Addendum No. 1 May 3, 2022

Project: Webster Area School – 2022 CTE Addition & Remodeling

Webster, South Dakota

Architecture Incorporated Project #2936

Architect: Architecture Incorporated

Letting: Thursday, May 12, 2022

2:00 p.m.

Webster Area School District Business Office, located at 102 East 9th Avenue, Webster, South Dakota

Scope of this Addendum:

To all bidders and all others to whom drawings and specifications have been issued by Architecture Incorporated, this Addendum forms a part of the Contract Documents. Acknowledge receipt of this addendum by listing its number and date in the bidder's Form of Proposal. Failure to do so may subject bidder to disqualification. This addendum modifies the drawings and specifications as follows:

GENERAL ITEMS:

1) SECTION 055300 – GRATINGS

a) By receipt of this addendum, all bidders shall acknowledge specification Section 055300 – Gratings (5 pages total) which shall become a part of the Project documents; reference Section 055300 attached to the end of Addendum #1.

2) <u>SECTION 066400 – PLASTIC PANELING</u>

a) Article 2.2.C.6.a – Location of Installation – In addition to the locations listed, add plastic paneling protection to the mop sinks in Mech. A123 and Jan. C133.

3) SECTION 087100 – DOOR HARDWARE

a) CLARIFICATION: As indicated per the *GENERAL APPROVALS* listed at the end of Addendum No. 1, Schlage ND series locksets shall be deemed acceptable provided that they are keyed to the Owners existing system.

4) SECTION 093000 – TILING

- a) Add Quarry Tile:
 - 2.2 TILE PRODUCTS

B. Products

Basis-of-Design Product: QT-1

- a. Manufacturer: Daltile
- b. Composition: Quarry tile with abrasive surface
- c. Style: Quarry Textures
- d. Module Size: 8" x 8"
- e. Thickness: ½"
- f. Color: As selected by Architect.
- g. Base: Cove Base
- h. Location: FACS Lab and Alcove.
- i. Transitions: Refer to Drawings.
- j. Grout Color: As selected by Architect from manufacturer's full range of colors.
- k. Grout Joint Width: As recommended in writing by tile manufacturer.

2.7 GROUT MATERIALS

B. Products

- (i) Water-Cleanable Epoxy Grout: ANSI A118.3 [, with a VOC content of 65 g/L or less].
 - 1. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

3.8 INTERIOR TILE INSTALLATION SCHEDULE

- E. (Quarry Tile) Typical Commercial Kitchen.
 - 1. Tile Installation: TCNA F115-20: On-Ground Concrete, Epoxy Grout
 - a. Tile Type: (QT-1)
 - b. Thin-set Mortar: Mid-level Latex Modified TEC SuperFlex
 - c. Grout: Water-Cleanable Epoxy Grout.
 - d. Tile needs to be sealed

5) SECTION 099123 – INTERIOR PAINTING

- a) Add the following:
 - 3.7 INTERIOR PAINTING SCHEDULE
 - G. Dry Fog / Fall (DFPNT):
 - 1. Basis-of-Design:
 - a. Prime Coat: As suggested by the manufacturer for substrate. Primer must have flash rust resistant properties.
 - b. Intermediate Coat: Same as finish.
 - c. Top Coat:
 - 1) PPG Speedhide Super Tech Interior Latex Dry-Fog.
 - 2) Sherwin Williams Pro Industrial WB Dryfall

6) <u>SECTION 102800 – TOILET, BATH & LAUNDRY ACCESSORIES</u>

- a) Article 2.2.C Grab Bar (E) Vertical Grab Bars E at Showers are by Mechanical Shower Enclosure Supplier.
- b) Article 2.2.D Shower Grab Bar (T) Shower Grab Bars T are by Mechanical Shower Enclosure Supplier.
- c) Article 2.3.C Folding Shower Seat (U) Folding Shower Seats U are by Mechanical Shower Enclosure Supplier.

7) <u>SECTION 102113 – TOILET COMPARTMENTS</u>

a) Add the following:

2.1 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.
- B. Regulatory Requirements: Comply with applicable provisions in [the U.S. Department of Justice "2010 ADA Standards for Accessible Design" and ICC A117.1 for toilet compartments designated as accessible.

8) SHEET 4.01-B1 – DEMOLITION FLOOR PLAN – AREA B

a) Classroom (8th) – Add note W3 – Remove Markerboards/Tackboards in this Room.

9) SHEET 4.01-C1 – DEMOLITION FLOOR PLAN – AREA C

- a) FACS Classroom Add note W3 Remove Markerboards/Tackboards in this Room.
- b) FACS Classroom, FACS Lab and three adjacent Storerooms the Owner will remove the floor covering in these rooms. The Contractor shall remove the wall base in these rooms.

10) SHEET 4.10-A1 – FLOOR PLAN – AREA A

- a) Pipe bollards Furnish and install 6" diameter pipe bollards at the interior side of the three sectional overhead doors; one each side for a total of 6 interior pipe bollards.
 - i) Reference Drawing 2.30 SITE PLAN for location of exterior bollards.
- b) South and east walls at Finish A118 are wall Type G8.
- c) Wood Lab A119, Welding Lab A121 and Ag Lab A127 Provide G8 (8" CMU) walls for plumbing at precast panels as shown on the Floor Plan.
- d) North wall of Mech/Rec. A115 Change wall Type to A6.
- e) Borrowed Lite between FACS Classroom A135 and Storage A133 Tag this as Borrowed Lite 5.

11) SHEET 4.10-A2 – MEZZANINE PLAN – AREA A

- a) Furnish and install 4" concrete pads by GC (coordinate size/location with MC) at the AHUs in Mezzanine A219, A222 and A227.
- b) Add Alternate #4 Furnish and install 4" concrete pads by GC (coordinate size/location with MC) at the CUs in Mezzanine A219, A222 and A227.
- c) Coordinate the location of the CUs and removable rails so that the opening at the removable rail is clear.

12) SHEET 4.10-B1 – FLOOR PLAN – AREA B

- a) Add Alternate #2 Area Gypsum board and steel stud partitions shall be wall type A3 except for the following locations:
 - i) North wall of Office B145 wall Type A6.
 - ii) South wall of Conf. B153 wall Type A6.
 - iii) East wall of Janitor B146 and RR B151 wall Type A6.
- b) North wall of RR B126 Change wall to Type E3.
- c) South and east wall of Life Skills B133A Wall shall be Type D3.
- d) South wall of Center Base Class. B128 Wall shall be Type D3.

13) SHEET 4.10-C1 – FLOOR PLAN – AREA C

- a) The east wall of Corridor C129 and Vest. C130 shall be wall Type G4 (4" CMU).
- b) Change wall Type B1 between Restroom C135 and Restroom C136 to wall Type A6.
- c) Change wall Type B1 between Changing C139 and Mech/Stor. C138 to wall Type A6.

14) SHEET 4.20-A1 – FINISH PLAN – AREA A

- a) Room Finish Schedule Area A
 - i) A135 FACS Lab and A134 Alcove Change Floor Finish and Base Finish to Quarry Tile (QT-1).

15) SHEET 4.20-C1 – FINISH PLAN – AREA C

- a) Room Finish Schedule Area C
 - i) Add RB-1 Wall Base to Restrooms C135 and C136, and Changing C139.

- ii) Add RB-1 at new walls in Corridor C129.
- iii) Patch the flooring in Corridor C129 to match existing VCT at the entrances to the Changing Rooms, recess at the new EWC and at the new doorways.

16) SHEET 4.30 – DOOR SCHEDULE

- a) Door Schedule
 - i) Door A105 Head and jamb details are similar to details 1 & 2/4.30. Wall thickness is 6 1/8".
 - ii) Door A111 Omit door glass.
 - iii) Door A115-2 Change door jamb thickness to 7". Head and jamb details are similar to details 1 & 2/4.30. Wall thickness is 6".
 - iv) Door A134 Change door jamb thickness to 7". Head and jamb details are similar to details 1 & 2/4.30. Wall thickness is 6".
 - v) Door B128-1 Change sidelight glass to Fire Safety glass.
 - vi) Doors B145 and B153 Change door jamb thickness to 8 1/4".
 - (1) Head and jamb details are similar to details 1 & 2/4.30.
 - (2) Wall thickness is 7 1/4".

17) SHEET 4.31 – DOOR DETAILS

- a) Borrowed Lite Types Schedule
 - i) Borrowed Lite 1A and 4: Change glass Type to Fire Safety and change Fire Rating to 60 minute.
 - ii) Borrowed Lite 3 at Reception B148: Change glass Type to Fire Safety and change Fire Rating to 60 minute.
 - iii) Borrowed Lite 3A: In HS SPED B133, change glass Type to 1 /4" Safety.
 - iv) Add Borrowed Lite 5:
 - (1) Location Between FACS Classroom A135 and Storage A133.
 - (2) Size: 2'-8" wide x 4'-0" high, sill 3'-4" AFF.
 - (3) Material: HM
 - (4) Glass: 1/4" SFTY.

- (5) Borrowed lite jamb thickness 7". Head, Jamb, Sill details similar to 8, 9 &10/4.31. Wall thickness is 6".
- b) Detail 1/4.31 34 School HE at Classroom Entrance Furnish and install 1 5/8" steel studs at 16" o.c. at the steel beam.
- c) Detail 14/4.31 Head Borrowed Lite Change borrowed lite head shown to 2" high frame.
- d) Detail 17, 18 & 19 Window Details Change "Building Wrap" to "Weather Barrier."

18) SHEET 4.32 – PLAN DETAILS

- a) Detail 4/4.32 Change "Building Wrap" to "Weather Barrier."
- b) Detail 5/4.32:
 - i) EIFS Subcontractor shall furnish and install EIFS weather barrier where EIFS is installed over sheathing.
- c) Detail 8/4.32:
 - i) EIFS Subcontractor shall furnish and install EIFS weather barrier where EIFS is installed over sheathing and CMU.
 - ii) Furnish and install ½" gypsum sheathing with weather barrier at the steel studs.
- d) Detail 9/4.32:
 - i) EIFS Subcontractor shall furnish and install EIFS weather barrier where EIFS is installed over sheathing and CMU.

19) SHEET 4.40 – ENLARGED FLOOR PLANS

a) 7/4.40 – Area C Enlarged C139 – Add one Clothes Hook (Q) adjacent to the Shower.

20) EET 5.12 – STOREFRONT ELEVATIONS AND DETAILS

- a) Detail 11/5.12 Furnish and install weather barrier at plywood sheathing.
- b) Detail 12/5.12 Furnish and install weather barrier at gypsum sheathing.
- c) Detail 17/5.12 Head Detail Furnish and install breakmetal aluminum (by Aluminum Supplier) to cover wood blocking at storefront framing.
- d) Detail 20/5.12 Jamb Detail (High) Furnish and install breakmetal aluminum (by Aluminum Supplier) to cover wood blocking at storefront framing.
- e) Detail 26/5.12 Sill Detail Furnish and install weather barrier at CMU.

21) SHEET 5.20 – BUILDING SECTIONS – AREA A

a) Reference Specification Section 312000 – Earthwork for overexcavation and engineered fill for the footings and floor slabs.

22) <u>SHEET 5.21 – BUILDING SECTIONS - AREAS B & C</u>

a) Reference Specification Section 312000 – Earthwork for overexcavation and engineered fill for the footings and floor slabs.

23) SHEET 5.22 – STAIR SECTION AND DETAILS

- a) Detail 2/5.22 Guard Rail Detail At Mezzanine Furnish and install 1" round steel pipe horizontal rails at 4" clear width maximum (paint).
- b) Detail 3/5.22 Guard Rail Detail @ Stair Stringer Furnish and install 1" round steel pipe horizontal rails at 4" clear width maximum (paint).

