersaShield – One layer of Elk VersaShield meeting or exceeding the requirements of ASTM D226.

Glacier Guard ice and water underlayment smooth surface (40 mil), a composite membrane consisting of fiberglass reinforced rubberized asphalt laminated to an impermeable polyethylene film layer.

Tile Fasteners: EcoStar roofing nail with a 3/8" diameter head and a minimum of 1½" long shank made from stainless steel. Nails can be supplied either as a hand drive style or in coils for use in pneumatic tools. Note: EcoStar roofing nails must be used in the Majestic Slate – Class A Roof System and are included in the EcoStar warranty.

C. SLATE ROOF

Slate: No. 1 clear roofing slate of uniformly hard, fine grained clear stock, free of veins or ribbons and punched for two nails.

- Color and Thickness: Match existing slate.
- Re-use of Existing Slate: Existing slate, removed under the Work of this Section, may be re-used, provided the pieces are sound and undamaged.

Type 2 Sealant: One-part acrylic polymer sealant; Pecora AVW-920, PTI 738, or Tremco Mono.

- Color: Dark grey or slate color.

Felt: Asphalt saturated and coated organic felt, minimum weight 30 lbs./square; ASTM D 226.

Nails: Hard copper slating nails, No. 10 Stubs gauge, length as required to penetrate 7/8" into the wood deck.

Wire: No. 8 hard copper wire.

Sheet Copper: 16 oz. Zinc/tin alloy hot-dipped coated, cold rolled copper.

Underlayment Flashing: Self adhering, self-sealing, rubberized asphalt sheet membrane with slip resistant surface and manufacturer's primer for masonry surfaces (if any).
Physical Properties:
Thickness: 40 mils minimum ASTM D 3767 Method A.
Tensile strength: 250 psi ASTM D 412.
Elongation (ultimate failure of the rubberized asphalt) 250 percent, ASTM D 412 Die C Modified.
Permeance: 0.05 Perms max., ASTM E 96.
"Vycor Ice And Water Shield" by W.R. Grace Co., 62 Whittemore Ave., Cambridge, MA 02140, (800) 354-5414, www.na.graceconstruction.com; "WinterGuard Underlayment" by CertainTeed Corporation, P.O. Box 860, Valley Forge, PA 19482, (800) 233-8990, www.certainteed.com ; AC POLY, Ice and Storm Seal by NEI Advanced Composite Technology, 50 Pine Road, Brentwood, NH, (800) 998-4634, www.nei-act.com.

D. ADHERED ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING SYSTEM

Acceptable Manufacturer: Carlisle Syntec Systems is basis of design. Firestone Building Products will be considered.

EPDM Flexible Sheet Roof Membrane (EPDM) elastomeric roofing sheet membrane single ply system, complying with ANSI/RMA IPR-1, and ASTM D 4637/D 4637 M, Type I as indicated. Provide all components for roofing system from one source.

Exposed face to be black or white, to be determined by architect based on project specifics.

- Best Choice: 90 mils non-reinforced EPDM
- Better Choice: 75 mils non-reinforced EPDM
- Minimal Choice: 60 mils non-reinforced EPDM

Provide a manufacturer's 20 year warranty as a minimum warranty; 30 year as an alternate (this is the preferred warranty length of RCSD). To cover both labor and materials with no dollar limitation. All products, including

substrate boards, vapor retarder, insulation, fasteners, fastening plates and edging must be manufactured and/or supplied by the roofing system manufacturer and covered by the warranty. No pro-rated warranties shall be accepted. The maximum wind speed coverage shall be peak gusts of 90 mph measured at 10 meters above ground level.

R-Value to comply with current New York State Uniform Fire Prevention and Building Code.

Roof insulation where roofing deck is sloped: Provide flat insulation in multiple layers of polyisocyanurate R-value as per ASTM C1289-06, Long Term Thermal Resistance (LTTR).

Roof insulation where roofing deck is flat or not required slope/ or at crickets: Tapered Insulation and crickets shall be Sure-Seal Polyisocyanurate as supplied by Carlisle SynTec Incorporated (or the membrane manufacturer's). Insulation transitions/step offs greater than ½" will require a transition board such as a wood fiberboard tapered edge strip.

All Polyisocyanurate shall be Carlisle SecureShield or approved equal with a closed cell Polyisocyanurate core laminated to coated glass fiber mat facers and be as per ASTM 1289-06 Type II, Class 1, Grade 3, 25 PSI.

An underlayment shall be used on all decks made of metal, wood and lightweight concrete. Not required on concrete decks. Securock board as manufactured by Carlisle, minimum 3/8" thick, or Dens Deck Primed 1/2" thick.

Over Board - Securock board as manufactured by Carlisle, minimum 3/8" thick, or Dens Deck Primed 1/2" thick.

All adhesives and primers must comply with NY OTC VOC regulations.

Sheet Seaming System - Manufacturer's standard materials for sealing lapped joints, 6" lap with full lap sealant on all seams. Including edge sealer to cover exposed spliced edges as recommended by manufacturer of system. Seam tape to be factory applied.

Flashing Material - Manufacturer's standard system compatible with flexible sheet membrane.

Membrane Adhesive - As recommended by manufacturer for particular substrate and project conditions, formulated to withstand min. 90 psf uplift force.

Fasteners – Factory coated steel fasteners and metal or plastic plates complying with corrosion resistant provisions in FM Approvals 4470, designed for fastening components to substrate.

Metal Edging and Terminations – Manufacturer's standard, predrilled, stainless steel or aluminum bars approximately 1" by 1/8" thick with anchors. All anchors shall be sealed at the completion of the installation.

Walkways – Protective surfacing for roof traffic shall be compatible with the roofing membrane by the manufacturer.

Bitumen for Vapor Barrier - Roofing asphalt, complying with ASTM D 312, Type III.

Vapor Barrier - 2 plies of asphalt-impregnated glass fiber mat complying with ASTM D 2178, Type VI; GlasPly Premier as manufactured by Johns Manville or the approved equal. Coat with Type III asphalt to 25 lbs. per square between plies.

Vapor retarder option (when approved by Project Architect): Vapor retarder is a 40 mil composite consisting of 35 mils of self-adhering rubberized asphalt laminated to a 5 mil skid resistant polyethylene film. The underlayment board shall be primed with Low VOC CCW-702 Primer or CCW Cav-Grip in accordance with manufacturer's specifications. Vapor retarder must have a perm rating of 0.05 or less as per ASTM E90. Vapor retarder must be rated by the manufacturer as a temporary roof with an allowable exposure to the elements for 90 days.

Provide Miscellaneous Accessories for roof system to make a fully warranted system: Pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-Joint covers, in seam sealants, termination reglets, cover strips.

Roofer's Guarantee - The Contractor shall guarantee all roofing, flashing and sheet metal work installed under the contract absolutely watertight and waterproof from the date of final payment. Submit with bill for final payment the following signed guarantee:

"I hereby agree to keep all roofs and flashings and sheet metal work installed under this contract watertight for a term of two years from date of final payment, using same materials as originally specified. It is further understood and agreed that I will have a workman on the job repairing any leaks reported in less than twenty-four hours after receiving notice by telephone that the roof is leaking. If I fail to make such repairs without delay, the RJSCB may employ another roofer to do the work and I agree to pay for such repairs."

These repairs will in no way affect the requirements and term of the warranty.

General Performance: Installed roofing system and base flashings shall withstand uplift pressures, thermal induced movement, exposure to weather without failure due to defective manufacture, fabrication, installation or other defects in construction. Roofing and flashing shall remain watertight.

- Accelerated Weathering: Roof Membrane shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
- Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D 3746, ASTM D 4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.

Wind Uplift Resistance: Design roofing system to resist a minimum of 90 psf wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897.

Exterior Fire Test Exposure: ASTM E 108 or UL 790, Class A.

E. SBS MODIFIED BITUMEN ROOFING SYSTEM

Basis of Design: 2PID by Johns Manville or 2044 by Soprema other approved modified bitumen system manufacturers are: Siplast, Tremco.

All replacement/new roofing system products shall be “ASBESTOS FREE”.

Provide all of the systems component products from one manufacturer: Substrate boards, vapor barrier/retarders, insulation, fasteners, fastening plates and edgings must be manufactured and/or supplied by the roofing system manufacturer and covered by the warranty.

Overlayment Board - Provide Securock board as manufactured by Carlisle or approved equal. Minimum thickness is 3/8”. Underlayment board to be 1/2” Dens Deck Primed.

Temporary /vapor barrier to be a waterproofing membrane and act as a temporary roof while roof is being installed. Shall have a polyester reinforcement SBS membrane, shall meet ASTM D 6164 Type I, Grade S. Thickness – 88 mils min.
This membrane shall be designed to be applied with hot asphalt.

- Install Temporary /vapor barrier direct to concrete gypsum plank decks.
- On metal and wood decks, mechanically fasten 5/8” Securock to deck meeting FM I-90 criteria and install temp./vapor barrier to thermal barrier.
- On cementitious wood fiber decks, fasten 5/8” Securock to deck at a rate of 1 fastener per 2 sq.ft. and install temp./vapor barrier to thermal barrier.
- On poured gypsum decks, nail 28 lb. base sheet to deck using a 6-9-9 pattern.

Polyisocyanurate Foam Board Insulation: Rigid boards of Polyisocyanurate based foam core, permanently bonded to a face board acceptable to the membrane manufacturer. Comply with ASTM 1289 Type I Class, Grade 2, Flame Spread Class A ASTM E 108. Flat or Tapered depending on roof design. 1/4” per foot preferred slope. 1/8” per foot minimum.

Cover board or a thermal barrier to be 1/4" DensDeck Duraguard, 3/8" Securerock or 1/8" Sopraboard.

Install insulation and cover board in hot asphalt.

SBS Membrane to be polyester reinforced, ASTM 6164 or fiber glass polyester composite membranes, ASTM 6162. Fiberglass reinforced membranes ASTM 6163 are not acceptable.

- Base: One (1) ply SBS modified bituminous membrane with polyester mat, 2.2 mm thick complying with ASTM D6164, or ASTM 6162, Type 1, Grade S, Elastophene 180, sanded or approved equal.
- Modified Cap Sheet and Flashings: Grey, aggregate surfaced, fire resistant SBS modified bituminous membrane with a reinforced polyester mat, 4.0 mm nominal thickness, complying with ASTM D 6164, Type 1, Grade G Sopralene 180 FR GR or approved equal.
- Base Ply Flashing membrane shall meet ASTM 6164 Type 1, Grade S, with a min. thickness of 2.2mm. this product shall be designed to be applied with hot asphalt.
- Top Ply Flashing membrane shall meet ASTM 6163 Type 1, Grade G with a min. thickness of 4.0 mm. This product shall be designed to be applied with hot asphalt. Torch applied upon approval by Project Architect.
- Bitumen: Roofing asphalt, complying with ASTM D 312, Type III (except where Type IV is required because of slope of roof and at flashing).
- Cold Applied membrane adhesive, used in lieu of Hot Asphalt.

EDGE/PENETRATION MATERIALS

- Roofing Cement: Asphaltic cement, asbestos free; ASTM D 4586.
- Glass Fiber Fabric: 1.5 pound (minimum sheet, of woven glass fiber, impregnated with asphalt (ASTM D 1668).
- Cant Strips: Asphalt-impregnated organic fiber insulation units, molded to form 3 ½" by 3 ½" by 45^0 strips.
- Walk Off Mats: Provide an extra layer of field cap sheet at all doorways, roof ladders and at mechanical equipment that requires routine service.

MISCELLANEOUS MATERIALS

- Mastic Sealant: Polysiobutylene (plain or bituminous modified), nonhardening, nonmigrating, nonskinning and nondrying.
- Membrane Fasteners: Provide industry-standard types of mechanical fasteners for SBS roofing system work, tested by manufacturer for required pull-out strength where applicable and compatible with deck type and roofing products used. Provide either 1" diameter nail heads or 1 3/8" diameter by 30-gage sheet metal caps for nails used to secure felts, or insulation boards of roofing system. Insulate all dissimilar materials.

- Insulation fasteners shall be a min. #12 with a coating that has greater corrosion resistance then FM 4470 requires. Insulation plates shall be 3" galvalume.
- Primer: Manufacturer's water based primer equal to Soprema Aquadere.

Provide SBS modified roofing system that will comply with UL for Class A. FM Listing: SBS modified roofing system and component materials shall be evaluated by Factory Mutual System for fire spread, wind uplift, and hail damage and are listed in Factory Mutual Approval Guide for Class 1-90 construction.

Fire Performance Characteristics: Provide insulation materials with performance characteristics that have been determined by UL or other testing and inspecting agency acceptable to authorities having jurisdiction, when tested for the assemblies of which the insulation materials are a part of, are in accordance with ASTM E 108.

SBS Roof System shall have a manufacturer's 20 year NDL Total System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 72 mph measured at 10 meters above ground level. Certification is required with submittals indicating the manufacturer has reviewed and agreed to such wind coverage. All products including substrate boards, vapor retarders, insulation, fasteners, fastening plates and edgings must be manufactured and/or supplied by the roofing system manufacturer and covered by the warranty.

F. PREFORMED METAL ROOFING

Basis of Design: Berridge Manufacturing of other approved Preformed Metal Roofing system manufacturers.

Submit to compliance with requirements, provide one of the following:

- ATAS International, Inc.
- Berridge Manufacturing Co.
- Garland Co.

Prefinished Metal shall be Hot-Dipped Galvanized - ASTM A446-85 Grade C G90 Coating A525-86 24 Gauge core steel or prefinished Galvalume - ASTM 792-86 AZ-55. Unfinished Metal shall be Grade C Galvalume ASTM 792-86, AZ 55, "Satin Finish". Finish shall be "LEAD -COTE", metallic color Fluoropolymer finish applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry film thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500 finish supplier. Strippable film shall be applied to the top side of the painted coil to protect the finish during fabrication, shipping and field handling. This strippable film must be removed before installation.
Shop or field applied painting will not be acceptable except for minor touch-up.

Forming: Continuous end-rolling method, uniform across cross section of units.
Trim: Same material to match units.
Closures: Protected metal to close ends of profile.

Accessory Materials:
Fasteners: Stainless Steel with washers where required.
Sealant: Multi-Component Polyurethane Sealant: Except as otherwise indicated, provide manufacturer's standard, non-modified, 2-or-more-part, polyurethane based, elastomeric sealant; complying with either ASTM C 920 Type M class 25.
Vinyl Weatherseal Insert.

Standing Seam Panels:
Panels shall have 1" high vertical seam height, spaced 12-3/4" on center.
Panels shall be factory-formed to maximum 40'.
Snap-on seams shall be 1" in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 4641475) to prevent siphoning *of* moisture through the standing seam.
Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24" on center).
Panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 296 and applicable Fire Ratings.
Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration *or* air leakage beyond allowable tolerances through the system when tested in accordance with ASTM E-331-86 and E-283-84.

Panel and Vented Soffit Panels:
Panels shall be roll-formed in continuous lengths (max 40'). Vee-Groove spacing shall be 3-5/8" O.C. Provide concealed anchor clips to be spaced at 16" o.c.
Provide J-Channel edge trim around perimeter edges. Finish to match soffits.

G. FOUR PLY BALLASTED ROOF

Roof type has been approved by RCSD as an acceptable alternative roof.

The 4-ply asphalt and gravel roof system consists of plies of felt embedded in asphalt and a flood coat with gravel at 400 lbs. per 100 sq. ft. These roofs are generally insulated from the roof deck up. Architect needs to determine if roof structure can support this roof type.

IV. ROOFING ACCESSORIES

General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking or fastener disengagement.

Delegated design: Roof curbs and equipment supports shall be designed by an engineer and shall comply with wind performance requirements.

C. FLASHING AND SHEET METAL

Surface reglets at counterflashing: Shop fabricated from .040 Al. mill finish.

Built-in counterflashing receiver with snap in detail for counterflashing: 28 gauge stainless steel Type 301 to 305, cold rolled 2B finish. Similar to SMACNA figure 4.4C.

Stainless Steel: AISI Type 304, ASTM A 167, 2D annealed finish, hard temper as required for forming or performance; 0.027" thick (23 gage)

Aluminum: ASTM B 209, alloy 3004, baked siliconized polyester finish, temper H14, 0.032" thick (20 gage), except as otherwise indicated.

Miscellaneous Patching/Infill Work: Materials to match existing, generally 16 oz. cold rolled copper (16 oz. soft copper at roof drain areas) or .040 aluminum, clear or painted as applicable.
Roof Drain Flashing: 4lb lead sheet per SMACNA Figure 1.38 A and C.

Related miscellaneous accessories, fasteners, etc. shall be compatible, non-corrosive materials.

Drip edge - .024” aluminum baked enamel, to match roof.

All metal terminations shall meet ES-1 requirements.

D. ROOF PENETRATIONS

Single Pipe Penetrations - Fabricate penetration sleeves with 12" high stack or less, 1" diameter larger than penetrating element and 4" flange at base of flashing turned down 1½" minimum into pipe. Material shall be 16 oz. copper with lead casting of 0.06 lbs. per sq. ft. of exposed surface except as otherwise indicated.

Provide cap flashing with a draw band of compatible material and sufficient gauge for pipe penetrations higher than 12" and as indicated on drawings. Sealants shall be "Dymeric" by Tremco, aluminum color.

E. GUTTERS AND DOWNSPOUTS

Copper Gutter - Plain Copper: Cold rolled copper, ASTM B 370. Zinc-Tin Coated

Copper Sheet: Cold rolled copper, ASTM B 370. Fifty percent Zinc, 50 percent Tin coating; ASTM B 350, Type 1 0.5 mils thick per sq ft applied to both sides.

- Hung Gutter: 20 oz.
- Downspouts: 16 oz.
- Conductor Heads: 16 oz.
- Outlet Tube, Offsets, and Elbows: 16 oz.
- Continuous Cleats: 20 oz.
- Gutter Hanger Brackets: One inch x 3/16 inch brass or copper bar.
- Gutter Braces: One inch x 1/8 inch brass or copper bar.
- Gutter Stiffener: 3/4 inch x 1/8 inch brass or copper bar.

- Downspout Support Hanger: One inch x 1/16 inch brass or copper bar.
- Wire Strainers: Copper wire type.
- Nails: Hardened copper “Stronghold” type, large flathead roofing nail.
- Screws, Bolts, and Other Fastening Accessories: Hardened copper or brass.
- Rivets: Copper, minimum diameter 3/16 inch.
- Solder: 50/50 tin/lead for use with plain copper.
- Zinc/tin for use with zinc/tin coated copper.
- Flux: Liquid acid or paste type as recommended by the solder manufacturer.
- Zinc-chloride as recommended by the solder manufacturer

Prefinished Steel: Galvalume steel sheet, ASTM A 792, fabricated from “tension leveled” coil stock.

- Finish: Full strength 70 percent Kynar 500 Fluorocarbon Coating (polyvinyldene fluoride, PVF) applied by the coil coating process. Minimum dry film thickness 1.0 mil.
- Hung Gutter: 22 gage galvalume steel.
- Downspouts: 26 gage galvalume steel.
- Outlet Tube, Offsets, and Elbows: 26 gage galvalume steel.
- Gutter Hanger Brackets: 1/8 inch by one inch galvalume steel bar with Kynar finish.
- Gutter Braces: 1/4 inch by one and one half inch galvalume steel bar with Kynar finish.
- Gutter Stiffener: 1/8 inch x 3/4 inch galvanized steel bar.
- Downspout Support Hanger: 26 gage galvalume steel.
- Wire Strainers: Copper wire type.
- Fasteners: Screws, Bolts, and Other Fastening Accessories: galvanized steel.
- Rivets: Stainless steel, minimum diameter 3/16 inch.
- Sealant: Silicone, one part, low modulus. Butyl rubber, one part.

Polyester Fabric, non-woven, ASTM D 5034.

Splash Pad: Precast concrete, 3500 psi. Form splash pads with a sloped depressed center area. Approximate size, one foot wide x two feet long.

Fabricate gutters, downspouts, and fittings to the shape that matches existing if replacing existing. IF new, fabrication to follow the applicable requirements of the Architectural Sheet Metal Manual of the Sheet Metal And Air Conditioning Contractors National Association, Inc.

Form gutters and downspouts in 10 foot long sections. Minimize seams to the fullest extent possible.

Provide Through wall relief scuppers that are to be fabricated in the size and shape that meet project requirements. Provide factory welded scuppers form .050” (1.25 mm) or .063” (1.60 mm) aluminum.

F. ROOF ACCESSORIES

General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement die to defective manufacture, fabrication, installation, or other defects in construction.

Delegated Design: Roof curbs and equipment supports shall be designed by an Engineer to comply with wind performance requirements.
ROOF CURBS

Internally reinforced roof-curb units capable of supporting superimposed live and dead loads, including equipment loads and other construction bearing continuously on roof structure, and capable of meeting performance requirements to have welded or mechanically fastened and sealed corner joints, straight sides, and integrally formed deck-mounting flange at perimeter bottom.

Acceptable Manufacturers:

- Air Balance Inc., a division of MESTEL, Inc.
- Curb Plus, Inc.
- Greenheck Fan Corporation
- Milcor: Commercial Products Group

Size to coordinate with dimensions of equipment to be supported.

Material: Zinc-coated (galvanized) or Aluminum-zinc alloy-coated steel sheet. 0.079 inch thick. Finish: Mill phosphatized.

Fabricate curbs to minimum height of 12 inches above roofing surface unless project specifics require the curb to be higher. Profile shall be compatible with roofing system.

- Top Surface: Level top of curb, with roof slope accommodated by sloping deck-mounting flange or by use of leveler frame.
- Insulation: Factory insulated with 1-1/2-inch-thick glass-fiber board insulation.
- Liner: Same material as curb, of manufacturer's standard thickness and finish.
- Nailer: Factory-installed wood nailer under top flange on side of curb, continuous around curb perimeter.
- Wind Resistance Straps and Base Flange Attachment: Provide wind resistant straps, welded strap connectors, and base flange attachment to roof structure at perimeter of curb, of size and spacing required to meet wind uplift requirements.
- Platform Cap: Where portion of roof curb is not covered by equipment, provide weathertight platform cap formed from ¾-inch thick plywood covered with metal sheet of same type, thickness, and finish as required for curb.
- Metal Counterflashing: Manufacturers standard, removable, fabricated of same metal and finish as curb.

G. EQUIPTMENT SUPPORTS

Internally reinforced perimeter metal equipment supports capable of supporting superimposed live and dead loads between structural supports, including equipment loads and other construction spanning between structural supports. To have welded or mechanically fastened and sealed corner joints and integrally formed structure-mounting flange at bottom.

Manufacturers:

- Air Balance Inc., a division of MESTEL, Inc.
- Curb Plus, Inc.
- Greenheck Fan Corporation
- Milcor: Commercial Products Group

Material: Zinc-coated (galvanized) or Aluminum-zinc alloy-coated steel sheet. 0.079 inch thick. Finish: Mill phosphatized.

- Insulation: Factory insulated with spray foam insulation.
- Liner: Same material as equipment support, of manufacturer's standard thickness and finish.
- Nailer: Factory-installed continuous wood nailers 5-1/2 inches wide on top flange of equipment supports, continuous around curb perimeter.
- Provide wind resistance straps, welded strap connectors, and base flange attachment to roof structure at perimeter of curb of size and spacing required to meet wind uplift requirements.
- Metal Counterflashing to be: Manufacturers standard, removable, fabricated of same metal and finish as curb.
- Fabricate equipment supports to minimum height of 12 inches above roofing surface unless project specifics require the support to be higher.

H. ROOF HATCH

A minimum of one shall be provided for a school.

Acceptable Manufacturer: The Bilco Company, Basis of design.

Exterior metal roof-hatch units with lids that are thermally broken. Insulated double-walled curbs, welded or mechanically fastened with sealed corner joints. Continuous lid-to-curb counterflashing and weathertight perimeter gasketing, straight sides, and integrally formed deck-mounting flange at perimeter bottom.

- Single Leaf Roof Access Hatch Type S-50TB.
- Minimum Size of 36 inches by 30 inches
- Minimum 40-lbf/sq. ft. external live load and 20-lbf/sq. ft. internal uplift load.

To be made of aluminum sheet of manufacturer standard thickness for hatch size indicted. Finish to be powder coat finish. Color to be selected by Architect from manufactures full range. Polyisocyanurate board insulation with an R-value of 18.0 according to ASTM C 1363. Provide factory installed

continuous nailer around hatch perimeter.

Hatch lid to be opaque, insulated, and double walled, with manufacturers standard metal liner of same material and finish as outer metal lid. Curb liner to be of same material and finish as outer metal lid. Curb height is to be 12" above the roofing surface, unless project specifics require the curb to be higher.

Hardware to include stainless steel spring operators with hold-open arm and turn handles. Handles to be stainless steel butt or pintle type hinge system, and padlock hasps inside and out.

Interior metal roof-hatch units with lids and insulated single-walled curbs, welded or mechanically fastened with sealed corner joints. Continuous lid-to-curb counterflashing and weathertight perimeter gasketing, straight sides, and integrally formed deck-mounting flange at perimeter bottom.

Acceptable Manufacturer: The Bilco Company, Basis of design, Single Leaf Roof Access Hatch Type S.

- Single Leaf Roof Access Hatch Type S.
- Minimum Size of 36 inches by 30 inches
- Minimum 40-lbf/sq. ft. external live load and 20-lbf/sq. ft. internal uplift load.

Hatch material to be Zinc-coated (galvanized) or Aluminum-zinc alloy-coated steel sheet of manufacturer standard thickness with powder coat finish. Color to be selected by Architect from manufactures full range. Cellulosic-fiber board insulation. Provide factory installed continuous nailer around hatch perimeter.

Hatch lid to be opaque, insulated, and double walled, with manufacturers standard metal liner of same material and finish as outer metal lid. Curb liner to be manufacturers standard of same material and finish as metal curb. Fabricate curbs to a minimum height of 12 inches above roofing surface, unless project specifics require the curb to be higher.

Hardware to include spring operators with hold-open arm and stainless-steel spring latch turn handles. Handles to be stainless steel butt or pintle type hinge system, and padlock hasps inside and out.

I. SAFETY RAILING SYSTEM

Safety Railing System includes rails, clamps, fasteners, safety barrier at railing opening and all accessories required for a complete installation, and to be attached to roof hatch. Railing system is to comply with 29 CFR 1910.23 requirements and Authority Having Jurisdiction.

The railing system is to be 42" high above finished roof deck. The posts and rails are to be galvanized steel pipe, 1 ¼" diameter of galvanized steel tube, 1 5/8" in diameter. System to be constructed to prevent passage of a sphere 21 inches in diameter, to be self-Latching gate fabricated of same materials and railing spacing as safety railing system. Provide manufacture's standard

hinges and self-latching mechanism. Post and rail tops and ends are to be weather resistant, closed or plugged with prefabricated end fittings. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members. Fabricate joints exposed to weather to be weathertight. Fasteners are to match railing system. Color to be selected by Architect from manufacturer's full range.

J. LADDER ASSIST POST

Roof-hatch manufacturer's standard device for attachment to the roof access ladder. Height of standard baked enamel or powder coated 1 5/8"inch diameter steel tube and is to be 42" inches above the finished roof deck. Finish to be manufacturers standard baked enamel or powder coat. Color to be selected by Architect from manufacturer's full range.

K. PIPE SUPPORTS

Adjustable-Height Roller-Bearing Pipe Supports to include pipe stand base, pipe support, and roller housing designed for adjusting the support height and to accommodate up to 3 ½" inch diameter pipe. Support pads as determined for a penetration-free installation.

Basis of design for Pipe Support system, PP10R; PHP Systems/Design. Bases to be fabricated with injection molded high density/high-impact polypropylene with UV-inhibitors and antioxidants.

The Rods are to be 16" inches long, ½" inch 302 stainless steel. Roller Type to be 3" inch cast iron roller with malleable sockets. Hardware is to be hot dip galvanized.

L. PIPE PORTALS

Provide flashing around Pipe Portals with formed aluminum membrane-mounting flashing flange and sleeve.

M. ALUMINUM SLEEPER CAP SYSTEM

Acceptable Manufacturer: RoofScreen Mfg., Basis of design.

Aluminum Cap to be 6063-T6 extruded aluminum. Cleats to be ½-inch 6063-T6 aluminum. End Caps to be 0.100-inch aluminum sheet. Fasteners, Cleats to wood to be Simpson SDS wood screws. Fasteners, Cleats to Steel to be #12 T3 SDS. Fasteners, Caps to Cleat use ¼-inch by ½-inch stainless steel thread cutting screws.

N. METAL MATERIALS

Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation and mill phosphatized for field painting where indicated.

Baked-Enamel of Power-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.

Concealed Finish: Pretreat with manufactures/s standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash

coat, with a minimum total dry film thickness of 0.5 mil.

Aluminum- Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 coated.

Baked-Enamel of Powder-Coat Finish: After cleaning and pretreating, apply manufacture's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.

Concealed Finish: Pretreat with manufacturers standard white or light-colored acrylic of polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.

Aluminum Sheet: ASTM B 209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.

Baked-Enamel of Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 miles. Comply with coating manufacture's written instructions for cleaning, conversion coating, and applying and baking finish.

Concealed Finish: Pretreat with manufacturers standard white or light-colored acrylic of polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.

Aluminum Extrusions and Tubes: ASTM B 221, manufacturer's standard alloy and temper for type of use, finished to match assembly where used: otherwise mill finished.

Stainless Steel Sheet and Shapes: ASTM A 240A/240M of ASTM A 666, Type 304.

Steel Tube: ASTM A 500/A 500M, round tube.

Galvanized Steel Tube: ASTM A 500/A 500M, round tube, hot-dip galvanized according to ASTM A 123/A 123M.

Steel Pipe: ASTM A 53/A 53M, galvanized.

O. MISCELLANEOUS MATERIALS

Provide materials and types of fasteners, protective coating, sealants, and other miscellaneous items required by manufacturer for a complete installation.

Polyisocyanurate Board Insulation: ASTM C 1289, thickness and thermal resistivity as indicated.

Softwood lumber, pressure treated with waterborne preservatives for above ground use, acceptable to authorities having jurisdiction, containing no arsenic of chromium, and complying with AWPA C; not less than 1-1/2 inches thick.

Security Grilles to be 3/4 inch diameter, ASTM A 1011/A 1011M steel bars spaced 6 inches o.c. in one direction and 12 inches o.c. in the other. Factory finish shop primer with manufacturers of fabricators standard, fast-curing, lead and chromate free, universal primer selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field applied finish paint system. Finish to be capable to provide a sound foundation for field applied topcoats under prolonged exposure.

Bituminous Coating to be cold applied asphalt emulsion complying with ASTM D/D 1187M.

Gaskets to be manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, of silicone or a flat design of foam rubber, sponge neoprene or cork.

Elastomeric Sealant to comply with ASTM C 1311, single component, solvent release butyl rubber sealant, Polysiobutylene plasticized; heavy bodied for expansion joints with limited movement.

Asphalt Roofing Cement to comply with ASTM D 4586/D 4586M asbestos free and of a consistency required for application.

GENERAL FINISH REQUIREMENTS

Finish requirements to comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

Appearance of finished work shall not have noticeable variations in same piece will not be acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and ae assembled or installed to minimize contrast.

V. FIRESTOPPING

Each contractor is responsible for providing their own firestopping for their work.

A. GENERAL

1. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
2. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.
3. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post installed". Provide cast-in-place firestop devices prior to concrete placement.
4. Fire stopping shall be provided in construction systems to prevent the passage of flame, smoke, hot gases, etc. from space to space through

penetrations or through concealed spaces within construction.

5. Fire stopping shall typically be the responsibility of the applicable contractor, which is generating the need for the fire stopping. (ie; by the penetrator for those types, or by the system constructor for fire stopping of continuous concealed spaces within a construction system), except as noted in existing buildings below.
6. The Owner generally requires typical gypsum walls to be built similar to rated 3/4 hour or 1 hour walls whether needed in that location or not. For fire stopping purposes, these walls shall be considered as non-rated. These are walls typically between rooms. See drawings for description of required rated walls, floors, etc. and special rooms needing fire rating enclosures.
7. There shall be no penetrations of construction systems left open. All penetrations shall be tightly fit or sealed to minimally prevent noise and smoke transfers, or to maintain fire rating.
   a. In Non-rated Walls, Floors, Roof Systems, etc. (Regardless of Material of Penetrating Item): In all annular spaces over 1/4 inch wide provide a minimum of 3" deep fiberglass or mineral wool tightly placed around the annular space, and held in place with mechanical means so as to not dislodge. Other seals (as applicable to type of system) may be mortar, drywall taping compound, tight fitting sheet metal, or caulking.
   b. In Rated Walls, Floors, etc: (All to be per the material section below.)
8. Fire Stopping of Perimeters of Wall Systems (Typically Tops of walls.)
   a. For Non-rated Walls, Floors, Roofs, etc.: Make tight similar to penetration in non-rated walls as above.
   b. For Rated Walls: Provided rated system for type of situation.
9. Fire stop within wall systems so as to not have continuous spaces to adjoining floor, roof, or wall construction. It shall occur minimally at every floor level.
10. Fire stop voids in combustible furred spaces of walls at maximum 8' vertical, and/or 20' horizontal.
11. Fire stop stairs so at to not be continuous with concealed space in floors.
12. Fire stop eaves, cornices, etc. at fire walls and maximum 20' o.c.
13. Fire stop or divide concealed space above suspended/concealed ceilings so that no dimension exceeds 100 lf, or area exceeds 5000 sf. (In combustible construction type 3, 4, or 5, maximum area is 3000 sf.)

B. ACCEPTABLE MANUFACTURER

Subject to compliance with through penetration firestop systems (XHEZ) and joint systems (XHBN) listed in Volume 2 of the UL Fire Resistance Directory; provide products by Hilti, Inc., Tulsa, Oklahoma, 800-879-8000.

C. MATERIALS

1. Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.
2. Cast-In-Place firestop devices for use with non-combustible and combustible plastic pipe (closed and open piping systems) penetrating concrete floors, the following products are acceptable.

a. Hilti CP 680 Cast-In-Place Firestop Device. Add aerator adaptor when used in conjunction with aerator (“solvent”) system.
b. Hilti CP 681 Tub Box Kit for use with tub installations.

3. Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:
a. Hilti FS-ONE Intumescent Firestop Sealant
a. Hilti CP 604 Self-leveling Firestop Sealant
b. Hilti CP 620 Fire Foam
c. Hilti CP 606 Flexible Firestop Sealant
d. Hilti CP 601s Elastomeric Firestop Sealant
4. Sealants, caulking materials, for use with sheet metal ducts, the following products are acceptable:
a. Hilti CP 601s Elastomeric Firestop Sealant
b. Hilti CP 606 Flexible Firestop Sealant
c. Hilti FS-ONE Intumescent Firestop Sealant
5. Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:
a. Hilti CP 672 Speed Spray
b. Hilti CP 601s Elastomeric Firestop Sealant
c. Hilti CP 606 Flexible Firestop Sealant
d. Hilti CP 604 Self-leveling Firestop Sealant
6. Pre-formed mineral wool designed to fit flutes of metal profile deck and gap between top of wall and metal profile deck; as a backer for spray material.
a. Hilti CP 677 Speed Plugs
b. Hilti CP 767 Speed Strips
7. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe, the following products are acceptable:
a. Hilti FS-ONE Intumescent Firestop Sealant
8. Foams, intumescent sealants, caulking or putty materials for use with flexible cable or cable bundles, the following products are acceptable:
a. Hilti FS-ONE Intumescent Firestop Sealant
b. Hilti CP 618 Firestop Putty Stick
c. Hilti CP 620 Fire Foam
d. Hilti CP 601s Elastomeric Firestop Sealant
e. Hilti CP 606 Flexible Firestop Sealant
9. Non-curing, re-penetrable intumescent sealants, caulking or putty materials for use with flexible cable or cable bundles, the following products are acceptable:
a. Hilti CP 618 Firestop Putty Stick
10. Wall opening protective materials for use with UL listed metallic and specified nonmetallic outlet boxes, the following products are acceptable:
a. Hilti CP 617 Firestop Putty Pad
11. Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems), the following products are acceptable:

a. Hilti CP 642 Firestop Collar
b. Hilti CP 643 Firestop Collar
c. Hilti CP 645 Wrap Strips

12. Materials used for complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
    a. Hilti CP 637 Trowelable Firestop Compound
    b. Hilti CP 657 FIRE BLOCK
    c. Hilti CP 620 Fire Foam
13. Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
    a. Hilti FS 657 FIRE BLOCK
14. Sealants or caulking materials used for openings between structurally separate section of wall and floors, the following products are acceptable:
    a. Hilti CP 672 Speed Spray
    b. Hilti CP 601s Elastomeric Firestop Sealant
    c. Hilti CP 606 Flexible Firestop Sealant
    d. Hilti CP 604 Self-Leveling Firestop Sealant
15. Provide a firestop system with a “F” Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.
16. Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction being penetrated.

VI. JOINT SEALERS

A. SEALANTS

Compatibility: Provide joint sealants, backings and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience. Colors of Exposed Joint Sealants: Full range of colors apply.

B. NON-STAINING JOINT SEALANTS

Non-staining joint Sealants: No staining of substrates when tested according to ASTM C 1248.

Silicone, Non-staining, S, NS, 100/50, NT: Non-staining, single-component, non-sag, plus 100 percent and minus 50 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant, ASTM C 920, Type S, Grade NS Class 100/50, Use NT.

Basis of Design: Dow Corning Corporation; 790.
Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces such as but not limited to:

- Construction joints in cast-in-place concrete slabs.
- Joints between plant-precast architectural concrete units.
- Control and expansion joints in unit masonry.
- Joints in stone cladding.

- Joints between different materials listed above.
- Perimeter joints between materials listed above and frames of doors, windows, and louvers.
- Control and expansion joints in ceilings and other overhead surfaces.

Silicone, Non-staining, S, NS, 50, NT: Non-staining, single-component, non-sag, plus 50 percent and minus 50 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant, ASTM C 920, Type S, Grade NS Class 50, Use NT.

Basis of Design: Dow Corning Corporation; 756 SMS.
Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces such as but not limited to:

- Joints between metal panels.

C. URETHANE JOINT SEALANTS

Urethane, M, NS, 25, T, NT: Multi-component, non-sag, plus 25 percent and minus 25 percent movement capability, traffic- and non-traffic-use, urethane joint sealant, ASTM C 920, Type M, Grade NS Class 25, Uses T and NT.

Products: Subject to compliance with requirements, provide the following:

- BASF Corporation; Construction Systems: MasterSeal NP @ (Pre-2014: Sonolastic NP2).
- Bostik, Inc. Chem-Calk 505.
- Sika Corporation; Joint Sealants: Sikaflex 2c NS EZ Mix.

Application: Exterior joints in horizontal traffic surfaces such as but not limited to

- Isolation and construction joints in cast-in-place concrete slabs.
- Joints between plant-precast architectural concrete paving units.
- Tile control and expansion joints.
- Joints between different materials listed above.

D. MILDEW RESISTANT JOINT SEALANTS

Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

Silicone, Mildew resistant Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, non-sag, plus 25 percent and minus 25 percent movement capability, non-traffic-use, acid-curing silicone joint sealant: ASTM C 920, Type S, Grade NS, Class 25, Use NT.

Basis of Design: Dow Corning Corporation: 786 SILICONE SEALANT

Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces such as but not limited to:

- Joints between plumbing fixtures and adjoining walls, floors, and counters.

- Tile control and expansion joints where indicated.

E. LATEX JOINT SEALANTS

Acrylic Latex: Acrylic latex of siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces not subject to significant movement locations such as but not limited to:

- Control joints on exposed interior surfaces of exterior walls.
- Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.

VII. HEAT AND SMOKE VENTS

A. Hatch Type Heat and Smoke Vents: Manufacturers standard, with double-walled insulated curbs, welded of mechanically fastened and sealed corner joints, integral condensation gutter, and cap flashing. Fabricate with insulated double walled lid and continuous weathertight perimeter lid gaskets, and equip with automatic self-lifting mechanisms and UL-listed fusible links rated at 165 degrees F and connected to the Building fire/smoke-detection system.

Acceptable Manufacturer: The Bilco Company, Basis of design.

Minimum 40-lbf/sq. ft. external live load and 30-lbf/sq. ft. internal uplift load. When actuated, lid shall open against 10-lbf/ss. Ft. snow or wind load and lock in position. Provide units that have been tested and listed to comply with UL 793 and are FM approved. Curb, framing and lid material to be zinc-coated (galvanized or Aluminum-zinc allow-coated steel shell. Thickness of the material to be manufacture's standard thickness for hatch size selected. Finish to be baked enamel or powder coat.

Construction of heat and smoke vents to include Polyisocyanurate board with an R-value of 12.0 according to ASTM C 1363. Provide factory installed continuous nailer around hatch perimeter.

Exterior curb liner to be manufacturers standard of same material and finish as metal curb. Fabricate curbs to a minimum height of 12 inches above roofing surface, unless project specifics require the curb to be higher. Provide a security grille for all units.

Hardware to be manufacturer's standard stainless steel with hinges, hold-open devices and independent manual-release devices of inside and outside operation of lids.

END OF CHAPTER 7

RCSD Technical Standard
Chapter 8: Openings

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for doors, windows and openings. The information contained herein shall be used by the design professionals to convey appropriate materials selections and design specifications pertaining to implementing doors, windows, openings, and associated hardware in RCSD's renovations and new facilities.

II. GENERAL

A. Every building is to 100% accessible for the physically impaired, including all door hardware.

B. Provide design drawing details showing the installation approach for windows, doors, flashing, and drainage. On window and door shop drawings, show respective installation details including flashing and penetrations.

C. Doors and windows are to be installed by qualified tradesmen with no less than 2 years of experience in installing similar doors and windows.

D. Music practice rooms require vision panels in either the wall or door. Such vision panels will be outfitted with acoustic glass, Viracon or equal. Designer to confirm STC requirements for each application.

E. Operation maintenance information for doors and windows is to be supplied as part of the Operation and Maintenance (O&M) Manuals supplied for the overall project.

F. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

III. DOORS AND HARDWARE

L. GENERAL

Minimum door size for egress doorways is to be 3'-0" x 7'-0" and door height will not exceed 7'-0". Door swing is to be restrained by wall-mounted door stops or bollards. Corridor and stair enclosure doors shall be provided so that traffic can flow in both directions at the same time and at the maximum corridor capacity during class changes. Double 3'-0" doors on automatic hold open devices are to be considered a minimum for this condition. Doors with hold opens must automatically release and close upon activation of the automatic fire alarm and detection system. Double doors will be provided with a non-removable center mullion. Wall stops to be mounted with reinforced backing to prevent damage to the wall by door operation.

Exterior doors on historic schools are to be fully insulated, wood grained face at exterior and FRP face on the interior. These units are to have a class A fire rating.

Doors in natatoriums and other high-humidity locations are to be stainless steel with directional finish or fiberglass reinforced polyester (FRP) with pebble finish. Door frames in these locations are to be stainless steel with directional finish or smooth finish fiberglass.

All doors on corridor to have a closer and a door latch.

All gang toilets to be lockable by key from the outside, but always allow for free-egress from inside without manipulation of any type of locking device.

All spaces in which students occupy, provide door hardware type that always permits the doors to be opened from the inside without manipulation of any type of locking device.

Provide backing and blocking in walls where door stops or door holds are attached. Wall foundation at exterior door entry shall extend 3” past the edge of the threshold. If an entry pad is provided, pad must be tied to the foundation by rebar. Floor-mounted door stops are prohibited. On all exterior doors, standards, or bollards must be mounted at a maximum of 110° and if applicable, no less than 3” inboard of the foundation pad or sidewalk edge.

Double doors may be used at locations not required for student egress, but rather used by staff at exterior entries to goods receiving areas, loading docks, and kitchen areas. Provide these doors with removable, lockable center mullion. Vertical rods are not permitted. However, double egress doors are discouraged for student use.

For receiving areas, provide door armor extending up to 30” from the bottom of the door. All door panels equal to or exceeding 3-0” in width must be attached with 4 hinges.

Exterior entry and egress doors are to be steel doors, insulated, and weather stripped around the door perimeter. Flash above door. All glass doors to be safety glass.

Door opening assemblies are to conform to IBC, IFC and current local fire codes.

Doors installed in cross-corridor applications are to include a door pocket to receive the door when it is open. Provide 4” edge clearance. Pocket is to be 4”, minimum. Provide center mullion.

Double egress doors require permanent center mullion. Doors opening inward to buildings to be restrained with wall stops to restrict the opening angle to 120°, and provided with magnetic door holders to hold the doors open.

Doors opening outward from buildings to be restrained with wall stops, bollards, or standards.

One double exterior door in each gymnasium shall be sized to allow removal of wrestling mats without removal of the center mullion.

M. SPECIAL ACCESS DOORS

Provide special access doors in the following applications:

1. Walls and ceilings to access valves, controls, filters, fire dampers, electrical junction boxes, and equipment, as required for ongoing lubrication and servicing
2. Replacement of smaller equipment items without demolition
3. Door size is to be as required for servicing or replacing the items noted, but not smaller than 12" x 12".

N. METAL DOORS AND FRAMES

Metal doors are to be Steelcraft, Trussbuilt, or Pioneer, no exceptions, with metal frames designed for selected metal doors; 16-gauge bonderized galvanized face sheet for exterior doors and 18-gauge face sheet for interior doors, except doors over 3" which may have 16-gauge face sheet. Doors to have seamless edges. All door frames to be mortar grouted in place.

O. WOOD DOORS AND FRAMES

Wood doors may only be selected for building interior applications. All wood doors must be solid core, heavy duty 1¾" thick, manufactured with waterproof laminate adhesives and, where used as a part of an acoustical barrier, must have an STC rating of at least 33. Door face to be plain sliced natural heart red oak. Non-rated doors to have glued particleboard core. Rated doors to have incombustible mineral core.

Frames must be those designed for use selected wood door. Doors to be installed in renovation projects must be drilled to match existing handle-set elevations.

Doors used in painted applications may utilize lower aesthetic quality veneers such as birch or maple, and doors used in stained applications must use high quality veneers.

P. VISION PANELS IN DOORS

Classroom doors, stair, and corridor doors to have vision panels. Vision panels are recommended in any other door commonly used by students or staff where privacy is not an issue.

Q. MARKING OF GLAZED DOORS AND SIDELIGHTS

All transparent glass doors and fixed transparent glass sidelights to be marked by appropriate means in accordance with 12 NYCRR 47.

R. OVERHEAD ROLLUP DOORS, ELECTRIC

Provide electric door operators in applications where door is operated frequently and where door is 12'-0" or more in length. Incorporate manual override to allow door operation in the event of loss of power. Place person door in an adjacent wall where personnel ingress/egress is expected from the area where the rollup door is installed for deliveries, loading, or bringing equipment in and out of the facility.

Door to accommodate a wind load of 20lb/sq. ft. and a life of 100,000 opening/closing cycles. Provide keyed switch (keyed to District master) to disengage power when the door is locked, and provide three button manually operated power switch with “Open”, “Close”, and “Stop” positions. Window/viewing sections of doors to be ¼” clear glass.

Rails and stiles to be extruded aluminum, clear anodized. Tracks galvanized steel with ball bearing roller guide wheels.

S. OVERHEAD ROLLUP DOORS, MANUAL

Avoid use of security grilles in rollup doors and provide padlock mounted to frame and door from inside storage room. Basis-of-Design is Cornell Iron Works’ Thermiser. Other acceptable manufacturers are Cornell Iron Works Inc, Atlas Door Corp, North American Door, Overhead Door, or approved equal. Structural quality, 24 gauge stainless steel sheets with #4 finish, pressure formed urethane insulated core. U = 0.158; R = 6.33.

T. FOLDING DOORS

Folding according style doors are prohibited.

U. DOOR HARDWARE

Provide wall mounting brackets with reinforcement for double door mullion mounting when mullion is removed from the doorway and not in use. Finish will typically be US 26D, unless unique conditions warrant other finishes. These special cases are to be reviewed with Owner.

1. Hinges

Doors up to and including 90” height shall have 3 hinges. Doors over 90” shall have 4 hinges. Hinge width to be 4.5” except as noted, furnish wide throw hinges where trim condition require. Height of hinge to be 4.5” up to 38” door width and 5” for doors over 38” widths. All hinges on corridor doors shall be NRP (non-removable pin.) Basis-of-Design is Ives HW 4.5” x 4.5” NRP and exterior to be 5”x 4.5” or equal. Other acceptable manufacturers are Stanley, McKinney, or Hager.

2. Continuous Hinges

Hinge shall be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising. The door leaf and jamb leaf shall be geared together for the entire length of the hinge and joined by a channel. Hinge knuckle shall be monolithic in appearance. Continuous hinges with visible knuckle separations are not acceptable. Vertical door loads shall be carried on minimum 3/4" acetyl bearings through a full 180 degrees. All (HD) heavy-duty hinges shall have a minimum of (32) acetyl bearings supplied on a (84”) tall continuous hinge.

3. Locksets

Locksets to be provided with keying capability to accommodate great-grand master key. All keys, cores and cylinders to be Everest 29 T family. Constructor to provide Door Schedule submittal referencing room numbers with associated key numbers to be used for final keying. Provide two construction removable

keys.

Lock manufacturer's housing must be able to accept Schlage Everest UL437 listed cylinder. Locksets shall be Schlage L9000 series, mortise type, interchangeable core.

4. ADA Thumb Turn
Single user staff toilets are allowed to have an ADA thumb turn inside, key outside deadbolt, in addition to the locket, to provide privacy.

5. Thresholds
Provide thresholds conforming to ANSI/BHMA A156.21, abrasive cast, or mill finish aluminum, clear anodized finish, BHMA 628. Provide neoprene or silicon foot seals, 1" wider than frame depth. Furnish stainless steel screws and lead anchors for fastening. Thresholds to be NGP, Wooster (Pemko, Zero, Reese.)

6. Local Door Alarms
Where local door alarms are called for, use battery-operated power breach alarms and disabling key to match door lock. Where applicable, use VonDuprin 99 ALK Kit.

7. Closers
Door closers are required on all doors, including classrooms doors, opening into a corridor. Provide closers conforming to ANSI 117 standards. Provide surface mounted, heavy duty rack, and pinion type, independently adjustable closing speed and latching position. Certified to meet or exceed ten million operating cycles. Standard metal cover with powder coated finish and installed with tamper resistant screws. Provide LCN 4000 (Sargent 281 Series less PRV.) Ten-year warranty.

8. Door Smoke Seals
Provide smoke seal conforming to ANSI/BHMA A156.22. National Guard Product 2525 (Reese). Stick on silicone – head and jamb.

9. Weatherstripping
Provide National Guard Products nylon brush type A625 at the head and jamb (Reese 961, Seal Eze). Polypropylene is UNACCEPTABLE.

10. Wall Stops
Provide BHMA 626 finish, Ives.

11. Floor Stops
Provide Ives FS436 (Rockwood Mfg.), except where door knob contacts wall or Overhead Stop where floor and wall stops are impractical.

12. Overhead Door Holders
Provide Glynn Johnson 90/450 Series (Rixson).

13. Sweep strips
Provide National Guard Products (Reese 964, Seal-Eze) nylon brush type

#C607 x width of door. Polypropylene is UNACCEPTABLE.

14. Soundproof Gasketing
Provide National Guard Products (Reese) 103N adjustable gasketing mitered at head and jambs. Provide National Guard Products (Reese) 420N automatic door bottom.

