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ADDENDUM #1

Project No.:	16-0024	**Date:**	January 4, 2019
Project:	Renovations for West Middle School Portage Public Schools Kalamazoo County, Michigan	**A/E Firm:**	C2AE
		Project Manager:	Thomas McKercher
		Project Architect:	Gregg Jones
Owner:	Portage Public Schools 8135 South Westnedge Ave. Portage, MI 49002	**Const. Manager:**	Owen-Ames-Kimball

The following changes, revisions, modifications, etc. shall be incorporated into the contract documents, specifications, and plans.

BID FORM

A1.1 The Bidder shall acknowledge receipt of Addenda #1 by indicating so in the spaces provided on the Bid Form.

SPECIFICATIONS

A1.2 **Refer to Table of Contents (reissued):**
DELETE reference to Sections 074213.13 (not issued), 101419, 104400 and 236423.13 (deleted). ADD Sections 072413.13, 116623, 226600 and 236426.13 (new issues).

A1.3 **Refer to Section 051200 - Structural Steel Framing (not reissued):**
DELETE paragraph 1.6.A, Qualification Data.

A1.4 **Refer to Section 055000 - Metal Fabrication (not reissued):**
DELETE paragraph 1.4.A, Qualification Data.

A1.5 **Refer to Section 072413.13 - Polymer-Based Direct-Applied Exterior Finish System (DEFS) (issued):**
ADD section in its entirety.

A1.6 **Refer to Section 087100 - Dorr Hardware (reissued):**
REPLACE section in its entirety. Door hardware sets 29 and 30 have been added.

A1.7 **Refer to Section 096813 - Tile Carpeting (reissued):**
ADD Paragraph 2.1.E as follows:

"E. *Applied Odor Blocking Treatment: Manufacturer's standard material.* "

A1.8 **Refer to Section 101419 - Dimension Letter Signage (not reissued):**
DELETE this section in its entirety.

A1.9 Refer to Section 104400 - Fire-Protection Specialties (not reissued):
DELETE this section in its entirety.

A1.10 Refer to Section 116623 - Gymnasium Equipment (issued):
ADD section in its entirety.

A1.11 Refer to Section 226600 - Chemical-Waste Systems for Laboratory and Healthcare Facilities (issued):
ADD section in its entirety.

A1.12 Refer to Section 236423.13 - Air-Cooled, Scroll Water Chillers (not reissued):
DELETE this section in its entirety.

A1.13 Refer to Section 236426.13 - Air-Cooled, Rotary-Screw Water Chillers (issued):
ADD section in its entirety.

A1.14 Refer to Section 237416.13 - Packaged, Large-Capacity, Rooftop Air-Conditioning Units (reissued):
REPLACE section in its entirety.

A1.15 Refer to Section 233113 - Metal Ducts (not reissued):
DELETE Article 1.4 in its entirety.

A1.16 Refer to Section 235239 - Fire-Tub Boilers (reissued):
REPLACE section in its entirety.

DRAWINGS

A1.17 Refer to Sheets AD101A, AD101B, AD101C, AD101D, AD101E, AD101F, and AD101G (reissued):
REVISED Demolition Note #5.

A1.18 Refer to Sheet A-131 (reissued):
REVISE Accessory Schedule – Sanitary napkin disposal to be provided by Contractor.

A1.19 Refer to Sheet A-601 (reissued):
REVISE Door Schedule – Added door hardware sets to Alternate doors.

A1.20 Refer to Sheet PD101A (reissued):
REVISE demolition notes for pool area for clarification.

A1.21 Refer to Sheet PP101A (reissued):
REVISE natural gas piping and domestic hot water return piping for clarification.

A1.22 Refer to Sheet PP101E, PW101E (reissued):
ADD integral sink S-3 to drawings.

A1.23 Refer to Sheet PP101G (reissued):
REVISE notes to remove natural gas piping scope in this area for clarification.

A1.24 Refer to Sheet P-601 (reissued):

- REVISE plumbing piping system application schedule to match specifications.
- REVISE LS-1 and LS-2 in plumbing fixture schedule for clarification.
- ADD integral sink S-3 to plumbing fixture schedule

A1.25 Refer to Sheet MD101A (reissued):

- ADD Mechanical Demolition Keynotes 18 and 19 for outdoor equipment removal.
- REVISE Sheet specific general demolition note to clarify mechanical demolition work requirements.

A1.26 Refer to Sheet MH101C (reissued):

- ADD air transfer opening for Rooms 107, 108, 307, 306, 312, and 313.
- ADD fire damper and air transfer opening for Room 306.

A1.27 Refer to Sheet M-601 (not reissued):

REVISE numbered notes for Boiler Schedule to delete Belly Pump.

A1.28 Refer to Sheet TC104 (reissued):

REVISE rack layout. DELETE fiber panel from rack layout.

A1.29 Refer to Sheet TC903C (reissued):

Connectivity code A for the AV system have been added to the marked locations.

TABLE OF CONTENTS

END OF TABLE OF CONTENTS

SECTION 072413.13 - POLYMER-BASED DIRECT-APPLIED EXTERIOR FINISH SYSTEM (DEFS)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Direct-Applied Exterior Finish System (DEFS) consisting of base coat, reinforcing mesh and finish coat applied to glass mat faced gypsum board in soffits, and ceilings.

B. Related Sections:
   1. Glass mat gypsum board sheathing and trim: Section 061600 “Sheathing”.

1.2 ACTION SUBMITTALS

A. Product Data: For each DEFS component, trim, and accessory.

B. Samples: For each exposed product and for each color and texture specified.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An installer who is certified in writing by AWCI International as qualified to install Class PB DEFS using trained workers.

1.4 WARRANTY

A. Manufacturer's Standard Warranty: Manufacturer agrees to repair or replace components of EIFS that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Dryvit Systems, Inc.
   2. Senergy; BASF Corp.
   3. Sto Corp.

2.2 PERFORMANCE REQUIREMENTS

A. DEFS Performance: Comply with ASTM E 2568 and with the following:
   1. Weathertightness: Resistant to water penetration from exterior.
   2. Impact Performance: ASTM E 2568, Standard impact resistance.

2.3 DEFS MATERIALS

A. Flexible-Membrane Flashing: Cold-applied, self-adhering, self-healing, rubberized-asphalt and polyethylene-film composite sheet or tape and primer; DEFS manufacturer's standard or product recommended in writing by DEFS manufacturer.

B. Reinforcing Mesh: Balanced, alkali-resistant, open-weave, glass-fiber mesh treated for compatibility with other DEFS materials, made from continuous multi-end strands with retained mesh tensile strength of not less than 120 lbf/in. according to ASTM E 2098/E 2098M.
   1. Reinforcing Mesh for EIFS, General: Not less than weight required to comply with impact-performance level specified in "Performance Requirements" Article.

C. Base Coat: EIFS manufacturer's standard mixture.

D. Primer: DEFS manufacturer's standard factory-mixed, elastomeric-polymer primer for preparing base-coat surface for application of finish coat.

E. Finish Coat: DEFS manufacturer's standard acrylic-based coating.
   1. Colors: As selected by Architect from manufacturer's full range.
   2. Textures: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 DEFS INSTALLATION

A. Comply with ASTM C 1397, ASTM E 2511, and DEFS manufacturer's written instructions for installation of DEFS as applicable to each type of substrate.

B. Flexible-Membrane Flashing: Apply and lap to shed water; seal at openings, penetrations, and terminations. Prime substrates with flashing primer if required and install flashing.

C. Base Coat: Apply full coverage to sheathing with not less than 1/16-inch dry-coat thickness.

D. Reinforcing Mesh: Embed reinforcing mesh in wet base coat to produce wrinkle-free installation with mesh continuous at corners, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C 1397. Do not lap reinforcing mesh within 8 inches of corners. Completely embed mesh, applying additional base-coat material if necessary, so reinforcing-mesh color and pattern are invisible.

E. Additional Reinforcing Mesh: Apply strip-reinforcing mesh around openings, extending 4 inches beyond perimeter. Apply additional 9-by-12-inch strip-reinforcing mesh diagonally at corners of openings (re-entrant corners). Apply 8-inch-wide, strip-reinforcing mesh at both inside and outside corners unless base layer of mesh is lapped not less than 4 inches on each side of corners.

F. Finish Coat: Apply full-thickness coverage over dry primed base coat, maintaining a wet edge at all times for uniform appearance, to produce a uniform finish of color and texture matching approved sample and free of cold joints, shadow lines, and texture variations.

G. Sealer Coat: Apply over dry finish coat, in number of coats and thickness required by DEFS manufacturer.

END OF SECTION 072413.13

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Mechanical door hardware for the following:
      a. Swinging doors.
   2. Electrified door hardware.

B. Products furnished, but not installed, under this Section include the products listed below. Coordinating and scheduling the purchase and delivery of these products remain requirements of this Section.

C. Related Sections include:
   1. Section 081113 “Hollow Metal Doors and Frames”.
   2. Section 081316 “Fiberglass Doors”.
   3. Section 081416 “Flush Wood Doors”.
   4. Section 084113 “Aluminum Framed Entrances and Storefronts”.
   5. Division 28 “Electronic Safety and Security”.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Details of electrified door hardware.

C. Other Action Submittals:
   1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
      a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
      b. Content: Include the following information:
         1) Identification number, location, hand, fire rating, size, and material of each door and frame.
         2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
         3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
         4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
   2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:
   1. For door hardware, an Architectural Hardware Consultant (AHC) who is also an Electrified Hardware Consultant (EHC).

C. Source Limitations: Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.

D. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.

E. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

F. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

G. Accessibility Requirements: Comply with applicable provisions in the DOJ's 2010 ADA Standards for Accessible Design and ICC A117.1 for door hardware on doors in an accessible route.
   1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
   2. Comply with the following maximum opening-force requirements:
      a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
      b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
   3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
   4. Closers: Adjust door and gate closer sweep periods so that, from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

B. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
      a. Exit Devices and Locks: Two years from date of Substantial Completion.
      b. Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
   1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated.
   2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by descriptive titles corresponding to requirements specified in Part 2.

2.2 CONTINUOUS HINGES

A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch- thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.

B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
   1. Acceptable Manufacturers include: Ives, Select, Stanley, Markar, Pemko, Select
   2. Grade: Grade 2-300
   3. Hinges for Fire-Rated Assemblies: With steel fire pins to hold fire-rated doors in place if required by tested listing.
   4. Mounting: Concealed leaf.

2.3 MECHANICAL LOCKS AND LATCHES

A. Mortise Locks: BHMA A156.13; Grade 1; stamped steel case with steel or brass parts; Series 1000.
   1. Manufacturer: Provide the following products.
      a. Sargent 8200 series.

B. Lock Functions: As indicated in door hardware schedule.

C. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
   1. Mortise Locks: Minimum 3/4-inch latchbolt throw.

D. Lock Backset: 2-3/4 inches, unless otherwise indicated.

E. Lock Trim:
   1. Levers: Sargent J.
   2. Escutcheons (Roses): Sargent LN

F. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
   2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
   3. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
   4. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.

2.4 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.

B. Manufacturer: Provide the following products.
   1. Corbin Russwin ED5000 series.

C. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.

D. Fire Exit Devices: Devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.

E. Rim Exit Devices: Grade 1.
   1. Type: Type 4, narrow stile
   2. Grade: Grade 1.
   3. Actuating Bar: Push pad
   4. Material: Stainless steel, Aluminum

F. Exit Device Outside Trim: Pull with cylinder; material and finish to match locksets, unless otherwise indicated.
   1. Match design for lock trim, unless otherwise indicated.

2.5 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
   1. Match Existing Sargent XC system, Coordinate with Owner

B. Standard Lock Cylinders: BHMA A156.5; Grade 1; cores that are interchangeable; face finished to match lockset.

C. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

2.6 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
   1. System:
      a. Master key or grand master key locks as directed by the Owner. Provide Cores and Cylinders compatible with Owners existing system.

B. Keys: Nickel silver.
   1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
      a. Notation: "DO NOT DUPLICATE."
   2. Quantity: In addition to one extra key blank for each lock, provide the following:
      a. Cylinder Change Keys: Five.

2.7 OPERATING TRIM

A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.
   1. Acceptable Manufacturers: Any BHMA Manufacturer.

B. Offset Door Pulls: 1-inch constant-diameter pull with minimum clearance of 2-1/4 inches from face of door and offset of 2 inches.
   1. Mounting: Through-bolted with decorative bolt.
   2. Overall Length: 9 inches.

2.8 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

B. Manufacturer: Provide the following products.
   1. Norton 7500 Series

C. Surface Closer without Cover: Grade 1; Modern Type.
   1. Mounting: Mount on interior side of door.
   2. Type: As specified
   3. Backcheck: Adjustable, effective between 60 and 85 degrees of door opening.

2.9 MECHANICAL STOPS AND HOLDERS

A. Wall Bumpers: Grade 1; with rubber bumper; 2-1/2-inch diameter, minimum 3/4-inch projection from wall; with backplate for concealed fastener installation; with concave bumper configuration.

2.10 OVERHEAD STOPS AND HOLDERS

A. Overhead Stops and Holders: BHMA A156.8; type and grade as indicated in door hardware schedule.
   1. Acceptable Manufacturers: Glynn Johnson, Rixson, Sargent.

2.11 DOOR GASKETING

A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
   1. Acceptable Manufacturers: National Guard Products, Pemko, Reese, Zero

B. Door Sweeps: Nylon brush gasket material held in place by flat aluminum housing or flange; surface mounted to face of door with screws.

2.12 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
   1. Acceptable Manufacturers: National Guard Products, Pemko, Reese, Zero.

B. Saddle Thresholds:
   1. Type: Fluted top, barrier free.
   2. Base Metal: Aluminum

2.13 AUXILIARY ELECTRIFIED DOOR HARDWARE

A. Auxiliary Electrified Door Hardware:
   1. Acceptable Manufacturers: Von Duprin 6000 series, Folger Adam 300 series, HES 1006 series

B. Boxed Power Supplies: Modular unit in NEMA ICS 6, Type 4 enclosure; filtered and regulated; voltage rating and type matching requirements of door hardware served; listed and labeled for use with fire alarm systems.

C. Door Position Switches: Magnetically operated reed switch designed for concealed mounting.

D. Door and Frame Transfer Devices: Steel housing for mortise in hinge stile of door, with flexible tube for wiring bundle; accommodating doors that swing open to 120 degrees.

2.14 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
   1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
   2. Fire-Rated Applications:
      a. Wood or Machine Screws: For the following:
         1) Hinges mortised to doors or frames.
         2) Strike plates to frames.
         3) Closers to doors and frames.
      b. Steel Through Bolts: For the following unless door blocking is provided:
         1) Surface hinges to doors.
         2) Closers to doors and frames. Through bolt closers on all wood doors.
         3) Surface-mounted exit devices.
   3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
   4. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.15 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

B. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
   1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

C. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.
   1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
   2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

D. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

E. Lock Cylinders: Install construction cores to secure building and areas during construction period.
   1. Replace construction cores with permanent cores as directed by Owner.

F. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, in equipment room. Verify location with Architect.
   1. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.

G. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

H. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

I. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.2 FIELD QUALITY CONTROL

A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.

3.3 DOOR HARDWARE SCHEDULE

Hardware Group No. 01

For use on mark/door #(s):

~~CE120.3~~ MS304.1 MS305.1 MS306.1 MS606.1 MS607.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	8215 LNJ	626	SAR
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 02

For use on mark/door #(s):

MS322.1 MS332.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	HOTEL GUEST LOCK	50 - 8250 LNJ		SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	SURFACE CLOSER	7500	689	NOR
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 03 – Not Used

Hardware Group No. 04

For use on mark/door #(s):

MS108.1 MS207B.1 MS307.1 MS307.2 MS308.1 MS311.1
MS312.1 MS313.1 MS705.2

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	8237 LNJ	626	SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 05 – Not Used

Hardware Group No. 06

For use on mark/door #(s):

MS107.1	MS113.1	MS115.1	MS310.1	MS315.1	MS317.1
MS319.1	MS321.1	MS333.1	MS608.1		

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM SECURITY	8238 LNJ	626	SAR
2	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	SURFACE CLOSER	7500	689	NOR
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 07

For use on mark/door #(s):

MS309.2	MS309.3

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	CONT. HINGE	112HD	628	IVE
1	EA	CLASSROOM LOCK	8237 LNJ	626	SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	SURFACE CLOSER	CPS 7500	689	NOR
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	DOOR SWEEP W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
		-	WEATHERSTRIP BY DOOR/FRAME MANUFACTURER		

Hardware Group No. 08 – Not used

Hardware Group No. 09 – Not Used

Hardware Group No. 10

For use on mark/door #(s):

MS111A.1	MS111B.1	MS207C.1	MS315.2	MS315A.1	MS316.1
MS318.1	MS319.2	MS703C.1	MS803.1	MS806.2	

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	8204 LNJ	626	SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	SURFACE CLOSER	7500	689	NOR
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 11

For use on mark/door #(s):

MS808.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	112HD	628	IVE
1	SET	AUTO FLUSH BOLT (HM)	FB31P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	8204 LNJ	626	SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)	628	IVE
2	EA	SURFACE CLOSER	CPS 7500	689	NOR
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	488S-BR	S-Br	ZER
2	EA	DOOR SWEEP W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD -	566A-223 WEATHERSTRIP BY DOOR/FRAME MANUFACTURER	A	ZER

Hardware Group No. 12

For use on mark/door #(s):
MS703.1 MS705.1

Each To Have:

Qty	Description	Catalog Number	Finish	Mfr
	-	HARDWARE BY MANUFACTURER		

Hardware Group No. 13

For use on mark/door #(s):
MS806.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	SET	AUTO FLUSH BOLT (HM)	FB31P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	8204 LNJ	626	SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)	628	IVE
2	EA	SURFACE CLOSER	CPS 7500	689	NOR
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE

Hardware Group No. 14

For use on mark/door #(s):
MS804.1 MS805.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	CLASSROOM DEAD BOLT	8223		SAR
2	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	PUSH PLATE	8200 4" X 16"	626	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	7500	689	NOR
1	EA	WALL STOP	WS33/WS33X	626	IVE

Hardware Group No. 15

For use on mark/door #(s):
MS100B.1 MS100G.1 MS300B.1 MS300G.1 MS804.2 MS805.2

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1		MORTISE DEADBOLT	8222	626	SAR
2	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	PUSH PLATE	8200 4" X 16"	626	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	7500	689	NOR
1	EA	WALL STOP	WS33/WS33X	626	IVE

Hardware Group No. 16

For use on mark/door #(s):
MS309.1 MS801.1 MS801.3/801.4

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	REMOVABLE MULLION	908KM		C-R
1	EA	EXIT DEVICE DUMMY TRIM	ED5202		C-R
1	EA	EXIT DEVICE NIGHT LATCH	ED5203	626	C-R
1	EA	RIM CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
2	EA	SURFACE CLOSER	CPS 7500	689	NOR
2	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE

Hardware Group No. 17

For use on mark/door #(s):
MS801.2

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	REMOVABLE MULLION	908KM		C-R
2	EA	EXIT DEVICE DUMMY TRIM	ED5202		C-R
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
2	EA	SURFACE CLOSER	CPS 7500	689	NOR
2	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE

Hardware Group No. 18

For use on mark/door #(s):
MS800.1/800.2

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	112HD	628	IVE
1	EA	REMOVABLE MULLION	908KM		C-R
1	EA	EXIT DEVICE DUMMY TRIM	ED5202		C-R
1	EA	EXIT DEVICE NIGHT LATCH	ED5203	626	C-R
1	EA	RIM CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
2	EA	ELECTRIC STRIKE	6300 FSE	630	VON
2	EA	SURFACE CLOSER	CPS 7500	689	NOR
2	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
2	EA	DOOR SWEEP W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER
1	EA	POWER SUPPLY -	BY OTHERS WEATHERSTRIP BY DOOR/FRAME MANUFACTURER	LGR	SCE

DOOR NORMALLY LOCKED. ENTRANCE BY CARD READER/ACCESS CONTROL

Hardware Group No. 19

For use on mark/door #(s):
MS702.2/702.3

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	112HD	628	IVE
1	EA	REMOVABLE MULLION	908KM		C-R
1	EA	EXIT DEVICE DUMMY TRIM	ED5202		C-R
1	EA	EXIT DEVICE NIGHT LATCH	ED5203	626	C-R
1	EA	RIM CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	ELECTRIC STRIKE	6300 FSE	630	VON
2	EA	OH STOP	100S	630	GLY
2	EA	SURFACE CLOSER	CP 7500	689	NOR
1	EA	AUTO OPERATOR	8100 X 2EA ACTUATORS	628	REC
2	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
2	EA	DOOR SWEEP W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER
1	EA	POWER SUPPLY	BY OTHERS	LGR	SCE
		-	WEATHERSTRIP BY DOOR/FRAME MANUFACTURER		

DOOR NORMALLY LOCKED. ENTRANCE BY CARD READER/ACCESS CONTROL

Hardware Group No. 20

For use on mark/door #(s):
MS702.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	CONT. HINGE	112HD	628	IVE
1	EA	EXIT DEVICE DUMMY TRIM	ED5202		C-R
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	CP 7500	689	NOR
1	EA	DOOR SWEEP W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER
		-	WEATHERSTRIP BY DOOR/FRAME MANUFACTURER		

Hardware Group No. 21

For use on mark/door #(s):
MS702.4

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	CONT. HINGE	112HD	628	IVE
1	EA	PUSH/PULL BAR	9190HD-10"-NO	630	IVE
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	CP 7500	689	NOR

Hardware Group No. 22

For use on mark/door #(s):
MS702.5/702
.6

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	112HD	628	IVE
2	EA	PUSH/PULL BAR	9190HD-10"-NO	630	IVE
2	EA	OH STOP	100S	630	GLY
1	EA	AUTO OPERATOR	8100 X 2EA ACTUATORS	628	REC

Hardware Group No. 23

For use on mark/door #(s):
~~CE137.1~~ MS207.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	EXIT DEVICE NIGHT LATCH	ED5203	626	C-R
1	EA	RIM CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	SURFACE CLOSER	7500	689	NOR
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 24

For use on mark/door #(s):
MS209.1 MS211.1 MS509B.1 MS509C.1 MS509D.1

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	8237 LNJ	626	SAR
1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	770AA-S	AA	ZER
1	EA	DOOR BOTTOM	369AA-Z49	AA	ZER

Hardware Group No. 25

For use on mark/door #(s):
MS503.1/503.2 MS509.1/509.2

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	REMOVABLE MULLION	908KM		C-R
1	EA	EXIT DEVICE DUMMY TRIM	ED5202		C-R
1	EA	EXIT DEVICE NIGHT LATCH	ED5203	626	C-R
1	EA	RIM CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR

1	EA	MORTISE CYLINDER	SARGENT XC AS REQ. - COORDINATE WITH OWNER		SAR
2	EA	SURFACE CLOSER	CPS 7500	689	NOR
2	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	GASKETING	770AA-S	AA	ZER
2	EA	DOOR BOTTOM	369AA-Z49	AA	ZER
1	EA	MEETING STILE	557AA	AA	ZER
1	EA	MEETING STILE	56AA	AA	ZER

Hardware Group No. 26 – Not Used

Hardware Group No. 27 – Not Used

Hardware Group No. 28 – Not Used

Hardware Group No. 29

FOR USE ON DOOR #(S):
MS100.1/100.2 MS200.1/200.2 MS300.2/300.3 MS400.1 MS600.1 MS600.2 MS800.3

EACH TO HAVE:

QTY		*DESCRIPTION*	*CATALOG NUMBER*	*FINISH*	*MFR*
2	*EA*	*CONT. HINGE*	*112HD*	*628*	*IVE*
1	*EA*	*REMOVABLE MULLION*	*908KM*		*C-R*
2	*EA*	*EXIT DEVICE*	*ED5201*	*626*	*C-R*
1	*EA*	*MORTISE CYLINDER*	*SARGENT XC AS REQ. - COORDINATE WITH OWNER*		*SAR*
2	*EA*	*SURFACE CLOSER*	*CPS 7500*	*689*	*LCN*
2	*EA*	*DOOR SWEEP W/ DRIP*	*8198AA*	*AA*	*ZER*
1	*EA*	*THRESHOLD*	*566A-223*	*A*	*ZER*
		-	*WEATHERSTRIP BY DOOR/FRAME MANUFACTURER*		

Hardware Group No. 30

FOR USE ON DOOR #(S):
MS300A.1

EACH TO HAVE:

QTY		*DESCRIPTION*	*CATALOG NUMBER*	*FINISH*	*MFR*
2	*EA*	*CONT. HINGE*	*112HD*	*628*	*IVE*
1	*SET*	*CONST LATCHING BOLT*	*FB51P*	*630*	*IVE*
1	*EA*	*EXIT DEVICE*	*ED5601*	*626*	*C-R*
2	*EA*	*SURFACE CLOSER*	*CPS 7500*	*689*	*LCN*
2	*EA*	*DOOR SWEEP W/ DRIP*	*8198AA*	*AA*	*ZER*
1	*EA*	*THRESHOLD*	*566A-223*	*A*	*ZER*
		-	*WEATHERSTRIP BY DOOR/FRAME MANUFACTURER*		

END OF SECTION 087100

SECTION 116623 – GYMNASIUM EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Basketball equipment.
   2. Volleyball equipment.

B. Related Sections include:
   1. Section 055000 "Metal Fabrications".
   2. Division 26 “Electrical”.

1.2 DEFINITIONS

A. FIBA: Federation Internationale de Basketball Amateur (The International Basketball Federation).

B. FIVB: Federation Internationale de Volleyball (The International Volleyball Federation).

C. NCAA: The National Collegiate Athletic Association.

D. NFHS: National Federation of State High School Associations.

E. USAV: USA Volleyball.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. If applicable, include assembly, disassembly, and storage instructions for removable equipment.
   2. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.

B. Shop Drawings: For gymnasium equipment.
   1. Include plans, elevations, sections, details, and attachments to other work.
   2. Include details of field assembly for removable equipment, connections, installation, mountings, floor inserts, attachments to other work, and operational clearances.
   3. Include transport and storage accessories for removable equipment.
   4. Submit mechanical and electrical drawings.

C. Maintenance data: Submit manufacturer’s installation, operation, and maintenance manuals.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Court layout plans, drawn to scale, and coordinated with floor inserts, game lines, and markers applied to finished flooring.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For gymnasium equipment to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not install gymnasium equipment until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Field Measurements: Verify position and elevation of floor inserts and layout for gymnasium equipment.

C. Supply weight and mounting method for owner to verify that building structure is capable of supporting scoreboard weight in addition to the auxiliary equipment.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store equipment in a clean, dry environment.

1.9 COORDINATION

A. Coordinate installation of floor inserts with structural floors and finish flooring installation and with court layout and game lines and markers on finish flooring.

B. Coordinate layout and installation of overhead-supported gymnasium equipment and suspension-system components with other construction including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS, GENERAL

A. Source Limitations: Obtain each type of gymnasium equipment from single source from single manufacturer.

2.2 BASKETBALL EQUIPMENT

A. Manufacturers: Includes, but not limited to:
   1. Basketball Products International; a division of American Athletic, Inc.
   2. Draper Inc.
   3. Jaypro Sports, LLC.
   4. Performance Sports Systems.
   5. Porter Athletic Equipment Company.

B. General: Provide equipment complying with requirements in FIBA's "Basketball Rule Book, NCAA's "Men's and Women's Basketball Rules, and NFHS's "NFHS Basketball Rules Book."
   1. Direct mount feature to conform to NCAA recommendation No. 5-F requiring the unit design transfers the load on the goal directly to the backboard support to minimize stress to the backboard.

C. Protruding fasteners or exposed bolt heads on front face of backboards are not permitted.

D. Provide manufacturer's recommended connections complying with Section 05 50 00 "Metal Fabrications" of size and type required to transfer loads to building structure.

E. Overhead-Supported Backstops:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide Draper Inc. EZ Fold TF-20 Basketball Backstop or a comparable product.
   2. Folding Type: Provide manufacturer's standard assembly for forward-folding, front-braced backstop, with hardware and fittings to permit folding.
   3. Framing: Steel pipe, tubing, and shapes. Design framing to minimize vibration during play.
      a. Center-Mast Frame: Welded and bolted or clamped with side sway bracing.
      b. Finish: Manufacturer's standard polyester powder-coat finish.
   4. Goal Height Adjuster: Adjustable from 8 to 10 feet (2.4 to 3 m) with gear-drive mechanism, locking in any position within adjustment range, with visible height scale attached to side of framing.
      a. Operation: Electric with integral gear-drive motor, with limit switches preset to goal heights and the following:
         1) Key switch control.
         2) Wireless remote control.

F. Backstop Safety Device: Designed to limit free fall if support cable, chains, pulleys, fittings, winch, or related components fail; with mechanical automatic reset; 7000-lb load capacity; one per folding backstop.
   1. Retractor Device: Manufacturer's standard device designed to retract both support and safety cables, chains, and straps away from play of the basketball when backstop is in playing position; one per folding backstop.

G. Motorized Winch: Hoist, consisting of heavy-duty, fully enclosed worm-gear; brake; cable drum; cable; and fittings, for mounting on wall with equipment mounting board; designed to move and hold backboard in any raised or lowered position.

H. Backstop Electric Operator: Provide operating machine of size and capacity recommended by manufacturer for equipment specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, and remote controls. Coordinate wiring requirements and electrical characteristics with building electrical system.
   1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
   2. Operator Type: Cable drum with grooved drum and cable tension device to automatically take up cable slack and retain cable in grooves.
   3. Operator Mounting: Wall-mounted board.
   4. Motor Electrical Characteristics: Manufacturer's standard.
   5. Remote-Control Station(s): NEMA ICS 6, Type 1 enclosure for surface mounting and momentary-contact, three-position, switch-operated control with up, down, and off functions.
      a. Group Key Switch Control Stations: One switch per each backstop.
      b. Keys: Provide one key per station.
      c. Radio Controls: Digital system consisting of code-compatible universal coaxial receiver, one per backstop winch, and two portable multiple-channel transmitters for operating two backstops individually with up and down functions.
   6. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop basketball equipment at fully retracted and fully lowered positions.

I. Basketball Backboards:
   1. Shape and Size:
      a. Rectangular, 72 by 42 inches (1800 by 1067 mm) width by height.
   2. Backboard Material: With predrilled holes or preset inserts for mounting goals, and as follows:
      a. Glass: Not less than 1/2-inch- (13-mm-) 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. Provide glass and framing system manufactured to comply with FIBA Level 1 or Level 2 requirement that glass does not split off if broken. Provide glass with impact-absorbing resilient rubber or PVC gasket around perimeter in a fully welded, painted steel frame, with steel subframe, reinforcement, bracing, and mounting slots for mounting backboard frame to backboard support framing.
         1) Direct Mount: Designed for mounting backboard frame to center mast of backstop to maximize relief of stresses on backboard frame and glass.
         2) Rim-Restraining Device: Complying with NCAA and NFHS rules and designed to ensure that basket remains attached if glass backboard breaks.
   3. Target Area and Border Markings: Permanently etched in white color, marked in manufacturer's standard pattern and stripe width.
   4. Target Area and Border Markings: Marked inblack, with manufacturer's standard pattern and stripe width.

5. Finish: Manufacturer's standard factory-applied, white background.

J. Goal Mounting Assembly: Compatible with goal, backboard, and support framing.
1. Direct Mount: Designed for mounting goal directly and independently to center mast of backboard support framing so no force, transmitted by ring, is directly applied to backboard, and rigidity and stability of goal are maximized.

K. Basketball Goals: Complete with flanges, braces, attachment plate, and evenly spaced loops welded around underside of ring.
1. Single-Rim Basket Ring Competition Goal: Materials, dimensions, and fabrication per manufacturer's standard design.
2. Field Adjustment: Provide rim that is field-adjustable for rebound elasticity without being removed from the backboard.
3. Mount: Rear.
4. Net Attachment: No-tie loops for attaching net to rim without tying.
5. Finish: Manufacturer's standard polyester powder-coat finish.

L. Basketball Nets: 12-loop-mesh net, between 15 and 18 inches (380 to 460 mm) long, sized to fit rim diameter, and as follows:
1. Competition Cord: Antiwhip, made from white nylon cord not less than 120-gm thread and not more than 144-gm thread.

M. Backboard Safety Pads: Designed for backboard thickness indicated and extending continuously along bottom and up sides of backboard and over goal mounting and backboard supports per manufacturer's standard design.
1. Attachment: Manufacturer's standard.
2. Material: Solid vinyl coated polyester fabric with embossed pattern.
a. Weight: 14 ounces per square yard.
b. Strength: 350 pounds per square inch break strength and 65 pounds tear resistance.
c. Resistant to rot and mildew.
d. Ultraviolet resistant.
e. Flammability: Per NFRA-101; Class A rated as self extinguishing.
3. Color: As selected by Architect from manufacturer's full range.

2.3 VOLLEYBALL EQUIPMENT

A. Basis-of-Design Product: Subject to compliance with requirements, provide Draper Inc. SVS-01 Two-Pole Power Steel Volleyball System or a comparable product.

B. General: Provide equipment complying with requirements in FIVB's "Official Volleyball Rules, NCAA's "Women's Volleyball Rules and Interpretations, NFHS's "NFHS Volleyball Rules Book, and USAV's "USA Volleyball Rule Book."

C. Floor Insert: Chrome-finished steel floor plate; and steel pipe sleeve, concealed by floor plate, with capped bottom end, sized with ID to fit post standards, not less than length required to securely anchor pipe sleeve below finished floor in concrete footing; with anchors designed for securing floor insert to floor substrate indicated; one per post standard.
   1. Floor Plate: Manufacturer's standard hinged access cover, designed to be flush with adjacent flooring. Provide one tool(s) for unlocking access covers.

D. Post Standards: Removable, paired volleyball post standards as indicated. Adjustable, telescoping height. Designed for easy removal from permanently placed floor insert supports. Fabricated from steel pipe or tubing, with nonmarking plastic or rubber end cap or floor bumper to protect permanent flooring. Finished with manufacturer's standard factory-applied, polyester powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness or plated metal finish.
   1. Nominal Pipe or Tubing Diameter: 3-1/2-inch (89-mm) OD at base.

E. Net: 32 feet (9.75 m) long; one per pair of paired post standards ; and as follows:
   1. Width and Mesh: Competition volleyball net, 39 inches (990 mm) with 4-inch- (102-mm-) square mesh made of black nylon string.
      a. Hem Band Edges: White, not less than 2-inch- (50-mm-) wide top, bottom, and side bindings; tie offs at top, bottom, and midpoint of each side end of net; end sleeves for dowels; and lines with linkage fittings threaded through top and bottom hems of binding. Provide lengths of lines and linkage fittings as required to properly connect to and set up net for post standard spacing indicated on Drawings.
   2. Dowels: Not less than 1/2-inch- (13-mm-) diameter fiberglass or 1-inch- (25-mm-) diameter wood. Provide two dowels per net threaded through each side hem sleeve for straightening net side edges.
   3. Net Antennas: 3/8-inch- (9.5-mm-) diameter, high-tensile-strength, extruded-fiberglass or plastic rods, 72 inches (1800 mm) long, extending above top hem band of net, with alternating white and red bands according to competition rules. Provide two antennas per net.
      a. Clamps: Designed to secure antenna to top and bottom of net.
   4. Boundary Tape Markers: 2-inch- (50-mm-) wide white strip with sleeve for securing net antenna, secured to net top and bottom with hook-and-loop attachment. Provide two tape markers per net for marking court boundaries.

F. Net-Tensioning System: Designed to adjust and hold tension of net. Fully enclosed, nonslip worm-gear-type winch with cable length and fittings for connecting to net lines, positive-release mechanism, and manufacturer's standard handle. Mount net tensioner on post standard at side away from court. Provide end post with post top pulley. Provide opposing post with welded-steel loops, hooks, pins, or other devices for net attachment and post top grooved line guide.

G. Safety Pads: Comply with NCAA and NFHS requirements. Provide pads consisting of not less than 1-inch- (25-mm-) thick, multiple-impact-resistant manufacturer's standard foam filler covered by puncture- and tear-resistant fabric cover, not less than 14-oz./sq. yd. (475-g/sq. m) PVC-coated polyester, treated with fungicide for mildew resistance>; with fire-test-response characteristics indicated. Provide pads with hook-and-loop closure or attachments for the following components:
   1. Post Standards: Wraparound style, designed to totally enclose each standard to a height of not less than 66 inches (1680 mm); one per post.
   2. Net Lines: Four per net.
   3. Fabric Cover Flame-Resistance Ratings: Complies with NFPA 701.
   4. Fabric Color: Orange.

2.4 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for use and finish type indicated.
   1. Extruded Bars, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
   2. Cast Aluminum: ASTM B 179.
   3. Flat Sheet: ASTM B 209 (ASTM B 209M).

B. Steel: Comply with the following:
   1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
   2. Steel Tubing: ASTM A 500/A 500M or ASTM A 513, cold formed.
   3. Steel Sheet: ASTM A 1011/A 1011M.

C. Anchors, Fasteners, Fittings, and Hardware: Manufacturer's standard corrosion-resistant or noncorrodible units; concealed; tamperproof, vandal- and theft-resistant design.

D. Grout: Nonshrink, nonmetallic, premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout, complying with ASTM C 1107/C 1107 with minimum strength recommended in writing by gymnasium equipment manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for play court layout, alignment of mounting substrates, installation tolerances, operational clearances, accurate locations of connections to building electrical system, and other conditions affecting performance of the Work.
   1. Verify critical dimensions.
   2. Examine supporting structure, subfloors, and footings below finished floor.
   3. Examine wall assemblies, where reinforced to receive anchors and fasteners, to verify that locations of concealed reinforcements are clearly marked. Locate reinforcements and mark locations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Comply with manufacturer's written installation instructions and competition rules indicated for each type of gymnasium equipment. Complete equipment field assembly where required.

B. Unless otherwise indicated, install gymnasium equipment after other finishing operations, including painting, are completed.

C. Permanently Placed Gymnasium Equipment and Components: Install rigid, level, plumb, square, and true; anchored securely to supporting structure; positioned at locations and elevations indicated; in proper relation to adjacent construction; and aligned with court layout.
   1. Floor Insert Location: Coordinate location with application of game lines and markers.
   2. Floor Insert Elevation: Coordinate installed heights of floor insert with installation and field finishing of finish flooring and floor-plate type.
   3. Operating Gymnasium Equipment: Verify clearances for movable components of gymnasium equipment throughout entire range of operation and for access to operating components.

D. Floor Insert Setting: Position sleeve in oversized, recessed voids in concrete slabs. Clean voids of debris. Fill void around sleeves with grout, mixed and placed to comply with grout manufacturer's written instructions. Protect portion of sleeve above subfloor from splatter. Verify that sleeves are set plumb, aligned, and at correct height and spacing; hold in position during placement and finishing operations until grout is sufficiently cured. Set insert so top surface of completed unit is flush with finished flooring surface.

E. Wall, Corner and Column Safety Pads: Mount with bottom edge at 4 inches (102 mm) above finished floor.

F. Cut-out Trim: Limit cuts in face of padding from trim unit's corner-to-corner outside dimensions. Install with ends of cuts concealed behind trim flange.

G. Anchoring to In-Place Construction: Use anchors and fasteners where necessary to secure built-in and permanently placed gymnasium equipment to structural support and to properly transfer load to in-place construction.

H. Connections: Connect electric operators to building electrical system.

I. Removable Gymnasium Equipment and Components: Assemble in place to verify that equipment and components are complete and in proper working order. Instruct Owner's designated personnel in properly handling, assembling, adjusting, disassembling, transporting, storing, and maintaining units. Disassemble removable gymnasium equipment after assembled configuration is approved by Architect, and store units in location indicated on Drawings.

3.3 ADJUSTING

A. Adjust movable components of gymnasium equipment to operate safely, smoothly, easily, and quietly, free from binding, warp, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and moving parts.

3.4 CLEANING

A. After completing gymnasium equipment installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.

B. Replace gymnasium equipment and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain gymnasium equipment.

END OF SECTION 116623

SECTION 226600 - CHEMICAL-WASTE SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Single-wall piping.
   2. Piping specialties.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For chemical-waste specialties and to include in emergency, operation, and maintenance manuals.

1.5 FIELD CONDITIONS

A. Interruption of Existing Chemical-Waste Service: Do not interrupt chemical-waste service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary chemical-waste service in accordance with requirements indicated:
   1. Notify Owner no fewer than two days in advance of proposed interruption of chemical-waste service.
   2. Do not proceed with interruption of chemical-waste service without Owner's written permission.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

B. NFPA Compliance: Comply with NFPA 70.

2.2 PERFORMANCE REQUIREMENTS

A. Single-Wall Piping Pressure Rating: 5-psig air test pressure.

2.3 SINGLE-WALL PIPE AND FITTINGS

A. PP Drainage Pipe and Fittings: ASTM F1412, extruded pipe and drainage-pattern fittings molded, with Schedule 40 dimensions and with fire-retardant additive complying with ASTM D4101; with fusion- and mechanical-]joint ends.
   1. Exception: Pipe and fittings made from PP resin without fire-retardant additive may be used for underground installation.
   2. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Georg Fischer Inc.
      b. Orion Fittings; A WATTS Brand.
      c. Zurn Industries, LLC.
   3. Source Limitations: Obtain pipe and fittings from single source from single manufacturer.

B. CPVC Drainage Pipe and Fittings: ASTM F2618, pipe and drainage-pattern fittings.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Charlotte Pipe and Foundry Company.
      b. Spears Manufacturing Company.
   2. Source Limitations: Obtain pipe and fittings from single source from single manufacturer.

2.4 JOINING MATERIALS

A. Couplings: Assemblies with combinations of clamps, gaskets, sleeves, and threaded or flanged parts; compatible with piping and system liquid; and made by piping manufacturer for joining system piping.

B. Adapters and Transition Fittings: Assemblies with combinations of clamps, couplings, adapters, gaskets, and threaded or flanged parts; compatible with piping and system liquid; and made for joining different piping materials.

C. Flanges: Assemblies of companion flanges and gaskets complying with ASME B16.21 and compatible with system liquid, and bolts and nuts.

D. Solvent Cement for Joining CPVC Piping: ASTM F493. Include primer in accordance with ASTM F656.

2.5 PIPING SPECIALTIES

A. PP Sink Outlets:
   1. Description: NPS 1-1/2, with clamping device, stopper, and 7-inch-high overflow fitting.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Comply with requirements in Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

A. Chemical-Waste Piping Inside the Building:
   1. Install piping adjacent to equipment, accessories, and specialties, to allow space for service and maintenance.
   2. Transition and special fittings with pressure ratings at least equal to piping pressure rating may be used unless otherwise indicated.
   3. Flanges may be used on aboveground piping unless otherwise indicated.
   4. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
   5. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
   6. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
   7. Install piping at indicated slopes.
   8. Install piping free of sags and bends.
   9. Install fittings for changes in direction and branch connections.
   10. Verify final equipment locations for roughing-in.
   11. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."
   12. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."
   13. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."

3.3 PIPING SPECIALTY INSTALLATION

A. Install cleanouts and riser extension from sewer pipe to cleanout at grade. Use fittings of same material as sewer pipe at branches for cleanouts and riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in pipe.
   1. Set cleanout bodies in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade. Set cleanout plugs in concrete pavement, with tops flush with pavement surface.

3.4 JOINT CONSTRUCTION

A. Chemical-Waste Piping Inside the Building:
   1. Plastic-Piping Fusion Joints: Make PP drainage-piping joints in accordance with ASTM F1290.
   2. Dissimilar-Material Piping Joints: Make joints using adapters compatible with both system materials.

3.5 HANGER AND SUPPORT INSTALLATION

A. Pipe sizes in this article refer to aboveground single-wall piping.

B. Comply with requirements in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment" for pipe hanger and support devices. Install the following:
   1. Vertical Piping: MSS Type 8 or MSS Type 42 riser clamps.
   2. Individual, Straight, Horizontal Piping Runs:
      a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
      b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
      c. Longer Than 100 Feet, if Indicated: MSS Type 49, spring cushion rolls.
   3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
   4. Base of Vertical Piping: MSS Type 52 spring hangers.

C. Comply with requirements in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment" for installation of supports.

D. Support horizontal piping and tubing within 12 inches of each fitting and coupling.

E. Support vertical piping and tubing at base and at each floor.

F. Rod diameter may be reduced one size for double-rod hangers, to minimum of 3/8 inch.

G. Install supports for vertical PP piping every 72 inches.

H. Install supports for vertical CPVC piping every 48 inches.

3.6 PIPING CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Make connections to existing piping, so finished Work complies as nearly as practical with requirements specified for new Work.

C. Use commercially manufactured wye fittings for sewerage piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

D. Protect existing piping to prevent concrete or debris from entering while making connections. Remove debris or other extraneous material that may accumulate.

E. Where installing piping adjacent to equipment, allow space for service and maintenance.

3.7 LABELING AND IDENTIFICATION

A. Comply with requirements in Section 220553 "Identification for Plumbing Piping and Equipment" for labeling of equipment and piping.
   1. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.8 ADJUSTING

A. Adjust neutralization-system set points.

B. Adjust leak-detection-system control and device settings.

3.9 CLEANING

A. Use procedures prescribed by authorities having jurisdiction or, if not prescribed, use procedures described below:
   1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
   2. Clean piping by flushing with potable water.