24) <u>SHEET 5.30 – SECTION DETAILS</u>

a) Detail 12/5.30 – Furnish and install 1 5/8" steel studs at 16" o.c. each side of the steel beam.

25) SHEET 5.31 – SECTION DETAILS

- a) Details 8, 11 & 13/5.31 Metal wall panel / soffit panel supplier shall furnish and install metal subframing, clips and furring required for metal wall panel and soffit panel installation.
- b) Detail 9/5.31
 - i) At the storefront framing, furnish and install 2" rigid insulation over weather barrier over ½" gypsum sheathing. Furnish and install 6" steel studs at 16" o.c. between the tube steel. Furnish and install batt insulation and vapor barrier and 5/8" gypsum board.
 - ii) Furnish and install prefinished metal flashing at the gutter.
- c) Detail 12/5.31 Furnish and install weather barrier at sheathing.
- d) Detail 14/5.31 Furnish and install prefinished metal flashing at the gutter.

26) <u>SHEET 5.32 – SECTION DETAILS</u>

- a) Detail 1/5.32 Kitchen Partial Height Wall
 - ii) At Partial Height CMU walls, furnish and install #4 vertical rebar dowel drilled into the slab on grade at 40" O.C. Rebar dowels shall be embedded 3" into the slab with a Hilti or Simpson adhesive system.
 - iii) Detail 1/5.32 is also used at the Welding stations in A121 Welding Lab, except the top of the wall in the Welding Lab shall be 6'-0" AFF and the wall is constructed of 6" CMU.
- b) Detail 3/5.32 Trench Drain Detail Reference Specification Section 055300 Gratings, attached to this addendum, for galvanized steel grating and angles.

27) <u>SHEET 6.10-B1 – REFLECTED CEILING PLAN – AREA B</u>

- a) The east and north wall of Vestibule B131 shall seal to the deck/structure above.
- b) The east wall of HS SPED B133 shall seal to the deck/structure above.

28) SHEET 6.10-C1 – REFLECTED CEILING PLAN – AREA C

- a) The east wall of Corridor C129 shall seal to the deck/structure above.
- b) Changing C139 Clarification: Gypsum board ceiling is new ceiling.
- c) Where Detail 3/6.20 is referenced, the ceiling construction is 5/8" gypsum board in lieu of APC ceiling.

29) SHEET 6.20 – CEILING DETAILS

a) Detail 1/6.20 – Gypsum board bulkhead shall be 2 inches below the lowest ceiling where ceilings are at different heights.

MECHANICAL ITEMS:

1) SPECIFICATION SECTION 211000 - FIRE SUPPRESSION SYSTEMS

a) By receipt of this addendum, all bidders shall acknowledge specification Section 211000 – Fire Suppression Systems (10 pages total) which shall become a part of the Project documents; reference Section 211000 attached to the end of Addendum #1.

PLAN AND SPECIFICATION CHANGES AND CLARIFICATIONS:

- 2) Section 22 4000 Plumbing –Paragraph 1.3.A.9 add the following: "& Compressed Air Hose Reels"
- 3) Section 23 7000 Ventilation and Air Conditioning Add part 2.22 Air Cooled Scroll Liquid Chiller as follows:
 - a) Air Cooled Scroll Liquid Chiller

i) CHILLER MATERIALS AND COMPONENTS

- (1) General: Install and commission, as shown on the schedules and plans, factory assembled, charged, and tested air cooled scroll compressor chiller(s) as specified herin. Chiller shall be designed, selected, and constructed using a refrigerant with Flammability rating of "1", as defined by ANSI/ASHRAE STANDARD 34 Number Designation and Safety Classification of Refrigerants. Chiller shall include not less than two refrigerant circuits above 50 tons (200kW), scroll compressors, direct-expansion type evaporator, air-cooled condenser, refrigerant, lubrication system, interconnecting wiring, safety and operating controls including capacity controller, control center, motor starting components and special features as specified herin or required for safe, automatic operation.
- (2) Cabinet: External structural members shall be constructed of heavy guage, galvanized steel coated with baked on powder paint which, when subject to ASTM B117, 1000 hour, 5% salt spray test, yields minimum ASTM 1654 rating of "6".
- (3) Operating Characteristics: Provide low and high ambient temperature control options

- as required to ensure unit is capable of operation from $-10^{\circ}F$ to $125^{\circ}F$ ambient temperature.
- (4) Service Isolation valves: Discharge (ball type) isolation valves factory installed per refrigerant circuit. Includes a system high-pressure relief valve in compliance with ASHRAE15.
- (5) Pressure Transducers and Readeout Capability
 - (a) Discharge Pressure Transducers: Permits unit to sense and display discharge pressure.
 - (b) Suction Pressure Transducers: Permits unit to sense and display suction pressure.
 - (c) High Ambient Control: Allows units to operate when the ambient temperature is above 115°F (46°C). Includes discharge pressure transducers

ii) COMPRESSORS

- (1) Compressors: Shall be hermetic, scroll-type, including:
 - (a) Compliant design for axial and radial sealing.
 - (b) Refrigerant flow through the compressor with 100% suction cooled motor.
 - (c) Large suction side free volume and oil sump to provide liquid handling capability.
 - (d) Compressor crankcase heaters to provide extra liquid migration protection.
 - (e) Annular discharge check valve and reverse vent assembly to provide low-pressure drop, silent shutdown and reverse rotation protection.
 - (f) Initial oil charge.
 - (g) Oil level sight glass.
 - (h) Vibration isolator mounts for compressors.
 - (i) Brazed-type connections for fully hermetic refrigerant circuits.
 - (j) Compressor Motor overloads capable of monitoring compressor motor current. Provides extra protection against compressor reverse rotation, phase-loss and phase-imbalance.
 - (k) Provide with 5 year compressor warranty.

iii) REFRIGERANT CIRCUIT COMPONENTS

(1) Each refrigerant circuit shall include: a discharge service ball type isolation valve, high side pressure relief, liquid line shutoff valve with charging port, low side pressure relief device, filter-drier, solenoid valve, sight glass with moisture indicator, thermostatic expansion valves, and flexible, closed-cell foam insulated suction line and suction pressure transducer.

iv) HEAT EXCHANGERS

- (1) Evaporator:
 - (a) Evaporator shall be brazed-plate stainless steel construction capable of refrigerant working pressure of 650 psig (3103 kPa) and liquid side pressure of 150 psig (1034 kPa)
 - (b) Brazed plate heat exchangers shall be UL listed.
 - (c) Exterior surfaces shall be covered with 3.4" (19mm), flexible, closed cell insulation, thermal conductivity of 0.26k ([BTU/HR-Ft² °F]/in.) maximum.
 - (d) Water nozzles shall be provided with grooves for field provided ANSI/AWWA C-606 mechanical couplings.
 - (e) Evaporator shall include vent and drain fittings and thermostatically controlled heaters to protect to -20°F (-29°C) ambient in off-cycle.

- (f) A 20-mesh, serviceable wye-strainer and mechanical couplings shall be provided for field installation on evaporator inlet prior to startup.
- (g) Evaporator shall be provided with piping extension kit and mechanical couplings to extend liquid connection from evaporator to edge of unit. Thermal dispersion type flow switch shall be factory installed in the evaporator outlet pipe extension and wired to the unit control panel. Insulation and heat trace on piping shall be responsibility of installing contractor. Extension kit nozzle connections shall be ANSI/AWWA C-606 (grooved).

(2) Air-cooled Condenser:

- (a) Coils: Condenser coils shall be constructed of a single material to avoid galvanic corrosion due to dissimilar metals. Coils and headers are brazed as one piece. Integral sub cooling is included. Coils shall be designed for a design working pressure of 650 PSIG (45 bar). Condenser coil shall be washable with potable water under 100 psi (7 bar) pressure.
- (b) Low Sound Fans: Shall be dynamically and statically balanced, direct drive, corrosion resistant glass fiber reinforced composite blades molded into a low noise, full-airfoil cross section, providing vertical air discharge and low sound. Each fan shall be provided in an individual compartment to prevent crossflow during fan cycling. Guards of heavy gauge, PVC (poly- vinylchloride) coated or galvanized steel shall be factory installed.
- (c) Fan Motors: High efficiency, direct drive, 6 pole, 3 phase, insulation class "F", current protected, Totally Enclosed Air-Over (TEAO), rigid mounted, with double sealed, permanently lubricated, ball bearings.
- (d) Low Sound Fans with Variable Speed Drives. All fans shall be powered by VSDs. Fans shall provide vertical air discharge from extended orifices. Fans shall be composed of corrosion resistant aluminum hub and glass-fiber-reinforced polypropylene composite blades molded into a low-noise airfoil section. Fan impeller shall be dynamically balanced for vibration-free operation. Fan guards of heavy gauge, PVC (polyvinyl chloride) coated or galvanized steel.

v) CONTROLS

- (1) General: Automatic start, stop, operating, and protection sequences across the range of scheduled conditions and transients.
- (2) Power/Control Enclosure: Rain and dust tight NEMA 3R powder painted steel cabinet with hinged, latched, and gasket sealed door.
- (3) Microprocessor Control Center:
 - (a) Automatic control of compressor start/stop, anti-coincidence and anti-recycle timers, automatic pumpdown at system shutdown, condenser fans, evaporator pump, evaporator heater, unit alarm contacts, and chiller operation from -10°F to 125°F (-23°C to 52°C) ambient. Automatic reset to normal chiller operation after power failure.
 - (b) Software stored in non-volatile memory, with programmed setpoints retained in lithium battery backed real-time-clock (RTC) memory for minimum 5 years.
 - (c) Forty character liquid crystal display, descriptions in English (or Spanish, French, Italian, or German), numeric data in English (or Metric) units. Sealed keypad with sections for Setpoints, Display/Print, Entry, Unit Options & clock, and On/Off Switch.
 - (d) Programmable Setpoints (within Manufacturer limits): display language; chilled liquid temperature setpoint and range, remote reset temperature range, daily schedule/holiday for start/stop, manual override for servicing, low and high

- ambient cutouts, low liquid temperature cutout, low suction pressure cutout, high discharge pressure cutout, anti-recycle timer (compressor start cycle time), and anti-coincident timer (delay compressor starts).
- (e) Display Data: Return and leaving liquid temperatures, low leaving liquid temperature cutout setting, low ambient temperature cutout setting, outdoor air temperature, English or metric data, suction pressure cutout setting, each system suction pressure, liquid temperature reset via a 4-20milliamp or 0-10 VDC input, anti-recycle timer status for each compressor, anti-coincident system start timer condition, compressor run status, no cooling load condition, day, date and time, daily start/stop times, holiday status, automatic or manual system lead/lag control, lead system definition, compressor starts/operating hours (each), status of hot gas valves, evaporator heater and fan operation, run permissive status, number of compressors running, liquid solenoid valve status, load & unload timer status, water pump status.
- (f) System Safeties: Shall cause individual compressor systems to perform auto shut down; manual reset required after the third trip in 90 minutes. System Safeties include: high discharge pressure, low suction pressure, high pressure switch, and motor protector. Compressor motor protector shall protect against damage due to high input current or thermal overload of windings.
- (g) Unit Safeties: Shall be automatic reset and cause compressors to shut down if low ambient, low leaving chilled liquid temperature, under voltage, and flow switch operation.
- (h) Alarm Contacts: Low ambient, low leaving chilled liquid temperature, low voltage, low battery, and (per compressor circuit): high discharge pressure, and low suction pressure.
- (i) BAS Communications: YORKTalk 2, BACnet MS/TP, Modbus and N2 communication capabilities are standard.
- (4) Manufacturer shall provide any controls not listed above, necessary for automatic chiller operation. Mechanical Contractor shall provide field control wiring necessary to interface sensors to the chiller control system.