15. Door Silencers
Provide Ives, or equal.

16. Kickplates
Provide 18-gauge stainless steel, covering the bottom 10”x 2”, Less Door Width (LDW). Provide ANSI/BHMA 156.6 with BHMA 630 finish.

17. Power Assisted Door Operators
Provide for ADA accessible doors at all primary entrances for new construction. Add to existing schools when possible. Provide LCN 4630/4640 series operator with matching LCN paddle and tamper proof paddle cover box.

18. Electronic Locks
Provide Von Duprin 6000 series for ANSI electronic strikes. Latches to be Von Duprin 99 (EL or QEL) series only. Provide magnetic door holds for all stair enclosures and corridor smoke barrier doors.

19. Panic Bars
All exterior and interior exit doors in exit ways and from all assembly spaces to have panic hardware, except those exterior corridor doors serving only one or two classrooms with less than 50 people total, or service areas (i.e. boiler room, kitchen, or storage room) or for push/pull interior doors from assembly spaces and exit ways if those doors have non-latching hardware and are not within fire rated walls or smoke partitions.

Panic bars to be Von Duprin 99 or XP99 Series.

20. Latch Guards
Latch guards are required on all exterior doors where doors are out-swinging and have levers or electric strikes. Provide Hager 341D-2C, Don-Jo LELP 208 EBF, or equal.

21. Roller Strike Plates
Use of a strike plate spacer is required to reinforce the roller strike plate installation.

22. Manual Flush Bolts
Provide Ives FB458. (Door Controls, Rockwood Mfg.)

23. Automatic Flush Bolts
Provide Ives FB30 (metal doors) FB40 (wood doors) (Door Controls, Rockwood Mfg.) Furnish DP2 dustproof strike at bottom bolt.

24. Self-Latching Bolts
Provide Ives FB50 (metal door) FB60 (wood door) (Door Controls, Rockwood Mfg.)
Furnish DP2 dustproof strike at bottom bolt.

25. Coordinators
Provide Ives COR Series with required brackets and CB-a carry bar. (Door Controls, Rockwood Mfg.)

26. Electromagnetic Stops & Holder
Provide LCN SEM Series (Rixson, Dorma).

27. Astragals
Provide National Guard 115N at meeting stiles of fire rated wood doors. (Reese)

V. DOORS: ITEMS PROHIBITED BY DISTRICT GUIDELINES

The Architect/ Engineer (A/E) shall not incorporate any of the following items in the design:

- Thresholds extending above finished floor level in doorways providing for movement of materials to/from trash disposal areas (interior and exterior) or exterior receiving area
- Thresholds extending more than ½" above finished floor level in doorways that are intended for use by personnel classified as being covered by ADA requirements
- Floor-mounted closures
- Floor closures with integrated smoke detectors
- Roller latches
- Sliding doors and pocket doors
- Concealed or electrified vertical rod exit devices
- Mortised flush bolts and rods on wood doors
- Magnetic locks
- Electronic (touch sensitive) panic devices
- Padlocks/ hasps for doors
- Deadbolts

W. DOOR WARRANTIES

Provide 3-year warranty on doors and 10-year warranties on door frames and door glass.

IV. ENTRANCES AND STOREFRONTS

Storefront doors to be wide style, maximum panel size 36"x 84", offset single acting with 10"x 2" LDW bottom kickplate. Provide wall-mounted stop, integral to the frame or bollard plate and doors shall be reinforced at hinge attachment points. Provide backing and blocking at all hardware attachment points. At entrance vestibules, provide security safety film on all glass. Acceptable products include 3M Scotchshield™ Safety & Security Window Film Exterior Safety, or Ultra Series (bomb blast resistance) and School Guard Glass.

P. ALUMINUM ENTRANCES AND STOREFRONTS

Doors, window wall frames and trim to be extruded aluminum. Glazing gaskets to be Ethylene Propylene Diene Monomer (EPDM) and fasteners to be aluminum, stainless steel or zinc plated steel. Perimeter anchors to be aluminum or steel.

Finish all exposed aluminum surfaces with Class 1 clear anodic coating conforming to Standard AA-M12-C22-A41 or with fluoropolymer coating conforming to AAMA 605.2-92.

Q. STOREFRONT WINDOWS

Provide storefront windows with 2" nominal brake formed frame and sill. Sills to be sloped for positive wash. Glazing bead to be aluminum retainer with vinyl insert seal. **No wet glazing.**

R. VENTILATORS

Ventilators to be solid section weather stripped with heavy duty hinge extending for 60 percent of the length of the ventilator and utilizing solid brass strike and locking handle. **Not wet glazing.**

S. INSECT SCREENS

Woven aluminum mesh, 14/18 grid, tubular aluminum frame.

T. AUTOMATIC ENTRANCE DOORS

Automatic doors shall meet door guidelines as specified elsewhere herein. Provide LCN 4630 or 4640 operators and LCN cover plates, paddles, receivers, and transmitters. Hardwired for new construction.

U. ENTRANCE AND STOREFRONT WARRANTIES

Provide 3-year warranty on doors and 10-year warranties on door frames and door glass. Provide 10-year warranty on window frames and 3-year warranty on window glass.

V. WATER TEST

Require field Water Penetration Test in accordance with AAMA 503 before project punch listing begins.

V. WINDOWS

A. WINDOW REQUIREMENTS

Each room used by students must be designed to allow a view a minimum of 30 feet beyond the exterior wall (not just the sky.) The length of the vision strip (windows) to be at least 50% of the lineal length of the outside wall of the room and the head of the window to be at least 6'-0" above the floor. Control glare with internal window blinds. Class 5 rated balancers are required for balanced windows so that the person opening the window is lifting only 30% of the weight.

B. NATURAL LIGHT

A minimal amount of natural light to be provided to allow for safe exiting. Where windows, vision panels in walls or doors, or skylights are not possible, the minimum light levels required for egress must be provided.

Space	Interior Window Sill Height (inches)	Vision Strip Required	Vision Strip Recommended	Natural Light Required	Natural Light Recommended
Teaching Spaces					
Classrooms					
Art & Drawings	40	X			
Computer Rooms	--		X		
Elementary	30-32	X			
Home & Careers	40	X			
Secondary (Academic)	32	X			
Science Rooms (All)	40	X			
Space	Interior Window Sill Height (inches)	Vision Strip Required	Vision Strip Recommended	Natural Light Required	Natural Light Recommended
Study Hall	32	X			
Music					
Elementary	32	X			
Secondary	32-40*		X	X	
Shops/Technology					
General	60	X			
Special (Exceptional) Education					
Classroom	32	X			
Remedial/Resource	--		X		X
Therapy	--				X
Other Student Occupies Spaces					
Cafeteria	--		X	X	
Gymnasium	--			X	X
Library – up to 2000 SF	44	X		X	
Library – over 2000 SF	--		X	X	
Natatorium	--			X	
Administrative and Support Spaces					
Administration	--				X
Corridors	--				X
Guidance	--		X		X
Health	--				X
Kitchen	--		X		X
Office & Workroom	--				X

Stairways	--				X
Store Room	--				X
Teacher's Room	--				X
Toilet Rooms	--				X

* See SED Manual of Planning Standards

C. SKYLIGHTS

The interior pane of glass in skylights must be laminated glazing and the exterior pane must be tempered glazing. Skylighting is an effective strategy to provide natural daylighting. Sizes and configurations of skylights are based on both energy code guidance and design aesthetic. While different configurations would be the prevue of the design professional, the Wasco EcoSky3 skylight is an acceptable basis of design.

D. WIRE GLASS

Wire glass is prohibited. Consider the removal of existing wire glass where potential impact and injury may occur and replacement with impact and fire resistant material. Laminated wire glass (complying with CPSC 16 CFR 1201) is an approved alternative to wire glass.

E. GLAZING METHOD

Supply with dry glazing using removable stops. No films on any window surfaces. **Wet glazing is prohibited.**

Exterior window glass to be insulating type. Glazing to be AAMA rated and exterior windows to be National Fenestration rated.

Window assembly U transmission factor to be 0.31 or less. For west facing windows, SHGC to be 0.40 or less, and for south facing windows SHGC to be 0.55 or less.

F. FROSTED GLASS

If a window is provided in a toilet rooms, shower rooms, locker rooms for faculty or students, frosted glass is to be provided. If on the first floor, these windows are to be non-operable, unless required to open as emergency windows. Architect may seek approval of textured glass in lieu of frosted glass from RCSD Facilities Design Group.

G. WINDOW MARKINGS

All fire resistive rated glazing and safety rated materials must be marked with the approval of a Nationally Recognized Testing Laboratory (NRTL.)

H. EMERGENCY WINDOWS

Emergency rescue windows, as required, to be of such a size and design that will permit and facilitate emergency egress through them. Window hardware to be a maximum of 54 inches above the floor. It is recommended that all classroom windows permit emergency egress. Double hung, casement, and sliding windows types may be used. Casement windows must have hardware that permits the window to open at least 90 degrees. The minimum clear opening area for rescue windows to be a minimum of 6 square feet and the minimum dimension to be 24 inches unless otherwise approved by the

State Education Department. Screens, if provided at rescue windows, are to be hinged or sliding and to be operable from the inside with one hand, and without the use of a key, special tool or special knowledge. Provide the required window signage identifying the rescue window. Do not cover signage with window covering, unless the window covering also has identifying signage.

F. SAFETY GLAZING

Safety glazing to comply with the US Consumer Products Safety Commission Standard CPSC 16 CFR 1201, Safety Standard for Architectural Glazing Materials. Safety glazing is required for all doors and door sidelights. **No glazing within 30" of the floor.** Provide safety glazing in windows that extend within 60" of finished floors, must not exceed 20 sq. ft. in size.

G. INTERNAL BLINDS

All exterior windows are to have internal blinds between the insulated glazing panels.

*All windows are to meet energy requirements as outlined in the International Energy Code, NYS supplement, current edition. As energy code compliance can be calculated through a number of paths, specific U-values, SHGC, etc. are at the discretion of the design professional, though it is incumbent on the design professional to provide a design that holistically complies with the energy code requirements.

END OF CHAPTER 8

RCSD Technical Standard
Chapter 9: Finishes

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for interior finishes. The information contained herein shall be used by the design professionals to create and aesthetically pleasing environment that is conducive to learning, promotes health and safety, is economical, and easy to maintain.

II. GENERAL

Interior finishes are material applied directly to walls, fixed or movable partitions, ceilings, as well as exposed finish of construction materials. Design shall provide finish systems that will deliver a durable, low maintenance, easy to clean, and visually and acoustically pleasing educational environment. Full height tile on masonry walls or structural glazed tile is preferred in corridors and high traffic areas. Provide surfaces for display of student work in corridors for all elementary schools and in other schools, as required.

Sound transmission and acoustics are very important in educational environments. Sharp sounds, loud noises, and excessive use of acoustically reflective surfaces can be detrimental to learning. Design to limit transmission of sound between spaces paying particular attention to mechanical equipment, conference rooms, performance, instrumental, and vocal spaces.

The design shall incorporate the use of materials that will withstand, or be easily repaired after being subjected to the type of abuse that occurs in school environments. This shall include providing adequate backing for all wall- or ceiling-mounted fixtures, devices, and equipment. Limit the use of suspended ceilings in high schools and middle schools to areas with a ceiling height of 10'-0" or greater. Select finishes that will be resistant to graffiti and allow for easy removal when it occurs. Construction techniques that require caulking to prevent water infiltration shall be avoided, if possible.

To minimize interior lighting power requirements and enhance contributions from natural daylight, light-colored highly reflective finishes to be selected for all ceilings. Light-colored finishes shall be used for field finishes on walls and darker colors may be used for accent.

The use of asbestos and lead, in any form, on RCSD projects is expressly prohibited.

III. CODES AND REGULATIONS

All interior finishes to comply with the requirements set forth by the following:

- International Building Code as adopted by New York State
- 2016 Uniform Code Supplement
- International Existing Building Code as adopted by New York State
- International Fire Code as adopted by New York State
- International Energy Conservation Code as adopted by New York State
- 2016 Supplement to the New York State Energy Conservation Construction Code
- NYSED Manual of Planning Standards

- Commissioner's Regulations
- NYS Office of Children and Family Services (for applicable Pre-K program spaces)

IV.LIMITATIONS OF INTERIOR FINISHES - GENERAL

Class A interior finishes to be used in corridors and exits. Class B is acceptable if these spaces have an approved NFPA-13 Sprinkler System.

Interior finishes in school construction shall be Class A, B, or C. per the International Building Code with the following exceptions:

1. Class C interior finishes shall not be used in school construction of more than three stories.
2. Class A or B interior finishes to be used in the following locations:
    a. Places of Assembly and Stages, except wainscots not over 8 feet above floor finish which may be Class C. Class C is acceptable if the space has an approved NFPA-13 Sprinkler System.

Interior floor covering to comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) or with ASTM D2859.

Interior floor finish and floor covering materials in enclosures for stairways and ramps, exit passageways, corridors and rooms or spaces not separated from corridors by partitions extending from the floor to the underside of the ceiling to with stand a minimum critical radiant flux of Class II, unless building is equipped throughout with an approved NFPA-13 Sprinkler System. Note: Class II materials are permitted in any area where Class I materials are required and DOC FF-1 "pill test" or with ASTM D2859 are permitted in any area where Class II materials are required.

V. LIMITATIONS OF INTERIOR FINISHES - TOILET AND SHOWER ROOMS, AND JANITORIAL SPACES

Toilet and shower rooms floors to have a smooth, hard, nonabsorbent surface. Likewise, there is to be a 4-inch smooth, hard, nonabsorbent surface at the intersection of the floor and wall (wall base.)

Walls and partitions within 2 feet of a service sinks, urinal, or water closet to have a smooth, hard, nonabsorbent surface to a height of not less than 4 feet above the floor.

Shower walls to have smooth, nonabsorbent surface to a height not less than 72 inches above the drain inlet.

VI.INTERIOR FINISHES – SUBSTRATES

X. GYPSUM BOARD (GWB)

For all gypsum board wall applications use Impact-Resistant Gypsum Boards tested in accordance to ASTM C 1629 that have inherently mold and moisture resistant properties. Use boards that meet or exceed Level 3 requirements for Surface Abrasion (ASTM D 4977), Soft Body Impact (ASTM E 695), and Hard Body Impact (Annex A1) when tested. Use boards that meet or exceed Level 1 requirements when tested for Indentation (ASTM D 5420.) Use boards with Type X core that meets ASTM C 1396 with moisture and mold resistant core and paper surfaces and, with a mold resistance score of at 10 according to ASTM D 3273. Use fiberglass joint tape and mold

resistant joint compound that has a score of 10 per ASTM D 3273 for interior gypsum board assemblies. Unless otherwise indicated for walls or required for fire-resistance, use two (2) layers of 1/2" product with 24" of sheet metal behind the gypsum at bottom.

Science laboratories are to be separated from adjacent classrooms or spaces with 1-hour rated construction.

Music classrooms, music practice rooms, and offices indicated to be acoustically isolated are to be provided with acoustical batt insulation.

For all gypsum board ceiling applications where painted gypsum board is the final ceiling finish, use Mold and Moisture Resistant Board (ASTM C 1396.) Board to have a mold resistance score of at 10 according to ASTM D 3273. Unless otherwise indicated or required for fire-resistance, use 1/2-inch product thickness.

For fire-resistance assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency. List assembly UL number on the drawings.

For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

Provide the following number of coats of joint compound to fill and cover all joints, angles, fasteners, and accessories in the listed room type. Provide the listed Surface Level as specified by Gypsum Association in GA-214-07 and GA-214-9M-97:

- Three coats: Mechanical, electrical rooms, custodial closets, and storage rooms; exceeds Surface Level #3.
- Four coats: Classrooms; exceeds Surface Level #4.
- Five coats: Corridors, gymnasiums, locker rooms, cafeteria, offices, high traffic/ public areas; exceeds Surface Level #4.

Y. TILE BACKING UNIT

Glass-Mat Water-Resistant Backing Board (ASTM C 1178) to be used behind tile in wet wall locations where CMU is not the present and the manufacturer recommends the product for the application. Extend board 3' around water sources on both sides of the wall assembly. Wet locations include showers, kitchens, all sinks, water fountains/coolers, eyewashes, mop sinks, laundry machines, hose bibs, walk-in coolers, and all other locations where water is present on either side of the assembly. Board to have a mold resistance score of at 10 according to ASTM D 3273. Where waterproofing is required, treat joints and fastener penetrations with water proofing membrane (ANSI A 118.10.) Unless otherwise indicated or required for fire-resistance, use 5/8-inch product thickness.

Where Glass-mat Water-Resistant Backing Board is not recommended by the board manufacturer and CMU is not present for wet wall applications or for wet floor applications where concrete floors are not present, use

Cementitious Backer Units (ANSI A 118.9) behind tile. Where water proofing is required, use water proofing membrane (ANSI A 118.10) under units. Units to have a mold resistance score of at 10 according to ASTM D 3273. Unless otherwise indicated or required for fire-resistance, use 1/2-inch product thickness.

Z. LATH & PLASTER

Lath and plaster shall not be used for new construction. These materials may **only** be used for patching existing plastered surfaces. The use of plaster for ceilings and of stucco for exterior finish, including canopy soffits, is prohibited.

In buildings requiring remodeling, patched materials, and surfaces must be finished so that existing and new materials match one another, not only in color, but also in patterns and surface texture. The intent is not to have a patched appearance.

In areas where partitions must be removed to create new areas, careful planning is required to ensure that finishes of the existing and the newly created surfaces are homogeneous. The existing materials should blend into the new so that the transitions from one material to the other cannot be readily observed. If the desired level of finish cannot be achieved, arrange contrasting materials in a pleasing design.

Use reference material: National Park Service, Preservation Brief 21, Repairing Historic Ornamental Plaster Walls & Ceilings, Mary Lee McDonald, 1989 and Preservation Brief 23, Preserving Historic Ornamental Plaster, David Flarehty, 1990.

AA. GYPSUM VENEER PLASTER

Do not use Gypsum Veneer Plaster as a finish.

BB. FRAMING AND SUPPORTS FOR GYPSUM BOARD (NON-STRUCTURAL WALLS)

Metal studs are preferred, ASTM C 645, 20-gauge minimum. Space studs 16-inches on center at a minimum. Design walls to meet code seismic requirements. Provide double studs at all openings. Extend double studs full height to structure above. Provide galvanized steel trim accessories.

VII: INTERIOR FINISHES – PAINT, COATINGS, AND STAINS

A. PAINTING

Paint all exposed surfaces, unless prefinished/ finished metal surfaces/ concealed surfaces/ operating parts/ labels. Use solid colors. No two-toned paint. Use low VOC paint and coatings with no known carcinogens. Installation by brush, no spray application. Specify paint must arrive on site in new unopened containers. Provide light, reflective paint colors on ceilings and overhead construction, except in specialty areas (i.e. auditorium, stage, etc.)

Paint Sheen for Room Types

Room Type	Wall Sheen
Classrooms	MPI Gloss Level 4; “Satin-like”

Offices	MPI Gloss Level 4; “Satin-like”
Corridors	MPI Gloss Level 5; “Semi-gloss”
Kitchen	MPI Gloss Level 5; “Semi-gloss”
Cafeteria	MPI Gloss Level 4; “Satin-like”
Toilet Rooms	MPI Gloss Level 5; “Semi-gloss”
Service Areas	MPI Gloss Level 5; “Semi-gloss”

Minimum Quality of Finishes for Selected Substrates after proper preparation*

1. Re-paint:	Paint applied over existing painted finish in good condition
2. Primer:	One coat of type recommended by coating manufacturer for maximum coating adhesion
3. Finish:	Sheen and material as appropriate for space. Doors and other areas requirement semi-gloss finish shall be 100% acrylic
4. Gypsum:	Select finish according to use of space. Minimum acceptable finish is one coat of heavy bodied Acrylic gypsum board sealer as primer and two coats Interior Latex sheen per Finish Schedule.
5. Gypsum and Plaster:	PVA primer
6. New Concrete, Interior:	Primer: One coat high quality, acrylic latex primer Finish: 100 % Acrylic low gloss, two coats
7. New Concrete, Exterior:	Primer: Appropriate for pH factor Finish: Elastomeric, two coats
8. Stucco, Existing (No new stucco allowed):	Primer: One coat, high quality acrylic latex primer Finish: Elastomeric, two coats
9. Gypsum Wallboard, Interior:	Primer: PVA Finish: Acrylic latex, Rodda Paint Lasyn, or equal
10. Interior Ferrous Metals (i.e. toilet rooms, locker rooms):	Primer: Red Oxide, “Alkyd” Finish: Industrial Enamel, two coats
11. Exterior Ferrous Metal (Bare, to be approved by RSMP; excluding handrails):	Primer: Oil base primer Finish; Tnemec 2-part epoxy
12. Exterior Ferrous Metal (Handrails):	Galvanized
13. Hollow Metal, pre-primed (i.e. doors, frames):	Exterior Finish: Industrial Enamel, two coats Interior Finish: Two coats, Rodda Paint AC-911, or approved equal
14. Non-ferrous Metal:	Primer: Vinyl wash primer

	Finish: Industrial enamel, two coats
15. Wood (i.e. trim, gable)	Primer: First coat: acrylic Finish Two coats: 100% Acrylic, Rodda Paint AC-911, or approved equal
16. Sealants, Split Face, CMU, Brick:	Graffiti Coatings: Prosoco, Protectosil, or approved equal Brick Seal: Prosoco, Siloxane WB or better Note: Follow all manufacturer's specifications for applications.
17. Existing Lockers (renewal)	Electrostatic paint

*Please note that for schools that have a historic designation, the New York State Parks Preservation Briefs should be consulted when preparing and repair/restoring surfaces.

CC. INTUMESCENT PAINT

Architect may design assemblies with intumescent paint where approved by SED to achieve required assembly fire ratings. Ensure material compatibility when designing assemblies. Follow applicable codes.

VIII: INTERIOR FINISHES – WALLS

A. WALL TILE

Commercial grade 4-1/4" x 4-1/4" or 6" x 6" ceramic or porcelain tile may be used on walls. Smooth glazed tile is preferred in toilet rooms. Use solid color tiles for ease when repairs are required. Pre-mounted tile on backing sheets is preferred to individually set tile. Use trim and special shaped tiles as required. Provide transitional tile trim/shape (bullnose or cap) when tile is used on the lower portion of wall a CMU, or board and stud wall. Provide rounded external corners or trim shapes at head, jamb, and sill of openings, of the same material and finish as field tile. In shower rooms, extend wall tile the entire height of the wall. In toilet rooms, extend tile to top of toilet partitions, approximately 6'-0". Coordinate height with wall mounted accessories, top of partitions, tops of urinals, etc. Show all relationships on interior elevations to avoid bridging edge of tile. Extend tile work into recesses and under or behind equipment and fixtures; including sinks and mop basins. Seal all joints between wall tile and plumbing fixtures with white sealant.

Use mold and mildew resistant and stain resistant grout (ANSI A 118.7). Specify tile grout to be a tinted shade (never white, light gray, or cream.) Seal grout to prevent penetration and improve cleaning. Avoid the use of sealants for directional transitions. Rather, use grouted trim tiles to create continuous (on the same plane) tile conditions from wall to wall and from wall to floor.

Do not select tile types or colors that have been discontinued by a manufacturer.

Design wall tile as full height in the following spaces:

- Showers
- Kitchens
- Serving Areas

Design wall tile to the top of the door frame in the following spaces:

- Cafeterias

Design wall tile as half height in the following spaces:

- Single User Toilet rooms – Verify & coordinate with finish schedule.

Design wall tile to above the toilet partitions, approximately 6'-0" in the following spaces:

- Gang Toilet rooms – Verify & coordinate with finish schedule.

Installation per most recent edition of the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.

B. ACOUSTICAL WALL PANELS

Provide 22 ga. electrogalvanized perforated steel acoustical panels that are certified to meet the following minimum sound absorption for a 30 inch by 120 inch panel, encapsulated in a 2.0 mil flame guard polyethylene, when tested in accordance with ASTM C 423 and E 795:

- 125 Hz: 6.2 sabins.
- 250 Hz: 20.5 sabins.
- 500 Hz: 35.2 sabins.
- 1000 Hz: 34.5 sabins.
- 2000 Hz: 31.5 sabins.
- 4000 Hz: 33.1 sabins.
- NRC: 0.99, minimum.

Framing members to be manufactured from 20 ga. electrogalvanized steel. Steel brackets for attachment to walls and ceilings, providing 4 inches of clearance between back of panel and mounting surface. Corrosion-resistant anchors for fastening bracket to substrate, as recommended by panel manufacturer and approved by Architect. Acoustical insulation to be 2" thick, fine fibered, fibrous glass, having a density of not less than 1.5 pounds per cubic foot, encapsulated in a 1.5 to 2 mil flame guard polyethylene.

Basis of Design: Eckel Industries, Inc, Eckoustic Panels, EFP

NO fabric acoustical wall panels.

C. WALL COVERINGS

Wall coverings are not permitted.

IX: INTERIOR FINISHES – FLOORS

A. **CARPET** (Woven Broadloom)

a. Carpet construction: Woven, textured multicolored cut and loop, 34.5 oz. per sq. yd., .192" pile thickness, interlocked backing, 12' widths.
b. Fiber Type: Nylon, Fortis Type 6.6 nylon.
c. Minimum Fire Characteristics:

i. Flame Spread: ASTM E 84 – 75 or less.
ii. Critical Radiant Floor: NFPA Class 1 (ASTM E 648) .45 watts/cm2 or greater for glue down installation and complying with the DOC FF-1 "pill test" (CPSC 16 CFR 1630).
iii. Smoke Density: NBS NFPA 258 – 450 or less.

d. Color: Per Project Architect's selection of manufacturer's stock colors.
e. Manufacturer: Mohawk Commercial Regents Row III, Crossley 30035 Largo II, or the approved equivalent.

Concrete must be sufficiently cured, dried, and sealed before carpet is installed on top of it.

B. VINYL COMPOSITION TILE (VCT)

Vinyl Composition Tile, also known Reinforced Vinyl Tile (ASTM F 1066, Class 2) is the preferred flooring for standard classrooms and as the floor finish for other indicated spaces. Medium value colored tiles are preferred over light or dark colors which show scratches. Tile color and pattern must extend through the thickness of the tile. Tile size to be 12" x 12" x 1/8". Use a maximum of three colors in floor tile design, including borders per space.

Specify that concrete substrate to be free of all sealers, hardeners, and/or curing agents be removed prior to installation.

Specify slip retardant VCT if Architect deems VCT as an appropriate material for the locations that may become wet.

Basis of Design Regular: Armstrong Flooring, Standard Excelon Imperial

C. RESILIENT SHEET FLOORING

Use commercial grade homogenous vinyl sheets (ASTM F 1913) protected with a specially performance top layer of UV-cured polyurethane for conditions that preclude VCT, such as suspended wood substrate or a wet location. Heat weld all seams. Chemical bonding (adhesive) is prohibited. Product to have a minimum 0.080 inch wear layer. Design the location of seams as to not be perpendicular to the path of traffic, not be in the line of heavy traffic, adjacent to floor drains, or any other area where the seam would be exposed to moisture.

Basis of Design: Armstrong Flooring's ColorArt: Medintone or Medintech with Diamond 10 Technology coating.

D. TERRAZZO

Provide 3/8-inch-thick resin epoxy terrazzo topping wit #2 chip size and a smooth matte finish over a level concrete slab. Follow ACI 302.1 R.89: Concrete Joint Placement during installation. Use heavy duty metal dividers; no plastic.

At corridors, provide a poured-in-place integrated 6-inch cove base.

Precast terrazzo base to be minimum 3/8 inch thick, cast in lengths not less than 36".

Physical Property	Test Method	Result
Compressive Strength	ASTM C 579	6,000 psi (after 7 days)
Tensile Strength	ASTM C 307	1,500 psi
Flexural Strength	ASTM C 580	2,200 psi
Impact Resistance	ASTM D 2794	>160 in./lbs.
Hardness	ASTM D 2240	85 minimum
Abrasion Resistance	ASTM D 4060	0.06 gm max. weight loss
Static Coefficient of Friction (SCOF)	ASTM D 2047	>0.5 dry*
Water Absorption	ASTM C 413	<1%
Flammability	ASTM D 648	Class 1

*Industry recognized minimum standard. However, Architect to select an appropriate material (with appropriate surface finish) on a project specific basis.

RCSD Facilities Design Group to approve final Terrazzo selection for each application.

E. PRECAST TERRAZZO STAIR TREADS

Reinforced as recommended by the manufacturer. Provide abrasive alundum safety tread strip on each step. Seal treads with penetrating type terrazzo sealer that does not discolor product. To match adjacent terrazzo flooring.

Do not specify vinyl tread covers at stairs.

F. SEALED CONCRETE

Use a chemical-hardener and polish concrete floor slabs to remain exposed. Stains may be used in non-service spaces in approved by RCSD Facilities Design Group. Apply sealers to prevent stains from penetrating the concrete. Slip resistance to meet or exceed Coefficient of Friction criteria as determined by standards: ANSI B101.1, ANSI B101.3, and ANSI A137.1.

G. FLOOR TILE

Unglazed commercial grade 2” x 2” x 1/4” porcelain tile is the preferred floor tile type in all toilet rooms. Unglazed commercial grade 6” x 6” quarry tile is the preferred floor tile type in kitchens, serving and dishwashing areas. Sizes for all other applications of floor tile to be designed by the Architect. Specified tiles must have a dynamic coefficient of friction (DCOF) of 0.42 or greater according to ANSI A 137.1. However, the specifier is to determine the selected tiles are appropriate for the specific project conditions; ensuring slip resistance that is adequate for the safety of the users. Particular attention should be paid to slip resistance in showers, drying areas and locker rooms. All floor tile installations should slightly slope to a drain, not exceeding ADA guidelines. Use solid color tiles for ease when repairs are required. Pre-mounted tile on backing sheets is preferred to individually set tile. Use epoxy grout (ANSI A 118.3) approved for commercial use. Specify tile grout to be a tinted shade (never white, light gray, or cream.) Installation per most recent edition of the TCNA Handbook for Ceramic, Glass, and Stone Tile

Installation. Seal all joints between floor tile and plumbing fixtures with white sealant.

H. TILE WALL BASE

Select wall base tile (including quarry tile) with sanitary cove units with inside and outside cove corner trim pieces to be used in all toilet rooms, showers, kitchens, and serving areas. Use solid color tiles for ease when repairs are required. Use epoxy grout (ANSI A 118.3) approved for commercial use.

Design and specify glazed CMU as base for CMU walls and partitions.

Installation per most recent edition of the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation.

I. WEIGHT ROOM FLOORING

Flooring systems are to be rated for freestanding equipment such that additional individual floor coverings are not required under equipment.

The existing slab shall meet the tolerances and requirements of the flooring manufacturer. Verify membrane waterproofing beneath slab is sufficient where required by manufacturer. If existing slab, waterproofing below slab, vapor barrier, subfloor, pads are to be reused, have manufacturer verify in writing the system will receive warranty.

For a new concrete subfloor, coordinate required slab depression depth and slab preparation to accommodate with flooring system manufacturer. Use concrete with a minimum compression strength of 3,500 psi, unless a higher strength is required by the manufacturer for application.

Vapor Barrier to be 6-mil polyethylene.

J. WOOD GYMNASIUM & STAGE FLOORING SYSTEM

For reuse of existing concrete subfloor, provide maple flooring system to fit existing slab recess. Existing slab shall meet the tolerances and requirements of the flooring manufacturer. Verify membrane waterproofing beneath slab is sufficient where required by manufacturer. If existing slab, waterproofing below slab, vapor barrier, subfloor, pads are to be reused, have manufacturer verify in writing the system will receive warranty.

For new concrete subfloor, coordinate required slab depression depth and slab preparation to accommodate with flooring system manufacturer. Use concrete with a minimum compression strength of 3,500 psi, unless a higher strength is required by manufacturer for application.

Vapor Barrier to be 6-mil polyethylene.

Provide 25/32” x 2-1/4” Second & Better grade, Northern Hard Maple T&G flooring, TGEM, MFMA grade marked on underside by manufacturer.

Use fasteners recommended in writing by manufacturer.

Basis of Design: Conner Sports Flooring, Focus.
Alternative Basis of Design (with District approval): Conner Sports Flooring, Focus II.

Basis of Design product utilizes proprietary 9/16" x 1" x 48" resilient pads, and proprietary ¾" plywood subfloor panels machined for continuous pads (attached) and anchor pockets. (OSB may not be used as a subfloor component.)

Fireblock gymnasium floor as required by code.

Provide aluminum thresholds at doorways and openings where flooring does not continue. Thresholds to be appropriately sized to span the expansion space at the perimeter of the gymnasium floor.

Provide recessed equipment sleeves for volleyball and badminton with metal cover plates.

Provide game lines for basketball, volleyball, and badminton. Paint to be compatible with finish.

Finish to be manufacturer's oil modified polyurethane seal and finish or approved equal.
Where wood floor systems are used, vented wood base is required.

K. VENTED RESILIENT WALL BASE

Provide heavy duty, 3" toe x 4" high, molded, vented wall base at the perimeter of gymnasium flooring systems to cover expansion space. Use pre-formed outside corners.

Basis of Design: Johnsonite, Vent Cove Wall Base.

L. WALL BASE (RWB)

Use 4" high, dark-colored, thermoplastic vinyl cove base (ASTM F 1861), with a matte finish. Use factory pre-formed inside and outside corners. Seal with silicon behind the base where the floor meets the wall and at the bottom and top edges of the cove base.

Basis of Design: Mannington, Edge.

M. FLOOR TRANSITIONS

Provide vinyl transitions where adjacent floor materials are of difference heights.

Basis of Design: Mercer Flooring Products

N. RAMPS

If in a ramp is part of a corridor and corridor has terrazzo flooring, continue poured-in-place epoxy product on ramp. Integrate manufacturer's recommended abrasive technology on ramp. Slip retardant VCT should be used where Architect deems it appropriate and where not adjacent to

terrazzo flooring. Prefabricated metal ramps should not be used for interior spaces unless temporary.

X: INTERIOR FINISHES - CEILINGS

A. ACOUSTICAL CEILING TILES (ACT)

The design team shall coordinate 24" x 24" ceiling grid with lighting, technology, fire protection (if required), and other accessories. Layout of grid should be symmetrical within a space and designed to minimize waste. Narrow strips of tile should be avoided. Follow structural/ seismic requirements in the International Building Code, but use intermediate duty grid at a minimum if it meets code.

ACT to meet surface burning characteristics of standard ASTM E 84 for flame spread of 25 or less and smoke developed index of 50 or less. Provide fire-rated ceiling/floor or ceiling/roof assemblies as required by the International Building Code.

Adhesively mounted acoustic ceiling panels are prohibited.

Foil-backed tiles to be a minimum 3/4" thick high density mineral fiber (ASTM E 1264) with a minimum NRC of 0.65. In typical spaces use an edge detail that allows a suspended ceiling panel to extend below the grid, making the grid less noticeable (i.e. tegular or shadow line.) Tiles to be white, unless otherwise indicated for specialty spaces designed to be dark. White tiles to have a minimum light reflectance of 0.86.

Standard T-shaped aluminum suspension grid to have a 15/16" face profile. Grid to be coated white, unless indicated otherwise for a specialty space. Standard angle molding to be used at wall edges. Metal grid and acoustical tiles to be from the same manufacturer to obtain a manufacturer's system warranty. Use hot-dipped galvanized (ASTM A 653) in spaces with moisture and/or high humidity

Provide 1-1/2" sag resistant and anti-mold/mildew acoustical tiles in locations where cleanable/ washable/ scrubbable ceiling surfaces are required or the space is more inclined to have higher humidity levels. Such areas include food related spaces, art rooms, toilet rooms, treatment rooms (nurse/athletic), and as indicated. Do not use ACT shower rooms. **Vinyl-faced tiles are prohibited.**

Natatoriums and their ancillary spaces to use 5/8" tile and suspension grid systems that have been specially approved by the manufacturer for pool environments. Not only are pool areas wet and humid, but corrosive chemicals are present which can affect the panel, grid system, and wire hangers. Square lay-in tiles are allowed to meet requirements. All tiles are to be easily removable for routine visual inspection of structure.

Where an ACT grid system is provided in a room with exterior windows extend to a height above the height of the grid, provide gypsum board soffit. Design soffit in such a way that students can not

Avoid suspended ceilings in secondary schools below 9 feet.

The use of cloud ceilings is an acceptable alternative to conceal mechanical equipment. Features in these ceiling features will meet the minimum requirements noted above.

Turn over undamaged acoustical ceiling tiles (no grid) to Facilities Department after demolition for reuse.

Basis of Designs:

- Typical ACT Panels & Grid: USG, Glacier Basic with Donn Brand DX/DXL 15/16" Acoustical Suspension System.
- Cleanable ACT Panels & Grid: Armstrong, Otima Tegular with Prelude 15/16 Aluminum Grid.
- Natatorium (and ancillary spaces) ACT Panels & Grid: Armstrong, Ceramaguard Fine Fissured with Prelude Plus XL Aluminum Grid.

B. TECTUM

Tectum ceilings are preferred in locker rooms and gymnasiums where physical abuse is anticipated. These ceilings can be installed in the 15/16" ceiling grid systems noted above. Panel clips should be used.

XI: CLOSE OUT AND AS-BUILTS

At project closeout, provide to the Owner's Representative, one gallon of each finish coating material, including brick sealer and graffiti coatings, in sealed one-gallon containers, clearly marked with color and finish identification. Remove all other opened containers and dispose of in compliance with all State and Federal regulations and guidelines.

Contractor shall provide an As-Built Finish Schedule. Update Finish Schedule to include a list of product number, formula and location for each finish used. If Custom Finishes are used, include product number and color formula.

XII: QUALITY ASSURANCE

Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

Coordinate work with other operations and installation of finish materials to avoid damage to installed materials. Do not apply coating materials until moisture or dust-producing work, or other appearance or performance impairing construction activities, have been completed. Post "WET PAINT" signs during application and curing of all coatings that may be accessed by other trades or the public.

Repair coatings, damaged by subsequent construction activities, to achieve

flat, uniform surface without surface defects visible from 5 feet. Where repairs cannot be made to Architect's acceptance, re-apply finish coating to nearest adjacent change of surface plane, in both horizontal and vertical directions.

XIII: SAFETY AND HANDLING

Provide manufacturer's data sheets on each product to be used, including:

- Preparation instructions and recommendations
- Storage and handling requirements and recommendations
- Installation methods

END OF CHAPTER 9

RCSD Technical Standard
Chapter 10: Specialties

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for architectural specialties. The information contained herein shall be used by the design professionals to convey appropriate materials selections and design specifications pertaining to implementing visual display units, exterior and interior signage, toilet compartments and accessories, hand dryers, demountable partitions, fire extinguishers and cabinets, lockers, and flagpoles in RCSD's renovations and new facilities.

II. GENERAL

All features are to meet ADA standards for graphics, sizes and mounting heights

Provide design drawing details showing the installation approach al features, including all anchorage, trim and accessories. On locker and toilet partition drawings, identify accessible locations. Disburse accessible locations throughout the school.

Operation maintenance information for all products are to be supplied as part of the Operation and Maintenance (O&M) Manuals supplied for the overall project.

III. VISUAL DISPLAY UNITS

This section includes porcelain enamel on steel marker boards, tack boards made of cork on hardboard and bulletin board cases. All visual display units are to be provided from a single manufacturer for the entire project. Acceptable manufacturers are:

a. Claridge Products and Equipment (Basis of Design models listed below)
b. Greensteel
c. Carolina Chalkboard Company
d. Nelson Adams

Marker boards/Tack boards shall be a modular system. MOD2-Marker boards and MOD3-Tack boards. All units shall be in modules of 2 ' or 4' wide by 4' high. Marker boards shall have marker trough and map rail. Provide four map rail hooks for each 8'-0" of rail. Provide end caps on marker trough. Provide end stops on map rails. Tackboards shall be fabricork. All units shall be mounted on MOD 11 6 ft. high wall standards. All units are to have a clear anodized finish complying with AA requirements for Class II Architectural Coating (AA-A31). Bulletin boards in classrooms shall be #757D (three) with medium oak finish frame. Units shall have designer fabric on 7/32" cork overlay on ¼" hardboard back.

Bulletin cabinet in corridors shall be #296. Glass shall be ¼" safety glass with flat key tumbler lock. Finish to be clear satin anodized aluminum. Back panel shall be #3102W. Provide 6 units to be located by Architect. Unit poster panels shall be designer series fabric.

IV. EXTERIOR SIGNAGE

Panel and dimensional letter signs are to be by Mohawk Sign Systems or approved equal. All signs are to be placed true and level at size and height indicated on drawings.

V. INTERIOR SIGNAGE

Interior signs are to be 1/8" thick melamine plastic laminate with contrasting core in a color selected by Architect from the manufacturer's full range. Corners to be ½" radius. All characters and symbols shall be tactile and raised by 1/32" from the sign background. Applied characters are not acceptable. All lettering shall be sans serif font, upper case similar to Standard Bold Condensed. All signage to be mounted with brass screws and two way tape.

1. Room number and identification signs to be 6"x2" with 5/8" high numbers, centered on the sign
2. Room identification and directional signs shall be 10"x3", with 5/8" letters, centered on the sign
3. Restroom signs shall be 6"x8" with 5/8" high letters and 3" high symbols.
4. Grade 2 braille shall be placed directly below the last line of letters or numbers, except on room number signs, where they shall be placed directly behind the last number.

VI. TOILET COMPARTMENTS

All toilet partitions, room and urinal screens are to be solid phenolic, Bobrick Washroom Equipment, Global Partitions Inc. Accurate Partitions or approved equal. Matte finish integral high pressure laminate manufactured by Trespa North America Ltd is required. Cemented high pressure plastic laminate will not be accepted. All edges are to be machined smooth and finished with a 1/16" radius at corners. All panels for doors, pilasters and partitions are to be ¾" thick with no exceptions. Provide floor mounted/overhead braced system with typical stall depth of 4'-10". (HC stalls may vary)

1. Standard door panels to be 24" wide
2. Accessible door panels to be minimum 32" clear
3. Provide continuous hinges at all operable partitions.
4. Toilet compartment doors are to be provided with hardware to maintain the door at 30° open position when not in use.
5. Partitions and screens to be 58" high and mounted 12" above floor
6. Pilasters and stiles to be 82" high with extra strong base and stainless-steel shoe riveted to the pilaster.
7. Provide reinforcement as required for grab bars and toilet accessories.
8. All accessories and supplemental parts to be chrome, clear anodized aluminum or stainless steel.
9. All components are to be the "heavy duty" type with non-corroding fasteners and parts.
10. All latches to be either built in rotating or surface mounted throw style. Emergency exterior accessibility operation is required.
11. Provide one bumper/stop at all standard doors and two bumpers/stops on each HC accessible door.
12. All exposed heads to be theftproof with "locktite" or concealed threads.

VII. TOILET ACCESSORIES

Durability and functionality are a necessity with toilet accessories. Models selected here change frequently and it is incumbent on the design professional to confirm the current model. Most manufacturers can assist in cross referencing models from one model year to the next. Where one manufacturer is listed here for a basis of design, similar products from the acceptable manufacturers will be considered. Unless otherwise noted, all toilet accessories should be a minimum of 304 stainless steel. All fasteners shall be tamper resistant. Acceptable manufacturers are:

1. Bobrick Washroom Equipment
2. Bradley Corp.
3. A&J Washroom Accessories
4. Royce Rolls Ringer

Toilet Paper holders

Toilet paper holders vary by age group and the type should be confirmed with the school by the Project Designer. Provide one of the following:

a. Surface mounted roll toilet paper holder capable of holding double standard rolls of toilet tissue, similar to the Royce Rolls Ringer #STP-2. This unit has a locking roll clip and slanted top. Specify sloped top and additional back plate when ordering.
b. Surface mounted folded toilet tissue cabinet with locking cover, similar to Bobrick B-272.

Mirrors

All mirrors are to be the fixed position tilt mirror type. Basis of design is Bobrick B-293, 24”x36”.

Soap Dispensers

These units are currently vendor provided and contractor installed. Design professionals should plan accordingly for the following Basis of design: GOJO dispensers FMX 1250ml, dove grey, #5150

Sanitary Napkin Dispensers

Basis of Design: Bobrick B-2706 series

Sanitary Napkin Disposal

Provide surface mounted sanitary disposal in each toilet stall, with locking covers and removable leak-proof plastic receptacle. Basis of Design: Bobrick B-254

Grab Bars

Provide grab bars in all accessible toilet stalls. Lengths will vary according to position. Provide safety-grip finish with concealed mounting. Basis of Design: Bradley Model 812. Refer to ADA requirements for children for mounting heights and locations of grab bars. Such heights and locations should correspond with the ages of the children served.

Semi-Recessed Towel Dispenser and Waste Receptacles

Semi-recessed units are required with no greater than a 4" projection. Units should be capable of holding 1,000 single fold, 700 multi-fold or 400 C-fold towels. Provide minimum 4.9 gallon waste receptacle. Basis of Design is Bradley 2252-10.

All units in accessible toilet compartments are to meet ADA requirements. Where accessories are provided in common locations, at least one shall meet ADA requirements.

VIII. HAND DRYERS

Provide vandal resistant cast iron hand dryers fabricated from ¼" thick cast iron with a white baked enamel finish. The basis of design is the World Dryer Model XA5, with comparable products from Bobrick or Gamco or approved equal. Covers are to be secured to base with tamper resistant screws. All exposed parts to be corrosion resistant and tamper proof. All concealed parts are to be corrosion resistant.

Motors will be universal type, 1/10 HP, 6200 to 7500 RPM at rated load with resilient mountings and sealed, permanently lubricated ball bearings for durability and rapid drying with automatic thermal overload switch. The blower must be dynamically balanced blower wheels for vibration-free running. All internal parts to be plated for corrosion-resistance. Heating element to be 2300 watts, shall be located on inlet side of fan, and shall heat air without hot spots, and be inaccessible to vandals. All units to be U.L. listed and CSA approved. An electronic sensor will automatically turn dryer on when hands are held under the outlet and will shut off automatically when hands or nozzle are removed. Sensor shall shut off automatically after 90 seconds if an inanimate object is used to activate dryer and resets itself after inanimate object is removed. Provide manufacturer's service and parts manual to District upon completion of project. Provide a limited 10-year warranty on all parts except motor brushes and sensor. Motor brushes and electronic sensors shall be warranted for a period of three years from date of installation.

IX. DEMOUNTABLE PARTITIONS

It is the District's intent to provide a steel-faced demountable partition in the Cafeteria, complete with all accessories required for proper installation, as provided by the manufacturer. Designer to use "Corporate Wall Series" by Transwall. Panels are internally reinforced 2 ¼" thick 20 ga steel faces with fiberglass insulation. A 16 ga. concealed connection post is required. All panels to be provided with continuous 18 ga floor and ceiling channels, as well as protecting trim at 4' AFF and 3' high at ceiling. All steel to have a baked enamel finish. Bracing is required above the ceiling at four (4) 10'-0" runs where there is no ceiling grid. Partition to have an STC of .45.

Doors and frames are required in this system, with 4 locations necessary. Frame units are to be integral with the panel to accommodate a 36"x84"x1.75" solid core wood veneer door with 24"x30"x.25" tempered glass safety lite.

X. FIRE EXTINGUISHERS AND CABINETS

All fire extinguisher cabinets are to be fully recessed in corridors and other

locations required, in accordance with both NFPA and special hazards. Provide Larsen “Architectural Series” fully glazed, Model 2409 5” or approved equal. Frames to be matte black with 6” wide bronze tempered glass door. Labelling shall be silk-screened. Adhesive stickers are not acceptable.

Provide 2-1/2 pound Type ABC extinguishers, or as necessary for a specific hazard.

XI. LOCKERS

All lockers are to be fully welded, Class 1 steel , free from surface imperfections. All surfaces and fasteners to be zinc-plated or treated with some other rust-retardant treatment. Provide lockers from DeBourgh, List Industries, Penco or an approved equal.

Steel bodies are to be 16 gauge welded construction, with 16-gauge door frames. Doors are to be 14-gauge material with 6 louvers at the top and bottom. All edges are to be flanged to give double thickness of metal, including door strikes. Provide three jambs on all single tier lockers. Double and triple tier lockers shall have two jambs welded to the side of the door to engage the locking device. All jambs are to be designed to prevent access by prying. Provide continuous, 16-gauge hinges welded to the door and riveted to the locker frame.

Corridor lockers shall have a built-in combination lock with key control. Gym lockers should have a 14-gauge lock clip for Owner provided padlock. All lockers are to have chrome-plated, die-cast zinc alloy accessories with a tensile strength of at least 40,000 psi. This includes handles and coat hooks. Handles are to include a built-in pad lock strike.

Aluminum number plates are to be provided with etched numbers at least 3/8” high. Coordinate locker numbering with RSMP/RCSD. Existing locker numbering must be considered in renovations where existing lockers are to remain.

All exposed parts are to be treated with a rust inhibitor and electrostatically spray coated. Match or coordinate with existing locker colors, where slated to remain.

Anchor all lockers to the wall. Provide 4” high bases with front and end closers. All flat lockers are to have a sloping hood with closed ends, made of 1/8” diamond plate. End panels, where exposed, shall be 1/8” aluminum diamond plate finished to match lockers.

XII. FLAGS

Flags (exterior and interior) to be provided by the RCSD.

XIII. FLAG HOLDERS (INTERIOR)

Coordinate with RCSD for flag size and locations.

XIV. FLAGPOLES (EXTERIOR)

Ground set flagpoles will be provided unless special considerations are identified

in the programming process. Flagpole locations should be easily serviced and visible from the public right of way. Lighting is required when the flag is to remain flying during the dark. Such lighting can be building mounted to protect from vandalism where possible.

Flagpoles should be capable of resisting both wind and seismic forces. Conical aluminum flagpoles with a clear anodic finish are preferred, 25' high minimum. Provide fiberglass or pvc sleeve when casting into concrete, with a flashing color matching pole finish. Provide a flush-seam finial ball to match pole finish, matching the pole butt diameter. Provide Internal Halyard, Cam Cleat System with 5/16-inch diameter, braided polypropylene halyard; cam cleat; and concealed revolving truck assembly with plastic-coated counterweight and sling. Furnish flush access door secured with cylinder lock. Finish truck assembly to match flagpole. Provide two stainless steel halyard flag snaps per halyard.

END OF CHAPTER 10

RCSD Technical Standard
Chapter 11: Equipment

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for Equipment. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

This section includes the following:

A. Loading Dock protection and dock levelers for use at Receiving Areas.
B. Residential grade appliances used in rooms such as but not limited to: Life Skills, Nurse's Office, Staff Lounge, Administration Office and Conference Rooms, Custodian area. This would include undercounted refrigerators and freezers, residential refrigerators, microwaves, stacking washers and driers, ranges, exhaust hoods, wall ovens and ice machines. It is important to have a good warranty and service contract for this type of equipment.
C. Food service equipment that is part of the cafeteria kitchen have been standardized. The consultant will work directly with a RSMP Kitchen Consultant to design this equipment.
D. Stage Curtains, tracks, and rigging. Stage lighting that relates to this would be in Chapter 26 Electric.
E. Wall padding and gym equipment associated to room dividers and basketball.
F. Playground Equipment.
G. The design professional will need to provide the equipment indicated in this section with required electrical power and/or structural support as part of the project scope.