3.10 FIELD QUALITY CONTROL

A. Inspect interior of sewerage piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place and again at completion of Project.
   1. Defects requiring correction include the following:
      a. Alignment: Less than full diameter of inside of pipe is visible between inspection points.
      b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
      c. Crushed, broken, cracked, or otherwise damaged piping.
      d. Hydrostatic Tests for Drainage Piping:
         1) Allowable leakage is a maximum of 50 gal./inch of nominal pipe size per mile of pipe during 24-hour period.
         2) Close openings in system and fill with water.
         3) Purge air and refill with water.
         4) Disconnect water supply.
         5) Test and inspect joints for leaks.
      e. Air Tests for Drainage Piping: Comply with UNI-B-6.
   2. Leaks and loss in test pressure constitute defects that must be repaired.
   3. Submit separate reports for each test.

B. Replace leaking sewerage piping using new materials, and repeat testing until leakage is within allowances specified.

C. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

D. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

E. Perform tests and inspections:

F. Tests and Inspections:
   1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
   2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

G. Chemical-waste piping will be considered defective if it does not pass tests and inspections.

H. Prepare test and inspection reports.

3.11 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications below unless otherwise indicated.

B. Single-Wall, Chemical-Waste Sewerage Piping: Use any of the following piping materials for each size range:
   1. NPS 1-1/2 to NPS 4: PP drainage pipe and fittings and fusion joints.
   2. NPS 1-1/2 to NPS 4: CPVC drainage pipe and fittings and solvent-cemented joints.
   3. NPS 6: PP drainage pipe and fittings and fusion joints.

END OF SECTION 226600

SECTION 235239 - FIRE-TUBE BOILERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes horizontal, packaged, factory-fabricated and -assembled fire-tube boilers, trim, and accessories for generating hot water.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For boilers, boiler trim, and accessories.
   1. Include plans, elevations, sections, and mounting attachment details.
   2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   3. Include diagrams for power, signal, and control wiring. Differentiate between factory and field installation.
   4. Include piping diagrams of factory-furnished piping that indicate size and each piping component.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plan and elevation views, drawn to scale, indicating equipment manufacturers' service clearances, structure and base attachment, piping, power, controls, and flues.

B. Seismic Qualification Certificates: For boilers, accessories, and components, from manufacturer.

C. Installation instructions.

D. Source quality-control reports.

E. Field quality-control reports.

F. Sample warranty.

G. Other Informational Submittals:
   1. ASME Stamp Certification and Report: Submit "A," "S," or "PP" stamp certificate of authorization, as required by authorities having jurisdiction, and document hydrostatic testing of piping external to boiler.
   2. Startup service reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace front- and rear-door refractories and heat exchangers of boilers that fail in materials or workmanship within specified warranty period.
   1. Horizontal Fire-Tube Boilers: Refractory in front and rear doors, 10 years from date of startup by factory-authorized personnel.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fuel-to-water efficiency indicated shall be based on the following:
   1. ASME Performance Test Code (PTC) 4, Input-Output method.

B. Gas-Fired Boiler Emissions: Not to exceed allowable ambient air quality standards in governing jurisdiction.

C. Multiple Boiler Operation: Equip individual boilers in multiple boiler applications with integral controls to provide multiple boiler operation for optimum system performance, energy efficiency, and the following:
   1. Equalize runtime of boilers in service.
   2. Operate multiple boilers hot to minimize disruption of service in the event of single boiler failure.
   3. Configure controls so any boiler can be taken out of service with power disconnected and not impact multiple boiler operation.

D. Operation Following Loss of Normal Power:
   1. Equipment, associated factory- and field-installed controls, and associated electrical equipment and power supply connected to back-up power system shall automatically return equipment and associated controls to the operating state occurring immediately before loss of normal power without need for manual intervention by an operator when power is restored either through a back-up power source or through normal power if restored before back-up power is brought online.
   2. Refer to Drawings for equipment served by back-up power systems.
   3. Provide means and methods required to satisfy requirement even if not explicitly indicated.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. ASME Compliance: Fabricate and label boilers to comply with 2010 ASME Boiler and Pressure Vessel Code.

G. ASHRAE/IES 90.1 Compliance: Boilers shall have minimum efficiency according to "Gas and Oil Fired Boilers - Minimum Efficiency Requirements."

H. ISO 14000 Certification: Boiler manufacturer to provide certification stating that it has self-certified its company to ISO 14000.

I. UL Compliance: Test Boilers for compliance with UL 795. Boilers shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction.

2.2 HORIZONTAL FIRE-TUBE BOILERS

A. 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:
   1. Cleaver-Brooks.
   2. Hurst Boiler & Welding Company, Inc.
   3. Johnston Boiler Company.

B. Pressure Vessel Design: ~~Dry~~ *Wet*-back design with the following:
   1. Three passes.
   2. Minimum Heat-Exchanger Surface: 5 sq. ft./bhp.
   3. Provisions for lifting boiler in-place.

C. Base:
   1. Factory-mounted pressure vessel and other boiler components on steel saddles or supports that are fastened securely to a structural steel base that is constructed to make a complete self-supported unit requiring only a flat level surface for support.
   2. Base included with attachments if required to secure boiler to structure.
   3. Manufacturer's standard provisions for lifting include the following.
      a. Designed for handling and installation conditions encountered.
      b. Sufficient to carry total weight of fully assembled boiler with a safety factor of 1.2.

D. Shell:
   1. Horizontal, cylindrical, steel pressure vessel of size to satisfy performance requirements indicated.
   2. Manholes and Handholes:
      a. Manhole for waterside inspection and access.
      b. Handholes at front and rear of boiler for waterside inspections.
      c. According to 2010 ASME Boiler and Pressure Vessel Code.
   3. Hot-Water Boilers:
      a. Supply- and return-water piping connections.
      b. Connections with safety relief valve(s).
      c. Drain connection(s), each with drain valve, at shell low point.
      d. Connections for other trim indicated.
      e. Built-in air separator.

E. Furnace:
   1. Welded cylindrical steel chamber that is welded to steel tube sheets.
   2. Arranged to provide uniform heat distribution under all firing conditions with no flame impingement on any refractory-covered or waterbacked surface.
   3. Surrounded by water without interfering with natural circulation of water within shell.
   4. Positioned from shell to inhibit unequal thermal stresses during operation.

F. Fire Tubes:
   1. Steel, seamless or resistance welded.
   2. Fitted in accurately sized holes in tube sheets and rolled in place.
   3. Aligned to prevent noticeable deformation with undue stress when boiler is put in service.
   4. Tube and tube sheet assembly shall be water- and gastight.
   5. Arranged not to interfere with natural circulation of water in shell or to inhibit cleaning and flushing of water sides.
   6. Readily removable from one end of boiler.
   7. Provided without spinners, turbulators, and other inserted devices.

G. Flue:
   1. Flanged connection located along top centerline of boiler and capable of supporting a field-installed flue stack with a weight of at least 2000 lb.
   2. Equip boiler flue with bimetal thermometer in a stainless-steel case, with angle position adjustment and nominal 5-inch diameter face having a graduated scale and range of approximately 1.5 times the outlet temperature. Mount thermometer in a Type 316 stainless-steel thermowell that is located in a visible location to indicate flue-gas temperature.

H. Front and Rear Doors:
   1. Bolted Hinged or davited, sealed with heat-resistant gaskets and fastened with lugs and cap screws.
   2. Designed so tube sheets and flues are fully accessible for inspection or cleaning when doors are open.
   3. Include observation ports in doors at both ends of boiler for inspection of flame conditions.
   4. Door refractory or and insulation shall be accessible for inspection and maintenance.
   ~~5. Reinforce doors of dryback boilers to limit deflection due to thermal stresses and burner combustion pulsations to prevent progressive cracking and loosening of refractory.~~

I. Refractories:
   1. Refractories retained shall withstand temperature occurring under maximum load conditions.
   2. Formed or cast-in sections shall be easily replaceable through factory openings.
   3. Secure refractory sections in position to withstand vibration and shock occurring during shipment, and to withstand burner combustion pulsations.
   4. Where used for the burner combustion ring and rear or target baffle, refractories shall have a parametric cone equivalent of not less than 33.

5. Provide refractory for doors and end covers exposed to temperatures of 600 deg F and higher.

J. Insulation:
1. Minimum 2-inch-thick, mineral-fiber insulation surrounding the boiler shell and secured in place to prevent sagging or displacement.
2. Insulation of sufficient density or attached with reinforcement to prevent permanent deformation of protective.

K. Jacket: Sheet metal, with factory-applied protective finish.
1. Nominal Thickness: Not less than 0.048 inch.
2. Preformed shape to follow a smooth and uniform contour of pressure vessel and encapsulating insulation.
3. Consisting of multiple removable sections attached with corrosion-resistant screw-fasteners to facilitate removal and replacement multiple times.
4. Painted after assembly.

2.3 BURNER

A. Burner designed to fire gas.

B. Welded construction with multivane, stainless-steel, flame-retention diffuser.

C. Mount burner to permit unrestricted access to combustion chamber.

D. Burner Operation: full modulating control to return to low-fire position for ignition.
1. Gas-Fired Burner: 5 to 1 turndown.

E. Burner Fuel Combustion Efficiency: Minimum 99.9 percent.

F. Gas Pilot: Premix type with automatic electric ignition, complete with electronic flame scanner to monitor the pilot, so primary fuel valve cannot open until pilot flame has been established.

G. Manual adjustments not required to operate at varying loads.

H. Performance shall be repeatable after changes in firing rate.

I. Control devices and sequence shall comply with Industrial Risk Insurers (IRI) and or UL requirements.

J. Damper: Designed to provide accurate control of combustion air with minimum hysteresis. Damper shall close when boiler is off.

2.4 BLOWER

A. Combustion air supplied by a forced-draft blower assembly that is isolated to reduce vibration and noise.

B. Mount blower to permit unrestricted access to combustion chamber.

C. Centrifugal type, with a forward-curve, backward-inclined airfoil or radial blade wheel.

D. Blower and drive assembly shall be controlled through boiler's integral controls in response boiler manufacturer's prescribed sequence of operation that is coordinated with burner and fuel train to achieve performance indicated.
   1. Where indicated or required to achieve performance, provide blower with unit-mounted variable-frequency controller to vary blower speed in response to prescribed control set point and changes in operating conditions.
   2. Variable-speed fan operation shall be checked for resonant frequencies and adjusted to provide no resonant frequencies throughout entire operating range.

E. Blower Drive Assembly: Belt or direct drive.
   1. Belts: Multiple matching belts that are oil resistant, non-static conducting and sized for a 2.0 service factor.
   2. Belt Guards: Easily removable guard that encloses drive.

F. Blower Motor:
   1. General Requirements: Comply with requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment" unless more stringent requirements are indicated below:
      a. Efficiency: Premium efficient.
      b. Enclosure: Open dripproof.
      c. Insulation Class: F.
      d. Service Factor: 1.15.
      e. Motors operated through variable-frequency controllers shall be inverter duty rated according to NEMA MG-1.
   2. Motor Sizes: Minimum size as indicated and large enough so driven load does not require motor to operate in service factor.

2.5 GAS TRAIN

A. Comply with Owner insurance underwriter requirements. In absence of specific requirements, comply with more stringent requirements indicated.

B. Pilot gas piping train shall include:
   1. One manually operated, lubricated plug cock or ball valve upstream of all valves and accessories.
   2. One pressure regulator with vent.
   3. Pressure gage located downstream of pressure regulator. Nominal 2-inch diameter face with graduated scale to indicate gas pressure. Gage shall have normal operating pressure of about 50 percent of full range.
   4. Primary and secondary automatic valves to operate simultaneously.
   5. Normally open, full port electrically operated valve in a vent pipe connected between automatic valves.
   6. Manually operated valve with threaded plug located downstream of both automatic gas valves to permit leakage testing.

C. Main gas piping train shall include:
   1. Threaded pressure tapping with threaded plug upstream and downstream of valve and regulator.
   2. One manually operated, lubricated plug cock, ball valve, or butterfly valve upstream and downstream of all valves and accessories.
   3. One main pressure regulator with vent.
   4. Primary and secondary automatic valves to operate simultaneously.
   5. Manually operated gas valve with threaded plug located downstream of both automatic gas valves to permit leakage testing.
   6. Normally open, full port electrically operated valve in a vent pipe connected between automatic valves.
   7. Pressure gage with isolation valve located upstream and downstream of pressure regulator and at inlet to burner. Nominal 2-inch diameter face with graduated scale to indicate gas pressure. Gage shall have normal operating pressure of about 50 percent of full range.
   8. Proof of closure switch for each motor-operated valve and pressure regulator.
   9. Low-gas-pressure and high-gas-pressure switch.

D. Control devices and sequence shall comply with Industrial Risk Insurers (IRI) and or UL requirements.

E. Main gas valves shall be wired to close automatically in the event of power failure or any safety shutdown condition.

F. Mount pilot and main gas trains on side of boiler and support from boiler base.

2.6 HOT-WATER BOILER TRIM

A. Include devices sized to comply with ASME B31.9.

B. Water Temperature Controllers: Operating and high limit.

C. Safety Relief Valve: ASME rated.

D. Pressure and Temperature Gage: Minimum 3-1/2-inch-diameter, combination water-pressure and -temperature gage. Gages shall have operating-pressure and -temperature ranges, so normal operating range is about 50 percent of full range.

E. Boiler Air Vent: Automatic.

F. Drain Valve: Minimum NPS 3/4 hose-end valve with threaded cap and chain.

2.7 CONTROLS

A. Boiler operating controls shall include the following devices and features:
   1. Control transformer(s) with fuse protection, as required by manufacturer, to implement requirements indicated. Provide transformer with 25 percent spare capacity.
   2. Set-Point Adjust: Operating and alarm set points shall be field adjustable.

B. Operating Controls for Hot-Water Boilers:
   1. Sequence of Operation: Indicated on Drawings.

C. Multiple Boiler Operation: Include automatic, alternating-firing sequence for multiple boilers to ensure maximum system efficiency throughout the load range and to provide equal runtime for boilers.

D. Boiler Emergency Shutdown: Interlock with field-installed boiler emergency shutdown switch to shut down boiler when activated. Manufacturer to furnish break-glass-type switch with permanent nameplate titled "Boiler Emergency Shutdown" for field installation.

E. Burner Safety Controls for Hot-Water Boilers: To maintain safe operating conditions, burner safety controls limit burner operation.
   1. High Cutoff: Automatic and Manual reset stops burner if operating conditions rise above boiler design temperature.
   2. Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low water. Cutoff switch shall be manual-reset type.
   3. Auxiliary Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low-water alarm limit. Cutoff switch shall be manual-reset type.
   4. Audible Alarm: Factory mounted on control panel with silence switch; shall sound alarm for above conditions.

F. Burner Flame Safeguard Controls:
   1. Factory equipped with flame safeguard control and infrared flame scanner.
   2. Microprocessor-based, solid-state control having sequence and flame-on visual indication and fault code indications of flame safeguard trip functions.
   3. Control shall include dynamic self-check logic.
   4. Control shall have a fixed operating sequence incapable of being manually altered that includes start, prepurge, pilot and main fuel ignition run, and postpurge cycles.
   5. Control shall be nonrecycle type for maximum safety that shall shut down the burner and indicate, as a minimum, the following trip functions:
      a. Pilot and main flame failure.
      b. High- and low-fire proving switch faults.
      c. Running interlocks open.
      d. False flame signal and fuel valve open.
   6. Control shall include a run/test switch to allow interruptions to sequence just after prepurge and during pilot ignition trial, and run cycles for adjustments to firing rate motor, damper linkages, and pilot flame for minimum turndown tests.

G. Combustion-Air Controls: Factory equipped with motor-operated combustion-air damper and blower control to regulate burner fire according to load demand.

~~H. Oxygen Trim Control:~~
   ~~1. Provide oxygen trim system to continuously monitor and display oxygen concentrations in boiler flue gas and adjust fuel and airflow to maintain an adjustable oxygen-level set point.~~

~~2. System shall compensate for changes in ambient temperature, barometric pressure, humidity, and variations in fuel characteristics.~~

I. Building Automation System Interface: Factory install hardware and software to enable system to monitor, control, and display boiler status and alarms.
   1. Hardwired I/O Points:
      a. Monitoring: On/off status, common trouble alarm low-water-level alarm.
      b. Control: On/off operation, hot-water-supply temperature set-point adjustment.
   2. Communication Interface: ASHRAE 135 (BACnet) or (LonTalk) communication interface shall enable control system operator to remotely control on/off and capacity of boiler and monitor the boiler operation from an operator workstation. Control features are available, and monitoring points are displayed locally at boiler-control panel through the interface.

~~J. Integrated Boiler-Control System:~~
~~1. Integral control of burner management for flame safety, boiler modulation, and operator interface functions with features and functions indicated.~~
~~2. Factory preconfigured.~~
~~3. Utilizing solid-state controls and sensors to provide various control functions, including the following:~~
~~a. Automatic sequencing of the boiler through standby, prepurge, pilot flame establishing period, main flame establishing period, run, flame proving and lockout, and postpurge.~~
~~b. Full modulating control of air and fuel through Proportional-Integral-Derivative (PID) algorithm.~~
~~c. Thermal shock protection.~~
~~d. High and low limit alarms and shutdowns.~~
~~4. Local operator interface through nominal 10-inch color touch screen graphical display for setup, monitoring, and data acquisition.~~
~~a. Manual control of the boiler firing rate using control screens to increment or decrement firing rate.~~
~~b. Indication of burner management controller status and diagnostics.~~
~~c. Display of system alarms and faults.~~
~~d. Display of history of alarms and faults.~~
~~e. Display of recommendations for troubleshooting of fault conditions.~~
~~f. Display of water level indication and alarm(s).~~
~~g. Stack flue-gas, combustion-air, and shell water-temperature indication.~~
~~h. Boiler efficiency calculation and display.~~
~~i. Low-fire hold with minimum temperature control.~~
~~j. Assured low-fire cutoff (ALFCO).~~
~~k. High stack temperature annunciation with auto cutoff.~~
~~l. Audible alarm and silencing through touch screen intervention.~~
~~5. Fully integrated control of the following:~~
~~a. Blower operation and combustion-air damper for varying operating conditions.~~
~~b. Oxygen trim and monitoring to compensate for combustion-air variations.~~
~~c. Parallel positioning for independent fuel and air control for enhanced fuel efficiency.~~

~~d. Multiple boiler lead/lag control with hot standby.~~
~~e. Draft control for maintaining proper and consistent draft for enhanced fuel efficiency.~~
~~6. E-mail and paging feature to multiple contacts via Internet and phone line independent of control system interface.~~
~~7. LAN/WAN interface with remote monitoring software to allow remote monitoring independent of control system interface.~~

K. Control Enclosures:
1. NEMA 250, Type 1.
a. Provide enclosure with integral vents, fans, heater, and air conditioner as required to automatically control temperature inside enclosure within safe operating limits of devices installed within the enclosure.
2. Wiring shall be numbered and color-coded to match wiring diagram. Provide a laminated wiring diagram located inside enclosure.
3. Mounted on boiler assembly at a location convenient to operator.
4. Provide hinged full-size door with key lock. Provide common key for all locks.
5. Enclosure shall consist of multiple sections divided by a partition with a separate hinged door for each section. One section shall house low-voltage controls and other section shall house line voltage controls.
6. Enclosure shall house the following:
a. Control transformers with fuses.
b. Labeled terminal strips.
c. Controller(s) to provide control and alarm functions indicated.
d. Audible indication of safety alarms.
7. Face of enclosure shall provide the following:
a. Visual indication of operating components and alarms.
b. Auto/local capability to allow operator to manually operate boiler locally.
c. Audible alarm-silence capability.
d. Labels for switches, lights, and displays to provide clear indication of service.

L. Control Instrument Enclosures: Control instruments and devices that are mounted on the boiler assembly and cannot be installed inside the control enclosure shall have same or higher level of protection indicated for control enclosures.

M. Control Cable and Wire:
1. Control cable and wiring shall be numbered and color-coded to match wiring diagram.
2. Install cable and wiring located outside of enclosure(s) in a metal raceway. Use flexible conduit to make final terminations. Provide watertight installation for applications exposed to moisture.

2.8 ELECTRICAL POWER

A. Single-Point Field Power Connection: Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to boiler.
   1. Enclosure: NEMA 250, Type 1.
      a. Enclosure shall have integral vents, fans, heat, and air conditioner as required to automatically control temperature inside enclosure within safe operating limits of devices installed within the enclosure.
      b. Mounted on boiler assembly at a location convenient to operator.
      c. Enclosure shall have hinged full-size door with key lock with common key for all locks.
   2. Wiring shall be numbered and color-coded to match wiring diagram. Provide a laminated wiring diagram located inside enclosure.
   3. Install wiring outside of an enclosure in a metal raceway. Make final connections to motors using flexible conduit. Provide watertight installation for applications exposed to moisture.
   4. Field power interface shall be to fused disconnect switch. Withstanding rating of disconnecting means shall protect equipment. Coordinate requirements with field electrical power source.
   5. Provide branch power circuit to each motor and to controls.
   6. Provide each motor with NEMA-rated motor controller, hand-off-auto switch, and overcurrent protection. Provide variable-frequency controller with manual bypass and line reactors for each variable-speed motor indicated.
   7. Provide transformer with fuses and power wiring to power a 20-A 120-V duplex receptacle mounted in each boiler control panel for use in connecting analytical and testing equipment.

2.9 CAPACITIES AND CHARACTERISTICS

A. Heating Medium: Hot water.

B. Design Pressure Rating: ~~15~~ *30* psig.

C. Safety Relief Valve Setting: 20 psig.

D. Entering-Water Temperature: ~~120~~ *140* deg F.

E. Leaving-Water Temperature: 180 deg F.

F. Number of Passes: Three.

G. Burner Blower Electrical Characteristics:
   1. Volts: 460 V.
   2. Phase: Three.
   3. Hertz: 60 Hz.
   4. Minimum Circuit Ampacity: 8 A.
   5. Maximum Overcurrent Protection: 15 A.

2.10 SOURCE QUALITY CONTROL

A. Test and inspect factory-assembled boilers, before shipping, according to 2010 ASME Boiler and Pressure Vessel Code.

B. Burner and Hydrostatic Test:
   1. Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve performance requirements indicated.
   2. Perform hydrostatic test of pressure vessel, piping, and trim of assembled boiler.

C. Witness Testing:
   1. Allow Owner access to witness source quality-control testing of boilers.
   2. Notify Owner 15 days in advance of testing.

PART 3 - EXECUTION

3.1 BOILER INSTALLATION

A. Coordinate size and location of bases. Cast anchor-bolt inserts into concrete bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

B. Equipment Mounting:
   1. Install boilers on existing cast-in-place concrete equipment base(s).

C. Install gas-fired boilers according to NFPA 54.

D. Assemble and install boiler trim, components, and accessories that are not factory installed.

E. Install control and electrical devices furnished with boiler that are not factory mounted.

F. Install control and power wiring to field-mounted control and electrical devices furnished with boiler that are not factory installed.

G. Perform boil-out and cleaning procedures according to manufacturer's written instructions after completion of hydrostatic testing and before performing other field tests. Boiler manufacturer's factory-authorized representative shall witness boil-out and cleaning procedures. Following boil-out and cleaning procedures, boiler shall be washed and flushed until water leaving boiler is clear.

H. Protect boiler fireside and waterside from corrosion.
   1. Before boiler is filled with water, protect by dry storage method recommended by boiler manufacturer.
   2. After boiler is filled with water, and left not fired for more than 10 days, protect by wet storage method recommended by boiler manufacturer.

3. Chemical Treatment: Quality of water in boilers shall be maintained by a professional water-treatment organization that shall provide on-site supervision to maintain the required water quality during periods of boiler storage as well as during operating, standby, and test conditions. Refer to for additional requirements.

3.2 PIPING CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to boiler(s), allow space for service and maintenance.

C. Connect gas piping to boiler gas-train inlet with dirt leg, shutoff valve, and union or flange. Piping shall be at least full size of gas-train connection. Provide a reducer if required.

D. Connect hot-water piping to supply- and return-boiler tappings with shutoff valve and union or flange at each connection.

E. Install piping from safety relief valves to nearest floor drain.

F. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.

G. Hot equipment drains connected to sanitary drainage system shall be cooled before discharging into the system if required to comply with more stringent of governing code requirements and requirements indicated.

3.3 FLUE CONNECTIONS

A. Connect breeching to full size of boiler outlet.

B. Install easily accessible test ports for field testing of flue gas from each boiler.

3.4 ELECTRICAL POWER CONNECTIONS

A. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.5 CONTROLS CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring between boilers and other equipment to interlock operation as required, to provide a complete and functioning system.

C. Connect control wiring between boiler control interface and DDC control system for remote monitoring and control of boilers. Comply with requirements in Section 230900 "Instrumentation and Controls for HVAC."

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain boilers.

END OF SECTION 235239

SECTION 236426.13 - AIR-COOLED, ROTARY-SCREW WATER CHILLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Packaged, air-cooled chillers.

1.3 DEFINITIONS

A. BAS: Building automation system.

B. COP: Coefficient of performance. The ratio of the rate of heat removal to the rate of energy input using consistent units for any given set of rating conditions.

C. DDC: Direct digital control.

D. EER: Energy-efficiency ratio. The ratio of the cooling capacity given in terms of Btu/h to the total power input given in terms of watts at any given set of rating conditions.

E. IPLV: Integrated part-load value. A single-number part-load efficiency figure of merit calculated per the method defined by AHRI 550/590 and referenced to AHRI standard rating conditions.

F. kW/Ton: The ratio of total power input of the chiller in kilowatts to the net refrigerating capacity in tons at any given set of rating conditions.

G. NPLV: Nonstandard part-load value. A single-number part-load efficiency figure of merit calculated per the method defined by AHRI 550/590 and intended for operating conditions other than AHRI standard rating conditions.

H. SCCR: Short-circuit current rating.

I. TEAO: Totally enclosed air over.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include refrigerant, rated capacities, operating characteristics, furnished specialties, and accessories.
   2. Performance at AHRI standard conditions and at conditions indicated.
   3. Performance at AHRI standard unloading conditions.

4. Minimum evaporator flow rate.
5. Refrigerant capacity of chiller.
6. Oil capacity of chiller.
7. Fluid capacity of evaporator.
8. Characteristics of safety relief valves.
9. Minimum entering condenser-air temperature.
10. Maximum entering condenser-air temperature.
11. Performance at varying capacities with constant-design, entering condenser-air temperature. Repeat performance at varying capacities for different entering condenser-air temperatures from design to minimum in 10 deg F increments.

B. Shop Drawings: Complete set of manufacturer's prints of water chiller assemblies, control panels, sections and elevations, and unit isolation. Include the following:
1. Assembled unit dimensions.
2. Weight and load distribution.
3. Required clearances for maintenance and operation.
4. Size and location of piping and wiring connections.
5. Diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
1. Structural supports.
2. Piping roughing-in requirements.
3. Wiring roughing-in requirements, including spaces reserved for electrical equipment.
4. Access requirements, including working clearances for mechanical controls and electrical equipment, and tube pull and service clearances.

B. Product Certificates: For certification required in "Quality Assurance" Article.

C. Source quality-control reports.

D. Field Test Reports: Include startup service reports.

E. Sample Warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each chiller to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. AHRI Certification: Certify chiller according to AHRI 590 certification program(s).

1.8 DELIVERY, STORAGE, AND HANDLING

A. Ship chillers from the factory fully charged with refrigerant.

B. Ship each chiller with a full charge of refrigerant. Charge each chiller with nitrogen if refrigerant is shipped in containers separate from chiller.

C. Ship each oil-lubricated chiller with a full charge of oil.

1.9 WARRANTY

A. General Warranty: Manufacturer agrees to repair or replace components of water chillers unit that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: One year(s) from date of Substantial Completion or 18 months from equipment ship date; whichever occurs first.

B. Special Warranty: Manufacturer agrees to repair or replace components of water chillers that fail in materials or workmanship for an extended warranty period in accordance with the following:
   1. Extended warranties include, but are not limited to, the following:
      a. Complete compressor and drive assembly including refrigerant and oil charge.
      b. Parts and labor.
   2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AHRI Rating: Rate water chiller performance according to requirements in AHRI 550/590.

B. ASHRAE Compliance: ASHRAE 15 for safety code for mechanical refrigeration.

C. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. ASME Compliance: Fabricate and stamp water chiller heat exchangers to comply with ASME Boiler and Pressure Vessel Code.

E. Comply with NFPA 70.

F. Comply with requirements of UL 1995, "Heating and Cooling Equipment," and include label by a qualified testing agency showing compliance.

G. Operation Following Loss of Normal Power:
   1. Equipment, associated factory- and field-installed controls, and associated electrical equipment and power supply connected to backup power system shall automatically return equipment and associated controls to the operating state occurring immediately before loss of normal power without need for manual intervention by an operator when power is restored either through a backup power source, or through normal power if restored before backup power is brought on-line.
   2. See drawings for equipment served by backup power systems.
   3. Provide means and methods required to satisfy requirement even if not explicitly indicated.

H. Outdoor Installations:
   1. Chiller shall be suitable for outdoor installation indicated. Provide adequate weather protection to ensure reliable service life over a 25-year period with minimal degradation due to exposure to outdoor ambient conditions.

2.2 MANUFACTURERS

A. Manufacturers: Project Basis of Design is Trane – Model RTAF

B. Subject to compliance with requirements, comparable products by the following will also be accepted:
   1. Diakin
   2. York

2.3 MANUFACTURED UNITS

A. Description: Factory-assembled and run-tested water chiller complete with compressor(s), compressor motors and motor controllers, evaporator, condenser with fans, electrical power, controls, and indicated accessories.

2.4 CABINET

A. Base: Galvanized-steel base extending the perimeter of water chiller. Secure frame, compressors, and evaporator to base to provide a single-piece unit.

B. Frame: Rigid galvanized-steel frame secured to base and designed to support cabinet, condenser, control panel, and other chiller components not directly supported from base.

C. Casing: Galvanized steel.

2.5 COMPRESSOR-DRIVE ASSEMBLIES

A. Compressors:
   1. Description: Positive displacement, hermetically sealed.
   2. Casing: Cast iron, precision machined for minimum clearance about periphery of rotors.

3. Rotors: Manufacturer's standard one- or two-rotor design.
4. Each compressor provided with[**suction and**] discharge shutoff valves, crankcase oil heater, and suction strainer.

B. Service: Easily accessible for inspection and service.

C. Capacity Control: On-off compressor cycling and modulating slide-valve assembly or port unloaders combined with hot-gas bypass, if necessary, to achieve performance indicated.
1. Maintain stable operation throughout range of operation. Configure to achieve most energy-efficient operation possible.
2. For units equipped with a variable-frequency controller, capacity control shall be both "valveless" and "stepless," requiring no slide valve or capacity-control valve(s) to operate at reduced capacity.

D. Oil Lubrication System: Consisting of pump if required, filtration, heater, cooler, factory-wired power connection, and controls.
1. Provide lubrication to bearings, gears, and other rotating surfaces at all operating, startup, shutdown, and standby conditions including power failure.
2. Thermostatically controlled oil heater properly sized to remove refrigerant from oil.
3. Factory-installed and pressure-tested piping with isolation valves and accessories.
4. Oil compatible with refrigerant and chiller components.
5. Positive visual indication of oil level.

E. Vibration Control:
1. Vibration Balance: Balance chiller compressors and drive assemblies to provide a precision balance that is free of noticeable vibration over the entire operating range.
a. Overspeed Test: 25 percent above design operating speed.
2. Isolation: Mount individual compressors on vibration isolators.

F. Compressor Motors:
1. Hermetically sealed and cooled by refrigerant suction gas.
2. High-torque, induction type with inherent thermal-overload protection on each phase.

G. Compressor Motor Controllers:
1. Across the Line: NEMA ICS 2, Class A, full voltage, nonreversing.

H. Refrigerant Circuits:
1. Refrigerant: Type as indicated on Drawings.
2. Refrigerant Circuit: Each shall include a thermal- or electronic-expansion valve, refrigerant charging connections, a hot-gas muffler, compressor suction and discharge shutoff valves, a liquid-line shutoff valve, a replaceable-core filter-dryer, a sight glass with moisture indicator, a liquid-line solenoid valve, and an insulated suction line.

3. Pressure Relief Device:
   a. Comply with requirements in ASHRAE 15 and in applicable portions of ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
   b. Select and configure pressure relief devices to protect against corrosion and inadvertent release of refrigerant.
   c. ASME-rated, spring-loaded pressure relief valve; single- or multiple-reseating type.

I. Evaporator:
   1. Description: Direct-expansion, shell-and-tube design with fluid flowing through the shell and refrigerant flowing through the tubes within the shell.
   2. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
   3. Shell Material: Carbon steel.
   4. Shell Heads: Removable carbon-steel heads with multipass baffles designed to ensure positive oil return and located at each end of the tube bundle.
   5. Shell Nozzles: Fluid nozzles located along the side of the shell and terminated with mechanical-coupling end connections for connection to field piping. Furnish flange adapters to mate to flanged piping.
   6. Tube Construction: Individually replaceable copper tubes with enhanced fin design, expanded into tube sheets.

J. Flow Switch: Factory-furnished and -installed, flow switch wired to chiller operating controls.

K. Heater: Factory-installed and -wired electric heater with integral controls designed to protect the evaporator to minus 20 deg F.

L. Air-Cooled Condenser:
   1. Plate-fin coil with integral subcooling on each circuit.
      a. Construct coil casing of galvanized steel.
      b. Construct coils of copper tubes mechanically bonded to aluminum fins.
      c. Coat coils with a corrosion-resistant coating after fabrication.
      d. Hail Protection: Provide condenser coils with louvers, baffles, or hoods to protect against hail damage.
   2. Fans: Direct-drive propeller type with statically and dynamically balanced fan blades, arranged for vertical air discharge.
   3. Fan Motors: Variable speed, with sealed and permanently lubricated bearings, and having built-in overcurrent- and thermal-overload protection.
      a. Overcurrent- and thermal-overload protection not integral to motor is acceptable if provided with chiller electrical power package.

M. Fan Guards: Removable steel safety guards with corrosion-resistant PVC coating.

N. Insulation
   1. Factory-applied insulation over all cold surfaces of chiller capable of forming condensation. Components shall include, but not be limited to, evaporator, evaporator water boxes including nozzles, refrigerant suction pipe from evaporator to compressor, cold surfaces of compressor, refrigerant-cooled motor, and auxiliary piping.

2.6 ELECTRICAL

A. Factory installed and wired, and functionally tested at factory before shipment.

B. Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to water chiller.

C. House in a unit-mounted, NEMA 250, Type 3R enclosure with hinged access door with lock and key or padlock and key.

D. Wiring shall be numbered and color-coded to match wiring diagram.

E. Field power interface shall be to NEMA KS 1, heavy-duty, nonfused disconnect switch. Minimum SCCR according to UL 508 shall be as required by electrical power distribution system, but not less than 10,000 A.

F. Each motor shall have branch power circuit and controls with one of the following disconnecting means having SCCR to match main disconnecting means:
   1. NEMA KS 1, heavy-duty, fusible switch with rejection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 60947-4-1.
   2. NEMA KS 1, heavy-duty, nonfusible switch.
   3. UL 489, motor-circuit protector (circuit breaker) with field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.

G. Each motor shall have overcurrent protection.

H. Overload relay sized according to UL 1995, or an integral component of water chiller control microprocessor.

I. Phase-Failure and Undervoltage: Solid-state sensing with adjustable settings.

J. Power Factor Correction: Capacitors to correct power factor to 0.95 at full load.

K. Controls Transformer: Unit-mounted transformer with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.

L. Control Relays: Auxiliary and adjustable time-delay relays, or an integral to water chiller microprocessor.

M. Service Receptacle:
   1. Unit-mounted, 120-V GFI duplex receptacle.
   2. Power receptacle from chiller internal electrical power wiring.

N. Indicate the following for water chiller electrical power supply:
   1. Current, phase to phase, for all three phases.
   2. Voltage, phase to phase and phase to neutral for all three phases.
   3. Three-phase real power (kilowatts).
   4. Three-phase reactive power (kilovolt amperes reactive).
   5. Power factor.
   6. Running log of total power versus time (kilowatt hours).
   7. Fault log, with time and date of each.

2.7 CONTROLS

A. Factory installed and wired, and functionally tested at factory before shipment.

B. Standalone, microprocessor based, with all memory stored in nonvolatile memory so that reprogramming is not required on loss of electrical power.

C. Enclosure: Share enclosure with electrical power devices or provide a separate enclosure of matching construction.

D. Operator Interface: Keypad or pressure-sensitive touch screen. Multiple-character, digital display. Display the following:
   1. Date and time.
   2. Operating or alarm status.
   3. Operating hours.
   4. Outside-air temperature if required for chilled-water reset.
   5. Temperature and pressure of operating set points.
   6. Chilled-water entering and leaving temperatures.
   7. Refrigerant pressures in evaporator and condenser.
   8. Saturation temperature in evaporator and condenser.
   9. No cooling load condition.
   10. Elapsed time meter (compressor run status).
   11. Pump status.
   12. Antirecycling timer status.
   13. Percent of maximum motor amperage.
   14. Current-limit set point.
   15. Number of compressor starts.
   16. Alarm history with retention of operational data before unit shutdown.
   17. Superheat.

E. Control Functions:
   1. Manual or automatic startup and shutdown time schedule.
   2. Capacity control based on evaporator leaving-fluid temperature.
   3. Capacity control compensated by rate of change of evaporator entering-fluid temperature.

4. Chilled-water entering and leaving temperatures, control set points, and motor load limit.
5. Current limit and demand limit.
6. Condenser-water temperature.
7. External water chiller emergency stop.
8. Antirecycling timer.
9. Automatic lead-lag switching.
10. Ice-building mode.

F. Manual-Reset Safety Controls: The following conditions shall shut down water chiller and require manual reset:
1. Low evaporator pressure or high condenser pressure.
2. Low chilled-water temperature.
3. Refrigerant high pressure.
4. High or low oil pressure.
5. High oil temperature.
6. Loss of chilled-water flow.
7. Loss of condenser-water flow.
8. Control device failure.

G. BAS System Interface: Factory-install hardware and software to enable system to monitor, control, and display chiller status and alarms.
1. Hardwired I/O Points:
   a. Monitoring: On/off status, common trouble alarm.
   b. Control: On/off operation, chilled-water discharge temperature set-point adjustment.
2. Communication Interface: ASHRAE 135 (BACnet) communication interface shall enable control system operator to remotely control and monitor the water chiller from an operator workstation. Control features and monitoring points displayed locally at water chiller control panel shall be available through DDC system for HVAC.

H. Factory-installed wiring outside of enclosures shall be in NFPA 70-complaint raceway. Make terminal connections with liquidtight or flexible metallic conduit.

2.8 ACCESSORIES

A. Factory-furnished neoprene isolators for field installation.

2.9 CAPACITIES AND CHARACTERISTICS

A. Capacity: 150 nominal tons.

B. Full-Load Efficiency:
1. EER: 10.68 EER.

C. Part-Load Efficiency:
1. IPLV: 17.6 EER.

D. Evaporator: Shell and tube type; refer to Equipment Schedule on Drawings for performance information;

E. Number of Refrigeration Circuits: Two.

F. Chiller Electrical Characteristics: 480-V ac, three phase, 60 Hz.

G. Noise Rating: 100% A weighted value of 101 dBa when measured according to AHRI 370.

2.10 SOURCE QUALITY CONTROL

A. Perform functional test of water chillers before shipping.

B. Factory performance test water chillers, before shipping, according to AHRI 550/590.
   1. Test the following conditions:
      a. Design conditions indicated.
      b. AHRI 550/590 part-load points.

C. Factory test and inspect evaporator according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1. Stamp with ASME label.

D. For water chillers located outdoors, rate sound power level according to AHRI 370 procedure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine chillers before installation. Reject chillers that are damaged.

B. Examine roughing-in for equipment support, anchor-bolt sizes and locations, piping, and electrical connections to verify actual locations, sizes, and other conditions affecting chiller performance, maintenance, and operations before equipment installation.
   1. Final chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 CHILLER INSTALLATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases.

B. Coordinate sizes, locations, and anchoring attachments of structural-steel support structures.

C. Equipment Mounting:
   1. Install chillers on existing cast-in-place concrete equipment bases.

D. Maintain manufacturer's recommended clearances for service and maintenance.

E. Charge chiller with refrigerant and fill with oil if not factory installed.

F. Install separate devices furnished by manufacturer and not factory installed.

3.3 PIPING CONNECTIONS

A. Comply with requirements in Section 232113 "Hydronic Piping" and Section 232116 "Hydronic Piping Specialties." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to chillers, allow space for service and maintenance.

C. Connect each chiller vent connection with an automatic or a manual vent, full size of vent connection.

3.4 ELECTRICAL POWER CONNECTIONS

A. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Provide nameplate for each electrical connection indicating electrical equipment designation and circuit number feeding connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high. Locate nameplate where easily visible.

3.5 CONTROLS CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring between chillers and other equipment to interlock operation as required to provide a complete and functioning system.

C. Connect control wiring between chiller control interface and DDC system for remote monitoring and control of chillers. Comply with requirements in Section 230900 "Instrumentation and Control HVAC."

D. Provide nameplate on face of chiller control panel indicating control equipment designation serving chiller and the I/O point designation for each control connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high.

3.6 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.

C. Complete installation and startup checks according to manufacturer's written instructions and perform the following:
   1. Verify that refrigerant charge is sufficient and water chiller has been leak tested.
   2. Verify that pumps are installed and functional.
   3. Verify that thermometers and gages are installed.
   4. Operate water chiller for run-in period.
   5. Check bearing lubrication and oil levels.
   6. Verify proper motor rotation.
   7. Verify static deflection of vibration isolators, including deflection during water chiller startup and shutdown.
   8. Verify and record performance of chilled-water flow and low-temperature interlocks.
   9. Verify and record performance of water chiller protection devices.
   10. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

D. Visually inspect chiller for damage before starting. Repair or replace damaged components, including insulation. Do not start chiller until damage that is detrimental to operation has been corrected.

E. Prepare a written startup report that records results of tests and inspections.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain water chillers.
   1. Instructor shall be factory trained and certified.
   2. Provide not fewer than eight hours of training.
   3. Train personnel in operation and maintenance and to obtain maximum efficiency in plant operation.
   4. Provide instructional videos showing general operation and maintenance that are coordinated with operation and maintenance manuals.
   5. Obtain Owner sign-off that training is complete.
   6. Owner training shall be held at Project site.

END OF SECTION 236426.13

SECTION 237416.13 - PACKAGED, LARGE-CAPACITY, ROOFTOP AIR-CONDITIONING UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes packaged, large-capacity, rooftop air conditioning units (RTUs) with the following components:
   1. Casings.
   2. Fans, drives, and motors.
   3. Coils.
   4. Refrigerant circuit components.
   5. Air filtration.
   6. Dampers.
   7. Electrical power connections.
   8. Controls.
   9. Roof curbs.
   10. Accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of RTU.

B. Shop Drawings: For each packaged, large-capacity, rooftop air-conditioning units.
   1. Include plans, elevations, sections, and mounting attachment details.
   2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans and other details, or BIM model, drawn to scale, showing the items described in this Section, and coordinated with all building trades.

B. Sample Warranty: For manufacturer's warranty.

C. Source quality-control reports.

D. System startup reports.

E. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For RTUs to include in emergency, operation, and maintenance manuals.

1.5 WARRANTY

A. Warranty: Manufacturer agrees to repair or replace components of outdoor, semi-custom, air-handling unit that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: One year(s) from date of Substantial Completion or 18 months from equipment ship date; whichever occurs first.

B. Special Warranty: Manufacturer agrees to repair or replace components of outdoor, semi-custom, air-handling unit that fail in materials or workmanship within for an extended warranty period in accordance with the following:
   1. Extended warranties include, but are not limited to, the following:
      a. Complete compressor and drive assembly including refrigerant and oil charge.
      b. Parts and labor.
   2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of RTUs and components.

C. ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

D. ASHRAE 15 Compliance: For refrigeration system safety.

E. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

F. UL Compliance: Comply with UL 1995.

2.2 CAPACITIES AND CHARACTERISTICS

A. Refer to Equipment Schedules on Drawings.

B. Electrical Characteristics for Single-Point Connection: Refer to Equipment Schedules on Drawings.

2.3 MANUFACTURERS

A. Manufacturers: Project Basis of Design is Trane Intellipak® – Model SLHLF

B. Subject to compliance with requirements, comparable products by the following will also be accepted:
   1. Diakin
   2. York

2.4 UNIT CASINGS

A. General Fabrication Requirements for Casings: Formed and reinforced ~~double-wall~~ insulated panels, fabricated to allow removal for access to internal parts and components, with joints between sections sealed.