vi) POWER CONNECTION AND DISTRIBUTION

- (1) Power Panels:
 - (a) NEMA 3R/12 rain/dust tight, powder painted steel cabinets with hinged, latched, and gasket sealed outer doors. Provide main power connection(s), control power connections, compressor and fan motor start contactors, current overloads, and factory wiring.
 - (b) Power supply shall enter unit at a single location, be 3 phase of scheduled voltage, and connect to individual terminal blocks per compressor. Separate disconnecting means and/or external branch circuit protection (by Contractor) required per applicable local or national codes.
- (2) Compressor, control and fan motor power wiring shall be located in an enclosed panel or routed through liquid tight conduit.

vii)ACCESSORIES AND OPTIONS

- (1) Microprocessor controlled, Factory installed Across-the-Line type compressor motor starters as standard.
- (2) VSD Condenser Fans: Permits unit operation to -10°F ambient.
 - (a) High Ambient Control: Permits unit operation above 115°F ambient.
- (3) Power Supply Connections:

- (4) Control Power Transformer: Converts unit power voltage to 120-1-60 (500 VA capacity). Factory-mounting includes primary and secondary wiring between the transformer and the control panel.
- (5) Protective Chiller Panels (Factory or Field Mounted)
 - (a) Louvered/Wire Panels: Louvered steel panels on external condenser coils painted as per remainder of unit cabinet. Heavy gauge, welded wire-mesh, coated to resist corrosion, around base of machine to restrict unauthorized access.
- (6) Thermal Dispersion Flow Switch (Factory installed and wired in piping extension kit): Normally open, 30bar pressure rating, stainless steel 316L construction, IP67, -4°F to 158°F ambient rating.
- (7) Low Temperature Process Glycol: Leaving chilled liquid setpoint range 10°F to 50°F (-12°C to 10°C)
- (8) Power Correction Capacitors Correction to .95 (Factory Installed)
- (9) Sound Reduction (Factory installed):
 - (a) Compressor Acoustic Sound Blankets
- (10) Vibration Isolation (Field installed):
 - (a) Neoprene vibration isolation.

viii)INSTALLATION

- (1) General: Rig and Install in full accordance with Manufacturer's requirements, Project drawings, and Contract documents.
- (2) Location: Locate chiller as indicated on drawings, including cleaning and service maintenance clearance per Manufacturer instructions. Adjust and level chiller on support structure.
- (3) Components: Installing Contractor shall provide and install all auxiliary devices and accessories for fully operational chiller.
- (4) Electrical: Coordinate electrical requirements and connections for all power feeds with Electrical Contractor (Division 16).
- (5) Controls: Coordinate all control requirements and connections with Controls Contractor.
- (6) Finish: Installing Contractor shall paint damaged and abraded factory finish with touch- up paint matching factory finish.

4. SHEET 8.10 – MOTOR SCHEDULE, LEGEND & SHEET INDEX

- a. Motor Schedule: Change "EXG CH-1" to "CH-1" and add Disconnect Switch by VC, Power Wiring by EC and Temp. Control Wiring by TC.
- b. Motor Schedule: Delete the note "Duct Smoke Detector Shutdown by EC" for AHU-2, AHU-4, MAU-2, RTU-1, RTU-2, GF-1 and GF-2.
- c. Motor Schedule: Relabel "EXG CU-5" to "EXG CU-7".

5. SHEET 8.20 – MECHANICAL SITE PLAN

- a. Replace equipment tag "EXG-CH-1" with hexagon equipment tag for CH-1.
- b. Mechanical Keynotes #6: Revise first sentence to the following: "Ventilation contractor to install new ground mounted air-cooled chiller CH-1 in this location."

6. SHEET 8.21 – MECHANICAL ROOF PLAN – OVERALL

a. Replace equipment tag "EXG-CH-1" with hexagon equipment tag for CH-1.

7. SHEET 8.30-B1 – MECHANICAL DEMOLITION PLAN – AREA B

- a. EXG-CH-1 shall now be removed by the VC in lieu of being relocated.
- b. Remove and reinstall existing inverted finned tube radiation located in Corridor B109 (2 locations) down on wall to accommodate new lower ACT ceiling, and extend hydronic runouts down as necessary. Coordinate final ceiling height & exact radiation location with general contractor. Maintain 6" between top of inverted finned tube radiation enclosure and ACT ceiling.

8. SHEET 8.30-C1 – MECHANICAL DEMOLITION PLAN – AREA C

a. Remove and reinstall existing inverted finned tube radiation located in Corridor B109 (2 locations) down on wall to accommodate new lower ACT ceiling, and extend hydronic runouts down as necessary. Coordinate final ceiling height & exact radiation location with general contractor. Maintain 6" between top of inverted finned tube radiation enclosure and ACT ceiling.

9. <u>SHEET 8.40-A1 – BELOW GRADE PLUMBING – AREA A</u>

a. Add 3" floor sink, FS, below the dishwasher in the northwest corner of FACS Lab A132. Connect 3" W to piping shown and provide 2" vent up the north wall connected to above floor venting.

10. SHEET 8.50-C1 – PLUMBING & HYDRONICS – AREA C

a. Modify as shown on attached revised drawing.

11. SHEETS 8.60 & 8.60-1C:

a. Exterior Horn Strobe Alarm indicated on sheets 8.60 and 8.60-1C shall not be required to be provided. Contractors shall make use of the existing horn/strobe that is currently installed on the same wall.

12. SHEET 8.70-C1 – HVAC PLAN – AREA C

- a. Delete the note "EXG-CH-1 relocated by VC" and add a hexagon equipment tag for CH-1 at the chiller location.
- b. Electrical panel "V" is being relocated to the east wall of Janitor C133 across from the door. Coordinate installation so ductwork is not in front of or above the electrical panel.

13. SHEET 8.80 – PLUMBING FIXTURE SCHEDULE

a. GI-1: Change model to Schier GB-50 – 50 GPM polyethylene grease interceptor with Teleglide rise extension kit.

14. SHEET 8.82 – MECHANICAL DETAILS CONTINUED

a. Revise details as indicated on attached revised drawing.

15. SHEET 8.83 – MECHANICAL SECTIONS

a. Section 6/8.83 - Change the note "EXG-CH-1 relocated by VC" to "CH-1 installed by VC".

16. SHEET 8.90 – MECHANICAL SCHEDULES

a. Revise schedules as indicated on attached revised drawing.

17. SHEET 8.91 – MECHANICAL SCHEDULES – CONTINUED

a. Revise schedules as indicated on attached revised drawing.

ELECTRICAL ITEMS:

DRAWING ITEMS:

- 1) <u>DRAWING SHEET 9.22-B DEMOLITION PLAN AREA B ELECTRICAL</u>
 - a) See the attached revision drawing.
- 2) DRAWING SHEET 9.23-C DEMOLITION PLAN AREA C ELECTRICAL
 - a) See the attached revision drawing.
- 3) <u>DRAWING SHEET 9.31-A1 FLOOR PLAN AREA A LIGHTING</u>
 - a) See the attached revision drawing.
- 4) DRAWING SHEET 9.32-A1 FLOOR PLAN AREA A POWER & SIGNAL
 - a) See the attached revision drawing.
- 5) DRAWING SHEET 9.35-B1 FLOOR PLAN AREA B LIGHTING
 - a) See the attached revision drawing.
- 6) <u>DRAWING SHEET 9.36-B1 FLOOR PLAN AREA B POWER & SIGNAL</u>
 - a) See the attached revision drawing.
- 7) <u>DRAWING SHEET 9.39-C1 FLOOR PLAN AREA C LIGHTING</u>
 - a) Room C108: Change the 11 type "A" luminaires to type "XA1" luminaires.
- 8) DRAWING SHEET 9.40-C1 FLOOR PLAN AREA C POWER & SIGNAL
 - a) See the attached revision drawing.

9) <u>DRAWING SHEET 9.41 – ENLARGED PLANS – POWER & SIGNAL</u>

a) See the attached revision drawing.

10) DRAWING SHEET 9.50 – ELECTRICAL SYMBOLS & ABBREVIATIONS

a) See the attached revision drawing.

11) DRAWING SHEET 9.51 – ELECTRICAL SCHEDULES

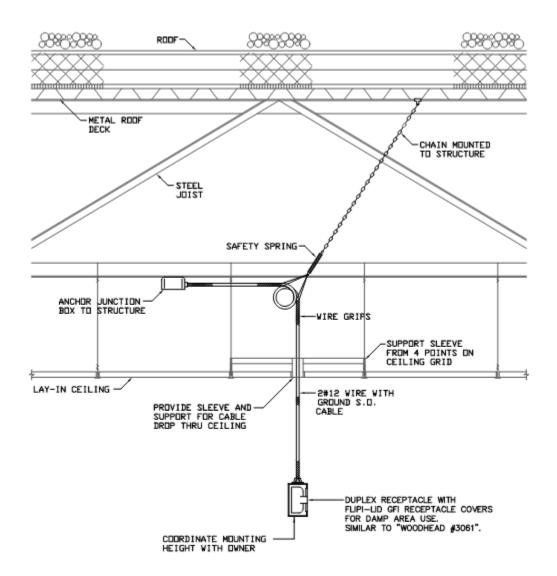
a) See the attached revision drawing.

12) <u>DRAWING SHEET 9.52 – ELECTRICAL SCHEDULES</u>

a) See the attached revision drawing.

13) DRAWING SHEET 9.53 – ELECTRICAL DETAILS

a) Add the detail shown below.



DROP CORD RECEPTACLE MOUNTING DETAIL

GENERAL APPROVALS:

The following material or equipment furnished by the manufacturers listed, may be substituted as equivalent providing that each item, material, and piece of equipment conforms to the design and requirement of the specifications.

SECTION	ITEM	MANUFACTURER
087100	Locksets	Schlage ND (w/ vandal guard)

Mechanical:

1. Double Wall Pressure Rated Boiler Venting: Z-Vent

- 2. Packaged Rooftop Units: Aaon/Daikin, Lennox
- 3. Air Handling Unit: Daikin, VTS, Dunham-Bush
- 4. Condensing Unit: Daikin/Aaon, Dunham-Bush
- 5. Air Cooled Scroll Liquid Chiller: Daikin, Dunham-Bush
- 6. Fabric Duct: DuctSox, Prihoda
- 7. Hot Water Hanging Unit Heater: Beacon Morris
- 8. Finned Tube Radiation: Beacon Morris
- 9. Ductless Split System Heat Pump: Lennox
- 10. Rooftop Makeup Air Units: Greenheck
- 11. Grease Exhaust Hood: Greenheck

END OF ADDENDUM

SECTION 055300 - GRATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Metal bar gratings.
 - 2. Metal frames and supports for gratings.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance of Gratings Located in Vehicular Driveways, Subject to Trucking: Provide gratings capable of withstanding the effects of gravity loads according to AASHTO H-20-44 and H-15-44 loading and max axle load of 24,000 lbs whichever is greater. Limit deflection to L/400 or ¼" max whichever is greater.

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Clips and anchorage devices for gratings.
 - 2. Paint products.
- B. Shop Drawings: Include plans, sections, details, and attachments to other work.

1.5 QUALITY ASSURANCE

- A. Metal Bar Grating Standards: Comply with NAAMM MBG 531, "Metal Bar Grating Manual" and NAAMM MBG 532, "Heavy-Duty Metal Bar Grating Manual."
- B. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code--Steel."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with gratings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

A. Coordinate installation of anchorages for gratings, grating frames, and supports. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Metal Bar Gratings:
 - a. Alabama Metal Industries Corporation (AMICO).
 - b. All American Grating, Inc.
 - c. BarnettBates Corp.
 - d. Borden Metal Products (Canada) Limited. or Borden Gratings
 - e. Nucor Grating, a Fisher & Ludlow company
 - f. Grupo Metelmex, S.A. de C.V.
 - g. IKG Industries; a Harsco Company.
 - h. MLP Steel; Laurel Steel Products Division.
 - i. Ohio Gratings, Inc.
 - j. Seidelhuber Metal Products, Inc.