III. LOADING DOCK BUMPERS

A. GENERAL

Surface-mounted bumpers designed to absorb kinetic energy and minimize damage to loading dock structure.

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- Kelley: 4Front Engineered Solutions, Inc.
- Pioneer Dock Equipment
- PowerRamp, Division of Systems, Inc.
- Rite-Hite Corporation

B. LAMINATED-TREAD DOCK BUMPER

Fabricated from multiple, uniformly thick plies cut from fabric-reinforced rubber tires. Laminate plies under pressure on not less than two ¾-inch-diameter, steel supporting rods that are welded at one end to ¼-in-thick, structural-steel end angle and secured with a nut and angle at the other end. Fabricate angles with predrilled anchor holes and sized or to provide not less than 1 inch of tread plies extending beyond the face of closure angles.

1. Thickness: As indicated on Drawings.
2. Horizontal Style: Height and length indicated on Drawings.

C. ANCHORAGE DEVICES

Galvanized-steel anchor bolts, nuts, washers, bolts, sleeves, cast-in-place plates, and other anchorage devices as required to fasten bumpers securely in place and to suit installation type indicated. Hot-dip galvanized according to ASTM A 153/A 153M or ASTM F 2329.

Materials: ASTM 36/A 36M for steel plates, shapes, and bars. Hot-dip galvanized according to ASTM A 123/A 123M.

D. DOCK BUMPERS

Attach dock bumpers to face of loading dock in a manner that complies with requirements indicated for spacing, arrangement, and position relative to top of platform and anchorage.
Welded Attachment: Plug-weld anchor holes in contact with steel inserts and fillet weld at other locations.

Bolted Attachment: Attach dock bumpers to preset anchor bolts embedded in concrete or to cast-in-place inserts or threaded studs welded to embedded-steel plates or angles. If preset anchor bolts, cast-in-place inserts, or threaded studs welded to embedded-steel plates or angles are not provided, attach dock bumpers by drilling and anchoring with expansion anchors and bolts.

Screw Attachment: Attach dock bumpers to wood construction with lag bolts as indicated.

IV. STATIONARY LOADING DOCK EQUIPMENT

A. MANUFACTURER'S SPECIAL WARRANTY

Manufacturer agrees to repair or replace dock levelers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including cracked or broken structural support members, load-bearing welds, and front and rear hinges.
   b. Faulty operation of operators, control system, or hardware.
   c. Deck plate failures including cracked plate or permanent deformation in excess of ¼ inch between deck supports.
   d. Hydraulic system failures including failure of hydraulic seals and cylinders.
2. Warranty Period for Structural Assembly: 10 years from date of Substantial Completion.
3. Warranty Period for Hydraulic System: Five years from date of Substantial Completion.
4. Warranty shall be for unlimited usage of leveler for the specified rated capacity over the term of the warrant.

B. PERFORMANCE REQUIREMENTS

Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA70, by a qualified testing agency, and marked for intended location and application.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work

include, but are not limited to the following:

- Blue Giant Equipment Corporation
- Kelley; 4Front Engineering Solutions, Inc
- Pentalift Equipment Corporation
- Pioneer Dock Equipment

C. RECESSED DOCK LEVELERS

Recessed, hinged-lip-type dock levelers designed for permanent installation in concrete pits performed in the edge of loading platform; of type, function, operation, capacity, size, and construction indicated; and complete with controls, safety devices, and accessories required.

Standard: Comply with MH 30.1, except for structural testing to establish rated capacity.

Rated Capacity: Capable of supporting total gross load of <INSERT LOAD> without permanent deflection or distortion.

Platform: Not less than 3/8-inch-thick, nonskid steel plate.

1. Platform Size: <INSERT SIZE>
2. Frame: Manufacturer's standard
3. Toe Guards: Equip open sides of dock leveler over range indicated with metal toe guards.
   a. Toe-Guard Range: Entire upper operating range.

Hinged Lip: Not less than 1/2-inch-thick, nonskid steel plate.

1. Hinge: Full-width, piano-type hinge with heavy-wall hinge tube and grease fittings, with gussets on lip and ramp for support.
2. Safety Barrier Lip: Designed to protect material-handling equipment from an accidental fall from loading platform edge of the dock leveler when the leveler is not in use.

Function: Dock levelers shall compensate for differences in height between truck bed and loading platform.

1. Vertical Travel: Operating range above platform level of sufficient height to enable lip to extend and clear truck bed before contact with the following minimum working range:
   a. Above Adjoining Platform: 12 inches.
   b. Below Adjoining Platform: 12 inches.
2. Automatic Vertical Compensation: Floating travel of ramp with lip extended and resting on truck bed shall compensate automatically for upward or downward movement of truck bed during loading and unloading.
3. Lip Operation: Manufacturer's standard mechanism, which automatically extends and supports hinged lip on ramp edge with lip resting on truck bed over dock leveler's working range, allows lip to yield under impact of incoming truck and automatically retracts lip when truck departs.
   a. Length of Lip Extension: 16 inches.
4. Automatic Ramp Return: Automatic return of unloaded ramp from raised or lowered positions to stored position, level with platform, as truck

departs.
5. Interlock: Leveler does not operate while overhead door is in closed position.

Hydraulic Operating System: Electric control from a remote-control station; fully hydraulic operation. Electric-powered hydraulic raising and hydraulic lowering of ramp. Equip leveler with a packaged unit including a unitized, totally enclosed, nonventilated electric motor, pump, manifold reservoir, and valve assembly of proper size, type, and operation for capacity of leveler indicated. Include means for lowering ramp below platform level with lip retracted behind dock bumpers. Provide a hydraulic velocity fuse connected to main hydraulic cylinder to limit loaded ramp's free fall to not more than 3 inches.
1. Remote-Control Station with Emergency Stop: Multibutton control station with an UP button of the constant-pressure type and an emergency STOP button of the momentary-contact type, enclosed in NEMA ICS 6, Type 12 box. Ramp raises by depressing and holding UP button; ramp lowers at a controlled rate by releasing UP button. All ramp movement stops, regardless of position of ramp or lip, by depressing STOP button. Normal operation resumes by engaging a manual reset button or by pulling out STOP button.

Construction: Fabricate dock-leveler frame, platform supports, and lip supports from structural- or formed-steel shapes. Weld platform and hinged lip to supports. Fabricate entire assembly to withstand deformation during both operating and stored phases of service. Chamfer lip edge to minimize obstructing wheels of material-handling vehicles.
1. Cross-Traffic Support: Manufacturer's standard method of supporting ramp at platform level in stored position with lip retracted. Provide a means to release supports to allow ramp to descend below platform level.
2. Maintenance Strut: Integral strut to positively support ramp in up position during maintenance of dock leveler.

Materials:
1. Steel Plates, Shapes, and Bars: ASTM 36/A 36M.
2. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from steel plate complying with ASTM A 572/A 572M, Grade 55.
3. Steel Tubing: ASTM A 500/A 500M, cold formed.
4. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

Dock-Leveler Finish: Manufacturer's standard finish.
1. Toe Guards: Paint toe guards to comply with ANSI Z535.1.

Accessories:
1. Curb Angles: 3-by-3-by-1/4-inch galvanized-steel curb angles for edge of recessed leveler pit, with ½-inch-diameter by 6-inch-long concrete anchors welded to angle at 6 inches o.c.
2. Night Locks: Manufacturer's standard means to prevent extending lip and lowering ramp when overhead doors are locked.
3. Side and rear weatherseals.

4. Foam insulation under dock-leveler platform.

D. FINISH REQUIREMENTS

Galvanizing: Hot-dip galvanize components to comply with the following:

1. ASTM A 123/A 123M for iron and steel loading dock equipment.
2. ASTM A 153/A 153M or ASTM F2329 for iron and steel hardware for loading dock equipment.

V. RESIDENTIAL APPLIANCES

A. This if meant for appliances that are used in rooms such as: Life Skills, Nurse's Office, Staff Lounge, Administration Office, Conference Rooms, Custodian area, and Laundry Rooms. This would include undercounted refrigerators and freezers, residential refrigerators, microwaves, stacking washers and driers, ranges, exhaust hoods, wall ovens and ice machines.

- Basis of Design: GE Appliances
- Warranty: Provide a one year warranty from date of substantial completion. Provide for repair or replacement of the appliance or the component that fails in material or workmanship.
- Provide service contract for minimum one year
- White, fingerprint free Stainless Steel or Slate finish.
- ADA Compliant – Align with adjacent countertops; Provide under counter units that are appropriate for a 34" high ADA countertop.
- The use of ranges should be avoided, due to the need for exhaust and other code implications.
- Where appliances require ventilation, make appropriate spacing and/or vents to allow unit to operate properly and not over heat.

VI. FOOD SERVICE EQUIPMENT

A. This is specified utilizing the Kitchen Equipment Standards developed by:

- Kaizen Foodservice Planning & Design Inc. www.kaizenfood.com; 866-386-4613.

In conjunction with

- Gemma Humphries, Director of School Food Services, Field Operations and Facilities Management, Rochester City School District, 835 Hudson Avenue, Building 5, Rochester, New York 14621, Phone 585-336-4114.

B. Each school is unique, interface with the team above is mandatory for the design of the kitchen.

VII. PROJECTOR SCREENS

Acceptable manufacturers: Draper Shade & Screen Co. www.draperinc.com , or similar DA-Lite, Inc.

Projectors are provided by RCSD. The Architect shall coordinate with RCSD on specific screen requirements. Manual screens to be used where accessible to raise and lower. Power operated screens should be used in ceiling applications.

VIII. STAGE CURTAINS AND EQUIPMENT

A. STAGE DRAPERY

All stage drapery listed below shall be sewn from inherently flame retardant ("IFR") synthetic face fabric and lined with inherently flame retardant synthetic ("IFR") lining fabric.

Each curtain component shall have a label sewn to it indicting that it is IFR fabric, passes the NFPA 701, and whether it requires retreatment after a designated time period or cleaning.

Drapery Schedule
The drapery shall consist of the following separate pieces:

Quantity	Drapery Item
2 halves	Main Curtain
1 piece	Main Valance
4 pieces	Borders
6 halves	Side Legs
2 halves	Mid Stage Traveler
2 halves	Rear Traveler

Fabrics
The stage drapery shall be sewn from the following fabrics:

Front Setting:
Face Fabric, Basis of Design: 100% IFR Polyester Fabric, heavyweight satin (sheen) woven velour with a long pile height. 25 ounces per yard at 54" wide, "Prestige" by KM Fabrics of South Carolina, www.kmfabrics.com . Color to be selected by Architect from Manufacturer's standard colors.
Lining, Basis of Design: IFR Synthetic Line Fabric: 8 ounce inherently flame retardant synthetic fabric, 100% polyester, 72" wide, Sewn to same fullness as face fabric: "Janus" from Dazian Fabrics, www.dazian.com . Color: Black.

Intermediate and Back Setting:
Face Fabric, Basis of Design: Inherently flame retardant, 100% IFR Polyester, 14 ounce, 54" wide, "IFR Chevron 2000" by Fred Krieger Fabrics, www.fredkriegerfabrics.com.
Color: Black.
Lining: Same as front setting.

Miscellaneous:
Provide inserts, cabling, bolts, backing, reinforcements, fasteners, etc. manufacturer's standard units as required. All accessory fabrics to also be inherently flame retardant material in similar manner as face fabric.
Replace existing light gauge chain and small gauge wire supporting all dead hung sets. Replace with industry standard ¼", Grade 30 chain, applicable properly sized beam clamps which are vibration resistant; forged ¼" anchor shackles and other applicable fasteners.
All fabrics shall comply with the following minimum guidelines:

- NFPA 701 – Small Scale

- NFPA 701 – Test Method #1
- NFPA 260A/UFAC Class 1
- ASTM E-84-Rated Class A (Class 1)
- State of California – F-59901

Construction
All fabric material shall be new and unused. Full and continuous lengths shall be used for the full height of each curtain face, with no piecing or cross-seams allowed. All drapery of the same color shall be constructed of fabric from the same dye lot.
The velour nap shall be sewn in the "up" direction. All curtains shall be sewn with minimum 60% added fullness.
All curtains shall be lined with black fabric, sewn to the same added fullness as the face fabric.
Bi-parting Traveler curtains shall be constructed in two matching halves, sized to allow minimum 36" overlap at the centerline. Side Leg curtains shall be constructed in pairs of two matching halves.
Field dimensions shall be the contractor's responsibility to obtain, to duplicate existing curtain sizes. Guarantee that proper sight lines are taken into consideration.
Lining fabric shall duplicate face fabric type, such that synthetic IFR liner shall complement synthetic IFR face fabric.

Top Heading
The top edge of each drape shall be sewn flat to 3½" wide heavy duty nylon webbing, constructed with box pleats sewn 12" on centers. No. 2 brass grommets shall be set through the face fabric, lining, and webbing. Each grommet shall be centered in each pleat, with minimum 1" fabric remaining above top edge of grommet.

Track-mounted Traveler curtains shall be provided with a plated S-hook at each grommet. Border and leg curtains shall be provided with a 36" length of tie line inserted at each grommet.

Side Hems
B-parting Traveler curtains shall include minimum turn back of one half width of face fabric at the onstage leading edge. Offstage vertical edges of full-height traveling curtains shall be minimum 6" of face fabric.
Masking Legs shall include 24" onstage face fabric side hem, and 6" offstage face fabric side hem.
All Lining pieces shall include 2" side hems at both vertical edges.
All Lining pieces shall be attached to the face fabric with 6" x 1" fabric strips, along both vertical side hem edges at 24" intervals.

Bottom Hems
All curtains shall include a 6" bottom face fabric him, with an internal canvas chain sleeve sewn into the bottom hem. The internal sleeve shall be attached 2" above the bottom edge of the curtain, with a continuous plated chain weight tacked at each end to prevent

bunching.
All Lining pieces shall include 2" bottom hem.
All Lining pieces shall be attached to the face fabric with 6" x 1" fabric strips, along the bottom hem at every strip interval.

B. COUNTERWEIGHT RIGGING EQUIPMENT

Rope locks shall be a one piece, first grade, grey iron casting, with a once piece cast eccentric hand lever and malleable hardened iron cams. The handle shall be a minimum of 9" long, and shall be covered with colored plastic. The rope lock shall mount to the locking rail with four (4) 3/8" bolts. An oval steel ring to lock the hand lever to the hand line shall be provided. A 3/8" adjusting thumb screw with locking nut shall be provided to permit adjustment for hand lines in the range of 5/8" to 7/8".

Rope Lock shall be manufactured by J.R. Clancy, H & H Specialties or Imperial Fastener Company.

Manual Handlines to be ¾" diameter, shall consist of 3-strand composite rope, with cover yarn of polyester filament wrapped around a polyolefin core. The rope shall employ a 3-strand composite construction, combining a polypropylene filament wrapped around a fibrillated polyolefin.

The rope shall hold knots well, be easily spliced and be dense enough to allow it to be clamped in a rope lock without damage. The rope shall not be subject to rotting, mildew, or moisture damage nor shall its length be affected by changes in ambient humidity. Tape ends prior to cutting.

Attach to Arbor top using bowline knot, and bottom of arbor with two half hitches. Tails shall be secured to the standing line using gaffer's fabric tape.

C. STEEL-CURTAIN TRACK

Steel Track: Fabricate of roll-formed, galvanized, commercial-quality, zinc-coated steel sheet; complying with ASTM A 653/A 653M; G60 (Z180) coating designation with continuous bottom slot and with each half of track in one continuous piece; black paint finish.

Acceptable Manufacturers:

- Automatic Devices Company; Silent Steel 280 series.
- H & H Specialties Inc.; 400 series.
- JR Clancy; 280 series.
- Thickness: 0.079 inch.

Suspended Track: NPS 1-1/2 inch (DN 40) steel pipe stiffener for supporting both sections of suspended tracks. Suspend track on 7' maximum centers with 2-piece clamp hanger formed from 11 guage steel. Provide 2' overlap at center, rigidly separated by 2 overlap clamps. Install end stop with cord support at each track end. Where lengths exceed 24', connect tracks with 12" long, 2-piece splicing clamp of 12 gauge steel.

Clamp and Bracket Hangers: Manufacturer's steel clamps and brackets of sufficient strength required to support loads for attaching track to overhead support.

Track Lap Clamp: Metal to match track channel for attaching double-sectioned track at center overlap.

Fold Guide: Equip carriers with rear-fold or backpack guide and rubber spacers to permit offstage curtain folding; sized for use with operating line if any.

Heavy-Duty Track System: Equip track with heavy-duty components. Provide end stops for track.

Curtain Carriers: Standard carriers of molded nylon with a pair of nylon-tired ballbearing wheels riveted parallel to body. Equip carriers with rubber or neoprene bumpers to reduce noise, and heavy-duty, plated-steel swivel eye and manufacturer's standard trim chain for attaching curtain snap or S-hook. Provide quantity of curtain carriers sufficient for track length, to suit certain fabrication.

- Master Curtain Carriers: One master carrier, for each leading curtain edge, of plated steel with two pairs of nylon-tired ball-bearing wheels and with two line guides per carrier.

End Pulleys and Floor Block: One dead-end, single-wheel pulley; one live-end, double-wheel pulley; and one adjustable, floor block; each with not less than 5-inch molded-nylon- or glass-filled-nylon-tired ball-bearing sheaves enclosed in steel housings. Provide pulleys with steel housing finished to match track and with bracket for securing off-stage curtain end. Provide an adjustable floor block to maintain proper tension on operating line with steel housing painted black.

Manual Operation: Provide with cord operating line consisting of manufacturer's standard 3/8-inch diameter, stretch-resistant operating cord consisting of spun polyester outer jacket, double-braided, over solid polyester core.

D. PIVOT DEVICE

Basis of Design: Automatic Devices; Model #28 Rotodraper with brake. Subject to compliance with requirements, acceptable manufacturers include, but are not limited to, the following:

- JR Clancy
- H&H Specialties

Brackets formed of 11 gauge steel; 13" long x 2-1/4" wide x 9-3/8" high. Supports maximum 75 lbs.

Self-locking brakes

(2) C-Clamps for fitting to each end of pipe for use with towlines

Tension spring composed of 1-3/32" heavy duty compression spring.

Pipe clamps to accommodate 1-1/2" pipe

E. RIGGING

Pipe Battens: Fabricate battens from steel pipe with a minimum number of joints. As necessary for required lengths, connect pipe with a drive-fit pipe sleeve not less than 18 inches long, and secure with four flush rivets, plug welds, threaded couplings, or another equally secure method. Shop-paint completed pipe battens with matte black paint and with a 1-inch wide yellow stripe at the center of each.

- Steel Pipe: ASTM A53/A 53M, Grade A, standard weight (Schedule 40), black, NPS 1-1/2 inch (DN40) nominal diameter unless otherwise indicated.
- Battens up to 21' long shall be supplied as a single piece; longer battens shall be provided with 18" long internal splice sleeves.
- Batten End Caps – provide safety yellow vinyl end caps.

Supports, Clamps, and Anchors: Sheet steel in 12 gauge thickness, with black powder coat finish after fabrication according to ASTM A 153/A 153M, Class B.

- Full Clamps with rounded corners supplied with 3/8" x 1" hex bolts and 5/8" hole for attachment of cable or other fittings.

Trim and Support Cable: 1/4-inch diameter, 7x19 galvanized-steel cable with a breaking strength of 7000 lb. Provide fittings complying with cable manufacturer's written recommendations for size, number, and method of installation, including

- Drop-forged jaw and eye turnbuckle meeting the requirements of ASTM F1145-92, Type 1, Grade 1 to allow for leveling. Hot galvanized finish.
- Thimbles – galvanized steel used to form an eye at the end of a wire rope to prevent deformation and damage to the wire rope.
- Compression Sleeves – copper oval sleeves to be used with thimbles for cable terminations. Crimp using only manufacturer's matching crimp tool for 100% efficiency.

Inserts, Bolts, Rivets, and Fasteners: Manufacturer's standard corrosion-resistant units.

F. ELECTRICAL COORDINATION

Coordinate Electrical installation, including all conduit, wire, field wiring and power to stage lighting systems.

G. WARRANTY

To covering all labor, materials and workmanship for a period of one year after the date of final payment shall be provided.

IX. WALL PADDING SYSTEM

A. Wall padding assembly shall be fire rated wall panels by:
Porter Athletic www.porterathletic.com. Basis of Design is the No. 570 – SuperSafe FR Wall Pad.

Other acceptable manufacturers:

- Humphrys Cover Sports www.coversports.com
- Aalco Manufacturing Co. www.aalcomfg.com

Size requirements shall be detailed on the drawings by the project architect including height.

- 2' x 5-10" x 2" thick – Model number 005701XX (color designation) Commonly used size
- 2' x 8'-0" x 2" thick– Model number 00570281XX (color designation) alternate if project warrants

System shall be Impact Rated and Fire Retardant.

Corner panels shall "wrap" around corner.

Bottom of wall pad to be mounted at 4" off of floor per ASTM F2440-04. Coordinate base height with this installation to minimize cutting of base.

Cover Fabric –15 oz., vinyl coated flame resistant, high tensile vinyl coated polyester fabric. Mildew and rot resistant, fortified with an infection combating fungicide; tear strength of no less than 100 PSI; Phthalate free. Flame resistant in accordance with NFPA 701 and State of California. Vinyl covering shall be folded and stapled securely to backside of oriented strand board. Color to be selected by Architect from Manufacturer's standard colors.

- Alternative manufacturers may require a liner material and fireproof backing to make their assembly fire rated.

2" Fire rated Foam Core rated for impact. Polyurethane foam, 6lb. density.

Backer Board – Fire treated oriented strand board (OSB) 7/16" thick.

Provide molded inserts where surface of pad is required to access light switches outlets, etc.

Panels shall be without margins and be mounted to wall with Z Clips Therefore, having no exposed hardware. Z clips shall be attached to the panels and to the wall.

Furring strips may be required if wall is uneven.

All wall panel assembly shall comply with the following minimum guidelines:

- NFPA 101 Life Safety Code when tested in accordance with NFPA 286
- 2003 IBC Section 803.2.1
- Tested in accordance with NFPA 286, UL 1715, UL1040 or FM 4880.

- ASTM E 84 is not considered and equal to NFPA 286
- ASTM 2440

X. BASKETBALL EQUIPMENT (INDOOR)

A. ACCEPTABLE MANUFACTURERS:

- Porter Athletics, Inc. - Basis of Design
- Draper, Inc.
- Jaypro Sports Construction Group

B. WARRANTY: Provide a five year warranty from date of substantial completion. Provide for repair or replacement of the gymnasium equipment or the component that fails in material or workmanship. Including but not limited to: Glass breakage; Faulty operation of basketball backstops.

C. SEISMIC PERFORMANCE: Basketball backstops and anchors shall withstand the effects of earthquake motions determined according to ASCE/ESI 7.

D. CEILING SUSPENDED BASKETBALL EQUIPMENT: Porter Athletics, Inc., Model 90950 – Ceiling Suspended Forward -Folding, Front Braced Unit. Provide all manufacturer's required fasteners, hardware and fittings for a full assembly.

- Protruding fasteners or exposed bolts heads on the front face of the backboards are not allowed.
- Coordinate manufacturer's connection recommendations with Metal fabrications to transfer loads to building structure.
- Steel pipe tube framing to be designed to minimize vibration during play.
- Finish to be Manufacture's standard polyester powder-coat finish.
- Adjustable Goal Height from 8-10 feet with gear driven mechanism, locked into position within adjustment range with visible height scale attached to side frame.
- Provide key switch control of electrical operation for gear-drive motor. To have limit switches preset to goal heights.
- Provide Backstop Safety Devise for 6000 lb load capacity. One per backstop.
- Electrical Operator shall be a cable drum with grooved drum and cable tension devise to automatically take up cable slack and retain cable grooves. To be wall mounted, 208 V, 1 hp, single phase. To be listed and labeled as defined in NFPA 70. Adjustable switches, interlocked with motor controls and set to automatically stop basketball equipment at fully retracted and fully lowered positions.

Basketball Backboards – Rectangular 72"w x 48"h. Glass not less than ½ " thick, transparent tempered glass complying with ASTM c 1048 Kind FT (fully tempered) and with impact testing requirements in 16 CFR 1201 Category II or ANSI Z97.1 Class A for safety glazing. Backboard materials shall have predrilled holes or preset inserts for mounting goals.

- Glass and Frame system to be manufactured to comply with FIBA Level 1 or Level 2 requirements that glass does not split off if broken. Provide glass with impact-absorbing resilient rubber or PVC gasket around perimeter in a fully welded, brushed natural finish, extruded aluminum frame, with steel subframe, reinforcement, bracing, and mounting slots for mounting backboard frame to backboard support framing.
- Rim-Restraint Device: Comply with NCAA and NFHS rules and designed to ensure that basket remains attached if glass backboard breaks.
- Target Area and Border Markings are to be permanently etched in white color, marked in manufacturer's standard pattern and stripe width.
- Goal Mounting Assembly for glass backboard shall support framing and reinforcement shall be designed to transmit load from goal to backboard frame and to minimize stresses on backboard.

Basketball goals: Complete with flanges, braces, attachment plate and evenly spaced loops welded around underside of ring.

- The following shall be manufacture's standard design: Single-Rim Basket Ring Completion Goal, with movable breakaway mechanism. To be positive-lock movable breakaway design with preset pressure release at 230 – lb load and automatic reset. Provide movable ring with rebound characteristics identical to the fixed, non-movable ring. To be rear mounted. No-tie loops for attaching net to rim without tying. Standard finish.

Basketball nets: 12-loop-mesh net, between 15 and 18 inches long, size to fit rim diameter. Competition cord to be Antiwhip, made from white nylon cord not less than 120-gm thread and not more than 144-gm thread.

Backboard Safety Pads – Designed for backboard thickness indicated and extending continuously along the bottom and up the sides of backboard and over goal mounting and backboard supports. To be bolted on.

E. WALL MOUNTED BASKETBALL EQUIPMENT

Porter Athletic, Inc., Model 00312 wall mounted backstop unit. Characteristics described above are similar to this model.

F. BASKETBALL EQUIPMENT CONTROL STATION

Porter Athletic, Inc., Model 02555, Power Touch 2.5 simultaneous operation gymnasium control center.

G. OUTDOOR BASKETBALL EQUIPMENT

Consult with RCSD Facilities Design Group for requirements as design will depend on location and expected users.

H. GYMNASIUM DIVIDERS

District Preference: Vinyl over continuously hinged steel folding panels on a steel

frame with pass through door. Electric operator. Modernfold, Panelfold, Product Master, or equal.

Alternative Product upon approval of RCSD Facilites Design Group: Draper Inc. www.draper.com Basis of Design**.** Electric operator, roll-up gymnasium divider including motor, belts, controls, clamps for attachment to building structure, threaded rod supports, and other components required for complete functional installation.

- Operation: Curtain rolled up and down by belts wound onto overhead rotating drive pipe operated by electrical motor.
- Rectangular shape with straight bottom and extending across room as
- Maximum dimension of stored divider: 2 feet from bottom of structural support to bottom of rolled curtain.
- Minimum required clearance between vertical curtain edges and adjacent fixed objects: 6 inches.
- Provide 36 inches space between curtain ends and walls or fixed objects to allow passage space around divider.

Operating mechanism: Drive pipe winch powered with 3/4 HP, 110VAC, 60-cycle, single-phase, reversible capacitor, C-Face motor with thermal overload protection. Winch assembly shall carry a five-year warranty. Provide with load holding worm gear reduction and integral limit switches to control curtain travel. Drive pipe shall rotate in pipe support assemblies spaced at approximately 9 feet.

Attachment: Attach to structural support with beam clamps, hanger brackets, and 1/2 inch diameter threaded rods. Attachment clamps designed to be capable of supporting a minimum of 5,000 lbs. each and provided in sufficient number to provide a combined minimum 45:1 attachment point safety factor.

Hoist belts: 5 inches wide white polyester webbing attached to drive pipe, passing under bottom batten, and terminating at top batten. Space belts at approximately 15 feet.

Bottom roller: 4 inches diameter steel pipe with aluminum strip for attachment of curtain.

I. STAGE CURTAIN

Full height curtain bottom 8 feet: Opaque solid vinyl coated polyester fabric: Weight: 18 ounces per SY. Resistant to rot, mildew, and ultraviolet light. Flammability: Rated self-extinguishing in accordance with California State Fire Marshall Title 19. Color: Selected by Architect from manufacturer's standard range.

Upper curtain section: Vinyl coated polyester mesh. Weight: 9 ounces per SY. Resistant to rot, mildew, and ultraviolet light. Flammability: Rated self-extinguishing in accordance with California State Fire Marshall Title 19. Color to be selected by Architect.

Seams: Vertical and Horizontal, electronically welded with 1 inch full contact weld. Outer edge hems: Turned with double welds. Top edge: Solid fabric in triple thickness and double welded to mesh to form 6 inches wide pocket for top pipe batten. Bottom edge cut square for attachment to roller pipe with aluminum stop strip.

Provide Draper Model 504301 Curtain Lok safety device. Curtain Lok to be directly speed sensitive to automatically lock divider curtain in position at any time during storage or operation. In the event of an over-speed situation (greater than 1.5 feet per second) caused by malfunction of the hoisting apparatus, whether sudden or gradual, device will immediately activate. Curtain Lok work regardless of direction of rotation and automatically resets when load is reversed or removed.

Provide key lock, 3-position, momentary contact wall control switch to lower, raise, and stop gymnasium divider. Provide with switch box and plastic cover plate.

XI. PLAYGROUND EQUIPMENT

Acceptable Manufacturer - GameTime Playground Equipment, 150 PlayCore Drive SE Fort Payne, Alabama 35967, Basis of Design

Consultant to work directly with GameTime Representative for the design of the playground equipment and the playground surfacing material.

Authorized GameTime Representative: Marturano Recreation, Linda Culliton, (585) 223-7398 or (800) 922-0070, Fax (585) 223-0707. www.mrcrec.com

XII. OT/PT EQUIPMENT

Equipment used in the OT and PT Rooms is provided by the RCSD and is not part of what the Architect specifies. The Architect is required to understand what equipment RCSD will be supplying and provide for structural support on items that are mounted to the ceiling, walls and floors.

END OF CHAPTER 11

RCSD Technical Standard
Chapter 12: Furnishings

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for Furnishings. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

This section includes the following:

A. Window treatments: Exterior window units are to have integral blinds to the fullest extent possible and are indicated in Chapter 8. When existing windows are to remain, or integral blinds cannot be accommodated in the window system, shades are to be provided. The design professional shall evaluate to the degree computers and smart screen usage will occur in the room in order to provide the appropriate shades.
B. Plastic laminate cabinetry should be used throughout the school, except for Science Classrooms and Art Rooms.
C. Solid surface countertops are the preferred material to be used in high use areas such as Classrooms, Nurse's Office and Health Centers, Library (Media Center) circulation desk, Administration entry desk and transaction counter, Home and Career Skills Classroom, Stage dressing rooms.
D. Stainless steel counters are the preferred material to be used in Art Rooms.
E. Laminate countertops can be used in areas with moderate use such as Copy Rooms, Conference Rooms, Teacher's Lounge, Computer Labs, etc.
F. Kitchen cabinetry and countertops.
G. Science Classrooms to utilize chemical resistant cabinetry and counter tops.
H. Furniture and Library furniture and shelving shall be coordinated through Vargas Associates who has developed a standard for furniture items.
I. Hardware that is used shall be durable, long lasting and be installed so that it does not require continuous maintenance. Hardware is an area within the District that requires constant repair. Unfortunately it is regularly abused.
J. Universal Telescopic Bleachers are utilized in gyms that require seating.
K. Auditorium seating shall be all wood with heavy duty hardware and cast iron bases for durability.

III. WINDOW TREATMENTS

A. HORIZONTAL BLINDS

For interior window (vision glass) in areas like first aid rooms, staff offices/locker rooms that adjoin to student areas for flexibility of privacy.

1" slat metal horizontal venetian blinds. Corded.

Basis of Design: Hunter Douglas. Color – to be selected from manufacturer's standard colors in white or light neutral color palette.

B. SHADES

For windows not being replaced; see internal window blinds for replacement windows in Chapter 8

Manually operated, vertical roll-up, fabric window shade with bead chain and clutch operating mechanism, mounting brackets, and other components necessary for complete installation.

Shade material for light blocking shades: Opaque, 4-ply laminated fiberglass (3 ply PVC, 1 ply fiberglass) cloth, fade and peel resistance, and suitable for damp conditions. Fabric shall be inherently flame resistant (NFPA-701 1006 -Test 1 & California Fire Marshall, section #13115). Finished weight of 12 oz. per square yard, .015 inches thick.

Basis of design: Draper SunBloc Series SB9000. Color – to be selected from manufacturer's standard colors.

Shade material for light filtering shades: Woven fabric, PVC coated fiberglass core cloth, fade and peel resistance. Fabric shall be inherently flame resistant (NFPA-701-10 TM#1 & California U.S. Title #19). Finished weight of 12.21 oz. per square yard.

Basis of design: 3G-Mermet Company, M-Screen #8503 window shade material, with a 3% openness factor. Color – to be selected from manufacturer's standard colors.

Roller Tube: Fabricated from corrosion resistant steel or extruded aluminum of appropriate diameter and wall thickness, to accommodate shade size and weight without visible tube deflection. Shade fabric shall be fastened to the roller tube with double sided tape designed to adhere PVC coated textiles to aluminum.

Control assembly: Bead chain and clutch operating mechanism allowing shade to stop when chain is released. The bi-directional clutch to be designed to not need adjustment or lubrication.

Clutch mechanism: Fabricated from high carbon steel and molded fiberglass reinforced polyester or injected molded nylon. White.

Bead chain loop: #10 Stainless steel bead chain hanging at right side (unless otherwise specified) of window. Provide 5/16" diameter NPB limit stops along the length of the loop to prevent shade from travelling beyond the opening of the window.

Pin-end assembly: Provide pin-end assembly of molded nylon with adjustable spring loaded pin to facilitate easy installation, and removal of shade.

Fascia: L-shaped aluminum extrusion to conceal shade roller and hardware. Snaps onto end caps without requiring exposed fasteners of any kind. Fascia can be mounted continuously across two or more shade bands. Endcap brackets: Plated stamped steel suitable for mounting to ceiling, wall, jamb. Provide size compatible with roller size. Finish to be selected from standard colors. Fascia shall match blind or window trim. All hardware should match in color.

Shade slat: Minimum 1/8 by 1 inch (3.175 mm by 25.4 mm) aluminum slat encased in welded stitch-free seamed bottom hem.

Acceptable manufacturers: Draper, Drapery Industries

IV. CASEWORK, see Chapter 6 for Phenolic Casework

A. LIBRARY

This is specified as part of the Furniture Standards administered by the FF & E consultant Vargas Associates. 585-730-8260. The Consultant shall contact Vargas Associates to obtain the FF&E Excel Spreadsheet to make furniture selections.

B. LABORATORY

Acceptable Manufacturers

- Hamilton Laboratory Solutions LLC – Manitowoc, WI www.hamiltonlab.com
- Kewaunee Scientific Corp. – Statesville, NC www.kewaunee.com
- Institutional Casework, Inc.- Paris, Tennessee. www.iciscientific.com
- Kreonite Inc.- Wichita, KS www.kreonite.com (photographic cabinetry)

Wood Laboratory cabinetry all exposed cabinetry to be made of clear, dry and sound Red or White Oak. To provide factory clear finish.

Chemical and Physical Resistance of Finish: Submit an independent testing laboratory report certifying that the exterior finish of laboratory casework is capable of withstanding following tests, with no change, or slight change of gloss, slight discoloration, or slight temporary softening of film with no loss of adhesion and no loss of film protection.

Acids: Not less than five (5) drops (0.25 cc) applied to finish surface, covered with watch glass for 60 minutes, then washed and dried.

37% Hydrochloric Acid
20% Hydrochloric Acid
10% Hydrochloric Acid
70% Sulphuric Acid
25% Sulphuric Acid
30% Nitric Acid
10% Nitric Acid
75% Phosphoric Acid
25% Phosphoric Acid
98% Acetic Acid
50% Acetic Acid

Solvent: Not less than 5 drops (0.25 cc) applied to finish surface, covered with watch glass for 60 minutes, then washed and dried.

Ethyl Alcohol
Butyl Alcohol
Methyl Alcohol
Ethyl Acetate

Ethyl Ether
Methyl Ethyl Ketone
Toluene
Acetone
Benzene
Carbon Tetrachloride
37% Formaldehyde
Gasoline
Naptha
Zylene
Glycerin
Furfural

Bases and Salts: Not less than 5 drops (0.25 cc) applied to finish surface, covered with watch glass for 60 minutes, then washed and dried.
40% Sodium Hydroxide
10% Sodium Hydroxide
28% Ammonium Hydroxide
40% Potassium Hydroxide
10% Potassium Hydroxide
Saturated Zinc Chloride
Saturated Sodium Chloride
Saturated Sodium Sulphide
Saturated Sodium Carbonate

Cabinetry shall be Moisture Resistance with no visible effect when finish surface exposed to the following: Hot water at a temperature of 190°F (91°C) to 205°F (96°C), trickled down surface at 45 degree angle for 5 minutes; Constant Moisture using a 2" x 3" x 1" cellulose sponge, soaked with water, in contact with surface for 100 hours.
Cold Crack: No effect when subjected to 10 cycles of temperature change from 20°F (14°C) for 60 minutes to 125°F (52°C) for 60 minutes.

Cast Epoxy Resin countertops, backsplashes and sinks. Counter tops to be 1 -1/4” thick. Factory molded tops of modified epoxy resin formulation, uniform mixture throughout full thickness. Color, non-glaring black.

Hardware shall be heavy duty, satin finish hardware.

Hinges: Institutional type, 5 knuckle. Provide one (1) pair for doors less than 4 ft. high.

Pulls: Solid metal, for drawers and swing doors, mounted with two (2) non-removable screws fastened thru a plate from back. For sliding doors, provide recessed flush pulls. Provide two (2) pulls for drawers over 24" wide.

Door Catches: Nylon roller spring catch or dual self-aligning permanent magnet type.

Drawer stops: Designed to permit easy removal, and yet prevent inadvertent drawer removal. Provide on all drawers, located on the inside.

Label Holders: Provide where indicated, size to receive standard label cards approximately 1" x 2" nominal size, finished to match other exposed hardware.

Drawer and Cupboard Locks: Half-mortise type, 5-pin tumbler and dead bolt, round cylinder only exposed, brass with plated finish.

Provide on all doors and drawers. Key as directed by the Owner.

Cabinet Base Molding: Extruded vinyl or rubber, black, 4" high. Provide on exposed sides and fronts of floor-mounted cabinets.

Leg Shoes: Extruded vinyl or rubber, black, open bottom type.

Adjustable Shelf Supports: Wrought steel, mortise mounted.

Service Fixtures: Provide units complete with washers, locknuts, unions, nipples and other accessories for positive mounting to supporting laboratory units. Include wall and deck flanges, escutcheons, handle extension rods, remove valves, and similar items required. Fabricate units to withstand test pressure of 100 psi. Fabricate service fixtures from cast or forged red brass containing a minimum of 85% copper. Exposed surfaces including fittings and escutcheons, polished chrome plated finish.

Service Outlets Identification: Provide color plastic index discs with embossed identification letters at each service fixture handle or knob.

C. INSTITUTIONAL FURNITURE

This is specified as part of the Furniture Standards administered by the FF & E consultant Vargas Associates. 585-730-8260. The Consultant shall contact Vargas Associates to obtain the FF&E Excel Spreadsheet to make furniture selections.

This includes cubbies for elementary schools.

D. PLASTIC LAMINATE COUNTER TOPS

High Pressure Decorative Laminate conforming to NEMA Standard LD 3 Grade HGS.

Acceptable manufacturers:

- Abet LAminati Inc.
- Formica Corporation
- Lamin-Art, Inc.
- Nevamar
- Pionite
- Wilsonart

Laminate bonded to ¾” plywood core. Build up thickness to 1-1/2” at front, back and ends with additional layer of core material laminated to top. Provide marine grade plywood at counters with sinks.

All joints shall be secured with adhesive and tight joint fasteners.

Provide 4" high back and side splashes. Alternate: Where upper cabinets are above counter, provide full height backsplash to underside of cabinets. Laminate must be mounted to backerboard for this condition and be approved by laminate manufacturer not to crack.

E. SOLID SURFACE COUNTERTOPS

Solid surface counter tops to be used in classrooms, and nurses office and Administration entry desk, transaction counter, and where indicated.

Homogeneous-filled plastic resin complying with ICPA SS1.
Acceptable manufacturers:

- Formica Corporation
- LG Chemical LTD
- DuPont
- Wilsonart
- Samsung Chemical

Fabricate countertops according to solid surface materials manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards", Custom Grade.

Countertop to be ½" thick solid surface on 1" thick MDF board**.** Front edge is to be built up with the same material.

Backsplash to be 4" high by ½" thick with a straight slightly, eased top edge. Provide straight backsplash slightly eased at corner edge. Provide matching end back splashes.

Provide cut outs and grommets for data wires, etc.

F. STAINLESS STEEL COUNTERTOPS

Art rooms shall type 316 stainless steel countertops. Smooth finish. Particle board core. Welded joints. Finished edge. Integral splashes (if applicable.)

G. PLASTIC LAMINATE CABINETRY

High Pressure Decorative Laminate (HPL) conforming to NEMA Standard LD 3 Grade HGS.

- Acceptable manufacturers:
- Abet Laminati Inc.
- Formica Corporation
- Lamin-Art, Inc.
- Nevamar
- Pionite
- Wilsonart

Exterior Vertical Surfaces: All door and drawer fronts, finished end panels, and exposed exterior backs shall be surfaced with high-pressure laminate conforming to NEMA LD 3. Panels shall be balanced with a balance sheet. To

be laminated using a PVA adhesive, set under pressure, resulting in a rigid glue line. Contact adhesives shall not be used, except on finished ends.

Exposed Surfaces including open interiors and wall bottoms over 19" above counter-top for example: Open cabinets, shelves, bookshelves, underside of wall bottoms and finished ends shall be laminated with HPL.

Thermally Fused Interiors at Semi-Exposed Surfaces: Interior surfaces behind doors, drawer boxes, backs, underside of wall bottoms (under 19" above counter-top), and unfinished ends shall be laminated thermally fused laminate that meets or exceeds the performance standards for NEMA LD3-1995 for GP-28. Fast cycle thermally fused, melamine foil or polyester surfaced panels or other surface types that do not meet these requirements are not acceptable.

Edges: Countertops, drawers and shelf edges shall be 3-mm PVC. The PVC shall be applied utilizing hot melt adhesive and radiused by automatic trimmers. Hand tool applying and trimming of PVC shall not be allowed. Edging shall be provided from standard colors.

Particle board shall be Grade-M-3 Industrial, according to the American National Standard (ANSI) for Mat-Formed Wood Particle board, ANSI-A208.1

H. HARDWARE

Door pulls for upper cabinets: Provide finger pull access by having upper cabinets overhang the bottom of the cabinet, therefore not requiring hardware.

Pulls for lower cabinets and drawers provide the biggest place for after mark repair. D pulls loosen and the screws go missing. Provide a recessed type of pull that is inset into the cabinet face made of heavy duty aluminum. If D pulls are used, provide an aluminum bar on the backside of the drawer or door that spans the two screws that hold the hardware in place.

5 Knuckle Hinges shall be 0.95" steel five-knuckle hospital-tip institutional grade quality with 0.187" diameter tight pin. Residential, kitchen type pivot, plain butt, or hinges with removable pins SHALL NOT BE ACCEPTABLE. Each hinge shall be secured with a minimum of nine No. 8 screws. Hinge shall permit door to swing 270 degrees without binding. Doors less than 48" in height shall have two hinges. Doors over 48" in height shall have three hinges.

Concealed Hinges shall be fully concealed, self-closing, 170 degree swing European style with six way adjustment. Residential, kitchen type pivot, plain butt, or hinges with removable pins SHALL NOT BE ACCEPTABLE. Hinge shall permit door to swing 170 degrees without binding. Doors under 36" high shall have two hinges; 36" - 72" high shall have three hinges; over 72" high shall have four hinges.

Standard Drawer Slides shall have 100# rating, and must prevent drawer fronts from contacting the cabinet body. 3832 Accuride, 100# rated full extension ball bearing drawer slides.

File Drawers: Accuride-4034 Full extension with 1" over travel. Slides shall have 150# rating, must be full extension, and prevent drawer fronts from contacting the cabinet body.

Door Catches (not used with self-closing hinges) for Base and Wall Cabinets: 7-lb. magnetic catch.
Tall Cabinets: (2) 7-lb. Magnetic catches mounted on sidewall of cabinet top and bottom.

Adjustable Shelf Supports shall be injected molded clear plastic, with a double pin engagement 32 mm on center and shall have 3/4" and 1" anit-tip locking tabs.

Locks are to be used on all cabinets and drawers in the Administration office, Nurse's office; Health Centers and Secondary School Classrooms. Locks to be used as directed by the District specific to Classrooms in Elementary Schools.

- To be mechanical catches not magnetic.
- National Lock five disc tumbler cam locks in brushed aluminum finish.
- All locks to be keyed differently by room type and master keyed.
- Lock core is removable with a control key, permitting OWNER to easily change lock arrangements without tools.
- In-active door of base and wall cabinets shall be secured by using an elbow catch or a chain bolt for tall cabinets.

All cabinet body components shall be secured utilizing concealed mechanical fasteners as approved by the Architectural Woodwork Quality Standards.

All joints are tight fitting and will not rupture or loosen due to the following:

- Dimensional changes in the particleboard.
- Racking of casework during shipment and installation.
- Normal use.
- Seismic shock as tested and approved by the Woodwork Institute of California for casework used in schools and hospitals.

All fastening devices and screws shall be treated to deter or resist corrosion.

Construction Features - All Cabinets:

- All structural components shall be 3/4" thick particle board with balanced surfaces.
- All back panels shall be 2" thick particle board surfaced both sides for balanced construction.
- All drawer components shall be 2" thick particle board with balanced surfaces.
- Mounting stretchers are 2" thick structural components fastened to end panels by mechanical fasteners, and are concealed by the cabinet back.
- When cabinet backs are exposed a finished 3/4" thick laminate back shall be substituted for stretchers.

- Exterior grade plywood core bases shall support and carry the load of the end panels, and the cabinet bottom, directly to the floor. The base shall be let in from the sides and back of the cabinet to allow cabinets to be installed tightly together and tight against a wall. Also to conceal the top edge of applied vinyl base molding. There shall be a front to back center support for all bases over 30” wide.
- Horizontal parting rails between drawers shall be 3/4" particle board with balanced surfaces, secured to and further reinforcing cabinet ends.
- A 5 mm diameter row hole pattern 32 mm (11/4") on center shall be bored in cabinet ends for adjustable shelves. This row hole pattern shall also serve for hardware mounting and replacement and/or relocation of cabinet components.
- All door and drawer fronts and finished ends shall be balanced construction with high-pressure laminate bonded to both sides of a M-3, 47# particle board core.
- All display cabinet drawer fronts and finished ends shall be balanced construction with 2" thick solid surface to be glued and screwed to drawer box, as indicated on drawings.
- Adjustable shelves shall be particle board core, balanced surfaces and have a 3 mm thick PVC front edge matching the shelf.
- Adjustable shelves in cabinets over 36" wide shall be 1" thick.
- All adjustable shelves in open cabinets shall be 1" thick.
- All other shelves shall be 3/4" thick.
- Fixed Interior Components such as fixed shelves, dividers, and cubicle compartments shall be a full 3/4" thick particle board attached with concealed mechanical fasteners.
- All doors shall be a maximum of 24" wide.

Wall Cabinets:

- Each end panel to be secured with a minimum of eight mechanical fasteners for a total tensile strength of 2.450 pounds.
- All wall cabinet bottoms shall be 3/4" thick particle board core mechanically fastened to end panels and secured to the bottom back stretcher.
- An upper 2" thick nailer shall be located behind the back panel with mechanical fasteners.
- A lower 2" thick stretcher shall be located behind the back panel and attached to the end panels with mechanical fasteners.
- Wall Hung Cabinet Load Test: Earthquake test procedure developed by the Woodwork Institute of California for casework used in California schools and hospitals.

Base Cabinets:

- Each end panel to be secured with a minimum of eight mechanical fasteners for a total tensile strength of 2,450 pounds.
- All base cabinets except sink cabinets, shall have solid 3/4" stretchers fastened to the ends with mechanical fasteners.
- All sink cabinets shall have a vertically mounted front stretcher panel and a horizontal front and back stretcher supporting the counter-top.
- Sink bases to be constructed with thermally fused, melamine faced, moisture resistant particle board.

- An upper 2" thick stretcher shall be located behind the back panel and attached with mechanical fasteners. This stretcher is also fastened to the full sub-stop thus capturing the back panel.
- All base cabinets shall have a separate toe kick constructed of 3/4" exterior grade plywood.

Tall Cabinets (Built-in Closet):

- Teachers cloak closet at classrooms shall be built in and not millwork.
- Each end panel to be secured with a minimum of 12 mechanical fasteners for a total tensile strength of 3.850 pounds.
- An intermediate fixed shelf shall be provided on all general storage cabinets to maintain internal dimensional stability under heavy loading conditions.
- A 2" top and intermediate stretcher shall be located behind the back panels and attached to the end panels with interlocking mechanical fasteners.
- The intermediate stretcher is secured to the intermediate shelf, thus capturing the back panel, with #8 x 2" plated flat head screws.

Drawers:

- Drawer box shall be constructed with a full 1/4" thick non-racking, non-deflecting platform bottom. Sides are captured into side, front and back.
- Sides, backs and sub-front shall be 2" thick 47# density particle board surfaced both faces with White thermally fused laminate. The top edge shall be 0.020" PVC matching the drawer color.
- Corners shall be joined with fluted wood dowels and glue, minimum 32 mm on center.
- Drawer fronts shall be removable and attached drawer box sub-front with screws from inside of drawer.

V. BLEACHERS (Interior)
Acceptable Manufacturer: Interkal Telescopic Seating www.interkal.com
Universal Telescopic Seating System. Forward-Fold wall attached system.

Classic Wood bench seating made of yellow pine lumber. Standard wood thickness 1”. All boards are finished on all sides and ends with moisture-resistant polyurethane.

Seats and front risers to be firmly secured every 36” to welded steel seat supports which attach to the continuous nosebeam for stability.

Alternate: High Impact polyethylene plastic with 5 structural ribs, upon approval of RCSD Facilities Design Group.

Include intermediate isle steps, Self-storing aisle rails, End and back guard rails, Infill piece between bleachers and wall.

Provide wheelchair space allocation either through Notchouts or Truncations.

Rise to Row and Row to Row spacing shall be determined by project constraint, specific to room dimensions and number of rows required.

Propulsion – Up to 4 rows: Manually Operated; $ row and greater Friction Power or Nonfriction power operated. The entire power system to be UL rated. Electrical power required: 208-220 or 440 volts, 3 phase 60 cycle.

For exterior metal bleachers, consult with RCSD Facilities Design Group.

VI. AUDITORIUM SEATING

Acceptable Manufacturers: Irwin Seating Company – Model 1.14.86.4 Crusader. Basis of Design. www.irwinseating.com

Construction shall be Class A rated and meet NFPA 701 & California Technical Bulletin 117 compliant.