~~Double-Wall Construction:~~
~~1. Outside Casing Wall: Galvanized steel, minimum 18-gauge thick with manufacturer's standard finish, with pitched roof panels and knockouts with grommet seals for electrical and piping connections and lifting lugs.~~
~~2. Inside Casing Wall: G90-coated galvanized steel, 0.034 inch thick, perforated 40 percent free area.~~
~~3. Casing Insulation:~~
~~a. Materials: Injected polyurethane foam insulation.~~
~~b. Casing Panel R-Value: Minimum R-13.~~
~~c. Insulation Thickness: 1 inch.~~
~~d. Thermal Break: Provide continuity of insulation with no through-casing metal in casing walls, floors, or roof of unit.~~

B. Insulation: Nominal 1/2" dual layer with minimum thermal conductance of 0.48 Btu/hr. ft² °F; and compliant with NFPA 90A and ASHRAE 62.1 for air contact surface.

C. Airstream Surfaces: Surfaces in contact with airstream shall comply with requirements in ASHRAE 62.1.

D. Static-Pressure Classifications:
   1. For Unit Sections Upstream of Fans: Minus 3-inch wg.
   2. For Unit Sections Downstream and Including Fans: 3-inch wg.

E. Panels and Doors:
   1. Panels:
      a. Fabrication: Formed and reinforced with same materials and insulation thickness as casing.
      b. Fasteners: Two or more camlock type for panel lift-out operation. Arrangement shall allow panels to be opened against air-pressure differential.
      c. Gasket: Neoprene, applied around entire perimeters of panel frames.
      d. Size: Large enough to allow inspection and maintenance of air-handling unit's internal components.
   2. Access Doors:
      a. Hinges: A minimum of two ball-bearing hinges or stainless steel piano hinge and two wedge-lever-type latches, operable from inside and outside. Arrange doors to be opened against air-pressure differential.

b. Gasket: Neoprene, applied around entire perimeters of panel frames.
c. Size: Large enough to allow inspection and maintenance of air-handling unit's internal components. Locations and Applications:
d. Fan Section: Doors and inspection and access panels.
e. Access Section: Doors.
f. Coil Section: Inspection and access panels.
g. Damper Section: Inspection and access panels.
h. Filter Section: Doors large enough to allow periodic removal and installation of filters.
i. Mixing Section: Doors.

F. Condensate Drain Pans:
1. Location: Each type of cooling coil.
2. Construction:
a. Single-wall, stainless steel sheet.
3. Drain Connection:
a. Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.
b. Minimum Connection Size: NPS 1.
4. Slope: Minimum 0.125-in./ft. slope, to comply with ASHRAE 62.1, in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and from humidifiers and to direct water toward drain connection.
5. Length: Extend drain pan downstream from leaving face for distance to comply with ASHRAE 62.1.
6. Width: Entire width of water producing device.
7. Depth: A minimum of 2 inches deep.
8. Pan-Top Surface Coating for Galvanized-Steel Drain Pans: Asphaltic waterproofing compound.
9. Units with stacked coils shall have an intermediate drain pan to collect condensate from top coil.

2.5 FANS, DRIVES, AND MOTORS

A. Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.

B. Supply-Air Fans: Centrifugal, rated according to AMCA 210; galvanized or painted steel; mounted on solid-steel shaft.
1. Shafts: With field-adjustable alignment.
a. Turned, ground, and polished hot-rolled steel with keyway.
2. Shaft Bearings:
a. Heavy-duty, self-aligning, pillow-block type with an L-50 rated life of minimum 100,000 hours according to ABMA 9.
3. Housings: Formed- and reinforced-steel panels to form curved scroll housings with shaped cutoff and spun-metal inlet bell.
a. Bracing: Steel angle or channel supports for mounting and supporting fan scroll, wheel, motor, and accessories.

4. Centrifugal Fan Wheels: Inlet flange, backplate, and shallow blades with inlet and tip curved forward in direction of airflow and mechanically fastened to flange and backplate; steel or aluminum hub swaged to backplate and fastened to shaft with setscrews.
5. Mounting: For internal vibration isolation. Factory-mount fans with manufacturer's standard vibration isolation mounting devices having a minimum static deflection of 1 inch.
6. Shaft Lubrication Lines: Extended to a location outside the casing.
7. Flexible Connector: Factory fabricated with a fabric strip minimum 3-1/2 inches wide, attached to two strips of minimum 2-3/4-inch-wide by 0.028-inch-thick, galvanized-steel sheet.
    a. Flexible Connector Fabric: Glass fabric, double coated with neoprene. Fabrics, coatings, and adhesives shall comply with UL 181, Class 1.

C. Drives, Direct: Factory-mounted, direct drive.

D. Condenser-Coil Fan: Variable-speed propeller, mounted on shaft of permanently lubricated ECM motors.

E. Relief-Air Fan: Backward inclined, shaft mounted on permanently lubricated motor.

F. Motors:
1. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
2. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
3. Enclosure Type: Open, dripproof.
4. Efficiency: Premium efficient as defined in NEMA MG 1.
5. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.

2.6 COILS

A. General Requirements for Coils:
1. Comply with AHRI 410.
2. Fabricate coils section to allow removal and replacement of coil for maintenance and to allow in-place access for service and maintenance of coil(s).
3. Coils shall not act as structural component of unit.

B. Supply-Air Refrigerant Coil:
1. Tubes: Copper.
2. Fins: Aluminum.
3. Fin and Tube Joints: Mechanical bond.
4. Headers: Seamless-copper headers with brazed connections.
5. Frames: Galvanized steel.
6. Ratings: Designed, tested, and rated according to ASHRAE 33 and AHRI 410.
    a. Working Pressure: Minimum 300 psig.

C. Supply-Air Hydronic Heating Coil:
   1. Hot-Water Coils: Continuous circuit Self-draining.
      a. Piping Connections: Threaded, opposite ends of coil.
      b. Tube Material: Copper.
      c. Fin Type: Plate.
      d. Fin Material: Aluminum.
      e. Fin and Tube Joint: Mechanical bond.
      f. Headers:
         1) Cast iron with cleaning plugs and drain and air vent tappings.
         2) Seamless copper tube with brazed joints, prime coated.
         3) Fabricated steel, with brazed joints, prime coated.
         4) Provide insulated cover to conceal exposed outside casings of headers.
      g. Frames: Channel frame, minimum 0.052-inch-thick galvanized steel.
      h. Coil Working-Pressure Ratings: 200 psig, 325 deg F.
      i. Coating: None.

D. Outdoor-Air Refrigerant Coil:
   1. Tubes: Copper.
   2. Fins: Aluminum.
   3. Fin and Tube Joints: Mechanical bond.
   4. Headers: Seamless-copper headers with brazed connections.
   5. Frames: Galvanized steel.
   6. Ratings: Designed, tested, and rated according to ASHRAE 33 and AHRI 410.
      a. Working Pressure: Minimum 300 psig.

2.7 REFRIGERANT CIRCUIT COMPONENTS

A. Number of Refrigerant Circuits: Refer to Equipment Schedules on Drawings.

B. Compressor: Hermetic, ~~variable-speed~~ scroll, mounted on vibration isolators; with internal overcurrent and high-temperature protection, internal pressure relief, and crankcase heater.
   1. Units with Multiple Compressors: Furnish with digital scroll lead compressor.

C. Refrigeration Specialties:
   1. Refrigerant: R-410A.
   2. Expansion valve with replaceable thermostatic element.
   3. Refrigerant filter/dryer.
   4. Manual-reset high-pressure safety switch.
   5. Automatic-reset low-pressure safety switch.
   6. Minimum off-time relay.
   7. Automatic-reset compressor motor thermal overload.
   8. Brass service valves installed in compressor suction and liquid lines.
   ~~9. Low-ambient kit high-pressure sensor.~~
   10. Four-way reversing valve with a replaceable magnetic coil, thermostatic expansion valves with bypass check valves, and a suction line accumulator.

2.8 AIR FILTRATION

A. Particulate air filtration is specified in Section 234100 "Particulate Air Filtration."

B. Panel Filters:
1. Description: Pleated factory-fabricated, self-supported, disposable air filters with holding frames.
2. Filter Unit Class: UL 900.
3. Media: Interlaced glass, synthetic or cotton fibers coated with nonflammable adhesive and antimicrobial coating.
4. Filter-Media Frame: Beverage board with perforated metal retainer, or metal grid, on outlet side.

~~C. Cartridge Filters:~~
~~1. Description: Factory fabricated, adhesive-coated disposable, packaged air filters with media perpendicular to airflow, and with holding frames.~~
~~2. Filter Unit Class: UL 900.~~
~~3. Media: Fibrous material, with antimicrobial coating, constructed so individual pleats are maintained in pleated form under rater airflow conditions by corrugated aluminum separators.~~
~~4. Filter Media Frame: Galvanized steel.~~

~~D. Adhesive, Sustainability Projects: As recommended by air filter manufacturer and with a VOC content of 80 g/L or less.~~
1. ~~Adhesive, LEED for Schools Projects: As recommended by air filter manufacturer and that complies with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."~~

2.9 DAMPERS

A. Outdoor- and Return-Air Dampers: Low-leakage, double-skin, airfoil-blade, galvanized-steel dampers with compressible jamb seals and extruded-vinyl blade edge seals in parallel-blade arrangement with zinc-plated steel operating rods rotating in sintered bronze or nylon bearings mounted in a single galvanized-steel frame, and with operating rods connected with a common linkage. Leakage rate shall not exceed 4 cfm/sq. ft. at 1-inch wg and 8 cfm/sq. ft. at 4-inch wg

B. Barometric relief dampers.

C. Electronic Damper Operators:
1. Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.
2. Electronic damper position indicator shall have visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.

2.10 ELECTRICAL POWER CONNECTIONS

A. RTU shall have a single connection of power to unit with unit-mounted disconnect switch accessible from outside unit and control-circuit transformer with built-in overcurrent protection.

2.11 CONTROLS

A. Basic Unit Controls:
   1. Control-voltage transformer.
   2. Unit-Mounted Annunciator Panel for Each Unit:
      a. Lights to indicate power on, cooling, heating, fan running, filter dirty, and unit alarm or failure.
      b. DDC controller or programmable timer and interface with HVAC instrumentation and control system.
      c. Digital display of outdoor-air temperature, supply-air temperature, return-air temperature, economizer damper position, indoor-air quality, and control parameters.

B. DDC Controller:
   1. Controller shall have volatile-memory backup.
   2. Safety Control Operation:
      a. Smoke Detectors: Stop fan and close outdoor-air damper if smoke is detected. Provide additional contacts for alarm interface to fire alarm control panel.
      b. Firestats: Stop fan and close outdoor-air damper if air greater than 130 deg F enters unit. Provide additional contacts for alarm interface to fire alarm control panel.
      c. Fire Alarm Control Panel Interface: Provide control interface to coordinate with operating sequence described in Section 283111 "Digital Addressable Fire-Alarm Systems."
      d. Low-Discharge Temperature: Stop fan and close outdoor-air damper if supply air temperature is less than 40 deg F.
   3. Fixed Minimum Outdoor-Air Damper Operation:
      a. Occupied Periods: Open to 25 percent.
      b. Unoccupied Periods: Close the outdoor-air damper.

C. Interface Requirements for HVAC Instrumentation and Control System:
   1. Interface relay for scheduled operation.
   2. Interface relay to provide indication of fault at the central workstation and diagnostic code storage.
   3. Provide BACnet compatible interface for central HVAC control workstation for the following:
      a. Adjusting set points.
      b. Monitoring supply fan start, stop, and operation.
      c. Monitoring occupied and unoccupied operations.
      d. Monitoring constant and variable motor loads.
      e. Monitoring variable-frequency drive operation.
      f. Monitoring cooling load.

g. Monitoring economizer cycles.
h. Monitoring air-distribution static pressure and ventilation air volume.

2.12 ROOF CURBS

A. Materials: Galvanized steel with corrosion-protection coating, watertight gaskets, and factory-installed wood nailer; complying with NRCA standards.
~~1. Curb Insulation and Adhesive: Comply with NFPA 90A or NFPA 90B.~~
~~a. Materials: ASTM C 1071, Type I or II.~~
~~b. Thickness: 1-1/2 inches.~~
~~2. Application: Factory applied with adhesive and mechanical fasteners to the internal surface of curb.~~
~~a. Liner Adhesive: Comply with ASTM C 916, Type I.~~
~~b. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in cabinet.~~
~~c. Liner materials applied in this location shall have air-stream surface coated with a temperature-resistant coating or faced with a plain or coated fibrous mat or fabric depending on service air velocity.~~
d. ~~Liner Adhesive: Comply with ASTM C 916, Type I.~~

B. Curb Dimensions: Height of 14 inches.

2.13 ACCESSORIES

A. Duplex, 115-V, ground-fault-interrupter outlet with 15-A overcurrent protection. Include transformer if required. Outlet shall be energized even if the unit main disconnect is open.

B. Filter differential pressure switch with sensor tubing on either side of filter. Set for final filter pressure loss.

C. Remote potentiometer to adjust minimum economizer damper position.

D. Return-air bypass damper.

E. Factory- or field-installed demand-controlled ventilation.

F. Safeties:
1. Smoke detector.
2. Condensate overflow switch.

G. Coil guards of painted, galvanized-steel wire.

H. Outdoor air intake weather hood.

2.14 MATERIALS

A. Steel:
   1. ASTM A36/A36M for carbon structural steel.
   2. ASTM A568/A568M for steel sheet.

B. Stainless Steel:
   1. Manufacturer's standard grade for casing.
   2. Manufacturer's standard type, ASTM A240/A240M for bare steel exposed to airstream or moisture.

C. Galvanized Steel: ASTM A653/A653M.

D. Aluminum: ASTM B209.

2.15 SOURCE QUALITY CONTROL

A. AHRI Compliance:
   1. Comply with AHRI 340/360 for testing and rating energy efficiencies for RTUs.
   2. Comply with AHRI 210/240 for testing and rating energy efficiencies for RTUs
   3. Comply with AHRI 270 for testing and rating sound performance for RTUs.
   4. Comply with AHRI 1060 for testing and rating performance for air-to-air exchanger.

B. AMCA Compliance:
   1. Comply with AMCA 11 and bear the AMCA-Certified Ratings Seal for air and sound performance according to AMCA 211 and AMCA 311.
   2. Damper leakage tested in accordance with AMCA 500-D.
   3. Operating Limits: Classify according to AMCA 99.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine roughing-in for RTUs to verify actual locations of piping and duct connections before equipment installation.

B. Roof Curb: Install on roof structure or concrete base, level and secure, according to NRCA's "NRCA Roofing Manual: Membrane Roof Systems." Install RTUs on curbs. Secure RTUs to upper curb rail, and secure curb base to roof framing or concrete base with anchor bolts. Coordinate sizes and locations of roof curbs with actual equipment provided.

3.2 PIPING CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to RTU, allow space for service and maintenance.

C. Connect piping to unit mounted on vibration isolators with flexible connectors.

D. Connect condensate drain pans using NPS 1-1/4, ASTM B88, Type M copper tubing. Extend to nearest equipment or roof drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.

E. Hot-Water Piping: Comply with applicable requirements in Section 232113 "Hydronic Piping" and Section 232116 "Hydronic Piping Specialties." Install shutoff valve and union or flange at each coil supply connection. Install balancing valve and union or flange at each coil return connection.

3.3 DUCT CONNECTIONS

A. Comply with duct installation requirements specified in other HVAC Sections. Drawings indicate the general arrangement of ducts. The following are specific connection requirements:
   1. Install ducts to termination at top of roof curb.
   2. Remove roof decking only as required for passage of ducts. Do not cut out decking under entire roof curb.
   3. Connect supply ducts to RTUs with flexible duct connectors specified in Section 233300 "Air Duct Accessories."
   4. Install return-air duct continuously through roof structure.

3.4 ELECTRICAL CONNECTIONS

A. Connect electrical wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

C. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.
   1. Nameplate shall be laminated acrylic or melamine plastic signs as specified in Section 260553 "Identification for Electrical Systems."
   2. Nameplate shall be laminated acrylic or melamine plastic signs as layers of black with engraved white letters at least 1/2 inch high.
   3. Locate nameplate where easily visible.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
   1. After installing RTUs and after electrical circuitry has been energized, test units for compliance with requirements.
   2. Inspect for and remove shipping bolts, blocks, and tie-down straps.
   3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
   4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

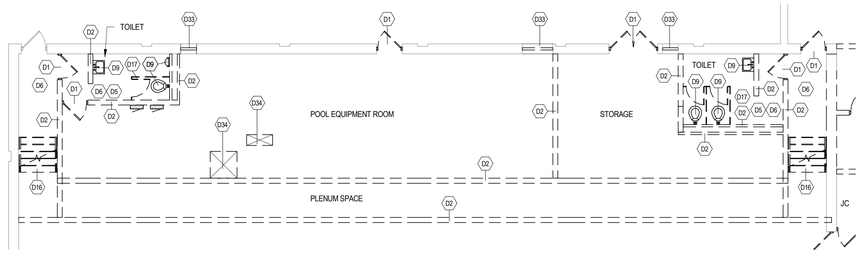
D. RTU will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

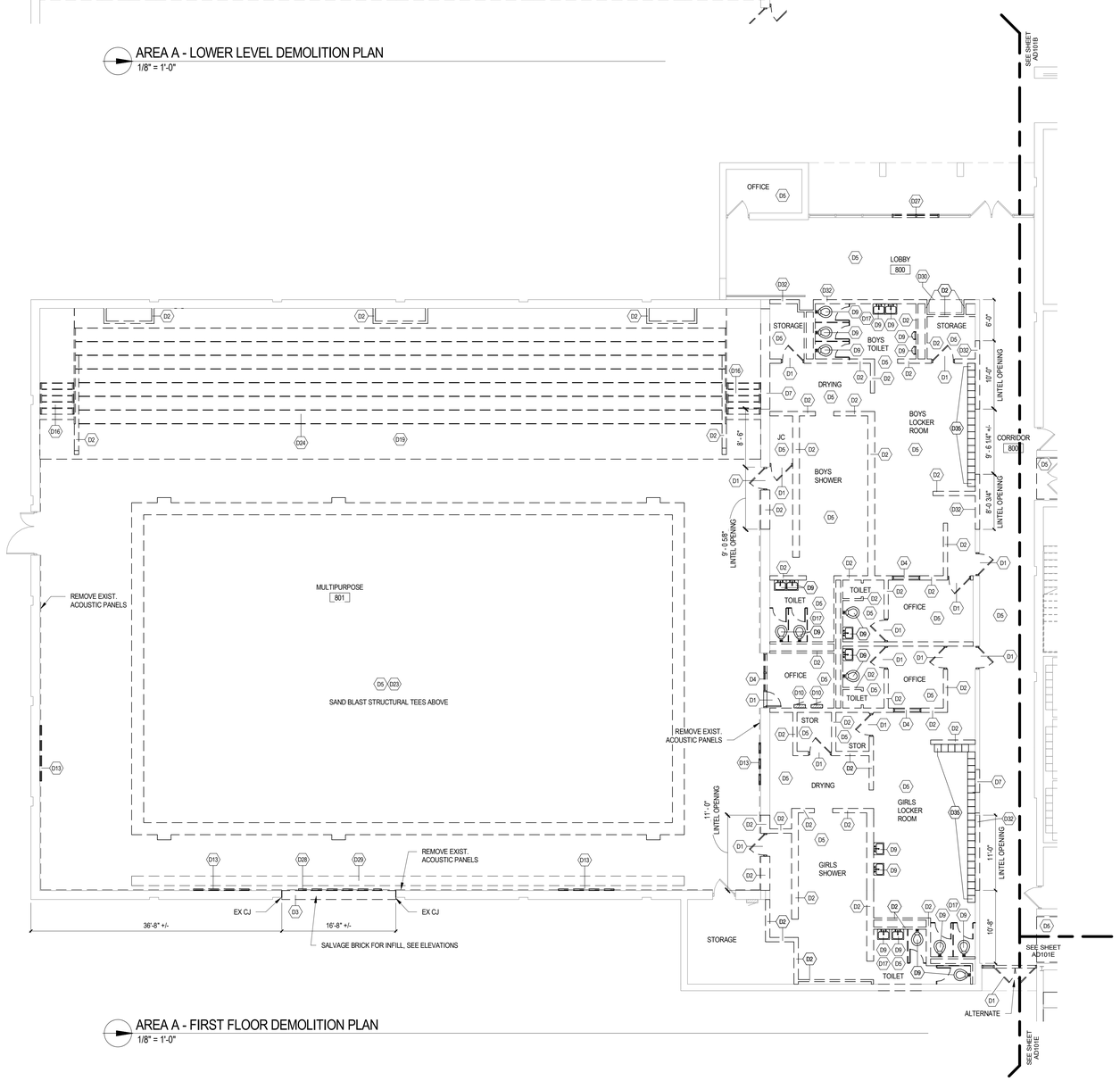
3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain RTUs.

END OF SECTION 237416.13



AREA A - LOWER LEVEL DEMOLITION PLAN
1/8" = 1'-0"

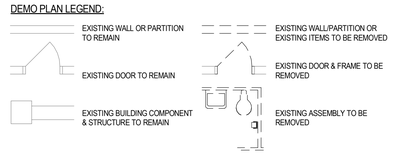


AREA A - FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

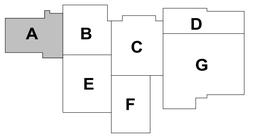
GENERAL DEMOLITION NOTES:

1. ALL EXISTING LOOSE MATERIALS, FURNITURE, PORTABLE ELECTRONIC DEVICES AND EQUIPMENT TO BE RETAINED BY THE OWNER WILL BE MOVED PRIOR TO DEMOLITION.
2. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION NOTES AND INFORMATION.
3. SHORE AND BRACE ALL WORK REQUIRED TO REMAIN.
4. THE CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO START OF WORK.
5. DOCUMENTS ARE BASED ON OWNER'S RECORD DRAWINGS. CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND NEW WORK. NOTIFY ARCHITECT IMMEDIATELY OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
6. ALL DISTURBED SURFACES TO BE PATCHED/ REPAIRED TO RECEIVE NEW FINISHES IN A LIKE-NEW CONDITION TO MATCH ADJACENT FINISH.
7. ALL EXISTING ATTACHED ITEMS (WALL GUARDS, SWITCHES, ETC.) AND EQUIPMENT TO BE RETAINED ARE TO BE REMOVED AND REINSTALLED BY CONTRACTOR UPON COMPLETION OF FINISHING WORK.
8. ANY ITEMS LEFT IN DEMOLITION AREAS WILL BECOME THE PROPERTY OF DEMOLITION CONTRACTOR FOR THEIR OFF-SITE DISPOSAL AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION MANAGER TO COORDINATE DEMOLITION WORK WITH OWNER AND CONTRACTOR PRIOR TO START OF WORK.
9. CONDUITS, CONDUCTORS AND FEEDERS TO ALL ELECTRICAL LOADS BEING DEMOLISHED ARE TO BE REMOVED BACK TO THEIR SOURCE IN ACCORDANCE WITH THE N.E.C. THIS IS TO INCLUDE POWER, LIGHTING CONTROLS, AND ALL COMMUNICATION SYSTEMS.
10. COORDINATE WITH PLUMBING CONTRACTORS IN SELECTIVE REMOVAL OF VENTS, WASTE PIPING, RAIN WATER CONDUCTORS IN AREA AFFECTED BY THE WORK. REFER ALSO TO PLUMBING DEMO DRAWINGS.
11. PATCH/REPAIR/REPLACE ALL MATERIALS AFFECTED BY RENOVATION TO MATCH ORIGINAL EXISTING MATERIAL, FINISH, COLOR, ETC., U.N.O.
12. PATCH, REPAIR, REPLACE EXISTING MATERIALS AS REQUIRED TO RECEIVE NEW FINISHES.
13. REFER TO OTHER DRAWINGS FOR DIMENSIONS AND OTHER INFORMATION NOT SHOWN HERE.
14. SOME FOUNDATION WALLS & FOOTINGS MAY BE ALLOWED TO REMAIN (BELOW GRADE.) COORDINATE WITH UTILITIES AND ALL TRADES. WHERE FOUNDATION WALLS AND FOOTINGS ARE ALLOWED TO REMAIN, REMOVE FOUNDATION TO 8" BELOW SLAB AS REQUIRED TO PROVIDE FOR NEW SLAB.
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:



DEMOLITION KEY	
KEY VALUE	**KEYNOTE TEXT**
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION.
D6	REMOVE EXISTING FINISH FLOOR MATERIAL AND ADHESIVE/MORTAR. PREP FOR NEW FLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
D14	REMOVE AND SALVAGE EXISTING INSTRUMENT LOCKERS PER FLOOR DEMOLITION. PLACE SALVAGED INSTRUMENT LOCKERS IN EXISTING LOCATIONS ON NEW FINISHED FLOOR.
D15	SAWCUT CMU PARTITION AROUND EXISTING COLUMNS IN WALL. SEE ARCHITECTURAL PLANS AND DETAILS.
D16	REMOVE EXISTING STAIRS, HANDRAILS, AND ANY ASSOCIATED BRACKETING OR ANCHORS AND NECESSARY FOR INSTALLATION OF NEW FINISHES.
D17	REMOVE ALL EXISTING TOILET PARTITIONS AND ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) SOAP DISPENSERS, TOILET TISSUE DISPENSERS, SANITARY NAPKIN DISPOSALS, PAPER TOWEL DISPENSERS, MIRRORS, GRAB BARS.
D19	REMOVE EXISTING FLOORING, FLOOR STRUCTURE, AND ANY ASSOCIATED MATERIALS AND ADHESIVE/MORTAR AS REQUIRED FOR PROPER INSTALLATION OF NEW FINISHES. SEE STRUCTURAL.
D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
D24	REMOVE EXISTING BLEACHERS, HANDRAILS, FLOOR STRUCTURE AND FINISH FLOOR MATERIALS.
D25	REMOVE EXISTING RISERS, HANDRAIL, AND FINISH FLOOR MATERIALS. SEE STRUCTURAL.
D26	REMOVE EXISTING FOLDING PARTITION WALL AND TRACK. SUPPORTING STRUCTURE TO REMAIN.
D27	REMOVE EXISTING STOREFRONT SYSTEM, SIDELIGHTS, AND ANY ADJACENT MATERIALS FOR PROPER INSTALLATION OF NEW STOREFRONT ENTRANCE.
D28	REMOVE EXISTING SCOREBOARD, ANCHORS, BRACKETS, FASTENERS, AND ASSOCIATED POWER AND DATA.
D29	REMOVE EXISTING BENCHES AND ASSOCIATED SUPPORTS.
D30	REMOVE EXISTING DISPLAY CASE.
D31	REMOVE EXISTING GLAZING FOR REPLACEMENT.
D32	REMOVE EXISTING BRICK & CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D33	REMOVE EXISTING LOUVER AND ASSOCIATED TRIM.
D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.



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DEMOLITION PLAN - AREA A

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
AD101A

100% CONSTRUCTION DOCUMENTS

Addendum #1

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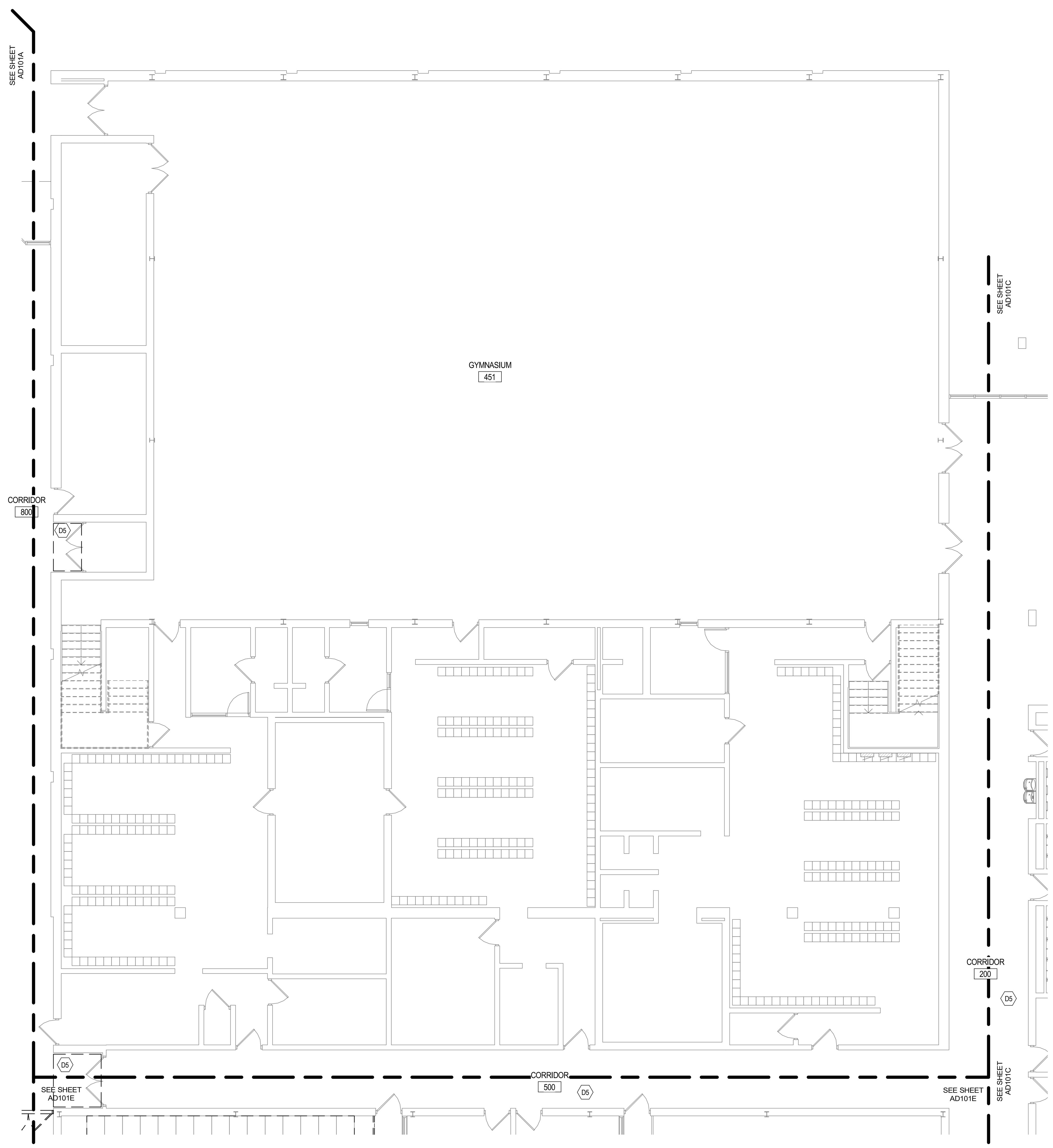
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver



AREA B - FIRST FLOOR DEMOLITION PLAN

1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

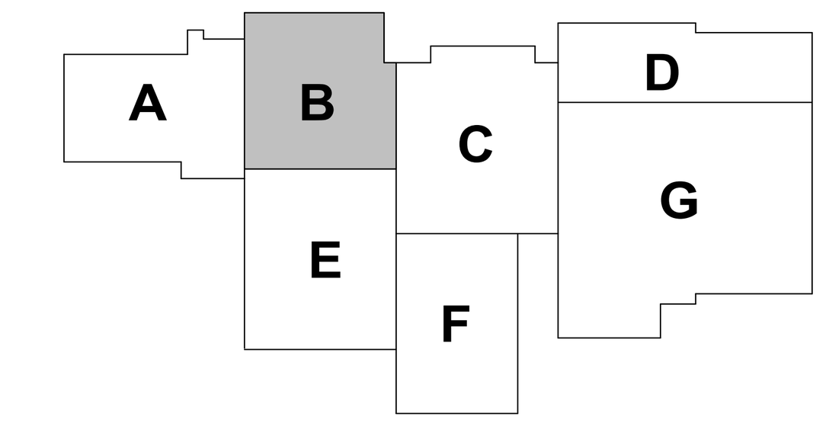
1. ALL EXISTING LOOSE MATERIALS, FURNITURE, PORTABLE ELECTRONIC DEVICES AND EQUIPMENT TO BE RETAINED BY THE OWNER WILL BE MOVED PRIOR TO DEMOLITION.
2. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION NOTES AND INFORMATION.
3. SHORE AND BRACE ALL WORK REQUIRED TO REMAIN.
4. THE CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO START OF WORK.
5. DOCUMENTS ARE BASED ON OWNER'S RECORD DRAWINGS. CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND NEW WORK. NOTIFY ARCHITECT IMMEDIATELY OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
6. ALL DISTURBED SURFACES TO BE PATCHED/ REPAIRED TO RECEIVE NEW FINISHES IN A LIKE-NEW CONDITION TO MATCH ADJACENT FINISH.
7. ALL EXISTING ATTACHED ITEMS (WALL GUARDS, SWITCHES, ETC.) AND EQUIPMENT TO BE RETAINED ARE TO BE REMOVED AND REINSTALLED BY CONTRACTOR UPON COMPLETION OF FINISHING WORK.
8. ANY ITEMS LEFT IN DEMOLITION AREAS WILL BECOME THE PROPERTY OF DEMOLITION CONTRACTOR FOR THEIR OFF-SITE DISPOSAL AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION MANAGER TO COORDINATE DEMOLITION WORK WITH OWNER AND CONTRACTOR PRIOR TO START OF WORK.
9. CONDUITS, CONDUCTORS AND FEEDERS TO ALL ELECTRICAL LOADS BEING DEMOLISHED ARE TO BE REMOVED BACK TO THEIR SOURCE IN ACCORDANCE WITH THE N.E.C. THIS IS TO INCLUDE POWER, LIGHTING CONTROLS, AND ALL COMMUNICATION SYSTEMS.
10. COORDINATE WITH PLUMBING CONTRACTORS IN SELECTIVE REMOVAL OF VENTS, WASTE PIPING, RAIN WATER CONDUCTORS IN AREA AFFECTED BY THE WORK. REFER ALSO TO PLUMBING DEMO DRAWINGS.
11. PATCH/REPAIR/REPLACE ALL MATERIALS AFFECTED BY RENOVATION TO MATCH ORIGINAL EXISTING MATERIAL, FINISH, COLOR, ETC., U.N.O.
12. PATCH, REPAIR, REPLACE EXISTING MATERIALS AS REQUIRED TO RECEIVE NEW FINISHES.
13. REFER TO OTHER DRAWINGS FOR DIMENSIONS AND OTHER INFORMATION NOT SHOWN HERE.
14. SOME FOUNDATION WALLS & FOOTINGS MAY BE ALLOWED TO REMAIN (BELOW GRADE.) COORDINATE WITH UTILITIES AND ALL TRADES. WHERE FOUNDATION WALLS AND FOOTINGS ARE ALLOWED TO REMAIN, REMOVE FOUNDATION TO 8" BELOW SLAB AS REQUIRED TO PROVIDE FOR NEW SLAB.
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:

- EXISTING WALL OR PARTITION TO REMAIN
- EXISTING WALL/PARTITION OR EXISTING ITEMS TO BE REMOVED
- EXISTING DOOR TO REMAIN
- EXISTING DOOR & FRAME TO BE REMOVED
- EXISTING BUILDING COMPONENT & STRUCTURE TO REMAIN
- EXISTING ASSEMBLY TO BE REMOVED

DEMOLITION KEY

KEY VALUE	KEYNOTE TEXT
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION.
D6	REMOVE EXISTING FINISH FLOOR MATERIALS AND ADHESIVE/MORTAR; PREP FOR NEW FLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
D14	REMOVE AND SALVAGE EXISTING INSTRUMENT LOCKERS PER FLOOR DEMOLITION. PLACE SALVAGED INSTRUMENT LOCKERS IN EXISTING LOCATIONS ON NEW FINISHED FLOOR.
D15	SAWCUT CMU PARTITION AROUND EXISTING COLUMNS IN WALL. SEE ARCHITECTURAL PLANS AND DETAILS.
D16	REMOVE EXISTING STAIRS, HANDRAILS, AND ANY ASSOCIATED BRACKETING OR ANCHORS AND NECESSARY FOR INSTALLATION OF NEW FINISHES.
D17	REMOVE ALL EXISTING TOILET PARTITIONS AND ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) SOAP DISPENSERS, TOILET TISSUE DISPENSERS, SANITARY NAPKIN DISPOSALS, PAPER TOWEL DISPENSERS, MIRRORS, GRAB BARS.
D19	REMOVE EXISTING FLOORING, FLOOR STRUCTURE, AND ANY ASSOCIATED MATERIALS AND ADHESIVE/MORTAR AS REQUIRED FOR PROPER INSTALLATION OF NEW FINISHES. SEE STRUCTURAL.
D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
D24	REMOVE EXISTING BLEACHERS, HANDRAILS, FLOOR STRUCTURE AND FINISH FLOOR MATERIALS.
D25	REMOVE EXISTING RISERS, HANDRAIL, AND FINISH FLOOR MATERIALS. SEE STRUCTURAL.
D26	REMOVE EXISTING FOLDING PARTITION WALL AND TRACK. SUPPORTING STRUCTURE TO REMAIN.
D27	REMOVE EXISTING STOREFRONT SYSTEM, SIDELIGHTS, AND ANY ADJACENT MATERIALS FOR PROPER INSTALLATION OF NEW STOREFRONT ENTRANCE.
D28	REMOVE EXISTING SCOREBOARD, ANCHORS, BRACKETS, FASTENERS, AND ASSOCIATED POWER AND DATA.
D29	REMOVE EXISTING BENCHES AND ASSOCIATED SUPPORTS.
D30	REMOVE EXISTING DISPLAY CASE.
D31	REMOVE EXISTING GLAZING FOR REPLACEMENT.
D32	REMOVE EXISTING BRICK & CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D33	REMOVE EXISTING LOUVER AND ASSOCIATED TRIM.
D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.



KEY PLAN

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DEMOLITION PLAN - AREA B

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ #: 160024
DATE: 12/10/2018
SHEET
AD101B

100% CONSTRUCTION DOCUMENTS

Addendum #1

GENERAL DEMOLITION NOTES:

1. ALL EXISTING LOOSE MATERIALS, FURNITURE, PORTABLE ELECTRONIC DEVICES AND EQUIPMENT TO BE RETAINED BY THE OWNER WILL BE MOVED PRIOR TO DEMOLITION.
2. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION NOTES AND INFORMATION.
3. SHORE AND BRACE ALL WORK REQUIRED TO REMAIN.
4. THE CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO START OF WORK.
5. DOCUMENTS ARE BASED ON OWNER'S RECORD DRAWINGS. CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND NEW WORK. NOTIFY ARCHITECT IMMEDIATELY OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
6. ALL DISTURBED SURFACES TO BE PATCHED/ REPAIRED TO RECEIVE NEW FINISHES IN A LIKE-NEW CONDITION TO MATCH ADJACENT FINISH.
7. ALL EXISTING ATTACHED ITEMS (WALL GUARDS, SWITCHES, ETC.) AND EQUIPMENT TO BE RETAINED ARE TO BE REMOVED AND REINSTALLED BY CONTRACTOR UPON COMPLETION OF FINISHING WORK.
8. ANY ITEMS LEFT IN DEMOLITION AREAS WILL BECOME THE PROPERTY OF DEMOLITION CONTRACTOR FOR THEIR OFF-SITE DISPOSAL AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION MANAGER TO COORDINATE DEMOLITION WORK WITH OWNER AND CONTRACTOR PRIOR TO START OF WORK.
9. CONDUITS, CONDUCTORS AND FEEDERS TO ALL ELECTRICAL LOADS BEING DEMOLISHED ARE TO BE REMOVED BACK TO THEIR SOURCE IN ACCORDANCE WITH THE N.E.C. THIS IS TO INCLUDE POWER, LIGHTING CONTROLS, AND ALL COMMUNICATION SYSTEMS.
10. COORDINATE WITH PLUMBING CONTRACTORS IN SELECTIVE REMOVAL OF VENTS, WASTE PIPING, RAIN WATER CONDUCTORS IN AREA AFFECTED BY THE WORK. REFER ALSO TO PLUMBING DEMO DRAWINGS.
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12. PATCH, REPAIR, REPLACE EXISTING MATERIALS AS REQUIRED TO RECEIVE NEW FINISHES.
13. REFER TO OTHER DRAWINGS FOR DIMENSIONS AND OTHER INFORMATION NOT SHOWN HERE.
14. SOME FOUNDATION WALLS & FOOTINGS MAY BE ALLOWED TO REMAIN (BELOW GRADE.) COORDINATE WITH UTILITIES AND ALL TRADES. WHERE FOUNDATION WALLS AND FOOTINGS ARE ALLOWED TO REMAIN, REMOVE FOUNDATION TO 8" BELOW SLAB AS REQUIRED TO PROVIDE FOR NEW SLAB.
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:

- EXISTING WALL OR PARTITION TO REMAIN
- EXISTING WALL/PARTITION OR EXISTING ITEMS TO BE REMOVED
- EXISTING DOOR TO REMAIN
- EXISTING DOOR & FRAME TO BE REMOVED
- EXISTING BUILDING COMPONENT & STRUCTURE TO REMAIN
- EXISTING ASSEMBLY TO BE REMOVED

AREA C - FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

DEMOLITION KEY

KEY VALUE	KEYNOTE TEXT
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION.
D6	REMOVE EXISTING FINISH FLOOR MATERIALS AND ADHESIVE/MORTAR PREP FOR NEW FLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
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D17	REMOVE ALL EXISTING TOILET PARTITIONS AND ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) SOAP DISPENSERS, TOILET TISSUE DISPENSERS, SANITARY NAPKIN DISPOSALS, PAPER TOWEL DISPENSERS, MIRRORS, GRAB BARS.
D19	REMOVE EXISTING FLOORING, FLOOR STRUCTURE, AND ANY ASSOCIATED MATERIALS AND ADHESIVE/MORTAR AS REQUIRED FOR PROPER INSTALLATION OF NEW FINISHES. SEE STRUCTURAL.
D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
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D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.

KEY PLAN

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DEMOLITION PLAN - AREA C

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
AD101C

100% CONSTRUCTION DOCUMENTS

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

GENERAL DEMOLITION NOTES:

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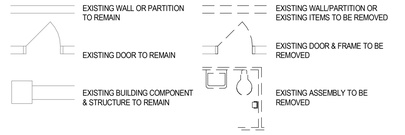
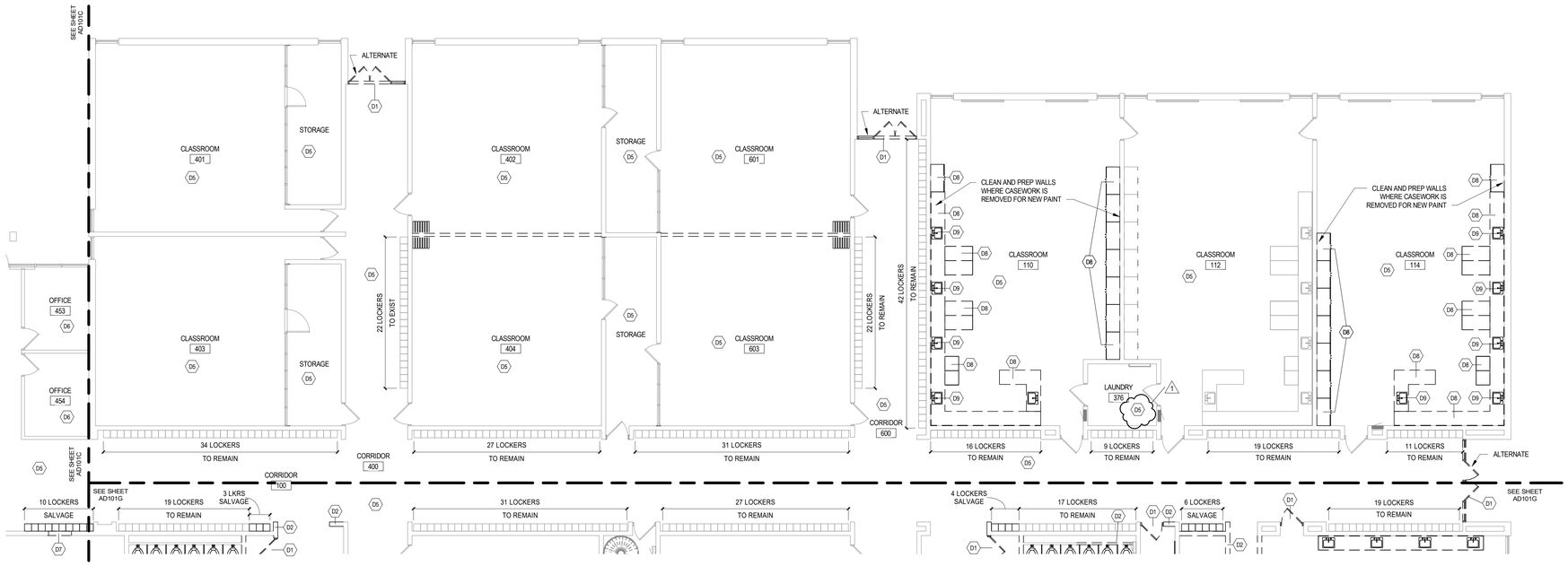
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:

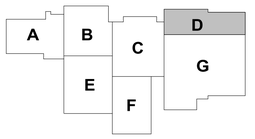




AREA D - FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

DEMOLITION KEY

KEY VALUE	KEYNOTE TEXT
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION.
D6	REMOVE EXISTING FINISH FLOOR MATERIALS AND ADHESIVE/MORTAR. PREP FOR NEW FLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
D14	REMOVE AND SALVAGE EXISTING INSTRUMENT LOCKERS PER FLOOR DEMOLITION. PLACE SALVAGED INSTRUMENT LOCKERS IN EXISTING LOCATIONS ON NEW FINISHED FLOOR.
D15	SAWCUT CMU PARTITION AROUND EXISTING COLUMNS IN WALL. SEE ARCHITECTURAL PLANS AND DETAILS.
D16	REMOVE EXISTING STAIRS, HANDRAILS, AND ANY ASSOCIATED BRACKETING OR ANCHORS AND NECESSARY FOR INSTALLATION OF NEW FINISHES.
D17	REMOVE ALL EXISTING TOILET PARTITIONS AND ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) SOAP DISPENSERS, TOILET TISSUE DISPENSERS, SANITARY NAPKIN DISPOSALS, PAPER TOWEL DISPENSERS, MIRRORS, GRAB BARS.
D19	REMOVE EXISTING FLOORING, FLOOR STRUCTURE, AND ANY ASSOCIATED MATERIALS AND ADHESIVE/MORTAR AS REQUIRED FOR PROPER INSTALLATION OF NEW FINISHES. SEE STRUCTURAL.
D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
D24	REMOVE EXISTING BLEACHERS, HANDRAILS, FLOOR STRUCTURE AND FINISH FLOOR MATERIALS.
D25	REMOVE EXISTING RISERS, HANDRAIL, AND FINISH FLOOR MATERIALS. SEE STRUCTURAL.
D26	REMOVE EXISTING FOLDING PARTITION WALL AND TRACK. SUPPORTING STRUCTURE TO REMAIN.
D27	REMOVE EXISTING STOREFRONT SYSTEM, SIDELIGHTS, AND ANY ADJACENT MATERIALS FOR PROPER INSTALLATION OF NEW STOREFRONT ENTRANCE.
D28	REMOVE EXISTING SCOREBOARD, ANCHORS, BRACKETS, FASTENERS, AND ASSOCIATED POWER AND DATA.
D29	REMOVE EXISTING BENCHES AND ASSOCIATED SUPPORTS.
D30	REMOVE EXISTING DISPLAY CASE.
D31	REMOVE EXISTING GLAZING FOR REPLACEMENT.
D32	REMOVE EXISTING BRICK & CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D33	REMOVE EXISTING LOUVER AND ASSOCIATED TRIM.
D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.