2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Wire Rod for Grating Crossbars: ASTM A 510 (ASTM A 510M).

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type [304] stainless-steel fasteners for exterior and interior use. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- C. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).
- D. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).
- E. Anchors: Provide [cast-in-place] anchors with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Interior Locations: Carbon-steel components hot dip galvanized.

2.4 FABRICATION

- A. Shop Assembly: Fabricate grating sections in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.
- D. Fit exposed connections accurately together to form hairline joints.
- E. Welding: Comply with AWS recommendations and the following:
 - Use materials and methods that minimize distortion and develop strength and corrosion resistance
 of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
- F. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space the anchoring devices to secure gratings, frames, and supports rigidly in place and to support indicated loads.

2.5 METAL BAR GRATINGS

- A. Welded Steel Grating:
 - 1. At continuous trench drains, trench collection boxes, mud pits and other grating locations subject to heavy vehicular loading, provide bearing bars and cross bars to comply with performance requirements specified.
 - a. Metal grating sections at all 1'-0" wide trenches shall be minimum W19-4 1½ x1/4; comply with H-15-44 and H-20-44loading requirements. Supporting frames shall be sized to accommodate grating sections; L1 ¾ x 1 ¾ x1/4 [galvanized] angle framing, unless indicated otherwise.
 - b. Metal grating sections spanning greater than 12" but less than 2'-3" shall be minimum W-19-4 2½ X 3/8; comply with H-15-44 and H-20-44 loading requirements. At locations greater than 2'-3" span supplier shall provide grating complying with H-15-44 and H-20-44 loading requirements Supporting frames shall be sized to accommodate grating sections; L2½ x2½ x 1/4 [galvanized] angle framing, unless indicated otherwise.
 - c. All metal bar gratings shall be banded.
 - d. All metal bar gratings shall be hot-dipped galvanized.
 - e. Fabricate bar gratings with a maximum gap of 1/8" between the grating sections and the bearing angles. Fabricate bar gratings with a maximum gap of 1/8" between adjacent sections.
 - f. All grating frames and supports embedded in concrete shall be galvanized.
- B. Removable Grating Sections: Fabricate with banding bars attached by welding to entire perimeter of each section. Include anchors and fasteners of type indicated or, if not indicated, as recommended by manufacturer for attaching to supports.

- 1. Provide no fewer than four weld lugs for each heavy-duty grating section, with each lug shop welded to two bearing bars.
- 2. Furnish threaded bolts with nuts and washers for securing grating to supports.
- 3. Furnish self-drilling fasteners with washers for securing grating to supports.
- 4. Furnish galvanized malleable-iron flange clamp with galvanized bolt for securing grating to supports. Furnish as a system designed to be installed from above grating by one person.
- C. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.
- D. Do not notch bearing bars at supports to maintain elevation.
- E. Fabricate bar gratings with a maximum gap of 1/8" between the grating sections and the bearing angles. Fabricate bar gratings with a maximum gap of 1/8" between adjacent sections.

2.6 GRATING FRAMES AND SUPPORTS

- A. Frames and Supports for Metal Gratings: Fabricate from metal shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.
 - 1. Unless otherwise indicated, use shapes made from [hot-dip galvanized] steel.
 - 2. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated, space anchors 24 inches (600 mm) o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches (32 mm) wide by 1/4 inch (6 mm) thick by 8 inches (200 mm) long.

2.7 STEEL FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish gratings, frames, and supports after assembly.
- C. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/ A 123M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing gratings to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry.

D. Fit exposed connections accurately together to form hairline joints.

3.2 INSTALLING METAL BAR GRATINGS

- A. General: Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.
- B. Fabricate and install grating to be installed in sections and lengths that can be removed. Grating sections shall be laid loose in perimeter frame.

3.3 REPAIRS AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Touchup Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists and accessories, bearing plates, and abutting structural steel.
 - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
 - 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

END OF SECTION 055300

SECTION 21 1000

FIRE SUPPRESSION SYSTEMS

PART 1 GENERAL

1.1 DEFINITIONS

- A. Contractor Defined as the Contractor, Subcontractor and/or Subcontractors which are responsible for all or any part of the fire suppression system installation specified in Division 21 and/or as shown on the Contract Drawings.
- B. Wet Pipe Sprinkler System A system in which automatic sprinklers are attached to piping filled with water allowing water to discharge immediately from sprinklers when activated. Sprinklers activate when heat bursts a frangible glass bulb or melts a fusible link. System activation or incidental flow is monitored by flow switches and/or alarm valves. Hose connections are included when required by code.
- C. Dry Pipe Sprinkler System A system in which automatic sprinklers are attached to piping filled with compressed air until the event that heat from a fire activates a sprinkler by bursting a frangible glass bulb or melting a fusible link. Air that escapes through the activated sprinkler will cause air pressure loss in the system signaling the dry valve to open then delivering water to the piping and corresponding sprinklers. System activation or incidental flow is monitored by pressure switches, flow switches and/or alarm valves.

1.2 SCOPE

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 shall apply to this section.
- B. Where any requirements specified on the plans conflict with the specifications of this section, the specifications indicated on the plans shall govern.
- C. The Contractor shall provide all items, articles, materials, operations or methods listed, mentioned or scheduled on the Drawings and/or herein specified, including all labor, materials, equipment, accessories, wiring and incidentals necessary to be installed in accordance with manufacturer's recommendations except as otherwise approved.
- D. The fire protection system shall be a wet-pipe system consisting of a single zone to protect the building addition as defined by the plans. The system in classroom areas shall be designed for light hazardous classification. The storage and mechanical areas shall be designed for ordinary hazard, group 1 or 2 classification as defined by the plans. Provide coverage for all concealed combustible spaces.
- E. System will be supplied by an 6" underground combined service located in Mechanical C101.
- F. The system(s) shall be complete with, but not limited to, sprinklers, piping, valves, alarm bell/horn, fire department connection, backflow preventer test connection, and controls necessary for a complete system.
- G. See the plans for water supply flow test information.

1.3 CONTRACTOR QUALIFICATIONS

A. The Contractor for the fire protection installation shall be a qualified Fire Protection Contractor licensed in the State of South Dakota that has been regularly engaged in the installation of similar Automatic Fire Sprinkler Systems and associated fire protection equipment for a minimum of 5 years.

1.4 PERMITS AND SERVICE CHARGES

- A. All permits and service charges necessary for execution of the work under this Contract shall be obtained by and paid for by the Contractor. It shall be the responsibility of the Contractor to determine the permit requirements of the local authorities and utility companies and the cost of required permits, service charges, tap fees and development fees shall be included in the Contractor's bid.
- B. All work shall be executed in accordance with all local, state and national rules, regulations, codes, etc., which are applicable and shall be subject to inspection by the proper authorities.

1.5 CODES AND STANDARDS

- A. All work performed and all equipment furnished under this Division of the Contract shall be manufactured and installed in strict accordance with the most recent editions of all applicable codes and standards, including the applicable provisions of the following codes and standards:
 - 1. Local and State Codes, Standards and Regulations
 - 2. National Fire Protection Association (NFPA)
 - a. NFPA 13 –Installation of Sprinkler Systems
 - b. NFPA 25 Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
 - 3. National Electric Code (NEC) (NFPA 70)
 - 4. International Fire Code (IFC)
 - 5. Underwriter's Laboratory (UL)
 - 6. Uniform Plumbing Code
 - 7. International Mechanical Code
 - 8. American Waterworks Association (AWWA)
 - 9. Williams-Steiger Occupational Safety and Health Act of 1970 (OSHA)
 - 10. International Building Code
 - 11. Americans with Disabilities Act (ADA)
- B. Where specific requirements of any code vary with the requirements of another code, the higher standard as determined by the Architect/Engineer shall govern the installation.
- C. All equipment manufactured in accordance with the provisions of the above codes and standards shall bear the label of the respective association bureau thereon.
- D. All materials installed shall have composite fire and smoke hazard ratings as tested by procedures ASTM 84, NFPA 255 and UL 723 not to exceed 25 Flame Spread and 50 Smoke Developed.

1.6 AUTHORITIES AND AGENCIES

- A. All work will be installed for the approval and acceptance of the following:
 - 1. Webster Fire Marshal
 - 2. Owner's Insurance Company
 - 3. Fire Protection Engineer

1.7 DRAWINGS

- A. In general, the Drawings of the fire protection systems and equipment are to scale. However, to determine exact locations of walls and partitions, the Contractor shall consult the architectural and/or structural drawings which are dimensioned. Drawings shall not take precedence over field measurements.
- B. Drawings of piping and sprinklers, although shown on scale drawings, are diagrammatic only. They are intended to indicate size and/or capacity where stipulated, approximate location and/or direction, and approximate general arrangement of one phase of work to another, but not the exact detail or exact arrangement of construction. If it is found, before installation of any or all construction phases, that a more convenient, suitable or workable arrangement of any or all phases of the project would result by varying or altering the arrangement indicated on the Drawings, the Architect/Engineer may require the Contractor to change the location or arrangement of the work without additional cost to the Owner. Such rearrangement shall be in accordance with directions from the Architect/Engineer.
- C. Where discrepancies are discovered after certain portions or phases of the work have been installed, the Architect/Engineer reserves the right to require the Contractor to make changes in pipe, duct, fixture or equipment locations or arrangements to avoid conflicts with work at no additional cost to the Owner.
- D. Because the Drawings are to a relatively small scale to show as large a portion as is practical, the fact that only certain features of the system are indicated does not mean that other similar or different features or details will not be required. The Contractor shall furnish all incidental labor, material or equipment for the systems so that each system is a complete and operating one unless otherwise specifically stipulated in the detailed body of the specifications.
- E. The Contractor, Subcontractor's and their respective trades shall cooperate in laying out their work so it will fit properly into the space provided. Promptly report to the Architect/Engineer any delay or difficulties encountered in the installation of this work which might prevent prompt and proper

installation, or make it unsuitable to connect with or receive the work of others. Failure to so report shall constitute an acceptance of the work of other trades as being fit and proper for the execution of this work.

1.8 SHOP DRAWINGS

- A. Shop drawings to be submitted in electronic PDF format unless indicated otherwise in the General Conditions.
- B. To the extent practical, complete sets of shop drawings for each specification section shall be submitted. In the case that a particular item is required to be expedited, that particular item may be submitted individually.
- C. Submit shop drawings in electronic PDF format.
- D. Furnish Shop Drawings as follows:
 - 1. For all major items of equipment or materials, regardless of whether the item is to be furnished as specified.
 - 2. For all equipment, systems or devices where Shop Drawings are specifically called for.
 - 3. For all minor items of equipment or materials where the Contractor proposes to deviate from the specified and/or scheduled manufacturer or material.
- E. Shop Drawings will be reviewed by the Architect/Engineer, a review letter will be returned to the Contractor. Shop Drawings shall be submitted sufficiently in advance of the construction schedule to allow time for checking Drawings, resubmittal and rechecking when necessary.
- F. Shop Drawings will be reviewed by the Architect/Engineer, and copies of Shop Drawings will be returned to the Contractor. Shop Drawings shall be submitted sufficiently in advance of the construction schedule to allow time for checking Drawings, resubmittal and rechecking when necessary.
- G. Any equipment or material which is installed without authorization by properly processed Shop Drawings will be subject to removal by the Contractor and reinstallation as directed, without cost to the Owner. All cost for repair for damages as may be incurred to the structure as a result of the above correction shall be paid by this Contractor.
- H. Shop drawing material quantities will not be checked by the Architect/Engineer, and review of Shop Drawings by the Architect/Engineer shall not be construed to be verification of the material quantities and sizes shown on the Shop Drawings. Quantities, sizes, dimensions and locations shown on the Drawings and as specified shall determine material requirements.
- I. Hydraulic calculations proving the system is capable of providing the required design densities to accommodate the use and occupancy of each shall be performed by the contractor. The contractor is required to perform and submit hydraulic calculations as part of their submittal packages.