Seat back, seat and side trim shall be wood panels. No upholstery without approval of RCSD Facilites Design Group.

A. BACK

The back shall accommodate 22”, 23” and 24” chairs

Back is formed from 7-ply, 7/16” hardwood plywood and surfaced with a Class A face grade veneer (maple or red oak).

Backs shall be non-upholstered, class A veneer surfaced plywood. Backs shall be formed with a lateral radius in a high-frequency press with 7 cross-banded hardwood plies to a thickness 7/16". All edges shall be sanded smooth and finished. Overall length of the back measured at the center line shall be 20". The back wings for attaching the complete back to the standards shall be not less than 14 gauge steel, securely riveted to the back. Assembled chair shall have a nominal back height of 32”. The back assembly shall be certified through routine ISO testing to withstand a 250 lb. static load test applied approximately 16” above the seat assembly and a 100,000 cycle 40 lb. swing impact test.

B. SEAT

Seat: Seat sizes shall accommodate 22”, 23” and 24” chairs.

Seat is formed from 7-ply, 7/16” hardwood plywood and surfaced with a Class A face grade veneer (maple or red oak).

Seats shall be hardwood plywood contoured to fit the form of the seated individual, supported by sturdy formed steel seat-lift arms which self rise to a ¾-safety fold position when unoccupied. The seats shall be certified to withstand a front-of-seat 600-pound static load, laterally distributed 3" from the leading edge of seat. The seat shall also be certified to pass a 100,000-cycle seat oscillation test, ASTM Designation F851-87 Standard Test Method for Self-Rising Seat Mechanisms.

Seat foundation shall be of one piece deep drawn die formed steel foundation, not less than 20 gauge thickness with edges rolled inward around entire perimeter preventing snagging hazard. Foundation shall be free from

screws and bolts on bottom, front and sides. It shall enclose the entire seat raising mechanism and at the point of hinge attachment, shall be reinforced by large steel plates of not less than 11 gauge thickness. It shall be possible to remove the seat portion of the seat from the steel foundation without removing the complete seat from the chair.

Seat hinge shall be completely enclosed in seat assembly and shall automatically fold to a ¾ uniform position at all times without adjustment. It shall also fold 100% to provide additional clearance when necessary. Hinges shall consist of a cast iron pivot securely fastened to the cast iron pivot ledge on the standards by a heavy bolt to prevent possibility of the hinge pivot being disengaged from the standard. Rotation of the seat about hinge pivot shall be on a self-lubricating Delrin bearing requiring no maintenance. Lifting is provided by two independent paraffin oil coated 0.125" diameter music wire wound springs with seven active coils. With the seat unoccupied, the springs are in a relaxed position to increase spring life. Both the up and down stops on the seat shall be cushioned with Neoprene rubber to reduce noise.

C. MOUNTING

Solid class 25 gray cast iron casting with flush outer surface and integrally cast pivot ledge insuring maximum strength and proper alignment. Standards also provide a cast in raceway for concealment of aisle light wiring. Can be furnished floor mounted (level and four floor inclines) or riser mounted. Cast iron shall be a minimum of 80% postconsumer recycled content. Provide solid wood #350 (rounded corner sq. edge) end standard treatment.

- Floor Mounted: Standard shall be of one integral piece gray iron pedestal shaped design. The foot pad shall measure a minimum of 7" long x 2 5/8" wide. The cast iron standard contains anchor points for holding chair back, seat and arm rest in accurate and secure position. Standards shall be cast to fit the floor incline to maintain proper seat height.

D. ARM RESTS

Wooden Arm Rests: The wooden arm rests shall be of solid wood construction, finished in lacquer with the edges well rounded. The under surface of the arm rest shall be provided with two rounded "T" slots to secure arms to lugs on cast iron standards.

E. FINISH

Wood Parts: All exposed surfaces shall be coated with lacquer of sufficient film depth to afford adequate protection in use. Colors as selected.

Metal Parts: All exposed cast iron and steel parts shall be cleaned and powder coated using the following procedure:

- Pre-powder coat cleaning in a 7-stage bonderizing process.
- Powder coat finishing of parts in an electrostatic system.
- All parts shall be coated with a thermosetting epoxy powder.
- All parts shall have an average minimum dry film thickness (D.F.T.) of 2.5 to 3.0 mils.

- Parts shall be baked in a gas fired convection oven.
- Cured powder coat must pass the 4H pencil hardness test.

F. OPTIONS AND ACCESSORIES

End Treatment: Solid hardwood end panel treatment shall be used with the floor and riser mounted standards. Customer specifies wood species and stain. (#350 rounded corner sq. edge).

Row and Seat Identification Plates: Plates shall be made of clear anodized aluminum of .025 inches thickness. Size of plate shall be 1-5/8" x 5/8". Letters or numbers shall be recessed and filled with a baked black enamel. The numbers and letters shall be a 36-point, Sans Serif Gothic No. 545 style. Plates shall be provided with two (2) holes for attachment to a recessed area in front edge of the steel seat pan with two (2) tamper proof blind fasteners.

Spare Parts: Provide 4 extra seats for each separate size seats to be provided. Include all optional accessories, mounting brackets, anchors and all other parts to completely replace any future damaged seats. Provide 15 extra wood end panels. Provide 20 extra wood arm rests.

END OF CHAPTER 12

RCSD Technical Standard
Chapter 14: Conveying Equipment

I. PURPOSE
This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for Conveying Equipment.

II. GENERAL
Every building is to 100% accessible for the physically impaired. Provide design drawing details showing the installation for hydraulic elevators, lifts and Vertical Reciprocating Conveyor. For the Conveying system shop drawings, show respective installation details and anchoring devices.

III. ELEVATOR

A. ACCEPTABLE MANUFACTURER:
ThyssenKrupp; www.thyssenkrupp.com; Local office: 2745 Broadway, Suite 25, Buffalo, NY. 716-206-3810. The District traditionally used Dover. Dover became part of ThyssenKrupp.

B. HYDRAULIC ELEVATOR
Elevator Designation: 1
Holeless Hydraulic Elevator Endura Hydraulic Elevator
Capacity: 3,000 lbs.

- Speed: 100 fpm
- Operation: TAC32t
- Clear Inside: Width: Clearance for a large scale custodial tote is required. Must be handicapped accessible.
- Travel distance is to be as required by project.
- Power Supply: Volts: 208 Phase: 3 Cycles: 60
- Machine Location: Adjacent, requires a rated machine room.
- Stops: As required by project to make all levels accessible
- Openings: As required by project.

Special Features: Inspection Operation, Fire Service, Handicap features per ANSI 117, Viscosity Control, Car Independent Service, Number 4 Stainless Hall Fixtures, Solid State Starting

C. CAR ENCLOSURE
Walls: Walls made of durable solid wood core, covered on both sides with high pressure plastic laminate.
Fronts and Transom: Fronts and transom with number 4 stainless steel containing an integral swing return and car operating devices.
Canopy: Made of unitized steel construction and includes an emergency exit.
Doors: Front: 1SP 3'-6" x 7'-0", Hollow metal horizontal sliding with baked enamel finish and 4" high metal kick plates to match elevator finish.
Ceilings: Suspended ceiling with white plastic diffuser in a baked enamel frame and fluorescent lights.
Sill: Extruded aluminum

Handrails: Continuous number 4 stainless steel ¼" x 2" bar handrails on two (2) sides.
Accessories: Two speed fan including key switch, protection pad and buttons.

D. PLATFORM AND SLING

The platform shall have a fabricated frame of formed or structural steel shapes, gusseted and rigidly welded. Flooring shall be a wood subfloor. The underside of the platform will be fireproofed. The sling shall consist of heavy steel stiles properly affixed to a steel crosshead and bolster, with adequate bracing members, to remove all strain from the car enclosure.

E. WARRANTY

The Elevator Contractor shall warrant the equipment installed by him against defects in materials and workmanship and will correct any defects not due to ordinary wear or tear or improper use or care which may develop within one year from the date the elevator is completed and placed in operation. This warranty is not intended to replace normal maintenance service and shall not be construed to mean that the Elevator Contractor will provide free service for periodic examination, lubrication, or adjustment due to normal use, beyond that included in the specifications; nor will the Elevator Contractor correct, without charge, breakage, maladjustments, or other trouble arising from abuse, misuse, improper or unbalanced power supply characteristics, improper or inadequate maintenance, or any other causes beyond his control. If there is more than one unit in a project this shall apply separately to each unit as completed and placed in operation.

IV. WHEELCHAIR LIFTS - VERTICAL PLATFORM LIFTS

A. ACCEPTABLE MANUFACTURERS: Savaria; www.savaria.com;

- Model: Multilift VPL – up to 60” travel distance
- Model V-1504 - Over 60” travel distance, included enclosure by manufacturer.
- Standard Platform is to ADA Compliant. Custom platforms will be considered to match project parameters.

B. WARRANTY

Contractor: 1 year for workmanship. Manufacturer: 36 months for parts.

C. INITIAL MAINTENANCE

Provide full maintenance service by skilled, competent employees of lift installer for a period of 1 year following date of final acceptance. Include repair/replacement of worn or defective parts, lubrication, cleaning and adjusting as required for proper lift operation. Part 8, Section 1010.10 of the current ASME/ANSI A17.1 requires all Vertical Platform Lifts to be inspected every six (6) months. These same guidelines are used for recommended maintenance.

D. CAR ACCESS

Car access configurations to match project requirements. Enter/Exit same side, 90 degree exit, or straight through enter/exit.

V. VERTICAL RECIPROCATING CONVEYOR

A. ACCEPTABLE MANUFACTURER: Pflow Industries, Inc., 6720 N. Teutonia Avenue, Milwaukee, WI 53209 – Phone (414) 352-9000. www.pflow.com

B. DESCRIPTION

- Capacity: The VRC shall be rated at a live load capacity of 2,000 lbs.
- Speed: The VRC shall have a lifting speed designed in the range of 28 to 32 feet per minute when loaded to capacity.
- Vertical Travel: The BRC shall have a maximum lift height of 14'-4" with a total of 2 operating levels.
- Lift Platform: The VRC platform shall be a minimum of 45 inches wide x 48 inches long x 84 inches load height with a steel deck plate and 48 inches high welded handrails and kick plates on non-operating ends and safety chains with snap hooks on operating ends.
- Support Columns: The VRC shall have a minimum of two (2) 6 inches wide support columns.
- Deflection under Load: When loaded to rated capacity, no portion of the VRC shall exhibit plastic (permanent) deformations.
- Lifting Means: Raising and lowering the carriage shall be provided by a chain over sprocket with common drive shaft connected to an efficient helical gear reducer assembly. The lifting chains shall be in a guidance assembly.
- Safety Cams: Safety cams shall be mounted on the platform and connected directly to the lifting chains. The cams shall prevent the platform from falling more than 6" if tension is lost in the chains.
- Safety Enclosure: Guarding on all non-operating sides of the VRC shall be by safety enclosures a minimum of 8' high consisting of material which will reject a ball 2" in diameter.
- Floor Level Gates: Gates are required on all operating sides of the VRC at each level of operation. The gates shall be (vertical acting) (swing)(slide) type. Each gate must be equipped with an electro-mechanical interlock to prevent opening of the gate unless the carriage is present and to prevent operation of the VRC unless all gates are closed.
- Signs: "No Rider" signs shall be provided. Lettering shall e a minimum of 2" high for visibility.
- Approach Ramp: If a pit is not specified, the manufacturer shall supply a steel fabricated approach ramp to be installed within 1" of the VRC platform at the ground level.

C. VRC Electrical Specification

Electric Motor: Motor horsepower shall be sized for the rated live load and specified speed. The motor shall be sized for 208v, 3 phase, 60 hertz operating voltage. All motors are three phase and shall be designed for continuous duty at ambient temperatures from 32º to 130º Fahrenheit. The motor shall be equipped with a heavy-duty, fast-acting, fail-safe industrial brake to ensure the brake will hold in case of power failure.

Controls: Each operating floor level shall be equipped with a momentary contact push button control station with call, send and mushroom style e-stop operators for manual control of lift operation. An internally, pre-wired, NEMA

12 rated main control panel shall be provided with step-down transformer, reversing motor starter, overload relay, instantaneous current sensing jam relay, inrush bypass timer, field wiring terminal block and positive acting brake contacts.

Travel Limit Switch: The VRC shall be equipped with a floor level, upper level, and over-travel limit switch to control positioning of the VRC platform.

Chain Tension Safety Device: Each chain shall be monitored continuously and shall shut off the brake motor in case of breakage or jam.

Power Source: Owner shall terminate high voltage operating power within 10' of
the location designated for installation of the VRC.

D. Finishes

All carbon steel surfaces shall be coated with an industrial enamel Finish over prime – color Pflow Blue.

Prior to painting, all dirt, mill scale, oil and grease shall be removed from carbon steel surfaces by a combination of brushing, wiping and use of solvents.

E. Warranty

The manufacturer shall warrant the VRC free of manufacturing defects beginning Thirty (3) days after shipment with the following minimums:

- Structural components – lifetime
- Purchased components – one (1) year parts, one (1) year labor.

The Contractor shall warrant the entire VRC assembly for a period of one (1) year, and shall repair any defect at no cost to Owner.

END OF CHAPTER 14

RCSD Technical Standard
Chapter 22: Plumbing

I. PURPOSE

This technical standard is a narrative describing Rochester City School District (RCSD) Basis of Design for mechanical plumbing systems. The information contained herein shall be used by the Project Design Team to develop a sustainable, integrated plumbing system that is economical to maintain and operate and that enhances learning by providing a suitable work environment for staff and students. This technical standard shall be used as part of RCSD's General Design Standards (comprised of the RCSD Educational Specifications and RCSD Technical Standards).

II. GENERAL

A. DESIGN DOCUMENTS

Drawings shall contain equipment schedules and valve and pipe schedules. The Design Team is responsible for obtaining room numbering assignments from the District. If room numbers other than District-assigned numbers are initially used on the drawings, final as-built documentation must cross-reference these room number assignments on the drawings.

B. INSPECTIONS

The Owner's Representative and RCSD's Maintenance Administrator shall be notified at all under floor, framing, and top out inspections, so that piping routes, valves, connections, and any other pertinent plumbing applications can be verified and documented.

C. CLOSE-OUT

1. Project Record Documentation

The Plumbing Contractor shall prepare and submit as-built drawings which shall include the following to reflect actual constructed conditions:

- Identify actual location and routing of buried pipes. Note inverts of the sanitary, storm, water and gas piping systems.
- Include additional sheets with all approved change order drawings and details

As-built documentation shall include the following as a minimum:

- Documentation of all deviations from the shop drawing submittals, including equipment that was changed and the reason for the change
- Copies of final test reports and any deficiency lists
- Documentation of all deviations in O&M information from that provided with original equipment submittals
- Documentation of all deviations of the plumbing systems piping location and routing indicated on the Contract Drawings.

2. Training

Provide for training of maintenance and school personnel as detailed below. Video tape complete training session for future use by school personnel.

Training shall include a review of the O&M manual, including but not limited to:

- How to monitor status readouts and history logs of systems
- Required maintenance
- Troubleshooting, including contact names and phone numbers for factory support

D. ENERGY USE

All piping and plumbing systems shall meet and/or exceed current New York State Energy Code. Insulate all hot water, cold water pipes and fittings. Design goals should provide building energy use that would allow easy qualification as an Energy Star rated building and fall within New York State Department of Energy Guidelines for School's EUIs for schools in the eastern region. Fixtures that are chosen on the basis of energy saving should provide a 10 years or less payback with anticipated maintenance costs included. The Design Team shall provide New York State Energy Code Compliance documentation to the Owner concurrently with submittal to the building department.

E. LABELING

All piping systems shall be permanently labeled identifying type of fluid and direction of flow. Post a laminated copy of the valve schedule and valve locations in the custodial office. All valves shall be labeled identifying function and valve number as set out in the posted valve schedules. All valves located above the drop ceiling shall be clearly marked on the grid (not on ceiling tiles) with printed labels.

F. QUALITY OF MATERIAL

All piping systems shall be designed and installed in a manner that provides the best possible long-term value for the District. Take special care to minimize the effects of electrolysis and corrosion.

G. PIPING DEMO, REMODELS, AND RE-PIPES

All piping being demolished or abandoned must be removed, along with all resulting construction debris, with the following exceptions:

- Under special circumstances, selective piping may be abandoned in walls (requires Owner approval)
- Selective Underground piping and piping in slabs may be capped and abandoned in place (requires Owner approval)
- Piping in tunnels: If tunnel is being sealed off and abandoned, then piping may be abandoned in place. However, if tunnel is being reused or still being used (contains active pipes, conduit, or duct work), then demolished piping larger than 1"Ø must be removed from tunnel and all construction debris removed

III. PIPING SYSTEMS AND ACCESSORIES

A. PIPING MATERIALS

1. Water and Fire Service: Ductile iron, push-on joint with cement lining. Ductile iron fittings, mechanical joint with retainer gland and rubber gasket.

2. Water Service (2 in. and smaller service): Type K soft copper with flared fittings and flared-compression connections.

3. Sprinkler Piping: Schedule 40, black steel 2 in. and smaller with malleable or ductile iron fittings, threaded connections. Schedule 10, black steel 2-1/2 in. and larger with malleable or ductile iron fittings and roll grooved mechanical type couplings.

4. Domestic water interior/hot, cold and circulating 4 in. and smaller: Type L copper, wrought copper or cast bronze, no-lead solder.

5. Domestic water 6 in. and larger: Schedule 40 galvanized steel with galvanized cast iron flanged fittings (or) roll grooved mechanical type couplings; Type L copper, with wrought copper fittings and brazed joints (or) roll grooved mechanical type couplings.

6. Sanitary, sanitary vent, and storm (buried): Service weight cast iron soil pipe with cast iron hub and spigot fittings. Lead and oakum or neoprene gasket compression type connections.

7. Sanitary and sanitary vent (not buried). Service weight cast iron soil pipe (or) Type DWV copper (or) Schedule 40, galvanized steel. Cast iron hub and spigot, no-hub or wrought copper; galvanized drainage fittings. Lead and oakum, no-hub neoprene gasket and stainless steel clamp assembly, no-lead solder, or threaded connections.

8. Storm (not buried): Service weight cast iron soil pipe and no-hub fittings with neoprene gasket and stainless steel clamp assembly (or) Type DWV copper pipe and wrought copper drainage fittings with no-lead solder (or) Schedule 40 roll grooved galvanized steel pipe and galvanized drainage fittings with galvanized ductile iron mechanical type rigid couplings. (Preferred for piping over gyms, libraries and computer areas).

9. Swimming pool filtered water, return water, and gutter return. Schedule 80 CPVC pipe and Schedule 80 CPVC socket fittings. Solvent welded connections.

10. Indirect waste: Type DWV copper with wrought copper or cast bronze fittings. No-lead solder connections.

11. Acid waste and vent: Polypropylene with polypropylene fittings, thermal welded joint in concealed locations and mechanical joint below counters, fixtures and equipment only.

12. Natural gas (exterior below grade): Schedule 40, steel factory coated, or SDR11 polyethylene with butt welded or fusion welded connections.

1) All underground gas steel piping shall be provided with cathodic protection. Cathodic protection system shall provide a flow of direct current from sacrificial anodes to the outer surface of the piping. On buried coated steel pipe tape all joints with scotch wrap #50, 2 in. wide, 50% overlap.
2) Provide locator tape over all buried pipelines at a depth of 6 in. below finished grade.
3) All underground gas piping shall be installed by a RG&E approved Contractor.

13. Natural gas (exterior above grade): Schedule 40, steel with welded steel fittings and connections. Paint exposed steel pipe: One coat alkyd primer and two coats of exterior acrylic latex gloss enamel. Color as selected.

14. Natural gas (interior): Schedule 40, black steel. Fittings 2 in. and smaller malleable. 2-1/2 in. and over butt welded.
1) Natural gas piping shall not run within corridors. Piping crossing corridors shall be sleeved and vented to the exterior.

IV. VALVES

A. GATE VALVES (WATER SERVICE)
1. 2-1/2 in. and Larger: IBBM, OS&Y, flanged, 125 SWP, Milwaukee F-2885.
2. 2 in. and Smaller: Bronze, solid wedge disc, rising stem, union bonnet, 125 SWP, threaded or solder ends.

B. GLOBE VALVES:
1. 1.2-1/2 in. and Larger: IBBM, OS&Y, flanged, renewable seat and disc, Milwaukee F-2981.
2. 2 in. and Smaller: Bronze, threaded ends, PTFE Disc, 150 SWP.

C. CHECK VALVES:
1. 2-1/2 in. and Larger: IBBM, bolted flanged cap, flanged ends, 125 SWP, Milwaukee F-2974.
2. 2 in. and Smaller: Bronze, swing check with soldered or threaded ends.

D. BALL VALVES (DOMESTIC WATER SERVICES 2 IN. AND UNDER):
1. Bronze body with type 316 shaft and ball, full port, teflon seats and stem packing, extended stem for insulation, 400 WOG, 125 SWP.
2. Watts "B6080SS".

E. BUTTERFLY VALVES:
1. 3 in. and above lug style, ductile iron with aluminum bronze disc, 316 stainless steel shaft, replaceable EPDM seat. 100% bubble tight at 200 psi (8 in. and above with gear operators). Suitable for dead end service and use in water service systems.
2. Watts, “DBF Series”.

F. GAS VALVES
1. 2-1/2 in. and Larger: Cast iron body, lubricated plug type, 175 lb. WOG, flanged, UL listed; Milliken #171M.

G. BALL VALVES (DOMESTIC HOT, COLD AND HOT WATER RETURN PIPING)
1. 3 in. and under: Forged brass body, chrome plated brass ball, full port, Teflon seats and stem packing, separate packing and handle nut, blowout proof stem extended for insulation, vinyl insulator for handle, 600 WOG, 125 SWP, Watts FBV Series (threaded ends) or Watts FBVs Series (sweat ends).
2. 2 in. and Smaller: Cast iron body, threaded ends, lubricated plug type, AGA approved and UL listed; Milliken #170M.

H. CLASSROOM GAS SHUTOFF VALVE AND SYSTEM
1. Gas Shutoff System shall consist of a solenoid valve. Each room shall be

independently controlled unless otherwise noted.

2. Solenoid Valve: Aluminum body, explosion proof enclosure, conduit hub, Buna-N seats, 80-90V DC power, normally closed, suitable for use with natural gas, UL labeled, FM approved; ASCO Series 8215 or approved equal.
3. Relay panel and master gas shutoff switch by Electrical Contractor. Coordinate solenoid valve requirements with Electrical Contractor.
4. Provide a manual gas valve for each classroom.

I. VALVES FOR GAUGES AND INSTRUMENTS:

1. 1/4 in. brass bar stock, needle valve.

J. HOSE THREAD DRAIN VALVES:

1. 1/2 in. ball valve with ¾" hose connection, cap and chain.
2. Watts "B6000CC".

K. BALANCE VALVES:

1. Calibrated balance valve with provisions for connecting portable differential pressure meter. Bell & Gossett, "Circuit Setter."

L. UNDERGROUND VALVES:

1. Curb Valves 2 in and Under:
   a) Mueller H-15201, 175 lb. w.p. brass plug valve, one quarter turn with check, solid teehead "O" ring seal, flared copper ends - AWWA C800-66 threads.
2. Gate Valves 3 in and Larger (For Underground Service):
   1) Iron body inside screw-in bronze trim; wedge disc; resilient seat; "O" ring seals; 175 psi wwp; open counter-clockwise; 2 in. square wrench nut; mechanical joint ends; AWWA C509. Water service: Kennedy Ken-Seal Fig. 1571X. Fire protection service: UL listed and FM approved; Kennedy Ken-Seal Fig. 1071X with adjustable indicator post, wrench, case hardened brass padlock and keys.
3. Curb Boxes:

1) Cast iron with adjustable steel riser, stationary rod and cover extended from the valve to finish grade. Provide with each curb valve.

4. Valve Boxes:
   1) Cast iron adjustable screw type box and cover extending from the valve to finish grade. Cast arrow and lettering on cover of box denoting direction of valve opening and service. Provide with each gate valve.
5. Valve Key:
   1) Steel socket key for gate valve or curb valve.

M. POST INDICATOR VALVE ASSEMBLY

1. Butterfly type: UL/FM for fire protection service only; sufficient shaft length for top of valve to be approximately 36 in. above finished grade: Mechanical joint ends, with case hardened brass padlock and keys. Kennedy, Pratt or Clow.

N. FUSIBLE LINK VALVES

1. Lever type gate valve for emergency closing of oil supply line. Spring-

operated, self-closing type, full port opening with spring and 165°F fusible link. Bronze valve with malleable iron handle. Preferred Utilities Type 110.

V. PLUMBING FIXTURES AND TRIM

1. WATER CLOSETS

a) General:
   1) Automatic flush valves shall not be installed in areas accessible to students.

b) WC-A: Wall Hung - Flush Valve - Standard Height
   1) Vitreous china, 1.6 gallons per flush, siphon jet, elongated wall hung with 1-1/2 in. top spud. American Standard “Afwall” #2257.103.
   2) Flush Valve: Sloan "Regal Pro” #111YO.
   3) Seat: Church #9500NSCC, white.
   4) Carrier: J.R. Smith Series 210 or 240.

c) WC-B: Wall Hung - Flush Valve - Handicapped Height
   1) Same as "A", except mounted at handicapped height.

d) WC-C: Floor Mount - Flush Valve - Standard Height
   1) Vitreous china, 1.6 gallons per flush, siphon jet, elongated bowl, with china caps, American Standard, “Madera” #2234.015.
   2) Flush Valve: Sloan “Regal Pro” #111YO.
   3) Seat: Church #9500NSCC, white.

e) WC-D: Floor Mount - Flush Valve - Handicapped Height
   1) Same as "C", except American Standard “Cadet 17 in. H” #3043.102.

2. URINALS

a) UR-A: Wall Hung – Flush Valve – Standard height
   1) American Standard “Washbrook” #6501.010 with stainless steel strainer and extended shields.
   2) Flush Valve: #180 Sloan “Royal” Series – ES solenoid flush valve. 120V to 24V transformer
   3) Carrier: J.R. Smith #637.

b) UR-B: Wall Hung - Handicapped Height (17 in. to top of rim for 4th and higher grades, 14 in. to top of rim for K-3rd grades)
   1) Same as UR-A, except mount at handicapped height.

3. LAVATORIES

a) General:
   1) Automatic faucet controllers shall not be installed in areas accessible to students.
   2) All faucets for student lavatories shall be limited to a ½ gpm flow rate with vandal proof aerator.

b) LAV-A: Public - Wall Hung - Two Handle - Self-Closing Faucet
   1) White, vitreous china, wall hung, 20 in. X 18 in., American Standard "Lucerne" #0355.012.
   2) Faucet: Self-closing metering style, Delta #2508HDF.
   3) Tailpiece and Trap: McGuire #155-A and #8902.
   4) Keystops: McGuire #2167LK.
   5) Concealed Arm Carrier: J.R. Smith #700 Series.

c) LAV-B:
   1) Same as "Lav A", except mounted at handicapped height.
   2) Provide supplies and waste piping protection covers.

d) LAV-C: Public - Wall Hung - Electronic Sensor Operated – For Lavs in Hallways
   1) White, vitreous china, 20 in. X 18 in., American Standard "Lucerne" #0355.012.

2) Automatic Faucet: Sloan #ETF-66.
3) Tailpiece and Trap: McGuire #155-A and #8902.
4) Keystops: McGuire #2167LK.
5) Concealed Arm Carrier: J.R. Smith #700 Series.

e) LAV-D:
1) Same as "Lav C", except mounted at handicapped height.
2) Provide supplies and waste piping protection covers.

f) LAV-E: Public - Countertop - Two Handle - Self-Closing Faucet.
1) White, vitreous china, 20 in. x 17 in. oval, American Standard "Aqualyn" #0476.028.
2) Faucet: Self-closing metering style, Delta #2508HDF.
3) Tailpiece and Trap: McGuire #155-A and #8902.
4) Keystops: McGuire #2167LK.

g) LAV-F: Public
1) Same as Lav E, except with electronic sensor operated faucet.

h) LAV-G: Wall Mounted, Single Self-Closing Faucet
1) White, vitreous china, wall hung, American Standard "Lucerne" #0355.012.
2) Thermostatic mixing valve set at 105^{o}F.
3) Faucet: Single self-closing metering style, Delta #2508HDF.
4) Tailpiece and Trap: McGuire #155-A and #8902.
5) Keystops: McGuire #2167LK.
6) Concealed Arm Carrier: J.R. Smith #700 Series.

4. SINKS

a) SK-A: Standard Utility Sink.
1) Elkay #LR1918 nickel type, 18 gauge, 302 stainless steel, single bowl, for countertop installation. Bowl dimension 16 in. x 11 in. x 7-1/2 in. deep.
2) Faucet: Chicago Faucets No. 526, 4 in. centers, 6 in. swing spout, lever handles.
3) Strainer: Elkay #LK-18.
4) Keystops: McGuire #2167LK.
5) Trap: McGuire #8912.

b) SK-B: Craft Sink/Student.
1) Elkay #LR2522, 18 gauge, 302 stainless steel, single bowl, bowl dimensions 21 in. x 15 in. x 8 in. deep.
2) Faucet: Chicago Faucets No. 1100-HA8, 8 in. centers, two handle, 8 in. gooseneck spout.
3) Where used in science rooms and laboratories, provide additional foot pedal controls.
4) Strainer: Elkay #LK-18.
5) Keystops: McGuire #2167LK.
6) Interceptor: J.R. Smith, Fig. 8730 solids interceptor in lieu of "P" trap.

c) SK-C: Craft Sink/Handicapped Accessible.
1) Elkay Lustertone #LRAD-2522, 18 gauge, 302 stainless steel, single bowl, for countertop installation. Bowl dimensions 21 in. x 15-1/4 in. x 6 in. deep,
2) Faucet: Chicago Faucets No. 1100-HA8, 8 in. centers, two handle, 8 in. gooseneck spout.
3) Strainer: Elkay #LK-18.
4) Keystops: McGuire #2167LK.
5) Interceptor: J.R. Smith Fig. 8730 solids interceptor in lieu of P-Trap.
6) Cover supplies and drain piping with insulation trap wrap kit (white).

d) SK-D: Nurse's Sink.
   1) Same as Type "A", except:
      (a) Chicago Faucets No. 626 single deck mounted gooseneck spout with flange, GN2 rigid/swing gooseneck spout, C.P. finish.
      (b) Chicago Faucets No. 625-SLO double pedal valve, floor mounted, adjustable and slo-closing. Chrome plated finish.

e) SK-E: Elementary Classroom Sink.
   1) Elkay #DLR 2522-10, 18 gauge, 302 stainless steel, single bowl, for countertop installation. Bowl dimensions 25 in. x 22 in. x 10 in. deep, fitted with the following:
   (1) Faucet: Chicago Faucets No. 526, 4 in. centers faucet with 6 in. gooseneck swing spout and lever handles.
   (2) Trap: McGuire #8912.
   (3) Keystops: McGuire #2167LK.
   (4) Strainer: Elkay #LK-18.

5. Mop Basin

a) MB-A:
   1) Fiat Model MSB molded stone mop basin with stainless steel flat strainer and 2 in. outlet.
   2) Faucet: Chicago Faucets No. 897, adjustable centers, integral stops, top brace spout with bucket hook, hose end and vacuum breaker.
   3) Accessories: Vinyl bumper guards No. E-77-AA on exposed sides.

6. Electric Water Cooler

a) EWC-A:
   1) Elkay Model #EZS-8, wall hung, ADA compliant, front and side pushbars, lead free.
   2) One piece stainless steel top, flexible bubbler, stainless steel cabinet.
   3) Capacity: 8 GPH of 50^{o}F water with inlet water at 80^{o}F and ambient temperature of 90^{o}F, 115 volt refrigeration unit.
   4) Carrier: Rectangular uprights with hanger plate.

7. Drinking Fountain

a) DF-A: Classroom
   1) Elkay #BPSR-15, type 302 stainless steel, single bowl sink, 15’ x 15 in. x 6 in. deep.
   2) Bubbler: Elkay #LK-1141.
   3) Strainer: Elkay #LK-8.

8. Showers

a) General:
   1) All shower valves shall have check stops.

b) SH-A: For Gang Showers, Single Temperature, ON/OFF Control - New Construction.
   1) On/Off valve, concealed compression type, lever handle.
   2) Adjustable spray shower head, lockable ball joint, wall bracket and anchor plate.
   3) Floor Drains.
   4) Electric remote shower control, number of zones per application. High/low thermostatic mixing valve manifold assembly. Control panel located in Gym Office.
   5) Shower areas constructed and tiled by others.

c) SH-B: For Gang Showers, Single Temperature, ON/OFF Control –

Existing Construction

1) Horizontal wall mounted panel system, pre-piped, stainless steel, arranged for single tempered supply.
2) Horizontal and vertical pipe enclosures.
3) On/Off valve, concealed compression type, lever handle.
4) Adjustable spray shower head, lockable ball joint.
5) Floor drains.
6) Electric remote shower control, number of zones per application. High/low thermostatic mixing valve manifold assembly. Control panel located in Gym Office.

d) SH-C: For Single Showers Accessible to Handicapped (Locker, Nurse, Staff), Single Temperature, ON/OFF Control - New/Existing Construction

1) Single person shower, barrier free ADA compliant in 42 in. x 48 in. stall, recessed (new) or surface mounted (existing), Bradley #HN Series.
2) On/Off valve, concealed compression type, lever handle.
3) Removable hand-held shower, bracket, 59 in. stainless steel hose with quick disconnect.
4) Diverter valve.
5) Fixed shower head, lockable ball joint, adjustable spray.
6) Grab bar, stainless steel folding seat, curtain rod, vinyl Hospital grade curtain.
7) Floor drain.
8) Shower stall constructed and tiled by others.

e) SH-D: For Gang Showers, Two Temperature, Mixing Valve Control - New Construction

1) Pressure balance mixing valve, one piece dial and lever assembly, checkstops.
2) Adjustable spray shower head, lockable ball joint, wall bracket and anchor plate.
3) Floor drains.
4) Shower areas constructed and tiled by others.

f) SH-E: For Gang Showers, Two Temperature, Mixing Valve Control – Existing Construction

1) Horizontal wall mounted panel system, pre-piped, stainless steel, arranged for single tempered supply.
2) Horizontal and vertical pipe enclosures.
3) Pressure balanced mixing valve, one piece dial and lever assembly, checkstops.
4) Adjustable spray shower head, lockable ball joint.
5) Floor drains.
6) Electric remote shower control, number of zones per application. High/low thermostatic mixing valve manifold assembly. Control panel located in Gym Office.

g) SH-F: For Single Showers Accessible to Handicapped (Locker, Nurse, Staff), Two Temperature, Mixing Valve Control – New/Existing Construction

1) Single person shower, barrier free ADA compliant in 42 in. x 48 in. stall, recessed (new) or surface mounted (existing), Bradley #HN Series.
2) Pressure balanced valve.
3) Removable hand-held shower, bracket, 59 in. stainless steel hose with quick disconnect.
4) Diverter valve.
5) Fixed shower head, lockable ball joint, adjustable spray.

6) Grab bar, stainless steel folding seat, curtain rod, vinyl Hospital grade curtain.
7) Floor drain.
8) Shower stall constructed and tiled by others.

h) SH-G: Column Shower – For Replacement Only - Not for New Construction
1) Bradley column shower with shower head quantity, configuration and height to match existing set.
2) Supplies and vent arranged per existing rough-in.
3) Type 304, 16 gauge stainless steel shroud.
4) Pressure balancing mixing valves.

i) SH-H: Gang Shower – Existing Construction
1) Bradley Type 3W wall mounted, multi-head three person shower with shower heads mounted at 6 ft, 5 ft.-6 in. or 5 ft., suited to application.
2) Supplies suited for applications.
3) Type 304, 16 gauge stainless steel cabinet.
4) Pressure balance mixing valves.

j) SH-I: One Piece Unit
1) Fiat Model #MS336, 36 in. x 36 in. one piece acrylic with fiberglass, 2 in. chrome plated cast brass drain, arranged for left hand or right hand operation.
2) Textured one piece floor.
3) Pressure balancing mixing valve.
4) Adjustable spray shower head with lockable ball joint.

B. Wash Fountain: For Shop/Garage Areas.

a) WF-A:
1) Bradley "Classic" 36 in. semi-circular, terrazzo, arranged for foot control of water supply.
2) Supplies and vent to suit application.
3) Thermostatic mixing valve with shutoff and check valves on hot and cold water supplies.

b) WF-B :
1) Bradley Tri-Font #2903, three person wash fountain.
(1) Terrazzo 36 in. x 26 in. with front access panel.
(2) Pushbutton mechanical metering valve with three (3) sprayheads.

c) WF-C:
1) Bradley Quadrafont #2904, four person wash fountain.
(1) Terrazzo 46 in. x 26 in. with front access panel.
(2) Pushbutton mechanical metering valve with four (4) sprayheads.

C. Emergency Shower And Eye/Face Wash (Free-Standing)

1) Equal to Speakman SE-693 free-standing emergency shower complete with deluge shower head, 1 in. stay open valve with rigid pull rod and ring, stanchion floor flange, interconnecting fittings, aerated eye/face wash, 1/2 in. full flow valve activated by hand with stainless steel bowl with wall sign SGN-3, 14 in. x 10 in., floor sign SGN-6 and water flow alarm AL-2 with flow switch, blinking light and alarm (120v). Fitted with the following:

1) Thermostatic mixing valve with integral strainer checkstops on inlets, adjustable set point, cold-water bypass, dial thermometer, positive hot water shutoff, vandal resistant temperature setting, suitable for drench shower/eyewash applications.

(1) Flow capacity of 14 GPM at 5 psi pressure drop and 29 GPM at 20 psi

pressure drop.

(2) Rough bronze finish, mounted in recessed, lockable stainless steel cabinet.

(3) ¾ in. inlets, 1 in. outlet capable of delivering 85° with 105° inlet.

(4) Bradley Navigator EFX25 Model S19-2100.

VI. WATER SUPPLY SYSTEMS

A. WATER METER

1. Provide meter at service entrance with full size bypass, isolation valves and pressure gauge on outlet side of meter.

2. Conform to requirements of Rochester Water Bureau.

3. If water supply is more than 100 feet from water service, a meter pit is required.

B. REDUCED PRESSURE TYPE BACKFLOW PREVENTER (RPZ)

1. Approved for use by New York State Department of Health. Relief air shall not enter at the same opening as the relief water discharge.

2. All bronze body construction (over 2-1/2 in. cast iron body epoxy coated), stainless steel bolts and stainless steel internal parts. Four test cocks, strainer and isolation resilient wedge gate valves.

3. Provide drain assembly with air gap fitting and full size drain line to nearest floor drain.

4. 3/4 in. - 2 in. Watts 909SQT Series; 2-1/2 in. and larger Watts 909 OS&Y.

5. For fire service: UL listed/FM approved, same size as fire service Watts 909RPDA (for services with private hydrants).

C. DOUBLE CHECK VALVE TYPE BACKFLOW PREVENTER

1. Cast iron body epoxy coated, removable seats, stainless steel bolts and internal parts. UL listed/FM approved with test ports.

2. Watts 709.

D. INLINE PRESSURE TYPE

1. Watts "N9C" continuous pressure type.

2. Watts "800" continuous pressure type.

E. VACUUM BREAKERS

1. Atmospheric type, use only where not under pressure.

2. Watts #288-A, brass construction, polished chrome for finished areas, Lawler VB.

F. PRESSURE REDUCING VALVES

1. Watts #223S or Spence #D-34.

G. WALL HYDRANTS

1. 3/4 in. cast brass nonfreeze type, with 3/4 in. hose connection, nickel-bronze face, galvanized wall sleeve, integral vacuum breaker, loose key control, and wall clamp.

2. Make: Josam, Jay R. Smith #5510, Wade, Zurn.

H. HOSE BIBBS (INTERIOR)

1. 3/4 in. polished chrome plated hose bibb with 3/4 in. hose connection, loose key stop, and vacuum breaker.
2. Make: Acorn, Woodford Model 84 (in finished rooms) and Chicago 998 (in Mechanical Rooms), T&S Brass.

I. SHOCK ABSORBERS

1. Shall meet or exceed requirements of the Plumbing and Drainage Institute Standard - PDI-WH 201.

J. THERMOMETERS

1. Dial type, 3-1/2 in. dial size, Type 42 socket, 5-5/16 in. stem. Scale calibrated in 2^{o} divisions from 20^{o}F to 220^{o}F. Universal joint hood, vapor actuated, containing no mercury.
2. Make: American "Any Angle", Weiss, Ashcroft.

K. PRESSURE GAUGES

1. 3-1/2 in. diameter dial pressure gauge; Bourdon tube type with black metal case, range: 0 to 100 lbs.
2. Make: Amtek, Ashcroft #1010, Lonergan.

L. BACKWATER VALVE

1. Cast iron hub and spigot, bronze threaded cover, automatic valve seat and flapper.
2. Zurn: #Z-1095.

M. TEMPERATURE MIXING VALVE

1. Thermostatic style mixing valve capable of mixing hot water with cold water to obtain an outlet temperature of 110^{o}F. High/low style when flow exceeds 30 gpm.
2. Combination strainer check stops with union inlet.
3. Two volume control/shutoff valves, horizontal stem dial thermometer, fittings, nipples and escutcheon plates.
4. Chrome plated mixing valve and trim.
5. Stainless steel cabinet with No. 4 finish, 16 gauge body, and 14 gauge door with cylinder lock. Turn keys over to Owner.
6. Make: Leonard, Powers, Symmons.

VI. DOMESTIC HOT WATER SYSTEM

Provide at least two independent hot water systems at all schools. One system is for general use delivering water at 120°F. The second is a dedicated system for kitchen use delivering water at 140°F. A booster will be required to provide 180°F water to dishwasher final rinse. **Do not use single tank system with mixing valves to provide dual temperature system.**

A. WATER HEATER (GAS FIRED TANK TYPE):

1. Heater shall be listed by, and carry the seal of AGA, as an automatic storage water heater. ASME stamp required by SED for tank. Heater shall be furnished with a glass lined tank with magnesium anode rod rigidly supported. Tank shall have a working pressure of 150 psi and be equipped with a boiler type handhole cleanout. Controls shall be of the self-generating type, with a 100% safety cutoff in the event of pilot failure. A gas pressure regulator and factory installed, ASME rated and tested temperature relief valve and pressure relief valves. Automatic electronic flame safeguard controls shall automatically de-energize the electrical circuit to the main fuel valves within 4 seconds upon flame failure. The de-energized valve shall automatically close within the next 5 seconds. Heater shall be covered by an approved five-year unconditional manufacturer's warranty.
2. Provide appropriately sized thermal expansion tank in cold water line between RPZ and water heater.
3. Make: A. O. Smith, Rheem, State.

B. WATER HEATER (GAS FIRED COPPER COIL TYPE)

1. Gas-fired water heaters shall be listed by, and carry the seal of AGA and meet ASME construction standards. Heaters shall have all nonferrous waterways, with copper finned/vertical cylindrical heat exchanger, ASME rated at 150 psi each with draft diverter. ASME rated temperature and pressure relief valves (pressure relief valve set at 125 psi). Electric gas valve shall be step opening type, automatic shut-off, in event of pilot failure. Gas pressure regulator, intermittent ignition, coil limit switch.
2. Tank temperature control shall be 120 volt aquastat located inside tapping of tank with required adapters. Electric junction box with thermal balancer, thermal strip tappings for wiring to automatic air dampers for Boiler room. Circulating pump with manual motor starter and overload protection. Safety flow switches: 120 volt, mounted in outlet piping from heater. Interlock to shut down pump during periods of non-usage. Low temperature aquastat with remote bulb tapping and well shall start circulating pump at 40°F.
3. Make: A.O. Smith “Burkay”.

C. HOT WATER STORAGE TANK:

1. ASME rated and approved, appropriately sized for application. Tank shall be cement lined. Vertical style where possible.
2. Make: A.O. Smith.

D. WATER HEATER (ELECTRIC TANK TYPE)

1. Glass lined, 125 psi ASME approved elements storage tank with individually fused. Tank to be provided with low water cutoff as well as high temperature limit and magnesium anodes. ASME Code Construction required by SED for tank. Design Equipment: Rheem, A. O. Smith, State.
2. Provide an appropriately sized thermal expansion tank in cold water line between RPZ and water heater.

VII. KITCHEN

Install all equipment per code and per manufacturer's installation instructions. Design for ease of operation and maintenance.

Shut-offs shall be protected from accidental damage or shut-off, but be readily accessible from the front side without requiring movement of any equipment. After exiting wall cavity, run piping exposed, tight to wall behind equipment. Stub out 3'-0" to shut-off, then transition to flexible hose. All equipment drops on gas lines shall be provided with a pressure tap (test tee). The test tee shall be located after the shut-off and prior to transitioning to flex. Pressure at equipment shall meet manufacturer's requirements. Pressure drop calculations and appliance installation details shall account for pressure drop through flex and connectors. Design documents shall include maximum equivalent pipe length.

A. KITCHEN SPRAYERS AND HOSES

Chicago Faucet Co.

B. GARBAGE DISPOSALS

In sink erator

C. HANDWASHING SINKS

Equip with 4" paddle handles

D. FOOD PREPARATION SINKS

Indirect drains with air-gap as required by code.

E. FLOOR SINKS

Cover portion of floor sinks exposed to foot traffic with grate. Design and locate floor sinks to minimize potential trip hazards but still allow access for maintenance.

F. STEAM OVENS AND STEAM KETTLES

Provide quick disconnect hoses for ease of maintenance.

G. DISHWASHERS

Design and plumb for high temperature machines. Along with ease of operation and maintenance, minimizing water use is a prime consideration when selecting and evaluating new dishwashing equipment.

VIII. WASTE WATER SYSTEMS AND ACCESSORIES

A. MANHOLES

1. Precast reinforced concrete manholes.

1) Manholes, frames and covers shall be designed to withstand a minimum loading of AASHTO H-20 with 30 percent impact and an equivalent soil pressure of 130 lbs. per cu. ft.
2) Waterproofed over the entire exterior surface that will be below grade with "Permaquik". Waterproofing shall be accomplished prior to structure installation for precast sections and prior to backfill for those structures cast-in-place.

3) Precast concrete, with base riser section and separate base slab, or base riser section with integral floor, eccentric cone or flat slab top. Provide with ductile iron steps integrally cast into manhole sidewalls.
4) Frame and Cover: Ductile iron, heavy-duty, indented top design, with lettering cast into top reading "Sanitary" (or) “Storm”. Make: Neenah "R-1780, Flockhart, Syracuse Casting.
5) Makes: Kistner, Lakelands.

B. CATCH BASINS

1. Precast reinforced concrete, flat slab top, base riser section with integral floor.
1) Catch basins shall be waterproofed over the entire exterior surface that will be below grade with "Permaquick".
2) Cast iron hood Neenah #3701. Frame and grate shall be ductile iron, flat, heavy duty.
3) Makes: Kistner, Lakelands.

C. GREASE TRAP

1. Grease trap welded steel with acid resistant coating inside and epoxy coating outside for recessed, semi-recessed or above floor installation. Nonskid frame to be set flush with floor for recessed only. Tapped inlet and outlet with outlet vent connection, removable separator screen and flow regulator filter screen. Removable airtight cover with extension piece to finished floor. Arrange inlet piping to be nonflooded.
2. Make: Rockford.
3. Outside underground concrete grease interceptors should be considered where space allows for proper maintenance.

D. OIL SEPARATOR:

1. Body: Welded steel or cast iron body with nonskid tread plate cover secured with stainless steel bolts, extra heavy leakproof gasket. Acid-resistant coating inside and outside. Removable airtight cover with extension piece to finished floor.
2. Make: Rockford.
3. Outside underground concrete grease interceptors should be considered where space allows for proper maintenance.

E. SOLIDS INTERCEPTOR:

1. White Duco coated cast iron, acid resistant coating inside with aluminum cover and removable stainless screens.
2. Make: Josam, Jay R. Smith #8714, Wade, Zurn.

F. NEUTRALIZING BASIN:

1. Polypropylene basin with bolted cover and inlet baffle and inlet and outlet connections. Provide necessary adapters and/or couplings. Fill basin to fill level with 1 in. to 3 in. diameter limestone aggregate.
2. Make: Orion, Fred Portz, Jr., R&G Sloan.

G. FLOOR DRAINS

1. Type A: Cast iron body with double drainage flange, weepholes, flashing clamp, nickel-bronze, 7 in. diameter strainer; Jay R. Smith Series #2010-A.
1) Provide trap primer option for all areas which may lose trap seal due to evaporation, (e.g. toilet rooms, locker rooms, mechanical rooms).
2. Type B: Same as specified for Type A, except with extended rim (E1) or funnel (E2); Jay R. Smith Series #3510-F37 or #3510-F10.

3. Type C: Same as specified for Type A, except with 17 in. x 5 in strainer; Jay R. Smith Series #2010-N.P.S.
4. Type D: Same as specified for Type A, except with backwater check valve; Jay R. Smith Series #2010-AV.
   1) Provide trap primer option for all areas which may lose trap seal due to evaporation, (e.g. toilet rooms, locker rooms, mechanical rooms).
5. Type E: Cast iron nonclog triple drainage with double drainage flange and weepholes, bottom outlet, round top and heavy duty grate, removable sediment bucket with strainer rim; Jay R. Smith Series #2230.
6. Type F: Cast iron area drain with round top with loose set cast iron grate (Jay R. Smith Series #2110) or side outlet; Jay R. Smith Series #2115.

H. ROOF DRAINS

1. Type A: Epoxy coated cast iron body with round sump and flange, bottom outlet, cast iron removable locking type dome, deck clamp and receiver, cast iron bolted flashing clamp ring integral with V-notched gravel stop with adjustable extension; Jay R. Smith Series #1015.
2. Type B: Cast iron body, scupper drain with flashing clamp, threaded side outlet, removable sloping brass grate.

I. CLEANOUTS

1. Floors: Cast iron body, nickel-bronze top with adjustable feature, bronze plug and flashing clamp where required, carpet marker and tile cover where applicable. Jay R. Smith Series #4028.
2. Walls: Cast iron ferrule, with bronze plug and stainless steel smooth access cover.

1) Horizontal: Jay R. Smith Series #4402.
2) Vertical: Jay R. Smith Series #4531.

X. MOTORS

A. Motors built for 60 Hz. operation, three phase for 1/2 HP and larger, single phase for 1/3 HP and smaller.

B. Comply with NEMA standards.

C. Bearings rated 20,000 life hours.

D. Motors rated 1 HP and larger shall be special design, high efficiency energy saver type with a guaranteed NEMA nominal full-load efficiency by IEEE Standard 112 Test Method B.

XI. ELECTRIC WIRING

A. Provide wiring in accordance with requirements specified in Division 16 - Electric and the National Electrical Code.

XII. PUMPS

A. IN-LINE CENTRIFUGAL PUMP

1. All bronze or stainless steel construction, for use as hot water recirculating pump.
2. Bell & Gossett, Grundfos or Armstrong.

B. SUMP PUMPS

1. Submersible type, cast iron construction. Use for elevator pits.
2. Built-in automatic diaphragm type pressure switch. No floats permitted.
3. Cast iron, fiberglass or concrete basin depending upon application. Cover required in elevator pits.
4. Hydromatic, Myers or Little Giant.