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DEMOLITION PLAN - AREA D

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
AD101D

100% CONSTRUCTION DOCUMENTS

Addendum #1

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

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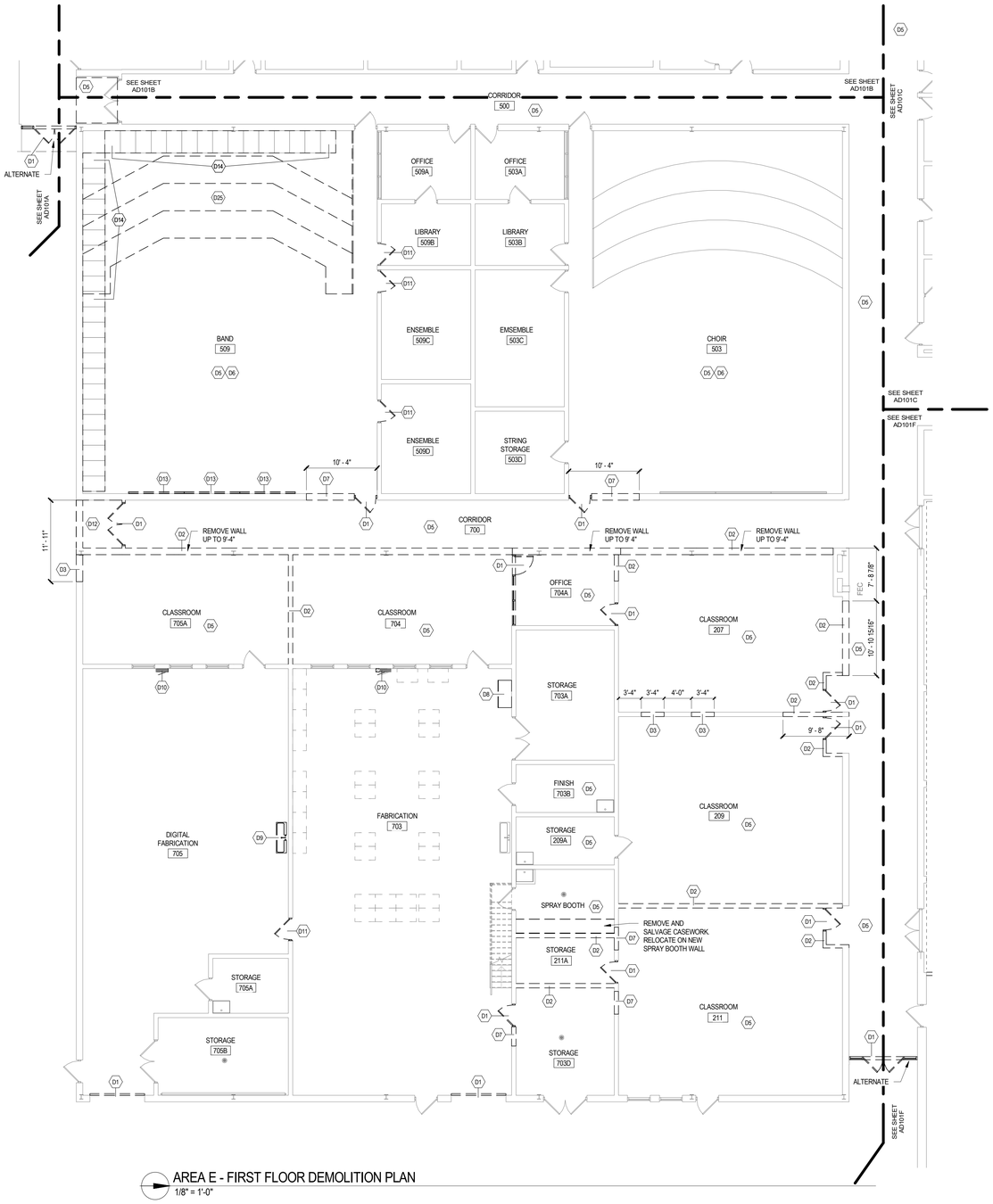


AREA E - FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

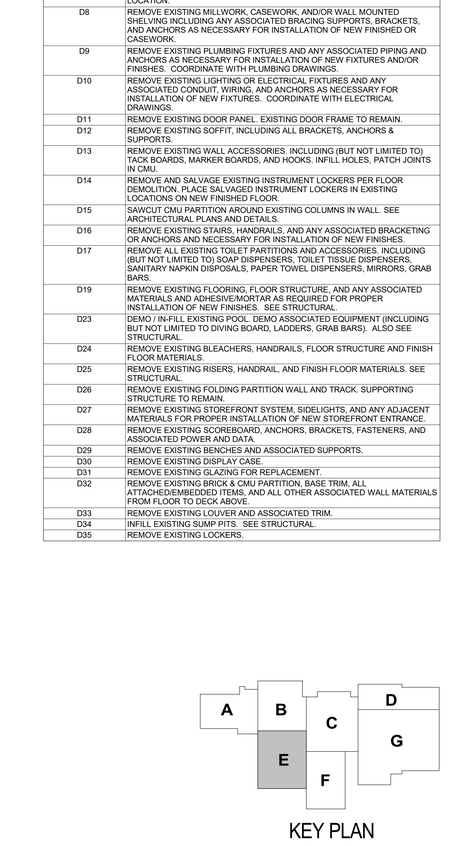
1. ALL EXISTING LOOSE MATERIALS, FURNITURE, PORTABLE ELECTRONIC DEVICES AND EQUIPMENT TO BE RETAINED BY THE OWNER WILL BE MOVED PRIOR TO DEMOLITION.
2. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION NOTES AND INFORMATION.
3. SHORE AND BRACE ALL WORK REQUIRED TO REMAIN.
4. THE CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO START OF WORK.
5. DOCUMENTS ARE BASED ON OWNER'S RECORD DRAWINGS. CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND NEW WORK. NOTIFY ARCHITECT IMMEDIATELY OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
6. ALL DISTURBED SURFACES TO BE PATCHED/ REPAIRED TO RECEIVE NEW FINISHES IN A LIKE-NEW CONDITION TO MATCH ADJACENT FINISH.
7. ALL EXISTING ATTACHED ITEMS (WALL GUARDS, SWITCHES, ETC.) AND EQUIPMENT TO BE RETAINED ARE TO BE REMOVED AND REINSTALLED BY CONTRACTOR UPON COMPLETION OF FINISHING WORK.
8. ANY ITEMS LEFT IN DEMOLITION AREAS WILL BECOME THE PROPERTY OF DEMOLITION CONTRACTOR FOR THEIR OFF-SITE DISPOSAL AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION MANAGER TO COORDINATE DEMOLITION WORK WITH OWNER AND CONTRACTOR PRIOR TO START OF WORK.
9. CONDUITS, CONDUCTORS AND FEEDERS TO ALL ELECTRICAL LOADS BEING DEMOLISHED ARE TO BE REMOVED BACK TO THEIR SOURCE IN ACCORDANCE WITH THE N.E.C. THIS IS TO INCLUDE POWER, LIGHTING CONTROLS, AND ALL COMMUNICATION SYSTEMS.
10. COORDINATE WITH PLUMBING CONTRACTORS IN SELECTIVE REMOVAL OF VENTS, WASTE PIPING, RAIN WATER CONDUCTORS IN AREA AFFECTED BY THE WORK. REFER ALSO TO PLUMBING DEMO DRAWINGS.
11. PATCH/REPAIR/REPLACE ALL MATERIALS AFFECTED BY RENOVATION TO MATCH ORIGINAL EXISTING MATERIAL, FINISH, COLOR, ETC., U.N.O.
12. PATCH, REPAIR, REPLACE EXISTING MATERIALS AS REQUIRED TO RECEIVE NEW FINISHES.
13. REFER TO OTHER DRAWINGS FOR DIMENSIONS AND OTHER INFORMATION NOT SHOWN HERE.
14. SOME FOUNDATION WALLS & FOOTINGS MAY BE ALLOWED TO REMAIN (BELOW GRADE.) COORDINATE WITH UTILITIES AND ALL TRADES. WHERE FOUNDATION WALLS AND FOOTINGS ARE ALLOWED TO REMAIN, REMOVE FOUNDATION TO 8" BELOW SLAB AS REQUIRED TO PROVIDE FOR NEW SLAB.
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:

- EXISTING WALL OR PARTITION TO REMAIN
- EXISTING WALL/PARTITION OR EXISTING ITEMS TO BE REMOVED
- EXISTING DOOR TO REMAIN
- EXISTING DOOR & FRAME TO BE REMOVED
- EXISTING BUILDING COMPONENT & STRUCTURE TO REMAIN
- EXISTING ASSEMBLY TO BE REMOVED

DEMOLITION KEY

KEY VALUE	KEYNOTE TEXT
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION.
D6	REMOVE EXISTING FINISH FLOOR MATERIALS AND ADHESIVE/MORTAR PREP FOR NEW FLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
D14	REMOVE AND SALVAGE EXISTING INSTRUMENT LOCKERS PER FLOOR DEMOLITION. PLACE SALVAGED INSTRUMENT LOCKERS IN EXISTING LOCATIONS ON NEW FINISHED FLOOR.
D15	SAWCUT CMU PARTITION AROUND EXISTING COLUMNS IN WALL. SEE ARCHITECTURAL PLANS AND DETAILS.
D16	REMOVE EXISTING STAIRS, HANDRAILS, AND ANY ASSOCIATED BRACKETING OR ANCHORS AND NECESSARY FOR INSTALLATION OF NEW FINISHES.
D17	REMOVE ALL EXISTING TOILET PARTITIONS AND ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) SOAP DISPENSERS, TOILET TISSUE DISPENSERS, SANITARY NAPKIN DISPOSALS, PAPER TOWEL DISPENSERS, MIRRORS, GRAB BARS.
D19	REMOVE EXISTING FLOORING, FLOOR STRUCTURE, AND ANY ASSOCIATED MATERIALS AND ADHESIVE/MORTAR AS REQUIRED FOR PROPER INSTALLATION OF NEW FINISHES. SEE STRUCTURAL.
D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
D24	REMOVE EXISTING BLEACHERS, HANDRAILS, FLOOR STRUCTURE AND FINISH FLOOR MATERIALS.
D25	REMOVE EXISTING RISERS, HANDRAIL, AND FINISH FLOOR MATERIALS. SEE STRUCTURAL.
D26	REMOVE EXISTING FOLDING PARTITION WALL AND TRACK. SUPPORTING STRUCTURE TO REMAIN.
D27	REMOVE EXISTING STOREFRONT SYSTEM, SIDELIGHTS, AND ANY ADJACENT MATERIALS FOR PROPER INSTALLATION OF NEW STOREFRONT ENTRANCE.
D28	REMOVE EXISTING SCOREBOARD, ANCHORS, BRACKETS, FASTENERS, AND ASSOCIATED POWER AND DATA.
D29	REMOVE EXISTING BENCHES AND ASSOCIATED SUPPORTS.
D30	REMOVE EXISTING DISPLAY CASE.
D31	REMOVE EXISTING GLAZING FOR REPLACEMENT.
D32	REMOVE EXISTING BRICK & CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D33	REMOVE EXISTING LOUVER AND ASSOCIATED TRIM.
D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.



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DEMOLITION PLAN - AREA E

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
AD101E

100% CONSTRUCTION DOCUMENTS

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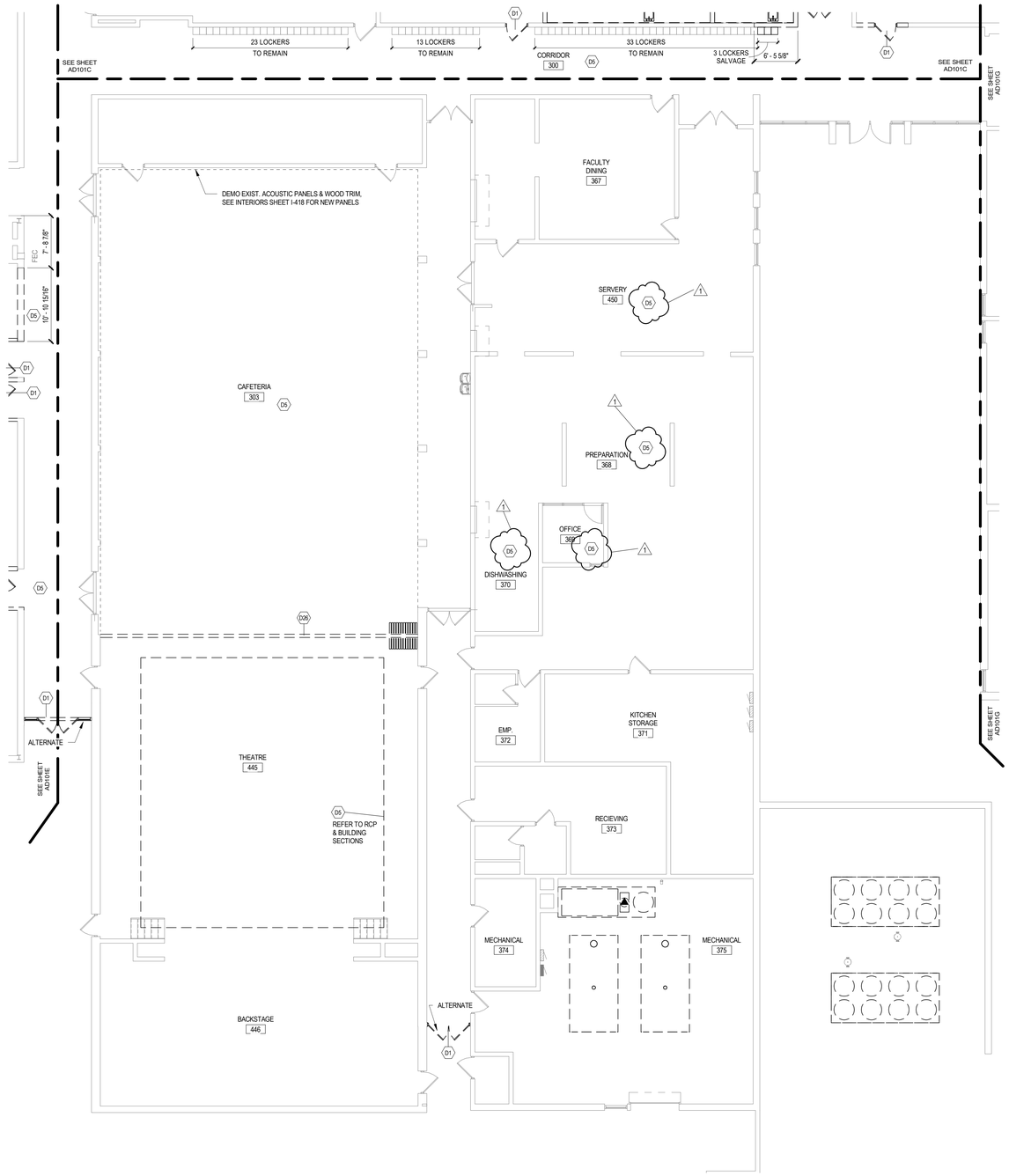
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

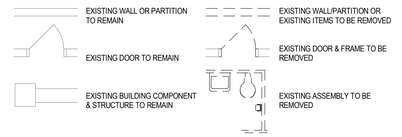


AREA F - FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

1. ALL EXISTING LOOSE MATERIALS, FURNITURE, PORTABLE ELECTRONIC DEVICES AND EQUIPMENT TO BE RETAINED BY THE OWNER WILL BE MOVED PRIOR TO DEMOLITION.
2. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION NOTES AND INFORMATION.
3. SHORE AND BRACE ALL WORK REQUIRED TO REMAIN.
4. THE CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO START OF WORK.
5. DOCUMENTS ARE BASED ON OWNER'S RECORD DRAWINGS. CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND NEW WORK. NOTIFY ARCHITECT IMMEDIATELY OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
6. ALL DISTURBED SURFACES TO BE PATCHED/ REPAIRED TO RECEIVE NEW FINISHES IN A LIKE-NEW CONDITION TO MATCH ADJACENT FINISH.
7. ALL EXISTING ATTACHED ITEMS (WALL GUARDS, SWITCHES, ETC.) AND EQUIPMENT TO BE RETAINED ARE TO BE REMOVED AND REINSTALLED BY CONTRACTOR UPON COMPLETION OF FINISHING WORK.
8. ANY ITEMS LEFT IN DEMOLITION AREAS WILL BECOME THE PROPERTY OF DEMOLITION CONTRACTOR FOR THEIR OFF-SITE DISPOSAL AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION MANAGER TO COORDINATE DEMOLITION WORK WITH OWNER AND CONTRACTOR PRIOR TO START OF WORK.
9. CONDUITS, CONDUCTORS AND FEEDERS TO ALL ELECTRICAL LOADS BEING DEMOLISHED ARE TO BE REMOVED BACK TO THEIR SOURCE IN ACCORDANCE WITH THE N.E.C. THIS IS TO INCLUDE POWER, LIGHTING CONTROLS, AND ALL COMMUNICATION SYSTEMS.
10. COORDINATE WITH PLUMBING CONTRACTORS IN SELECTIVE REMOVAL OF VENTS, WASTE PIPING, RAIN WATER CONDUCTORS IN AREA AFFECTED BY THE WORK. REFER ALSO TO PLUMBING DEMO DRAWINGS.
11. PATCH/REPAIR/REPLACE ALL MATERIALS AFFECTED BY RENOVATION TO MATCH ORIGINAL EXISTING MATERIAL, FINISH, COLOR, ETC., U.N.O.
12. PATCH, REPAIR, REPLACE EXISTING MATERIALS AS REQUIRED TO RECEIVE NEW FINISHES.
13. REFER TO OTHER DRAWINGS FOR DIMENSIONS AND OTHER INFORMATION NOT SHOWN HERE.
14. SOME FOUNDATION WALLS & FOOTINGS MAY BE ALLOWED TO REMAIN (BELOW GRADE). COORDINATE WITH UTILITIES AND ALL TRADES. WHERE FOUNDATION WALLS AND FOOTINGS ARE ALLOWED TO REMAIN, REMOVE FOUNDATION TO 8" BELOW SLAB AS REQUIRED TO PROVIDE FOR NEW SLAB.
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:



DEMOLITION KEY

KEY VALUE	KEYNOTE TEXT
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW, INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION.
D6	REMOVE EXISTING FINISH FLOOR MATERIAL AND ADHESIVE/MORTAR. PREP SUBFLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
D14	REMOVE AND SALVAGE EXISTING INSTRUMENT LOCKERS PER FLOOR DEMOLITION. PLACE SALVAGED INSTRUMENT LOCKERS IN EXISTING LOCATIONS ON NEW FINISHED FLOOR.
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D16	REMOVE EXISTING STAIRS, HANDRAILS, AND ANY ASSOCIATED BRACKETING OR ANCHORS AND NECESSARY FOR INSTALLATION OF NEW FINISHES.
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D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
D24	REMOVE EXISTING BLEACHERS, HANDRAILS, FLOOR STRUCTURE AND FINISH FLOOR MATERIALS.
D25	REMOVE EXISTING RISERS, HANDRAIL, AND FINISH FLOOR MATERIALS. SEE STRUCTURAL.
D26	REMOVE EXISTING FOLDING PARTITION WALL AND TRACK. SUPPORTING STRUCTURE TO REMAIN.
D27	REMOVE EXISTING STOREFRONT SYSTEM, SIDELIGHTS, AND ANY ADJACENT MATERIALS FOR PROPER INSTALLATION OF NEW STOREFRONT ENTRANCE.
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D29	REMOVE EXISTING BENCHES AND ASSOCIATED SUPPORTS.
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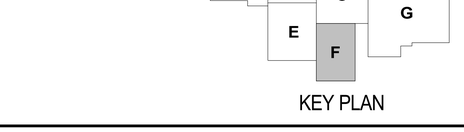
D31	REMOVE EXISTING GLAZING FOR REPLACEMENT.
D32	REMOVE EXISTING BRICK & CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D33	REMOVE EXISTING LOUVER AND ASSOCIATED TRIM.
D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.



KEY PLAN

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DEMOLITION PLAN - AREA F

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
AD101F

100% CONSTRUCTION DOCUMENTS

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

Addendum #1

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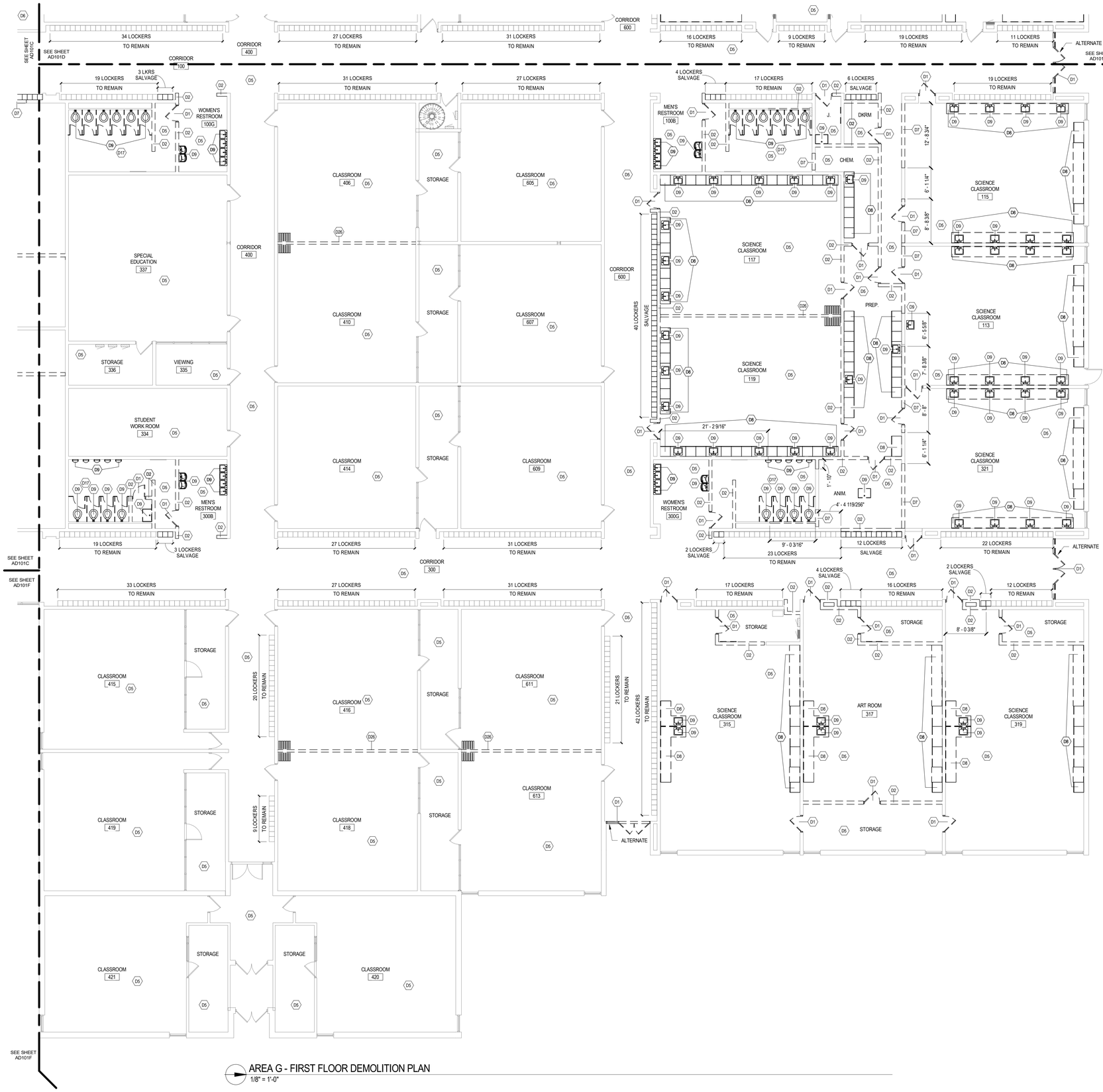

AREA G - FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

1. ALL EXISTING LOOSE MATERIALS, FURNITURE, PORTABLE ELECTRONIC DEVICES AND EQUIPMENT TO BE RETAINED BY THE OWNER WILL BE MOVED PRIOR TO DEMOLITION.
2. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION NOTES AND INFORMATION.
3. SHORE AND BRACE ALL WORK REQUIRED TO REMAIN.
4. THE CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO START OF WORK.
5. DOCUMENTS ARE BASED ON OWNER'S RECORD DRAWINGS. CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND NEW WORK. NOTIFY ARCHITECT IMMEDIATELY OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
6. ALL DISTURBED SURFACES TO BE PATCHED/ REPAIRED TO RECEIVE NEW FINISHES IN A LIKE-NEW CONDITION TO MATCH ADJACENT FINISH.
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10. COORDINATE WITH PLUMBING CONTRACTORS IN SELECTIVE REMOVAL OF VENTS, WASTE PIPING, RAIN WATER CONDUCTORS IN AREA AFFECTED BY THE WORK. REFER ALSO TO PLUMBING DEMO DRAWINGS.
11. PATCH/REPAIR/REPLACE ALL MATERIALS AFFECTED BY RENOVATION TO MATCH ORIGINAL EXISTING MATERIAL, FINISH, COLOR, ETC., U.N.O.
12. PATCH, REPAIR, REPLACE EXISTING MATERIALS AS REQUIRED TO RECEIVE NEW FINISHES.
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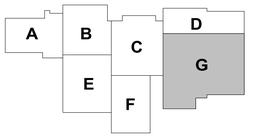
14. SOME FOUNDATION WALLS & FOOTINGS MAY BE ALLOWED TO REMAIN (BELOW GRADE) COORDINATE WITH UTILITIES AND ALL TRADES. WHERE FOUNDATION WALLS AND FOOTINGS ARE ALLOWED TO REMAIN, REMOVE FOUNDATION TO 8" BELOW SLAB AS REQUIRED TO PROVIDE FOR NEW SLAB.
15. ALL ITEMS TO BE REMOVED ARE SHOWN DARKER AND DASHED, U.N.O.

DEMO PLAN LEGEND:

- EXISTING WALL OR PARTITION TO REMAIN
- EXISTING WALL/PARTITION OR EXISTING ITEMS TO BE REMOVED
- EXISTING DOOR TO REMAIN
- EXISTING DOOR & FRAME TO BE REMOVED
- EXISTING BUILDING COMPONENT & STRUCTURE TO REMAIN
- EXISTING ASSEMBLY TO BE REMOVED

DEMOLITION KEY

KEY VALUE	KEYNOTE TEXT
D1	REMOVE EXISTING DOOR ASSEMBLY INCLUDING DOOR(S), SIDELIGHTS, GROUT FILLED FRAMES, THRESHOLD, HARDWARE, ANCHORS, AND TRIM (ON BOTH SIDES OF EACH DOOR).
D2	REMOVE EXISTING CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D3	SAWCUT EXISTING EXTERIOR WALL FOR TEMPORARY OPENING. SEE STRUCTURAL FOR ADDITIONAL NOTES AND LINTEL SIZE. SEE FLOOR PLAN FOR OPENING SIZE.
D4	REMOVE EXISTING WINDOW INCLUDING FRAME AND ALL HARDWARE ASSOCIATED WITH EXISTING WINDOW.
D5	REMOVE EXISTING CEILING. VERIFY WITH ROOM FINISH SCHEDULE IF ALL ASSOCIATED SUSPENSION SYSTEMS, ANCHORS & SUPPORTS SHOULD BE REMOVED. PROVIDE NEW CEILING TILES FOR ANY ADJACENT TILES THAT ARE TO REMAIN, THAT ARE DAMAGED DURING DEMOLITION
D6	REMOVE EXISTING FINISH FLOOR MATERIALS AND ADHESIVE/MORTAR; PREP FOR NEW FLOOR FINISH.
D7	SAWCUT WALL FOR NEW DOOR. SEE FLOOR PLAN FOR OPENING SIZE AND LOCATION.
D8	REMOVE EXISTING MILLWORK, CASEWORK, AND/OR WALL MOUNTED SHELVING INCLUDING ANY ASSOCIATED BRACING SUPPORTS, BRACKETS, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FINISHED OR CASEWORK.
D9	REMOVE EXISTING PLUMBING FIXTURES AND ANY ASSOCIATED PIPING AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES AND/OR FINISHES. COORDINATE WITH PLUMBING DRAWINGS.
D10	REMOVE EXISTING LIGHTING OR ELECTRICAL FIXTURES AND ANY ASSOCIATED CONDUIT, WIRING, AND ANCHORS AS NECESSARY FOR INSTALLATION OF NEW FIXTURES. COORDINATE WITH ELECTRICAL DRAWINGS.
D11	REMOVE EXISTING DOOR PANEL. EXISTING DOOR FRAME TO REMAIN.
D12	REMOVE EXISTING SOFFIT, INCLUDING ALL BRACKETS, ANCHORS & SUPPORTS.
D13	REMOVE EXISTING WALL ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) TACK BOARDS, MARKER BOARDS, AND HOOKS. INFILL HOLES, PATCH JOINTS IN CMU.
D14	REMOVE AND SALVAGE EXISTING INSTRUMENT LOCKERS PER FLOOR DEMOLITION. PLACE SALVAGED INSTRUMENT LOCKERS IN EXISTING LOCATIONS ON NEW FINISHED FLOOR.
D15	SAWCUT CMU PARTITION AROUND EXISTING COLUMNS IN WALL. SEE ARCHITECTURAL PLANS AND DETAILS.
D16	REMOVE EXISTING STAIRS, HANDRAILS, AND ANY ASSOCIATED BRACKETING OR ANCHORS AND NECESSARY FOR INSTALLATION OF NEW FINISHES.
D17	REMOVE ALL EXISTING TOILET PARTITIONS AND ACCESSORIES. INCLUDING (BUT NOT LIMITED TO) SOAP DISPENSERS, TOILET TISSUE DISPENSERS, SANITARY NAPKIN DISPOSALS, PAPER TOWEL DISPENSERS, MIRRORS, GRAB BARS.
D19	REMOVE EXISTING FLOORING, FLOOR STRUCTURE, AND ANY ASSOCIATED MATERIALS AND ADHESIVE/MORTAR AS REQUIRED FOR PROPER INSTALLATION OF NEW FINISHES. SEE STRUCTURAL.
D23	DEMO / IN-FILL EXISTING POOL. DEMO ASSOCIATED EQUIPMENT (INCLUDING BUT NOT LIMITED TO DIVING BOARD, LADDERS, GRAB BARS). ALSO SEE STRUCTURAL.
D24	REMOVE EXISTING BLEACHERS, HANDRAILS, FLOOR STRUCTURE AND FINISH FLOOR MATERIALS.
D25	REMOVE EXISTING RISERS, HANDRAIL, AND FINISH FLOOR MATERIALS. SEE STRUCTURAL.
D26	REMOVE EXISTING FOLDING PARTITION WALL AND TRACK. SUPPORTING STRUCTURE TO REMAIN.
D27	REMOVE EXISTING STOREFRONT SYSTEM, SIDELIGHTS, AND ANY ADJACENT MATERIALS FOR PROPER INSTALLATION OF NEW STOREFRONT ENTRANCE.
D28	REMOVE EXISTING SCOREBOARD, ANCHORS, BRACKETS, FASTENERS, AND ASSOCIATED POWER AND DATA.
D29	REMOVE EXISTING BENCHES AND ASSOCIATED SUPPORTS.
D30	REMOVE EXISTING DISPLAY CASE.
D31	REMOVE EXISTING GLAZING FOR REPLACEMENT.
D32	REMOVE EXISTING BRICK & CMU PARTITION, BASE TRIM, ALL ATTACHED/EMBEDDED ITEMS, AND ALL OTHER ASSOCIATED WALL MATERIALS FROM FLOOR TO DECK ABOVE.
D33	REMOVE EXISTING LOUVER AND ASSOCIATED TRIM.
D34	INFILL EXISTING SUMP PITS. SEE STRUCTURAL.
D35	REMOVE EXISTING LOCKERS.



KEY PLAN

c2ae architecture + engineering
www.c2ae.com

PORTAGE PUBLIC SCHOOL
WEST MIDDLE SCHOOL
7145 MOORSBRIDGE ROAD, PORTAGE, MI 49024

DEMOLITION PLAN - AREA G

REVISIONS

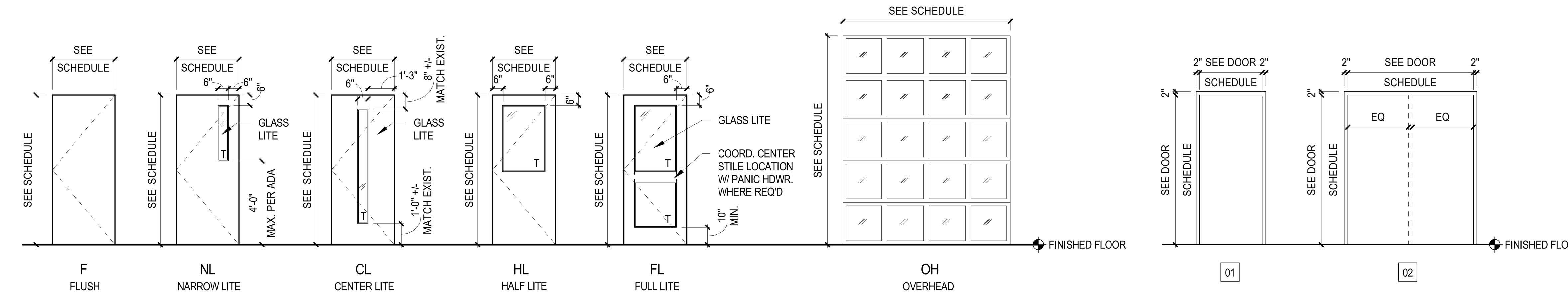
REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
AD101G

100% CONSTRUCTION DOCUMENTS

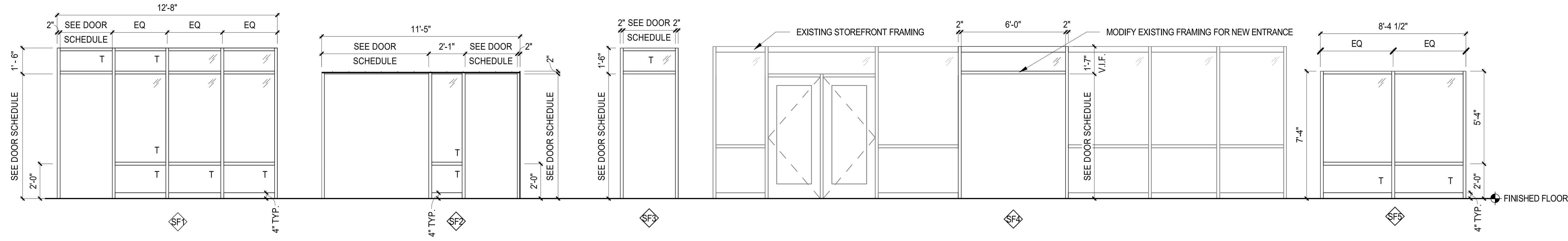
1/3/2019 2:57:49 PM
C:\Users\meghann.zmuda\Documents\160024_A_meghann.zmuda.rvt
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

Addendum #1



DOOR TYPES
1/4" = 1'-0"

FRAME TYPES
1/4" = 1'-0"



STOREFRONT TYPES
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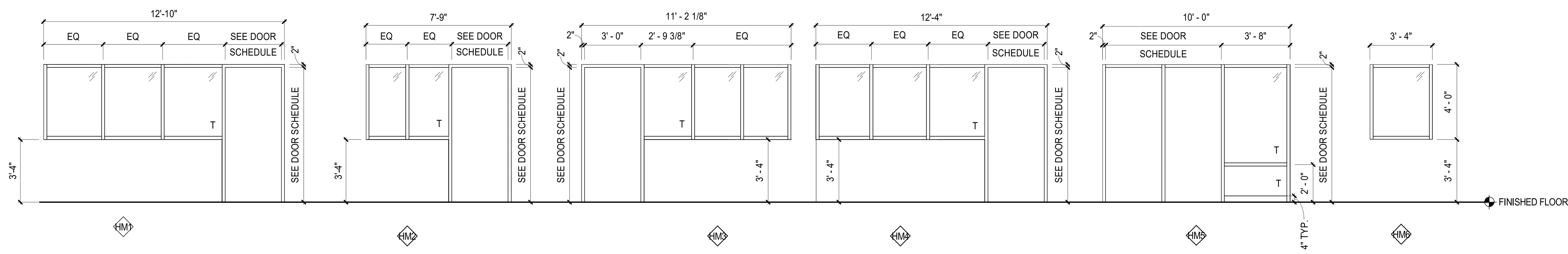

HOLLOW METAL TYPES
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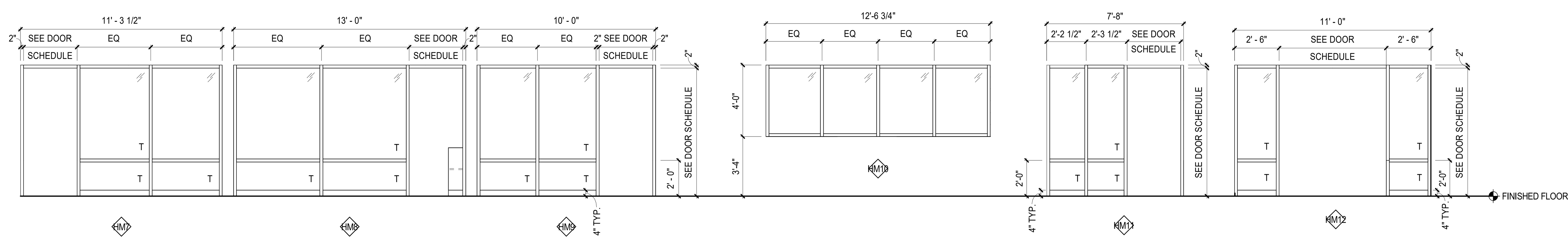
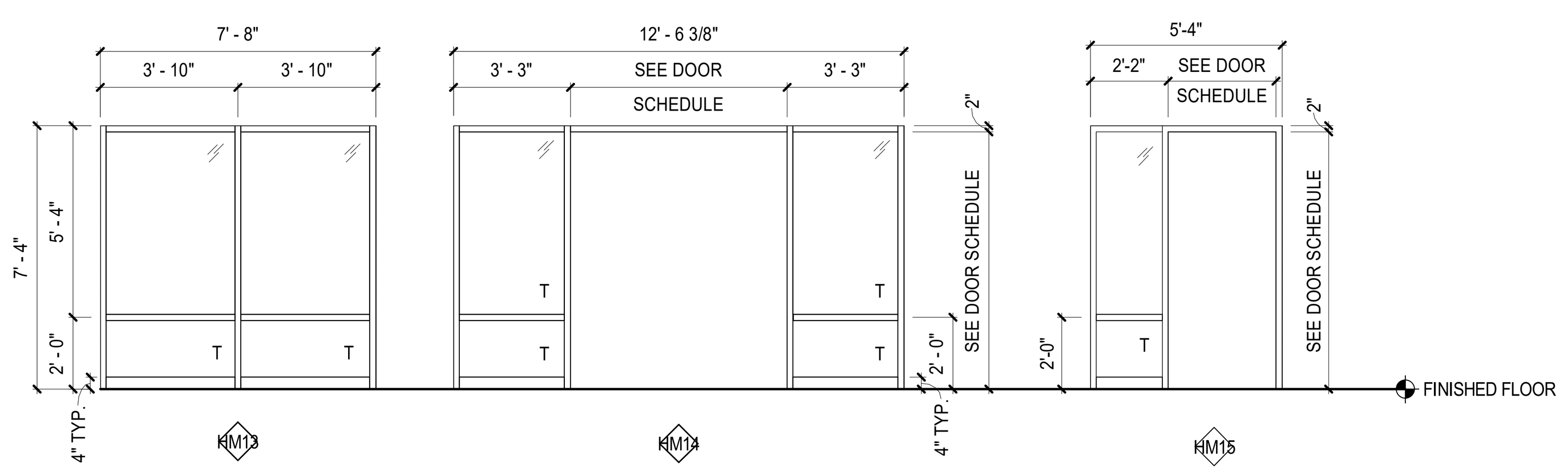


HOLLOW METAL TYPES
1/4" = 1'-0"

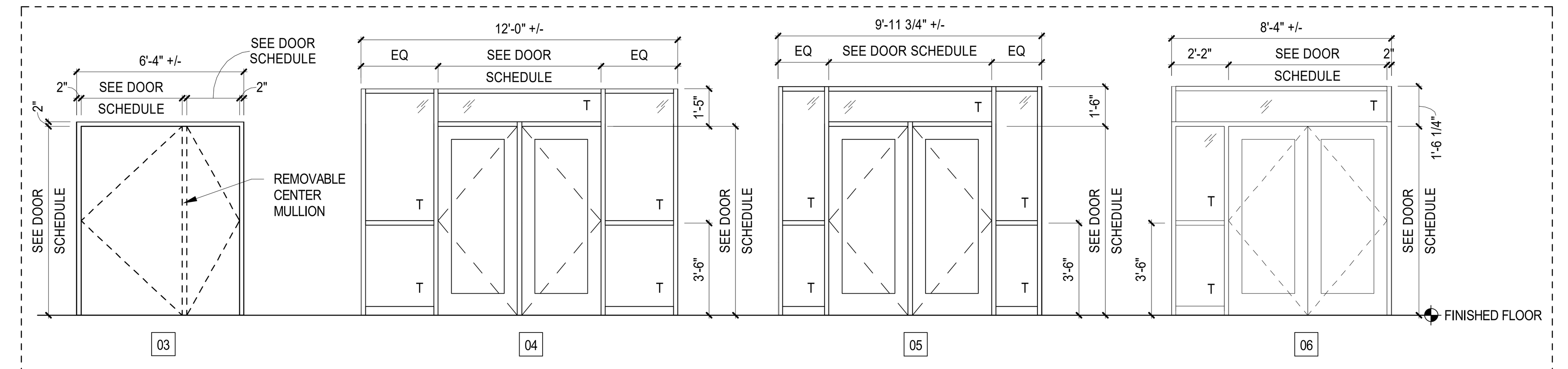


HOLLOW METAL TYPES
1/4" = 1'-0"