1.9 COORDINATION

A. The Contractor shall communicate with all other Contractors on this project and shall arrange his work in proper relation to the work of others. Work made necessary as a result of failure to coordinate with other Contractors shall be the responsibility of this contractor and shall first be approved by the Architect/Engineer. The contractor shall coordinate with the General Contractor to maximize the efficiency of the onsite placement and to ensure the safe delivery and storage of the materials.

1.10 CLEANING

A. The Contractor and/or Subcontractors for the various phases of the work shall clear away all debris, surplus materials, etc., resulting from their work or operations, leaving the job and equipment furnished under any or all contracts in a clean first class condition.

1.11 PAINTING

- A. Painting of materials and equipment furnished shall be as described in DIVISION 9. Contractor shall refinish and restore to the original condition and appearance, all equipment which has sustained damage to the manufacturer's prime and finish coats of enamel or paint. Materials and workmanship shall be equal to the requirements described in DIVISION 9.
- B. Where sprinklers are installed on exposed piping and in other locations where sprinklers are susceptible to paint spray or over-spray, contractor shall cover sprinklers in preparation for painting.

1.12 ACCESS TO EQUIPMENT

- A. Access shall be provided to all motors, valves, controls, specialties, etc., for maintenance purposes. All access doors, access panels, removable sections, etc., required for access shall be provided. The location of the access openings relative to the equipment shall be coordinated to assure proper access to the equipment. The door shall maintain any ratings of the wall, ceiling, etc. that it penetrates.
- B. Access openings are required for valves and other devices requiring access and shall be provided in the housings, tanks, walls, ceilings, etc., under this portion of the Contract.

1.13 INSPECTIONS, TESTING, CERTIFICATES, & WARRANTY

- A. All inspections, examinations and tests required by the authorities and agencies specified shall be arranged and paid for by the Fire Protection Contractor as necessary, to obtain complete and final acceptance of the Fire Protection System per the requirements of NFPA 13 and any other applicable codes. The Contractor shall provide a minimum 1 year warranty on the system effective starting the day of final system acceptance and also at that time be required to provide instruction to the owner or his representative to acquaint that person thoroughly with all system equipment.
- B. After completion of the fire protection installation and at the start of the guarantee year, the Fire Protection Contractor shall execute and file five (5) copies of the "Contractor's Material and Test Certificate, Sprinkler systems Water Spray Systems" with the Architect/Engineer.

1.14 RECORD DRAWINGS

A. The Contractor shall keep a complete set of all drawings in the jobsite office for purpose of showing the installation of mechanical systems and equipment. This set of drawings shall be used for no other purpose. Where any equipment or system components are installed different from that shown on the Architect/Engineer's drawings, such differences shall be clearly and neatly shown on this set of drawings using ink or indelible pencil. At the completion of the project, the record set of drawings shall be turned over to the Architect/Engineer and shall become his property. Record drawings may be inspected by the Architect/Engineer at site visits.

1.15 OPERATING INSTRUCTIONS

- A. The Contractor shall furnish the Owner two (2) sets of complete catalog data, manufacturer's literature and detailed manuals covering the operation and maintenance of all equipment specified under this Section. All such literature shall be bound in an amply sized three-ring binder and submitted to the Architect/Engineer for approval and for eventual transmittal to the Owner. The manual shall have a Table of Contents at the front of the manual. In addition to a hard copy of the operating instruction, provide an electronic copy in PDF format to the Owner.
- B. The Contractor shall also supervise the initial operation of all equipment and instruct the operator selected by the Owner in such operation as required to acquaint him thoroughly with the equipment.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. Materials or equipment specified by name of manufacturer, brand, trade name or catalog reference, shall be furnished under the contract unless changed by Addenda or a Contract modification.
- B. Where two (2) or more materials are named, the choice of these shall be limited to the items named. Where the material or equipment named is followed by the phrase "or equal" the required function, dimension, appearance and quality to be met by any proposed substitute is all that is intended to be established.
- C. Proposed substitutions for any named items shall be submitted to the Fire Protection Engineer for approval. No substitution shall be made without the approval of the Fire Protection Engineer. Any proposed substitution requests shall be submitted at least 10 days prior to bid to the Architect/Engineer for approval. Bidders shall not rely upon substitutions made in any other manner.
- D. Should a proposed substitution wish to be made within 10 days of bid the Contractor shall attach his proposed substitution along with the appropriate add or deduct to the Contract amount, should the substitution be accepted. Substitutions proposed by the Contractor will not be considered in the award of the Contract.

E. All products shall be new and listed for fire protection use and be rated in excess of the maximum expected pressure that will be present in the systems.

2.2 SPRINKLERS

- A. Except where designated otherwise on the drawings, sprinklers shall be as follows:
 - 1. Sprinklers shall be standard semi-recessed white-plated pendant type in all locations where piping is concealed above ceilings.
 - 2. Sprinklers shall be standard upright type where piping is installed exposed in storage, garage and other locations as indicated on the Drawings. Upright sprinklers shall be plain brass finish.
 - 3. Sidewall sprinklers, where permitted, shall be white-plated semi-recessed in finished rooms, plain brass elsewhere.
- B. Temperature rating of sprinklers shall be in accordance with requirements of approving authorities, as noted on the Drawings, and per the requirements of NFPA 13.
- C. Sprinklers shall be installed centered in square ceiling tile and in the narrow dimension of rectangular ceiling tile. In rectangular tiles sprinklers shall be centered or at the quarter points along the longer dimension of the tile.
- D. Sprinklers installed in areas where damage may occur, such as gymnasiums, shall have head guards and as otherwise designated on the drawings. Sprinklers installed at elevations below 7'-0" shall have head guards.
- E. Concealed brass sprinklers with flush white-plated concealer plate shall be installed where noted on the Drawings. Sprinklers shall be Tyco, Reliable, Victaulic, Viking, or equal.

2.3 ESCUTCHEONS

- A. Escutcheons shall be installed as designated on the drawings and shall be the same make as the sprinkler head that is used.
- B. Escutcheons shall be Tyco, Reliable, Victaulic, Viking, or equal.

2.4 PIPE AND PIPE FITTINGS

- A. Furnish and install where shown on the Drawings and required for a complete system, pipe and fittings of type and material for the various services as noted below.
- B. Piping not shown on the Drawings, which is obviously necessary for complete systems, shall be provided and shall be amply sized in accordance with applicable codes and standards.
- C. Wet fire sprinkler system (water-filled) and deluge system (open-type) piping shall be ASTM A-135 standard-weight, black, Schedule 40 with factory or field formed threaded ends for sizes up to 2 inch size. Fittings used on threaded end piping shall be ASME B16.3 Class 150, ductile iron threaded fittings with NPT threads that conform to ANSI B1.20.1. Wet fire sprinkler piping shall be ASTM A-135 Schedule 10, black with factory or field formed roll-grooved ends for sizes 1-1/4" and greater. Grooved fittings shall be standard or short radius ASTM A-536, Grade 65-45-12, ductile iron fittings with cut-grooved ends and non-lead orange enamel coated. Grooved couplings shall include ductile iron, ASTM A-536, Grade 65-45-12, housings with non-lead orange enamel coatings, ASTM A-449 and ASTM A-183 bolts and nuts, and Grade "E" EPDM Type A gaskets. Grooved pipe outlets shall be tee-let, ASTM A-53, ANSI B1.20.1 threaded or cut groove, factory welded outlet fittings. Field installed outlets shall be permitted to be mechanical "T", bolted, ASTM A-536, orange enamel coated ductile iron, with ANSI B1.20.1 threaded or cut groove outlets, Grade "E" EPDM gaskets, and ASTM A-449 and ASTM A-183 bolts and nuts.
- D. Dry fire sprinkler system (compressed air-filled) piping and drain piping shall be ASTM A-135 standard-weight, Schedule 40 with factory or field formed threaded ends for sizes up to 2 inch size. Fittings used on threaded end piping shall be ASME B16.3 Class 150 ductile iron threaded fittings with NPT threads that conform to ANSI B1.20.1. Dry fire sprinkler piping shall be ASTM A-135 Schedule 40 standard-weight with factory or field formed roll-grooved ends for sizes 1-1/4" and greater. Grooved fittings shall be standard or short radius ASTM A-536, Grade 65-45-12, ductile iron fittings with cut-grooved ends. Grooved couplings shall include ductile iron, ASTM A-536, Grade 65-45-12, housings, ASTM A-449 and ASTM A-183 bolts and nuts, and Grade "E" EPDM gaskets. Grooved pipe outlets shall be teelet, ASTM A-53 ductile iron, and ANSI B1.20.1 threaded or cut groove factory welded outlet

fittings. Factory or field installed outlets shall be permitted to be mechanical "T", bolted, ASTM A-536 ductile iron, ASTM A-153, with ANSI B1.20.1 threaded or cut groove outlets, Grade "E" EPDM gaskets, and ASTM A-449 and ASTM A-183 bolts and nuts.

- E. All piping that penetrates an exterior wall shall be galvanized Schedule 40 minimum.
- F. Plastic CPVC Schedule 80 piping and fittings are not allowed for this installation.
- G. Copper piping shall be installed where designated on the drawings and as per its listing. Copper piping shall be soldered when installed concealed and brazed when installed exposed. Piping shall be Type M Mueller, Cerro, or equal.
- H. Flexible piping is allowed for this project where approved by its listing and proven hydraulically.
- I. All wet and dry system grooved pipe fittings and couplings shall be Victaulic, Anvil Gruvlok, Tyco, Star or equal. Grooved pipe fittings and couplings shall be ductile iron with an orange enamel coating for wet systems and galvanized coating for dry systems. All components shall be supplied by one manufacturer. Pipe fittings and couplings shall be standard or short radius.
- J. All threaded fittings shall be black ductile iron for wet systems and where otherwise required by the drawings. All dry system threaded fittings shall be galvanized ductile iron. Threaded fittings shall be supplied by Tyco, Star, Anvil, or equal.
- K. All welded outlet fittings shall be Merit, Island, or equal.
- L. All flanged fittings shall be ductile iron per ASTM A536. Flanged fittings shall be Anvil, Star, or equal.
- M. Plastic CPVC fittings are not allowed for this installation.
- N. Copper fittings shall be installed where designated on the drawings and as per its listing.
- O. All pipe ends shall be smooth and burr free and cleaned of any loose debris or pipe hole cutouts prior to installation.

2.5 HANGERS AND ATTACHMENTS

- A. All piping 1/2" through 8" shall be hung through the use of galvanized ring style band hangers with a knurled swivel nut. Hangers, spacing, and rod diameters shall be per NFPA 13 requirements.
- B. 3/8" all thread rod shall be used to attach the ring to the structural attachment device for pipe sizes 1/2" through 4", 1/2" all thread rod shall be used for pipe sizes 6" through 8", and 5/8" all thread rod shall be used for pipe sizes 10" through 12".
- C. Rings shall be Tolco, Hilti, Anvil, or equal.
- D. Structural Attachments shall be Sammy, Tolco, Hilti, or equal.