C. SEWAGE EJECTOR (DUPLEX)

1. Each pump shall be provided with a nonoverloading motor. Provide check and gate valve on discharge piping. Connect to main sewer through a wye fitting.
2. Cast iron, fiberglass or concrete basin and cover depending upon application.
3. Factory mounted and wired controller shall operate pumps between predetermined "on-off" hydraulic elevations, alternate each pump automatically and shall sound an audible bell alarm in the event of high water. Controller sensors shall not contain mercury.
4. Shall be constructed of cast iron casing and strainer, bronze impeller, and so no sewage can enter this wet basin before first passing through self-cleaning screen (Flo-thru type).
5. All shafts stainless steel and guided by bronze sleeve bearings, thrust bearings for pump and impeller weight installed above the floor plate, pump casing constructed of cast iron, pump impeller, two vane cast iron type, capable of handling 2 in. solids.
6. Weil "Reverse Flow" Type F, Federal "Fed Flush", Flygt or Deming.

D. WATER BOOSTER PUMPS

1. Packaged system on steel frame complete with necessary valves, fittings, etc. for proper operation. No-flow shutdown feature.
2. Pumps shall be bronze fitted and horizontal mounted.
3. Combination pressure reducing, non-slam check and isolation valves for each pump.
4. Thermal relief valves for each pump.
5. All piping shall be Schedule 40 galvanized type.
6. NEMA 1 control panel with fused disconnects, magnetic starters, control transformer, minimum run timers, current sensing relays, low suction pressure cutout, audio visual alarm, high limit aquastat and high suction pressure switch, UL listed.
7. ASME expansion tank sized for building water demand.
8. Provide flexible connectors on suction and discharge headers.
9. Armstrong, B&G.

XIII. INSULATION

A. Flame spread rating of 25 or less and a smoke develop rating of 50 or less.

B. Asbestos or asbestos bearing materials not permitted.

C. Comply with New York State Energy Code.

D. PIPE INSULATION

1. Fiberglass: Glass fiber insulation 4 # density. Conform with FS HH-I-558B, Form D, Type III, Class 12 and ANSI/ASTM C547; "k" value of 0.24 at 75ºF; non-combustible.

E. JACKET MATERIAL

1. All Purpose Jacket: Vapor barrier type, factory or field applied over fiberglass insulation, comprised of a Kraft paper outer cover bonded to aluminum foil, and reinforced with fiberglass yarn. Jacket material shall be treated for permanent fire and smoke resistance. A vapor barrier jacket seal shall be accomplished with a 1½" longitudinal flap, and 3" wide butt strips, factory supplied, for making circumferential joints.

a) Fire and Smoke Hazard Classification Rating (composite, including jacket and adhesive, ASTM E-84):

(1) Flame Spread: 25 or less.

(2) Smoke Developed: 50 or less.

b) Water Vapor Permeability (ASTM E-96): 0.02 perm.

c) Tensile Strength: 40 lb./in. width.

d) Mullen Burst: 70 psi.

F. NOTES

1. Insulate body of roof drain and conductor piping, horizontal and vertical, down to connection below ground floor slab or in crawl space.

2. Insulate horizontal sanitary runs located above finished ceilings and 12 in. of vertical riser, insulate hubs.

3. Metal Jacketing: Aluminum with transverse closure strip.

4. Plastic Jacketing: (UV resistant for exterior) solvent adhesive welded joints. Provide in high abuse or in exposed areas accessible to students. Pipe shall be insulated on straight sections with calcium silicate up to 8 ft.-0 in. AFF. Elbows and fittings shall remain fiberglass. Cover both fiberglass fittings and calcium silicate with a .030 in. thick PVC jacket. Calcium silicate insulation thickness shall be same as above.

5. Equipment Insulation: Segmented boards, sheets, and blocks.

6. Insulate exposed domestic hot water, cold water and waste piping for plumbing fixtures designated for use by the handicapped.

7. Reinsulate piping and accessories disturbed during renovation projects.

XIIII. PLUMBING IDENTFICATION

A. Comply with ANSI/ASME A13.1.

B. PLASTIC NAMEPLATES

Laminated three-layer plastic with engraved black letters on light contrasting background color. Minimum size 6" x 4". Equal to Seton M0927 Series.

C. BRASS VALVE TAGS

Brass with engraved black letters prefixed with a "Plbg". Tag size minimum 1 1/2" diameter with stainless steel beaded chain to secure to valve.

D. STENCIL PAINTING

Quick drying, no-smearing, gas and oil resistant spray ink manufactured for this type of applications. Minimum information indicating flow direction arrow and fluid or gas being conveyed. Color: Black.

E. PLASTIC PIPE MARKERS

Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or

pipe covering. Color to match system being identified and printed markings indicating flow direction arrow and fluid or gas being conveyed.

F. PLASTIC TAPE PIPE MARKERS

Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings indicating flow direction arrow and fluid or gas being conveyed. Color to match system being identified.

G. SELF-ADHESIVE VINYL LABEL

¾" diameter, blue.

H. DETECTABLE WARNING TAPE

Acid-and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6" wide and 4 mils thick minimum, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep. Provide for outside underground systems as indicated.

1. Tape Colors

Provide tape colors for utilities as follows:

a) Green: Sanitary and storm sewers, drain lines.
b) Blue: Potable water.
c) Purple: Reclaimed water, irrigation and slurry lines.
d) Yellow: Gas, oil, petroleum, steam or gaseous materials.
e) Red: Electric power lines, cables and conduit.
f) Orange: Communication, alarm or signal lines, cables and conduit.

I. PIPING

Identify piping, exposed, concealed and at each access panel in concealed areas, with either plastic tape pipe markers, plastic pipe markers or stenciled painting. Identify service and flow direction. Identify temperature of the hot water system(s). Install in clear view and save where pipelines are located above or below the normal line of vision, the lettering shall be placed below or above the horizontal centerline of the pipe. Locate identification not to exceed 20 feet on straight runs at branches, risers and drops, adjacent to each valve and in each room or space less than 20 feet.

J. Provide valve chart and schedule in aluminum frame with clear plastic shield. Install at location as directed by Owner.

K. Gas piping in boiler rooms shall be painted yellow. Gas vent piping in boiler rooms shall be painted blue.

XV. POOL EQUIPMENT

A. POOL FILTERS

1. Regenerative Media Type:

a) The primary components of the system consist of the main filter tank, flex tube filter elements, element assembly, bump mechanism, vacuum transfer system, sight glass, pressure gauge panel, inspection (viewing) window, valves and automatic filter controller.

2. Neptune Benson "Defender" Series.

B. POOL CONTROLLER SYSTEM

1. Fully automatic integrated electronic system to continuously monitor and control the PH and chlorine residual of pool water.
2. Flow cell assembly with flow switch and visual indicators.
3. Strantrol Impact Aquatic Management System or approved equal.

C. ACID SOLUTION TANKS

1. 50 gallon solution tank complete with cover and stainless steel containment pan.
2. LMI 26350 or approved equal.

D. ACID FEED PUMPS

1. NSF approved.
2. Provide stainless steel shelving and wall brackets for each pump. Secure to wall.
3. Meco-matic Dolphin Model 50, LMI, Stenner.

E. CHLORINATION SYSTEM

1. Chlorine tablet configuration with post filter recirculation loop.
2. Pulsar 3 System.

END OF CHAPTER 22

RCSD Technical Standard
Chapter 23: HVAC

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for heating, ventilation, and air conditioning (HVAC) systems. The information contained herein shall be used by the Project Design Team to develop a sustainable, integrated mechanical, HVAC, and controls system that is economical to maintain and operate and that enhances learning by providing a suitable work environment for staff and students. This document shall be used as part of RCSD's General Design Standards (comprised of the RCSD Design Standards and RCSD Technical Standards).

II. GENERAL

A. ENGINEERING

1. This Technical Standard is a guide the basis of design to the standards of construction quality and performance required by the RCSD. Consultants are required to ensure all projects meet applicable code requirements and modify standards as necessary to make them job specific. The RCSD Design Group Project Manager shall be notified in writing when job specific requirements differ from the design standard.
2. The Engineer shall be responsible for scoping the complete project as defined by the RCSD, verifying construction estimates in the schematic phase and preparing detailed plans and specifications for bidding with add alternates as required to keep the project within the original budget.
3. The Engineer shall hold all Professional Engineering Licenses as required by the State of New York and stamp project completed documents.
4. Life-cycle costing will be the decision-making tool for evaluating new systems and equipment. HVAC systems should be evaluated on a 40-year life-cycle. Replacement cost and equipment life must be based on industry accepted and recognized sources.
5. Energy modeling shall be completed for new school design projects as well as schools with major HVAC upgrades. Small projects may incorporate other ASHRAE approved methods for calculating energy use.

B. GENERAL - CONTRACT

1. The Contractors shall be required apply for and obtain all required permits and inspections, pay all fees and charges.
2. **Code Compliance:**
   1) All work shall comply with the following:
      a) New York State Building Code(s), including Fire Code, Plumbing Code, Mechanical Code, and Fuel Gas Code of New York State.
      b) New York State Education Department Manual of Planning Standards.
      c) New York State Department of Labor Rules and Requirements.
      d) Occupational Safety and Health Administration (OSHA).
      e) City of Rochester Plumbing Department.
      f) New York Board of Fire Underwriters.
      g) Factory Mutual Engineering Corporation (FM).

h) National Fire Protection Association (NFPA).
i) National Electric Code, NFPA 70.
j) New York State Energy Code.
k) ADA Requirements.
l) ANSI A117.1 - "Providing Accessibility for Handicapped".

3. Removal Work:

1) Before designing demolition work the Engineer shall thoroughly review the asbestos management plans on file in the RCSD Design Group office. Any areas which the Engineer suspects may be asbestos, but which are not identified in the management plan shall be brought to the attention of the Design Group. The Design Group will then test the area or direct the Engineer to perform the tests as a reimbursable expense.
2) All items that the RCSD wishes to retain that do not contain asbestos or PCB Material shall be delivered to location directed by the RCSD. Removed thermostats and air compressors shall be turned over to RCSD.

4. Operating and Maintenance Instructions:

1) The specifications shall call for the Contractor to explain the operation and maintenance of the systems to the RCSD Maintenance Group and/or appointed building custodian. Equipment and operating devices shall be clearly labeled so that the equipment can be easily operated correctly. (Provide the Owner with two maintenance manuals including copies of the equipment manufacturers descriptive literature, maintenance and operating instructions. Provide specific written instructions on the operations of the various systems.)
2) The Project Design Team shall provide to the RCSD, as part of all Design Document Submittals, a narrative with detailed descriptions of system features, functionality, limitations, design assumptions, and parameters. The narrative shall be provided as a “deliverable” with the Schematic Design, and shall be updated with each subsequent design delivery including Design Development (DD) and Construction Document (CD) Phases. The narrative shall be detailed enough to provide necessary and beneficial information to future Project Design Teams and shall be written in a manner that is informative and useful to building operations personnel. In its final form, this document shall be incorporated into the first section of the O&M Manuals.

5. Electrical Changes Due to Equipment Substitutions:

1) It shall be the responsibility of all Contractors to transmit <u>all changes</u> of electrical characteristics to the Electrical Contractor, which results from any substitutions of equipment and prior to starting any work. Any and all extra charges by the Electrical Contractor due to these changes are to be paid by the Contractor making the change.

6. Warranties:

1) Provide for all systems, including energy management system, telecommunications system and fire alarm system.
2) The Contractor shall guarantee the systems completely operational and installed as per the specifications and shop drawings at the date of final payment. Submit with the bill for final payment the following signed guarantee.

7. Equipment Arrangements

1) The contract documents are prepared on basis of one manufacturer as "design equipment", even though other manufacturers' names are listed as acceptable makes. If Contractor elects to use one of the listed makes other than "design equipment", submit detailed drawings, indicating proposed installation of equipment. Show maintenance clearances, service removal space required, and other pertinent revisions to the design arrangement. Make required changes in the work of other trades, so there is no increase in any contract. Provide larger motors, feeders, breakers, and equipment, additional control devices, valves, fittings and other miscellaneous equipment required for proper operation, and assume responsibility for proper location of roughing and connections by other trades. Remove and replace door frames, access doors, walls ceiling or floors required to install other than design make equipment. If revised arrangement submittal is rejected, revise and resubmit specified "design equipment" item which conforms to contract documents.

8. Factory Service Via Modem

1) All energy management systems, telecommunication systems, package control systems or any other systems that have a modem and phone line for factory supervision of that system during the warranty period shall have a password security access system. After the warranty period, the RCSD shall be able to change the password and, therefore, not allow factory access into these systems without RCSD approval. RCSD personnel shall be trained on how the security access system works and how to change the password.

9. Record Drawings

1) The Contractor shall obtain at his expense one (1) set of construction Contract Drawings in non-reproducible black and white print and one set of reproducible mylars for the purpose of recording as-built conditions.
2) The Contractor shall perform all survey work required for the location and construction of the work and to record information necessary for completion of the record drawings. Record drawings shall show the actual location of the constructed facilities in the same manner as was shown on the bid drawings. All elevations and dimensions shown on the drawings shall be verified or corrected so as to provide a complete and accurate record of the facilities as constructed.
3) It shall be the responsibility of the Contractor to mark each sheet of the non-reproducible drawings in pencil and to record thereon in a legible manner, any and all approved field changes and conditions as they occur. A complete file of approved field sketches, diagrams, and other changes shall also be maintained. At completion of the work, each sheet of as-built prints, plus all approved field sketches and diagrams shall be used in preparation of the mylar reproducible record drawings.
4) Completed reproducible mylar drawings and one (1) set of prints shall be certified as reflecting as-built conditions and submitted to the Engineer for approval.

C. GENERAL-COORDINATION

1. Continuity of Services: Review required shutdown of mechanical and electrical equipment on services and note in General Conditions. Coordinate scope with the RCSD.
2. Rochester Gas & Electric Coordination: Prepare and submit Rochester Gas & Electric planning forms for additions or modifications to the electric and gas service.
3. Prepare impact statements for submission to RCSD Design Group after submission to SED but prior to project bid.
4. The Engineer shall assume the following parties have reviewed and understand the proposed Scope of Work.
   1) School Principal and Head Custodian.
   2) RCSD Design Group Project Architect and Inspector.
5. It is the responsibility of each Prime Contractor to coordinate its work with its Subcontractors and all other Prime Contractors.

D. TECHNOLOGY CLASSROOMS WITH WOODWORKING EQUIPMENT SHALL HAVE A DUST COLLECTOR. Dust collector shall be located outside.

E. COMMISSIONING

1. Commissioning is required for all HVAC or Controls Capital Improvement Projects. The Commissioning Agent shall be brought on board prior to the beginning of DD for projects that incorporate mechanical and/or control system changes. The Commissioning Agent will be expected to participate in the 100% DD review and the 80% CD review presentations by the Project Design Team. Remodel projects without major system changes may bring the Commissioning Agent at the beginning of CD.
2. The Commissioning Agent is expected to develop specific testing and verification protocols as part of the Project's Commissioning Plan. The testing and verification protocols need to clearly define what is expected of the controls subcontractor so that they will be able to accurately and adequately bid on the Project. A draft of this plan shall be included as part of the Project's Construction Documents at the 50% CD stage and finalized as part of the Bid Documents.

F. ENERGY USE

All HVAC systems shall meet and/or exceed both current ASHRAE 90.1 standards and current New York State Energy Conservation Construction Code. Design goals should provide building energy use that would allow easy qualification as an Energy Star rated building.

G. TRAINING

Provide for training of District and building personnel with additional detailed training for Maintenance staff. Maintenance training shall provide a minimum of the following:

1. Review of complete O&M manuals, including but not limited to, programming and setup of any control systems
2. Training on all required maintenance and troubleshooting
3. Listing of all current factory support contact names and phone numbers

III. CONTROLS

DD. GENERAL

1. RCSD has a School Board resolution stating that all temperature controls to be Andover Controls provided by Day Automation, Victor, New York.
2. The Control Contractor shall provide a sheet at the start of each project notifying the Custodian and RCSD Inspector who is the Control Installer, Start-up Engineer and back-up person with a day phone number, pager number and emergency number.
3. Installation of the RTC phone line for the DDC system will be specified as part of the Control Subcontractor's responsibility. RCSD will pay the monthly charges and submit an authorization letter to allow for line installation. Phone line shall be a dedicated line, not connected to switch.
4. The Engineer shall specify training sessions at start up and after six months for the Custodian. The training scope shall describe what should be covered and will include an overall description of the HVAC system operating and a hands-on trouble shooting session. Training sessions to last a maximum of four (4) hours. Control Contractor to submit a training schedule and notify RCSD Plant Maintenance.
5. The Control Contractor shall hold one general DDC system orientation session at their facility for all school custodians receiving DDC controls that year. The session will be held in the summer and assist the schools in an overall understanding of the systems and servicing of the equipment. Session shall last eight hours. Control Contractor shall submit schedule and notify RCSD Plant Engineering.
6. In general, the priorities for project completion shall be installation of controls on new HVAC systems first and conversion of existing pneumatic control to DDC second. The RCSD Design Group will try to bid DDC to pneumatic conversion projects earlier so this work can take place in the spring and early summer when control work on new HVAC systems is waiting on the Mechanical Contractor.
7. The Control Contractors Start-up Engineer shall be responsible for communicating status of activities and scheduling control work with the Custodian, Principal and Inspector.
8. Pneumatic control devices with a microprocessor based direct digital control system. See the attached generic points list.
9. All existing pneumatic tubing shall be pressure tested prior to connection to a new device. Engineer shall include replacement of air mains air compressor and filter dryer on large renovation projects or after major abatement projects.
10. Dampers: Low leak type. Normally open return air dampers. Normally closed outside air, relief air and exhaust air dampers.
11. Personal Computer Workstation: Computers shall be locked or secured in place. Computers shall only be used for an interface to the energy management system. All workstations and building controllers shall be connected to RCSD Wide Area Network (ETHERNET).
12. On-Line Graphics Generation with Dynamic Point Values and Set Points to include:
    a) All floor plans shown graphically.
       All mechanical equipment controlled by the BAS, including all rooms with space temperature sensor, shall be shown graphically.
    b) System schematic graphic of the following (each graphic shall include

all points related to the system plus the common outside air temperature):
(1) Hot water boilers and pumps.
(2) Unit ventilators.
(3) Ventilation air handling units.

13. Engineer shall perform a thorough punchlist inspection of the project including verification of system interface to the head-end computers at central office and plant maintenance. Engineers shall enforce their specification.
14. All alarms shall call out to the head-end computers at central office and plant maintenance. Alarms shall be received and documented through the printer. Critical Alarms to include loss of pumps, loss of boilers, low temperature in spaces, high make-up water flow or loss of electrical power as well as high temperature alarms in all food service coolers and freezers are to be sent out through the district email server as directed by the Owner.
15. All DDC systems shall be interfaced to the head-end computers at central office and plant maintenance. All graphics available at the school's head-end computer shall be available at the remote head-end computers.
16. On large DDC projects, temperature controls shall be bid as a prime contract. Review with Design Group.
17. All temperature controls shall be installed by the Temperature Control Contractor including all pneumatic tubing and devices.
18. All contract documents shall include a DDC points schedule.
19. Engineer shall review each project situation to determine if electronic systems would be acceptable and make recommendations to the Design Group.
20. Electrically operated control valves shall be spring return type with manual override. Design Basis: Belimo "AF" Series actuators.
21. Electric damper operators shall be spring return type with visual position indicator. Design Basis: Belimo "AF" Series
22. All pumps and fans shall have a confirmed status digital input point.
23. All variable speed drives shall have a bypass status digital input point.
24. Heating coil valves shall be normally open. Cooling coil valves shall be normally closed
25. The DDC system shall not interrupt the ventilation system operation during occupied hours, except under energy saving scheduling functions.
26. Day Automation shall obtain building occupancy schedule from school district.

EE. SEQUENCE OF OPERATIONS:

1. Refer to Appendix A

IV. HVAC SYSTEMS

A. OVERALL SYSTEM SELECTION

1. Central air handling systems are preferred over unit ventilator systems and should be used on all new or major addition projects. When economically feasible, major HVAC renovations shall convert to central AHU systems.

2. Hot water boiler systems shall be used with central air handlers and finned radiation for improved control.
3. Steam boilers shall be used with unit ventilator systems to minimize freeze-up.
4. All equipment shall be located in an accessible location.
5. Rooftop air handling units shall be avoided. Redundancy is desired in heating systems. Full redundancy in each system is not required; however, no single equipment failure should take the building out of its established operating parameters (such as a single boiler or pump).
6. Evaluate use of heat recovery ventilation on all systems larger than 2,000 cfm.
7. Any gas fired unit with a burner rating over 199,000 Btu shall have a fully modulating burner with at least a 4:1 turndown ratio.
8. Air handling units over 5,000 cfm shall have a method for reducing ventilation fan power during light loads (i.e., VFD).
9. Mixed air low limit required for all air handlers (even with gas heat).
10. Areas that regularly have occupancy scheduled outside of the schools operating hours (e.g., summer office hours and auditoriums) shall be identified. Options that minimize energy use shall be evaluated using life-cycle costing.
11. All spaces with year-round cooling demand, such as computer rooms and data centers, shall have their own dedicated system.

B. DATA ROOMS

1. Provide dedicated HVAC system for MDR (main data room) and IDR (intermediate data room) server rooms.
2. Design shall provide cooling to meet anticipated equipment load and maintain temperatures below 80°F on a Design Day.
3. Data room HVAC systems shall be thermostatically controlled with cooling available 24 hours, seven days a week..

C. MOTORS AND VARIABLE FREQUENCY DRIVES (VFD)

1. Motors built for 60 Hz. operation, three phase for 1/2 HP and larger, single phase for 1/3 HP and smaller.
2. Comply with NEMA standards.
3. Bearings rated 20,000 life hours.
4. Motors rated 1 HP and larger shall be special design, high efficiency energy saver type with a guaranteed NEMA nominal full-load efficiency by IEEE Standard 112 Test Method B. Minimum efficiency to meet or exceed NYSERDA rebate requirements.
5. All HVAC fan and pump motors that are 1/6 horsepower and greater shall provide status signal to the building management system through use of a current sensing device to verify that the motor is running.
6. All variable frequency drives (VFD) shall be rated for HVAC service. Mount VFDs on the equipment being controlled (within sight of) and served by the same disconnect as the equipment it serves.
7. Bypasses shall be provided on all VFDs.
8. Factory installed VFDs are acceptable when provided on package equipment if thoroughly covered in manufacturer's service manual and fully covered by the package equipment manufacturer's warranty.

D. HVAC IDENTIFICATION

1. Piping Identification: Snap on, pressure sensitive or stencil paint type. Comply with ANSI A13.1. Directional flow arrows on all piping.
2. Label piping as follows:

Function	Identification
0-15 psi Steam	L.P. Steam
Condensate Return	Cond.
Hot Water Heating Supply	H.W. Supply
Hot Water Heating Return	H.W. Return
Chilled Water Supply	C.W. Supply
Chilled Water Return	C.W. Return
Condenser Water Return	Cond. W.S.
Condenser Water Supply	Cond. W.R.

*NOTE: If glycol solution is used, add a "G" to identification.

3. Provide valve tags and charts for all valves 1" and larger. Design Basis: Seton Style 300.
4. Provide plastic engraved nameplates on all central equipment. Labels shall match DDC system Nomenclature where applicable. Design Basis: Seton#2060-20.
5. Provide ¾" diameter colored stickers placed on ceiling grid to locate above ceiling equipment as follows:
   a) Fire/smoke dampers – RED
   b) VAV Boxes or reheat coils – GREEN
   c) HVAC Valves – ORANGE
   d) Fans – YELLOW
   e) Pumps - BLACK

E. ELECTRIC WIRING

1. Provide wiring in accordance with requirements specified in Division 16 - Electric and the National Electrical Code.
2. Low voltage wiring for DDC systems shall be plenum rated cable.
3. Run in bridle rings when above accessible type ceilings.
4. Run in bridle rings at mechanical room ceilings and in crawl spaces.
5. Concealed in occupied spaces where possible or run in Wiremold when exposed in occupied spaces or EMT conduit where exposed in mechanical rooms from panel or device up to ceiling.

F. EXPANSION COMPENSATION

1. Hot water, chilled water, condenser water systems: Field piped expansion loops or "Metra-Flex" joints.
2. Steam: Field piped expansion loops.
3. Bellows type or mechanical joints on pipe systems are not acceptable except if required in finned radiation covers due to space limitations.

G. ADJUSTING AND BALANCING

1. The Balancing Subcontractor shall be certified by and shall follow procedures and methods published by AABC or NEBB.
2. Test, adjust and record the following air side data:

3. Fan Motors: RPM, BHP, FLA, sheave sizes, shaft diameter, number and size of belt, nameplate data.
4. Fan: CFM, RPM, suction static pressure, discharge static pressure, sheave sizes, shaft data, nameplate data.
5. Air Handling Units in Minimum O.A. and Economizer Mode:
6. Outdoor air cfm, discharge cfm, return cfm, static profile through unit, nameplate data.
7. Unit ventilators: Minimum outside air and total cfm.
8. Coils: Entering air temperature (WB/DB), leaving air temperature (WB/DB), static differential, face velocity, cfm, nameplate data.
9. VAV Boxes: Minimum cfm, maximum cfm.
10. Registers, Grilles and Diffusers: cfm.
11. Test, adjust and record the following water side data:
12. Coils: GPM, EWT, LWT, pressure drop, nameplate data.
13. Pumps: GPM, suction pressure, discharge pressure, amps, motor rpm, nameplate data.
14. Boilers: GPM, EWT, LWT, nameplate data.

H. HVAC INSULATION:

1. Flame spread rating of 25 or less and a smoke develop rating of 50 or less.
2. Comply with New York State Energy Conservation Construction Code.
3. **Piping Insulation**: Material and thickness as follows:

Piping System	Insulating Material	Pipe Size	Insulation Thickness
Hot Water (200^0F and below)	Glass fiber	≥2"	1-1/2"
		≤1-1/2"	1"
Chilled water ($40\text{-}55^0$F)	Glass fiber or Elastomeric	≥2"	1"
		≤1-1/2".....	3/4"
Refrigeration	Glass fiber or Elastomeric	≥2"	1"
		≤1-1/2"	3/4"
Low Pressure Steam and steam condensate	Glass fiber	≥2"	2"
		≤1-1/2"	1-1/2"

a) Low pressure steam, steam condensate, hot water or chilled water in high abuse or exposed in areas accessible to students shall be insulated on straight sections with calcium silicate up to 8'-0" AFF. Elbows and fittings shall be preformed rigid fiberglass. Cover both fiberglass fittings and calcium silicate with a .030" thick PVC jacket. Calcium silicate insulation thickness shall be same as above.
b) Rigid Glass Fiber Pipe Insulation: 4 Lbs./Ft.^{3}, .25 Btu-In./Ft.^{2} Hr. at 75^oF maximum.
c) Calcium Silicate Pipe Insulation: 14.5 Lbs./Ft.^{3}, .42 Btu-In./Ft.^{2} Hr. at 200^oF maximum.

4. **Duct Insulation**:
   a) Minimum of R-5 when located in unconditioned space.

   b) Service, material and thickness as follows:

Service	Material	Thickness
Air conditioning supply and heating supply	Exposed: Rigid fiberglass	1-1/2"
	Concealed: Flexible fiberglass	2”
Air conditioning return in conditioned spaces/plenums	NOT INSULATED	
Ventilation	NOT INSULATED	
Outside air ducts and Plenums	Rigid fiberglass	2"
Exhaust, relief or vent ducts and plenums (1st 15 ft. from exterior opening and plenums)	Exposed: Rigid fiberglass	1-1/2"
	Concealed: Flexible fiberglass	1-1/2"

I. INSTRUMENTATION:

1. **Water Pressure Gauges:**
   a) 4-1/2" diameter face.
   b) Accuracy - 1% of scale range.
   c) Bronze pulsation damper.
   d) Provide on pumps, AHU coils, make-up water, heat exchangers, chillers, cooling tower.
2. **Piping System Thermometers:**
   a) Bimetal dial.
   b) Where maximum temperature is less than 120^{o}F - graduations of 1^{o}F, accurate to within 1/2^{o}F.
   c) Where maximum temperature is greater than 120^{o}F - graduations of 2^{o}F, accurate to within 1^{o}F.
   d) Provide on boilers, AHU coils, heat exchangers, chillers, cooling towers, steam boiler make-up water.
3. **Steam Pressure Gauges:**
   a) 4" diameter face.
   b) Range shall be double normal operating pressure.
   c) Provide on boilers, main steam header, AHU coils.
4. **Pressure/Temperature Test Plugs:**
   a) 1/4" NPT plug with test kit.
   b) Sisco "P/T Plugs".
   c) Provide on duct mounted reheat coil

J. PIPING SCHEDULE

1. Service Size Location Material Hydronic and Chilled Water Systems
   a) Through 2”diameter: All Copper-Type “L” or Better, Soldered Fittings. ProPress fittings allowed where accessible for maintenance
   b) 2-1/2” diameter and larger: Copper-Type “L” or Better, Brazed Fittings or Black Steel w/ Welded or Flanged Fittings Through 2”diameter: All Copper-Type “L” or Better, Soldered Fittings. Grooved fittings allowed where accessible for maintenance.
   c) Two foot maximum length All Flex Connectors, Stainless Steel, or Copper, Two foot maximum length
2. Hot Water, Chilled Water, Condenser Water: Schedule 40, black steel with screwed, welded or grooved rigid mechanical connections.
3. Hot Water, Chilled Water (Optional): Type L copper with soldered or press fit connections.
4. Refrigerant: Type L refrigerant grade copper with brazed connections.
5. Low Pressure Steam: Schedule 40, black steel with welded or flanged connections. Screwed connections are allowed on 2" and smaller and in mechanical rooms.
6. Condensate: Schedule 80, black steel with welded, flanged or screwed fittings.
7. Flexible Connectors:
   a) 3/4" through 2" Size - Acceptable Makes: Keflex "Model KFCB"
   b) 2-1/2" and Larger - Acceptable Makes: Keflex "Model 151-TR-1215"

K. HYDRONIC SPECIALTIES:

1. Expansion Tanks and Accessories - Acceptable Makes: Bladder Type, Steel, 125 psi wwp, ASME construction. Heavy duty butyl rubber removable bladder. Full acceptance vessel.
2. Air Removal Assembly - Acceptable Makes: Bell & Gossett "Rolairtrol"/Taco/Armstrong.
3. Air Eliminating Supply Fitting - Acceptable Makes: Bell & Gossett "Airtrol"/Taco/Armstrong.
4. Flow Balancers:
   a) 3 in. and Smaller – Acceptable Makes: Bell & Gossett "Circuit Setter"/Taco/Armstrong.
   b) 4 in. and Larger – Acceptable Makes: Bell & Gossett "Circuit Sensor"/Taco/Armstrong. Provide globe or plug style valve in conjunction with flow balancer for flow throttling.
5. Provide flow balancers for each piece of hydronic equipment including AHU coils, duct coils, fin radiation, unit ventilators and cabinet unit heaters.
6. Triple Duty Valve – Acceptable Makes: Bell & Gossett "3D"/Taco/Armstrong.

L. PUMPS

1. In-line Centrifugal Pump – Acceptable Makes: Bell & Gossett "Series 60"/Taco/Armstrong.
2. Base Mounted End Suction Pump – Acceptable Makes: Bell & Gossett "1510"/Taco/Armstrong.

3. Provide suction diffuser, triple duty valve and concrete base pad for each base mounted pump.
4. Provide inertia bases and spring type isolators when mechanical rooms are above occupied spaces.

M. STEAM SPECIALTIES

1. Radiation Valve – Acceptable Makes: Hoffman #184.
2. Vacuum Breakers – Acceptable Make: Hoffman #62.
3. Thermostatic Trap (0 to 15 psi operating pressure):
   a) Cast brass body, cap, union nut and nipple. Duplex diaphragm or bellows type. Stainless steel or brass removable seats and valves.
   b) Provide on fin radiation, convectors and equipment under 10 MBH which does not handle outside air.
4. Float and Thermostatic Trap (20 in. vacuum to 15 psi):
   a) Cast iron body with drain tappings. Stainless steel or brass float and renewable seat. Thermostatic bypass.
   b) Provide on AHU coils, unit ventilators and all equipment over 10 MBH or equipment which handles outside air. Provide double traps on AHU coils which handle over 25% outside air.
5. Strainers: Cast iron or steel body. Monel or stainless steel removable screen. Blow-off and plug.

N. VALVE SCHEDULE

1. System Service Valve Type Size Material Hydronic and Chilled Water Systems Shut-Off, Throttling, Drain Ball, Full-Port All Bronze Shut-Off, Throttling Butterfly 3”Ø Or Larger Cast Iron or Bronze Throttling Globe All Bronze
2. Gate Valves (Steam/Condensate Service):
   a) 2-1/2" and Larger: Milwaukee #F-2885A OS&Y flanged. IBBM.
   b) 2" and Smaller: Milwaukee #1152, bronze, solid wedge disc, rising stem, union bonnet. Screwed or solder ends.
3. Globe Valves (Throttling Applications for Steam/Water Service):
   a) 2-1/2" and Larger: IBBT, OS&Y flanged.
   b) 2" and Smaller: Bronze, screwed ends.
4. Check Valves:
   a) 2-1/2" and Larger: IBBT, bolted flanged cap, flanged ends.
   b) 2" and Smaller: Bronze, swing check with soldered or screwed ends.
5. Silent Check Valve: Conbraco "61-500 Series". Always use with condensate or boiler feed pumps.
6. Ball Valves (Chilled Water, Hot Water and Low Pressure Condensate Systems, 2- 1/2" and Under):
   a) Bronze body with type 316 shaft and ball, full porting and adjustable packing gland.
   b) Watts "B6000SS".

7. Butterfly Valves (Chilled Water, Hot Water, Condenser Water 3" and over):
   a) High performance lug style, type 316 stainless steel disc.
   b) 100% bi-directional shutoff at 285 psi.
   c. Water Service - Acceptable Makes: Watts - QF.

8. Gas Valves:
   a) 2-1/2" and Larger: Nordstrom "Fig. #143".
   b) 2" and Smaller - Acceptable Makes: Watts - FBV.

9. Hose Thread Drain Valves:
   a) 1/2" Ball Valve - Acceptable Makes: Watts "B6000CC".
   b) Provide with cap and chain.

10. Liquid or Vacuum Relief Valves - Acceptable Makes: Lunkenheimer "#658".

11. General: All valves shall be concealed and accessible in classrooms. Locate valves within cabinetry or enclosures.

O. SELF-CONTAINED CONTOL VAVES

1. High capacity for steam, C_v=4.6 for 1/2" size. Medium capacity for water, C_v=2.5 for 1/2" size. Brass body with replaceable cartridge. Cartridge replaceable inline, under pressure.

2. Valve mounted control unit with remote mounted sensor equipment.

3. Acceptable Makes: Honeywell Braukmann #V110 with T10A sensor for steam. Honeywell Braukmann #V100 with T100 sensor for hot water.

P. SPLIT SYSTEMS

1. Condensing units on grade are discouraged.

2. All condensing units must be isolated from sight. Noise generated by the condensing unit must be controlled so that sound levels are not increased in instructional areas when the condensing unit is running. Condensing units shall be protected from vandalism.

3. Limit split systems to the following areas:
   a) Review and evaluation based on comparison to single-zone rooftop air handler with economizer.
      (1) Elevator mechanical rooms
      (2) Server rooms
      (3) Electrical rooms
      (4) Retrofit computer labs
      (5) Office portables or modular buildings with multiple zones

4. Gravity feed condensate drains are preferred on all indoor units. If gravity drainage of condensate is not possible, condensate pumps may be utilized.

Q. UNIT VENTILATORS

1. Avoid unit ventilators and Package Terminal Air Conditioning (PTAC) units in new construction. RCSD approval required at beginning of DD.

2. Review and evaluation should be based on comparison to single-zone rooftop air handler with economizer and/or fin tube as appropriate.

3. Unit ventilators shall not be approved for use in new classroom construction.

4. Unit ventilators may be approved for use as replacement for existing univents in remodels and retrofits.

5. Unit ventilators may be approved for use in new construction for corridors and lobbies (compare to fin tube).
6. 16 gauge steel cabinet.
7. Full adapter back outside air intake, provide watertight stainless steel baffle in plenum pitched to outside air intake.
8. Steam: Face and bypass damper control, and control valve for applications where mixed air temperature is below 40^{o}F. All other applications to have valve control only.
9. Hot Water: Control valve.
10. 1" thick 20% efficient pleated filters accessible through return air grille. One (1) start-up set plus one (1) spare set.
11. Unit vent DDC control board shall be located in a separate 12 in. accessory compartment or in a lockable cabinet above the ceiling. Control board location shall be marked on ceiling tile and on asbuilt control drawings.
12. Acceptable Makes: AAF - Herman Nelson "AV" and "AH", Trane

R. RADIATORS:

1. Ratings shall be in accordance with approved IBR test methods.
2. Fin tube radiation (high abuse areas, classrooms, corridors and toilet rooms):
   a) 12 gauge partially perforated steel enclosure. Sloped top.
   b) 0.020" copper tube wall thickness with 020" aluminum fin thickness for hot water. Steel tube with .026" steel fin thickness for steam.
   c) Silent cradle support for element and pipe.
   d) Design Basis: Vulcan "PPS", Sterling, Shaw-Perkins.
3. Fin Tube Radiation (Offices):
   a) 16 gauge furniture steel, sloped top.
   b) 0.020" copper tube wall thickness with 020" aluminum fin thickness for hot water. Steel tube with .026" steel fin thickness for steam.
   c) Silent cradle support for element and pipe.
   d) Acceptable Makes: Vulcan "DS", Sterling, Trane, Rosemex
4. Provide covers for all radiators to prevent student injury.

S. UNIT HEATERS AND CABINET UBNIT HEATERS:

1. Serpentine coil, copper tube, aluminum fins.
2. Cabinet unit heater - 16 gauge steel.
3. Acceptable Makes: Trane "UHS" and "FC", Sterling, Modine, Airtherm.

T. COILS:

1. Hot water and chilled water shall be drainable type, designed for 125 psi.
2. Steam shall be double tube non-freeze type for equipment handling outside air and for unit ventilators.
3. Aluminum fins shall be a minimum of .0075" thick.
4. Brazed return "U" bends, bent tubes not acceptable.
5. Minimum .035" thick copper tubes and "U" bends.
6. Provide stainless steel drip pan under chilled water coils.
7. Coils shall be ARI rated.

U. PACKAGED POOL DEHUMIDIFCATION AND HEAT RECOVERY UNIT:

1. Pools shall be conditioned using packaged pool dehumidification units with air to air heat exchange capability. Design shall incorporate diffusers for direct air movement over glass surfaces and minimize air movement over pool surface.
2. Provide variable speed supply and exhaust fans. Filters shall be minimum 2" thick, 30% efficient pleated filters.
3. Unit shall be capable of providing outside air equal to .5 cfm/sq. ft. of pool and deck area.
4. Pool environment shall be designed for pool air at 80-85ºF (55 to 60% RH) and pool water at 80-85ºF. Exact conditions to be verified with building occupants.
5. Air to air heat exchange shall be accomplished with a heat pipe.
6. Unit housing and fans shall be aluminum.
7. Provide auxiliary hot water/steam coil in unit.
8. Unit control panel shall be interfaced with building DDC system for alarms, adjusting setpoints and reading/monitoring sensors.
9. Acceptable Makes: Efficient Air Systems, Inc.

V. EXHAUST FANS

1. Kiln Rooms Kilns shall not be located in conditioned space. Provide adequate ventilation to maintain space temperature at or below 80°F while the kiln is being fired with the kiln room door closed. Kiln room ventilation shall be designed with high exhaust and low make-up air intake. Exhaust fan shall be brought on at 80°F regardless of building HVAC schedules.
2. Restrooms Exhaust fans for single stall restrooms shall be controlled by the lighting occupancy sensors. Multiple stall restrooms shall have exhaust fans controlled through the building management system (BMS). The exhaust fan operation shall be scheduled to start and stop with the HVAC for that portion of the building. The exhaust fan shall be capable of being scheduled or overridden to operate independent of the HVAC systems operation.
3. All fans shall be AMCA rated.
4. Ceiling Exhaust Fans – Acceptable Makes:
Cook
Gemini or approved equal manufactured by Cook
Greenheck
Carnes
Acme
Penn
5. Rooftop Exhaust Fans – Acceptable Makes
ACE or approved equal manufactured by Penn
Carnes
Greenheck
Acme
6. Replace fan bearings with roller type when motors on original ventilation fans are replaced or fan RPM is increased: Acceptable Makes: Browning “22,5000 Series.”

W. DUCTWORK AND DUCTWORK ACCESSORIES

1. Compliance with SMACNA and NFPA.

2. Supply, Return, Relief and Exhaust: Galvanized steel ASTM 525 construction. All ductwork constructed to a minimum of SMACNA 2" pressure standard, higher ratings as required by job.
3. Exposed painted: Galvanealed.
4. Pool and Shower Room Areas: Aluminum construction.
5. Outdoor Exposed Round Double Wall: Galvanized steel with 4 mil PVS finish.
6. Install filter media over supply grilles prior to starting fan. Run fan for two days. Remove filter media. This work shall occur during a weekend or when the school is unoccupied.
7. Ductwork shall be installed to current industry recommended standards.
8. Flexible Duct: Flexible duct shall be limited to a maximum length of 5'-0".
9. Duct Board: Duct board shall not be used on new installations. During renovation projects where the ductwork being modified is duct board, removal and replacement of the duct board is required in effected area.

X. FIRE AND SMOKE DAMPERS

1. Compliance with New York State Building Code and NFPA, and UL listed.
2. Fire dampers:
   a) Curtain type, galvanized steel.
   b) 80% free area for velocities up to 1500 FPM.
   c) 100% free area for velocities above 1500 FPM.
3. Acceptable Makes:
   Ruskin
   IBD2 or approved equal
   Nailor
   NCA
   Greenheck
   Prefco
4. Smoke Dampers:
   a) Multi-blade type, galvanized steel or aluminum.
   b) Use airfoil type blade for duct velocities above 2000 FPM.
   c) Acceptable Makes: Ruskin "SD-50", Prefco, Nailor, NCA, Greenheck.

W. VARIABLE AIR VOLUME TERMINAL UNIT:

1. 22 gauge galvanized steel casing with 1/2" fiberglass internal insulation.
2. Tight shutoff (2% leakage) internal damper.
3. Averaging type multiple sampling point sensor, on cross grids.
4. Acceptable Makes:
   Titus "ESV-3000"
   Carnes
   Price
   Tuttle & Bailey
   Trane

Z. REGISTERS AND DIFFUSERS:

1. Exhaust and Return Grilles – Acceptable Makes:
Titus "355-RL" or "23-RL"
Carnes
Price
Anemostat
Tuttle & Bailey

2. Heavy Duty Exhaust and Return Grilles – Acceptable Makes:
Titus "33-RL"
Carnes
Price
Anemostat
Tuttle & Bailey.

3. Supply Air Register – Acceptable Makes:
Titus "272-FL"
Carnes
Price
Anemostat
Tuttle & Bailey

4. Supply Air Smooth Face Diffuser – Acceptable Makes:
Titus "Omni"
Carnes
Price
Anemostat
Tuttle & Bailey

5. Supply Air Square Face Diffuser – Acceptable Makes:
Titus "TMS"
Carnes
Price
Anemostat
Tuttle & Bailey

6. Cabinet Top Linear Bar Grilles – Acceptable Makes: Diffuser "CT-PP-O"
Carnes
Price
Anemostat
Tuttle & Bailey
Anodized finish only, painting is not acceptable.

AA LOUVERS AND PENTHOUSES:

1. Louvers:
a) Extruded aluminum .125" minimum thickness.
b) Acceptable Makes: Construction specialties "4130" and "6130", Arrow, Industrial Louvers, Vent Products, Greenheck.

2. Louvered Penthouse:
a) Extruded heavy gauge aluminum.
b) Acceptable Makes: Penn ventilator "Penn House" or approved equal manufactured by Carnes, Cook, Industrial Louvers, Vent Products.

3. Non-Louvered Penthouse:
a) Heavy gauge aluminum construction.

b) Acceptable Makes: Penn ventilator "Airette" or approved equal manufactured by Carnes, Cook.

4. Provide drains in outside air intake plenums

BB. AIR FILTERS

Air filters are required on all air handlers. MERV 8 (Farr 30/30), 2” pleated high efficiency filters or better required.

V. CENTRAL PLANTS

A. BOILERS

1. General Requirements (Applies to New Construction and Renovation Projects): Natural gas fired only. Boiler Systems must be capable of stand-alone operation. No domestic hot water (DHW) on heating boiler systems. Fully redundant pumping systems. Hydronic heating systems are preferred. Chemical water treatment required for all heating boilers.

2. New construction: Condensing boilers with variable flow hot water distribution systems are preferred. Central pump with VFD and full redundancy is required.

3. Heating Boilers: Fully modulating burner control with a minimum 4:1 turndown ratio. For systems without rooftop gas packs, boiler plants should be designed N+1 to provide redundancy. Systems using condensing boilers should be designed around the manufacturer’s recommendations to provide the best life-cycle cost. Steam boilers will not be installed in new heating distribution systems. Condensate treatment required for all condensing boilers. Control panels on Condensing boilers must be integrated into the BAS system. Sequencing controllers shall only be used for installation with multiple boilers. Multiple boilers shall have a manufacturer’s approved sequencing panel with dedicated outside air sensor for stand-alone operation. Single boilers will have onboard modulating control. Boiler controls and sequence of operation require Owner approval no later than 100% Design Development (DD).

4. Cast iron sectional type boilers (steam and hot water):

5. General:

a) Forced draft flame retention power burner, capable of burning No. 2 fuel oil and 1,000 BTU natural gas at available pressure. Equal to Gordon-Piatt or Power Flame

b) IBR tested and approved.

c) Fully modulating gas burner control.

d) Microprocessor based burner control system similar to "Honeywell 7800".

e) Acceptable Makes:

(1) H.B. Smith Model "28A", Weil-McLain, Burnham as base bid.

(2) H.B. Smith Model 3500/4500 "Header" type boilers as an add alternate.

6. Hot water boilers for systems with central air handling systems and perimeter radiation.

a) Provide primary pumps to circulate water through boilers with secondary pumping loop to building systems.

b) Boiler primary loop scheduled for 140^{o}F to 200^{o}F.

c) Building secondary loop scheduled as required, subject to 40^{o}F temperature difference across the boilers.

d) Steam boilers for systems with unit ventilators.

e) Multiple modular hot water boilers for “tight” Boiler Rooms: RBI – Futura II.

7. Fireye burner/Logix ZB11OUV/1R with modbus on boilers up to 125 HP.

8. Fireye Nexus with modbus on boilers 150 HP and larger.

9. Steam boilers to have a water softener on makeup water.

10. Steam boiler chemical treatment system to include: conductivity controller, auto blow-down, pulse meter on makeup water, 5 gallon bulk storage for oxygen scavenger and chemical treatment, and interface to DDC system.

11. PREFABRICATED CHIMNEY (BOILER SERVICE):

a) Designed to handle negative, neutral or positive internal pressures.

b) Suitable for No. 2 oil and/or natural gas burners.

c) Double wall construction with minimum 1" air space between walls, type 316 stainless steel for inner jacket (.035" thick for 6"-36" and .048" thick for 42"-48"),type 316 stainless steel for outer jacket exposed to weather, aluminized coated steel indoors (.025" thick for 6-24" and .034" thick for 28"-48").

d) Acceptable Makes: Metalbestos Model "PS", Van Packer, Stacks, Inc.

B. DOMESTIC HOT WATER HEATERS:

1. Central system in boiler room vs. distributed system shall be determined by site-specific comparison. Comparison should be based on life-cycle costing. Specific retrofit and remodeling application may require life-cycle comparison of electric vs. natural gas vs. tankless demand.

2. District preferred systems: Commercial 199,000 Btu high-efficiency natural gas water heaters with a 90+ rating, or condensing hot water boiler with storage tank. For large systems provide life-cycle cost comparison of multiple 199,000 Btu water heaters vs. single condensing boiler with storage tank.

C. CHILLERS:

1. Life-cycle costing should be used for system comparisons if chilled water systems are being considered as an option during design. Only use chillers if it is determined to be cost effective through life-cycle costing. Comparison should include Direct Expansion (DX) (as baseline) vs. Air Cooled Chiller vs. Water Cooled Chiller vs. Chiller with Water-Side Economizer. No chilled water systems in buildings with a cooling requirement under 100 tons. Select chillers to achieve best part load efficiency primarily with full load efficiency in accordance with reference standards.
2. Chiller installation shall meet the requirements of ASHRAE Standard 15-1994.
3. Air cooled rooftop chillers shall have a service platform for easy access to control panel.
4. Centrifugal chillers hall have re-seatable Rupture disks.
5. Acceptable Make: Trane.

D. AIR HANDLING UNITS:

1. Double wall casing construction with 1-1/2 Lb./Ft.^{3} density insulation.
2. Two inch pleated type, 30% efficient, filters minimum. Units over 10,000 cfm shall have 65% bag or box final filters. One (1) start-up set plus one (1) spare set.
3. Outside air dampers shall be low-leak type.
4. Acceptable Makes: Trane "Modular Climate Changer", Carrier, York, McQuay.

VI. Appendices

Appendix A SEQUENCES OF OPERATION

Summary: The following includes control sequences for HVAC systems, subsystems, and equipment.

1. All sequences of operations shall meet ASHRAE 62 and New York State Mechanical Code ventilation requirements. In occupied classrooms 15 CFM of outside air per occupant will be maintained at all times.
2. All ventilation fan shall be operating during occupied times.
3. DDC Unit Ventilator With New Occupancy Sensor (Sequence Of Operations #1)

a) General Information

(1) The unit contains mixing dampers consisting of two, reciprocally acting blades, which are normally open to return air, and normally closed to outside air. One pneumatic actuator controls the dampers.

(2) The supply fan is wired normally open at the control relay and fails off.

(3) The unit contains one hot water or steam coil. The unit's capacity is controlled by a hot or steam water valve or a face and bypass damper.

4. Control cycle to follow ASHRAE Cycle II Standard.

a) Safety Interlocks

(1) The supply fan shall be commanded off upon activation of any of the following software safeties:

b) System failure alarm trips.

c) Loss of power to the unit.

5. The pneumatic signal to the mixing damper actuator passes through the normally closed port of an EP wired in parallel with the supply fan motor; preventing the mixing dampers from opening when the supply fan is off.

6. If the mixed air temperature falls below 45ºF, provide a general alarm at the building operators workstation. If the mixed air temperature falls below 40ºF, provide a critical alarm at the districts plant maintenance work station. At no time during the occupied mode shall the outside air damper close.

a) Alarms

(1) Supply fan fails to run after 30 seconds of being commanded on.

(2) Supply fan fails to stop after 30 seconds of being commanded off.

(3) Space temperature is more than 5º below heating setpoint for greater than 5 minutes.

(4) Space temperature is more than 5º above cooling setpoint for greater than 5 minutes.

(5) Software safety trip.

(6) Software safety lockout (4 safety trips in 3 hours).

(7) Mixed air temperature below 45º when unit is unoccupied.