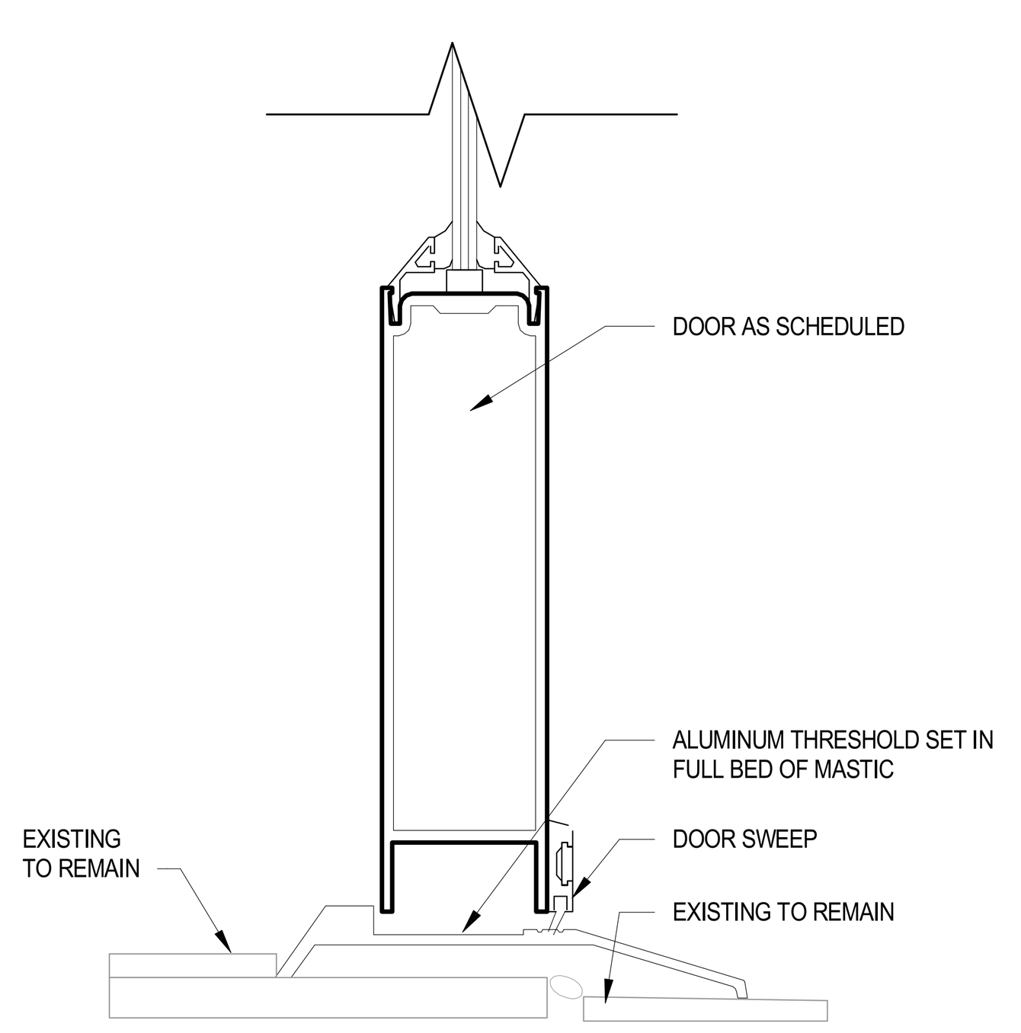
DOOR AND FRAME SCHEDULE

ROOM NO.	ROOM NAME	DOOR: DOOR NO.	DOOR: SIZE WD	DOOR: SIZE HGT	DOOR: MATL	DOOR: TYPE	FRAME: MATL	FRAME: TYPE	FRAME DETAIL: HEAD	FRAME DETAIL: JAMB	FRAME DETAIL: SILL	FIRE RATING	HARDWARE SET NO.	NOTES
FIRST FLOOR														
100	CORRIDOR	100.1	3' - 0"	7' - 2"	AL	FL	AL	04	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
100	CORRIDOR	100.2	3' - 0"	7' - 2"	AL	FL	AL	04	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
100B	MEN'S RESTROOM	100B.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	15	
100G	WOMEN'S RESTROOM	100G.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	15	
107	IT OFFICE	107.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	06	
108	IT STORAGE	108.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	04	
111A	ELEC.	111A.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
111B	JANITOR CLOSET	111B.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
113	SCIENCE CLASSROOM	113.1	3' - 0"	7' - 2"	WD	CL	HM	HM11	4 / A-601	4 / A-601	4 / A-601	---	06	
115	SCIENCE CLASSROOM	115.1	3' - 0"	7' - 2"	WD	CL	HM	HM11	4 / A-601	4 / A-601	4 / A-601	---	06	
200	CORRIDOR	200.1	3' - 0"	7' - 2"	AL	FL	AL	05	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
200	CORRIDOR	200.2	3' - 0"	7' - 2"	AL	FL	AL	05	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
207	ART	207.1	3' - 0"	7' - 2"	WD	F	HM	HM11	4 / A-601	4 / A-601	4 / A-601	---	23	
207B	SPRAY BOOTH	207B.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	45MIN	4	
207C	STORAGE	207C.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	45MIN	10	
209	PRACTICE ROOM	209.1	3' - 0"	7' - 2"	WD	F	HM	HM15	4 / A-601	4 / A-601	4 / A-601	---	24	ACOUSTICAL
210	PRACTICE ROOM	210.1	3' - 0"	7' - 2"	WD	F	HM	HM15	4 / A-601	4 / A-601	4 / A-601	---	24	ACOUSTICAL
300	CORRIDOR	300.2	3' - 0"	7' - 2"	AL	FL	AL	04	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
300	CORRIDOR	300.3	3' - 0"	7' - 2"	AL	FL	AL	04	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
300A	CORRIDOR	300A.1	6' - 0"	7' - 2"	FRP	F	AL	03	3 / A-601	3 / A-601	4 / A-601	---	30	ALTERNATE
300B	MEN'S RESTROOM	300B.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	15	
300G	WOMEN'S RESTROOM	300G.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	15	
304	COLLABORATION LAB	304.1	3' - 0"	7' - 2"	WD	CL	HM	HM1	2 / A-601	4 / A-601	4 / A-601	---	01	
305	COLLABORATION LAB	305.1	3' - 0"	7' - 2"	WD	CL	HM	HM1	2 / A-601	4 / A-601	4 / A-601	---	01	
306	COLLABORATION LAB	306.1	3' - 0"	7' - 2"	WD	CL	HM	HM1	2 / A-601	4 / A-601	4 / A-601	---	01	
307	RESOURCE OFFICE	307.1	3' - 0"	7' - 2"	WD	CL	HM	HM1	2 / A-601	4 / A-601	4 / A-601	---	04	
307	RESOURCE OFFICE	307.2	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	04	
308	I.D. ROOM/MEDIA STORAGE	308.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	04	
309	MEDIA CENTER	309.1	6' - 0"	7' - 2"	WD	FL	HM	HM14 (OPP)	6 / A501	3 & 13 / A501	4 / A-601	---	16	
309	MEDIA CENTER	309.2	3' - 0"	7' - 2"	AL	FL	AL	SF1	3 / A-601	3 / A-601	4 / A-601	---	07	
309	MEDIA CENTER	309.3	3' - 0"	7' - 2"	AL	FL	AL	SF1	3 / A-601	3 / A-601	4 / A-601	---	07	
310	TECHNOLOGY LAB	310.1	3' - 0"	7' - 2"	WD	CL	HM	HM11	4 / A-601	4 / A-601	4 / A-601	---	06	
311	RESOURCE WORK ROOM	311.1	3' - 0"	7' - 2"	WD	CL	HM	HM4	4 / A-601	4 / A-601	4 / A-601	---	04	
312	RESOURCE OFFICE	312.1	3' - 0"	7' - 2"	WD	CL	HM	HM3	4 / A-601	4 / A-601	4 / A-601	---	04	
313	RESOURCE HUB	313.1	3' - 0"	7' - 2"	WD	CL	HM	HM2	4 / A-601	4 / A-601	4 / A-601	---	04	
315	SCIENCE CLASSROOM	315.1	3' - 0"	7' - 2"	WD	CL	HM	01	4 / A-601	4 / A-601	4 / A-601	---	06	
315	SCIENCE CLASSROOM	315.2	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
315A	ELECTRICAL	315A.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
316	BOOK STORAGE	316.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
317	SCIENCE PREPARATION	317.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	06	
318	SCIENCE STORAGE	318.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
319	SCIENCE CLASSROOM	319.1	3' - 0"	7' - 2"	WD	CL	HM	HM11	4 / A-601	4 / A-601	4 / A-601	---	06	
319	SCIENCE CLASSROOM	319.2	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
321	SCIENCE CLASSROOM	321.1	3' - 0"	7' - 2"	WD	CL	HM	HM11	4 / A-601	4 / A-601	4 / A-601	---	06	
322	STAFF RESTROOM	322.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	02	
332	STAFF RESTROOM	332.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	02	
333	FACULTY LOUNGE	333.1	3' - 0"	7' - 2"	FRP	FL	AL	SF3	3 / A-601	3 / A-601	4 / A-601	---	06	
400	CORRIDOR	400.1	6' - 0"	7' - 2"	AL	FL	AL	06	3 / A-601	3 / A-601	4 / A-601		29	ALTERNATE
503	CHOIR	503.1	3' - 0"	7' - 2"	WD	F	HM	HM5	4 / A-601	4 / A-601	4 / A-601	---	25	IRWP DOOR
503	CHOIR	503.2	3' - 0"	7' - 2"	WD	F	HM	HM5	4 / A-601	4 / A-601	4 / A-601	---	25	IRWP DOOR
509	BAND	509.1	3' - 0"	7' - 2"	WD	F	HM	HM5	4 / A-601	4 / A-601	4 / A-601	---	25	IRWP DOOR
509	BAND	509.2	3' - 0"	7' - 2"	WD	F	HM	HM5	4 / A-601	4 / A-601	4 / A-601	---	25	IRWP DOOR
509B	LIBRARY	509B.1	3' - 0"	7' - 2"	WD	FL	HM	01	4 / A-601	4 / A-601	4 / A-601	---	24	NEW DOOR ONLY, IRWP, ACOUSTICAL
509C	ENSEMBLE	509C.1	3' - 0"	7' - 2"	WD	FL	HM	01	4 / A-601	4 / A-601	4 / A-601	---	24	NEW DOOR ONLY, IRWP, ACOUSTICAL
509D	ENSEMBLE	509D.1	3' - 0"	7' - 2"	WD	FL	HM	01	4 / A-601	4 / A-601	4 / A-601	---	24	NEW DOOR ONLY, IRWP, ACOUSTICAL
600	CORRIDOR	600.1	6' - 0"	7' - 2"	AL	FL	AL	06	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
600	CORRIDOR	600.2	6' - 0"	7' - 2"	AL	FL	AL	06	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
606A	STUDENT HUDDLE	606.1	3' - 0"	7' - 2"	WD	FL	HM	HM7	2 / A-601	4 / A-601	4 / A-601	---	01	
606B	STUDENT HUDDLE	607.1	3' - 0"	7' - 2"	WD	FL	HM	HM8	2 / A-601	4 / A-601	4 / A-601	---	01	
608	RESOURCE HUB	608.1	3' - 0"	7' - 2"	WD	FL	HM	HM9	2 / A-601	4 / A-601	4 / A-601	---	06	
702	VESTIBULE	702.1	3' - 0"	7' - 2"	FRP	FL	AL	SF2	3 / A-601	3 / A-601	4 / A-601	---	20	
702	VESTIBULE	702.2	3' - 0"	7' - 2"	FRP	FL	AL	SF2	3 / A-601	3 / A-601	4 / A-601	---	19	
702	VESTIBULE	702.3	3' - 0"	7' - 2"	FRP	FL	AL	SF2	3 / A-601	3 / A-601	4 / A-601	---	19	
702	VESTIBULE	702.4	3' - 0"	7' - 2"	FRP	FL	AL	SF3	2 / A-601	1 / A-601	4 / A-601	---	21	
702	VESTIBULE	702.5	3' - 0"	7' - 2"	FRP	FL	AL	SF3	2 / A-601	1 / A-601	4 / A-601	---	22	
702	VESTIBULE	702.6	3' - 0"	7' - 2"	FRP	FL	AL	SF3	2 / A-601	1 / A-601	4 / A-601	---	22	
703	FABRICATION	703.1	8' - 0"	10' - 0"	AL	OH	HM	--	3 / A-601	3 / A-601	4 / A-601	---	12	
703C	STORAGE	703C.1	3' - 0"	7' - 2"	WD	F	AL	01	4 / A-601	4 / A-601	4 / A-601	---	10	
705	DIGITAL FABRICATION	705.1	8' - 0"	10' - 0"	AL	OH	AL	--	3 / A-601	3 / A-601	4 / A-601	---	12	
705	DIGITAL FABRICATION	705.2	3' - 0"	7' - 0"	WD	HL	HM	01	4 / A-601	4 / A-601	4 / A-601	---	04	
800	LOBBY	800.1	3' - 0"	7' - 2"	FRP	FL	AL	SF4	3 / A-601	29 / A-502	4 / A-601	---	18	NEW FRP DOOR IN EXISTING ENTRANCE SYSTEM
800	LOBBY	800.2	3' - 0"	7' - 2"	FRP	FL	AL	SF4	3 / A-601	29 / A-502	4 / A-601	---	18	NEW FRP DOOR IN EXISTING ENTRANCE SYSTEM
800	CORRIDOR	800.3	6' - 0"	7' - 2"	AL	FL	AL	06	3 / A-601	3 / A-601	4 / A-601	---	29	ALTERNATE
801	MULTIPURPOSE	801.1	6' - 0"	7' - 2"	WD	FL	HM	02	4 / A-601	21 / A-502	4 / A-601	---	16	
801	MULTIPURPOSE	801.2	6' - 0"	7' - 2"	WD	FL	HM	02	4 / A-601	21 / A-502	4 / A-601	---	17	
801	MULTIPURPOSE	801.3	3' - 0"	7' - 2"	WD	FL	HM	HM12	4 / A-601	28 / A-502	4 / A-601	---	16	
801	MULTIPURPOSE	801.4	3' - 0"	7' - 2"	WD	FL	HM	HM12	4 / A-601	28 / A-502	4 / A-601	---	16	
803	MEP	803.1	3' - 0"	7' - 2"	WD	F	HM	01	3 / A-601	3 / A-601	4 / A-601	---	10	
804	MEN'S RESTROOM	804.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	14	
804	MEN'S RESTROOM	804.2	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	15	
805	WOMEN'S RESTROOM	805.1	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	14	
805	WOMEN'S RESTROOM	805.2	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	15	
806	STORAGE	806.1	7' - 8"	7' - 2"	WD	F	HM	02	4 / A-601	4 / A-601	4 / A-601	---	13	
806	STORAGE	806.2	3' - 0"	7' - 2"	WD	F	HM	01	4 / A-601	4 / A-601	4 / A-601	---	10	
808	STORAGE	808.1	6' - 0"	7' - 2"	FRP	F	AL	02	3 / A-601	3 / A-601	4 / A-601	---	11	

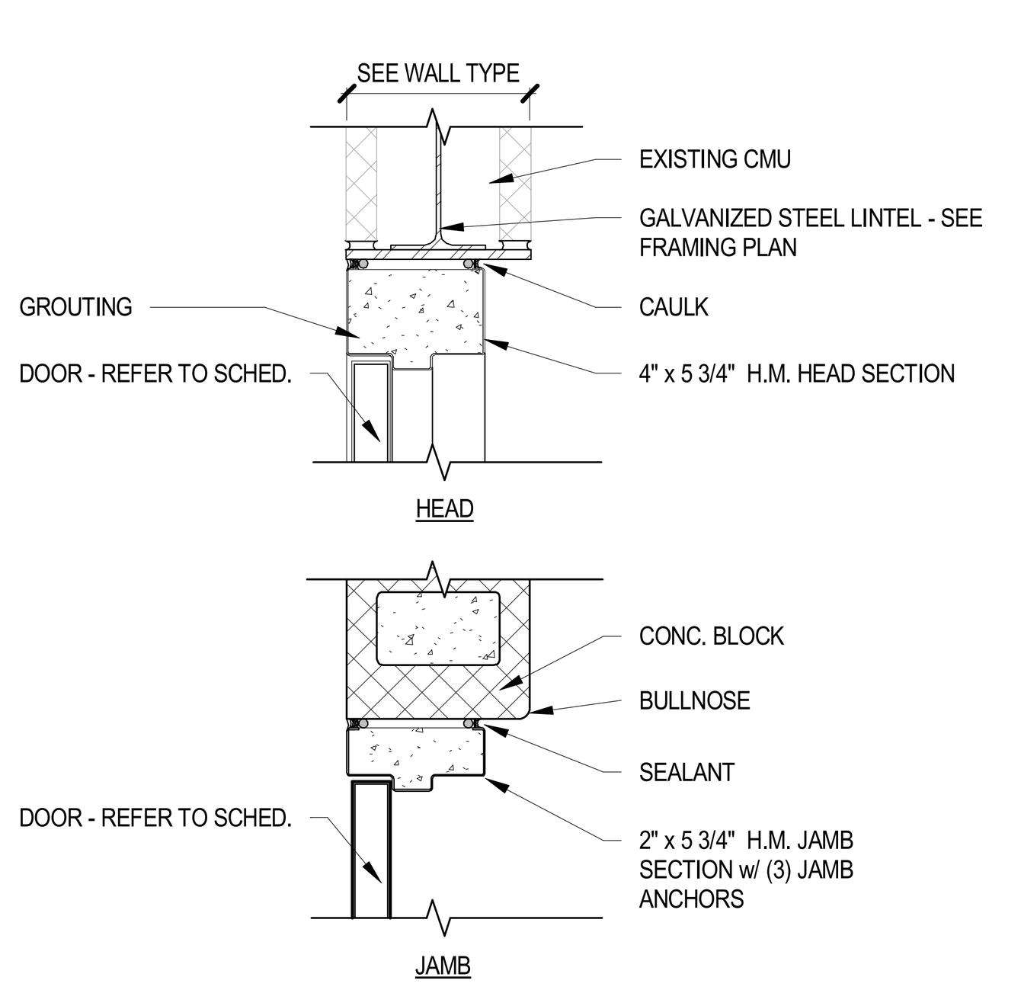
IRWP: IMPACT RESISTANT WALL PROTECTION VENEER DOOR



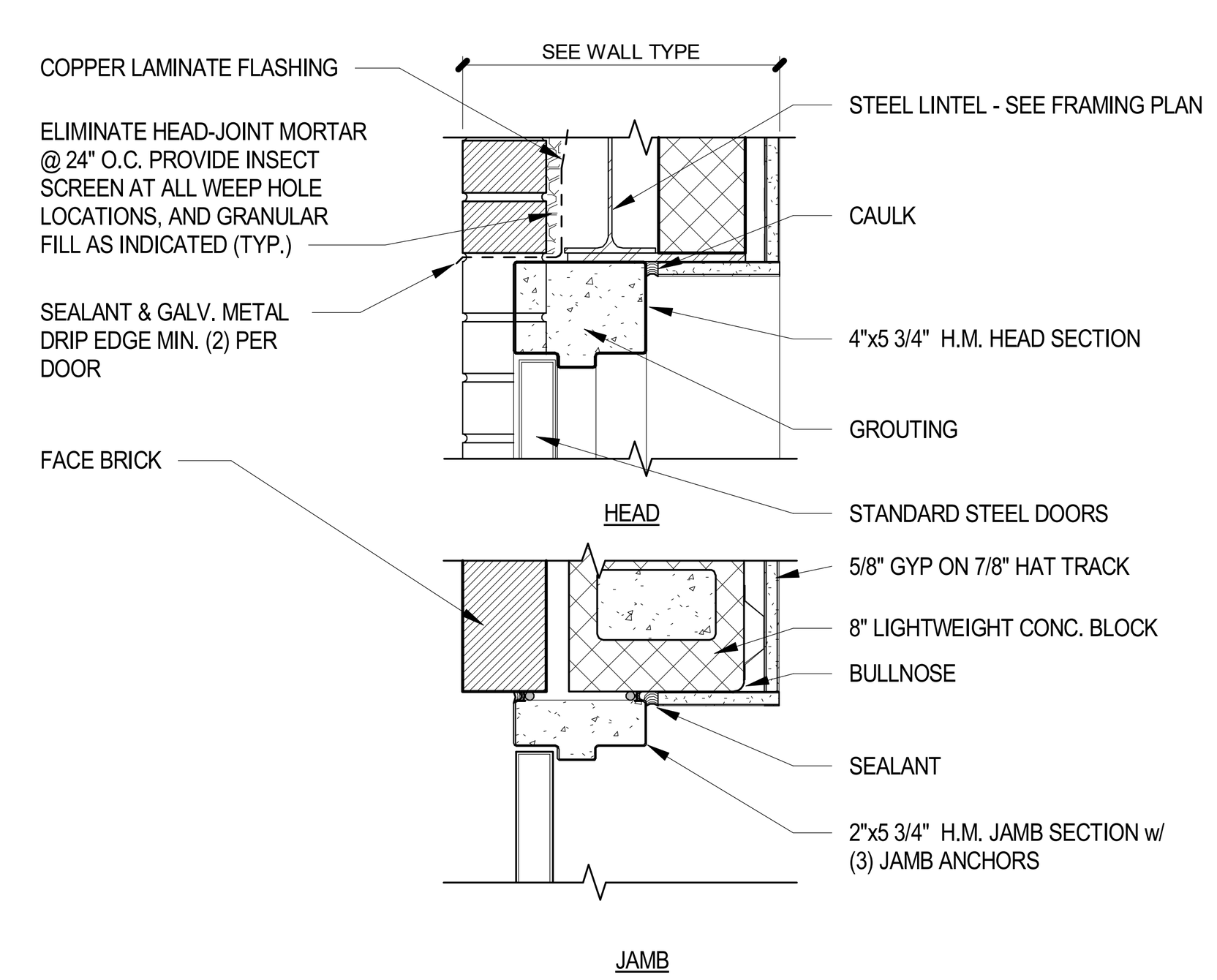
ALTERNATE TYPE
1/4" = 1'-0"



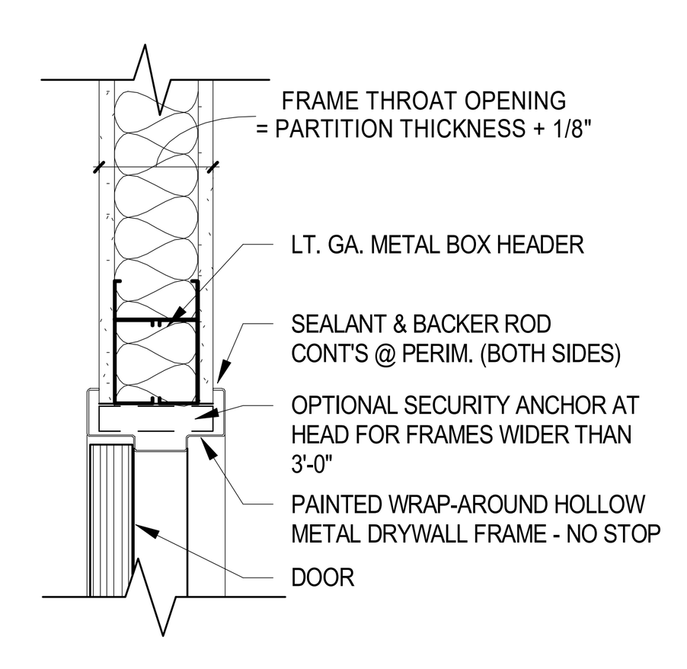
5 EXTERIOR THRESHOLD DETAIL
6" = 1'-0"



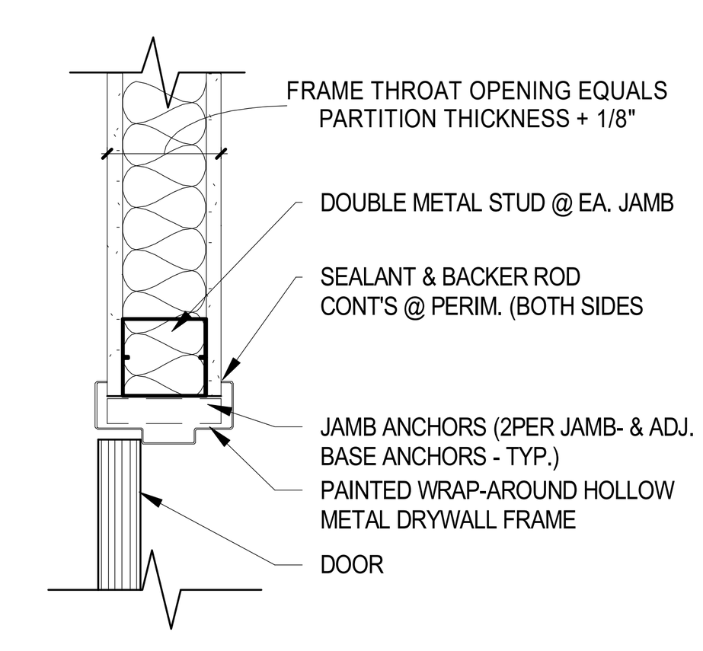
4 TYP. CMU HEAD AND JAMB DETAIL
1 1/2" = 1'-0"



3 EXTERIOR DOOR @ CMU w/ BRICK
1 1/2" = 1'-0"



2 STUD PARTITION HEAD DETAIL
1 1/2" = 1'-0"



1 STUD PARTITION JAMB DETAIL
1 1/2" = 1'-0"

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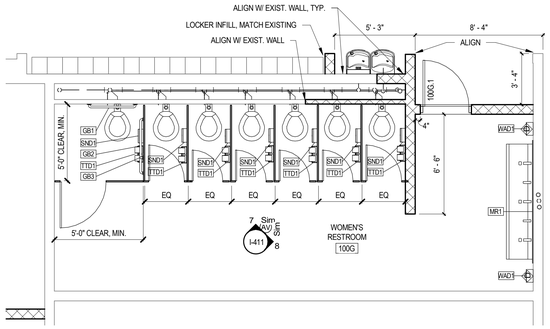
SCHEDULES & DIAGRAMS

REVISIONS		
REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

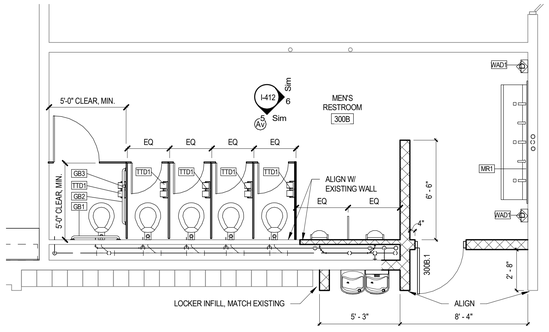
PROJ #: 160024
DATE: 12/10/2018
SHEET A-601

100% CONSTRUCTION DOCUMENTS

Addendum #1



6 AREA G - ENLARGED WOMENS RESTROOM (CLASSROOM)
A-101G/ 1/4" = 1'-0"



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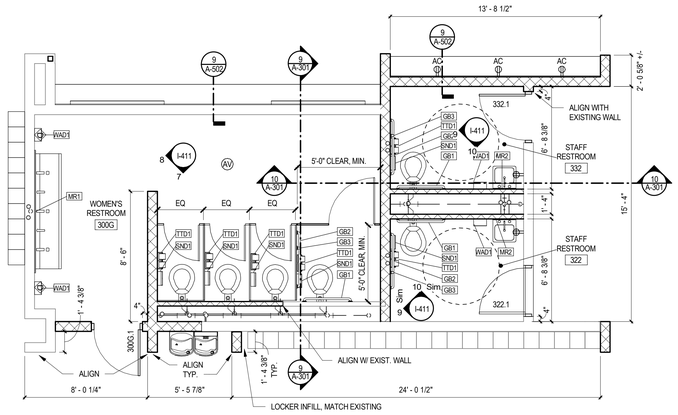
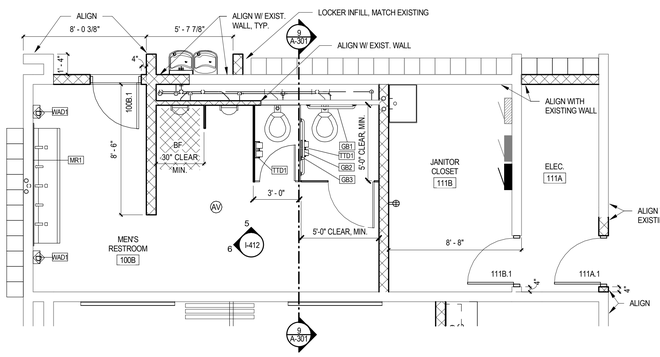
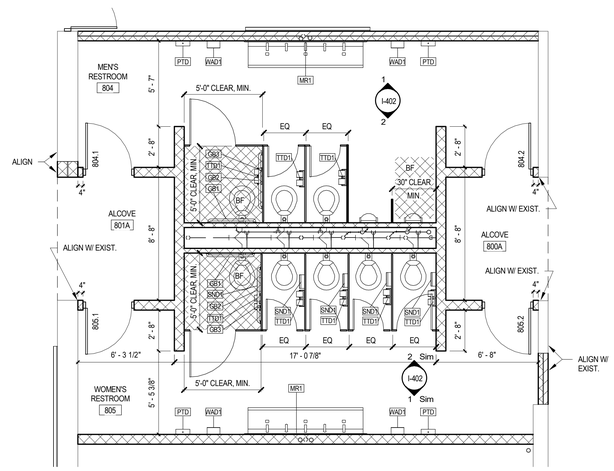
A-101G/ 1/4" = 1'-0"



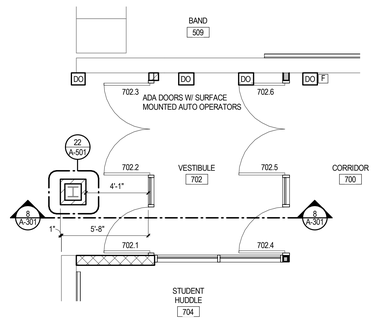
4 AREA G - ENLARGED WOMENS RESTROOM (SCIENCE)
A-101G/ 1/4" = 1'-0"



3 AREA G - ENLARGED MENS RESTROOM (SCIENCE)
A-101G/ 1/4" = 1'-0"



2 AREA A - ENLARGED M/W RESTROOM (MULTI-PURPOSE)
A-101A 1/4" = 1'-0"



1 AREA E - ENTRANCE RAMP
A-101E/ 1/4" = 1'-0"

WALL TYPE GENERAL NOTES

1. ALL INTERIOR WALLS SHALL EXTEND FROM TOP OF FLOOR AND BE SEALED TO UNDERSIDE OF FLOOR OR ROOF STRUCTURE, U.N.O.
   A. ALL INTERIOR METAL STUD WALLS THAT EXTEND TO UNDERSIDE OF STRUCTURE SHALL INCORPORATE A 'SLIP-TRACK CONNECTION.'
   B. ALL INTERIOR METAL STUD WALLS THAT ARE LATERALLY BRACED TO ADJACENT STRUCTURE SHALL INCORPORATE A SLOTTED L.T. GA. CLIP ANGLE WELDED TO STRUCTURE AND CONNECTED TO MTL. STUDS
2. SEE WALL SECTIONS / STRUCTURAL PLANS FOR VERTICAL WALL REINFORCING SIZE & SPACING REQUIREMENTS. PROVIDE SLEEVES, AS REQUIRED, IN SOLID GROUTED CMU SHEAR WALLS FOR MECHANICAL AND ELECTRICAL PENETRATIONS.
3. INTERIOR WALL CONTROL JOINTS ARE TO BE SPACED 28'-0" O.C. (MAX). INTERIOR & EXTERIOR CONTROL JOINTS ON THE SAME WALL ARE TO ALIGN.
4. PROVIDE DRYWALL CONTROL JOINT @ INTERSECTIONS OF METAL STUD WALL CONSTRUCTION AND MASONRY WALL CONSTRUCTION.
5. VERIFY ALL EXISTING WALLS THAT ARE SCHEDULED AS EXISTING FIRE RATED WALLS MEET U.L. REQUIREMENTS FOR WALLS & OPENING PROTECTIVES. PATCH & REPAIR AS REQUIRED.
6. REMAINING PENETRATIONS IN WALLS DUE TO DEMOLITION WORK SHALL BE INFILLED WITH WALL CONSTRUCTION TO MATCH.
7. PATCH & REPAIR EXISTING WALLS AND SURFACES AFFECTED AS REQ'D. FOR NEW FINISHES, OR AS REQ'D. TO RETURN AREA TO LIKE-NEW CONDITION.
8. PROVIDE FIRE RATED WOOD NAILERS AND BLOCKING - 5/8" PLYWOOD OR 18 GAUGE PLATE AS REQUIRED FOR INSTALLATION OF WALL SUPPORTED EQUIPMENT.
9. SOUND ATTENUATION BLANKET REQUIRED FULL HEIGHT AT ALL ROOMS U.N.O.

GENERAL NOTES:

1. SUB-CONTRACTORS ARE TO COORDINATE WORK WITH ALL OTHER TRADES.
2. CONFLICTS BETWEEN NOTES, DETAILS, SPECIFICATIONS, ETC., SHALL BE VERIFIED WITH THE ARCHITECT/ ENGINEER OR THE STRICTEST PROVISIONS SHALL GOVERN.
3. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITIONS. ANY UNCLEAR CONDITIONS SHALL BE VERIFIED WITH ARCHITECT/ ENGINEER PRIOR TO CONSTRUCTION OF THAT AREA.
4. DRAWINGS ARE NOT TO BE SCALED. ANY UNCLEAR DIMENSIONS OR DIMENSIONAL DISCREPANCIES SHALL BE VERIFIED WITH ARCHITECT.
5. ALL EXISTING CONDITIONS AND ALL RELATED DIMENSIONS INDICATED IN THE CONTRACT DOCUMENTS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION. ANY CONDITIONS THAT DIFFER FROM THAT INDICATED IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION.
6. CONSTRUCTION MANAGER (CM) / GENERAL CONTRACTOR (GC) TO REVIEW ENTIRE SET OF CONSTRUCTION DOCUMENTS (DRAWINGS & SPECIFICATIONS) AND SHALL COORDINATE WORK BETWEEN ALL TRADES. IF CONFLICTS ARISE DUE TO COORDINATION OF TRADES, CM / GC IS TO VERIFY CONFLICT WITH ARCHITECT / ENGINEER PRIOR TO CONSTRUCTION / INSTALLATION OF CONFLICTING ITEMS.
7. REMODELING OR PATCHING SHALL BE EXECUTED IN CONJUNCTION WITH THE NEW WORK AND THE DEMOLITION WORK IN THE DRAWINGS.
8. PATCH ALL EXPOSED INTERIOR AND EXTERIOR WALLS WHERE ATTACHED OR IMBEDDED ITEMS WERE REMOVED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATIONS OF THE FLOORS, WALLS, AND CEILINGS FOR NEW FINISHES.
10. REMOVE ADHESIVE/OR MORTAR LEFT FROM THE REMOVAL OF EXISTING FLOOR COVERING AND PREP FLOOR W/CONCRETE (OR FLORSTONE) AS NECESSARY TO ACCOMMODATE NEW FLOOR COVERINGS.
11. U.N.O. PATCH AND PREPARE FLOOR W/CONCRETE (OR FLORSTONE) FLUSH WITH ADJACENT FLOOR SURFACE. FILL ANY SLOPING OR RECESSED AREAS LEVEL TO TYPICAL FINISH FLOOR ELEVATION TO ACCOMMODATE NEW FLOOR COVERINGS.
12. FILL-IN EXISTING CHASE OPENINGS, PENETRATIONS IN THE FLOOR AND CEILING DECK. FIRE-RATING OF NEW CONSTRUCTION TO MATCH EXISTING. REFER TO DRAWINGS FOR DETAILS.
13. WHEN REMOVING DEBRIS FROM CONSTRUCTION AREA WIPE OFF WHEELS BEFORE LEAVING CONSTRUCTION AREA AND USE WET RAGS OVER DUMPSTER TO REDUCE DUST.
14. THE OWNER RESERVES THE RIGHT TO HALT CONSTRUCTION ACTIVITY AT ANY TIME DUE TO NOISE AND VIBRATION WHICH MIGHT EFFECT THE OWNER'S ONGOING USE OF THE FACILITY.
15. CONTRACTOR SHALL REINSTALL CEILING SYSTEM AND PATCH FINISHES AT FLOOR BELOW AND ABOVE WHERE WORK IMPACTS EXISTING ASSEMBLIES. FINISH/PAINT SURFACES TO MATCH EXISTING FINISH.
16. ALL DIMENSIONS ARE FROM FACE OF STUD, C.M.U., OR CONCRETE TO FACE OF FINISH, CMU, OR CONCRETE, U.N.O.
17. COORDINATE LOCATION OF ALL RECESSED OR IMBEDDED ITEMS SO AS NOT TO INTERFERE WITH OTHER TRADE'S WORK.
18. MAINTAIN WALL FIRE RATING BEHIND RECESSED ACCESSORIES & EQUIPMENT.
19. ADDITIONS OF OPENINGS, PENETRATIONS OR EMBEDMENTS IN THE FIELD SHALL BE FIRST VERIFIED WITH ARCHITECT / ENGINEER.
20. PROVIDE NEOPRENE OR VINYL ISOLATION MATERIAL BETWEEN DISSIMILAR METALS THAT ARE IN CONTACT WITH ONE ANOTHER, TYPICAL.
21. PATCH & REPAIR ALL MAJOR & MINOR BLEMISHES AS REQ'D. DUE TO DEMOLITION WORK. MATCH ADJACENT MATERIAL & COLOR.
22. PROVIDE SOLID, CONTINUOUS BLOCKING IN WALL AT ALL LOCATIONS WHERE ALL MILLWORK, PLUMBING FIXTURES, EQUIP., ETC. ATTACH TO WALL.
23. WHERE DRYWALL ABUTS DISSIMILAR MATERIALS, USE METAL DRYWALL EDGE BEAD AND SEALANT WITH BACKER ROD.
24. ALL HEADERS ABOVE OPENINGS, DOORS & BORROWED LITES IN NON-LOAD BEARING INTERIOR METAL STUD WALLS SHALL BE (2) 8" 18 GA. JOISTS (UNLESS OTHERWISE NOTED)
25. PAINT ALL EXPOSED LINTELS (TYP.)
26. WHERE RECESSED EQUIPMENT IS INSTALLED IN UNEVEN SURFACED MATERIAL, USE SMOOTH SURFACED MATERIAL ABOUT PERIMETER SO THAT EQUIPMENT LAYS FLUSH AND EVEN. COORDINATE WITH EQUIPMENT MANUFACTURER.
27. ALL BLOCKING SHALL BE FIRE RETARDANT TREATED WOOD OR MADE OF NON-COMBUSTIBLE MATERIAL.
28. SALVAGE ALL DEMOED BRICK FOR NEW WALLS AND INFILLS.
29. VERIFY ALL LOCKER LOCATIONS WITH ARCHITECT IN FIELD. NEW TRIM AROUND LOCKERS SHOULD MATCH EXISTING.

ACCESSORY SCHEDULE

TAG	DESCRIPTION	SUPPLIED BY	INSTALLED BY	BLOCKING REQ'D
GB1	36" GRAB BAR	CONTRACTOR	CONTRACTOR	YES
GB2	42" GRAB BAR	CONTRACTOR	CONTRACTOR	YES
GB3	18" GRAB BAR VERTICAL	CONTRACTOR	CONTRACTOR	YES
MB-1	MAGNETIC WHITE BOARD, 12' X 4'	CONTRACTOR	CONTRACTOR	YES
MB-2	MAGNETIC WHITE BOARD, 6' X 4'	CONTRACTOR	CONTRACTOR	YES
MB-3	MAGNETIC WHITE BOARD, 4' X 4'	CONTRACTOR	CONTRACTOR	YES
MB-4	MAGNETIC WHITE BOARD, 8' X 4'	CONTRACTOR	CONTRACTOR	YES
MR1	MIRROR, 8' X 4'	CONTRACTOR	CONTRACTOR	YES
MR2	MIRROR, 24" X 36"	CONTRACTOR	CONTRACTOR	YES
P-SC	PROJECTOR SCREEN	CONTRACTOR	CONTRACTOR	NO
PTD	TOWEL DISPENSER, SURFACE MOUNTED	OWNER	CONTRACTOR	YES
SD	SOAP DISPENSER	OWNER	CONTRACTOR	YES
SND1	NAPKIN DISPOSAL	CONTRACTOR	CONTRACTOR	YES
TB-1	TACK BOARD, 6' X 4'	CONTRACTOR	CONTRACTOR	YES
TB-2	TACK BOARD, 8' X 4'	CONTRACTOR	CONTRACTOR	YES
TB-3	TACK BOARD, 4' X 4'	CONTRACTOR	CONTRACTOR	YES
TS-1	TACK STRIP	CONTRACTOR	CONTRACTOR	YES
TTD1	TOILET TISSUE DISPENSER	OWNER	CONTRACTOR	YES
WAD1	SENSOR OPERATED WARM AIR HAND DRYER	CONTRACTOR	CONTRACTOR	YES

EQUIPMENT SCHEDULE

TAG	DESCRIPTION	SUPPLIED BY	INSTALLED BY	BLOCKING REQ'D
00	PROJECTOR SCREEN	CONTRACTOR	CONTRACTOR	NO
3D-P	3D PRINTER	OWNER	OWNER	NO
CNC	CNC ROUTER	OWNER	OWNER	NO
CNC-T	CNC ROUTER - TABLE MOUNTED	OWNER	OWNER	NO
LC	LASER CUTTER	OWNER	OWNER	NO
PRO	PROJECTOR	OWNER	CONTRACTOR	YES
TV	TELEVISION	CONTRACTOR	CONTRACTOR	YES

PROVIDE BLOCKING AT GYP. BOARD PARTITIONS ONLY. NO BLOCKING NEEDED AT CMU.

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ENLARGED FLOOR PLANS

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024

DATE: 12/10/2018

SHEET

A-131

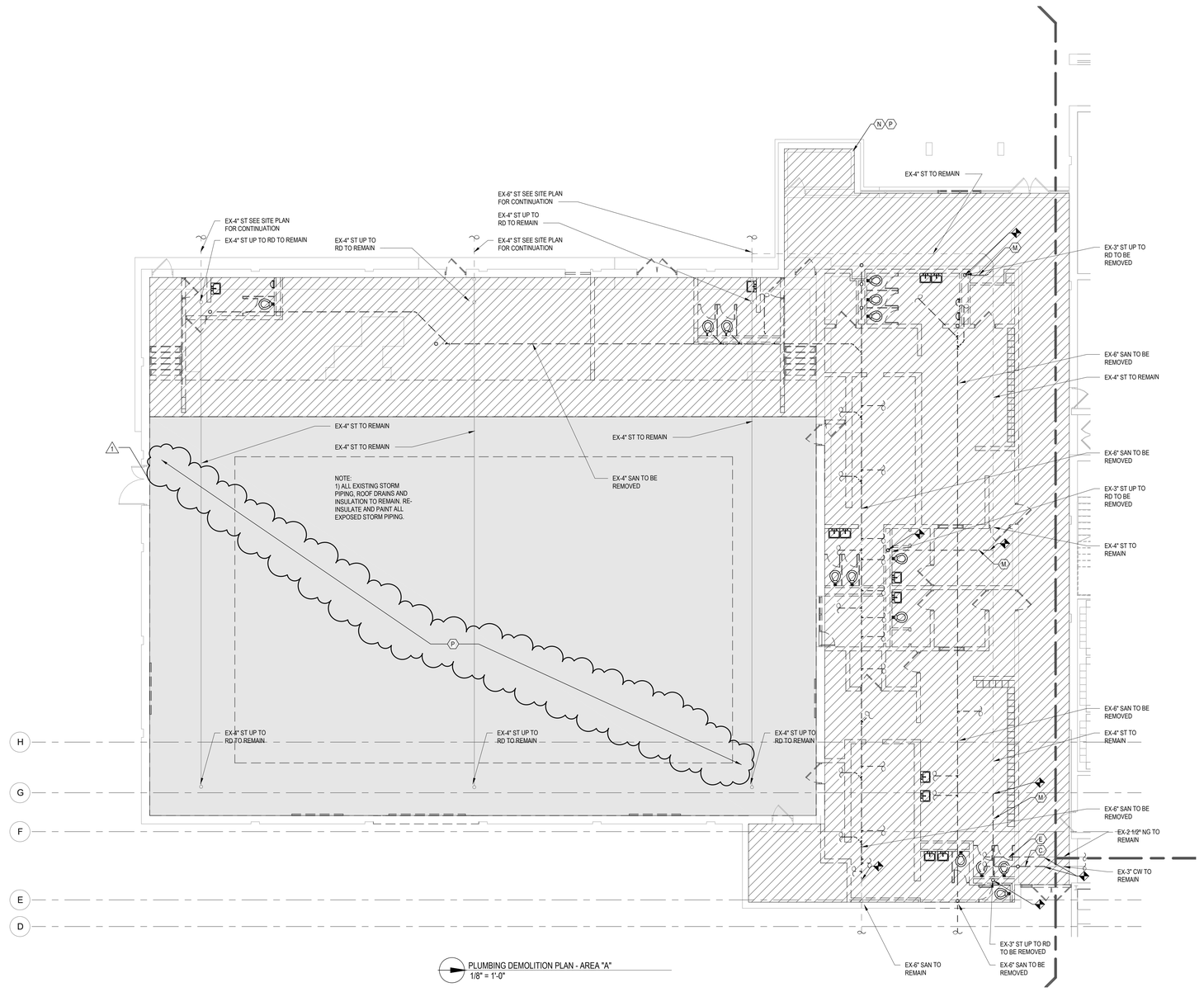
100% CONSTRUCTION DOCUMENTS

Addendum #1

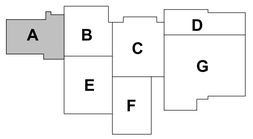
WE RECYCLE

PLUMBING DEMOLITION KEYNOTES:

- (A) REMOVE EXISTING SANITARY AND VENT PIPING AS INDICATED BY DASHED LINES. CAP AT MAIN. PATCH FLOOR AND CLOSELY MATCH EXISTING FLOOR FINISH.
- (B) REMOVE EXISTING HOT WATER PIPING, VALVES AND INSULATION AS INDICATED BY DASHED LINES. CAP HOT WATER PIPING AT MAIN. PATCH WALLS/FLOORS AND CLOSELY MATCH EXISTING FLOOR/WALL FINISH.
- (C) REMOVE EXISTING COLD WATER PIPING, VALVES AND INSULATION AS INDICATED BY DASHED LINES. CAP HOT WATER PIPING AT MAIN. PATCH WALLS/FLOORS AND CLOSELY MATCH EXISTING FLOOR/WALL FINISH.
- (D) REMOVE EXISTING COMPRESSED AIR PIPING, VALVES AND ALL ASSOCIATED EQUIPMENT AS INDICATED BY DASHED LINES. CAP PIPING AT MAIN. PATCH WALLS/FLOORS AND CLOSELY MATCH EXISTING FLOOR/WALL FINISH.
- (E) REMOVE EXISTING NATURAL GAS PIPING, VALVES AND ALL ASSOCIATED EQUIPMENT AS INDICATED BY DASHED LINES. CAP PIPING AT MAIN. PATCH WALLS/FLOORS AND CLOSELY MATCH EXISTING FLOOR/WALL FINISH.
- (F) REMOVE EXISTING PLUMBING FIXTURE PIPING, VALVES AND ALL ASSOCIATED EQUIPMENT AS INDICATED BY DASHED LINES. CAP PIPING AT MAIN. PATCH WALLS/FLOORS AND CLOSELY MATCH EXISTING FLOOR/WALL FINISH.
- (G) REMOVE EXISTING ACID WASTE PIPING AS INDICATED BY DASHED LINES. CAP AT MAIN. PATCH FLOOR AND CLOSELY MATCH EXISTING FLOOR FINISH.
- (H) REMOVE EXISTING HOT WATER RETURN PIPING, VALVES AND INSULATION AS INDICATED BY DASHED LINES. CAP HOT WATER PIPING AT MAIN. PATCH WALLS/FLOORS AND CLOSELY MATCH EXISTING FLOOR/WALL FINISH.
- (J) REMOVE EXISTING DOMESTIC HOT WATER BOILER, BOILER PUMP, STORAGE TANK AND CONCRETE HOUSEKEEPING PAD AS INDICATED BY DASHED LINES. PATCH FLOOR TO CLOSELY MATCH EXISTING.
- (K) REMOVE EXISTING MASTER MIXING VALVE, PIPING, VALVES AND INSULATION AS INDICATED BY DASHED LINES.
- (L) REMOVE EXISTING FIRE PROTECTION PIPING, VALVES AND ALL ASSOCIATED EQUIPMENT AS INDICATED BY DASHED LINES.
- (M) REMOVE EXISTING STORM PIPING AS INDICATED BY DASHED LINES. CAP AT MAIN. PATCH FLOOR AND CLOSELY MATCH EXISTING FLOOR FINISH.
- (N) REMOVE ALL SANITARY, VENT, CW, HW, HWR AND NG PIPING. PROVIDE ISOLATION VALVES TO ISOLATE CW AND NG FOR FUTURE CONNECTIONS. REMOVE ALL VALVES, INSULATION, WATER HEATERS, PUMPS, PLUMBING FIXTURES, DRAINS AND ALL ASSOCIATED EQUIPMENT IN THE HATCHED AREA UNO. PATCH AND PREP FLOOR FOR NEW FINISH. EXISTING DRAWINGS TO BE MADE AVAILBLE TO DEMO/P.C. FOR PRICING.
- (P) REMOVE ALL EXISTING POOL EQUIPMENT, PIPING AND DRAINS IN THE SHADED / HATCHED AREA UNO. PATCH AND PREP FLOOR FOR NEW FINISH. EXISTING DRAWINGS TO BE MADE AVAILBLE TO DEMO/P.C. FOR PRICING.