2.6 FIRESTOPPING

A. Firestopping materials shall be 3M, Hilti, MetaCaulk, Nelson or equal. Firestopping material shall have a rating resistance rating equal to or greater than the wall in the penetration exists that will be sealed with said firestopping.

2.7 WALL, FLOOR AND CEILING PLATES

A. Furnish and install chrome-plated wall, floor and ceiling plates on all exposed pipes where they pass through walls, floors, or ceilings in finished areas. Finished areas shall be those areas which are painted or have special finishes within the room. The wall plates shall be a minimum of 3/32 inch thickness and shall have set screws or spring locks for clamping to the piping. Flush valves shall have set screw type wall plates. The plates shall be chrome-plated steel, cast iron or brass and shall set tight against the wall.

2.8 CONTROL VALVES

- A. All valves shall be new and listed for fire protection use.
- B. Furnish and install valves in piping where so indicated on the Drawings.
- C. Of the several manufacturers listed, the Contractor is to standardize on one make as much as practical but not to the extent of sacrificing quality listed. Valves shall be Tyco, Milwaukee, Victaulic, Ames, Watts, Wilkins, or equal.

- D. Butterfly valves shall be of the indicating type with two sets of factory installed internal supervisory switches. Valves shall be ductile iron conforming to ASTM A-395 with Grade EPDM "E" encapsulated rubber disc seals. Valves shall be Tyco, Victaulic, or Equal.
- E. Outside Screw and Yoke (OS&Y) gate valves shall be ductile iron, raised face with bolted bonnets. Valve shall be Kennedy, Mueller, Nibco, Watts, or equal.
- F. Ball Valves 1-1/2" and smaller shall be standard port, end entry valves with a brass valve body. The ball shall be chrome plated brass with a stainless steel stem. Valves shall be Watts, Nibco, Milwaukee, Victaulic, or equal.

2.9 WALL POST INDICATOR VALVE

A. Wall mount indicator post assembly butterfly valve with internal supervisory switch, painted steel wall plate, and grooved ends. Valve to be Nibco GD-4765-8WP or equal.

2.10 RISER MANIFOLDS

- A. Riser manifolds shall be provided for each wet zone designated on the drawings. The manifold shall include a 300 psi water gauge, water flow alarm switch with paddle, Schedule 40 pipe body, ductile iron angle valve with site glass, and pressure relief valve.
- B. Riser manifolds shall be Tyco, Viking, Reliable, or equal.

2.11 AUTOMATIC AIR VENT

- A. Furnish and install an automatic air vent for each wet zone. Automatic air vent shall be located near a high point in the wet system that allows for the maximum amount of air removal from that system. Automatic air vent shall have a minimum connection size of ½"and a minimum pressure rating of 175 psi.
- B. The device shall meet the requirements of UL 2573.
- C. Automatic air vent shall be Tyco, Viking, Reliable, or equal.

2.12 WATER FLOW SWITCHES AND ALARMS

- A. Water flow switches for alarm bell/horn and tamper switches shall be furnished and installed by this Contractor. All required wiring shall be installed by the Electrical Contractor.
- B. Water flow and tamper switches shall be Potter.

2.13 EXTERNAL BACKFLOW PREVENTER TEST CONNECTION

- A. Furnish and install a Guardian Series 6900 or equal projecting outlet connection where shown on the Drawings. Wall plate shall read "BACKFLOW PREVENTER TEST CONNECTION." Finish shall be rough brass. Outlets shall be 2-1/2 inch size and inlet shall be 4 inch size.
- B. Connections shall have rough brass plugs and chains. Outlets shall be 36 inches above finished grade or as specified on the drawings. Threads for Fire Department connections shall be National Standard. Verify threads and plug type with the local Fire Department.
- C. External backflow preventer test connection shall be Guardian, Potter Roemer, Central, Elkhart, or equal.

2.14 FIRE DEPARTMENT CONNECTION

- A. Furnish and install a Guardian Series 6100 or equal projecting connection where shown on the Drawings. Wall plate shall read "AUTOMATIC SPRINKLER." Finish shall be rough brass. Inlets shall be 2-1/2 inch size and outlet shall be 4 inch size. Install an automatic ball drips between the connection and the check valve.
- B. Connections shall have rough brass plugs and chains. Locking Fire Department connection plugs shall be provided where required by the fire code official and where the responding fire department carries appropriate key wrenches for removal. Outlets shall be 36 inches above finished grade. Threads for Fire Department connections shall be National Standard. Verify threads and plug type with the local Fire Department.
- C. Fire department connection shall be Guardian, Potter Roemer, Central, Elkhart, or equal.

2.15 DOUBLE CHECK VALVE BACKFLOW PREVENTER

- A. Furnish and install an Ames Fire & Waterworks Colt Series C200 or equal double check backflow preventer where shown on the Drawings. The backflow preventer shall be a complete assembly including tight closing shut-off valves before and after the device and also be protected by a strainer. It shall be a complete assembly including four ball type test cocks.
- B. The device shall meet the requirements of A.S.S.E. standard 1015 and A.W.W.A. standard C506.
- C. Double check valve backflow preventer shall be Ames, Watts, Hersey, Conbraco, Febco, Wilkins or equal.

2.16 PRESSURE GAUGES

- A. Furnish and install U.S. Gauge Model 5105 or equal pressure gauges in pipelines and on equipment as indicated herein and/or where shown on the Drawings. Gauges shall have phosphor bronze bourdon tube with brass movement.
- B. Gauges shall be compound, pressure or vacuum as required with 4-1/2 inch diameter dial. Each gauge shall be complete with Trerice No. 872 pressure snubbers, and brass ball valves.
- C. The normal operating pressure of each gauge shall be 50-70 percent of full scale. The range of the scale shall be suitable for the application.
- D. The gauges shall be located and mounted such that they can be conveniently read by a person standing on the equipment room floor. Accuracy shall be Grade "A". Case shall be aluminum.
- E. Pressure gauges shall be U.S. Gauge, Trerice, Weksler, Ashcroft, Weiss or equal.

PART 3 - EXECUTION

3.1 PIPING CONNECTIONS

A. Pipe connection shall be through the use of grooved couplings attached to roll or cut grooves on the piping, female threaded fittings screwed on to threaded end pipe, and flanged fittings with bolts, nuts and rubber gaskets. Mechanical joint couplings may be used only with the approval of the Fire Protection Engineer.

3.2 PIPE HANGERS, SUPPORTS AND ANCHORS

- A. Anchors and other attachments to the building structure shall be installed where designated and as detailed on the Drawings and specified herein and/or as required. The hangers shall adequately support the piping system. They shall be located near or at changes in piping direction and as otherwise required by NFPA 13. They shall provide vertical adjustment to maintain pitch required for proper drainage. They shall allow for expansion and contraction of the piping. Hangers shall bear directly on piping.
- B. Pipe hangers shall not be attached to the roof deck. Hangers shall be attached to the structure with beam clamps, beam attachment and brackets bolted to joists and beams, wood lag bolts, steel self tapping screws, and any other approved means of attachment that is rated to support five time the weight of the water filled pipe plus 250 lbs of additional load.
- C. Hanging from one pipe to another is prohibited.

3.3 PIPING INSTALLATION

- A. All pipes shall be round and straight, of required size. Cutting shall be done with proper tools and pipes shall be reamed to full size after cutting.
- B. Piping shall be properly enclosed, supported, guided, anchored, sway braced, connected, tested, cleaned and flushed out and shall be properly insulated and protected where required.
- C. All pipes shall be run with proper grade to provide for easy draining and in group runs where applicable and in a neat and orderly manner, to the satisfaction of the Architect/Engineer. Lines required to be enclosed in ceiling, chase ways or similar spaces shall be installed to permit such enclosure as intended. All pipe runs shall be carefully laid out and scheduled to avoid necessary interferences with other work. If shown, pipe sizes on the Drawings are nominal pipe sizes and not outside diameters.
- D. Pipes shall be run substantially as indicated on the Drawings. However, the Architect/Engineer reserves the right to require this Contractor to make changes in pipe locations where conflicts occur with other trades. Such changes shall be made without extra cost to the Owner.

- E. Piping shall be installed with ample provisions for expansion and contraction to prevent injury to the same and to the building construction. Such provision shall be made by means of piping offsets, changes in direction, expansion loops and/or suitable expansion joints. Suitable anchors and guides shall be provided to permit proper deflection and compression of offset loops and expansion joints. Expansion joints shall not be used in lieu of offsets, changes in direction or loops, except where specified and/or indicated on the Drawings or where otherwise obviously necessary.
- F. Exposed piping shall be installed in a sanitary manner for ease in cleaning. Pipe shall be cut and threaded to fit the installation. Wherever possible, rough-in exposed pipe connections at the wall rather than the floor for ease in cleaning.