7. Common Mode Control

a) Occupied heating setpoint, unoccupied heating set-point, unoccupied cooling set-point, and purge enable/disable shall be global and fully adjustable from any interface.

b) Each unit will have an occupied heating set-point bias that will be capped at +/-4º. Each unit will have an occupied heating/cooling set-point dead band that will be capped at 2º and 10º. Both bias and dead band will be adjustable from any interface.

c) Each unit will have a stagger start number that will keep too many units from starting at the same time, in effect, flattening load peaks.

d) Each unit will have a software HOA for control of the supply fan.

8. Unoccupied Mode Control

a) The supply fan shall be turned off.

b) If the space temperature drops 1ºF below the unoccupied heating setpoint, the supply fan shall be commanded on, the mixing dampers shall remain closed, and the heating valve shall modulate open. When the space temperature rises 1ºF above the unoccupied heating setpoint, the supply fan shall be commanded off.

c) If the mixed air temperature drops below 45º the supply fan shall be commanded on and the heating valve shall go to full open for the remainder of the unoccupied period and an alarm will be generated at the operator interface.

9. Unoccupied Mode Control From Occupancy Sensor

a) During the scheduled occupied mode, when the space is unoccupied as sensed by the room occupancy sensor, the damper will be closed to outside air.

b) The space temperature set-point shall be reset to 2ºF (adj.) lower than the occupied set-point.

c. The supply fan will cycle on and off to maintain the space temperature set-point. If the space temperature drops 1º below the reset heating set-point, the supply fan shall be commanded on, the mixing damper shall remain closed, and the heating valve shall modulate open. When the space temperature rises 1º above the reset heating setpoint, the supply fan shall be commanded off.

d. If the mixed air temperature drops below 45º the supply fan shall be commanded on and heating valve shall remain open for the remainder of this period and an alarm will be generated at the operators interface.

e. When the space is occupied as sensed by the room occupancy sensor, the sequence will be indexed to the occupied mode.

10. Purge Mode Control

a) Purge mode (fresh air changeover) shall only be permitted during an unoccupied period.

b) If the outside air is between 45º and 60º and the space temperature rises above 75º, the supply fan shall be commanded on, the mixing dampers shall be fully open, and the heating coil shall be fully closed. When the space temperature drops to 70º, the supply fan shall be commanded off and the mixing dampers shall return to the normal position.

11. Warm-Up Mode Control

a) Optimum start duration shall be determined based on outside air temperature.

b) During the optimum start period, the heating set-point will be linearly ramped up from unoccupied heating set-point to occupied heating set-point.

c) When the heating setpoint crosses above the space temperature, the supply fan will be commanded on, the mixing dampers shall remain closed, and the heating valve will modulate to maintain heating setpoint.

12. Cool-Down Mode Control

a) Optimum start duration shall be determined based on outside air temperature.

b) During the optimum start period, the cooling setpoint will be linearly ramped down from unoccupied cooling setpoint to occupied cooling set-point.

c) When the cooling setpoint crosses below the space temperature, the supply fan will be commanded on, the mixing dampers shall modulate to maintain cooling setpoint.

13. Occupied Mode Control

a) The supply fan will run continuously.

b) The mixing dampers will maintain minimum ventilation requirements.

c) The mixing dampers will modulate when economizer cooling is

available to maintain cooling set-point.

d) The heating valve will modulate to maintain heating set-point.

e) The discharge air temperature will be limited to the following low discharge air reset schedule:

Outside Air Temperature	Discharge Air Draft Limit
0º F	65ºF
55º	55º

This will prevent drafting and cycling of the discharge air temperature.

f) Unit Ventilator To DDC With New Occupancy Sensor (Sequence Of Operations #2)

14. General Information

a) The unit contains mixing dampers consisting of two, reciprocally acting blades, which are normally open to return air, and normally closed to outside air. One pneumatic actuator controls the dampers.

b) The supply fan is wired normally open at the control relay and fails off.

c) The unit contains one hot water coil. The unit's capacity is controlled by a hot water valve.

d) Control cycle to follow ASHRAE Cycle II Standard.

15. Safety Interlocks

a) The supply fan shall be commanded off upon activation of any of the following software safeties:

b) System fire alarm trips.

c) Loss of power to the unit.

(1) The pneumatic signal the mixing damper actuator passes through the normally closed port of an EP wired in parallel with the supply fan motor; preventing the mixing dampers from opening when the supply fan is off.

(2) If the mixed air temperature falls below 45ºF, provide a general alarm at the building operators workstation. If the mixed air temperature falls below 40ºF, provide a critical alarm at the district's plant maintenance workstation. At no time during the occupied mode shall the outside air damper close.

16. Alarms

a) Supply fan fails to run after 30 seconds of being commanded on.

b) Supply fan fails to stop after 30 seconds of being commanded off.

c) Space temperature is more than 5º below heating setpoint for greater than 5 minutes.

d) Space temperature is more than 5º above cooling setpoint for greater than 5 minutes.

e) Software safety trip.

f) Software safety lockout (4 safety trips in 3 hours).

g) Mixed air temperature below 45º when unit is unoccupied.

17. Common Mode Control

a) Occupied heating setpoint, unoccupied heating set-point, unoccupied cooling set-point, and purge enable/disable shall be global and fully adjustable from any interface.
b) Each unit will have an occupied heating set-point bias that will be capped at +/-4º. Each unit will have an occupied heating/cooling set-point dead band that will be capped at 2º and 10º. Both bias and dead band will be adjustable from any interface.
c) Each unit will have a stagger number that will keep too many units from starting at the same time, in effect, flattening load peaks.
d) Each unit will have a software HOA for control of the supply fan.

18. Unoccupied Mode Control From DDC System

a) The supply fan shall be turned off.
b) If the space temperature drops 1ºF below the unoccupied heating setpoint, the supply fan shall be commanded on, the mixing dampers shall remain closed, and the heating valve shall modulate open. When the space temperature raises 1ºF above the unoccupied heating setpoint, the supply fan shall be commanded off.
c) If the mixed air temperature drops below 45º the supply fan shall be commanded on and the heating valve shall go to full open for the remainder of the unoccupied period and an alarm will be generated at the operator's interface.

19. Unoccupied Mode Control From Occupancy Sensor

a) During the scheduled occupied mode, when the space is unoccupied as sensed by the room occupancy sensor, the damper will be closed to outside air.
b) The space temperature set-point shall be reset to 2ºF (adj.) lower than the occupied set-point.
c) The supply fan will cycle on and off to maintain the space temperature set-point. If the space temperature drops 1ºF below the reset heating set-point, the supply fan shall be commanded on, the mixing damper shall remain closed, and the heating valve shall modulate open. When the space temperature raises 1ºF above the reset heating setpoint, the supply fan shall be commanded off.
d. If the mixed air temperature drops below 45º the supply fan shall be commanded on and heating valve shall remain open for the remainder of this period and an alarm will be generated at the operators interface.
e. When the space is occupied as sensed by the room occupancy sensor, the sequence will be indexed to the occupied mode.

20. Purge Mode Control

a) Purge mode (fresh air changeover) shall only be permitted during an unoccupied period.
b) If the outside air is between 45º and 60º and the space temperature rises above 75º, the supply fan shall be commanded on, the mixing dampers shall be fully open, and the heating coil damper shall be fully closed. When the space temperature drops to 70º, the supply fan shall be commanded off and the mixing dampers shall return to the normal position.

21. Warm-Up Mode Control

a) Optimum start duration shall be determined based on outside air temperature.

b) During the optimum start period, the heating set-point will be linearly ramped up from unoccupied heating set-point to occupied heating set-point.

c) When the heating setpoint crosses above the space temperature, the supply fan will be commanded on, the mixing dampers shall remain closed, and the heating valve will modulate to maintain heating setpoint.

22. Cool-Down Mode Control

a) Optimum start duration shall be determined based on outside air temperature.

b) During the optimum start period, the cooling setpoint will be linearly ramped down from unoccupied cooling setpoint to occupied cooling set-point.

c) When the cooling setpoint crosses below the space temperature, the supply fan will be commanded on, the mixing dampers shall modulate to maintain cooling setpoint.

23. Occupied Mode Control

a) The supply fan will run continuously.

b) The mixing dampers will maintain ventilation requirements.

c) The mixing dampers will modulate when economizer cooling is available to maintain cooling set-point.

d) The heating valve will modulate to maintain heating set-point.

e) The discharge air temperature will be limited to the following low discharge air reset schedule:

Outside Air Temperature	Discharge Air Draft Limit
0º F	65ºF
55ºF	55ºF

This will prevent drafting and cycling of the discharge air temperature.

f) Typical Fan Coil Unit With Occupancy Sensor (Sequence Of Operations #3)

23. Fan Coil Units With Outside Air Only

a) The DDC system seven-day time clock shall provide occupied/unoccupied scheduling of the fan coil units.

b) During occupied mode, the fan shall run continuously. The space sensor will modulate outside and return air dampers, subject to a 55ºF discharge low limit, in sequence with the heating control valve to maintain its setting according to ASHRAE Cycle #2. The discharge high limit temperature setpoint shall be set at 125ºF and generate an alarm to the operator work station. The sensor shall intermittently start and stop the fan and open the heating control valve.

24. Unoccupied Mode Control From Occupancy Sensor

a) During the scheduled occupied mode, when the space is unoccupied

as sensed by the room occupancy sensor, the damper will be closed to outside air.

b) The space temperature set-point shall be reset to 2ºF (adj.) lower than the occupied set-point.

c) The supply fan will cycle on and off to maintain the space temperature set-point. If the space temperature drops 1ºF below the reset heating set-point, the supply fan shall be commanded on, the mixing damper shall remain closed, and the hot water valve shall modulate open. When the space temperature rises 1ºF above the reset heating setpoint, the supply fan shall be commanded off.

d) If the mixed air temperature drops below 45º the supply fan shall be commanded on and hot water valve shall remain open for the remainder of this period and an alarm will be generated at the operators interface.

e) When the space is occupied as sensed by the room occupancy sensor, the sequence will be indexed to the occupied mode.

25. Typical Air Handling Unit To DDC (Sequence Of Operations #4)

a) Constant Volume Air Handling Units

(1) Air handling unit is a constant volume heating unit. Unit operates in occupied/unoccupied modes as determined by the DDC building time clock system.

(2) Occupied Mode: The time clock shall instruct the supply fan to run continuously. Outside air damper shall open to its minimum position. Units shall operate through dry bulb comparison economizer to provide continuous 65º DB (adjustable) supply air temperature when required. The DDC system shall compare the dry bulb temperature of the outside air with the dry bulb temperature of the return air. If the outside air temperature is less than the return air temperature, the outside air and return air dampers shall modulate to provide 65º supply air temperature. If supply air temperature cannot be maintained and become lower than required due to minimum outside air qualities then system shall full modulate the normally open to coil three-way heating coil control valve to provide the supply air temperature required. In addition, the heating coil control valve shall modulate further as necessary to satisfy the space sensor, subject to a high limit of 100ºF discharge air temperature.

(3) Unoccupied Mode: Supply fan shall be shut off. Return air dampers shall be full open and outside air dampers shall be fully closed. The heating coil and fan shall cycle to maintain 60ºF unoccupied space temperature setpoint.

(4) Fire Mode: Upon a fire alarm condition as reported by the fire alarm panel, the air handling unit's supply fan shall be off, heating coil control valve shall be full bypass outside air damper fully closed. If the fire alarm is cancelled, the air-handling unit shall be instructed to return to normal occupied/unoccupied modes.

(5) Smoke Detection Within The Air Handling Units: The air handling unit shall turn off and the outside air damper shall close upon a detection of smoke by a smoke detector located in the supply air duct and provided/installed by the Electrical Contractor.

(6) Freezstat Control: A low temperature sensor mounted downstream and sensing full face of heating coil shall, upon detecting a temperature of 37ºF or less, turn off the supply fan, open the hot water control valve to the heating coil fully. Close the outside air damper fully, and open the return air damper fully. Air handling unit will not be allowed to return to non-freezestat, normal conditions unit alarm is acknowledged by manual reset at the AHU.

26. Typical Air Handling Unit To DDC (Retrofit) (Sequence Of Operations #5)

a) Constant Volume Air Handling Units

b) Air handling unit is a constant volume hot water heating unit. Unit operates in occupied/unoccupied modes as determined by the DDC building time clock system.

c) Occupied Mode: The time clock shall instruct the supply fan to run continuously. Outside air damper shall open to its minimum position. Units shall operate through dry bulb comparison economizer to provide continuous 65º DB (adjustable) supply air temperature when required. The DDC system shall compare the dry bulb temperature of the outside air with the dry bulb temperature of the return air. If the outside air temperature is less than the return air temperature, the outside air and return air dampers shall modulate to provide 65º supply air temperature. If supply air temperature cannot be maintained and become lower than required due to minimum outside air qualities, then system shall full modulate the normally open to coil three-way heating coil control valve to provide the supply air temperature required. In addition, the heating coil control valve shall modulate further as necessary to satisfy the space sensor, subject to a high limit of 100ºF discharge air temperature.

d) Unoccupied Mode: Supply fan shall be shut off. Return air dampers shall be full open and outside air dampers shall be fully closed. The heating coil and fan shall cycle to maintain 60ºF unoccupied space temperature setpoint.

e) Fire Mode: Upon a fire alarm condition as reported by the fire panel, the air handling unit's supply fan shall be off, heating coil control valve shall be full bypass, outside air damper fully closed. If the fire alarm is cancelled, the air-handling unit shall be instructed to return to normal occupied/unoccupied modes.

e. Smoke Detection Within The Air Handling Units: The air handling unit shall turn off and the outside air damper shall close upon a detection of smoke by a smoke detector located in the supply air duct and provided/installed by the Electrical Contractor.

f. Freezestat Control: A low temperature sensor mounted downstream and sensing full face of heating coil shall, upon detecting a temperature of 37ºF or less, turn off the supply fan, open the hot water control valve to the heating coil fully. Close the outside air damper fully, and open the return air damper fully. Air handling unit will not be allowed to return to non-freezestat, normal conditions unit alarm is acknowledged by manual reset at the AHU.

27. DDC Air Handling Unit With CO^2 Sensor (Sequence Of Operations #6)

a) Single Zone, Constant Volume Air Handling Units Only (Serving Non-Classroom Areas)

(1) Air handling unit is a constant volume hot water heating unit. Unit operates in occupied/unoccupied modes as determined by the DDC building time clock system.

b) Occupied Mode

(1) The time clock shall instruct the supply fan to run continuously. Outside air damper shall open to its minimum position. Units shall operate through dry bulb comparison economizer to provide continuous 65° DB (adjustable) supply air temperature when required. The DDC system shall compare the dry bulb temperature of the outside air with the dry bulb temperature of the return air. If the outside air temperature is less than the return air temperature, the outside air and return dampers shall modulate to provide 65º supply air temperature. If the supply air temperature cannot be maintained and become lower than required due to minimum outside air quantities, then system shall full modulate the normally open coil three-way heating coil control valve to provide the supply air temperature required. In addition, the heating coil control valve shall modulate further as necessary to satisfy the space sensor, subject to a high limit of 100ºF discharge air temperature.

c) Unoccupied Mode

(1) Supply fan shall be shut off. Return air dampers shall be full open and outside air dampers shall be fully closed. The heating coil and fan shall cycle to maintain 60ºF unoccupied space temperature setpoint.

d) Fire Mode

(1) Upon a fire alarm condition as reported by the fire alarm panel, the air handling unit's supply fan shall be off, heating coil control valve shall be full bypass, outside air damper fully closed. If the fire alarm is cancelled, the air handling unit shall be instructed to return to normal /unoccupied modes.

e) Smoke detection within the Air Handling Units

(1) The air handling unit shall turn off and the outside air damper shall close upon a detection of smoke by a smoke detector located in the supply air duct and provided/installed by the Electrical Contractor.

f) Freezestat Control

(1) A low temperature sensor mounted downstream and sensing full face of heating coil shall upon detecting a temperature of 73ºF or less, turn off the supply fan, open the hot water control valve to the heating coil fully. Close the outside air damper fully, and open the return air damper fully. Air handling unit will not be allowed to return to non-freezestat, normal conditions unit alarm is acknowledged by manual reset at the AHU.

g. Ventilation Control Based CO2 Level in Space

(1) During occupied periods, the minimum outside air damper position or fan speed (for 100% OA units) shall be determined based on schedule occupancy through the DDC system. The scheduled occupancy schedules will be user adjustable. A return air CO^2

sensor will initiate an alarm back to the DDC system if the measured CO^2 level in the space is greater than 900 ppm. If acceptable, exhaust fans or relief dampers will be staged based on the position of the outside air damper. Mixed air low limit and economizer sequences will remain in place. During unoccupied periods, the outside air damper will remain in the closed position.

28. DDC Air Handling Unit With New Occupancy Sensor (Sequence Of Operations #7)

a) Single Zone, Constant Volume Air Handling Units

(1) Air handling unit is a constant volume hot water heating unit. Unit operates in occupied/unoccupied modes as determined by the DDC building time clock system.

b) Occupied Mode

(1) The time clock shall instruct the supply fan to run continuously. Outside air damper shall open to its minimum position. Units shall operate through dry bulb comparison economizer to provide continuous 65° DB (adjustable) supply air temperature when required. The DDC system shall compare the dry bulb temperature of the outside air with the dry bulb temperature of the return air. If the outside air temperature is less than the return air temperature, the outside air and return dampers shall modulate to provide 65º supply air temperature. If the supply air temperature cannot be maintained and become lower than required due to minimum outside air quantities, then system shall full modulate the normally open coil three-way heating coil control valve to provide the supply air temperature required. In addition, the heating coil control valve shall modulate further as necessary to satisfy the space sensor, subject to a high limit of 100ºF discharge air temperature.

(2) When the room is unoccupied as sensed by the room occupancy sensor, the outside air damper will be closed or the fan speed will be reduced to 60% (adj.). Minimum ventilation rate will always be supplied to the space when the room is occupied.

(3) If applicable, exhaust fans or relief dampers will be staged based on the outside air damper position of the air handling unit.

c) Unoccupied Mode

(1) Supply fan shall be shut off. Return air dampers shall be full open and outside air dampers shall be fully closed. The heating coil and fan shall cycle to maintain 60ºF unoccupied space temperature setpoint.

d) Fire Mode

(1) Upon a fire alarm condition as reported by the fire alarm panel, the air handling unit's supply fan shall be off, heating coil control valve shall be full bypass, outside air damper fully closed. If the fire alarm is cancelled, the air-handling unit shall be instructed to return to normal occupied/ unoccupied modes.

e) Smoke Detection Within The Air Handling Units

(1) The air handling unit shall turn off and the outside air damper shall close upon a detection of smoke by a smoke detector located in the supply air duct and provided/installed by the Electrical Contractor.

f) Freezestat Control

(1) A low temperature sensor mounted downstream and sensing full face of heating coil shall, upon detecting a temperature of 37ºF or less, turn off the supply fan, open the hot water control valve to the heating coil fully. Close the outside air damper fully, and open the return air damper fully. Air handling unit will not be allowed to return to non-freezestat, normal conditions unit alarm is acknowledged by manual reset at the AHU.

29. DDC VAV Box Unit With Heating Coil And New Occupancy Sensor (Sequence Of Operations #8)

a) General Information

(1) VAV boxes are served from AHU's.

b) Common Mode Control

(1) When the associated air handling unit is in warm-up, the VAV box shall be in the occupied mode.

c) Alarms

(1) Space temperature ±5ºF.

d) Warm-up Mode

(1) The VAV box damper shall open fully and the reheat control valve shall open to minimum space temperature.

e) Occupied Mode

(1) The VAV box damper shall modulate to maintain space temperature.

(2) On a drop is space temperature, the VAV box damper shall revert to minimum position and the reheat coil control valve and the room radiation control valve shall modulate as necessary.

f) Unoccupied Mode

(1) The VAV box damper shall be at minimum position.

(2) The reheat coil and the room radiation control valve shall modulate to maintain unoccupied space temperature of 60ºF.

g) Unoccupied Mode Control From Occupancy Sensor

(1) During the occupied period, when the space is unoccupied as sensed by the room occupancy sensor, the damper will be closed to minimum position.

(2) The space temperature setpoint shall be reset to plus 2ºF (adj.) during the cooling mode and minus 2°F during the heating mode. The damper will modulate to maintain the reset space temperature setpoint.

(3) When the space is occupied as sensed by the room occupancy sensor, the sequence will be indexed to the occupied mode.

30. Radiant Panels/Radiant Heaters/Fin Tube Radiation To DDC (Sequence Of Operations #9)

a) With the DDC system indexed to occupied mode, the space sensor shall call for heating and the heating valve shall modulate or open/close to maintain occupied (adj.) space temperature setpoint.

(1) With the DDC system indexed to unoccupied mode, the space sensor shall call for heating and the heating valve shall modulate or open/close to maintain unoccupied (adj.) space temperature.

31. Typical Exhaust Fan Control (Sequence Of Operations #10)

a) Exhaust Fans shall be enabled and disabled accordingly based upon a pre-determined program schedule or interlock, the position of the corresponding outside air damper, and/or the speed of the corresponding supply fan.
   (1) If a fan is scheduled to operate and status is not validated by the current sensing switch, generate an alarm to all operator interfaces.
   (2) Fan status shall be monitored for run time accumulation and shall be incorporated into a run time report.

32. Typical Cabinet Unit Heaters And / Unit Heaters (Sequence Of Operations #11)

a) During occupied mode, on a call for heating, the fan shall cycle to maintain 72°F space temperature as sensed by the wall mounted space sensor.
   (1) With the DDC system indexed to unoccupied mode the fan shall cycle on to maintain 62°F space temperature as sensed by the wall mounted space sensor.

33. Boiler Combustion Controls (Nexus) (Sequence Of Operations #12)

a) Boilers shall be automatically enabled through the DDC temperature control system. Firing rates to be modulated by Nexus controls. DDC system shall determine the lead boiler. If lead Boiler cannot maintain steam supply pressure or water temperature, the Nexus system shall enable the lag boiler. The DDC temperature control system shall monitor boiler status through a single contact available on the burner controller provided with each boiler. The DDC temperature control system shall monitor boiler alarm through a single contact available on the burner controller provided with each boiler. If any boiler should incur a flame failure, the boiler system shall be taken off-line and an alarm to the DDC temperature control system shall be generated. A manual acknowledgment of the alarm will be necessary to clear the alarm fault.
   (1) The sequencing of the lead and lag boiler order shall be adjustable through the DDC system. Each boiler shall be enabled or disabled through DDC system. The default for each boiler will be enabled.
   (2) Provide a graphic of the boiler status and its lead lag sequence number (ex. 1,2 or 3). The default lead/lag status will be as previously stated.
   (3) Each combustion air damper shall be interlocked with its respective boiler to open when the boiler fires.
   (4) Make all required changes on the operator workstation. Make all required changes, including graphic changes at the workstation located at the Central Maintenance Office.

34. Steam To Hot Water Heat Exchanger (Sequence Of Operations #13)

a) The circulation pumps will be setup for lead/lag operation and will be equipped with start/stop function and status monitoring. These pumps shall operate during all occupied hours when the boiler plant is operating.

(1) During unoccupied hours, the pumps shall operate whenever the outside air temperature is below 50°F. The pumps shall be off when outside air temperature is about 50°F.

(2) The 1/3 and 2/3 low pressure steam control valves shall maintain the loop supply temperature at the linearly interpolated valve based on the relationship of 0°F OA temperature equaling 180°F HWS temperature and 65°F OA temperature equaling 100°F HWS temperature.

34. Package Rooftop A/C Units With Variable Air Volume Terminal Units (Sequence Of Operations #14)

a) Constant Volume Rooftop Unit

(1) On a call for cooling, the supply fan and condensing unit shall be energized and the outside air damper shall open.

(2) On a call for heating, the supply fan shall be energized and the outside air damper shall be open. The hot water preheat coil control valve shall modulate to maintain a constant 55°F discharge air setpoint.

(3) Rooms with fin tube radiation serving the exterior will be sequenced with the variable air volume terminal unit reheat coil.

(4) Occupied Mode:

a) The supply fan shall run continuously.

b) The outside air damper shall open to the minimum setting and the system will modulate between heating and cooling to maintain space temperature setpoint. Whenever the return air enthalpy is greater than the outside air enthalpy, the unit shall be on economizer. The dampers shall modulate in sequence to maintain the discharged air setpoint subject to a mixed air low limit of 50°F. The variable air volume terminal unit shall modulate air volume to maintain 75°F space temperature setpoint. On a drop in space temperature, the variable air volume terminal unit shall modulate to minimum air volume and reheat coil control valve to modulate to maintain space temperature setpoint.

(5) Unoccupied Mode

a) The fan and heating coil shall cycle as required to satisfy unoccupied heating setpoint.

b) The cooling system will be disabled.

c) Provide discharge air sensors at all VAV reheat coils.

35. Steam Boilers (Sequence Of Operations #15)

a) The DDC system shall enable and disable the boilers. The building operator shall start/stop the boilers.

(1) The boilers will be stage on to maintain steam pressure setpoint.

(2) The DDC system shall provide lead/lag control.

(3) The DDC system shall monitor boiler status, boiler

alarm, steam pressure and condensate temperature.

(4) Provide an end switch to prove that the combustion air damper is open before the boilers are allowed to fire.

36. Chilled Water Cooling Plant Control (Sequence Of Operations #16)

a) The chiller system will be allowed to run above 65°F. outside air.

b) Upon a call for the chiller to start the chilled water and condenser water pumps will be started. Upon proof of water flow in both circuits the tower outside air and exhaust air dampers will be opened. Upon proof of damper open via damper end switches, the chiller will be started. The starting of the chiller is to match the occupancy of the building and the mechanical cooling requirements.

(1) During the unoccupied mode this system will be off.

(2) The chiller will maintain chilled water setpoint via manufacturer supplied controls.

(3) The DDC control system will reset the chiller setpoint based on the building load and the building KW demand value. Room setpoints shall follow accordingly.

(4) The cooling towers will stage in four (4) steps as needed to maintain the condenser water supply temperature setpoint.

First stage – open outside and exhaust air dampers and start tower no.1 pony fan; second stage – start pony fan on tower no. 2; third stage – stop tower no. 1 pony fan; 15 second delay and start primary fan on tower no. 1; fourth stage – stop tower no. 2 pony fan; 15 second delay and start primary fan on tower no. 2. This sequence to be reversed for decreased load.

(5) High and low temperature alarms will shut down the chiller and cooling towers.

37. Heating System – Hot Water Boiler (Sequence Of Operations #17)

a) General Information:

(1) The boilers and hot water pumps shall be wired N.C.

(2) The combustion air dampers limit switch shall be hardwired to boiler circuit and fail N.O.

(3) Alarms:

a) System failure

b) Hot water pump failure

c) Boiler failure

d) Boiler water supply setpoint low/high limits

e) Boiler water return setpoint low/high limits

f) Hot water pumps differential pressure sensor low/high limits

b) Hot water supply setpoint low/high limits

c) Hot water return setpoint low/high limits

d) System differential pressure sensors low/high limits

(1) Heating Enable/Disable:

a) The occupied period heating enable setpoint shall initially be set for 60°F. (adj.).

b) The unoccupied period heating enable setpoint shall be set at the occupied temperature setpoint minus 10°F.

c) Enable the heating plant when outside air is below the

maximum of the heating enable setpoint and 40°F.

d) Disable the heating plant when outside air temperature is 2° above the maximum of the heating enable setpoint and 40°F.

e) Primary Hot Water Pump Control:

(1) When the heating plant is enabled the lead pump shall start.
(2) If after one minute, proof of flow fails stop the lead pump, start the standby pump and generate an alarm at all operator interfaces.
(3) If both pumps fail, start both pumps and generate an alarm at all operator interfaces.
(4) Stop both pumps if the heating plant is disabled and both boiler run indicators are off.

f) Boilers:

(1) If primary pump flow is proven and the heating plant is enabled, turn on a call for lead boiler.
(2) If primary pump flow is not proven, or the heating plant is disabled, turn off a call for lead boiler.
(3) When the combustion air dampers are 100% open, and the call for lead boiler is on, the lead boiler will start.
(4) If the call for lead boiler is off, or damper position is less than 100% open, the lead boiler will stop.
(5) If lead boiler run indication is not seen after 2 minutes, stop the lead boiler, start the lag boiler and generate an alarm at all operator interfaces.
(6) If the hot water supply temperature setpoint cannot be maintained by the lead boiler turn on the call for lag boiler.
(7) If lag boiler run indication is not seen after 2 minutes, start both boilers and generate an alarm at all operator interfaces.
(8) The boiler will cycle on their internal and operating controls.

g) Secondary Reset Loop Hot Water Control:

(1) When the heating plant is enabled the lead pump shall start.
(2) If after one minute, proof of flow fails stop the lead pump, start the standby pump and generate an alarm at all operator interfaces.
(3) If both pumps fail, start both pumps and generate an alarm at all operator interfaces.
(4) Stop both pumps if the heating plant is disabled and both boiler run indicators are off.
(5) The heating pumps shall operate continuously at variable speed drive as indexed through the variable frequency drives by the hot water differential pressure sensors.
(6) The inlet and bypass valves shall modulate to maintain hot water supply setpoint.
(7) The hot water supply setpoint shall be reset by the following reset schedule:

Outside Air Temp	Hot Water Supply Setpoint
60°F	120°F
0°F	200°F

(8) The three-way control valves shall maintain a minimum entering water temperature of 40°F below boiler water setpoint via entering water temperature sensor.

38. Intake/Relief Ventilator Control (Sequence Of Operations #18)

a) General:

(1) Intake/relief air damper is normally closed.

a) Occupied Mode: Intake/relief air damper is open.

b) Unoccupied Mode: Intake/relief air damper is closed.

39. Heat Recovery Units (Sequence Of Operations #19)

a) Heat Recovery Unit:

(1) The heat recovery unit is controlled by the building EMS with its own application specific controller.

(2) During the occupied mode, the unit supply fan and exhaust fan shall run continuously. The automatic outside air and exhaust air dampers at the building penetrations shall open.

(3) The 3-way hot water control valve shall modulate to maintain the constant discharge air temperature of 60°F (adj.).

(4) During the unoccupied mode, the unit supply fan and exhaust fan shall be off. The outside air and exhaust air dampers at the building penetrations shall close.

(5) During morning warm-up and defrost modes, the bypass damper will be open, the outside air and exhaust dampers will be shut, and the preheat and reheat coils will sequence as required to achieve the occupied setpoint.

(6) The building EMS shall monitor the entering outside air temperature, leaving exhaust air temperature, return air temperature, heat wheel discharge air temperature and heating coil discharge air temperature.

(7) The building EMS shall monitor supply fan and exhaust fan run status.

(8) During the economizer mode “free cooling”, the bypass damper will be shut, the outside air and exhaust air dampers will be open and the heat recovery wheel will not rotate.

40. Gas Fired Heaters (Sequence Of Operations #20)

a) During the occupied mode, on a call for heating the fan shall cycle and the gas valve shall modulate to maintain 72°F space temperature, as sensed by the space temperature sensor.

(1) During the unoccupied mode, the fan shall cycle on and the gas valve shall modulate to maintain night set back temperature as sensed by the space temperature sensor.

41. VSD Control Of HW Pumps (Sequence Of Operations #21)

a) Each set of pumps shall be operated in a lead/lag sequence to equalize the run time of the two pumps. When enabled, the lead pump shall start. Upon failure of the lead pump, as sensed by a current sensing status switch, an alarm shall be generated, the pump shall be turned off, and the lag pump shall start. Upon a failure of the lag pump, as sensed by a current sensing status switch, an alarm shall be generated; the pump shall be turned off.

b) If the pump set contains variable speed drive, they shall be controlled to maintain a constant static pressure as sensed by a pressure sensor located two-thirds of the way downstream of the pump in the longest or most critical pipe.3

42. AC Units (Sequence Of Operations #22)

a) Units shall be controlled with the unit provided controls and thermostats.

(1) Room temperature shall be monitored by the space sensor.

(2) The unit shall be enabled during occupied times to maintain temperature setpoint. The unit shall be disabled during unoccupied times.

(3) If space temperature drops below defined setpoint, the software shall stop the AC, and print an alarm message at the operator's terminal indicating room number and space temperature.

43. Zone Control (Sequence Of Operations #23)

a) Hot Deck/Cold Deck Damper Boxes

(1) Occupied Mode

a) The space sensor shall monitor the space temperature and modulate the damper to control hot deck/cold deck air entering the room to maintain occupied room setpoint. Upon a call for heating, the damper shall modulate to bring in more air from the hot deck and upon a call for cooling; the damper shall modulate to bring in more air from the cold deck.

(2) Unoccupied Mode

a) The space sensor shall monitor the space temperature and modulate the damper to control hot deck/clod deck air entering the room to maintain unoccupied room setpoint. Upon a call for heating, the damper shall modulate to bringing more air from the hot deck and upon a call for cooling; the damper shall modulate to bring in more air from the cold deck.

b) Alarms – Provide an alarm for each of the following:

(1) Space Temperature low/high limits. If discharge temperature is below 45°F, the software shall stop the AHU, close outside air damper, and print an alarm message at the operator's terminal indicating room number and discharge temperature.

END OF CHAPTER 23

RCSD Technical Standard
Chapter 26: Electrical

I. PURPOSE

This Technical Standard is a narrative describing Rochester Central School District's Basis of Design for electrical systems. The information contained herein shall be used by the Project Design Team to develop a sustainable and integrated electrical, lighting, and controls system that is economical to construct, maintain, and operate; that enhances learning by providing a safe and suitable work environment for staff and students. This Technical Standard shall be used as part of the RCSD's General Design Standards.

These Chapter 26 Technical Standards were developed with the intent of extending the trouble-free life of equipment, reducing future maintenance problems and addressing energy conservation as a priority. Within these goals and project budget constraints, electrical engineering design for RCSD projects should comply with the following hierarchy of priorities:

- Occupant safety
- Program compliance/occupant comfort
- Life-cycle cost including maintenance and energy
- Initial cost

II. GENERAL

A. DESIGN DOCUMENTS

The District's assigned numbers shall be used for all labeling. Design assumptions that define the capabilities of the building shall be documented on the drawings. These include, but are not limited to: electrical load, lighting power density, assumed hours of operation, provisions for future expansion (if any).

B. CLOSE-OUT

1. Training

Provide training for appropriate District personnel. Training will review complete Operations and Maintenance (O&M) Manual, including but not limited to, programming and setup of any control systems, required maintenance, and troubleshooting, including contact names and phone numbers for factory support.

C. SAFETY

1. Electrical Equipment

Secure and limit access to all energized electrical equipment. Electrical equipment and panels shall be behind closed doors or in non-public access areas.

In wet locations, including science rooms, science labs, and home and careers cooking areas, receptacles, controls and switches should be located in areas not subject to spills.

2. Hazardous Materials

Including, but not limited to, fluorescent lamps and PCB containing

transformers, ballasts and fixtures, must be handled and disposed of in compliance with all applicable environmental regulations. Notify the Owner and file all required reports upon discovery of any hazardous materials. All handling or disposal of hazardous materials must be documented and handled in compliance with all current EPA and Oregon DEQ requirements and regulations.

3. Outages

A minimum of seven calendar days, in advance, coordinate all electrical service outages with the District and the power company.
Confirm outage times with RCSD Representative, in advance, a minimum of 48 hours.
Plan all work so that the duration of outage is kept to an absolute minimum.
Provide temporary wiring as required in order to maintain continuous service to occupied portions of the building during business hours.

4. Clean Power

Dedicated computer classrooms, computer circuiting in other spaces and power supplies in technology rooms should be provided with clean power.

D. DEMOLITION AND SALVAGE

1. Salvage

RCSD has first rights of salvage for equipment and materials removed during construction. Coordinate project specific details with the RCSD Representative.

III. BASIC ELECTRICAL REQUIREMENTS

A. CONDUIT/RACEWAY

1. Rigid Heavy Wall Steel Conduit shall be hot-dipped galvanized or electro-galvanized steel, U.L. listed "rigid metal conduit." Shall be used for wiring above 600 volts, wiring 600 volts of less in above grade outdoor locations, in concrete floor slabs, below ground floor slabs and in all Mechanical or Boiler Rooms.

a) Acceptable manufacturers:
   1) Republic Steel
   2) Triangle PWC
   3) Allied Tube
   4) Steel Duct

2. Electrical Metallic Tubing shall be electro-galvanized steel, U.L. listed "electrical metallic tubing." Shall be used for 600 volts or less in dry locations

1) Acceptable manufacturers:
   a) Republic Steel
   b) Triangle PWC
   c) Allied Tube
   d) Steel Duct

3. Flexible Metal Conduit shall be constructed of one continuous length of electro-galvanized, spirally wound steel strip with interlocking convolutions and interior surfaces free from burrs and sharp edges. Shall be U.L. listed "flexible steel conduit" or "liquid tight flexible metal conduit" as required. Shall be used for final connections to rotating or vibrating equipment, all motors, dry type transformers and recessed light fixtures.
   a) Acceptable manufacturers:
      a) Triangle PWC
      b) American Flexible Conduit Co.

4. PVC: Provide PVC (polyvinyl chloride) conduit, designed for direct burial or concrete encasement, where specified or shown. Schedule 40 shall be used for direct burial in sand bed. Schedule 80 shall be used for concrete encasement. Provide threaded steel fitting when connecting PVC to steel.
   a) Acceptable manufacturers:
      a) Carlon
      b) Thomas & Betts
      c) Certainteed

5. Surface Metal Raceway shall be .040" steel U.L. listed "Surface Metal Raceway".
   1) One-Piece Raceway: Ivory finish Wiremold 700 Series. Shall be used only where EMT conduit may not be concealed. Paint to match existing finish.
   2) Two-Piece Prewired Raceways (Plugmold): Single circuit NEMA 5-15R, 15 ampere, 125 volt, grounded receptacles spaced one foot on centers OR Two circuit, 4-wire outlets wired alternately, separate insulated grounding conductor OR Wiremold 2000 or 2200.
   3) Two-Piece Raceways (Divided): Provide with duplex and special outlets as required. Provide with divider between power and communication section. Wiremold V4000.

6. Conduit Fittings for rigid metal conduit shall be fully threaded and shall be of the same material as the respective raceway system. Fittings for electrical metallic tubing shall be Single screw indenter fittings for conduits up to 2" and double screw indenter fittings for conduits 2" and larger. Die-cast, pressure cast fittings shall not be used.
   1) Acceptable manufacturers:
      a) O.Z. Gedney
      b) Steel City
      c) Thomas & Betts
      d) Crouse-Hinds

7. Expansion Fittings watertight, combination expansion and deflection type with flexible copper braid bonding jumpers, neoprene sleeve and stainless steel bands.
   1) Acceptable manufacturers:
      a) Crouse-Hinds, Type "DX"
      b) O.Z./Gedney, Type "DX"

8. Power/Communication Poles divider between communications and power sections. Equipped with two (2), 20 ampere, 125 volt, grounded, duplex receptacles, and knockouts for telephone and computer/data connection. Wiremold AMDTP series.

9. Wireway and Wire Trough Wireway shall be hinged cover steel, enclosed with grey enamel finish.
   1) Acceptable manufacturers:
      1) Square D Square Duct
      2) General Electric
      3) Hoffman
      4) Keystone

10. Open Sided/Open Bottom Cable Tray shall be of aluminum construction of 6063-TL aluminum alloy. Center support spine shall be rectangular aluminum tube. Cross rungs shall be fastened to spine at right angles and spaced on 6" centers. Outer ends of rungs shall be bent up to height of 3".
   a) Acceptable manufacturers:
      1) Mono-Systems bottom rung mono-tray
      2) Atlas
      3) B-Line Cent-R-Rail.

11. Underfloor Raceways Trench Duct shall be welded, rectangular duct, 14 gauge steel. Provide 1/4" thick steel top opening cover width as called for, gasketed. UL label for installation in concrete floor. Double reversible trim to allow tile installation. Aluminum, satin finish enclosure for surface fittings. Divider plates as required.
   a) Acceptable manufacturers:
      1) Walkerduct Style TADT
      2) General Electric
      3) Square D

12. Channel Support Systems shall be provided for racking up conduit, trapeze suspensions, cable racks and panel racks.
   a) Acceptable manufacturers:
      1) Unistrut
      2) Globe
      3) Kindorf

B. CONDUCTORS

1. Conductors shall be insulated for 600 volts, unless otherwise noted, and shall be standard AWG and kcmil sizes. Conductors shall be 98 percent copper. Conductors shall be stranded. Insulation for all 600 volt conductors shall be Type THHN/THWN or Type XHHW, unless otherwise noted.
   a) Color Coding:
      1) All circuits shall be color coded according to the following schedule:

SINGLE PHASE	THREE PHASE 120/208 V 240 V	THREE PHASE 277/480 V	120/240 V
Ground	Green	Green	Green
Neutral	White	Grey	White
A or L1	Black	Brown	Black

B or L2	Red	Orange	Red	
C or L3		Blue	Yellow	------

b) Acceptable manufacturers:
   1) Cablec
   2) ITT Royal
   3) Rome Cable
   4) Pirelli
   5) Brand Rex
   6) Okonite

2. Terminal Lugs shall be solderless, pressure type with U.L. label for "CU/AL" conductor terminations.
   1) Acceptable manufacturers:
      a) Burndy
      b) O.Z./Gedney
      c) Thomas and Betts
      d) National

3. "Split-bolt" Connectors shall be solderless type.
   1) Acceptable manufacturers:
      a) Burndy
      b) Kearney
      c) O.Z./Gedney
      d) Thomas and Betts
      e) Anderson

4. "TWIST ON" Connectors shall be spiral steel spring type and insulated with vinyl cap and skirt.
   1) Acceptable manufacturers:
      a) 3-M Company "Scotch-Lock"
      b) Ideal "Wing-Nuts"

5. Ground Connectors shall be cast type.
   1) Acceptable manufacturers:
      a) Thermoweld
      b) Cadwell

C. BOXES

1. Outlet Boxes and covers shall be galvanized steel, not less than 1-1/2" deep, 4" square or octagonal, with knockouts. Outlet boxes exposed to moisture, exterior, wet or damp locations shall be cadmium cast alloy complete with threaded hubs and gasketed screw fastened covers.
   1) Acceptable manufacturers:
      a) Steel City
      b) Raco
      c) Appleton
      d) Crouse Hinds

2. Flush Floor Boxes suitable for carpet or tile applications. Stamped steel, concrete tight, fully adjustable box with interior and exterior leveling screws, and with knockouts. Provide polished brass integrated carpet plate/duplex floor plate and duplex receptacle where called for. Provide polished brass integrated carpet plates Make: Steel City 68-D with P60-

CACP or P60-3/4-2-CACP as required, or approved equivalent. Protruding floor box pedestals are not permitted.

3. Pull and Junction Boxes shall be constructed of not less than 14 gauge galvanized steel with trim for flush or surface mounting in accordance with the location to be installed. Provide screw-on type covers.
   1) Acceptable manufacturers:
      a) Hoffman
      b) Keystone

4. Terminal and Equipment Cabinets shall be code gauge galvanized steel with removable endwalls. Fronts shall be of code gauge steel, flush or surface type with concealed trim clamps, concealed hinges, flush lock, and grey baked enamel finish. Boxes and front shall be U.L. listed.
   1) Acceptable manufacturer:
      a) Square D "Mono-Flat"
      b) Keystone

D. WIRING DEVICES

1. Wiring Devices shall be specification grade as a minimum. Provide device cover plates of satin finish stainless steel in finished areas and cadmium finished sheet steel in unfinished areas.
   1) Although only one manufacturers model number has been noted in each device description, acceptable manufacturers are:
      a) Pass and Seymour
      b) Hubbell
      c) General Electric
      d) Arrow Hart
      e) Bryant

2. Toggle Switches:
   1) 20 ampere, 1-pole, 277 volt: P&S 20AC1.
   2) 20 ampere, 2-pole, 277 volt: P&S 20AC2.
   3) 20 ampere, 3-way, 277 volt: P&S 20AC3.
   4) 20 ampere, 4-way, 277 volt: P&S 20AC4.

3. Receptacles:
   1) Nema 5-20R, 20 ampere, 125 volt, duplex receptacle: P&S 5352.
   2) Nema 5-20R, 20 ampere, 125 volt, duplex G.F.I., 6ma trip receptacle: P&S 091S.
   3) Nema 10-30R, 30 ampere, 125/250 volt, dryer receptacle: P&S 3860.
   4) 50 ampere, 125/250 volt, range receptacle: P&S 3890.
   5) Nema 5/6-20R, 20 ampere 125/250 volt, duplex, combination: P&S 5890.
   6) Nema 5-20R, 20 ampere duplex, 125 volt, orange color, isolated ground: P&S IG6300.
   7) Nema 5-20R, 20 ampere duplex, 125 volt, metal oxide varistor, surge suppression receptacle: P&S 6362 - SP.
   8) Nema 5-15R, 15 ampere, 125 volt duplex, tamper resistant: P&S SG-62.
   9) Nema 5-15R, Clock Hanger Outlet - 15 ampere, 125 volt with hanger plate: P&S S3713-I.

10) 20 ampere, 125 volt, duplex, weather-proof: Crouse Hinds WLPD-5-20.

4. Dimmers:
1) 1000 watt: Lutron "Nova" NT-1000 with Lutron #LDC-10-TCP debuzzing coil.
2) 2000 watt: Lutron "Nova" NT-2000 with Lutron #LDC-16-TCP debuzzing coil.

5. Telephone, T.V. and Computer Outlets: 4" x 2" outlet box and 3/4" conduit stubbed to accessible ceiling space, arranged for further continuation.

6. Time Switches:
1) Electromechanical Controllers:
a) DPST, 40A per pole at 277 volt: Tork 7202Z.
b) 3PST, 40A per pole at 277 volt: Tork 7302Z.
c) Two circuit lighting control center: Tork T-920L.
d) Three-circuit lighting control center: Tork T-903-L.
2) Time switches shall be provided with NEMA 1 general purpose, surface mount enclosures unless otherwise noted.
3) Mechanical room and crawl space lighting shall be on a 0-4 hour elapsed time switch, Tork Model No. A504HH or equal.

7. Photoelectric Controls:
1) Heavy Duty, 1/2" Conduit Mounting:
a) 120 volt, SPST, 2000 watt: Tork Model 2101.
b) 277 volt, SPST, 2000 watt: Tork Model 2104.
2) Combination photoelectric control and contactor:
a) 120 volt, DPST, 6000 watt: Tork Model 5403.
b) 277 volt, DPST, 6000 watt: Tork Model 5404.
c) 480 volt, DPST, 6000 watt: Tork Model 5404.

8. Occupancy Sensors:
1) Wall type sensor shall mount in standard wall box and have the following features: 180º viewing angle, 300 sq. ft. viewing range, dual element detection, adjustable time out delay from 1 to 30 minutes, ambient light override and manual off override. Wattstopper CI-100.
2) Ceiling Type Sensor: Ultrasonic for 500, 1000 or 2000 square foot coverage as required. Wattstopper W-500A, W-1000A or W-2000A.
3) Ceiling Type - Hallway: Ultrasonic technology with power packs as required, Wattstopper W- 2000H.

9. Lighting Control Contactors shall be provided with NEMA 1, General Purpose, surface mounted enclosures unless otherwise noted, electrically operated, mechanically held, ampere rating and quantity of poles as indicated: Square-D, Class 8903, or approved equal.

10. Boiler Shut Down Switches for emergency shut down, shall be break glass type, flush mount. Label "to stop boilers".
1) Acceptable manufacturers:
a) ASCO 124223 (Flush Mount)
b) Approved equal

11. Emergency Shutdown Systems:

1) Power shutdown system shall interrupt power for areas and/or equipment called for via emergency shutdown stations controlling a mechanically-held contactor. The system shall have voltage, ampere, KAIC and withstand ratings similar to the associated panelboard. The system shall be rated dust ignition- proof (Class II, Division I) where required by Code.

a) Remote momentary emergency power shutdown stations shall have 1- 5/8 inch diameter red mushroom type momentary push button with gasketed stainless steel coverplate and label "Emerg. Stop". Typically flush mount, unless surface mount with cast aluminum back box is approved prior to roughing.

1) Square D
2) Approved equal

b) Power Shutdown Contractor shall be provided with NEMA 1, General Purpose, surface mounted enclosure unless otherwise noted, electrically operated, mechanically held, 120 volt fused control circuit 30 amp contact rating eight (8) poles, unless otherwise noted.

1) Square-D, Class 8903
2) Approved equal

2) Gas Shutdown Control System shall control gas solenoid valve(s) provided by others. System is powered by power shutdown system, where both are called for. Gas shall shut down in event of power loss.

a) Remote emergency gas reset station shall have momentary pushbutton stop and key-operated momentary reset with gasketed stainless steel coverplate and labels "Reset" and "Emerg. Stop". Provide two (2) keys with each unit. Typically flush mount, unless surface mount with surface metal raceway back box is approved prior to roughing.

1) ASCO 216B89
b) Approved equal

b) Gas Shutdown Panel: Recessed locking cabinet.

1) ASCO 108D10C
2) Approved equal

3) Acceptable Manufacturers:

a) ASCO (Gas Shutdown System).
b) Square D (Power Shutdown System).
c) Approved equal.

12. Hand Dryers:

1) Hand dryers shall include a ¼ inch thick cast iron cover, finished with porcelain enamel. Motor shall be universal type, 1/10 HP at 7,500 rpm. Dryer shall deliver 7,300 linear feet of air per minute. Dryer shall be activated by means of a pushbutton control device and cam-operated timer. Dryer shall be listed by Underwriters Laboratories, Inc.

a) Electrical Characteristics:

1) Drying Cycle: 40 Seconds.
2) Nozzle: Fixed.
3) Volts: 115.

4) Amps: 15.
5) Watts: 1,725.
6) Frequency: 60 Hz.

b) Make: World Dryer Corporation, Model No. A2, or approved equivalent.

IV. GROUNDING

A. Exposed grounding conductors such as bars, straps, cables, flexible jumpers, braids, shunts, etc., shall be bare copper. Cable size shall be as required by NEC Code, Section 250, stranded, soft drawn or soft annealed copper, unless otherwise called for. Provide cable insulation type and color as called for.

1. Acceptable Manufacturers:

a) Same make as for 600 volt conductors.

B. Ground Rods: Solid copper or copper clad steel cylindrical rods, 5/8 in. minimum diameter, minimum 8 ft. long.

1. Acceptable Manufacturers:

a) Copperweld or approved equal.

C. Connectors, Clamps, Terminals shall be silicon bronze. Solderless compression terminals shall be copper, long-barrel, NEMA two bolt.

1. Acceptable Manufacturers:

a) Burndy
b) Anderson
c) T & B
d) Penn-Union
e) Approved equal

D. Molded Fusion Welds: Designed for size and type of cable, rods, structure. Solder prohibited for connections, except for high voltage cable metallic tape shields.

1. Acceptable Manufacturers:

a) Cadweld
b) Metalweld
c) Thermoweld
d) Approved equal

V. LIGHTING

A. LIGHT LEVELS

Light levels in all spaces shall be designed to be in compliance with Illuminating Engineering Society of North America (IESNA) guidelines and to meet NFPA 101 standards and NYSED Planning Standards.