PLUMBING DEMOLITION PLAN - AREA "A"
1/8" = 1'-0"



KEY PLAN

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PLUMBING DEMOLITION PLAN
- AREA "A"

REVISIONS

REV	DESCRIPTION	DATE
1	ADDENDUM NO.1	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
PD101A

ADDENDUM NO. 1

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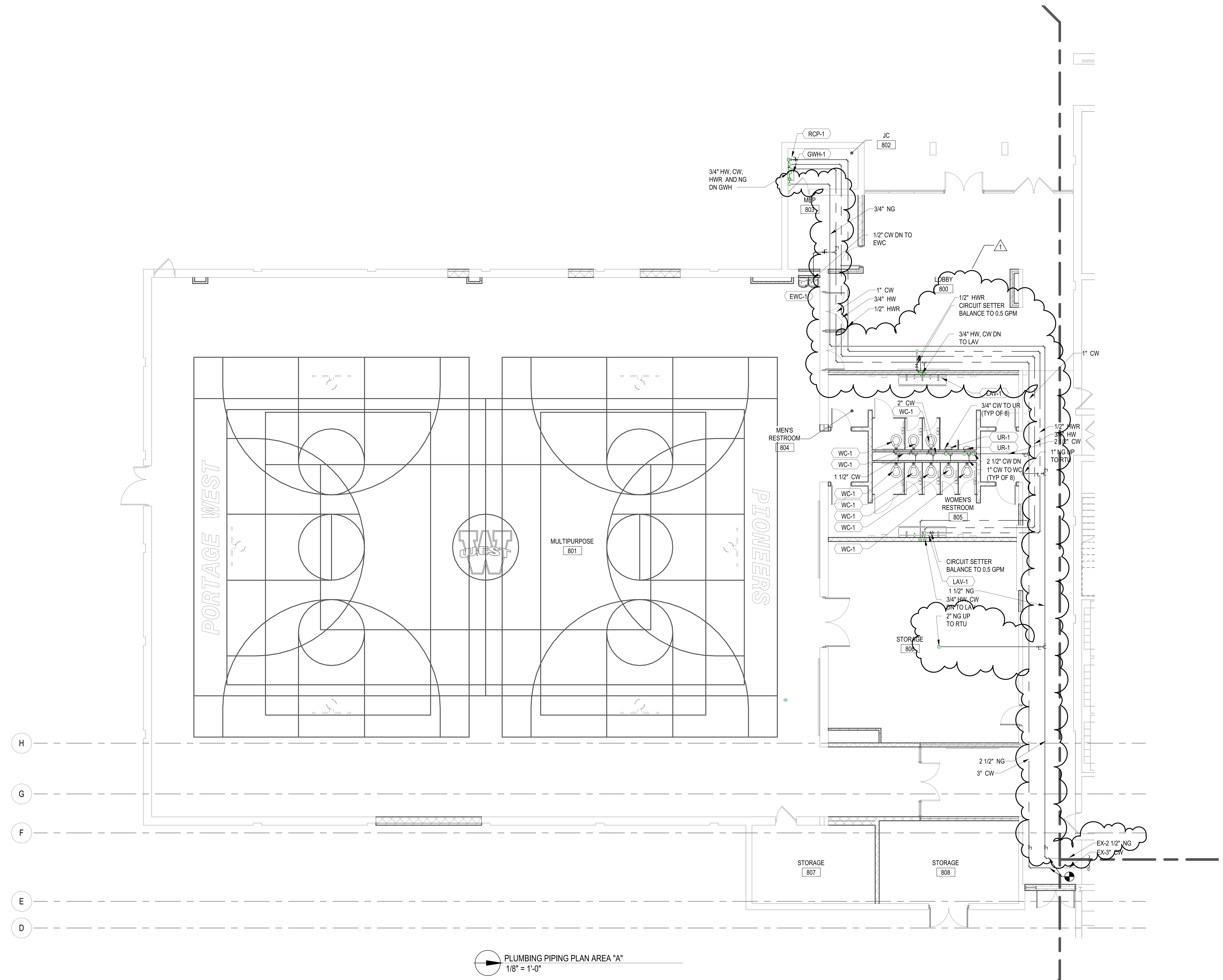
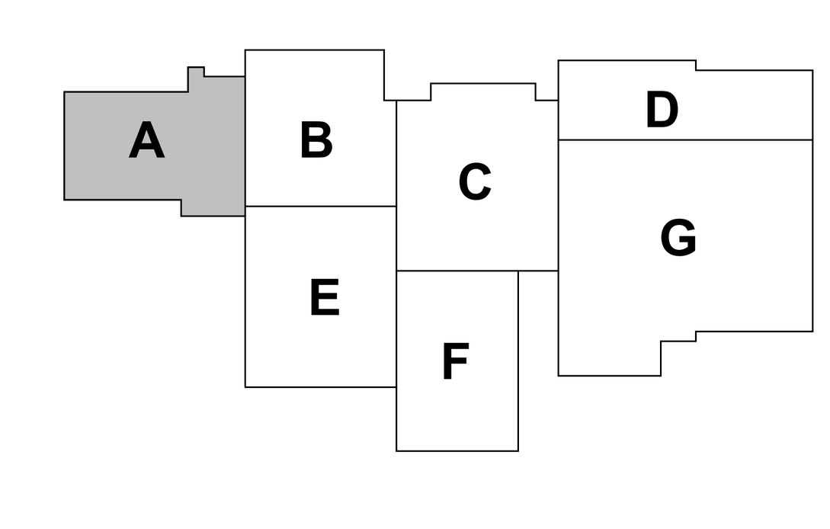
DESIGNED BY: Designer
CHECKED BY: Checker #PROJECTS BY: Approver

Addendum #1



PLUMBING PIPING PLAN AREA "A"
1/8" = 1'-0"



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PLUMBING PIPING PLAN - AREA "A"

REVISIONS

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1	ADDENDUM NO. 1	01/04/19

PROJ. #: 160024
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SHEET
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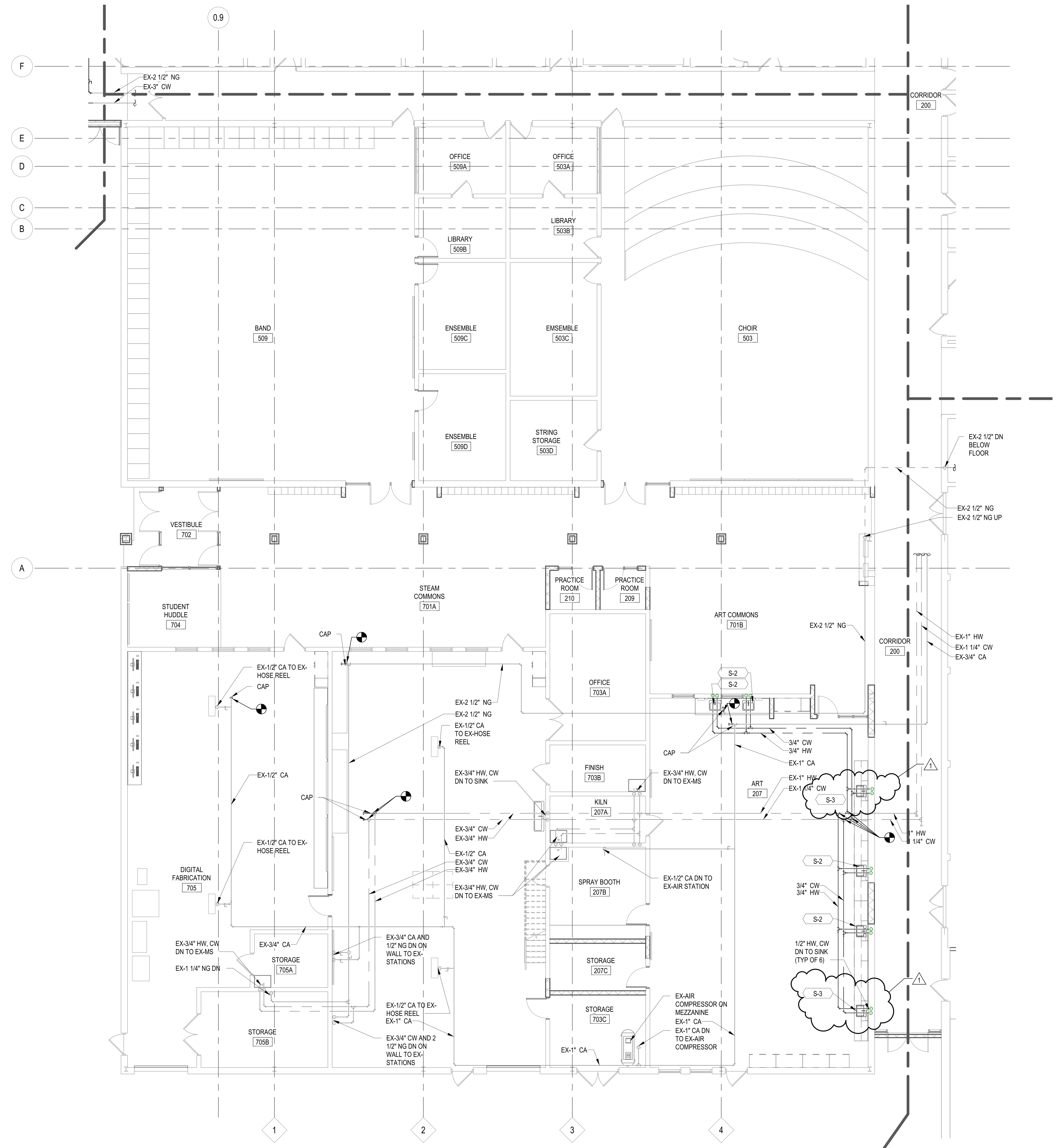
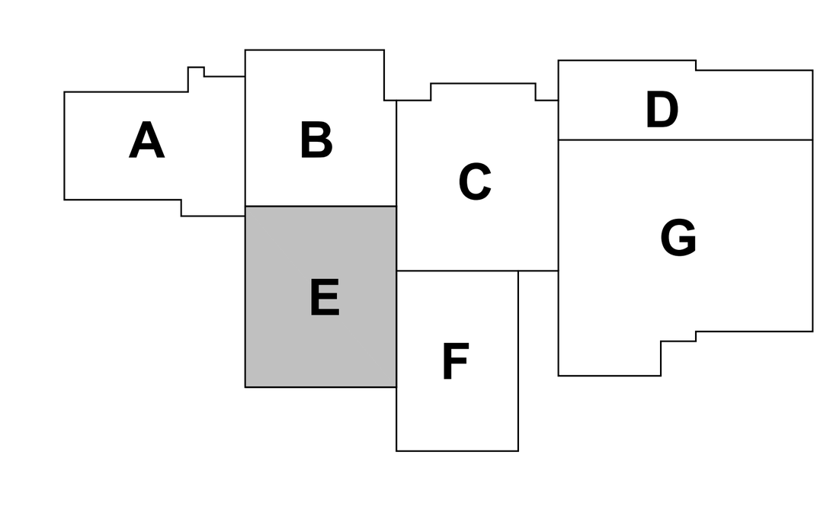
ADDENDUM NO. 1

Addendum #1



PLUMBING PIPING PLAN AREA "E"
1/8" = 1'-0"



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PLUMBING PIPING PLAN - AREA "E"

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ADDENDUM NO. 1

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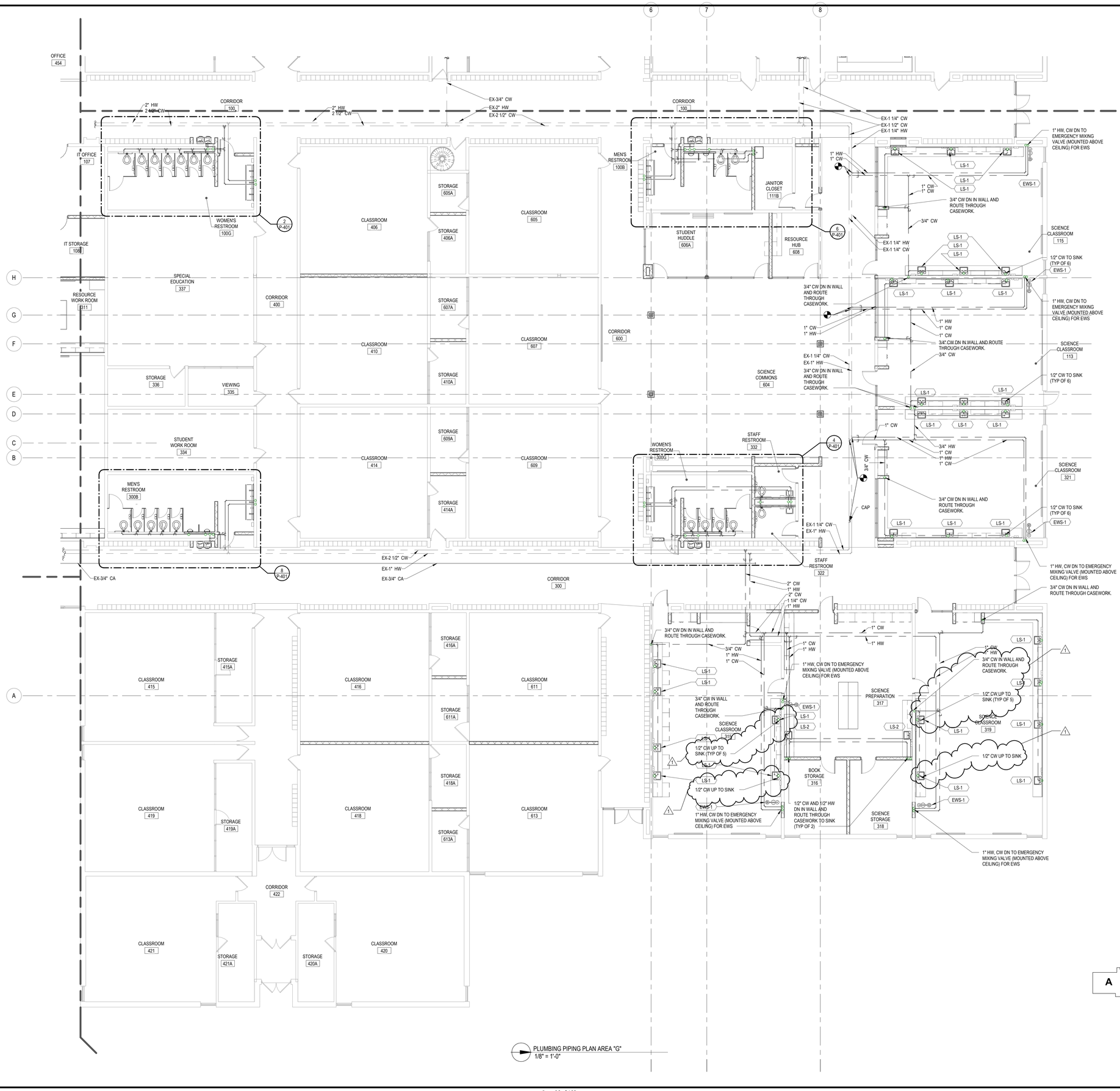
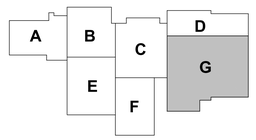


PLUMBING PIPING PLAN AREA "G"
1/8" = 1'-0"

KEY PLAN



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PLUMBING PIPING PLAN - AREA "G"

REVISIONS

REV	DESCRIPTION	DATE
1	ADDENDUM NO. 1	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
PP101G

ADDENDUM NO. 1

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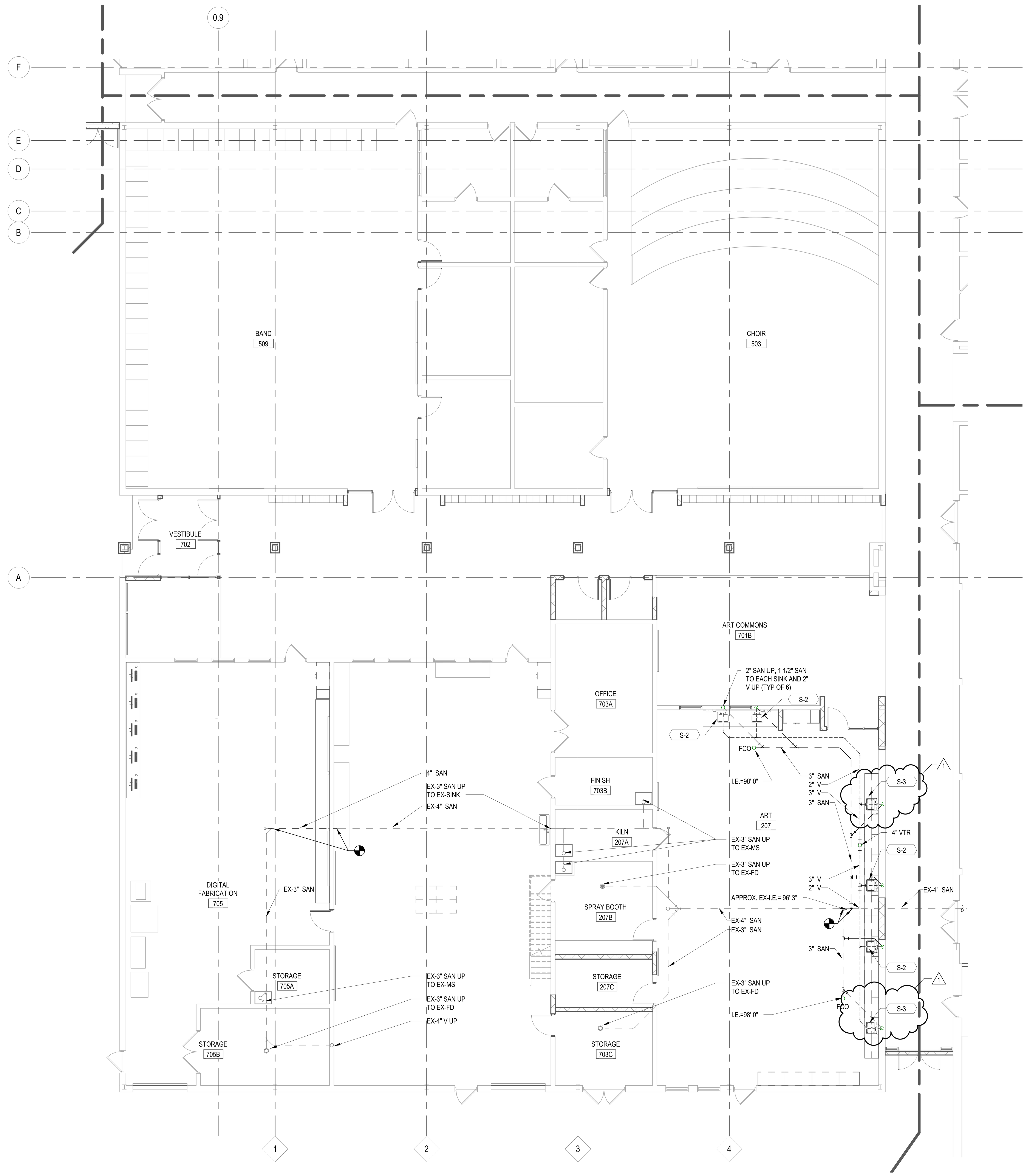
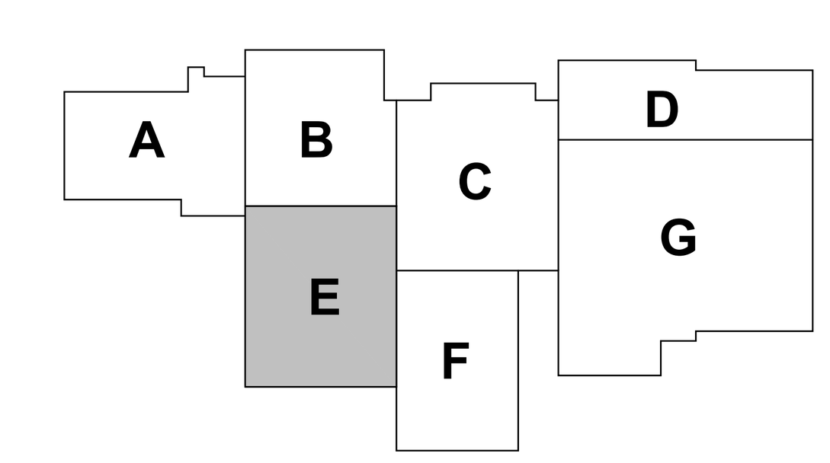
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

Addendum #1



DWV PLUMBING PLAN - AREA "E"
1/8" = 1'-0"



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DWV PLUMBING PLAN - AREA "E"

REVISIONS

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DATE: 12/10/2018

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ADDENDUM NO. 1

Addendum #1

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	MANUFACTURER	MODEL	CONNECTIONS SAN	VENT	CW	HW	GAS	DESCRIPTION
WC-1	WATER CLOSET	AMERICAN STANDARD	3351.101	4"	2"	1"	-	-	VITREOUS CHINA, WALL MOUNTED, ADA COMPLIANT, ELONGATED FLUSH VALVE TOILET. HIGH EFFICIENCY, ULTRA LOW CONSUMPTION (1.28 GPF) WATER CLOSET. PROVIDE WITH ADJUSTABLE SLOPE FLOOR MOUNTED WALL CARRIER .
	FLUSH VALVE	SLOAN	REGAL 111-1.28						MANUAL LEVER DIAPHRAM TYPE FLUSH VALVE ULTRA LOW CONSUMPTION (1.28 GPF).
	SEAT	AMERICAN STANDARD	5901.110T						ELONGATED RIGHT WIDTH, OPEN FRONT, LESS COVER, SOLID PLASTIC TOILET SEAT, EVER CLEAN SURFACE
UR-1	URINAL	AMERICAN STANDARD	6042.001	2"	1-1/2"	3/4"	-	-	VITREOUS CHINA, WALL MOUNTED, ADA COMPLIANT, HIGH EFFICIENCY, ULTRA LOW CONSUMPTION (0.125 GPF). PROVIDE WITH FLOOR MOUNTED WALL CARRIER.
	FLUSH VALVE	SLOAN	REGAL 186-0.125						MANUAL LEVER DIAPHRAM TYPE FLUSH VALVE ULTRA LOW CONSUMPTION (0.125 GPF).
LAV-1	WALL-HUNG 3 STATION LAVATORY	BRADLEY	LVSD3	1-1/2"	1-1/2"	3/4"	3/4"	-	90" x 21" WALL MOUNTED MOLDED SURFACE 3 STATION LAVATORY WITH STAINLESS STEEL ACCESS COVER.
	TRIM	BRADLEY	IR-DCD						SINGLE HOLE INFRARED ELECTRONIC FAUCET WITH PLUG IN ADAPTER, 0.5 GPM.
	DRAIN	BRADLEY	IW-CHROME						BRASS GRID DRAIN POLISHED CHROME, 1-1/2" TAILPIECE.
	SOAP DISPENSER	BRADLEY	6315-KT0000						SINGLE HOLE INFRARED ELECTRONIC SOAP DISPENSER WITH PLUG IN ADAPTER, 1000 SHOT SOAP.
	TRAP	MCGUIRE	8912						CAST BRASS P-TRAP WITH CLEANOUT PLUG AND BRASS NUTS AND TAILPIECE TO BE INSULATED TO COMPLY WITH ADA.
	MIXING VALVE	BRADLEY	S59-4000A						ASSE 1070 LISTED FOR SINGLE FIXTURE USE.
LAV-2	WALL-HUNG LAVATORY	AMERICAN STANDARD	0955.901EC	1 1/2"	1-1/2"	1/2"	1/2"	-	21 7/16" x 17 3/4" WALL MOUNTED VITRIOUS CHINA LAVATORY, CENTERED SINGLE HOLE, ADA COMPLIANT. PROVIDE WITH CONCEALED ARM WALL CARRIER.
	TRIM	BRADLEY	IR-DCD						SINGLE HOLE INFRARED ELECTRONIC FAUCET WITH PLUG IN ADAPTER, 0.5 GPM.
	DRAIN	AMERICAN STANDARD	7716.020						BRASS GRID DRAIN POLISHED CHROME, LESS OVERFLOW, 1-1/2" TAILPIECE.
	SUPPLIES	MCGUIRE	LF2165CCLK						1/2" AND 3/8" LOOSE KEY ANGLE STOP WITH BRASS STEMS AND 3/8" O.D. RISER.
	TRAP	MCGUIRE	8912						CAST BRASS P-TRAP WITH CLEANOUT PLUG AND BRASS NUTS AND TAILPIECE TO BE INSULATED TO COMPLY WITH ADA.
	MIXING VALVE	BRADLEY	S59-4000A						ASSE 1070 LISTED FOR SINGLE FIXTURE USE.
	ACRYLIC SHROUD	AMERICAN STANDARD	0062.000						ACRYLIC SHROUD COLOR TO BE WHITE TO MATCH LAVATORY.
S-1	SINK	ELKAY	LRAD191965	2"	1-1/2"	1/2"	1/2"	-	19 1/2" X 19" X 6-1/2", ADA, TYPE 304, 18 GAUGE STRAINLESS STEEL, SELF RIMMING, UNDERCOATED, HOLES SHOULD BE DRILLED TO MATCH FAUCET REQUIREMENT.
	TRIM	CHICAGO FAUCETS	1100-GN8AE35-317AB						8" SWING GOOSENECK SPOUT, 1.5 GPM AERATOR AND 4" WRIST BLADE HANDLES.
	DRAIN	ELKAY	LK99						3 1/2" STAINLESS STEEL CONICAL BASKET STRAINER WITH RUBBER STOPPER AND LOCKING STEM,4" LONG 1 1/2" Ø TAILPIECE.
	SUPPLIES	MCGUIRE	LF2165CCLK						1/2" LOOSE KEY ANGLE STOP WITH BRASS STEMS AND 1/2" O.D. RISER.
	TRAP	MCGUIRE	8912						CAST BRASS P-TRAP WITH CLEANOUT PLUG AND BRASS NUTS.
	MIXING VALVE	BRADLEY	S59-4000A						ASSE 1070 LISTED FOR SINGLE FIXTURE USE.
S-2	SINK	ELKAY	LRAD252265	2"	1-1/2"	1/2"	1/2"	-	25" x 22" x 6 1/2" SINGLE BOWL, TOP MOUNT, REAR OFFSET DRAIN, 18 GAUGE 304 STAINLESS STEEL.
	TRIM	CHICAGO FAUCETS	1100-GN8AE35-317AB						8" SWING GOOSENECK SPOUT, 1.5 GPM AERATOR AND 4" WRIST BLADE HANDLES.
	DRAIN	ELKAY	LK35						3 1/2" STAINLESS STEEL CONICAL BASKET STRAINER WITH RUBBER STOPPER AND METAL STEM,4" LONG 1 1/2" Ø TAILPIECE.
	SUPPLIES	MCGUIRE	LF2165CCLK						1/2" LOOSE KEY ANGLE STOP WITH BRASS STEMS AND 1/2" O.D. RISER.
	TRAP	JOSAM	61000						ACID RESISTANT CAST IRON SOLIDS INTERCEPTOR WITH BOTTOM CLEANOUT.
	MIXING VALVE	BRADLEY	S59-4000A						ASSE 1070 LISTED FOR SINGLE FIXTURE USE.
S-3	INTEGRAL SINK	-	-	2"	1-1/2"	1/2"	1/2"	-	PROVIDED BY ARCHITECTURAL TRADES INSTALLED BY PC SEE ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
	TRIM	CHICAGO FAUCETS	1100-GN8AE35-317AB						8" SWING GOOSENECK SPOUT, 1.5 GPM AERATOR AND 4" WRIST BLADE HANDLES.
	SUPPLIES	MCGUIRE	LF2165CCLK						1/2" LOOSE KEY ANGLE STOP WITH BRASS STEMS AND 1/2" O.D. RISER.
	TRAP	JOSAM	61000						ACID RESISTANT CAST IRON SOLIDS INTERCEPTOR WITH BOTTOM CLEANOUT.
	MIXING VALVE	BRADLEY	S59-4000A						ASSE 1070 LISTED FOR SINGLE FIXTURE USE.
LS-1	LAB SINK	-	-	2"	1-1/2"	-	-	-	PROVIDED BY ARCHITECTURAL TRADES INSTALLED BY PC SEE ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
	TRIM	CHICAGO FAUCETS	928-317XKCP	-	-	1/2"	-	1/2"	6" SWING, SINGLLE HOLE ,COLD WATER FAUCET WITH VACUUM BREAKER, WRIST BLADE HANDLE, VANDAL RESISTANT REMOVABLE SERRATED HOSE END,
LS-2	LAB PREP SINK	-	-	-	-	-	-	-	PROVIDED BY ARCHITECTURAL TRADES INSTALLED BY PC SEE ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
	TRIM	CHICAGO FAUCETS	786-GN8BVBE7CP	-	-	1/2"	1/2"	-	8" SWING GOOSENECK SPOUT, FULL FLOW NOZZEL, VACUUM BREAKER, AND 4" VANDAL PROOF WRIST BLADE HANDLES.
	MIXING VALVE	BRADLEY	S59-4000			1/2"	1/2"	-	ASSE 1070 LISTED FOR SINGLE FIXTURE USE.
EWS-1	EYEWASH / SHOWER	BRADLEY	S19314EFSS	-	-	1"	1"	-	STAINLESS STEEL, DRENCH SHOWER / EYEWASH/ FACE, BARRIER FREE WITH PULL ROD.
	EMERGENCY MIXING VALVE	BRADLEY	S19-2100 EFX25			1-1/4"	1-1/4"	-	ANSI/ISEA Z358.1 APPROVED, EMERGENCY THERMOSTAIC MIXING VALVE.
MS-1	MOP SINK	FIAT PRODUCTS	TSBC1610	3"	2"	3/4"	3/4"	-	24" x 24" x 10" TARAZZO MOP SINK, STAINLESS STEEL CAP ON THRESHOLD, GRID DRAIN, 24" STAINLESS STEEL WALL GUARDS, HOSE AND BRACKET.
	TRIM	CHICAGO FAUCETS	540-LD897SWXF317CP						8" WALL MOUNT CAST BRASS FAUCET, SPOUT HOSE CONNECTION, PAIL HOOK, WALL BRACE, POLISHED.
FD-1	FLOOR DRAIN	JOSAM	30000-S	SEE PLANS	-	-	-	-	5" x 5" COATED CAST IRON BODY FLOOR DRAIN, TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEEPHOLES, BOTTOM OUTLET AND AJUSTABLE SATIN NICKELOY SQUARE STRAINER. PROVIDE WITH TRAP SEAL RECTORSEAL MODEL SS3009.
FD-2	FLOOR DRAIN WITH FUNNEL	JOSAM	30000-S-F4	SEE PLANS	-	-	-	-	5" x 5" COATED CAST IRON BODY FLOOR DRAIN, TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEEPHOLES, BOTTOM OUTLET AND AJUSTABLE SATIN NICKELOY SQUARE STRAINER WITH FUNNEL. PROVIDE WITH TRAP SEAL RECTORSEAL MODEL SS3009.
EWC-1	ELECTRIC WATER COOLER	ELKAY	VRCTL8WSK	2"	1-1/2"	1/2"	-	-	BI-LEVEL STAINLESS STEEL VANDLE RESISTANT ELECTRIC WATER COOLER, INTEGURAL BOTTLE FILL STATION, 8 GPH CAPACITY.
	CANE APRON	ELKAY	98324C						STAINLESS STEEL CANE APRON FOR VRCTL WATER COOLERS.
WH-1	WALL HYDRANT	WOODFORD	B65	-	-	3/4"	-	-	FREEZE LESS WALL HYDRANT, SINGLE CHECK HOSE CONNECTION AND ANTI-SIPHON VACCUM BREAKERS, LOCKABLE CHROME FINISH HINGED COVER BOX, T HANDLE KEY.
HB-1	WALL MOUNTED HOSE BIB	WOODFORD	24P-1/2	-	-	1/2"	-	-	ANTI-SIPHON, VACUUM BREAKER PROTECTED, WALL MOUNTED, CAST BRASS, HOSE BIB, 1/2" CW CONNECTION.

RECIRCULATION PUMP SCHEDULE

MARK	MANUFACTURER	MODEL	SERVING	FLOW (GPM)	PRESSURE DROP (FT OF HEAD)	RPM	VOLT	PHASE	FLA	NOTES
RCP-1	BELL AND GOSSETT	NBF-12FLW	GWH-1	1.0	10	2800	120	1	0.48	1
RCP-2	BELL AND GOSSETT	PL36B	GWH-2	30.0	10	3300	120	1	2.1	
RCP-3	BELL AND GOSSETT	PL36B	GWH-3	30.0	10	3300	120	1	2.1	
RCP-4	BELL AND GOSSETT	NBF-12FLW	GWH-4	1.0	10	2800	120	1	0.48	1

NOTES:
1. PROVIDE WITH AQUASTAT AND TIMER.

GAS TANKLESS WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	MBH	WATER CONNECTION SIZE	FUEL TYPE	VOLTAGE	PHASE	HZ	NOTES
GWH-1	AO SMITH	ACT-199I-N	199	3/4"	NATURAL GAS	120	1	60	

NOTES:
1. MOUNT ON WALL 6'-0" AFF.

GAS WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	CAPACITY (GAL)	MBH	WATER CONNECTION SIZE	FUEL TYPE	THERMAL EFF	VOLTAGE	PHASE	HZ	NOTES
GWH-2	PVI	60 L 130AN GCML	130	699	2"	NATURAL GAS	97%	120	1	60	1,2,3,4
GWH-3	PVI	60 L 130AN GCML	130	699	2"	NATURAL GAS	97%	120	1	60	1,2,3
GWH-4	PVI	20 L 100A-GCL	100	199	1 1/2"	NATURAL GAS	97%	120	1	60	1,2

NOTES:
1. MOUNT ON 4" CONCRETE HOUSEKEEPING PAD.
2. PROVIDE PROVISIONS FOR BMS MONITORING.
3. SEE ELECTRICAL INFORMATION FOR GWH SHUT-OFFS.
4. PROVIDE WITH 175 GALLON STORAGE TANK .

PLUMBING PIPING SYSTEM APPLICATION SCHEDULE

SYSTEM	ABBREVIATION	AREA OR SYSTEM SERVED	PIPE LOCATION	PIPE SIZE (IN)	PIPING MATERIAL: COPPER DWV TUBE	COPPER TYPE L	SCH 40 STEEL	CAST IRON, HUBLESS	PVC, SOLID WALL	CPVC (CHEMICAL PIPING)	POLYPROPYLENE	JOINING METHOD: MECHANICAL (COUPLING)	GROOVED (VICTAULIC)	FLANGED	SOLDERED (LOW TEMP)	BRAZED (HIGH TEMP)	HEAT FUSION	SOLVENT CEMENT	THREADED	WELDED	CONSTRUCTION: OPERATING TEMPERATURE (°F)	MINIMUM WORKING PRESSURE (PSI)	INSULATION: MINERIAL FIBER PREFORMED	FLEXIBLE ELASTOMERIC	THICKNESS (IN)	ASJ (ALL-SERVICE JACKET) PVC FITTINGS
DOMESTIC WATER	CW / HW / HWR	DOMESTIC WATER	ABOVE GROUND	NPS 2-1/2 AND SMALLER		X									X						40-140	100	X	X	1	X
DOMESTIC WATER	CW / HW / HWR	DOMESTIC WATER	ABOVE GROUND	NPS 3 AND LARGER		X							X	X		X					40-140	100	X	X	1.5	X
FIRE PROTECTION	FP	FIRE PROTECTION	ABOVE GROUND	ALL SIZES			X						X					X	X	X	40-150	175				
FIRE PROTECTION	FP	FIRE PROTECTION SERVICE PIPING	UNDER GROUND	ALL SIZES			X					X	X	X							40-150	175				
NATURAL GAS	NG	BUILDING NATURAL GAS	ABOVE GROUND	ALL SIZES			X												X	X	-	100				
INDIRECT WASTE	IW	EQUIPMENT WASTE	ABOVE GROUND	ALL SIZES	X										X						40-140	100				
SANITARY & VENT	SAN / V	TOILET ROOMS / SINKS / MISC. FLOOR DRAINS	ABOVE GROUND	ALL SIZES				X				X									30-140	.5				
SANITARY & VENT	SAN / V	TOILET ROOMS / SINKS / MISC. FLOOR DRAINS	UNDER GROUND	ALL SIZES				X	X			X						X			30-140	.5				
ACID WASTE & VENT	AW / AV	ACID WASTE SYSTEM	ALL LOCATIONS	ALL SIZES						X	X	X					X	X			30-140	.5				
STORM	ST	BUILDING ROOF DRAINAGE	ABOVE GROUND	NPS 6 AND SMALLER				X				X									30-120	.5	X		1	X
STORM	ST	BUILDING ROOF DRAINAGE	UNDER GROUND	NPS 6 AND SMALLER				X	X									X			30-120	.5				

PLUMBING PIPING SYMBOLS LEGEND

SYMBOL	DESCRIPTION
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
NG	NATURAL GAS
MA	MEDICAL AIR
MG	MEDICAL GAS
VAC	VACUUM
V	SANITARY VENT
SAN	SANITARY (ABOVE GRADE)
SAN	SANITARY (BELOW GRADE)
ST	STORM DRAIN (ABOVE GRADE)
ST	STORM DRAIN (BELOW GRADE)
CA	COMPRESSED AIR
AV	ACID VENT
AW	ACID WASTE
	DIRECTION OF FLOW
	ANCHOR
	REDUCER OR INCREASER
	TOP CONNECTION, 45 OR 90
	SIDE CONNECTION
	BOTTOM CONNECTION, 45 OR 90
	CAPPED OUTLET
	RISE OR DROP IN PIPE
	UNION
	PIPE UP
	PIPE DOWN
	INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES
	FLOAT AND THERMOSTATIC TRAP SET
FE	FLOW ELEMENT
	THERMOMETER
	PRESSURE GAUGE
	POINT OF CONNECTION BETWEEN PROPOSED AND EXISTING SYSTEMS
	DEMOLITION END POINT
CO	END OF LINE CLEANOUT
FCO	FLOOR CLEANOUT
WCO	WALL CLEANOUT
	PUMP
	HOSE BIBB
	WALL HYDRANT (IN RECESSED BOX)
	OVERFLOW DISCHARGE

PLUMBING VALVE SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	GATE VALVE
	GLOBE VALVE
	ANGLE VALVE
	SWING CHECK VALVE
	STRAINER
	FLEXIBLE CONNECTION
	BUTTERFLY VALVE
	BALL VALVE
	GAS COCK
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	THERMOSTATIC MIXING VALVE
S	SOLENOID VALVE
	PRESSURE REGULATING VALVE
	BALANCE VALVE
	PRESSURE RELIEF VALVE
	TEMPERATURE PRESSURE RELIEF VALVE
	PRESSURE REDUCING VALVE
	PLUG VALVE
	EXPANSION JOINT
	PIPE SLEEVE
	WATER HAMMER ARRESTOR
AAV	AIR ADMITTANCE VALVE
	BACKFLOW PREVENTER LARGE
	BACKFLOW PREVENTER SMALL
M	WATER METER
M	NATURAL GAS METER

PLUMBING GENERAL NOTES:

1. IF COMPLIANCE WITH TWO OR MORE DIFFERING STANDARDS, REQUIREMENTS, DRAWINGS OR SPECIFICATIONS, OR ANY COMBINATION THEREOF, IS SPECIFIED AND THESE ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, COMPLY WITH THE MOST STRINGENT REQUIREMENT. THE MOST STRINGENT REQUIREMENT WILL BE THE BETTER QUALITY OR GREATER QUANTITY OF WORK, AND WILL TYPICALLY BE THE MORE EXPENSIVE OPTION. REFER UNCERTAINTIES AND REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
2. THE QUANTITY OR QUALITY LEVEL SHOWN OR SPECIFIED SHALL BE THE MINIMUM PROVIDED OR PERFORMED. THE ACTUAL INSTALLATION MAY COMPLY EXACTLY WITH THE MINIMUM QUANTITY OR QUALITY SPECIFIED, OR IT MAY EXCEED THE MINIMUM WITHIN REASONABLE LIMITS. TO COMPLY WITH THESE REQUIREMENTS, INDICATED NUMERIC VALUES ARE MINIMUM OR MAXIMUM, AS APPROPRIATE, FOR THE CONTEXT OF REQUIREMENTS. REFER UNCERTAINTIES TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
3. DESIGN DOCUMENTS MUST BE REPRODUCED IN THEIR ENTIRETY, INCLUDING ALL PLANS, SPECIFICATIONS, AND FRONT END DOCUMENTS.
4. ONLY COMPLETE DOCUMENT SETS ARE TO BE DISTRIBUTED TO SUBCONTRACTORS AND SUPPLIERS OF THE CONTRACTOR DURRING BIDDING OR CONSTRUCTION.
5. FAILURE TO REVIEW AND COMPLY WITH A FULL SET OF CONTRACT DOCUMENTS WILL NOT BE ACCEPTED AS A VALID REASON FOR FAILURE TO MEET THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.
6. ALL PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES, ORDINANCES, AND LAWS AND SHALL BE OF SIMILAR QUALITY, MATERIAL, AND INSTALLATION METHODOLOGY AS SIMILAR WORK IN EXISTING FACILITY.
7. ALL INSULATION SHALL BE PRESUMED ASBESTOS CONTAMINATED MATERIAL (PACM) UNLESS OTHERWISE INDICATED OR LABELED. THE CONTRACTOR SHALL ABATE ALL ASBESTOS BY APPROVED METHODS. CONSULT WITH THE OWNER 'S RESPRESENTATIVE REGARDING LOCATION AND EXTEND OF PACM PRIOR TO THE WORK.
8. HAZARDOUS MATERIALS ARE PRESENT IN CONSTRUCTION TO BE SELECTIVELY DEMOLISHED. A REPORT ON THE PRESENCE OF HAZARDOUS MATERIALS IS ON FILE FOR REVIEW AND USE. EXAMINE REPORT TO BECOME AWARE OF LOCATIONS WHERE HAZARDOUS MATERIALS ARE PRESENT.
9. ALL ABOVE CEILING SYSTEMS AND COMPONENTS (INCLUDING BUT NOT LIMITED TO MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, ETC.) SHALL BE COORDINATED SUCH THAT THE SYSTEMS ARE PROPERLY INTEGRATED IN THE SPACE PROVIDED ABOVE CEILING AT THE CEILING HEIGHTS NOTED. IT IS THE RESPONSIBILITY OF EACH CONTRACTOR TO COORDINATE PATHWAYS WITHIN THE SPACE PROVIDED. CEILING HEIGHTS WILL NOT BE MODIFIED.
10. COORDINATE LOCATIONS OF ALL FIXTURES WITH ARCHITECTURAL AND ELECTRICAL PRIOR TO ROUGH-IN. ALL CONFLICTS WITH FINISHES, ADJACENT CONSTRUCTION, AND CONSTRUCTION DOCUMENTS ARE TO GENERATE AN RFI FROM THE MECHANICAL CONTRACTOR TO THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING AND COMPLETION OF WORK.
11. CEILING CONTRACTOR SHALL FURNISH AND INSTALL HINGED STEEL ACCESS PANELS FOR ALL ABOVE CEILING DAMPERS, VAV BOXES, FILTERS, BALANCING VALVES, AND ISOLATION VALVES IN GYPSUM CEILINGS. PANELS SHALL BE KEYED FOR ACCESS BY MAINTENANCE STAFF ONLY, AND FINISHED WITH WHITE BAKED-ON ENAMEL. PLUMBING CONTRACTOR SHALL CONSILIDATE ABOVE CEILING ACCESS REQUIREMENTS TO LIMIT PANELS TO NO MORE THAN 25'. PLUMBING CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESS PANELS AS A RESULT FROM PLAN DEVIATION/ALTERATION. COORDINATE QUANTITY AND LOCATION OF ADDITIONAL ACCESS PANELS WITH CEILING CONTRACTOR.
12. ALL SANITARY AND STORM PIPING SHALL BE INSTALLED TO MAINTAIN 1/8" SLOPE FOR 3" OR LARGER AND 1/4" PER FOOT FOR 2" OR SMALLER. TYPICAL U.N.O.
13. ALL SANITARY AND STORM RISERS SHALL BE FITTED WITH ACCESSIBLE CLEANOUT AT BASE. PROVIDE CLEANOUT COVER/WALL PLATE IN FINISHED AREAS. PROVIDE BOLLARDS IN EXPOSED AREAS. COORDINATE EXACT LOCATION WITH STEEL AND CONCRETE CONTRACTORS TO ENSURE BOLLARDS ARE PROVIDED.
14. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR FIRESTOPPING ALL NEW PLUMBING PENETRATIONS THROUGH RATED ASSEMBLIES.
15. PLUMBING CONTRACTOR SHALL PROVIDE WATER PROOF SHEET METAL CAP, INSULATED (EQUIVALENT TO ROOF) FOR ALL DEMOLISHED ROOF PENETRATIONS.
16. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ISOLATION VALVES AT ALL WATER CONSUMING FIXTURES, AND LOCATE VALVES TO ALLOW FOR ACCESS WITHIN 3 ' AFTER CONSTRUCTION IS COMPLETE.