3.4 SLEEVES

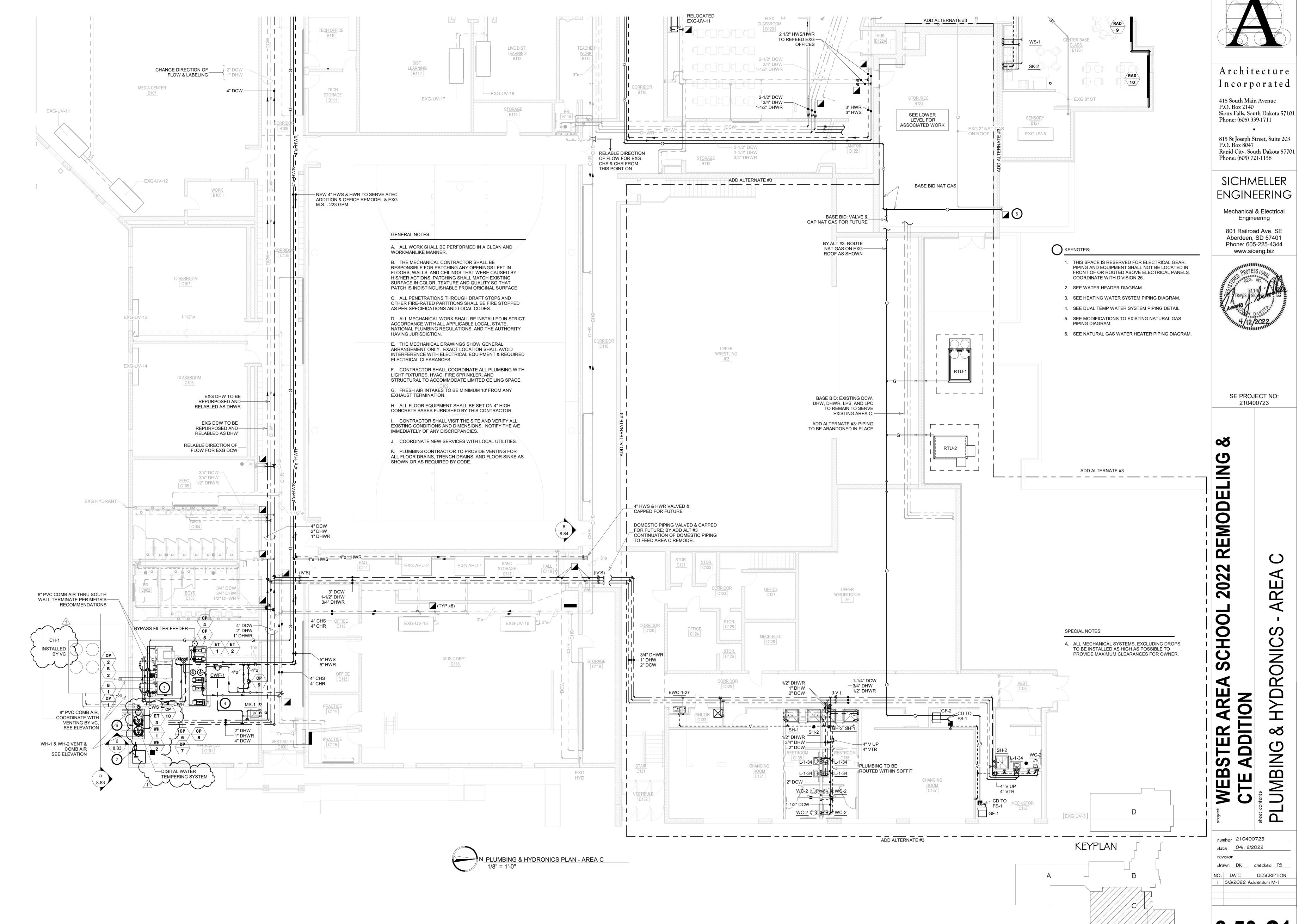
- A. Any pipe passing through building construction including walls, floors, roofs or masonry partitions or as noted on the Drawings shall be encompassed with sleeves. Piping passing through any fire rated barrier, walls, or floor shall be installed as follows:
 - 1. Sleeves shall have an inside diameter 1/2 inch greater than the outside diameter of pipe passing through. All sleeves shall be fabricated from new Schedule 40 steel pipe material cut square and reamed.
 - 2. Sleeves shall be provided in all masonry partition walls including locations above suspended ceilings where masonry partition walls extend from floor slab to slab above. Sleeves shall be Schedule 40 steel pipe finishing flush with the wall surface.
 - 3. Sleeves through exterior building walls shall be Schedule 40 steel pipe with welded flange in the middle of the sleeve and ends finishing flush with finished surfaces. Space between pipe and sleeve shall be packed to provide a watertight joint.
 - 4. Sleeves through roof slabs and floor slabs in concealed locations shall be Schedule 40 galvanized steel or linear polyethylene. Concealed sleeves shall be considered as pipe sleeves in shafts, pipe chases and within walls and partitions.
 - 5. Sleeves through floor slabs in exposed areas shall be Schedule 40 steel pipe and sleeves shall extend 1/4 inch above the finished floor surface. For slabs in equipment rooms and in other wet areas, sleeves shall be Schedule 40 steel pipe and shall extend 2 inches above finished floor surface.
 - 6. Floor sleeves in membraned floors shall be furnished with flashing rings and clamps.
 - 7. All sleeves in exposed locations, except equipment rooms, shall be set so plates specified will cover the sleeves.
 - 8. All pipe sleeves where wet conditions exist, except sleeves through exterior walls, shall be caulked with a plastic caulking, including sleeves in concealed locations. The space between the pipe and the sleeves shall be caulked in both ends of sleeve, even with the ends of the sleeve. The sealer shall be suitable for temperatures from minus 50 degrees to 300 degrees, suitable for painting, non-corrosive and have good adhesion.
- B. Sleeves in fire rated construction, equipment rooms, and/or where designated on the Drawings shall consist of schedule 40 steel pipe. Seal sleeves with a fire retardant sealant. When applied according to manufacturer's recommendations, sealant shall have a 3-hour U.L. fire rating.
- C. All sleeves shall be set and maintained in place by this Contractor during the progress of the work. This Contractor shall be responsible for locating all sleeves at the proper location.
- D. Sleeves are not required for core drilled masonry wall and floor holes, masonry wall and floor holes formed by polyethylene plastic (removable) sleeves, or for masonry holes made in another neat manner except in equipment rooms and other wet areas.
- E. Sleeves are not required in metal or wood stud wall construction. Rated systems shall be provided as required to provide the necessary rating of the penetration.

3.5 DRAINS

A. Drains shall be located and piped to discharge to the locations designated on the plans. Where required drains are not noted on the plans system drains shall be piped to a floor drain or mop sink where said drains or sinks are capable of accepting full system flow without excessive deflection of discharging water. Drain shall be piped through the wall of the building to atmosphere when a floor drain or mop sink

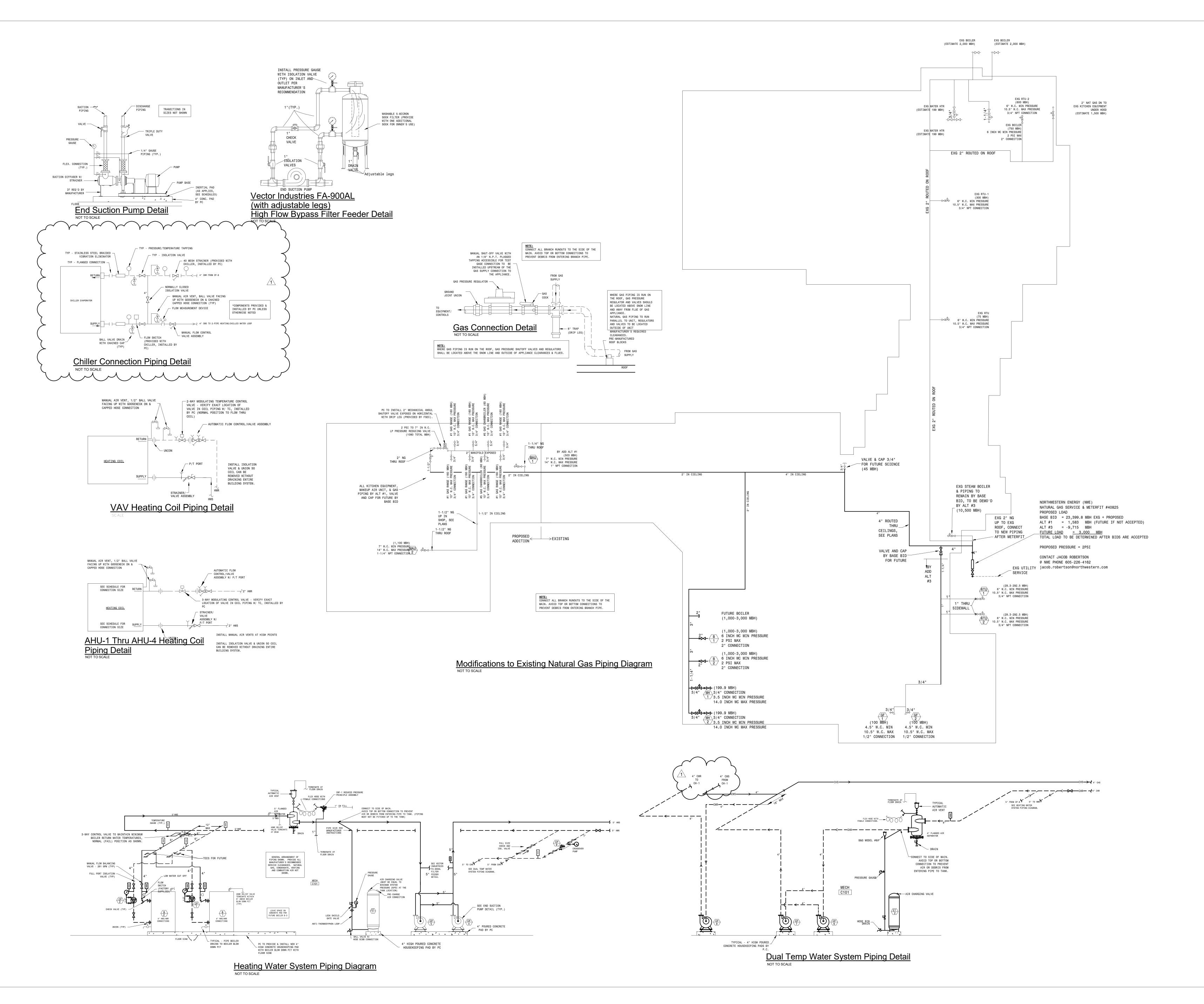
is not available and where piping through the wall of the building to atmosphere is most convenient and has been approved by the Architect/Engineer.

END OF SECTION 21 1000



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SE PROJECT NO:

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number 210400723 date 04/12/2022 drawn <u>DK</u> checked TS NO. DATE DESCRIPTION | 5/3/2022 | Addendum M-1

NOTES: 1. AHU-1 SHALL BE A HORIZONTAL, FLOOR MOUNTED, VARIABLE VOLUME UNIT AND SHALL INCLUDE RETURN FAN, ECONOMIZER/FILTER/MIXING BOX, AIR BLENDER, DX COOLING COIL, HOT WATER HEATING COIL AND SUPPLY FAN. 2. AHU-2, 3 & 4 SHALL BE A HORIZONTAL, FLOOR MOUNTED, CONSTANT VOLUME UNIT AND SHALL INCLUDE FILTER/MIXING BOX, DX COOLING COIL IS TO BE PROVIDED WITH UNIT BY BASE BID, CONDENSING UNIT AND LINESETS ARE BY ALTERNATE #4.

3. T.C. TO PROVIDE VFD'S FOR ALL FANS, E.C. TO INSTALL. 4. CONTRACTOR TO COORDINATE & VERIFY HOW UNITS WILL FIT INTO BUILDING/ROOM BEFORE ORDERING.

5. HEATING COIL PERFORMANCE BASED ON 35% PROPYLENE GLYCOL. 6. PROVIDE UNIT CONFIGURED FOR FIELD INSTALLED CONTROLS.

				LOUV	ER SCHE	DULE			LV
EQUIP. NO.	MANUFACTURER & MODEL	FUNCTION	SIZE (W/H/D)	CFM	S.P. (IN W.G.)	FREE AREA (SQ. FT.)	VELOCITY (FPM)	INSECT SCREEN	NOTES
LV-1	UNITED ENERTECH D-HFA-6	AHU-1 RELIEF	72"X36"X6"	8000	0.104	10.07	795	NO	1,2,3
LV-2	UNITED ENERTECH D-HFA-6	AHU-2 INTAKE	54"X26"X6"	2900	0.052	5.14	565	NO	1,2,3
LV-3	UNITED ENERTECH D-HFA-6	AHU-3 INTAKE	54"X26"X6"	2100	0.027	5.14	409	NO	1,2,3
LV-4	UNITED ENERTECH D-HFA-6	AHU-4 INTAKE	54"X26"X6"	3600	0.081	5.14	701	NO	1,2,3
LV-5	UNITED ENERTECH D-HFA-6	GF-1 & 2 OA INTAKE	28"X12"X6"	600	0.076	0.88	680	NO	1,2,3,4

NOTES: 1. HIGH PERFORMANCE 6" FIXED BLADE LOUVER WITH BLADES AT 37° ANGLE. 2. LOUVER TO HAVE BAKED ENAMEL FINISH, ARCHITECT TO SELECT COLOR.

3. PROVIDE WITH EXTENDED SILL & BIRD SCREEN. 4. BY ALTERNATE #3.

			AIR	COOLED	CONI	DENS]	ING L	JNIT	SCHED	ULE				CU
OUTD					COOLING					ELECTRI	CAL		UNIT WETCHT	
NO.	MANUFACTURER & MODEL	SERVICE	TOTAL MBH	AMBIENT TEMP DB/WB	SECTION TEMP	STAGES	REFRIG TYPE	EER	V./PH./CY.	FLA	MCA	MOCP	UNIT WEIGHT (LBS)	NOTES
CU-1	JCI J30YDC00A2GAB2	AHU-1	333.5	95.0/72.0	45.0	4	R410A	11.1	208/3/60	-	129.5	150	1875	1,2,3,4,5
CU-2	JCI J10YCC00A2GAB5	AHU-2	110.2	95.0/72.0	45.0	2	R410A	11.9	208/3/60	-	40.9	50	499	1,2,3,4,5,6,8
CU-3	JCI J07YCC00A2GAB5	AHU-3	76.1	95.0/72.0	45.0	1	R410A	12.5	208/3/60	-	34.6	45	390	1,2,3,4,5,6,7,8
CU-4	JCI J12YCC00A2GAB4	AHU-4	130.7	95.0/72.0	45.0	2	R410A	11.5	208/3/60	-	56.0	70	499	1,2,3,4,5,6,8

NOTES: 1. PROVIDE MATCHING R-410A DX COOLING COIL IN CORRESPONDING AIR HANDLING UNIT. 2. PROVIDE & INSTALL INSULATED REFRIGERATION PIPING & ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS.