1. Minimum Foot Candle Requirements

TABLE S804-1***

Location	Maintained Horizontal Foot-Candles	Maintained Vertical Foot-Candles	Initial Horizontal Foot-Candles	Initial Vertical Foot-Candles
Classrooms, study halls and lecture rooms (non-demonstration) [on desks and tables]	50		67	
Classrooms, lecture rooms [on chalk boards]		50		67
Classrooms, lecture rooms [on white boards]		5		7
Offices [on desks]	50	10	67	13
Libraries [on desks and tables]	30		40	
Libraries [book stacks]		30		40
Music rooms [on work]	40	10	53	13
Sewing rooms, drafing rooms, home economics [on work]	50	10	67	13
Shops, laboratories and art rooms [on work]	50	30	67	40
Computer Rooms [on work]	50	10	67	13
Gymnasiums (without organized sports) and playrooms	30	10	40	13
Gymnasiums (with organized sports)*	*	*	*	*
Swimming pools **	**	**	**	**
Cafeterias [used for study]	40	10	53	13
Cafeterias [not used for study]	20	5	27	7
Auditoriums	10	3	13	4
Conference Rooms [meeting]	30	5	40	7
Reception Areas	20	5	27	7
Corridors, stairs, passageways, interior means of egress, Area of Refuge	10	10	13	13
Locker rooms and toilets	10	3	13	4

* Gymnasiums used for organized sports or spectator events will require greater lighting levels in accordance with IENSA standards.

** Illumination levels and quality of lighting must comply with NYS Department of Health regulations (Sanitary Code 6-1).

*** From NYSED Planning Standards.

B. LIGHT SOURCES

Light sources should be evaluated on the basis of energy efficiency, lamp life, light quality, control capability, initial cost, ease of maintenance, and warranty.

1. General Lighting Needs

Light Emitting Diodes (LED) lighting shall be used as the basis of design for all new and remodel projects, excluding special use lighting as required.

- LED light fixtures should be DLC, IESNA, and UL listed luminaries
- LED light fixtures should be Energy Star rated
- 100 lumens/watt minimum
- LED Fixtures shall be dimmable 0-10V, DMX or ACN
- Drivers should be easily replaceable; for fixtures in hard to reach areas, drivers shall be remote, and located in accessible area approved by RCSD representative
- Minimum 5-year warranty
- Approved manufacturers: Acuity/Lithonia, Eaton/Cooper Industries, ETC or Philips

2. Exterior Sports Facilities

MUSCO$_2$ LED lighting solutions shall be used.

3. Switches

Switches shall be located in the space that they control. Control switches (3-way, presets, etc.) shall be provided at all entrances to space.
Switches shall be located by each of the doors.
Classroom luminaires shall have dimmable control.
The row of lights closest to the white board/projection screen shall be capable of being switched off/dimmed independently of the classroom lighting. The remaining classroom lighting shall be able to be dimmable during video instruction.

4. Occupancy Sensors

Occupancy sensors shall be used to control lighting in classrooms, restrooms, corridors, gyms, multi-purpose rooms, cafeterias, and small offices. Occupancy sensors shall provide complete coverage of area to prevent nuisance OFFs even when the only activity is writing on a desktop or typing at a computer keyboard. Occupancy sensor circuits shall be wired to allow OFF override of the lighting in the area. The occupancy sensor system shall be designed to have no effect on power quality or ballast inrush current. Occupancy sensors and their related relays shall incorporate "zero-crossing circuitry." RCSD has standardized WattStopper $_4$ brand of occupancy sensors.

a) Classrooms
Two dual technology occupancy sensors shall be used. Sensors shall be set to time-out after 10 minutes of no activity. To include areas such as music and other such teaching spaces.

b) Restrooms
Multi-stall restrooms shall use ultrasonic technology sensors to detect occupancy inside stalls and around corners. Other technology only with RCSD approval. Restroom occupancy sensors should be set to time-out after 15 minutes.

c) Gyms and High Ceiling Areas
Passive Infrared (PIR) sensors shall be used in high ceiling areas

per manufacture's installation requirements. Wire guards are required to protect sensors from projectiles in all installations

d) Small Offices and Single Stall Restrooms
Wall switch occupancy sensors are acceptable for use in small offices and single stall restrooms if the sensors have a clear view of the space. The occupancy sensor shall control the run time for restroom exhaust fans and be set to time-out after five minutes.

5. Daylight Harvesting

Daylight harvesting controls shall be incorporated into the lighting controls design where there is a significant contribution to the lighting from daylight. Sensor set points should be selected to maintain appropriate light levels and incorporate a large enough dead band to prevent cycling on days with partial cloud cover.

6. Lighting Control Panels

Lighting control panels shall be used to control egress lighting, lighting in commons areas, lighting in kitchens, and parking lot and exterior building lighting. The lighting control panel shall be BACnet IP native, coordinate with Chapter 27: Communications & Technology Technical Standards. The lighting control panel shall be integrated with the building security and Fire Alarm System. The lighting control panel shall be programmed per District requirements, see Control Matrix. Obtain schedule from RCSD Representative. Lighting control panel shall allow over-ride via remote input.

Acceptable manufacturers: Greengate ControlKeeper (preferred), LC&D, WattStopper, and/or Echo by ETC only.

a) Intrusion Alarm and Lighting Control Integration (see also Chapter 28: Electronic Safety & Security) see Control Matrix

b) Egress Lighting
The control parameters for egress lighting are as follows:

(1) Power Outage
All lighting fails to the ON position.

(2) Occupied Building
Egress lights will be turned ON when building is occupied (security disarmed) if occupancy sensors do not turn lights on in occupied space.

(3) Entry to Building (Security is Armed)
Egress lights will be turned ON to light a pathway to the security panel when the designated main entry door is opened. If security has not been disarmed within 10 minutes, egress lights will shut OFF, unless controlled by occupancy sensors.

(4) Unoccupied Building (Security is Armed)
Egress lights will be turned OFF when building is unoccupied. There will be a 10-minute time delay before shutting lights OFF when security is armed, unless controlled by occupancy sensors. As a warning, the egress lights will blink when the security panel is "coded out."

D. LUMINAIRES

All luminaires to be LED unless RCSD approved. When necessary, luminaires shall use a standard ballast regularly manufactured by Advance, Osram Sylvania, or General Electric. Luminaires that require proprietary

ballasts or lamps will not be accepted. Tandem wiring of luminaires is discouraged and requires RCSD Representative approval. Master slave ballast systems will not be accepted.

1. **Pendant Mounted**
   Particular concern should be given to protecting lamps and louvers from collecting debris and projectiles.
2. **Diffusers**
   Use two lamp, advanced lensed. Diffusers are to give proper washes of light.
3. **Gyms and Multi-Purpose Rooms**
   Use impact-resistant lenses with wire guards in gyms and multi-purpose rooms. All suspended luminaires shall be mounted using a working load 5:1 ratio or greater. Fixtures in these spaces shall not be mounted with open fixtures.
4. **Computer Classrooms**
   Lighting should be dimmable and indirect.
5. **Exit Lights**
   LED lighting, with stencil lettering, aluminum or PVC housing. “EXIT” spelled out and back-lit.
6. **Egress Lighting**
   In addition to code requirement, classrooms, hallways, stairways, and restrooms shall have egress lighting. Provide Code minimum or better foot-candles for egress lighting.
7. **Exterior Lighting**
   Exterior lighting shall be controlled by astronomical time clock for small remodels. Use lighting control panel for all new construction.

VI. ELECTRIC DISTRIBUTION

A. DRY-TYPE TRANSFORMERS:

1. Transformers 25 KVA and less shall have 220^{o}C insulation system and shall be designed not-to-exceed 115^{o}C rise above 40^{o}C ambient. Transformers 30 KVA and higher shall have 220^{o}C insulation system and shall be designed not-to-exceed 150^{o}C 115^{o}C rise above 40^{o}C ambient. Insulation systems shall be U.L. listed. 30KVA, and larger, floor mounted. Under 30KVA, wall mounted. Provide Mason type ND, Korfund or Vibrex vibration isolation devices for each transformer. Provide K-4 rated transformers for installations with excessive non-linear loads.
2. Acceptable manufacturers:
   a) Square D (Sorgel)
   b) Westinghouse
   c) General Electric
   d) Acme
   e) Heavy-Duty

B. DISTRIBUTION SWITCHBOARD:

1. The switchboard shall meet Underwriters' Laboratories enclosure requirements and be furnished with an Underwriters Laboratories label for service entrance equipment.
2. The switchboard shall be dead front. The paint finish shall be grey enamel over a rust-inhibiting phosphate primer.

3. The switchboard bussing shall be plated copper continuously insulated throughout. Provide grounding bus.
4. Main disconnect device shall be a molded case circuit breaker totally front accessible and front connectable.
5. Acceptable Manufacturers:
   a) Siemens
   b) Cutler Hammer “Pow-R-Line”
   c) Square D
   d) General Electric

C. DISTRIBUTION PANELBOARDS (NOMINAL 600 VOLT):

1. Panelboard assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel to be as specified in UL Standard 50 for cabinets. The size of wiring gutters shall be in accordance with UL Standard 67. Fronts shall be of code gauge, full-finished steel with rust-inhibiting primer and baked enamel finish. Provide with hinged trim.
2. The panelboard interior assembly shall be dead front with panelboard front removed. The end of the bus structure opposite the mains shall be barriered. Bussing and lugs shall be copper provide grounding bus.
3. Panelboards shall be equipped with thermal magnetic, molded case circuit breakers. Circuit breakers shall be equipped with insulated, braced and protected connectors, provide circuit numbers for each breaker.
4. Panelboards shall be U.L. listed for use intended.
5. Acceptable Manufacturers:
   a) Siemens
   b) Cutler Hammer "PRL3"
   c) Square D

D. BRANCH CIRCUIT PANELBOARDS (480Y/277 VOLT, 208Y/120 VOLT):

1. Panelboard bussing and lugs shall be copper, 200% rated neutral.
2. Circuit breakers shall be plug on quick-make, quick-break, thermal-magnetic and trip indicating, and multiple breakers shall have common trip. Single pole 15 and 20 ampere circuit breakers shall be UL listed as "Switching Breakers" at 120V ac or 277V ac and carry the SWD marking.
3. The panelboard bus assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel to be specified in UL Standard 50 cabinets. Wiring gutter space shall be in accordance with UL Standard 67 for panelboards. Provide hinged trim.
4. Acceptable manufacturers:
   a) 480Y/277 Volt:
      1) Siemens
      2) Cutler Hammer "PRL2"
      3) Square D
      4) General Electric
   b) 208Y/120 Volt:
      1) Siemens
      2) Cutler Hammer "PRL1"
      3) Square D
      4) General Electric

E. MOTOR STARTERS:

1. Starters, contactors and controllers shall comply with NEMA standards having general purpose NEMA 1. Starters shall be minimum NEMA size 0 with overloads in each phase sized per NEC, motor full load amperage, service factor, and motor operating conditions.

2. Pad lock arrangements shall be provided to lock the disconnect device in the "off" position. Magnetic starters shall be provided with a control power transformer with 120V secondary and primary and secondary fusing and be sized to accept the loads imposed there on.

3. Pilot lights shall be push to test type.

4. Manual Motor Starter:

a) Provide all starters with thermal overload(s); and pilot light(s) and handle lock-out provisions.

1) Shall be Square D Class 2510.

5. Magnetic Starter: Shall be single-speed, across-the-line type rated in accordance with NEMA standards, sizes and horsepower ratings. Starters shall be mounted in NEMA 1 enclosures unless otherwise indicated. Wire for maintained contact unless otherwise noted.

6. Combination Magnetic Starter: Shall be similar to "Magnetic Starter", above, except shall include fusible disconnect switch or thermal magnetic circuit breaker connected ahead of starter.

7. Combination Two-Speed Magnetic Starter: Shall be similar to "Combination Magnetic Starter", above, except with two starters, and six thermal overload units coordinated to match torque and horsepower characteristics of the motor.

8. Acceptable Manufacturers:

a) Square D
b) Furnas
c) Allen Bradley
d) Cutler Hammer
e) General Electric

F. DISCONNECT SWITCHES:

1. Shall be heavy-duty type three-pole, with "Quick-Make, Quick-Break" operating handle mechanically interlocked with the cover, horsepower and voltage rated to match equipment served. Provide weather proof "rain tight" enclosure for outdoor applications.

2. Acceptable manufacturers:

a) Cutler Hammer
b) General Electric
c) Siemens
d) Square D

G. MOTOR CONTROL CENTERS:

1. Motor Control Center shall be NEMA Class I, type B with NEMA 1 gasketed enclosure. Motor control center shall be furnished with combination type starters, with thermal magnetic circuit breakers, control devices, fusing, etc.

2. Combination motor controller units shall be equipped with individual control power transformers with two (2) primary fuses and one (1) secondary fuse. The other secondary lead shall be grounded.

3. Motor control center shall be furnished in lineup nominally 90 inches high and in multiples of 20 inches wide. Depth shall be maximum of 20 inches.

4. Ratings: 480 or 208 volts; 3-phase; 3-wire; 600-ampere horizontal bussing; 300- ampere vertical bussing; bussing shall be braced for minimum 22,000 amperes, RMS symmetrical.

5. Acceptable manufacturers:
   a) Square D "Model 5"
   b) Cutler Hammer "Series 2100"
   c) General Electric "8000 SC/MC Line"
   d) Allen Bradley "Centerline Bulletin 2100"

H. VARIABLE FREQUENCY DRIVES (VFD'S):

1. Provide converter, invertor, and regulator sections, suitable for variable speed-variable torque applications. Controller shall convert supply voltage, three phase, 60 Hz power to variable frequency, variable voltage, three phase power for motor speed control. VFD's shall be suitable to serve as starter and disconnect. The VFD shall be a full digital voltage source pulse width modulated (PWM). The VFD, including all options, shall mount in a standard NEMA 1 enclosure with all components factory mounted, wired and tested, and UL listed as an assembly. Drives shall be constructed to allow for operation in a 40°C ambient temperature. Drives shall contain across the line bypass feature.

2. Provide one (1) VFD for each fan or pump. One VFD that controls multiple pumps is not acceptable.

3. Acceptable Manufacturers:
   a) Reliance
   b) ABB
   c) General Electric

I. FUSES:

1. All fuses rated 600 volts and below shall be rejection type dual-element, time-delay type. Provide two (2) complete sets of fuses for all fusible disconnect switches.

2. Acceptable manufacturers:
   a) Fuses 600 amperes and below: Bussman Type FRS-R (600 volts), Bussman Type FRN-R (300 volts) or equivalent.
   b) Fuses rated above 600 amperes: Bussman Type KRP-C or equivalent.

VII. POWER GENERATION

A. DESCRIPTION OF SYSTEM OPERATION:

1. Provide Engine-Generator System To Meet The Following Functions:
   a) Arrange system for automatic starting upon failure of normal source voltage.
   b) Provide three second time delay, field adjustable from 3 to 30 seconds. Delay time between normal source failure and engine starting.
   c) Initiate engine starting cycle from transfer switch auxiliary contact.
   d) Transfer loads from normal source power to emergency source when engine-generator reaches 90% of its rated voltage.

e) Retransfer emergency loads from emergency generator to normal source ten minutes after normal source has reached 90% or more of normal voltage. Provide 5 to 25 minute adjustable timer.
f) Retransfer emergency loads from emergency generator to normal source instantaneously when normal source has reached 90% or more of normal voltage, if emergency generator has failed while supplying load.
g) Run engine for a period of five minutes after retransfer of emergency loads to normal source. Engine-generator will then shut down, automatically resetting and leaving all controls ready for the next emergency start condition.
h) Use time clock to automatically exercise engine once each week every four weeks 1/2 hours. Time clock contacts shall simulate loss of normal voltage, start engine, and shut engine down after fifteen minutes of operation. Provide a selector switch to permit cycling engine-generator under load or no-load conditions.

B. EMERGENCY GENERATOR LOAD PRIORITIES:

1. Priority 1 (Code Required):
a) Fire alarm system.
b) Fire protection system
c) Area of refuge communication system
d) Emergency lighting
e) Exit signs

2. Priority 2A (Critical Systems):
a) Intrusion detection system
b) Public address system
c) HVAC control system

3. Priority 2B (Critical Systems):
a) Heating Plant: boilers, pumps
b) Sewage ejector pump
c) Freezer/coolers
d) Sump pumps
e) Air compressors for control systems
f) Data network
g) Domestic booster pumps

4. Priority 3:
a) Emergency shelter: Kitchen equipment, gym ventilation, cafeteria ventilation
b) Domestic hot water system
c) Telephone system
d) Master clock
e) Miscellaneous convenience power
f) Mobile radio recharging station
g) Electric flush valves
h) CCTV system
i) Elevators
j) Door control systems
k) TV's/display systems
l) Low temperature alarm
m) Refrigeration alarm

C. ENGINE:

1. Fuel Type: 5 to 100 kW natural gas, above 100 kW diesel.
2. Minimum six cylinder, four stroke cycle, 1800 rpm, per manufacturer's standard.
3. Continuous stand-by rating shall be adequate to provide maximum kW output of generator under full load and motor starting kVA requirements. The engine-generator set shall be capable of picking up 100% of nameplate kW in one step with the engine generator set at operating temperature, in accordance with NFPA-110.
4. Provide primary gas regulator if required by characteristics of local utility gas supply.
5. Full pressure lubrication system with positive displacement, mechanical, full pressure gear type oil pump, full flow oil filters with replaceable filter element, watercooled oil cooler and thermostat.
6. Water cooled with heat exchanger. Provide water flow control valve, temperature actuated; water solenoid valve and pressure reducing valve for cooling water supply to heat exchanger.
7. Provide 50/50 solution of ethylene glycol for engine closed loop cooling system.
8. An electric starter capable of three complete cranking cycles without overheating, before overcrank shutdown (75 seconds).
9. The engine-generator set shall be mounted with vibration isolators on a heavy duty steel base to maintain proper alignment between components. Provide 4" concrete housekeeping pad for unit mounting.

D. GENERATOR:

1. Synchronous, four or six pole compatible with engine rpm, revolving field, dripproof construction, static exciter, solid state voltage regulator.
2. Voltage regulation within 2% plus or minus of rated voltage for any constant load from no load to full load. Frequency regulation shall be 5% isosynchronous from steady state no load to steady state rated load. Cyclic variation in RMS voltage shall not exceed $\pm$ 1% of rated for constant loads from no load to rated load, with constant ambient and operating temperature. Speed variations for constant loads from no load to rated load shall not exceed $\pm$ 0.5% of rated speed, with constant ambient and operating temperature.
3. Rheostat to provide plus or minus 5% voltage adjustment.
4. Total Harmonic Distortion; the sum of AC voltage waveform harmonics, from no load to full linear load, shall not exceed 5% of rated voltage (L-N, L-L, L-L-L) and no single harmonic shall exceed 3% of rated voltage.
5. Telephone influence factor shall be less than 50 per NEMA MG1-22.43.
6. Motor starting maximum kVA shall be based on a sustained RMS voltage drop (sustained for cycles 11-60$\pm$) of no more than 10% of no load voltage. Alternator shall provide specified ratings at 105^{o}C rise or less.
7. Class "H" insulation.
8. Sealed, prelubricated ball bearings.
9. Direct-driven generator cooling blower.
10. Provide fixed field connections to AC output leads in extra-large terminal box with removable cover.

E. GENERATOR AUXILIARY EQUIPMENT:

1. Provide generator output molded case circuit breaker, three pole, common trip, thermal magnetic type, to completely protect the generator from overloads; size according to NEC.

2. The fuel day tank shall be constructed of aluminized steel, welded construction and pressure tested to 5 PSI. It shall incorporate an integral fuel pump and motor. The fuel day tank control shall be provided with the following:

a) On/Off Emergency Run Switch, Test/Reset Switch, AC Circuit Breaker, DC Circuit Breaker, and Indicator lamps:

1) System Ready (green) - AC and DC power available
2) High Fuel (red) - Pump shutdown and close N/O dry contacts
3) Low Fuel (red) - Pump runs and closes N/O dry contacts
4) Low Fuel Shutdown (red) - Closes N/O contacts
5) Overflow to basin (red) - Pump shutdown and N/O dry contacts
6) One option lamp (red) - With N/O and N/C dry contacts
7) Pump Running (green)

3. Provide outdoor unit only in cases where generator may not be placed within building. Outdoor weather-protective housing with critical grade exhaust muffler installed and located within the housing. The housing shall have hinged side-access doors and rear control door. All doors shall be lockable. All sheetmetal shall be primed for corrosion protection and finish painted with the manufacturers standard color. Provide thermostatically controlled 120 or 240 VAC engine coolant heater and battery heaters.

4. Vibration isolators, quantity and type as required.

F. MAKE:

1. Onan (Design Make)
2. Kohler
3. Caterpillar
4. Generac

G. ENGINE-GENERATOR SET CONTROL:

1. The control shall have automatic remote start capability. Starting cycle shall be initiated by auxiliary contact(s) in automatic transfer switch(es). A panel mounted switch shall stop the engine in the STOP position, start and run the engine in the RUN position, and allow the engine to start and run by closing a remote contact, and stop by opening the remote contact when in the REMOTE position.

2. The control shall shut down and lock out the engine upon: failing to start after the specified time (over-crank), overspeed, low lubricating oil pressure, high engine temperature, or operation of a remote manual stop station.

3. The control shall provide a twelve light engine monitor on the control panel; one red light for each of the four shut downs (except the remote manual stop), and one yellow light each for the high engine temperature and low engine oil pressure prealarms, and one green run light. The control panel monitor shall include; a flashing red light to indicate the generator set is not in automatic start mode, a yellow light to indicate low coolant temperature, a yellow light to indicate low fuel, a red light to indicate battery charger failure, and one red light for auxiliary use (for a total of twelve). A panel mounted switch shall reset the engine monitor and test the lamps. The engine-generator set starting battery(ies) shall power the monitor. Operation of shut down circuits shall be independent of indication and prealarm circuits. Individual relay signals shall be provided for each indication for external circuit connections (not to exceed 1/2 amp draw) to a remote annunciator. A common contact for external connection to an audible alarm shall be provided.
4. Provide a low coolant level shutdown, which shall be indicated as a high engine temperature fault.
5. The NEMA 1 enclosed control panel shall be mounted on the generator set with vibration isolators. The control shall include surge suppression for protection of solid state components. A front control panel illumination lamp with On/Off switch shall be provided. Control panel mounted indicating meters and devices shall include: Engine Oil Pressure Gauge, Coolant Temperature Gauge, DC Voltmeter, and Running Time Meter (hours); Voltage adjusting rheostat, locking screwdriver type, Analog AC voltmeter, Analog AC Ammeter, Analog Frequency meter; Seven position phase selector switch with OFF position to allow meter display of current and voltage in each generator phase.

H. BATTERY CHARGER:

1. Provide Battery Charger And Regulator to:
   a) Automatically charge at rate necessary to maintain battery at full charge; with full charge in 24 hours after 5 minutes of cranking.
   b) Automatically disconnects from battery during engine starting.
   c) Sheet steel NEMA 1 enclosure for wall mounting.

I. BATTERIES:

1. Provide lead acid type, 12 or 24 VDC, as recommended by the Generator Set Manufacturer.

J. AUTOMATIC TRANSFER SWITCHES (ATS):

1. The automatic transfer switch shall consist of a power transfer switch and a control module, interconnected to provide complete automatic operation. Double throw, mechanically and electrically interlocked. All main contacts shall be of silver composition. The operating transfer time shall be a maximum of 1/6 of a second. Transfer switch shall be capable of manual transfer in order to meet the requirements of UL 1008 and UL listing requirements as described in UL's "Electrical Construction Materials."
2. Three phase, four wire, three pole, solid neutral.
3. Provide magnetic blowout coils and arc barriers on each pole.
4. Terminals front connected.

5. Provide dual transfer switch operator with adjustable time delay 1-300 seconds set at 3 seconds or in phase monitor to allow motor loads to be demagnetized between the time that the closed source is opened and the open source closed.
   a) Provide fused pilot lights as follows: Green - normal position, red - emergency position.
   b) Provide the following accessory features:
      1) Adjustable time delay before engine starting, field adjustable from 3 to 10 seconds.
      2) Adjustable time delay on transfer to emergency, field adjustable from 0 to 5 seconds.
      3) Adjustable time delay on retransfer to normal field adjustable 0 to 25 minutes, with five minute engine unloaded running time.
      4) Test switch, engine start and transfer.
      5) Pushbutton to bypass time delay on retransfer back to "normal" position.
      6) Engine start contact.
      7) Auxiliary contacts on shaft. No common wires for auxiliary contacts. Bring wires to terminal block, suitably labeled.
      8) A contact which closes when normal source fails for initiating engine starting, rated min, 10A @ 32 VDC.

6. Design Equipment: Russelectric RMT/RMTD Series

7. Make: ASCO, Onan, Russelectric.

K. EXHAUST SYSTEM:

1. Muffler: Quiet, spark arrester, Critical classification.

2. Exhaust Piping: Sections of seamless, stainless steel flexible exhaust piping between engine exhaust manifold and muffler.

END OF CHAPTER 26

RCSD Technical Standard
Chapter 27: Communications & Technology

I. PURPOSE

This Technical Standard is a narrative describing Rochester City School District's basis of design for telecommunication infrastructure standards. The information contained herein shall be used by the Project Design Team. This document addresses telecommunications infrastructure standards including classroom amplifications, paging/intercom and master clock systems. This Technical Standard shall be used as part of the RCSD's General Design Standards.

II. GENERAL

A. INDUSTRY STANDARDS

All telecommunication distribution designs shall be based on and shall comply with the current following industry standards:

- ANSI/TIA-568-C.0 Generic Telecommunications Cabling for Customer Premises
- ANSI/TIA-568-C.1 Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements
- ANSI/TIA-568-C.2 Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling
- ANSI/TIA-568-C.3 Commercial Building Telecommunications Cabling Standard, Part 3: Fiber Optic Cabling Components Standards
- ANSI/TIA -569-B: Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA-598 Color Coding of Fiber Optic Cables
- ANSI/TIA-606-A The Administration Standard for the Telecommunications Infrastructure of Commercial Building
- ANSI/TIA-607-B Commercial Building Grounding and Bonding Requirements for Telecommunications
- ANSI/TIA-758 Customer Owned Outside Plant Telecommunications Cabling Standard
- NFPA-70 National Electric Code (NEC)
- All above referenced documents are to be latest version, including addendum, in publication at time work is requested.

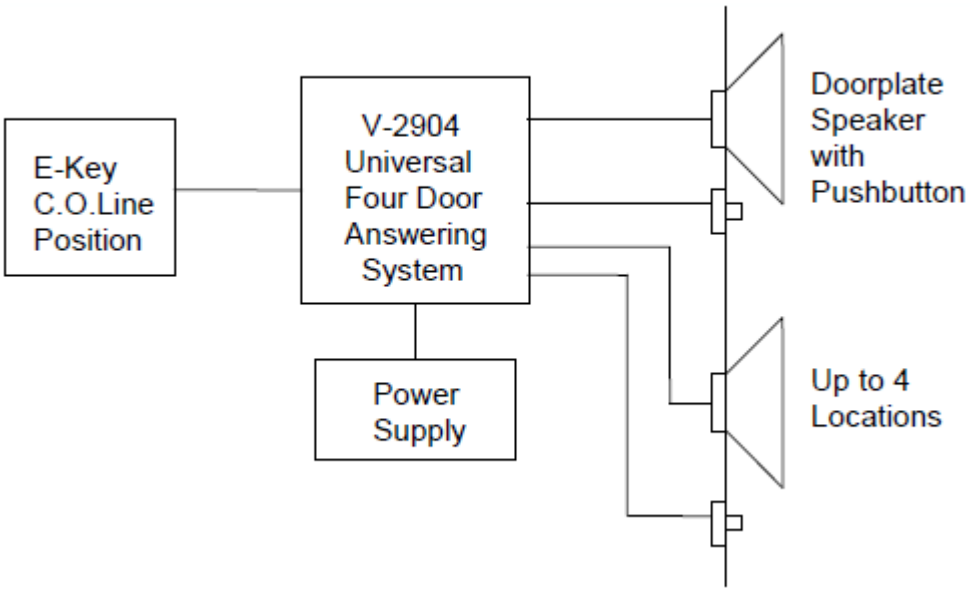
B. In addition to the above telecommunications standards, all design documents shall comply with codes and requirements of the RCSD and NYSED Planning Standards.

III. AUDIO ENTRY

The purpose of the audio entry system is to permit district staff to communicate via a two-way intercom to individuals who are requesting access to the school building. In addition, it acts as the gateway to enable the remote unlocking of the door by interfacing with the buildings Access Control System.

A. Functional Criteria

- Call-Box should be rated for extreme weather conditions, vandal proof and tamper proof. Flush or Raised Mount is acceptable. Call button should allow for hands-free communication with the operator.
- System should be capable of interfacing with both the schools Access Control System as well as the Phone System.
- When the Call-Button is pressed it calls a designated phone extension. The operator answers the phone and speaks with the guest outside. If the operator chooses to enable the outside guest to enter the building, the operator dials a code that then tells the access control system to unlock the door.
- System should be sized to handle at least 4 separate door entrances and call boxes.
- Figure below is a simplified line diagram of a typical installation.



B. Design Considerations and Methods

- Identify the number of locations that would require audio entry. (Typical installations at RCSD include Front entrance and Loading Dock.)
- Audio Entry can only happen at or near doors that are configured with door strike hardware connected to the building access control system.
- The audio entry system is one of many systems related to safety and security. School access should be vetted through multiple checks and balances. Careful placement of video cameras near call box is critical. Door entry should only be allowed into vestibule of school which would then permit visitors to enter the main office only.

- The audio entry controller should be placed in the same room as the primary controller for access control and the VoIP PBX. This location should be the Main Distribution Frame.
- Alarms for open doors should be considered for all outside doors.
- Careful coordination is necessary with the Access Control Integrator as well as with the RCSD Phone Staff.
- Although System can be installed prior to the completion of the access control system and the phone system, the audio entry system cannot be configured until both the access control system is set up and the phone system is operational.

C. Materials Matrix

The following materials have been deemed acceptable and either meet or exceed the functional requirements within.

Description	Make	Model (Part #)
Audio Entry Controller	Valcom	V2904
Call Box/Speaker	Valcom	V-1072A-ST

IV. Interactive LCD Display

The purpose of the Interactive LCD Display is to enable teachers to immerse their students in a multi-sensory and hands-on learning environment. It combines the functionality of a Whiteboard with that of a Projector or large monitor. Content from a computer can be displayed on the large screen and both the teacher and/or students can control the content with either a proprietary pen or simply through touch.

A. Functional Criteria

- LED Screen Type
- 16:9 Aspect Ratio
- Full HD Resolution
- Display Area: 56.24” H x 31.64” V
- 30,000 Hrs Life Time Cycle
- Touch Input of at least 2
- 3 HDMI Inputs, 2 VGA Inputs, 1 Audio Output

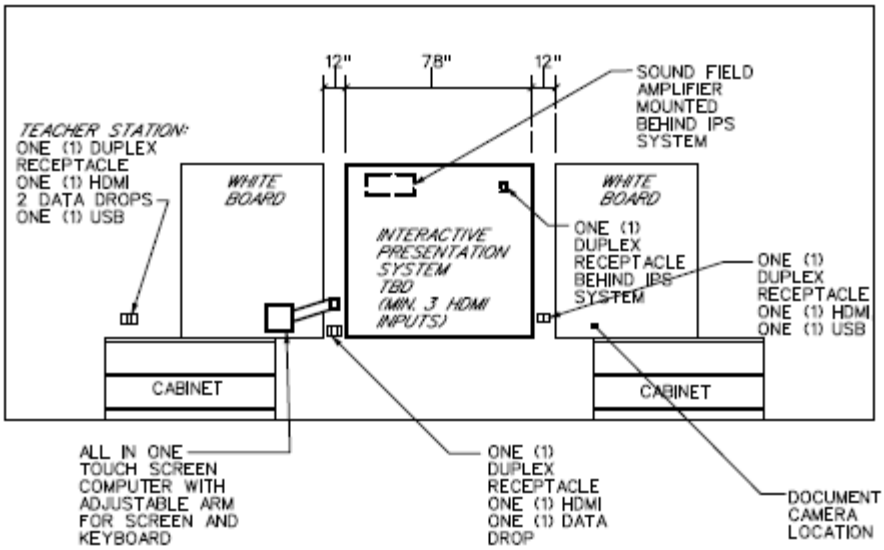
B. Design Considerations and Methods

- The height of the LCD Display should be placed utilizing the following matrix:

Classroom	Top of Board should be AFF at
K,1 and 2	66.5”
3,4 and 5	72.5”
6-12	78.5”
Science/Labs	84.5”

- There should be a minimum of a 2” gap between the LCD monitor and the wall to accommodate for access to inputs, cabling and to enable to install classroom amplification system behind LCD Display.
- Electrical outlet should be hidden but accessible behind the LCD.
- Classroom should be designed to handle a 75” display the with whiteboards placed no closer than 12” from LCD System.

TEACHING WALL ELEMENTARY SCHOOLS



C. Materials Matrix

The following materials have been deemed acceptable and either meet or exceed the functional requirements within. Table updated as of : May 30, 2017.

Description	Make	Model (Part #)
65” LCD Interactive Display	TBD	TBD

V. CLASSROOM AMPLIFICATION SYSTEM

Classroom Amplification Systems include all components required to amplify voice and other audio sources; an audio amplifier/mixer/built-in charger for microphone/transmitter(s), wall or ceiling speakers with mounting brackets and plenum speaker wire, Microphone, rechargeable microphone/transmitter, infrared sensor with plenum cable, NiMH rechargeable AA batteries, and power cords. *(Please note that this system is currently under review and revisions in which there is a new product that pairs microphones to the amplifier instead of utilizing IR. If this becomes the new standard than revisions to this document will be required.)*

A. Functional Criteria

- Two IR channels with independent volume controls
- Three stereo audio inputs with independent volume controls
- One additional microphone input to add additional IR microphones to a room.
- Page mute input with sensitivity adjust
- Teacher Voice Priority, switchable on/off
- Two audio outputs with level controls
- Four speaker outputs with on/off switches for independent speaker zoning
- 8-band graphic equalizer
- Two battery charger outputs for rechargeable transmitter(s)

- Two infrared sensor inputs with sensor short indicator, capability to power up to six IR sensors
- Page mute function that passively detects the audio signal of a page coming through the PA system without compromising system performance or voiding warranties. As an audio signal is sent to the PA speaker, the page mute function detects that signal and immediately mutes the audio amplifier.
- Teacher voice priority function that mutes the student pass-around microphone and/or the other audio sources connected to the audio amplifier. The function shall be controlled with a 3-position switch: OFF, Teacher over Audio IN, Teacher over Audio IN and student microphone.
- The receiver-amplifier shall fit any standard audio rack and be rack-mountable with the optional rack-mounting kit.
- The system shall be available with an alternative group of 2 frequencies to allow for a total of 4 compatible channels in a single room or common area.
- The system shall carry a “No Audio Dropout Guarantee” for enclosed classrooms up to 1600 square feet with ceiling heights of 12 feet or less.

B. Design Considerations and Methods

- Mount the amplifier at the teacher presentation wall behind the interactive whiteboard/LCD monitor.
- The four speakers should be mounted within the ceiling tiles and optimize sound field for the classroom.
- If the ceiling is not acceptable than wall mounted speakers should be utilized.

C. Materials Matrix

The following materials have been deemed acceptable and either meet or exceed the functional requirements within.

Description	Make	Model (Part #)
Infrared receiver/amplifier/mixer with built-in transmitter charging jacks, 8-band graphic equalizer, and 4 stereo audio inputs	Lightspeed	
LightMic microphone/transmitter with rechargeable NiMH batteries and cradle charger Volume Control Knobs.	Lightspeed	LT71 and BC-71
Infrared sensor with plenum-rated coax cable	Lightspeed	
Speaker(s) with mounting hardware and plenum-rated wire	Lightspeed	

VI. PAGING AND INTERCOM SYSTEMS

A. SYSTEM DESCRIPTION:

The complete system shall include but is not limited to the following:

- Equipment cabinets.
- Distribution frames and patch panels.
- Premises wiring and connections.
- Jacks and face plates.
- Testing.
- Raceways.
- Training.
- Intercom devices.
- Standby power.
- Paging control equipment, amplifiers, etc..
- Speakers and housings.
- Cassette tape players, CD's, AM/FM tuners, microphone(s), Antenna.
- Emergency call system devices.

All telephone handsets both analog and digital shall be connected directly to the digital telephone switch. Only speakers and call buttons shall be connected to the intercom/paging control equipment. The systems shall be interfaced via tie lines/or trunks to allow for the following functions:

- All call, zoned and individual speaker paging from any analog or digital phone connected to the phone switch.
- Night ring through all paging speakers.

B. PAGING AND INTERCOM SYSTEM

- Shall use advanced microprocessor technology, be user programmable and be controlled by a central administrative control station equipped with microphone, speaker, hand set and control panel with appropriate buttons to program and operate the system.
- The system shall have the following features:
  - a) Amplifiers for provision for up to eight programmable zones including emergency all page.
  - b) Amplifiers for program distribution from an AM/FM radio and cassette tape or CD player to any of the programmable zones.
  - c) Speaker control assemblies for direct connection of speakers in each room and for zone connection of corridor speakers.
  - d) Intercom amplifier for hands free communication between speaker and any phone.
  - e) Intercom and program panel at rack mounted head end equipment providing inputs for microphone or auxiliary plus a built-in microphone for emergency announcements.
  - f) Connection port at head end equipment for connection of computer or modem line for system diagnostic checks.
  - g) Tone generator with four (4) emergency tones and three (3) class change tones connected to master clock; specification section 16730.

h) Two way voice communication links to the telephone switch allowing the following:
   1) Direct dialing two way "amplified voice" intercom between administrative telephones and classroom speakers.
   2) Predetermination by administrative user as to whether to ring the telephone or the speaker.
   3) Distribution of emergency announcements to all speakers from any authorized telephone (any phone shall be authorized using a 3 digit access code).
   4) Night ring through selected zones.

i) Two way voice communication between the classroom speaker and administrative control center via push to talk button.

j) Emergency Call Button:
   1) Momentary contact push button flush mounted in a standard outlet box.
   2) Button shall be orange or red colored and labeled “EMERGENCY”.
   3) Button shall activate emergency call at P.A. control center and on emergency call indicator panel, which shall show the room number. Displays shall be located in the Main Office **[and the Security Office].** Button activation shall automatically open communications channel from the office to the classroom in which the button was activated.
   4) Design Make: Rauland RS509.
   5) Acceptable Manufacturers:
      (1) Bogen: “CA” Series.
      (2) Dukane: “9A” Series.

VII. SYNCHRONOUS CLOCK AND PROGRAM SYSTEMS

A. GENERAL

1. The clock and program system is an integrated, microprocessor-based system for originating and distributing time and time correction signals. It displays the time at remote locations and provides programmed, audible signals and operation of remote switching. The system transmits times and program signals to indicate clocks and audible signal equipment over paging and intercom system wiring. The system shall be capable of 48 hour backup in the event of a power outage.
2. Systems shall provide synchronized GPS time throughout all district buildings.
3. Synchronized time with LAN at each DMDF.
4. Wireless correction signal.

B. Provide all components and installation required for system features and functions that include, but are not limited to, the following:
   1. Precision time reference independent of line frequency. Battery backup of timekeeping.
   2. Operates and automatically corrects all secondary synchronous clocks.
   3. Automatic daylight savings time correction.

4. Function and Performance of Program Control System: Provide all components and installation required for system features and functions that include, but are not limited, to the following:
   a. Continuously run a minimum of three independent schedules of events simultaneously. Minimum of 125 events per schedule. Schedules shall correspond to the three grade levels K-4, 5-8 and 9-12.
   b. All event schedules can be programmed to run continuously, controlling any output circuit.
   c. Minimum of four output circuits for automatic remote function switching.
   d. All output circuits have automatic daylight savings time correction and automatic shift to a separately programmable holiday schedule.
   e. Events scheduled using keypad and LED or liquid crystal display. System shall be user programmable and user friendly.
   f. Nonvolatile memory for event schedules.
   g. Circuit duration for events adjustable from one of twenty-nine seconds minimum.
   h. Manual controls for all output circuits on integral control panel.
   i. The clock and program system shall interface with paging and intercom system to provide a program tone over the paging and intercom system speakers.
   j. The clock system head end equipment shall mount in surface mounted enclosure.
5. Remote programming of system via LAN.

C. The master clock and program controller shall be micro-processor based and of solid state, modular design. Each individual function shall be provided by solid state plug-in panels or modules.

D. Each program circuit shall be programmed for time of day, day of week and holiday routines. Programs shall be user changeable.

E. The programmer display shall consist of a minimum eight digital display to indicate day of week, hours, minutes and seconds. Programmer keyboard shall consist of ten numerical pushbuttons (0-9) and function pushbuttons as required to program the specified master clock and program controller.

F. From The Programmer/Display, The System User Shall As Minimum Be Able To Program The Functions Listed Below:
   1. Set the date, day and time.
   2. Clear previous programs.
   3. Enable new time programs.
   4. Enable or disable discrete outputs on command.
   5. Program 10 discrete outputs based on day (including holiday), and time.

G. Provide a program channel selector switch with a minimum of four selectable positions, to allow up to four separate programs per circuit. Each program selector channel shall be user-programmable for such functions as half-day, regular day and Auditorium schedules.

H. In the event of 120 VAC power loss, the master clock and controller shall not lose memory and retain all programming. When 120 VAC power is restored, all system clocks and program circuits shall be automatically updated to the current day and time. Provide minimum 48 hours of battery reserve.

I. Provide correction each 4th hour and upon restoration of power.

J. Provide a temperature compensated crystal oscillator for 60 Hz reference to the controller. The controller shall be accurate within two seconds per month.

K. Provide a key-operated lockout to prevent unauthorized programming of the controller.

L. The master clock and program controller shall operate on 120 VAC 60 Hz power. Operating temperature range shall be 32°F to 122°F. Operating humidity range shall be 0% to 95% RH noncondensing.

M. Enclosure shall be code gauge steel with baked-on enamel finish. Panel face shall be smooth with no projections. All components shall be located behind a lockable outer door made of plexiglass and metal. Enclosure shall be surface mounted.

N. Synchronized time received from roof (attic or penthouse space is more conducive) -mounted GPS antenna. Correction of clocks via transmission from signal from transmitters.

O. Design Make: Primex 14400 with Primex 14480 and Primex 14342.

P. Acceptable Manufacturer: Sapling.

Q. SECONDARY CLOCKS
   1. Provide a direct wire synchronous motor driven clock. Provide correction each 4th hour, and upon restoration of power. Clock shall operate from a 120 volt power outlet.
   2. All clock components shall be heavy-duty and completely sealed.
   3. Provide shatterproof lens.
   4. Provide hour, minute hands. Hand color shall be black. Dial shall be 12 in. round for classrooms and 16 in. round for gymnasium, Pool and cafeteria and auditorium.
   5. Provide wire clock guard for Gymnasiums, Pools and where noted on the drawings.
   6. Design Make: Primex Traditional Series
   7. Acceptable Manufacturer: Sapling.

VIII. PHONE SYSTEM

Refer to District Wide Technology Standard

IX. LOCAL AREA NETWORK

Refer to District Wide Technology Standard

END OF CHAPTER 27

RCSD Technical Standard
Chapter 28: Electronic Safety and Security

X. PURPOSE

This Technical Standard is a narrative describing Rochester City School District's basis of design for electronic safety and security standards. The information contained herein shall be used by the Project Design Team. This document addresses current electronic safety and security standards including video surveillance, access control, intrusion detection and fire alarm. This Technical Standard shall be used as part of the RCSD's General Design Standards.

XI. GENERAL

R. INDUSTRY STANDARDS

All telecommunication distribution designs shall be based on and shall comply with the current following industry standards:

- ANSI/TIA-568-C.0 Generic Telecommunications Cabling for Customer Premises
- ANSI/TIA-568-C.1 Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements
- ANSI/TIA-568-C.2 Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling
- ANSI/TIA-568-C.3 Commercial Building Telecommunications Cabling Standard, Part 3: Fiber Optic Cabling Components Standards
- ANSI/TIA -569-B: Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA-598 Color Coding of Fiber Optic Cables
- ANSI/TIA-606-A The Administration Standard for the Telecommunications Infrastructure of Commercial Building
- ANSI/TIA-607-B Commercial Building Grounding and Bonding Requirements for Telecommunications
- ANSI/TIA-758 Customer Owned Outside Plant Telecommunications Cabling Standard
- NFPA-70 National Electric Code (NEC)
- All above referenced documents are to be latest version, including addendum, in publication at time work is requested.

S. In addition to the above telecommunications standards, all design documents shall comply with codes and requirements of the RCSD and NYSED Planning Standards.

XII. Video Surveillance

The purpose of the video surveillance system is to provide video coverage inside district buildings, external perimeters of district buildings, access controlled entrances, and designated external areas (such as parking lots).

T. Functional Criteria

- Video cameras will:
  - be IP cameras
  - rely on Ethernet for video transmission, camera control and security administration
  - be capable of using PoE (Power over Ethernet) using IEEE 802.3af standards
  - be capable of transmitting video in MJPEG (as a minimum) or the preferred MPEG-4 formats
  - feature alarm contact inputs (1per min.) and alarm relay outputs (1 per min.) to allow for direct integration to access control and perimeter alarm systems.
  - feature auto Color/BW and Day/night settings to facilitate low light recording and monitoring down to 2 lux.
  - be capable of up to 30fps to produce full motion video.
  - support video multicasting to allow for multiple viewing recording users at one time.
  - be accessible through local area network, wide area network and browser software or installed applet.
  - feature support for multiple security roles to allow for camera viewing, camera control (for zoom or PTZ functions), and camera administration settings.
  - be mounted in domes to prevent vandalism and unauthorized camera movement.
  - make use of smoke colored lens domes to conceal the direction the camera is facing
  - will feature optional heating and fan accessories to expand operating temperature range. Additionally, these cameras will be capable of and make use of optional DC power supplies due to their increased electrical load.

- Network Video Recorders (NVR) will be installed at a central location outside of the building to record cameras at the campus and will feature archival capability to central Storage Area Network.
- IP Cameras will provide video capture capability. These cameras act in a stand-alone manner and do not require a dedicated controller. The cameras will be capable of being controlled from remote locations.
- A Network Video Recorder (NVR) will monitor and record video generated from IP cameras. This device will function as a network server and is capable of monitoring approximately 24 cameras in full motion video at one time.

- Web based applet software will be used by first responders and security personnel to access cameras in real time mode and NVR ptz to retrieve recorded video.
- The video surveillance system will make use of network equipment already in place (LAN/WAN) to allow for communication between district facilities.

U. Design Considerations and Methods

The following are the basic types of camera installation:

External/ Outdoor installations

- All mounts will make use of external building wall mounts. This will require external wall mount kits to be provisioned from video surveillance vendor.
- Additional provisions for power drops must be made to accommodate auxiliary DC power supply
- Provisions and adjustment will be made based on manufacturers specific mount dimensions and requirements.

Internal/ Indoor Flush Mount Ceiling installations

- This is the preferred method for monitoring hallways and corridors and within rooms, where possible, and is suitable for dry walled and drop ceilings.
- Cameras are mounted in a recessed fashion with only the dome lens cover and mounting ring being exposed.
- Provisions and adjustment will be made based on manufacturers specific mount dimensions and requirements.

Internal/ Indoor Direct Mount Ceiling installations

- This method is used when ceiling surface will not permit flush mounts such as the case in gymnasiums.
- Cameras are installed in a housing that is directly mounted to the ceiling or ceiling rafters.
- Provisions and adjustment will be made based on manufacturers specific mount dimensions and requirements.

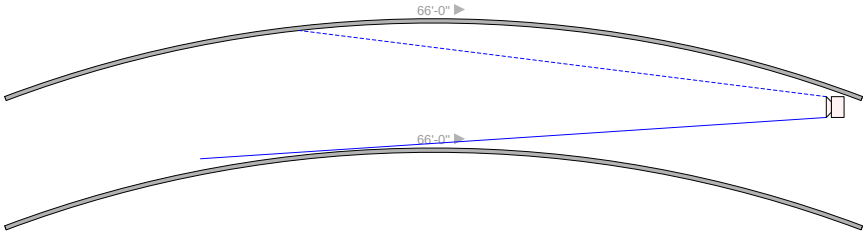
Internal Indoor Wall installations

- This method is desirable in cases where ceiling mounts will not work because elevation changes cause blind spots, or when architectural elements are better served (such as the case in rounded or curved corridors).
- This method will make use of wall mount brackets such that camera are installed on wall approximately 5-12 inches down from ceiling surface.
- Cameras will be mounted within a wall mount enclosure that will be attached to the wall using appropriate means.
- Provisions for cabling drops in walls must be made.
- Provisions and adjustment will be made based on manufacturers specific mount dimensions and requirements.

Example Curved Corridor

The above diagram illustrates a curved corridor. If these areas are determined to need coverage, the following are strategies for placing surveillance cameras:

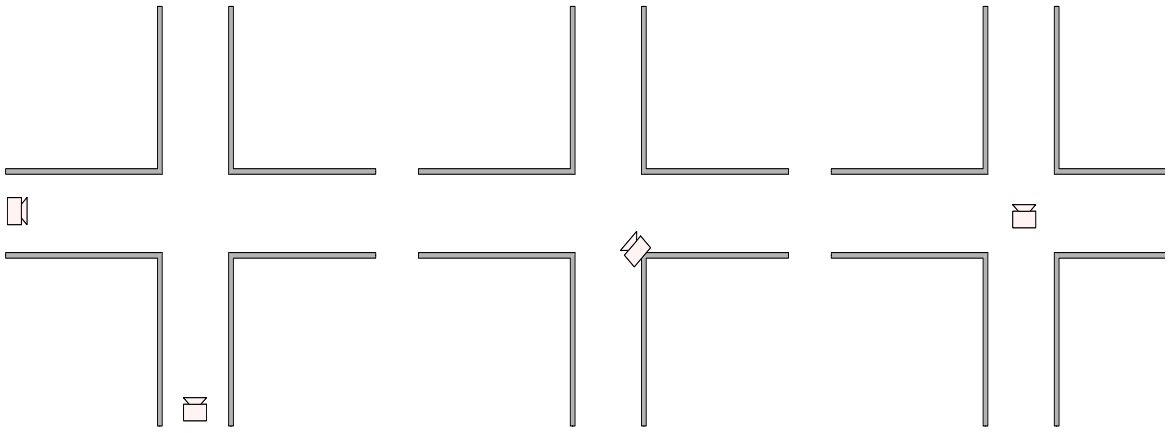
- Mounting fixed position cameras on the outer arc wall will provide best coverage.
- Tracing line of sight will help determine camera placement and quantity.
- Cameras should be mounted 8 to 10 feet from floor using all mount.



Example Intersecting Corridors

The above illustrates intersecting corridors and options for providing video surveillance. The following are issues and strategies for each option:

- Option A
  - This setup assumes each corridor will be monitored independently. Each Camera is ceiling mounted and provided 'through the intersection' coverage.
  - Incidents happening in the high traffic intersection will be captured from two perspectives.
  - Wall mounts with cameras 8 to 10 feet up from the ground and 5 to 12 inches down from ceiling can be used as an alternative.