PLUMBING ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
AAV	AIR ADMITTANCE VALVE
AV	ACID VENT
AW	ACID WASTE
CD	CONDENSATE DRAIN
CA	COMPRESSED AIR
CI	CAST IRON
CH	CHILLER
CO	CLEANOUT
CW	COLD WATER
COND	CONDENSATE RETURN
CP	CONDENSATE PUMP
D	DRAIN
DIA	DIAMETER
DIW	DEIONIZED WATER
EFF	EFFICIENCY
EL	ELEVATION
EWT	ENTERING WATER TEMPERATURE
FD	FLOOR DRAIN
F&Y	FLOAT AND THERMOSTATIC
FCO	FLOOR CLEANOUT
FPM	FEET PER MINUTE
FS	FLOW SWITCH
FT	FEET
G	GAS
GA	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
HD	HEAD
HB	HOSE BIBB
HP	HORSEPOWER
HW	HOT WATER
HWR	HOT WATER RETURN
HX	HEAT EXCHANGER
ID	INSIDE DIAMETER
IN	INCHES
IN WC	INCHES WATER COLUMN
IPC	INTERNATIONAL PLUMBING CODE
kW	KILOWATTS
kWh	KILOWATT HOURS
LAV	LAVATORY
LF	LINEAR FEET
LWT	LEAVING WATER TEMPERATURE
LPG	LIQUID PETROLEUM GAS
LPS	LOW PRESSURE STEAM
MA	MEDICAL AIR
MG	MEDICAL GAS
MFS	MAXIMUM FUSE SIZE
MCA	MINIMUM CIRCUIT AMPACITY
MHP	MOTOR HORSEPOWER
MOCP	MAXIMUM OVERCURRENT PROTECTION
MPC	MICHIGAN PLUMBING CODE
MR	MANUFACTURER'S RECOMMENDATIONS
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NG	NATURAL GAS
NO	NORMALLY OPEN
NO2	NITROGEN DIOXIDE
NTS	NOT TO SCALE
O	OXYGEN
OD	OUTSIDE DIAMETER
OFM	OIL FLOWMETER
OZ	OUNCE
P	PUMP
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ATMOSPHERE
PSIG	POUNDS PER SQUARE INCH GAUGE
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	ROUNDS PER MINUTE
RLA	RUNNING LOAD AMPS
RV	RELIEF VALVE
S	SINK
SAN	SANITARY
SOV	SHUTOFF VALVE
SCW	SOFT COLD WATER
STM	STORM
ODL	STORM OVERFLOW
MBH	THOUSAND BTU/HR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	SANITARY VENT
VAC	VACUUM
VSD	VARIABLE SPEED DRIVE
VFD	VARIABLE FREQUENCY DRIVE
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTER
W	WATTS
WPD	WATER PRESSURE DROP

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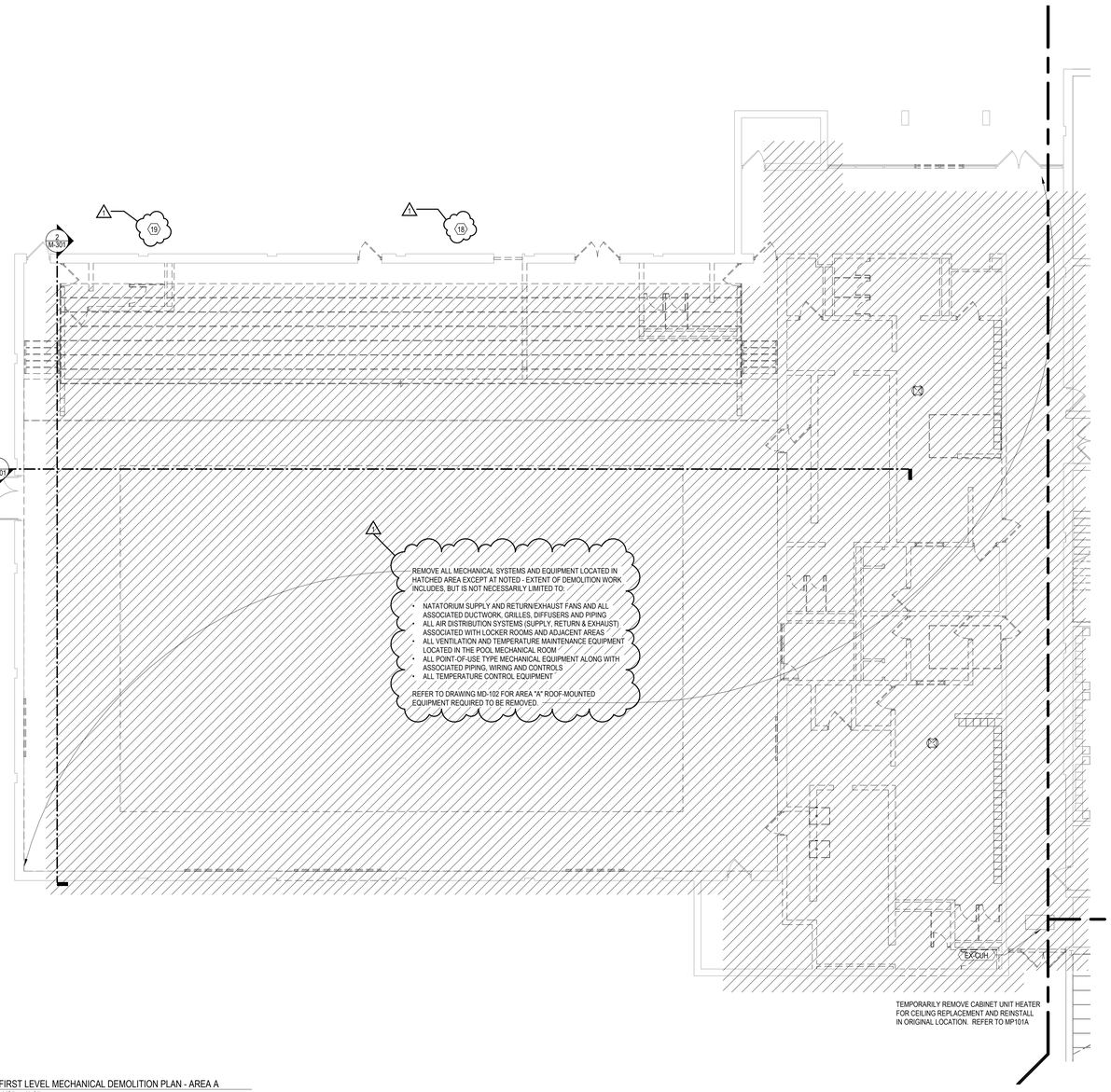
PLUMBING SCHEDULES

REVISIONS

REV	DESCRIPTION	DATE
1	ADDENDUM NO. 1	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
P-601
ADDENDUM NO. 1

WE RECYCLE



REMOVE ALL MECHANICAL SYSTEMS AND EQUIPMENT LOCATED IN HATCHED AREA EXCEPT AT NOTED - EXTENT OF DEMOLITION WORK INCLUDES, BUT IS NOT NECESSARILY LIMITED TO:

- NATATORIUM SUPPLY AND RETURN/EXHAUST FANS AND ALL ASSOCIATED DUCTWORK, GRILLES, DIFFUSERS AND PIPING
- ALL AIR DISTRIBUTION SYSTEMS (SUPPLY, RETURN & EXHAUST) ASSOCIATED WITH LOCKER ROOMS AND ADJACENT AREAS
- ALL VENTILATION AND TEMPERATURE MAINTENANCE EQUIPMENT LOCATED IN THE POOL MECHANICAL ROOM
- ALL POINT-OF-USE TYPE MECHANICAL EQUIPMENT ALONG WITH ASSOCIATED PIPING, WIRING AND CONTROLS
- ALL TEMPERATURE CONTROL EQUIPMENT

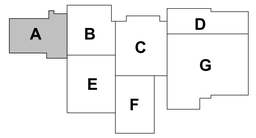
REFER TO DRAWING MD-102 FOR AREA "A" ROOF-MOUNTED EQUIPMENT REQUIRED TO BE REMOVED.

TEMPORARILY REMOVE CABINET UNIT HEATER FOR CEILING REPLACEMENT AND REINSTALL IN ORIGINAL LOCATION. REFER TO MP101A

FIRST LEVEL MECHANICAL DEMOLITION PLAN - AREA A
1/8" = 1'-0"

MECHANICAL DEMOLITION KEYNOTES:

1. REMOVE CABINET UNIT HEATER AND ALL PIPING BACK TO MAINS AND CAP. REMOVE ALL ASSOCIATED VALVES, ELECTRICAL AND CONTROLS.
2. REMOVE EXHAUST GRILLES AND DUCTWORK INCLUDING ALL HANGERS, FITTINGS, AND ACCESSORIES TO POINT WHERE INDICATED ON DRAWINGS. EXISTING EXHAUST FAN TO REMAIN.
3. REMOVE RADIANT PANELS IN THIS ROOM ALONG WITH ALL ASSOCIATED PIPING AND CONTROLS - CAP PIPING AT MAINS.
4. REMOVE SUPPLY AIR DUCTWORK FROM THIS POINT AND ALL CONNECTED FITTINGS, ACCESSORIES, AND AIR DIFFUSERS.
5. REMOVE DIFFUSER / GRILLE AND CONNECTING DUCTWORK BACK TO BRANCH DUCT. MODIFY EXISTING DUCT AS REQUIRED OR AS INDICATED FOR CONNECTION TO NEW.
6. REMOVE VAV BOX AS INDICATED AND ALL ASSOCIATED DUCTWORK, CONTROLS AND PIPING - CAP PIPING AT MAINS.
7. REMOVE PIPING BACK TO MAIN OR POINT WHERE INDICATED ON DRAWINGS AND CAP.
8. REMOVE CONVECTOR AS INDICATED AND ASSOCIATED CONTROLS AND PIPING - CAP PIPING AT MAINS.
9. REMOVE EXHAUST GRILLES AND DUCTWORK INCLUDING ALL HANGERS, FITTINGS, AND ACCESSORIES. REMOVE EXHAUST FAN. REFER TO ARCHITECTURAL FOR ROOF PATCHING.
10. REMOVE VAV BOX AS INDICATED AND ALL ASSOCIATED DUCTWORK, CONTROLS AND PIPING - CAP PIPING AT MAINS. SALVAGE VAV BOX AND TURN OVER TO OWNER.
11. REMOVE FIRE DAMPER AND RECONNECT DUCT.
12. REMOVE AIR HANDLER AND ALL ASSOCIATED DUCTWORK, DIFFUSERS, AIR TERMINALS, HYDRONIC AND REFRIGERANT PIPING, ELECTRICAL POWER (INCLUDING VFD), AND CONTROL WIRING - CAP PIPING AT MAINS REFER TO MD-102 FOR CONDENSING UNIT.
13. REMOVE BOILER AND ALL ASSOCIATED POWER WIRING, GAS TRAIN, AND SUPPLY AND RETURN PIPING BACK TO DISCONNET POINTS INDICATED.
14. REMOVE CHILLER AND RETAIN ASSOCIATED POWER WIRING FOR RECONNECTION TO NEW CHILLERS. DISCONNECT CHILLED WATER SUPPLY AND RETURN AT CHILLER BARREL CONNECTION POINTS. RETAIN PIPING, CHILLER PUMPS AND ASSOCIATED POWER AND CONTROL WIRING.
15. EXISTING TERMINAL UNIT(S) AND ASSOCIATED PIPING AND DUCTWORK SERVING THIS ROOM TO REMAIN. RETAIN EXISTING THERMOSTATS IN CURRENT LOCATIONS.
16. NO MECHANICAL DEMOLITION THIS SPACE.
17. REMOVE VAV BOX AS INDICATED AND ALL ASSOCIATED DUCTWORK, CONTROLS AND PIPING - CAP PIPING AT MAINS. REFER TO MH 101C, MH 101E, AND MH 101G FOR VAV BOX RELOCATION ASSIGNMENTS.
18. REMOVE CONDENSING UNIT, ALL ASSOCIATED REFRIGERANT PIPING AND POWER WIRING BACK TO DISCONNECT. REFER TO ELECTRICAL DEMOLITION DRAWINGS FOR EXTENT OF POWER WIRING DEMOLITION. ARRANGE AND PAY FOR PATCHING WALL OPENINGS. COORDINATE WITH ARCHITECTURAL TRADES.
19. REMOVE BOILER AND ALL GAS TRAIN, SUPPLY AND RETURN PIPING (INCLUDING BELOW GRADE PIPING), AND ASSOCIATED POWER WIRING BACK TO DISCONNECT. REFER TO PLUMBING DEMOLITION DRAWINGS FOR EXTENT OF GAS PIPING DEMOLITION. REFER TO ELECTRICAL DEMOLITION DRAWINGS FOR EXTENT OF POWER WIRING DEMOLITION. ARRANGE AND PAY FOR PATCHING WALL OPENINGS. COORDINATE WITH ARCHITECTURAL TRADES.



KEY PLAN

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DESIGNED BY: Designer
DRAWN BY: Drafter APPROVED BY: Approver

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FIRST LEVEL MECHANICAL
DEMOLITION PLAN - AREA A

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024

DATE: 12/10/2018

SHEET

MD101A

ADDENDUM NO. 01

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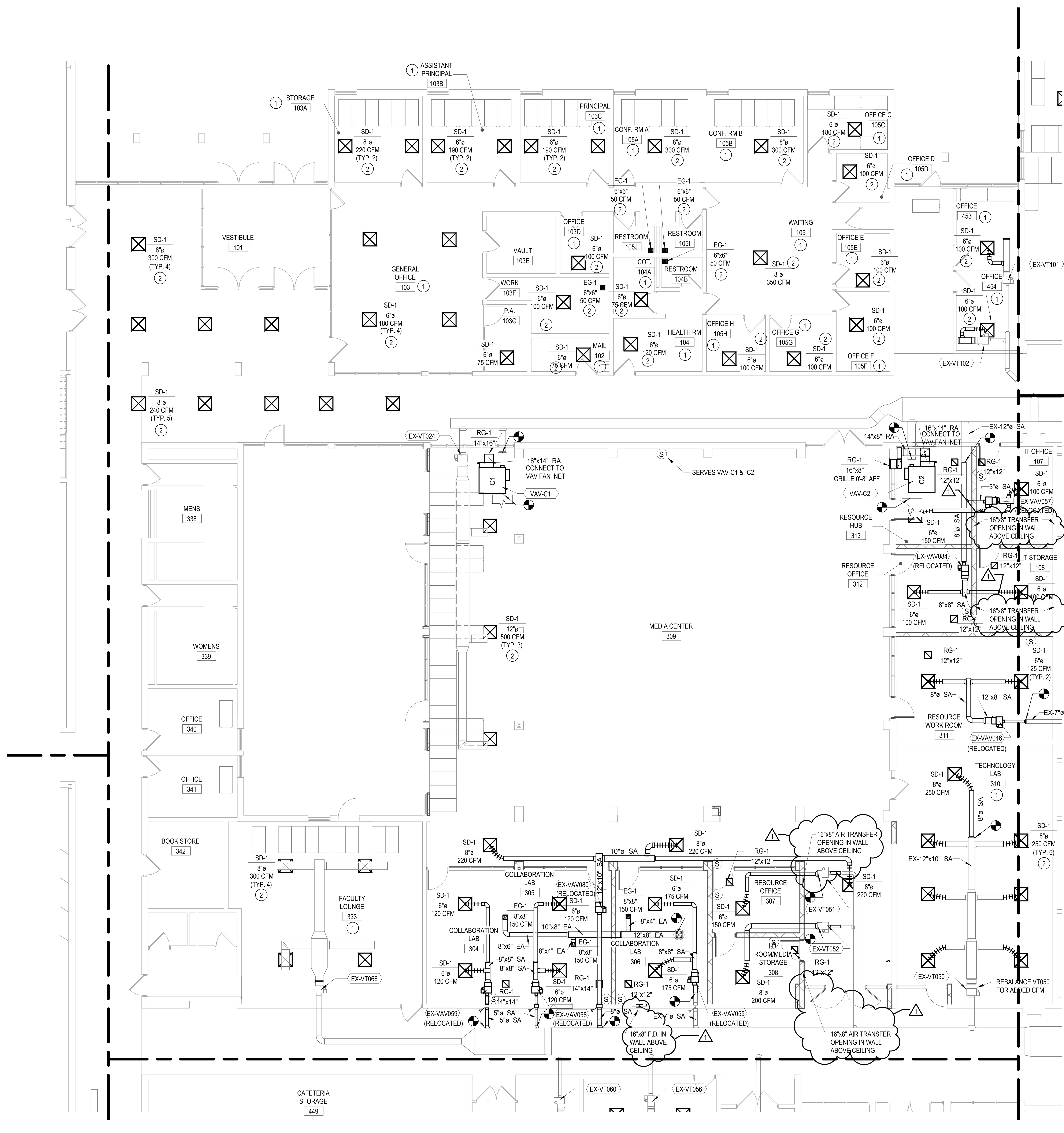
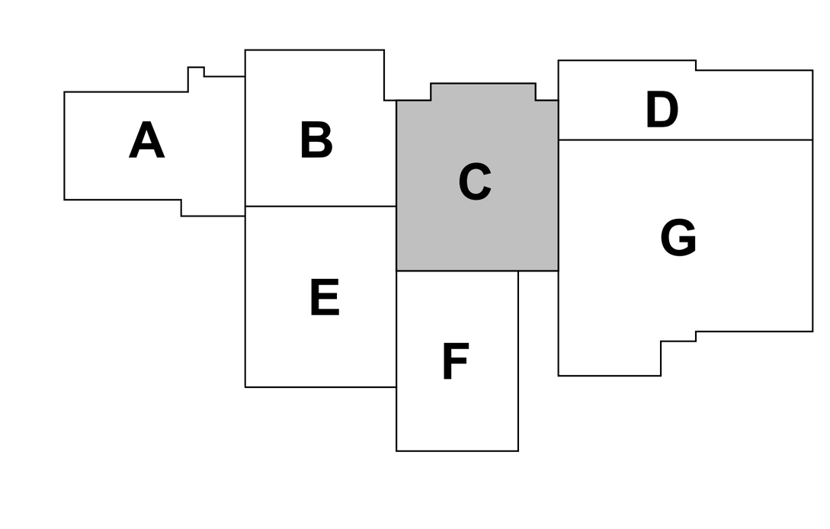


MECHANICAL GENERAL NOTES:

1. IF COMPLIANCE WITH TWO OR MORE DIFFERING STANDARDS, REQUIREMENTS, DRAWINGS OR SPECIFICATIONS, OR ANY COMBINATION THEREOF, IS SPECIFIED AND THESE ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, COMPLY WITH THE MOST STRINGENT REQUIREMENT. THE MOST STRINGENT REQUIREMENT WILL BE THE BETTER QUALITY OR GREATER QUANTITY OF WORK, AND WILL TYPICALLY BE THE MORE EXPENSIVE OPTION. REFER UNCERTAINTIES AND REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
2. THE QUANTITY OR QUALITY LEVEL INDICATED OR SPECIFIED SHALL BE THE MINIMUM PROVIDED OR PERFORMED. THE ACTUAL INSTALLATION MAY COMPLY EXACTLY WITH THE MINIMUM QUANTITY OR QUALITY SPECIFIED, OR IT MAY EXCEED THE MINIMUM WITHIN REASONABLE LIMITS. TO COMPLY WITH THESE REQUIREMENTS, INDICATED NUMERIC VALUES ARE MINIMUM OR MAXIMUM, AS APPROPRIATE, FOR THE CONTEXT OF REQUIREMENTS. REFER UNCERTAINTIES TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
3. DESIGN DOCUMENTS MUST BE REPRODUCED IN THEIR ENTIRETY, INCLUDING ALL PLANS, SPECIFICATIONS, AND FRONT END DOCUMENTS.
4. ONLY COMPLETE DOCUMENT SETS ARE TO BE DISTRIBUTED TO SUBCONTRACTORS AND SUPPLIERS OF THE CONTRACTOR DURING BIDDING OR CONSTRUCTION.
5. FAILURE TO REVIEW AND COMPLY WITH A FULL SET OF CONTRACT DOCUMENTS WILL NOT BE ACCEPTED AS A VALID REASON FOR FAILURE TO MEET THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.
6. ALL MECHANICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL ORDINANCES, CODES, AND LAWS. FOR PURPOSES OF THIS DESIGN, THE CODES FOR THE STATE OF MICHIGAN WERE USED AS THE BASIS.
7. ALL ABOVE CEILING SYSTEMS AND COMPONENTS (INCLUDING BUT NOT LIMITED TO MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, ETC.) SHALL BE COORDINATED SUCH THAT THE SYSTEMS ARE PROPERLY INTEGRATED IN THE SPACE PROVIDED ABOVE CEILING AT THE CEILING HEIGHTS NOTED. IT IS THE RESPONSIBILITY OF EACH CONTRACTOR TO COORDINATE PATHWAYS WITHIN THE SPACE PROVIDED. CEILING HEIGHTS WILL NOT BE MODIFIED.
8. COORDINATE LOCATIONS OF ALL DEVICES WITH OTHER TRADES PRIOR TO ROUGH-IN. ALL CONFLICTS WITH FINISHES, ADJACENT CONSTRUCTION, AND CONSTRUCTION DOCUMENTS ARE TO GENERATE AN RFI FROM THE MECHANICAL CONTRACTOR TO THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING AND COMPLETION OF WORK.
9. PROVIDE BEVELED OR TAPERED TAKEOFFS AT ALL BRANCH DUCT RUNOUTS TO TRUNKS. ALL FITTINGS SHALL BE IN ACCORDANCE WITH SMACNA.
10. PROVIDE MANUAL BALANCING DAMPERS AT ALL SUPPLY, RETURN, AND EXHAUST TRUNK BRANCHES AND RUNOUTS.
11. UNLESS OTHERWISE INDICATED, BRANCH DUCT RUNOUTS TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK.
12. TEMPERATURE SENSORS LOCATED IN SPACE RETURN DUCT SHALL BE PLACED WITHIN 2 FEET OF A RETURN GRILLE OR CEILING ACCESS PANEL.
13. LOCATE TEMPERATURE SENSORS FOR EQUIPMENT A MINIMUM OF 6'-0" AFF AWAY FROM HEAT PRODUCING EQUIPMENT. U.N.O.
14. PROVIDE ISOLATION AND BALANCING VALVES AT ALL HYDRONIC (HHW AND CHW) COILS, AND BALANCING VALVES AT ALL BRANCH CONNECTIONS TO EACH RETURN DISTRIBUTION LOOP. LOCATE VALVES TO ALLOW FOR ACCESS WITHIN 3 ' AFTER PROJECT COMPLETION.
15. COORDINATE EQUIPMENT INSTALLATION WITH ROOFING INSTALLER OR ROOFING MANUFACTURER TO AVOID DAMAGE TO ROOFING SYSTEM.
16. COORDINATE LOCATIONS OF ALL DEVICES WITH ARCHITECTURAL, STRUCTURAL, CIVIL, INTERIORS, AND ELECTRICAL PRIOR TO ROUGH-IN. ALL CONFLICTS WITH FINISHES, ADJACENT CONSTRUCTION AND CONSTRUCTION DOCUMENTS ARE TO GENERATE AN RFI FROM THE MECHANICAL CONTRACTOR TO THE ENGINEER PRIOR TO PROCEEDING AND COMPLETION OF WORK
17. ARRANGE AND PAY FOR FOR FIRESTOPPING ALL NEW MECHANICAL PENETRATIONS THROUGH RATED ASSEMBLIES. PROVIDE FIRE DAMPER AT EACH FIRE-RATED WALL, AND A SMOKE DAMPER WHERE APPLICABLE.
18. PROVIDE WATER PROOF SHEET METAL CAP, INSULATED (EQUIVALENT TO ROOF) FOR ALL DEMOLISHED ROOF PENETRATIONS.
19. A TEST AND BALANCE (TAB) IS REQUIRED FOR THE WORK.
20. PROVIDE MECHANICAL EQUIPMENT WITH CONTROL SYSTEM COMPATIBLE MOTOR STARTERS - COORDINATE WITH CONTROLS AND ELECTRICAL INSTALLERS.
21. IN UNFINISHED AREAS, INSTALL ALL MECHANICAL CONTROL DEVICES (THERMOSTATS, ROOM SENSORS, REMOTE TEST STATIONS, SMOKE DAMPER INDICATORS, ETC.) RECESSED IN WEB OF COLUMNS TO PREVENT DAMAGE.

MECHANICAL KEYNOTES:

1. UNLESS OTHERWISE INDICATED, PROVIDE NEW RETURN GRILLE(S) COMPARABLE TO EXISTING (FIELD VERIFY). COORDINATE LOCATION WITH NEW / EXISTING CEILING GRID.
2. DIFFUSER / GRILLES MOUNTED IN NEW OR EXISTING CEILING GRID. PROVIDE ADDITIONAL DUCTWORK, TRANSITIONS, AND FITTINGS AS INDICATED OR AS REQUIRED. FLEXIBLE DUCTWORK MAXIMUM ALLOWABLE LENGTH 5'-0".
3. EXHAUST GRILLE MOUNTED IN CEILING. ROUTE DUTWORK TO CONNECT TO EXISTING AT POINT WHERE SHOWN.
4. REBALANCE TO REVISED DIFFUSER AIRFLOW VALUES.



KEY PLAN

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FIRST LEVEL MECHANICAL PLAN - AREA C

REVISIONS

REV	DESCRIPTION	DATE
1	Addendum No. 01	01/04/19

PROJ. #: 160024
DATE: 12/10/2018
SHEET
MH101C
ADDENDUM NO. 01

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

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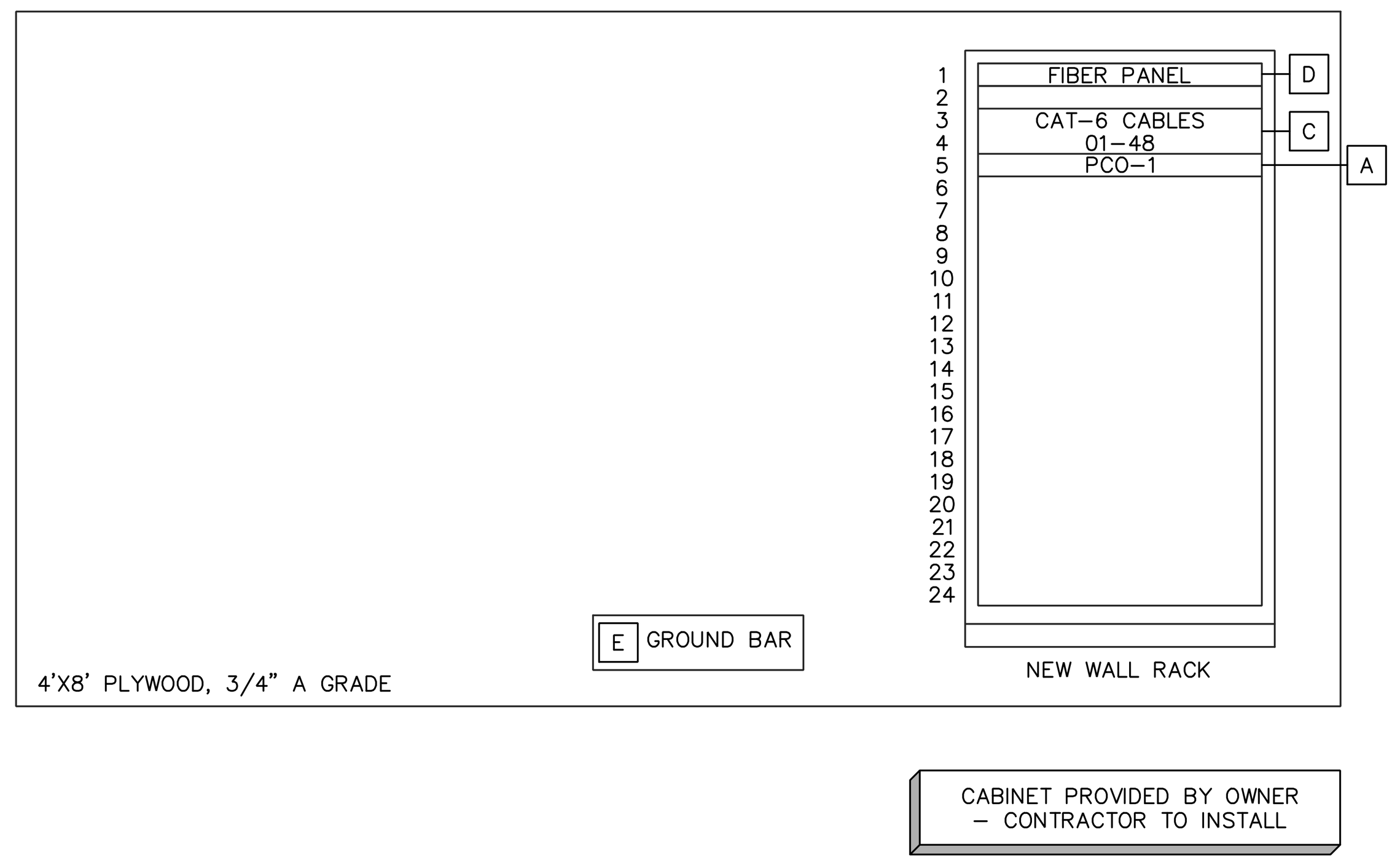
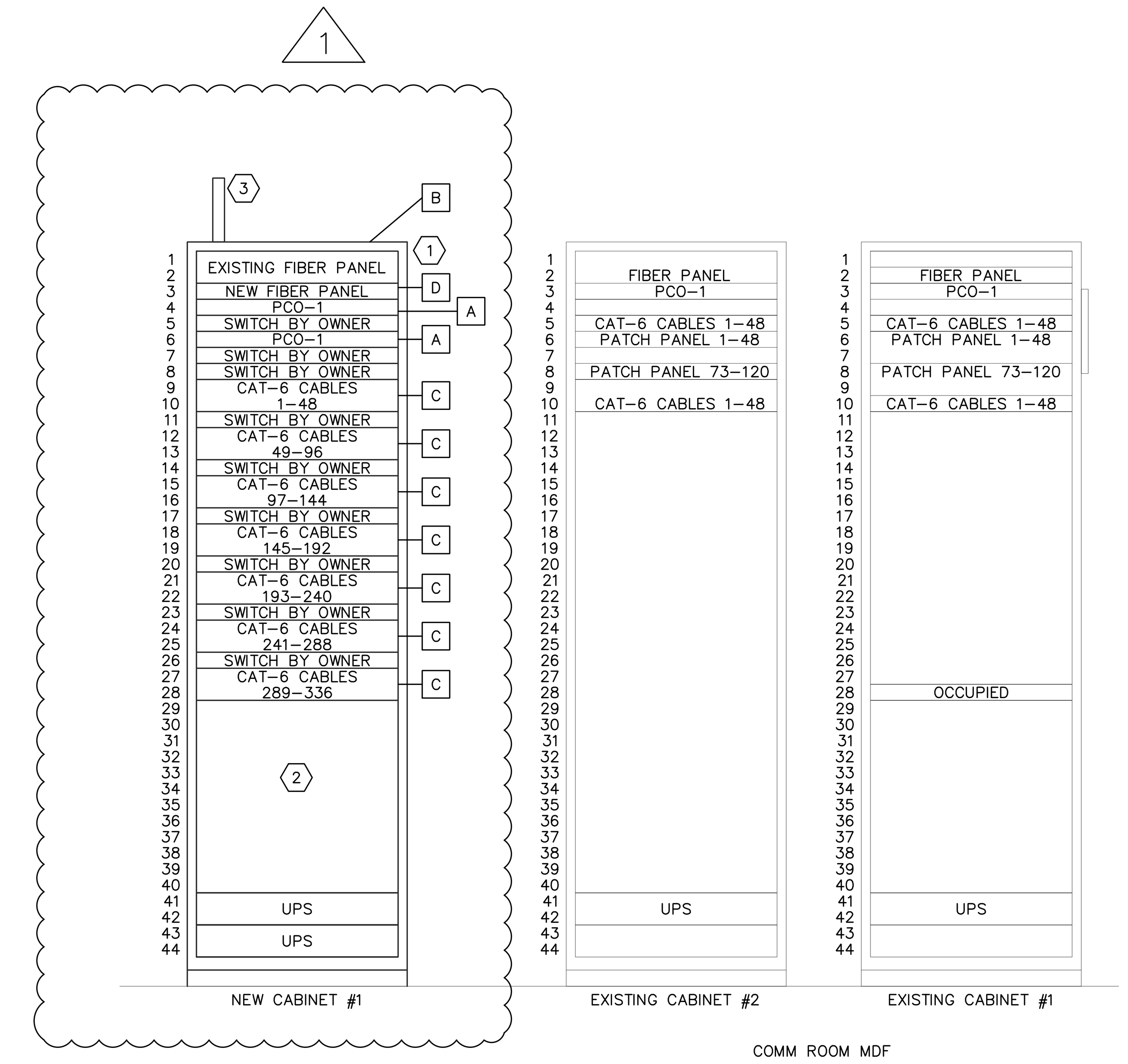


GENERAL NOTES:

1. PLYWOOD SHALL BE INSTALLED ON THE WALL SHOWN IN THE COMMUNICATIONS ROOM FLOOR PLAN.
2. CONNECT ALL EQUIPMENT & OTHER DEVICES TO THE GROUND BAR AS DESCRIBED IN THE GROUNDING DETAIL DETAIL & THE GROUNDING SPECIFICATIONS.
3. INSTALL THE BACKBONE CABLES THAT ROUTE BETWEEN COMMUNICATIONS ROOMS VIA THE CABLE LADDER & CONDUITS INSTALLED BY THE COMM CONTRACTOR.
4. WHERE REQUIRED THE CONTRACTOR SHALL INSTALL D-RINGS TO ROUTE CABLES HORIZONTALLY & VERTICALLY ALONG THE WALLFIELD.
5. PLYWOOD SHALL BE PAINTED WITH TWO COATS OF WHITE PAINT.
6. ALL CABLES SHALL ROUTE IN THE CEILING & THEN ROUTE DOWN VERTICAL CABLE LADDER TO THE RACK. AT THE RACK/CABINET, PROVIDE A "DRIP LOOP" FOR ALL THE CABLES DRIP LOOP SHALL BE A MINIMUM OF ONE FOOT.

4 TC104 — COMM ROOM IDF-1B ROOM #807, RACK LAYOUT



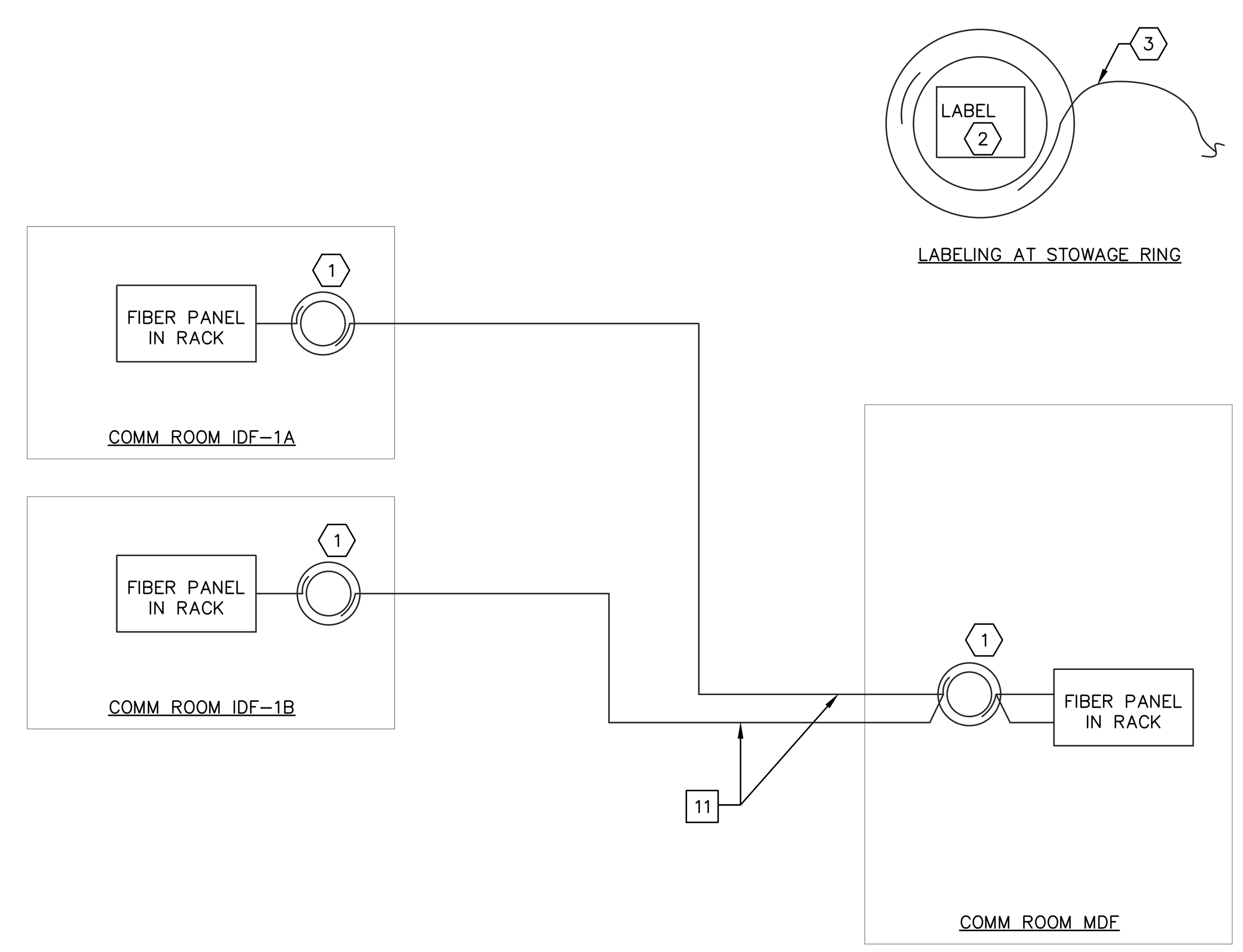
GENERAL NOTES:

1. INSTALL THE BACKBONE CABLES THAT ROUTE BETWEEN COMMUNICATIONS ROOMS VIA THE CABLE LADDER & CONDUITS INSTALLED BY THE COMM CONTRACTOR.
2. WHERE REQUIRED THE CONTRACTOR SHALL INSTALL D-RINGS TO ROUTE CABLES HORIZONTALLY & VERTICALLY ALONG THE WALLFIELD.
3. ALL CABLES SHALL ROUTE IN THE CEILING & THEN ROUTE DOWN VERTICAL CABLE LADDER TO THE RACK. AT THE RACK/CABINET, PROVIDE A "DRIP LOOP" FOR ALL THE CABLES DRIP LOOP SHALL BE A MINIMUM OF ONE FOOT.
4. INSTALL A NEW CABINET. MOVE THE EXISTING FIBER PANEL AND EXISTING DATA CABLES TO THE NEW CABINET.
5. UN-TERMINATE ALL CAT-6 CABLES. TERMINATE ON NEW PATCH PANELS AND INSTALL NEW CAT-6 MODULAR JACKS FROM PANDUIT. COLOR CODE THE MODULAR JACKS TO THE CABLE COLOR.
6. THERE ARE 291 EXISTING CABLES TO BE MOVED, AND 291 NEW JACKS TO BE INSTALLED. CABLES SHALL BE TESTED END TO END AND LABELED AS PER THE DRAWINGS.
7. REMOVE EXISTING CABINETS FROM COMM. ROOM AND RETURN TO OWNER.

KEYED NOTES:

(1) MOVE FIBER CABLE FROM THE EXISTING RACK AND INSTALL INTO THE NEW CABINET.
(2) REMOVE EXISTING 291 CABLES FROM THE EXISTING CABINETS. TERMINATE ONTO NEW MODULAR CAT-6 JACKS AND INSTALL INTO NEW PATCH PANELS. LABEL PANELS AND EACH CABLE. TEST EACH MOVED CABLES AND EXISTING CABLE. TRANSFER POWER AND UPS FROM EXISTING RACK INTO NEW RACK. INSTALL AND TEST.
(3) INSTALL CABLE LADDER FROM THE TOP OF THE CABINET TO THE CEILING. ROUTE NEW AND EXISTING CABLES NEATLY ALONG CABLE LADDER AND INTO THE CABINET.