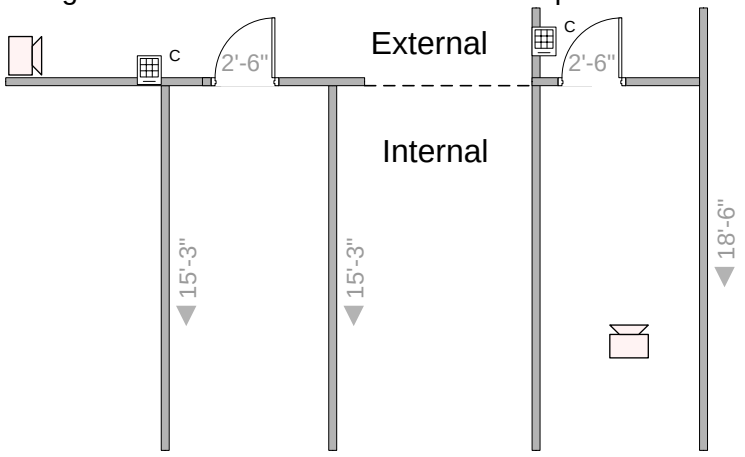
Option A Option B Option C

- Option B
  - This setup makes use of a wall mount near the intersection to monitor two of the four corridor off shoots, leaving the other two unmonitored.
  - Camera is 8 to 10 feet up from the ground and 5 to 12 inches down from ceiling and within 1 foot of intersection corner.
  - This option can be used in elementary settings where student on student violent acts are of less concern but should not be used in middle schools or high schools unless cost prohibits other options.
- Option C
  - This setup is often used to monitor doors leading out of the school where the camera is pointed down corridor with door leading out of the school. It is often used in elementary situations where access in and out of the building is the most important monitoring activity.
  - This setup makes use of a ceiling mount camera but can also use wall mount.

Example monitored access doors

The above diagram illustrates two typical options for monitored access doors that are monitored with video surveillance. The following are issues and strategies for each option:

- Option A assumes a non-recessed entrance.
  - The fixed position camera will be wall mounted perpendicular to the doorway and mounted on the wall between 8 and 10 feet up from the ground and 4 to 6 feet from the door or access reader
  - If camera is outside the building, use the external camera model
- Option B assumes a recessed entrance.
  - The fixed position camera will be ceiling mounted approximately 6 to 8 feet from the doorway internal to the building.
  - Using a wall mount here would be an acceptable alternative

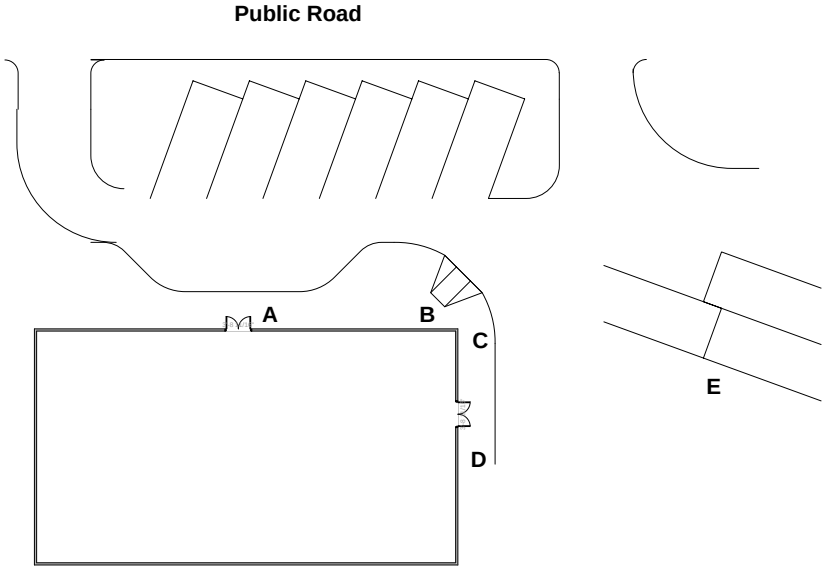


Option A Option B

Example external layout for Camera locations

The above diagram illustrates a typical school building with front visitor parking, a drop off parking lane, and faculty/student parking on the building side. The diagram also illustrates five typical external mounting positions. The following are issues and strategies for each position:

- Position A
  - This position features a wall mount camera 15 to 30 feet from ground level.
  - This cameras range of view is approximately 180 degrees along the front of the building.
  - Significant areas under surveillance from this perspective are front roads, drop off zones, and visitor parking areas.
  - If an overhang over the front doors precludes a clear view the mounting should be shifted down the wall (possibly to position B)
- Position B
  - This position features a wall mount camera 15 to 30 feet from ground level.
  - This cameras range of view is approximately 180 degrees along the front of the building and may include some of the side parking area if the camera is mounted within a few inches from the corner.
  - Significant areas of surveillance are the same as option A



- Position C
  - This position features a wall mount camera 15 to 30 feet from ground level.
  - This cameras range of view is approximately 180 degrees along the side of the building and may include some of the front parking area if the camera is mounted within a few inches from the corner.
  - Significant areas of surveillance are side parking lot, building side

entrances and facilities located on side of building (i.e. sports courts and athletic facilities).

- Position D
  - This position features a wall mount camera 15 to 30 feet from ground level.
  - This cameras range of view is approximately 180 degrees along the side of the building.
  - If an overhang over the side doors precludes a clear view the mounting should be shifted down the wall (possibly to position C).
  - Significant areas of surveillance are the same as option C.
- Position E
  - This position makes use of a pole mounted dome or pendant. Generally, this will be 20 to 30 feet from ground level (depending on pole height).
  - This mounting affixes to a lot lighting pole. Additional wiring will be necessary for this use.
  - This camera's range of view is approximately 350 degrees.
  - Significant areas of surveillance are side parking lots, building side exterior and entrances, and facilities located on the side of the building (i.e. sports courts and athletic facilities).
  - This use is typically reserved for use in larger campuses where the parking lot may be located far from the building or the lot is too large to be adequately served from building mounted locations only.
- Alternatives
  - It is possible to use fixed position cameras at each of these mounting locations.
  - A typical plan may use a combination of fixed position cameras in these locations to control expense and provide adequate coverage. Example- use fixed position cameras at positions B and C that are focused on building entrances while using 360-degree cameras at positions A and D to scan the perimeter

V. Materials Matrix

The following materials have been deemed acceptable and either meet or exceed the functional requirements within.

Description	Make	Model (Part #)
Headend Equipment (Located at Centralized District Location.) Servers, Software, Etc.	Avigilon	
Camera	TBD	TBD

XIII. Access Control

Refer to District Wide Technology standard

XIV. Intrusion Detection

Refer to District Wide Technology standard

XV. Fire Alarm

Refer to District Wide Technology standard

END OF CHAPTER 28

RCSD Technical Standard
Chapter 31: Earthwork

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for Slope Protection and Erosion Control; and Termite Control. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

SLOPE PROTECTION AND EROSION CONTROL

I. GENERAL

CC. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

DD. The architect/engineer shall comply with all requirements of the current version of the NYS Stormwater Management Design Manual.

EE. The architect/engineer shall obtain all necessary permits prior to the preconstruction meeting or shall inform the contractor of permits they are required to obtain at the preconstruction meeting.

FF. This work consists of temporary measures needed to control erosion and water pollution. These temporary measures will include, but not be limited to, berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods. These temporary measures shall be installed at the locations where needed to control erosion and water pollution during the construction of the project and during site restoration, and as directed by A/E, and as shown on the drawings.

GG. The Erosion Control Plan presented in the drawings serves as a minimum for the requirements of erosion control during construction. Contractor shall have the ultimate responsibility for providing adequate erosion control and water quality throughout the duration of the project. Therefore, if the provided plan is not working sufficiently to protect the project areas, then Contractor shall provide additional measures as required to obtain the required protection.

II. PRODUCTS

C. Materials

1. Comply with all applicable municipal or local Municipal Separate Storm Sewer System (MS4) requirements.

2. All materials shall be submitted for approval prior to installation.

3. Natural or biodegradable materials shall be reasonably clean, free of deleterious materials, and certified weed free. Materials may include, but are not limited to, hay bales, straw, fiber mats, fiber netting, wood cellulose, fiber fabric, gravel.

4. Grass Seed:

i. 1. Temporary grass cover (if required) shall be a quick growing species, suitable to the area, in accordance with local criteria and permit requirements, which will provide temporary cover, and not compete with the grasses sown for permanent cover.

ii. All grass seed shall be specified by the architect/engineer in accordance with local regulations prior to installation.

5. Fertilizer and soil conditioners shall be specified by the architect/engineer in accordance with local regulations prior to installation.

6. Silt Fence Fabric:

i. Woven Polypropylene
1. Mirafi 100X, "Envirofence". 2. Or accepted substitution.

7. Temporary Slope Stabilization Mat: (if required) shall be approved for use in the City of Rochester.

III. EXECUTION

A. GENERAL

1. All temporary and permanent erosion and sediment control practices will be maintained and repaired as needed to ensure continued performance of their intended function.

2. The contract documents shall specify which party is responsible for monitoring the Contractor's erosion control methods. If the overall function and intent of erosion control is not being met, the RCSD representative will require Contractor to provide additional measures as required to obtain the desired results.

3. The erosion control features installed by Contractor shall be adequately maintained by Contractor until the project is accepted.

B. PROTECTION OF ADJACENT PROPERITES

1. Properties adjacent to the site of a land disturbance shall be protected from sediment deposition.

2. In addition to the erosion control measures required on the drawings, perimeter controls may be required if damage to adjacent properties is likely, and may include, but is not limited to:

i. Vegetated buffer strip around the lower perimeter of the land disturbance.

a. Vegetated buffer strips may be used only where runoff in sheet flow is expected and should be at least twenty (20) feet in width.

b. Sediment barriers such as straw bales, erosion logs, and silt fences.
c. Sediment basins and porous landscape detention ponds.
d. Combination of above measures.

C. CONSTRUCTION

1. Stabilization of Disturbed Areas:
    i. Temporary sediment control measures shall be established within five (5) days from time of exposure or disturbance.

    ii. Permanent erosion protection measures shall be established within five (5) days after final grading of areas.

2. Stabilization of Sediment and Erosion Control Measures:
    i. Sediment barriers, perimeter dikes, and other measures intended to either trap sediment or prevent runoff from flowing over disturbed areas shall be constructed as a first step in grading and be made functional before land disturbance takes place.

    ii. Earthen structures such as dams, dikes, and diversions shall be stabilized within five (5) days of installation.

    iii. Stormwater outlets shall also be stabilized prior to any upstream land disturbing activities.

3. Stabilization of Waterways and Outlets:
    i. All onsite stormwater conveyance channels used by Contractor for temporary erosion control purposes shall be designed and constructed with adequate capacity and protection to prevent erosion during storm and runoff events.

    ii. Stabilization adequate to prevent erosion shall also be provided at the outlets of all pipes and channels.

4. Storm Sewer Inlet Protection: All storm sewer inlets which are made operable during construction or which drain stormwater runoff from a construction site shall be protected from sediment deposition by the use of filters.

5. Construction Access Routes:
    i. Wherever construction vehicles enter or leave a construction site, a Stabilized Construction Entrance is required.
    ii. Where sediment is transported onto a public road surface, the roads shall be cleaned thoroughly at the end of each day.
    iii. Sediment shall be removed from roads by shoveling or sweeping and be transported to a sediment controlled disposal area.
    iv. Street washing shall be allowed only after sediment is removed in the manner described above.

D. DISPOSITION OF TEMPORARY MEASURES

1. All temporary erosion and sediment control measures shall be disposed of within thirty (30) days after final site stabilization is achieved or after the temporary measures are no longer needed as determined by RCSD representative.

2. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion.

3. Substantial Completion of Erosion Control Measures:
    i. At the time specified in the Contract Documents, and subject to compliance with specified materials and installation requirements, Contractor shall receive a Substantial Completion Certificate for temporary erosion control measures.
    ii. Maintenance of Erosion Control Measures after Substantial Completion: Contractor shall be responsible for maintaining temporary erosion control measures as specified in the drawings and Contract Documents until such time as work has been accepted by RCSD representative and as specified in RCSD's Division 1 for Closeout Procedures.

END OF CHAPTER 31

RCSD Technical Standard
Chapter 32: Exterior Improvements

I. PURPOSE

This Technical Design Standard is a narrative describing Rochester City School District's (RCSD's) Basis of Design for all exterior improvements. This Technical Design Standard shall apply to all RCSD renovations and new facilities.

II. GENERAL

HH. This section includes Asphalt Paving, Concrete Paving, Athletic and Recreational Surfacing, Playground Surfacing, Chain Link Fence and Gates, and Irrigation System, Grass Seeding, and Landscape Planting.

II. The architect/engineer should use all applicable references, codes, and National Industry standards to specify and complete work performed in this chapter.

JJ. The architect should provide proper coordination of all fire lanes with the Fire Marshall.

KK. Accessible loading zones shall be marked to comply with TDLR and other applicable codes and regulations.

LL. At a minimum, all curbs located between approved Fire Lane - Tow-Away Zone signs shall be painted RED or a RED stripe shall be placed along the pavement where there is no curb. These curbs shall also be conspicuously and legibly marked with the warning "FIRE LANE - TOW AWAY ZONE" in WHITE letters at least three inches in height, at intervals not exceeding fifty feet.

MM. Any color other than red may be used in "NO PARKING" areas that are not approved Fire Lanes. RED colored curbs, pavement striping or wheel stops shall be used only to designated approved Fire Lanes except where authorized by the Code Official. Additional areas may be required by code and/or Fire marshal reviews. Field verify fire lane locations with City of Houston School Team Fire Marshall.

NN. The ground floor elevation should be established with as much foresight as possible, considering the capacity of major off site drainage ways, potential for increased development in the area, and the historical high water levels in the neighborhood. This may result in a first floor elevation higher than the code required elevation.

OO. Foundation planting along the base of the building is discouraged due to high maintenance and water penetration. Landscaping should be established with as much foresight as possible, considering amount of irrigation required, drought conditions and location to the proposed construction. Ensure that new landscaping is not planted too close to the building foundation that will cause future structural issues.

PP. Planting improvements should reinforce an environment conducive to learning and high self-esteem. Simplicity in design and maintenance is encouraged. The

creation of tall screening in the landscape that prohibits visual surveillance of the campus is discouraged. Improvements should emphasize trees and lawns, but will also entail proportionately small amounts of ground covers, low shrubs, vines and perennials. Indigenous and native materials are encouraged.

QQ. All construction projects should include topsoil, fertilization and seeding (type depends on season) with a full stand of grass being the point of transfer of responsibility from contractor to Owner.

RR. Drainage line discharge outlets exceeding 12" diameter require a grating or other device to prevent entrance by small children. Area drain gratings shall have narrow-slot openings of maximum 3/4" width, and shall be "heavy-duty" grade at all locations.

SS. Provide a one-way bus drop-off lane at a canopy connecting to a building entry, separate from other traffic access, including automobile drop-off; canopy is not required to extend over the drive lane. If new canopy provided, then canopy shall fully extend over new passenger curb ramp provided at bus drop off.

TT. Provide a one-way automobile drop-off access at a canopy connecting to a building entry, separate from other traffic access, including bus drop-off; canopy is not required to extend over the drive lane. If new canopy provided, then canopy shall fully extend over new passenger curb ramp provided at parent drop off zone.

UU. All driveways and parking shall be concrete paving. No asphalt will be allowed except for patching and topping of existing asphalt and with Program Manager approval only.

VV. Paving for service areas should be designed for heavy truck loading and have storm drainage inlets.

WW. No completely enclosed exterior courtyards are allowed. Courtyards, if any, must be open at one side, such as U-shaped; and the open side, if fenced, must have a gate that complies with exit requirements, including exit hardware.

XX. For site ramps and stairs, provide handrails that are of simple design, galvanized and painted, not aluminum or custom detailed.

YY. Service access and service drives shall be separated from other vehicular access.

ZZ. Playground equipment shall be placed in such a location that will afford maximum security and maintain site lines within the school perimeter. Care should be taken when orienting equipment. Slides should not face south, to prevent harsh glare and heating of slide surface.

AAA. Finish grading shall have a tolerance of plus or minus ½”.

BBB. All retaining walls with a height of 5’-0” or greater or walls subjected to surcharge loading shall be designed by a professional engineer and the drawings

shall be sealed accordingly. Consideration must be given to the need for guardrails for fall protection. Provide railing and guardrails where needed for safety and protection.

CCC. Planting

a. The following guidelines establish standard for planting and related appurtenances, but are not complete technical specifications. The Consultant is encouraged to consider these a basis for design, documentation, and specifications, but shall also assure their compatibility to the specific site.
b. Soil, amendments & fertilizers:
    i. Lime: Lime shall be ground dolomitic limestone containing not less than 85 percent carbonates. It shall be ground to a fineness so that 80 percent will pass through a 100 mesh sieve and 95 percent through a 60 mesh sieve. Limestone shall be furnished in standard bags of the manufacturer showing weight and analysis.
    ii. Fertilizer: Fertilizer shall conform to state fertilizer laws, shall be granular or pelleted in form and furnished in the manufacturer's labeled bags. Fertilizer grade shall be a starter type.
    iii. Topsoil: The surface layer of soil shall be free from refuse, any material toxic to plant growth, subsoil, organic substances, stone, clay lumps or similar objects larger than 1" in greatest dimension.
c. Use native, drought-tolerant plantings that can tolerate periods of saturation.
d. Any landscaping beyond code requirements should be minimized. Do not design large planting beds which are a maintenance problem.
e. Foundation planting is discouraged. Flowering trees away from the building is preferred.
f. Written approval is required to include any plant material not covered by an automatic irrigation system other than large play fields and lawns.
g. Due to cost, large lawn areas should be hydromulched and not sodded. Exceptions should be reviewed with Program Manager and may involve time of year and construction schedules. A notable exception is that contractor is to provide sod at all locations where small areas of patching (10-20 sq.yd.) of existing grass surface is disturbed. Seeding will not be accepted in these areas.
h. Seed shall be fresh, clean seed of the latest crop which meets the standards of the Federal Seed Act including percent pure seed, percent germination and percent weed content listed below. All seed shall be furnished in sealed standard containers of the vendor with each container showing name of vendor, weight, percent of each grass seed, percent pure seed, percent germination, percent weed content, date of seed crop and date of test. District preferred seed composition has the following analysis:

Percent By Weight	Kind of Seed
10.5	Kentucky Bluegrass, 98/80 - PA Free
17.5	Creeping Red Fescue (Canadian origin)
13.0	Patriot Perennial Ryegrass

12.0	Annual Ryegrass
43.5	Kentucky 31 Tall Fescue

i. Seed which is wet, moldy or otherwise damaged will not be acceptable.
j. Side slope storm water detention areas should be carefully considered and specifications should include establishing a lawn, not just an application of hydromulch. To establish lawn may require topsoil, erosion control, sodding, and irrigation.
k. Review plant list from project manager before any plant selections are determined. Considerations should be given to toxicity of plantings, excessive thorniness, salt tolerance, ease of maintenance, drought tolerance, neighborhood or historic context and general acceptability to the growing conditions at the selected school.
l. Provide a growth period for plant, sod and hydromulch establishment as recommended by the Landscape Architect. All temporary irrigation and maintenance necessary to properly establish the plantings will be the responsibility of the contractor,

EXECUTION

1. Seeding
    a. All areas indicated or areas disturbed by the Contractor's operation shall be topsoiled with a minimum of 4" topsoil and seeded with permanent grasses.
    b. All ground surfaces shall be thoroughly tilled to a depth of 4 inches and suitable for seeding. All clumps, stones and other debris over one inch in longest dimension shall be removed.
    c. All areas to be seeded will be fine graded on gradients with sufficient pitch to assure proper drainage. Any surface irregularities shall be corrected to prevent unsightliness or depressions where water will stand. Prior to actual sowing of seed, the surface shall be raked of all sticks, stones one inch in diameter and larger and other objects that might be a hindrance to seeding and maintenance operations. All excess soil, stones and debris shall be cleaned up and removed from the property.
    d. All seeding work shall be done between April 1 and June 1 or between August 15 and September 15. Seed, lime, fertilizer and mulch shall be sown by acceptable equipment. Lime shall be applied at the rate of 50 pounds per 1,000 square feet, fertilizer at the rate of 20 pounds per 1,000 square feet and mulch at the rate of 50 pounds per 1,000 square feet. Seed shall be applied at the rate of 5 pounds per 1,000 square feet and shall be uniform in placement. Seeding shall not be done during windy weather. The seed shall be planted no deeper than ¼ inch. After seeding, the seeded areas shall be compacted with a light roller.
2. Maintenance
    a. The Contractor shall be responsible for the proper maintenance of all seeded areas until the entire project has been accepted by the Owner. Maintenance shall consist of repeat watering as required, erection of necessary warning signs and barricades, mowing of seeded areas to a two inch height, repair or replacement of areas which fail to show a uniform growth of

grass or which are damaged in any way and other required maintenance during the maintenance period. Any and all replacements or repair of damages to seeded areas such as ruts, slips, gullies and damage to the grass shall be repaired at no additional cost to the owner.

3. Cleanup
    a. All soil, stones, sod or similar material which as been brought onto paved areas by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times. Upon completion of the planting, all excess soil, stones, sod and other debris which have not previously been cleaned up shall be removed from the site and disposed of off the property.

4. Acceptance
    a. All seeded areas shall be maintained and mowed to a two inch height until a uniform stand of grass acceptable to the Owner is obtained.

III. ASPHALT PAVING

GENERAL

A. Require a warranty for the work against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials or workmanship
    a. Defects shall include, but not be limited to the following:
        i. “Fatty” or “Lean” areas that show surface failure.
        ii. Areas that puddle water in excess of 1/2 inch deep where the designed slope is at least 1/4 inch per foot.
        iii. Becoming tacky.

PRODUCTS

A. Tack coat: Specify in accordance with NYSDOT Standard Specifications.

B. Hot-Mix Asphalt Paving: Specify in accordance with NYSDOT Standard Specifications. The paving mixtures shall consist of a uniform mixture of aggregate, hot asphalt cement, and additives if allowed or required. The mix shall be designed in accordance with Specify in accordance with NYSDOT Standard Specifications. The mixture shall be designed to produce an acceptable mixture at an optimum density of 96.0 percent, when tested in accordance with NYSDOT Standard Specifications.

C. The operating range for control of laboratory density during production shall be optimum density plus or minus 1.5 percent. The materials used in the mixture design shall produce a mixture with a stability value of at least 35, unless otherwise shown on the Drawings, when tested in accordance with NYSDOT Standard Specifications.

D. Pavement Markings

    a. Type: Latex, water based paint intended for use in marking parking lots and roads and complying with NYSDOT standard specifications. Apply at manufacturers recommended rates to provide minimum 12 to 15 mils dry thickness

b. Stripe Size: Four inches wide for traffic and parking lanes, unless noted otherwise.
c. Colors: Traffic and Parking Striping: Yellow or white as selected by Architect and RCSD Project Manager.
d. Fire lane, accessible parking and access aisles shall be determined by the Architect.

EXECUTION

A. The architect should include the following requirements in their specification and include additional directives as necessary for the project.

B. Placing Topping:
   a. Temperature: Provide mix at minimum 225 degrees F., when dumped from mixer.
   b. Clean Base: Remove loose material, dust, dirt and other foreign materials from the base course.
   c. Tack Coat: Apply 0.05 to 0.2 gal. per sq. yd.
   d. Compaction: Compact topping to 95 percent by on-site Hveem test. Stability shall be 35-40 percent by Hveem test.
   e. Thickness of Topping After Compaction - 1-1/2 inches, unless shown otherwise. Adjust as required to obtain grade for drainage.

C. Field Quality Control
   a. Surface: Smooth, hard and well cemented to base course.
   b. Grades: Conform to those shown.

A. Accuracy: Free of puddles deeper than 1/2 inch where designed for a slope of at least 1/4 inch per foot.

IV. CONCRETE PAVING

GENERAL

A. All new paving shall be concrete designed per “AASHTO Guide for Design of Pavement Structures” utilizing “Low-Volume Road Design”.
B. Require a warranty for the work against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials or workmanship.
C. Concrete paving, including, but not limited to parking lots, aprons, sidewalks, curbs, handicapped accessible ramps, approaches, and miscellaneous exterior concrete.
D. Require broom finish on exterior sidewalks.
E. Include a minimum of 5-foot wide paved access to and around the flagpole, accessible by the handicapped.
F. Exterior walk and paving joints shall have pourable grade two-part polysulfide or urethane sealant. Require prepared joint to be wire brushed and air blasted to thoroughly clean joint before installing sealant.
G. Concrete shall slope at 1% minimum unless approved by RCSD program manager.
H. Standard parking spaces shall be 9’ X 18’. Use compact parking spaces (8’ X 16’) only if recommended by a traffic impact study.

I. Drive isles shall be 24’ minimum wide for car traffic and 30’ wide minimum for bus traffic.
J. Heavy Duty concrete pavement at least one bus length long, is required at all bus loop exit ways to public right of way.

PRODUCTS

A. Metal Reinforcement:
    1. Bars: Conform to ACI 315, latest edition. Comply with ASTM A615, Grade 60, deformed billet steel bars, unfinished, except Number 3 bars shall comply with ASTM A615, Grade 40, deformed billet steel bars, unfinished.
B. Tie Wire: 16 gauge annealed.
C. Concrete Materials (Other than concrete for extruded curbs, unless noted otherwise).
    1. Cement: Type 1, ASTM C150, unless approved otherwise by Architect. Use one brand of cement for entire project.
    2. Concrete Admixtures: Provide admixtures produced and serviced by established, reputable manufacturer and used in compliance with manufacturer's recommendations.
    3. Air-Entraining Admixture: ASTM C260, certified by manufacturer to be compatible with other required admixtures.
    4. Water-Reducing Admixture: ASTM C494, Type A, and containing not more than 0.05 percent chloride ions.
    5. High-Range Water-Reducing Admixture (Superplasticizer): ASTM C494, Type F or Type G and containing not more than 0.05 percent chloride ions.
    6. Do not allow Calcium chloride, thiocyanates or admixtures containing more than 0.05 percent chloride ions.
    7. Integral Color Pigment (Required for new concrete handicapped accessibility ramps): Mineral oxide, lightfast, lime-proof, water-resistant type conforming to ASTM C979. Color(s) shall be as selected by Architect from manufacturer’s standard color line.
    8. Aggregates: Comply with ASTM C33 with Maximum size not larger than 1/5 of narrowest dimension between forms of the member for which concrete is to be used. Not larger than 3/4 of minimum clear spacing between reinforcing bars. 1-1/2 inch maximum in paving slabs.
    9. Strengths: Five sack (shall contain no less than 5 sacks of Portland cement)/3,500 psi/28 days. Strength recommendations on Drawings supersede when they are greater than specified.
    10. Water - Cement Ratio (lb water per lb of Portland cement):3,500 psi concrete:
        1. 0.58 maximum
        2. 0.46 maximum for air-entrainment
    11. Slump shall be 4 inches plus or minus 1 inch, unless specifically noted otherwise.
    12. Expansion Joints: Fiber Joint Filler/Expansion Joints: Premolded asphalt impregnated rigid fiber board. Comply with AASHTO M-213. Use 3/4 inch thick at expansion joints adjacent to extruded curbs, 1/2 inch thick at perimeter of footings for ground-set items such as bollards and fence

posts where such footings are incorporated into slabs; elsewhere as shown.

13. Wood Joint Filler/Expansion Joints: Where indicated in the drawing, provide construction clear heart grade redwood joints conforming to AASHTO M-90. Provide sizes indicated on drawings. Do not install adjacent to curbs.
14. Load Transfer Units:
    1. Light Duty (sidewalk): 3/4 inch thick construction clear heart redwood expansion joint form with minimum one inch deep removable top strip, 1/2 inch by 10 inch smooth steel reinforcing bars at 12 inches o.c. with bond breaker sleeve on one side, and 3/32 inch thick steel bar-support plates each side. Provide custom size as required for full depth of paving and sealant depth as required by sealant manufacturer.
    2. Medium Duty (Auto) / Heavy Duty (truck/bus traffic): 3/4 inch thick redwood expansion joint form with minimum one inch deep removable top strip, 3/4 inch by 18 inch steel reinforcing bars at 12 inches o.c. with bond-breaker sleeve on one side and 3/16 inch steel bar-support plates each side. Provide custom size as required for full depth of paving and sealant depth as required by sealant manufacturer.
15. Transverse/Longitudinal Construction Joints: 18 gauge preformed galvanized keyway with removable strip.
16. Chairs and Spacers: Heavy-duty plastic-type sized to support all reinforcing steel to proper height directly on properly prepared and compacted subgrade. No sand cushion pads will be permitted. Provide chairs and spacers Series “B” by W.H.C. Products, Inc., E-Z Chair by Aztec Concrete Accessories, Inc., MEDCO PC-4 by Meadow Burke, a Division of MMI Products, GTI Bar Chair by General Technologies, Inc., or approved equivalent. Maximum spacing of chairs shall be 36-inches on center each way.
17. Epoxy Adhesive: ASTM C881, two component, 100 percent solids, 100 percent reactive compound suitable for use on dry or damp surfaces.
18. Curing Compound: The compound shall conform to ASTM C309-1315, Type II (A.I.M. Regulations - VOC Compliant).

EXECUTION

A. The architect/engineer should include the following requirements in their specification and include additional directives as necessary for the project.
    a. Coverage of Reinforcement: The metal reinforcement shall be protected by the thickness of concrete indicated on the plans.
        1. Three inches: Concrete deposited against ground without use of forms.
        2. Two inches: Bars more than 5/8 inch diameter where concrete is exposed to the weather, or exposed to the ground but placed in forms.

3. 1-1/2 inches: Bars 5/8 inch diameter where concrete is exposed to the weather, or exposed to the ground but placed in forms.
4. Two inches: In slabs and walks on grade.
5. 1-1/2 inches-1-3/4 inches from top for paving.

B. Concrete Placement, General:
   a. Place concrete in compliance with practices and recommendations of ACI 304, and as specified herein.
   b. Do not deposit concrete on concrete which has hardened sufficiently to form seams or planes of weakness within the section.
   c. Sections between expansion joints and construction joints shall be placed in continuous pours; construction joints in paving and walks other than at formed joint locations will not be permitted.
   d. Place concrete at such a rate that concrete which is being integrated with fresh concrete is still plastic.
   e. Deposit concrete as nearly as practicable in its final location to avoid segregation due to rehandling and flowing. Do not subject concrete to any procedure which might cause segregation.
   f. Screed concrete which is to receive other construction to the proper level to avoid excessive skimming and grouting.
   g. Do not use concrete which becomes nonplastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials.

C. Slab Placement:
   a. Moisten subgrade the evening before and immediately prior to placement of all paving slabs.
   b. Deposit and consolidate concrete slabs in a continuous operation, within the limits of all expansion joints, until the placing of a panel or section is completed using vibrating bridge screeds, roller pipe screeds or other methods acceptable to Architect.
   c. Consolidate concrete during placement by use of the specified equipment, preferably with power driven floats of impact type, thoroughly working concrete around reinforcement and into corners.
   d. Bring slab surfaces to correct level with a straight edge, and then strike off.
   e. Use bullfloats or darbies to smooth the surface, leaving it free from bumps and hollows.
   f. Do not sprinkle water on the plastic surface; do not disturb the slab surfaces prior to start of finishing operations.

V. ATHLETIC AND RECREATIONAL SURFACING

GENERAL

A. Verify the areas of all new synthetic turf surface and shock absorbing pad designed for athletic and recreational use.

PRODUCTS

A. Synthetic Grass
    a. Design team shall detail out section including stabilized sub grade, 20 w/PJC liner, Sub drains, 8" free drainage stone base.
    b. Provide Monofilament at the stadiums- Rubber/ Sand in filled minimum 45 oz, 2.5" pile height monofilament fiber turf.
    c. Provide Slit film at the high schools- Rubber/ Sand in filled.
B. Field Surfacing
    a. Warning tracks- 4" red dog cinder or approved equivalent.
    b. Bull pens- Pitching area to be mound clay; bull pen to be 5" concrete pad with knitted nylon synthetic turf over a 5mm pad glued to concrete, Astroturf system 5 or approved equal.
C. Natural grass type to be specified by architect/engineer.
D. Running tracks
    a. Surfacing shall be a minimum of 10mm full pour
    b. High school and competition tracks shall be 8 lane 400 meter per IAAF at high schools. Basis of design for High School tracks is Beynon Sports BSS 1000.
    c. Coordinate the design of middle school tracks with the RCSD Project Manager. Basis of design for Middle School tracks is Beynon Sports BSS 300.
E. For outdoor concrete basketball courts incorporate an integral coloring to reduce reflectivity.
F. Tennis court
    a. Post tensioned concrete with tennis court surfacing- Tennis courts surface and coating shall be plexipave, laycold or approved equivalent.

EXECUTION

A. The architect should include the following requirements in their specification and include additional directives as necessary for the project.
B. Require that synthetic turf system is installed in the field by crews employed by the turf supplier and under the direction and supervision of the manufacturer.
C. Require that synthetic turf system adhered to a special reinforcing tape as recommended by the manufacturer. No cross or head seams will be permitted.
D. Require that synthetic turf system is installed in accordance with manufacturer's instructions.
E. No installation shall be attempted at temperatures below 50 degrees F or under wet conditions.
F. Decorations and Field Markings: All decorations and field markings shall be painted.

VI. PLAYGROUND SURFACING

GENERAL

A. Provide poured-in-place synthetic rubber resilient playground surface.
B. Require a warranty for the work against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials or workmanship.

PRODUCTS

A. Surfacing System: Basis of design: “Playbound Poured-in-Place System”, by Surface America, Inc.
   1. Primer; A single component moisture cured polyurethane primer.
   2. Binder; Elastic polyurethane pre-polymer with mineral odor, excellent weathering and biding characteristics. Binder shall be 100% MDI based and contain 0% TDI monomers.
   3. Black SBR (recycled SBR rubber); Ground at ambient temperature, into 3/8” shredded strands and containing lass than 4% dust.
   4. EPDM Rubber; UV stable, exposed color section (top layer of poured rubber surface system) unless otherwise shown by Architect shall be;

      a. 50% reds, greens, yellows, oranges, purples or browns as selected by the architect.
      b. 50% Black

   5. Poured-in-Place System; Shall meet the following test;
      a. Shock attenuation under ASTM F 1292 G-Max and HIC.
      b. Compression endurance (10,000 cycles with 10 ton load); no deterioration.
      c. Flash Point; Between 650^{o} and 800^{o}F.
      d. Flame Spread/Smoke Density; Federal Spec. LLL-T-43, Type II, Class I pass.
      e. Abrasion Resistance (ASTM D 1044); 0.3812G loss.
      f. Flexibility Factor (ASTM F 147); 0-1.
      g. Durability (CST London 90609/1); Wear Index (g/1,000 revolutions)
         1. Unaged: 1.64 Pass/Approved.
         2. Air Aged: 2.40 Pass/Approved.
         3. Water Aged: 1.61 Pass/Approved.
         4. UV Aged: 1.92 Pass/Approved.
      h. Water Permiability (DIN 18035, Part G); 1.7 ltr/sec./sq. meter (0.4 gal./sec./sq.yd.).
      i. Thermal Stability Range; -50^{o}C to +100^{o}C (-58^{o}F to 212^{o}F)
      j. Freeze/Thaw; -50^{o}C (-58^{o}F), 40 cycles: no change.
      k. Coefficient of Friction (ASTM D 1894); 1.0 dry, 0.9 wet.
      l. Slip Resistance (CST London 90609/1); 65-70 units: approved.
      m. Tensile PSI (ASTM D 142); 200 PSI top surface.
      n. Elongation; 173%.
      o. Tear Strength; 64 PSI typical (base mat)Permanent Edging Components:

EXECUTION

A. The architect should include the following requirements in their specification and include additional directives as necessary for the project.
    a. Verify that areas are ready for installation of all items.
B. Install drainage system over entire play area, unless noted otherwise.
C. Install geotextile fabric over drainage system, unless noted otherwise.
D. Install surfacing fibers to compacted thickness specified above, unless noted otherwise.

VII. CHAINLINK FENCE AND GATES

GENERAL

A. Provide chain link fabric shall have the PVC thermally fused to galvanized steel core wire. Extruded or bonded and glued chain link fence fabric will not be accepted
B. Fence framework shall have the PVC thermally fused in compliance with ASTM F1234
C. Provide 8'-0" gate to all open grassed areas to allow for mower access.
D. Provide 12-0" double gate as required to access the transformer.
E. Use an aluminum or steel ornamental fence at the front of the site or an approved by the RCSD Facilities Design Group.

PRODUCTS

A. Fence Fabric:
    a. PVC coating thermally fused to zinc-coated or zinc-5 percent aluminum-mischmetal alloy-coated steel core wire: ASTM F668 Class 2b, 7 mil thickness thermally fused. Core wire tensile strength 75,000 psi.
    b. Size: Helically wound and woven to height of six feet with two inch diamond mesh, with core wire diameter of 0.148 inch (9 gauge) and a breakload of 1290 lbf. Color shall be black and comply with ASTM F934.
    c. Selvage of fabric shall be knuckled at top and knuckled at bottom.
B. Fence Framing:
    a. Steel pipe - Type I: ASTM F1083, standard weight schedule 40; minimum yield strength of 25,000 psi; sizes as indicated below. Hot-dipped galvanized with minimum average 2.0 oz/ft² of coated surface area.
        1. Line posts: 1.90 inch o.d. up to 6 feet on center; 2.375 inch o.d. up to 10 feet on center.
        2. Terminal, End, Corner, and Pull posts: 3.0 inch o.d. up to 6 feet on center; 2.975 inch o.d. up to 10 feet on center.
        3. Rails and Braces: 1.660 inch o.d.
        4. PVC finish: In accordance with ASTM F1043, apply supplemental color coating of 10 to 15 mils thermally fused PVC in color to match fabric.
C. Gate frames: Fabricate chain link swing gates in accordance with ASTM F900 using galvanized steel tubular members, 2 inches square, weighing 2.60 lb/ft. Fusion or stainless steel welded connections forming rigid one-piece unit. Vinyl

coated frames thermally fused with 10 to 15 mils of PVC in accordance with ASTM 1043. PVC color to match fence.

a. Chain link fence fabric: PVC thermally fused to metallic coated steel wire, ASTM F668, Class 2b, in color, mesh, and gauge to match fence. Install fabric with hook bolts and tension bars at all four sides. Attach to gate frame at not more than 15 inches on center.
b. Hardware materials: Hot dipped galvanized steel or malleable iron shapes to suit gate size. Field coat moveable parts (i.e. hinges, latch, keeper, and drop bar) with PVC touch up paint, provided by manufacturer, to match adjacent finishes.
c. Hinges: Structurally capable of supporting gate leaf and allow opening and closing without binding. Non-lift-off type hinge design shall permit gate to swing 180 degrees inward.
d. Latch: Forked type capable of retaining gate in closed position and have provision for padlock. Latch shall permit operation from either side of gate.
e. Keeper: Provide keeper for each gate leaf over five feet wide. Gate keeper shall consist of mechanical device for securing free end of gate when in full open position.
f. Double gates: Provide drop rod to hold inactive leaf. Provide gate stop pipe to engage center drop rod. Provide locking device and padlock eyes as an integral part of latch, requiring one padlock for locking both gate leaves.
g. Gate posts: Steel pipe, ASTM F1083, standard weight schedule 40; minimum yield strength of 25,000 psi, 2.875 inches in diameter. Hot-dipped galvanized with minimum 1.8 oz/ft^2 of zinc or respective material finished in accordance with ASTM F1043. PVC color to match fence.

EXECUTION

A. Require installation of chain link fence in accordance with ASTM F567 and manufacturer's instructions.
B. Locate terminal post at each fence termination and change in horizontal or vertical direction of 30 degrees or more.
C. Space line posts uniformly at 10 feet on center.
D. Concrete fence post footings shall be set in 3000 psi concrete at 28 days:
    a. Drill holes in firm, undisturbed or compacted soil. Excavate deeper than specified below as required for adequate support in soft and loose soils, and for posts with heavy lateral loads.
    b. Line posts shall be set in 9 inch minimum diameter concrete piers, with a minimum of 33 inches of post embedment in concrete with an additional 3 inch concrete cover at bottom.
    c. All end, corner, and pull posts shall be set in minimum 12 inch minimum diameter concrete piers, with a minimum of 33 inches of post embedment in concrete with an additional 3 inch concrete cover at bottom.
    d. Place concrete around posts in a continuous pour.
    e. Trowel finish around post. Slope to direct water away from posts.
E. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.

F. Bracing: Install horizontal pipe brace at mid-height for fences six (6) and over, on each side of terminal posts. Firmly attach with fittings. Install diagonal truss rods at these points. Adjust truss rod, ensuring posts remain plumb.
G. Tension wire: Provide tension wire at bottom of fabric. Install tension wire before stretching fabric and attach to each post with ties. Secure tension wire to fabric with 12-1/2 gauge hog rings 24 inches on center.
H. Top rail: Install lengths, 21 feet. Connect joints with sleeves for rigid connections for expansion/contraction.
I. Install gate posts in accordance with manufacturer's instructions.
    a. Drill holes in firm, undisturbed or compacted soil. Excavate deeper than specified below as required for adequate support in soft and loose soils, and for posts with heavy lateral loads.
    b. All gate posts shall be set in minimum 12 inch minimum diameter concrete piers, with a minimum of 33 inches of post embedment in concrete with an additional 3 inch concrete cover at bottom.
    c. Place concrete around posts in a continuous pour.
    d. Trowel finish around post. Slope to direct water away from posts.
    e. Gate posts and hardware: Set keeper, stops, sleeves into concrete. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.

END OF CHAPTER 32

Classroom Requirements

Collaborative Learning Spaces

RCSD's future classrooms should more aptly called Collaborative Learning Spaces. Modern classrooms should be inclusive of flexibility and comfort – flexible seating arrangements that allow for easy transitions are critical to serve the changing needs of our learning environments. Teachers should have the flexibility of moving the furniture to different and multiple seating arrangements to align to the instructional focus. Classrooms should also foster engagement and color plays a large role in this. Bright colors for one wall should be considered (perhaps reflective of the school colors) or, at the very least, classroom furniture should have color. We should move away from neutral walls and neutral furniture.

To add to the classroom engagement experience, all secondary classrooms should have one wall or a section of a wall that uses Dry Erase Sharewall so that students and teachers can write on these walls as they work collaboratively.

In elementary classrooms, mobile wall dividers should be provided in every classroom. As the furniture is being arranged in different layouts throughout the day, as needed, the wall dividers can provide the ability for small group engagement.

Mobile charging stations must be a component of every secondary learning space. Elementary school learning spaces/classrooms will have charging carts where the student devices will be stored/charged. However, with RCSD's one-to-one initiative for secondary schools, each student will have their own device. While students will be directed to bring their devices to school fully charged each day, we recognize that there will always be occasions where a student's device will not be charged. As the learning environment for students will require their device, we must accommodate this scenario with mobile charging stations.

In elementary classrooms, as mentioned above, there will be a charging cart in every classroom. Space for this cart must be available in every classroom – with power available.

Mobile teacher stations, rather than desks, should be provided in every learning space. (see attached for example).

The DWT section of every classroom specifies the basic requirements needed. However, additionally, every learning space should also include the capacity for a second access point. The wiring and/or infrastructure should be in place to accommodate easy installation of an additional access point.

The need for computer labs in schools will be greatly reduced. There should be few occasions where labs are needed in elementary schools and requests for elementary labs should be reviewed by the RCSD Team – IM&T. Secondary schools will require far fewer labs and, again, lab requirements should be reviewed by RCSD. Buildings should not be designed to accommodate the same number of computer labs that exist in schools today.

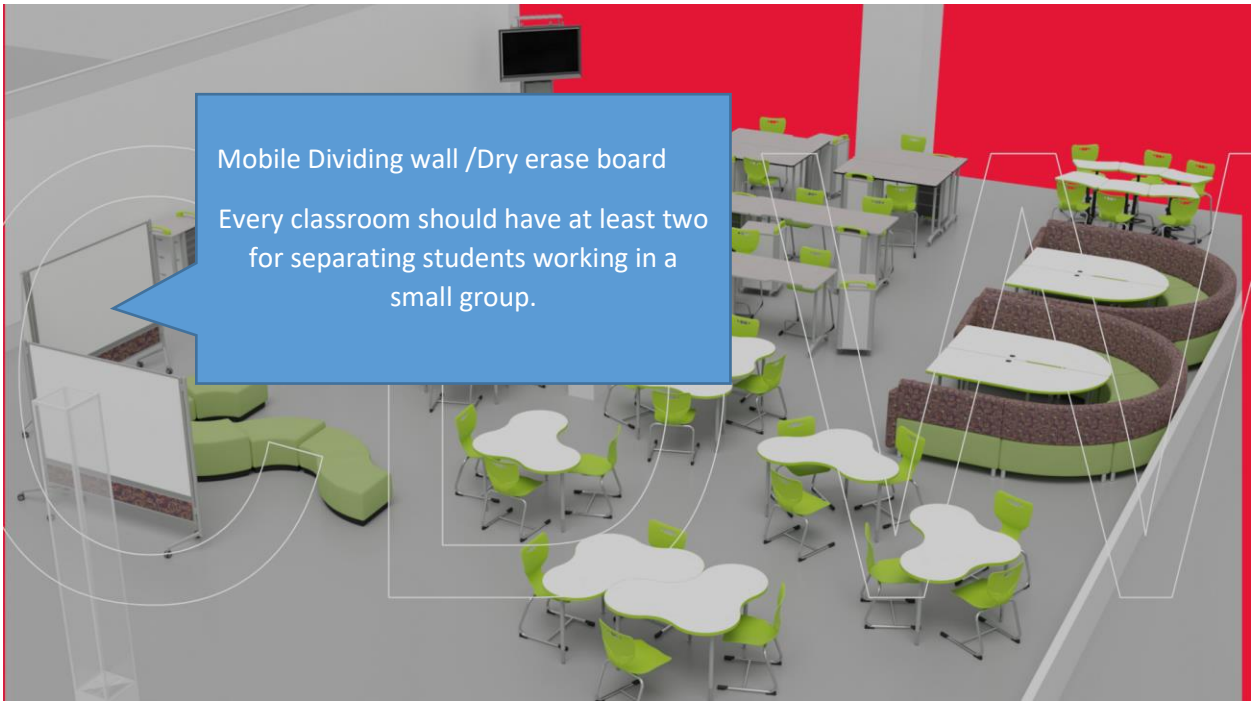
Computer labs in secondary schools should place computers around the perimeter of the classroom, with work space in the center.

Elementary classrooms (Pre-K through 2nd grade) will have a bank of six ipads. These classrooms will need a storage cabinet to store and power the devices.

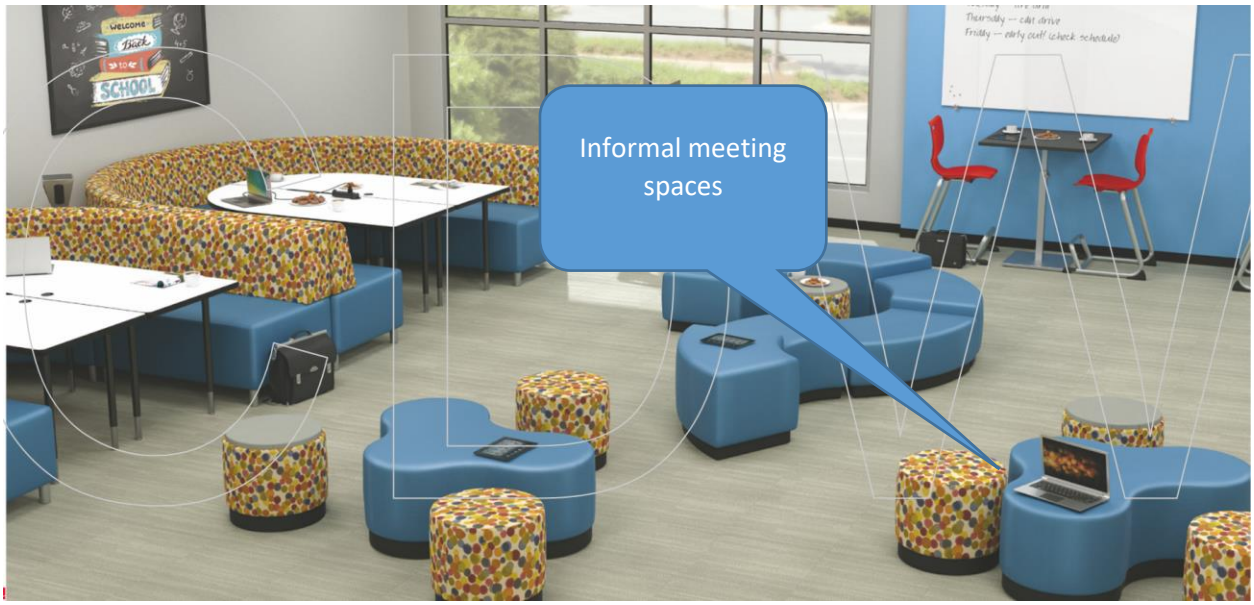
We will provide renderings of our future learning environments in a few weeks.

Classroom Examples

Not for every classroom but great for collaborative meeting spaces in library media centers.



Media Centers/ Library


Welcome
Back
to
SCHOOL
Informal meeting spaces

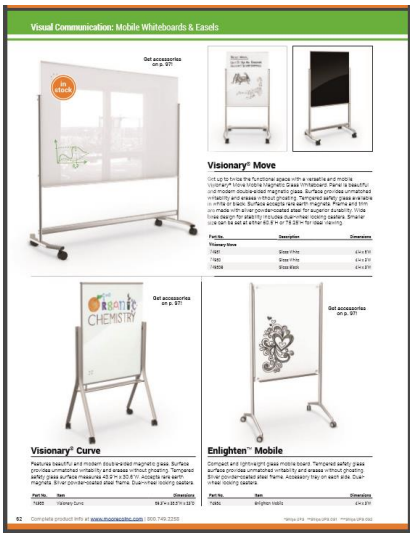
Additional Components for Future classroom

Mobile charging station in every secondary classroom

New models are being release in fall of 2017 that are cordless for classroom environments*

https://moorecoinc.com/catalogs-and-literature/pdf/Educational-Products-Catalog.pdf

Seating with two wheels rather than four are preferable for classrooms to aid in classroom management



Sample mobile wall dividers for every classroom.

Cabinets on wheels in elementary classrooms for storage.

https://moorecoinc.com/catalogs-and-literature/pdf/Active-Classroom-Solutions.pdf

Dry erase Sharewall on one wall in every secondary classroom

Mobile teacher Desk in secondary and elementary classroom

Computer around the perimeter of a room with work area in the middle.

Rochester Schools Modernization Program
Rochester City School District Design Standards

District Contacts for District Wide Considerations

The Rochester City School District has identified the following contacts for specialty areas identified below. Design consultants should consult the following should their program include these project components:

- Food Services: Gemma Humphries - Gemma.Humphries@RCSDK12.ORG – RCSD School Food Services – (585) 336-4100 or (585) 336-4111
- Technology: Jim McGuinness - jsmcguinness@millenniumstrategies.com – RCSD Technology Consultant – (917) 434-6035
- Safety & Security: Lori Baldwin - lori.baldwin@rcsdk12.org – RCSD Safety and Security – (585) 262-8600
- Furniture Consultant: Christine Vargas - Christine.Vargas@vargasassociates.com – 585-730-8260
- Playground Consultant: Marturano Recreation, Linda Culliton, (585) 223-7398