1 TC104 — COMM ROOM MDF ROOM #336, RACK LAYOUTS



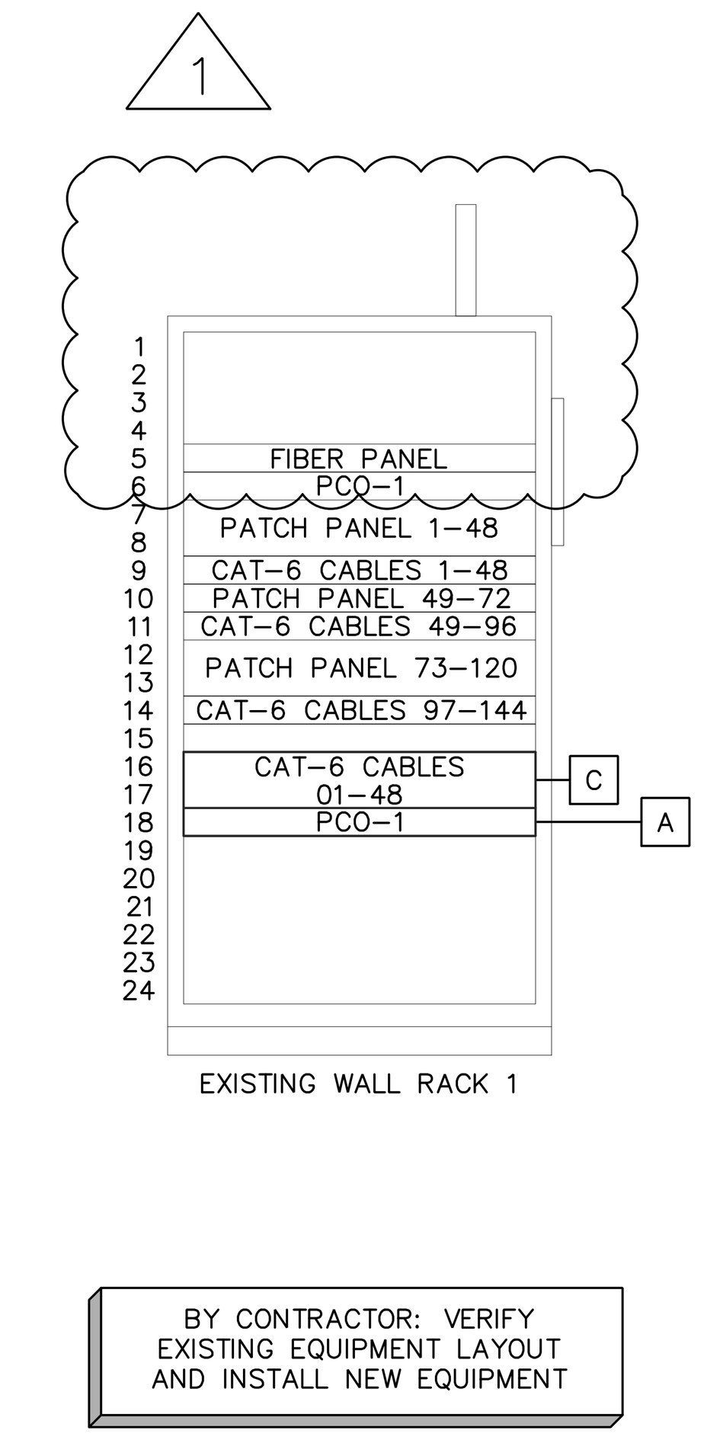
CABINET NOTES:

1. INSTALL FIBER CABLE THROUGH THE CEILING AREAS OF THE BUILDING. FIBER JACKET SHALL AQUA FOR 50 MICRON AND YELLOW FOR SINGLEMODE.
2. TERMINATE FIBER ON SC CONNECTORS AT EACH PANEL. EQUIP EACH PANEL WITH 12 PACK SC CONNECTOR PANELS.
3. PROVIDE A SPARE COIL OF FIBER CABLE IN EACH COMM ROOM. EACH COIL SHALL CONTAIN 30' OF FIBER. MOUNT ON A LEVITON FIBER RING ON THE WALL.

KEYED NOTES:

(1) LOCATE THE FIBER RING ON THE WALL OF THE COMM ROOM. PROVIDE 30' SPARE FIBER AT EACH END OF CABLE.
(2) PROVIDE A LABEL INSIDE THE RING THAT IS LAMINATED. SHALL DETAIL THE FIBER CABLES, TYPE OF FIBER AND QUANTITY OF STRANDS IN EACH CABLE.
(3) INSTALL A WRAP-AROUND LABEL AS THE FIBER ROUTES FROM STOWAGE RING TO FIBER PANEL DETAILING FIBER TERMINATION POINTS AND TYPE/QTY OF STRANDS.

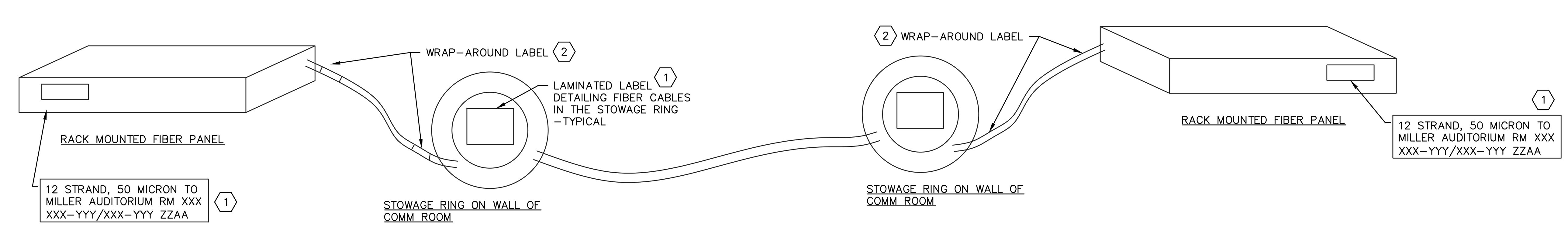
5 TC104 — BUILDING FIBER BACKBONE CONNECTIVITY



GENERAL NOTES:

1. PLYWOOD SHALL BE INSTALLED ON THE WALL SHOWN IN THE COMMUNICATIONS ROOM FLOOR PLAN.
2. CONNECT ALL EQUIPMENT & OTHER DEVICES TO THE GROUND BAR AS DESCRIBED IN THE GROUNDING DETAIL DETAIL & THE GROUNDING SPECIFICATIONS.
3. INSTALL THE BACKBONE CABLES THAT ROUTE BETWEEN COMMUNICATIONS ROOMS VIA THE CABLE LADDER & CONDUITS INSTALLED BY THE COMM CONTRACTOR.
4. WHERE REQUIRED THE CONTRACTOR SHALL INSTALL D-RINGS TO ROUTE CABLES HORIZONTALLY & VERTICALLY ALONG THE WALLFIELD.
5. PLYWOOD SHALL BE PAINTED WITH TWO COATS OF WHITE PAINT.
6. RACKS & CABINETS SHALL BE SECURED TO THE FLOOR WITH ANCHORS.
7. RACKS SHALL BE INSTALLED DIRECTLY BESIDE EACH OTHER & MECHANICALLY TO EACH OTHER.
8. ALL CABLES SHALL ROUTE IN THE CEILING & THEN ROUTE DOWN VERTICAL CABLE LADDER TO THE RACK. AT THE RACK/CABINET, PROVIDE A "DRIP LOOP" FOR ALL THE CABLES DRIP LOOP SHALL BE A MINIMUM OF ONE FOOT.

2 TC104 — COMM ROOM IDF-1A ROOM #340, RACK LAYOUT



XXX-YYY/XXX-YYY ZZAA
WRAP-AROUND LABEL

XXX = CABINET OR BUILDING. CAB/ADM IN EXAMPLE
YYY = CABINET NUMBER OR BUILDING ROOM #
ZZ = FIBER STRAND COUNT
AA = MULTIMODE MM OR SINGLEMODE SM

KEYED NOTES:

(1) PROVIDE ADHESIVE LABEL ON FRONT OF EACH FIBER PANEL FOR LABELING THE FIBER CABLES.
(2) INSTALL SELF-LAMINATING, WRAP-AROUND LABELS AT FIBER PANEL AND STOWAGE RING.

GENERAL NOTES:

1. INSTALL A WRAP-AROUND LABEL AT EACH END OF EACH CABLE AND AT THE HANDHOLES AND ON THE COIL ON THE WALL OF COMM ROOMS.
2. WRAP-AROUND LABELS SHALL BE LASER PRINTED AND SELF-LAMINATING AT THE FIBER PANELS.

3 TC104 — FIBER OPTIC CABLE LABELING

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Fiber Backbone and Rack Layout Details

REVISIONS

REV	DESCRIPTION	DATE
	100% CD	12/10/18
	ADDENDUM 1	12/18/18

PROJ. #: 160024
DATE: 12/18/2018
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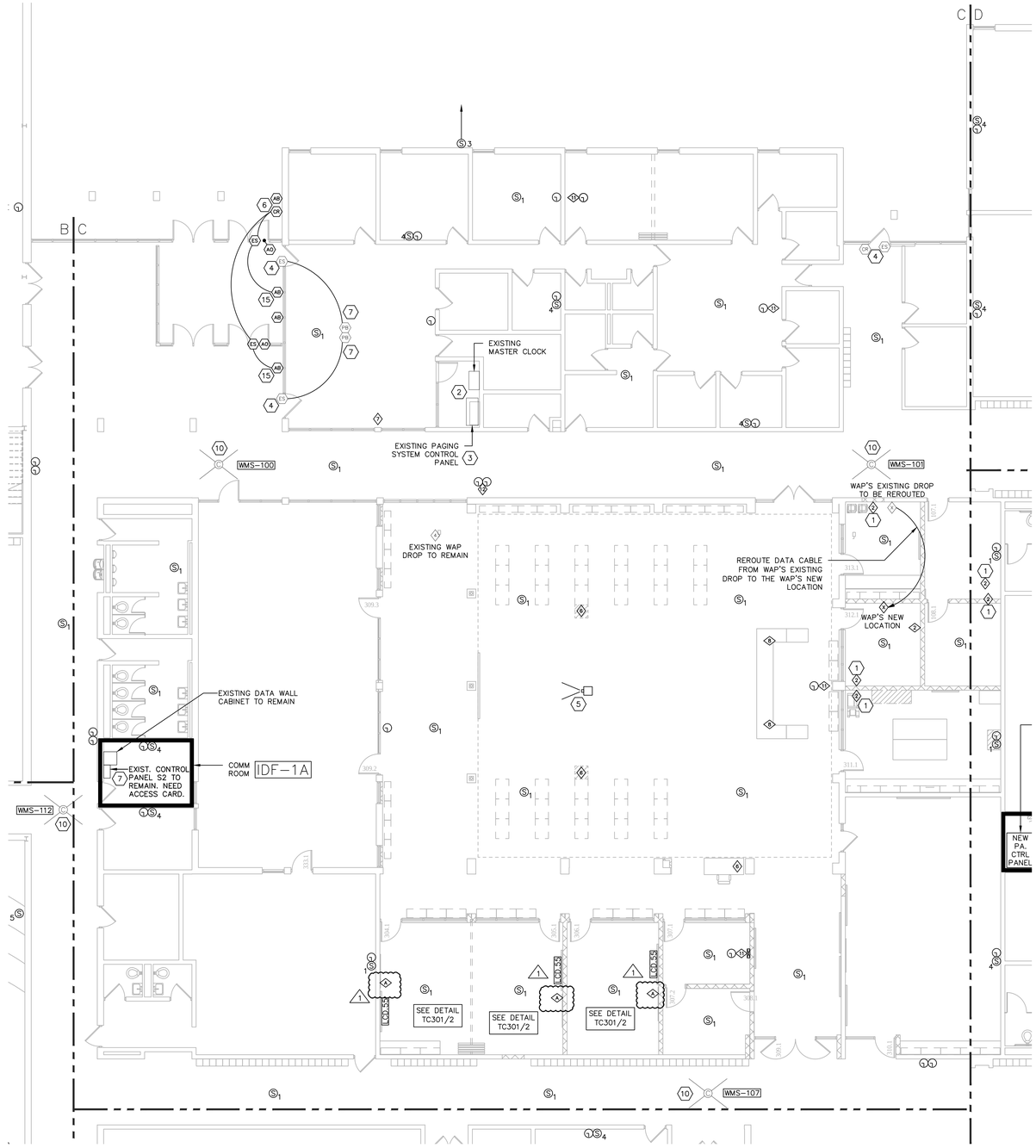
100% CONSTRUCTION DOCUMENTS

Addendum #1



GENERAL TECHNOLOGY NOTES

1. COMMUNICATIONS CONTRACTOR SHALL INSTALL ANY PASS-THRU'S REQUIRED FOR ROUTING CABLES AROUND THE BUILDING. FIRESTOP ALL PASS-THRU'S TO MEET APPLICABLE CODES.
2. CONTRACTOR SHALL COMPLETE A WALK-THRU OF THE SITE DURING CONSTRUCTION AND SHALL VERIFY ALL CONDUITS AND PASS THRU'S ARE INSTALLED FOR CABLES.
3. ALL CABLES SHALL BE SUPPORTED ABOVE THE DROP CEILING BY J-HOOKS. HOOKS SHALL BE LOCATED NO LESS THAN EVERY 5 FEET.

FOR CABLING SYSTEM

1. ALL NEW CABLE SHALL BE CAT-6. FOLLOW EXISTING COLORING GUIDELINES FOR PORTAGE SCHOOLS.
2. INSTALL NEW DATA DROPS WHERE NOTED.
3. FOR CLOCKS NEW LOCATIONS ROUTE A 24V CABLE FROM COMM. ROOM MDF. RE-USE EXISTING 24 VOLT CABLE NEW CLOCKS THAT WILL BE AT SAME LOCATION AT OLD ONES..

FOR AV SYSTEM

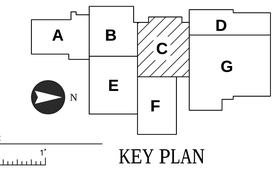
9. OWNER WILL REMOVE ALL CLASSROOM LCD'S, AV SPEKERS AND IR DEVICES. THEY WILL INSTALL THESE IN CLASSROOMS AFTER RENOVATION.
10. INSTALL NEW HORN SPEAKERS ON MARKED LOCATIONS (EXISTING AND NEW) AND INTEGRATE TO NEW PAGING SPEAKERS SYSTEM. INSTALL NEW CABLES USING EXISTING ONES AS PULL-STRINGS WHEN POSSIBLE.
11. INSTALL NEW CABLES FOR THE NEW PAGING SYSTEM. USE EXISTING CABLES AS PULL-STRINGS. ROUTE NEW CABLES FROM NEW PAGING SYSTEM SPEAKERS TO THE ZONE SWITCH TO BE LOCATED IN THE COMM ROOMS. ROUTE A CAT-6 CABLE FROM ZONE SWITCHES TO THE COMM ROOM MDF AND CONNECT TO THE NEW PA SYSTEM CONTROL PANEL.

FOR SECURITY SYSTEM

12. CONTRACTOR SHALL REINSTALL ALL EXISTING AND NEW SECURITY CAMERAS AS SHOWN ON FLOOR PLANS.

KEYED TECHNOLOGY NOTES

1. REPURPOSED DATA CABLES FROM DEMOLITION PLAN.
2. DEMO EXISTING MASTER CLOCK AND PA SYSTEM CONTROL PANEL AFTER THE INSTALLATION OF THE NEW SYSTEM IS COMPLETED. INSTALL NEW 24 VOLT POWER SUPPLIES HERE FOR THE NEW CLOCKS THAT USE EXISTING CABLING.
3. INSTALL THE CAREHAWK DEVICES HERE FOR THE EXISTING SPEAKERS TEMPORARILY DURING CONSTRUCTION. CONNECT ALL EXISTING SPEAKERS TO THE CAREHAWK DEVICES. CONNECT CAREHAWK DEVICES TO THE PAGING HEADEND IN THE MDF ROOM. DURING NEW CONSTRUCTION, MOVE THESE TO THE COMM ROOMS TO CONNECT TO NEW PAGING CABLES.
4. INSTALL NEW CABLING FROM THE EXISTING ELECTRIC STRIKE TO THE S2 SECURITY PANEL IN THE IDF-1A. PROVIDE A POWER SUPPLY FOR THE PANEL AND THE ELECTRIC STRIKE.
5. INSTALL PROJECTOR IN THE CEILING. PROVIDE MOUNT AND BACKBOX. COORDINATE POWER WITH ELECTRICAL.
6. CARD READER AT THIS LOCATION SHALL UNLOCK BOTH THE EXTERIOR AND INTERIOR VESTIBULE DOORS TO WHICH "CR" IS ASSOCIATED WITH ON THE FLOOR PLAN.
7. WIRE FROM THE PUSHBUTTON TO THE S2 SECURITY PANEL IN THE MDF. CONFIGURE SYSTEM TO UNLOCK THE DOORS SHOWN.
8. INSTALL A NEW CABINET ON THE WALL. INSTALL FIBER CABLE FROM THIS ROOM TO THE MDF.
9. RE-INSTALL 4 OF THESE SPEAKERS. RE-ROUTE AV CABLES TO SUPPORT ALL 4 SPEAKERS.
10. CONTRACTOR TO REMOVE EXISTING SECURITY CAMERA PRIOR TO CONSTRUCTION AND REINSTALL AFTER CONSTRUCTION IS COMPLETED. ADD A LABEL TO EACH CAMERA WITH THEIR RESPECTIVE ID NAME. CONNECT TO NETWORK. CABLE AND AIM. WORK WITH THE OWNER.
11. NEW CAMERA BY OWNER INSTALLED BY CONTRACTOR. ADD A LABEL TO EACH CAMERA WITH THEIR RESPECTIVE ID NAME. CONNECT TO NETWORK. CABLE AND AIM. WORK WITH THE OWNER.
12. NEW AV SPEAKERS FROM NMS (BY OWNER) TO BE INSTALLED AT THE MULTIPURPOSE ROOM AT MARKED LOCATIONS. ROUTE SPEAKER CABLES TO THE NEW RACK FROM NMS (BY OWNER) THAT SHALL BE INSTALLED AT THE COMM. ROOM IDF-1B AS SHOWN. COMPLETE INSTALLATION ON RACK, INTEGRATE WITH OTHERS AND TEST.
13. ADD LABEL TO EXTERIOR SECURITY CAMERA. LABEL BY CONTRACTOR – CONFIRM WITH OWNER.
14. RE-INSTALL THESE SPEAKERS. RE-ROUTE AV CABLES TO SUPPORT BOTH SPEAKERS.
15. INTEGRATE ASSISTED OPERATOR BUTTON "AB" WITH THE ASSOCIATED ELECTRIC STRIKE "ES" SO WHEN AB IS PRESSED IT WILL TRIGGER BOTH THE "ES" AND THE ASSISTED OPERATOR "AO" SO DOOR OPENS.



KEY PLAN

1 TECHNOLOGY PLAN
FIRST FLOOR - AREA C
TC903C
1/8"=1'-0"
0 1'

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Technology Plan
First Floor - Area C

REVISIONS

REV	DESCRIPTION	DATE
	100% CD	12/10/18
	ADDENDUM 1	12/18/18

PROJ. #: 160024
DATE: 12/18/2018
SHEET
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100% CONSTRUCTION DOCUMENTS

Addendum #1

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

PORTAGE PUBLIC SCHOOLS
PORTAGE WEST MIDDLE SCHOOL
PRE-BID MEETING MINUTES
January 03, 2019

1. **Introductions:**

    a. Portage Public Schools – Owner - Ron Herron - Assistant Superintendent of Operations

    b. Walbridge – Owner's Representative - David Skinner

    c. C2AE/Stantec – Design Team - Gregg Jones

    d. Owen-Ames-Kimball Co. – Construction Manager: Fidel Salas, Tim Robinson, Jeff Weber & Dan Rathburn

2. **Project Descriptions:**
    a. Portage West Middle School Renovations – 135,000 sq. ft remodel, new carpet, ceilings, paint & finishes for pool, gym, media center and steam areas.

3. **Schedule / Key Topics:**
    a. West Middle School
        i. Six phases from March 2019 through September 2020
        ii. Demolition starting April 2019
        iii. Gym rubber flooring starts October 2019
        iv. Phase one completion January 2020

4. **Safety:**
    a. <u>The safety of Portage Public School students and staff is our first priority.</u>
    b. Clean-up. A clean site is a safe site. Subcontractors are responsible for cleaning up their work areas on a daily basis. Participation in weekly jobsite cleanups are mandatory for each subcontractor.
    c. Contractors must follow proper safety procedures, and keep their safety manuals on site.
    d. Start-up Meetings will be held with each contractor prior to beginning work. Safety is a large portion of these meetings.
    e. Contractors must provide their own first aid, and fire protection equipment.
    f. Contractors are responsible for providing the necessary barricades for their work.
    g. Contractors must comply with the "Right to Know" law.
    h. Contractors are responsible for their own security.
    i. Contractors must comply with O-A-K's substance abuse policy.
    j. MiOSHA's CET division will be invited to walk the site multiple times throughout the project.

5. **Site Constraints:**
    a. Maintaining a clean site is mandatory. All roads & lots must be kept clean.
    b. All roads & entrances must remain open.
    c. School day is 7:45AM-3:00PM. Deliveries and construction traffic will be coordinated to avoid bus and parent drop off and pickup times.
    d. Construction trailers, staging, & contractor parking will be coordinated with our Superintendent.
    e. No radios or iPods allowed on site.
    f. NO SMOKING ON SCHOOL PROPERTY

6. **Testing, Permits, Inspections:**
    a. Testing will be paid for by the Owner.
    b. All necessary permits and inspections are the responsibility of the affected trade.
    c. Copies of all test reports and permits must be e-mailed to danr@oakmi.com, caded@oakmi.com and the Superintendent on each site.

7. **Temporary Services:**
    a. Temporary toilet facilities will be provided. Use of the buildings toilets is prohibited!
    b. Electrician to provide temporary power and lighting on site. Contractors to provide their own GFI protection.

8. **Layout:**
    a. OAK will provide control points & benchmark.
    b. Contractors are responsible for their own layout and surveying costs.

9. **Bidding:**
    a. Bid Documents
        i. Can be downloaded from this web address:
            1. www.Owen-Ames-Kimball.com – click on SUBCONTRACTORS (located on the lower right of the page) and select the project from the list of projects bidding.
            2. https://ppsbp4awms.blogspot.com/
        ii. Hard copies are available from ARC and KalBlue with $100 deposit.
        iii. Questions and Substitution Requests are to be sent to Fidel Salas, fsalas@oakmi.com.
    b. RFIs will **not** be accepted after January 4th at 1:00pm.
    c. Addendum 1 will include the Pre-Bid Meeting Minutes and RFI responses. It will be issued on Monday, January 7th, 2019.
    d. Bid Opening
        i. Will take The Little Theater, Portage West Middle School, 7145 Moorsbridge Rd, Portage, MI 49024, on Thursday, January 3, 2019, at 3:30pm local time.
        ii. The **Bid Opening** will be Thursday, January 10th at **3:30pm**. Bids may be hand delivered to an Owen-Ames-Kimball Co. representative starting about 15 minutes before the opening.
        iii. Bids may be dropped off at **Owen-Ames-Kimball Co. – Kalamazoo,** 161 E Michigan Ave., Kalamazoo, MI 49007 on Thursday, January 10th until **2:30pm** local time.
        iv. We will also take bids at **Owen-Ames-Kimball Co.**, 300 Ionia NW, Grand Rapids, MI 40503 on Thursday, January 10th until **1:30pm** local time.
    e. Bid Form and Other Required Documents
        i. Your bid must be in a sealed envelope clearly marked as to your respective bid category and must include the following (in triplicate):
            1. Bid Form
            2. Bid security/Bid Bond.
            3. Affidavit of Compliance – Iran Economics Sanctions Act
            4. Familial Disclosure Statement must be signed and notarized.
            5. Debarment Certificate
        ii. Remember to fill in all required items on the bid forms.
        iii. Voluntary Alternates are encouraged - list accordingly on the bid form.
    f. Prevailing Wages – Do **NOT** apply to this project.

10. Post Bid Reviews:

a. All Bids will be reviewed from January 14th through the 17th.

11. Policies and Procedures:

a. Monthly invoices must be submitted to O-A-K by the 20th of each month. Contractors must invoice on AIA forms G702 & G703.
b. There will be a 10% retainage on invoices.
c. If contractors invoice for stored material not on site, the invoice must be accompanied with pictures & an insurance certificate for that material.
d. Any additional work requires an O-A-K CCD issued by the O-A-K Field Superintendent. Extras will not be paid for without a CDD.

12. Insurance:

a. Contractors must provide insurance certificates as per specifications.
b. Bonds & Insurance certificates are required before payment is approved and contracts are issued. Each contractor must have the insurance form approved prior to mobilization.

13. Shop Drawings & Submittals:

a. Submittals are required electronically.
b. Submittals can be viewed directly through Owen-Ames-Kimball Co.'s Project Management Website.

14. Site Visits

a. A site visit for West Middle School will immediately follow today's pre-bid. Let us know if there are any areas if the existing building that you would like to see.
b. Schedule any other site visits with Cade Dammen, caded@oakmi.com, 616-498-8991.

15. General Notes:

a. Each bidder must submit their bid per the plans, and specifications.
b. If your bid varies from these documents, you must submit the variance as a voluntary alternate with your base bid matching the bid document.
c. Each contractor must supply sufficient manpower.
d. Storage will be allowed on site for each phase of construction only while in construction.

16. Time Line Bidding:

a. RFIs will not be accepted after January 4th at 1:00pm.
b. Addendum 1 will be issued on January 7th.
c. Bid Opening – January 10th at 3:30pm.
d. Post Bid Interviews will take place January 16th and 17th.
e. Board Approval February 25th.

17. Questions and Answers:

a. See attached Clarifications/Prebid RFIs/Substitution Requests.

Thank you and good luck with your bid!

Sign-In Sheet
Portage Public School
Renovations for West Middle School
Prebid Meeting - January 3, 2019

Name	Company	Phone	E-mail	Bid Category/Scope
Paul Burchfield	RW Lapine	(269) 720-0473	Pburchfield@rwlapine.net	Mech
CONG HUYNH	DITSCH	616-363-4895	GENE@DITSCH.COM	DEMO
Jim Aho	DHE Plumbing & Mech	616-350-8085	Jim@dheplumbing.com	Mech
Dendel Craven	Choice Concrete	616 773 5017	estimating@choiceconcretecorp.com	Concrete
Louie Mion	Central Tile & Terrazzo	269-375-1660	louie@centraltile.net	Flooring
Joel Schoonbeck	Landscaping Plus	269 344 6727	Joel@landscaping-plus.com	landscaping
Bob MARTIN	GARDNER JOSE	616 293 5845	BobG@GARDNERJOSE.com	FOLDING PARTITIONS
CHRIS ANTHONY	TOTAL FIRE PROTECTION	616-890-1711	CANTHONY@TOTALFIRE.BIZ	FIRE PROTECTION
Brian Balkema	Fulton Excavation	269-207-1254	Brian@fultonexcavating.com	Sitework
Dennis Kohler	Kalamazoo Contractors	269-383-8342	KZOOCONTRACTORS@global.net	G.C.
Dave Taylor	MOSS	616-292-1591	dave.taylor@mosstek.com	Tech.
Marty Golds	TPC Technologies	574-250-7251	marty@tpctechnologies.com	AV
Carson Cornish	Kalamazoo Mechanical	269-343-5351	carson@kalamazoomechanical.com	Mech

Sign-In Sheet
Portage Public School
Renovations for West Middle School
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Name	Company	Phone	E-mail	Bid Category/Scope
Josh Balkema	Balkema Sitework	(269) 384-2267	jbalkema@balkemasitework	Earthwork
Drew Hansma	Allied Electric	616-791-1164	drew.hansma@alliedelectricinc.com	25
Gary Boelkow	Franklin Holcomb	616-538-3231	gary@franklinholcomb.com	21
Mike Maust	Holt Roofing	269-342-2445	mmaust@holtroofing.com	12
DAVID RAWLES	Control Solutions Inc	(616) 826-4702	drawles@controlsolutionsinc	11
Chris Snyder	Control Solution Inc	(231) 856-4327	CSnyder@controlsolutionsbuilding.com	11
Glenn Merritt	GAM Decorating	616-241-6498	Gamdecorating@msn.com	Painting
MIKE DANKOWSKI	BLAZE FIRE PROT.	616-808-1205	MIKE@BLAZEFIREPROTECTION.com	21
Nate Patmos	Hoekstra Electric	616-796-9000	Nate@hoekstraelectric.net	Electric / Fire Security
Brandon Martin	Gardner Cvose	616-295-1585	Brandon@gardnercvose.com	OP Walls
Chad Girrbach	Lounsbury Excavating	269-808-2232	cgirrbach@lounsburyexcavating.com	Earthwork
Norm Overkiser	Ritsema Assoc.	269-217-5668	overkisernm@ritsema.com	Drywall Ceilings
Matt Hazelhoff	Hazelhoff Builders	269 349-2211	matt@hazelhoffbuilders.com	6.1

Sign-In Sheet
Portage Public School
Renovations for West Middle School
Prebid Meeting - January 3, 2019

Name	Company	Phone	E-mail	Bid Category/Scope
Brandon Oliver	CJ's Coatings/Sealants	616-662-3346	brandon@cjscoatingssealants.com	Joint Sealants
Todd Darling	Kent Companies	616 291 3938	TDarling@KentCompanies.com	Concrete Polishing
Tom Taylor	Schweitzer Inc	269-209-4548	ttaylor@schweitzerinc.com	Steel
Doug Scott	Dependable Fire	616-293-0872	dscott@dependablefireprotection.com	Fire Prot
Jeff Tibbs	Control NET	616-836-1325	jtibbs@control-net.com	Controls
DRU Fontaine	Cripps Fontaine Exc	269.342-1098	dfontaine@crippsfontaine.com	EARTHWORK
Tony MacDonald	Commercial Interiors	616 794.6294	TMacDonald@DWDBuilding.com	FLOORING
Jeff Nichols	Hi-Tech Electric	269-209-1451	jnichols@hi-techelectric.net	Electric
CHAD HECKS	BLAZEFIRE	616-291-3332	chad@blazefireprotection.com	Fire PRO
Eric Camp	RW LaPine	269-760-8638	ecamp@rwlapine.net	Plumbing/HVAC
Jesse Bigelow	GBA	616-888-0690	jesse.bigelow@gbautomation.com	DDC controls
WILL MILLER	BC TILE	269.962.8119	WILL@BATTLECREEKTILE.COM	FLOORING
DAN CUNNINGHAM	CAPOROSSI CONST.	269-349-7040	dan@caporossi.us	SITEWORK

Sign-In Sheet
Portage Public School
Renovations for West Middle School
Prebid Meeting - January 3, 2019

Name	Company	Phone	E-mail	Bid Category/Scope
Justin Douglas	Forman Glass	269-251-4096	Justin@formanglass.com	10
Carol Helsel	Third Coast TCST + Balance	616-591-9334	ChelseleThirdcoastTab.com	23
Dustin Vidmar	Kalleward Group	269-372-7300	dVidmar@kallewood.com	G.T.
Rollie Read	A-1 Refrigeration	269-375-9003	RRead@A1refrig.com	Mech/Plum
Clark VanDerWege	Johnson Carpet	616-531-3100	Clark@Johnsoncpt.com	Flooring
Andy VanOrder	Circuit Electric	269 254 1906	Andy.vanorder@circuitelectric.com	
Tom Weissert	MKE-SVT	269-798-2431	tweissert@gosvt.com	technology
Rex Risner	Proline	616 723 1836	rrisner@prolineec.com	
Doug Cline	Parkway Ele + Comm	616-820-1284	doug.cline@parkwayelectric.com	ELE + Comm

Prebid RFI Responses

#	Question	Official Response
Pre-Bid 001	The spec shows the sanitary napkin disposal and vendor in the section for contractor supplying. The drawings indicate the napkin disposal is by the owner. Please provide clarification. Clarification is also needed as there are no indications on the plan for the napkin vendor. Bruce G. Todd - S.A. Morman & Co. - btodd@samorman.com I only see one new janitor room, verify only need one mop holder. Verified by O-A-K that there is one mop holder.	Sanitary napkin disposal is by contractor. Sanitary napkin vendor is by Owner, location still to be decided. Addendum will clarify.
Pre-Bid 002	Note D5 on demo plans call out for existing acoustical ceilings to be removed (including “associated suspension system”). Room finish schedule shows several rooms having GRD-3 type grid, which is existing 2 x 4. Please verify that existing acoustical grid is not to be removed in rooms with type GRD-3 grid, and new ceiling tile is to be installed only. Curtis Sebright - Bouma-Betten Construction, Inc. - CSebright@boumabetten.com	GRD-3 includes reuse and painting of the existing 2x4 grid and new panels. Addendum will include drawing clarifications.
Pre-Bid 003	05 12 00Please clarify for structural steel framing concerns, 1.4 Informational Submittals A. Qualification data: For professional engineer.1.5 Action Submittals C. Delegated design submittal for structural steel connections indicated to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparations. Handled by E.O.R?1.6 Informational Submittals A. Qualification data for fabricator and testing agency. By owners’ inspectors? Field quality control and special inspection reports. By owners’ inspectors?1.7 Quality Assurance A. Fabrication qualifications? B. Installers Qualifications?2.1 Performance Requirements A. comprehensive engineering analysis by a qualified professional engineer.2.10 Source Quality Control A. Testing agency: owner will engage a qualified testing agency to perform shop tests and inspections. Provide testing agency with access to place where structural steel work is being fabricated or produced to perform tests and inspections. E. Prepare test and inspection reports. Owners testing agency?3.1 Examination A. Verify with certified steel erector present, prepare a certified survey of existing conditions. Tom Taylor - Schweitzer - ttaylor@schweitzerinc.com	Modifications to specification sections 051200 and 055000 have been made to eliminate the requirement for submittal of the professional engineer qualification data and revise the testing agency requirement to be by the contractor. Revised sections to be issued in Addendum 1. Delegated design submittals will be required along with the structural steel shop drawings as stated in specification 051200 by a qualified professional engineer, not the EOR. It is also required that the fabricators and installers meet the AISC certification program as stated.
Pre-Bid 004	Per Sheet SD100C and Sheet SD100G, the plans due not show saw cutting or removal to install Note W-1 on Sheets S100C & S100G. Please clarify who is responsible for the saw cutting, removal of existing slab on grade and any related excavation to install Note W-1 per Sheet S100C and S100G. Jaime Siebert - Regional Concrete - jaime@regionalconcretellc.com Saw Cutting and Removal are under Demolition 02 41 19	The demolition contractor is responsible for sawcutting and removal of items shown on demolition sheets. Additional sawcutting and removal of slabs that are required, but missed on the demolition sheets will be covered by an allowance carried by the Construction Manager.
Pre-Bid 005	Please provide clarification to letter details on the drawings. Details provided are material, accessories, mounting, typeface from the spec's, but not the height of the letters. Kristin Houthoofd - Sales Assistant for Mary Cook - khouthoofd@valleycitysign.com	Dimensional lettering has been deleted from the project. The specification section should be eliminated in its entirety.
Pre-Bid 006	In Section 084113 aluminum framed entrances there is not a type of aluminum door specified such as medium stile wide stile and etc… However on sheet A601 of the door schedule the full lite aluminum doors show a 6” top rail and vertical rails and a 10” bottom rail. The only door manufacturer that can provide would be Special Lite as Tubelite’s wide stile are only 5” tops and verticals. Is a 5” wide stile acceptable or do we need to use the Special Lite SL16 door to accommodate the 6” rails? On all of the alternate doors they do not have a hardware set assigned to them, are we to price as blank doors? Jim Totten - Double O - JimT@DoubleOInc.com	Doors at entrances are to be FRP. Manufacturer's wide stile framing is acceptable. Hardware sets for alternate doors will be provided in the addendum.
Pre Bid 007	-Will BIM duct coordination drawings really be required for this project as called for in the duct specification? -Please provide the acid waste and acid vent specifications -Please clarify on Domestic water spec and schedule. Spec calls for soldered through 2-1/2 and copper grooved at 3” and larger. The piping schedule on the drawing is calling for flanged at 2” and larger Ken Pluta - A-1 Refrigeration - kpluta@a1refrig.com	1. The BIM submittal item (Article 1.4) will be deleted from the Metal Ducts section in Addendum 1. 2. Acid waste and acid vent specifications will be provided in Addendum 1. 3. Domestic water drawings and specifications will be clarified in Addendum 1.
Pre Bid 008	Specification Section 123216 Casework and Countertops indicate that the project is to be AWI/WI certified for Grade indicated, but it never indicated which Grade is required; please indicate if this is to be a “Custom” or “Premium” grade project. Which Bid Category will be responsible for providing and installing the Media Center Floating Boxes? In Art Room 207, Plumbing Plan PW101E has all four sinks listed as “S-2” which would be by the Plumbing subcontractor, but spec 123216, plan A-101E, and elevation 2/I-409 all indicate that the two sinks that will be in the stainless steel portion of the countertops as being integrated into the countertops and by the casework contractor. Will the 2 sinks in the stainless steel countertops be custom fabricated and integral to the countertops or will they be set-in sinks provided by the plumbing contractor? Will the two sinks in the solid surface portion of the countertop in this room be provided by the plumbing fabricator? Jeremy Hanson - Stonecreek Interior Systems LLC - jeremy.hanson@stonecreek.cc	Casework and countertops shall be AWI/WI Custom Grade. Assignment of bid categories is by OAK. The sinks in the stainless steel countertops will be integral with the countertop. Faucets and trim will be by plumbing. The sinks in the solid surface countertops will be drop-in stainless steel units. Revisions to the documents will included in the addendum.
Pre Bid 009	Concerning I301 and other areas on prints the architect has draw en 2' x 2' in patterns using different carpet tile. All the carpet tile being used are 50cm x 50cm which are 19.69" by 19.69". Is it his intention for us to use the smaller tile to create the 2 x 2 pattern?	The 2x2 pattern is for illustrative purposes only. Use 50x50cm tiles in similar pattern.
Pre Bid 010	I was wondering if you could send me a panel schedule of the existing MDP? On the print it feeds panel PPA with a (new) 400A breaker and to get the correct one we need to know the type of panel and its AIC. Jon Current - KEI Electrical - jonc@keiecm.com	Existing Main Gear is SQ.D. Existing breakers will have to be arranged around a bit to make room for new Breaker.
Pre Bid 011	Specification sections 07 24 13.13 - DEFS and 11 66 23 - Gymnasium Equipment are not assigned to a bid category	07 24 13.13 - DEFS will be added to the Lath, Plaster, Drywall and Acoustical Bid Category #11 11 66 23 - Gymnasium Equipment will be added to the General Trades Bid Category #7
Pre Bid 012	1-601 - Please confirm you would like epoxy paint in all locations calling for it on the room finish schedule. See the Choir and Band rooms as an example. 099600 High Performance Coatings - The CMU HPC spec for seems like it may be more than you'd need in most of theses areas. Waterbased epoxy may be a more economical choice and easier for the owner to maintain. Please confirm if the current spec is correct 1-601 - Room 604 is the only room that call for the exposed ceiling to be painted but the Reflected Ceiling Plan General Notes 3 & 5 indicate all exposed ceiling require paint. Please confirm which exposed ceilings need to be painted A101E - Outside the Band and Choir rooms there are notes to	1. Yes, all locations indicated on room finish schedule are to receive epoxy paint. 2. CMU HPC will be revised to water-based epoxy. 3. Finishes as noted below: Room 604 – Exposed ceiling to be painted PNT-12 Room 705 – K-13 Acoustical Spray (gray), noted on A-111E Room 703 – K-13 Acoustical Spray (gray), noted on A-111E Room 703B – No finish Room 207A – No finish Room 207B – No finish Room 207C – No finish Room 703C – No finish Room 802 – No finish Room 803 – No finish Room 806 – No finish Room 807 – No finish Room 808 – No finish 4. There are

#	Question	Official Response
	"Paint to Match Blue Lockers", what is this referring to? 099000 Painting Spec - There is a section for exterior soffits. Are we to assume all exterior soffits will require painting? Mike Maust - H&H Painting - mmaust@hhpainting.com	salvaged RED lockers being relocated to this area and we would like them to be painted to match the salvaged BLUE lockers. All to match existing. Refer to Specification Section 105113 for repainting. 5. The only soffit to be painted is at the Area E STEAM entrance.
Pre Bid 013	Who is responsible for demolition of the pool deck? Who is responsible for infilling the pool?	The intent of the front end was for the demolition contractor to remove concrete as shown. The earthwork contractor will infill the pool to the new bottom of slab elevation, and then the concrete contractor will fine grade and pour the new gym floor slab.
Pre Bid 014	1. Who is responsible for removing wax from VCT where carpet is going over? Is this being done with a carbide buffer and no chemicals being used.2. Who is responsible for removing carpet and buffing wax of sealed concrete floor in the 445 Theater and removing the Theater seating?3. What are the expectation for base in the hall (corridors A200) where walls are being infilled? 4. Cafeteria 303 On I205 draw en as 1' x 4' when actual size is 7" x 4'. Please provide direction. Cork Van Der Wege - Johnson's Commercial Interiors - cork@johnsoncarpet.com	1. Bid Category 12 - Flooring. Prep floor as required for installation of new flooring. 2. Removal of the Carpet (carpet adhesive) and the buffing was will be by Bid Category 12 - Flooring. Removal and replacement of the Theater seating will be by Bid Category 7 - General Trades. Seating will be stored on the Stage. 3. Refer to Room Finish General Notes 13 and 15 on I-601: 13. Patch/Match existing quarry tile 6” bullnose straight base at all disturbed locations. 15. Patch/Match existing 4” glazed base in corridors at all disturbed locations. 4. 1’ x 4’ pattern is for design intent and concept only. Replicate pattern with the 7” x 48” plank tile.
Pre Bid 015	Please provide quantity of new Fire Extinguishers and cabinet information on plans. Bruce G. Todd - S.A. Morman - btodd@samorman.com	There are no new fire extinguishers or cabinets in the project. Delete Specification Section 104400 in its entirety.
Pre Bid 016	The spec book calls out a fine fissured ceiling tile but the plans shows Armstrong 1911, please provide takeoff for transition. Norm Overhiser - Ritsema & Associates - overhisern@ritsema.com	Use panels listed in the Interior Materials Schedule. Specs to be revised to coordinate with drawings.
Pre Bid 017	Drawing PP101A has a line labelled as gas and HWR, with taps for both coming off. Please clarify service.Plumbing Schedule calls for gas cocks on faucets. Drawings call for gas piping to be ran in walls and installed in casework, no gas piping is shown on drawings. Please clarify. Schedule calls for acid neutralizers on sinks that are being serviced by acid waste piping. Are these necessary? Please clarify.Please clarify/identify the "specific equipment" MEP trades are responsible for demolishing. Eric Camp - RW Lapine - ecamp@rwlapine.net	All notes referencing natural gas piping and domestic hot water return piping in Area G will be revised for clarification. Acid neutralizers will be removed from plumbing fixture schedule. Faucets will be changed for LS-1&2 to eliminate gas cocks. Demolition notes will be revised to clarify demolition scope of pool area. Refer to Addendum 01.
Pre Bid 018	1. Fire Protection Questions: Bid Category No. 1 – Earthwork, Scope Item 10 states: “piping to be brought inside the building” by Earthwork. Bid Category No. 21-Fire Protection, Scope Item 2 states: “Connection to service brought within 5’ of structure.” Which Bid Category brings the fire protection inside the building, Earthwork or Fire Protection? 2. Drawings do not show demoing or replacing concrete where the fire protection comes through the floor in area F. Is bid category No. 2-Demolition responsible for floor demo and Is bid category 3-Concrete responsible for concrete replacement?	1. Earthwork 2. Construction Manager to carry an allowance.
Pre Bid 019	1. Will the CM provide access into the courtyard larger than the existing 36” service door? 2. Will the CM provide floor protection if we are to access the courtyard through the main double doors? 3. Who is responsible for trees and landscaping in the proposed courtyard? Will there be a landscape package issued?	1. Larger opening is being cut into media center. 2. Yes 3. Earthwork
Pre Bid 020	1. Bid Category No. 1-Earthwork-Scope Item No. 4 and Scope Item 14 and Bid Category No. 3-Concrete Scope Item 2 and Scope Item 16 are confusing. 2. Which bid category is responsible for interior foundation excavation and backfill, fill import and export inside existing building? 3. Which bid category is responsible for slab grading, fill import and export inside existing building? Dru Fontaine - Cripps Fontaine Excavating, INC. - dfontaine@crippsfontaine.com	1. BC 3 Concrete – Item 16 should read “Saw cutting and removal of slab on grade as shown on architectural/structural demolition plans by demolition contractor. Removal and backfilling of soils by earthwork contractor. Fill and placement of concrete by concrete contractor.” 2. Earthwork 3. Earthwork
Pre Bid 021	Bid Clarification - Bid Category 3 - Concrete	Item 16 should read “Saw cutting and removal of slab on grade as shown on architectural/ structural demolition plans by demolition contractor. Removal and backfilling of soils by earthwork contractor. Fill and placement of concrete by concrete contractor.”
Pre Bid 022	Bid Clarification - Bid Category 21 - Fire Protection	Delete Item 2 (Connection to service brought to within 5’ +/- of structure) from the bid scope notes.
Pre Bid 023	How many sprinkler heads are to be replaced under Alternate 2?	828 sprinkler heads
Substitution Request 01	We are respectfully requesting the addition of Aldrich Boilers to the specification as an acceptable Manufacturer, Specifically we would like to bid the AHFR 4180, 3 pass Firetube boiler. Chuck Bral - Quality Water & Air, Inc. - chuck.qualitywaterair@yahoo.com	Specification paragraph 2.2 B. 2. requires a "Minimum Heat-Exchanger Surface" of 5 sq ft per boiler horsepower. The proposed substitute is <4 sq ft per the Alderich data sheet and therefore would not be compliant with the bidding document requirements. I've contacted the requester and shared this observation with them. Substitution is not approved at this time.
Substitution Request 02	Substitution for a 4" thick panel instead of 3".	Operable Partition substitution for Moderco 700 Series 4-inch paired panels is acceptable.
Substitution Request 003	Fiberglass fibers with latex additive.	Monoglass substitution is acceptable.