 PROVIDE WITH HAIL GUARD PROTECTION. 4. PROVIDE WITH 5 YEAR COMPRESSOR WARRANTY.

5. PROVIDE WITH CIRCUIT BREAKER DISCONNECT, PHASE MONITOR AND BACNET INTERFACE. 6. PROVIDE VIBRATION ISOLATION ROOF CURB SIZED TO MATCH THE CONDENSING UNIT FOOTPRINT.

7. PROVIDE WITH FACTORY INSTALLED RAWAL VALVE. 8. UNIT TO BE PROVIDED UNDER ALTERNATE #4.

2. PROVIDE WITH OPPOSED BLADE BALANCING DAMPER.

35 DEG DEFLECTION.

			GRILLE	- REGI	STER -	DIFFU	SER SCH	IEDULE		
EQUIP. NO.	MANUFACTURER & MODEL	NOMINAL SIZE	THROAT Size	MAX CFM	MAX APD (IN. W.G.)	THROW	NC	FRAME	FINISH	NOTES
S-1	TITUS TMS	24X24	6"Ø	100	0.03	5.0'	10	LAY-IN	WHITE	1
S-2	TITUS TMS	24X24	8 " Ø	225	0.04	9.0'	13	LAY-IN	WHITE	1
S-3	TITUS TMS	24X24	10" Ø	375	0.05	12.0'	18	LAY-IN	WHITE	1
S-4	TITUS PAS	24X24	10" Ø	310	0.07	14.0'	25	LAY-IN	WHITE	1
S-5	TITUS TMR	22" Ø	12" Ø	480	0.07	14.0'	16	SURFACE	WHITE	1
S-6	TITUS TMR	26" Ø	14" Ø	600	0.06	16.0'	15	SURFACE	WHITE	1
S-7	TITUS 300RL	10X6	8X4	100	0.06	18.0'	15	SURFACE	WHITE	1
S-8	TITUS 300RL	14X10	12X8	300	0.05	32.0'	16	SURFACE	WHITE	1
S-9	TITUS TDC	24X24	12X12	300	0.03	16.0'	10	LAY-IN	WHITE	1
R-1	TITUS 350RL	24x12	22x10	750	0.07		20	LAY-IN	WHITE	1,3
R-2	TITUS 350RL	24X24	22X22	1700	0.06		20	LAY-IN	WHITE	1,3
R-3	TITUS 350RL	22X12	20X10	600	0.05		12	SURFACE	WHITE	1,3
R-4	TITUS 350RL	22X18	20X16	1200	0.07		21	SURFACE	WHITE	1,3
E-1	TITUS 350RL	8x8	6x6	75	0.03		10	SURFACE	WHITE	1,2,3
E-2	TITUS 350RL	12x12	10x10	300	0.06		13	SURFACE	WHITE	1,2,3

			I	NTAKE HO	OOD SCH	EDULE			(IH)
EQUIP. NO.	MANUFACTURER & MODEL	SERVING	CFM	S.P. (IN. H ₂ 0)	THROAT SIZE	THROAT VELOCITY (FPM)	THROAT FREE AREA (SQ. FT)	WEIGHT (LBS)	NOTES
IH-1	ACME MANUFACTURING TIV	AHU-1 INTAKE	8000	0.091	32X40	900	8.89	200 + CURB	1,2
NOTES: 1. PROV	IDE NEOPRENE GASKET FOR CURBS. AND E	XTENDED THROAT.						1	1

2. PROVIDE & INSTALL MIN. 18" HIGH INSULATED, SLOPED ROOF CURB & INSECT SCREEN. CONTRACTOR TO VERIFY ROOF SLOPE PRIOR TO ORDERING.

NOTES: 1. M.C. SHALL COORDINATE MOUNTING AND SURFACE CONSTRUCTION PRIOR TO FURNISHING MATERIAL. M.C. SHALL ALSO COORDINATE EXACT LOCATION OF EQUIPMENT.

				PA	CKA	GED) R(OF	TOI	ON:	IT S	CHE	DUL	Ε.	· N	ATU	RAL	G/	S	HE/	\ T					RTU
										COOLING				NATU	RAL GAS	HEATING			MOTOR			ELECTRIC	AL			
EQUIP. NO.	MANUFACTURER & MODEL	LOCATION	SERVING	SUPPLY AIR CFM	OUTSIDE AIR CFM	E.S.P. (IN)	T.S.P. (IN)	NOM. TONS	TOTAL MBH	EAT (DB/WB) (°F)	LAT (DB/WB) (°F)	EER	MAX MBH INPUT	MAX MBH OUTPUT	EAT (DB) (°F)	LAT (DB) (°F)	STAGES	QTY	HP (EACH)	FRPM	V./PH./CY.	FLA	MCA	МОСР	UNIT WEIGHT (LBS)	NOTES
RTU-1	JCI ZT120S24R2D2FCE2E1	EXTERIOR GROUND MOUNTED	EXG WRESTLING 103	4000	1430	1.15	2.0	10	126.3	80.0/67.0	58.5/57.0	13.1	240	192	50.0	94.4	2	1	3.0	1287	208/3/60		65.6	80	1746 + CURB	1,2,3,5,6,7,8, 9,10,11,12
RTU-2	JCI ZT037S08R2B2FCA2E2	EXTERIOR GROUND MOUNTED	EXG WEIGHT ROOM 35	1200	415	1.15	1.5	3	40.0	80.0/67.0	58.9/56.4	13.0	80	65	50.0	100.2	2	1	1.5	1046	208/3/60		25.8	35	1107 + CURB	1,2,4,5,6,7,8, 9,10,11,12

NOTES: 1. PROVIDE & INSTALL 48 INCH HIGH CURB WITH INSULATION TO REDUCE HEAT LOSS OUT BOTTOM OF RTU. PROVIDE UNIT CONFIGURED FOR SINGLE ZONE VAV APPLICATION WITH HORIZONTAL DISCHARGE, FACTORY INSTALLED BELT DRIVEN SUPPLY FAN, VFD FOR SUPPLY FAN, FACTORY INSTALLED CONTROLS, SINGLE WALL CONSTRUCTION WITH 1" FOIL FACED INSULATION, 2" FILTERS, FACTORY INSTALLED ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF, PHASE AND BROWNOUT PROTECTION, SINGLE POINT POWER CONNECTION, FACTORY INSTALLED HAIL GUARDS, HINGED SERVICE ACCESS PANELS, AND STAINLESS STEEL NATURAL GAS HEAT EXCHANGER.

D. PROVIDE WITH 3 STAGE COOLING, 2 STAGE NATURAL GAS HEAT, HOT GAS REHEAT FOR DEHUMIDIFICATION, CO2 OUTSIDE AIR CONTROL AND POWER EXHAUST. . PROVIDE AND INSTALL P-TRAP PER MANUFACTURERS RECOMMENDATIONS.

PROVIDE WITH HACR CIRCUIT BREAKER/DISCONNECT. PROVIDE FACTORY AUTHORIZED STARTUP. 8. PROVIDE 2ND THROUGH 5TH YEAR EXTENDED COMPRESSOR WARRANTY.

9. PROVIDE (1) ADDITIONAL SET OF DISPOSABLE FILTERS.

1. PROVIDE WITH FACTORY INSTALLED CONTROLS WITH BACNET INTERFACE FOR CONNECTION TO BUILDING DDC SYSTEM. 12. BY ALTERNATE #3.

			NA	ATURA	L G	AS FI	RED	FURNA	CE S	CHI	EDULE	•			GF
EQUIP	MANUFACTURER & MODEL	SUPPLY AIR	0A	ESP	FUEL	INPUT	OUTPUT	EFFICIENCY	GAS RATE		ELECTR	ICAL		WEIGHT	NOTES
NO.		(CFM)	(CFM)	(IN. W.G.)	TYPE	(MBH)	(MBH)	A.F.U.E.	(CFH)	HP	V/PH/CY	MCA	MOCP	(LBS.)	
GF - 1	FRASER-JOHNSTON TM9E060B12MP12	1200	300	0.5	NG	60	57	95.0%	60	1/2	115/1/60	10.4	15.0	122	1,2,3,4,5,6,7,8
GF-2	FRASER-JOHNSTON TM9E060B12MP12	1200	300	0.5	NG	60	57	95.0%	60	1/2	115/1/60	10.4	15.0	122	1,2,3,4,5,6,7,8
UNTER: 1	NOT LIGED		•				•	•		•		•			

2. TC CONTRACTOR TO PROVIDE & INSTALL NETWORK THERMOSTAT WITH BUILT-IN COMPRESSOR PROTECTION AND AUTO-CHANGEOVER FOR INTEGRATION TO BUILDING DDC SYSTEM. 3. VC TO PROVIDE & INSTALL VENT DRAIN PIPING PER MANUFACTURER'S RECOMMENDATION. CONDENSATE PIPING TO BE SUPPORTED APPROXIMATELY 6" ABOVE FINISHED

FLOOR WITH SPLIT RING STANDOFFS AND PIPED TO FLOOR SINK. 4. PROVIDE & INSTALL SEPARATE SCH. 40 PVC VENTING AND COMBUSTION AIR THRU ROOF, SIZED AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

CONCENTRIC KITS ARE NOT ACCEPTABLE.

5. PROVIDE & INSTALL PLENUM FILTER BOX EQUIPMENT STAND WITH VIBRATION ISOLATION PADS FOR FURNACE MOUNTING. 6. PROVIDE UNIT WITH SINGLE STAGE NATURAL GAS HEAT WITH ALUMINIZED STEEL PRIMARY HEAT EXCHANGER & STAINLESS STEEL SECONDARY HEAT EXCHANGER, CONSTANT SPEED DRIVE

DRAFT INDUCER AND 5 SPEED DIRECT DRIVE ECM SUPPLY FAN MOTOR.

7. PROVIDE ADDITIONAL SET OF DISPOSABLE FILTERS. BY ALTERNATE #3.

				VAV	TERM	IINA	L SC	HEDU	JLE										VAV
EQUIP.	MANUFACTURER &	SERVED		INLET			MAX	MAX	MAX			HEATI	NG COIL	(EWT =	180°F)				
NO.	MODEL	FROM	SERVING	SIZE	MAX CFM	MIN CFM	TERM APD	RAD NC	DISCH NC	CFM	MIN MBH	EAT (°F)	LAT (°F)	GPM	LWT (°F)	WPD (FT)	ROWS	RUNOUT SIZE	NOTES
VAV-A102	TITUS DESV	AHU - 1	A100 VESTIBULE, A102 RECEPTION, A103 WORK ROOM, A105 FILES/STOR, A109 HALL	10	885	355	0.24	27	28	790	30.1	55.0	90.1	2.5	154.5	0.66	2	3/4"	1,2,3,4,5
VAV-A104	TITUS DESV	AHU-2	A104 ASSISTANT	5	115	65	0.03	12	24	70	4.8	55.0	117.9	0.5	159.8	0.06	2	3/4"	1,2,3,4,5
VAV-A106	TITUS DESV	AHU-3	A106 BUS MGR, A108 ISS	5	225	90	0.08	24	32	190	9.4	55.0	100.3	1.0	160.2	0.23	2	3/4"	1,2,3,4,5
VAV-A110	TITUS DESV	AHU-4	A110 SUPER OFF	5	165	70	0.05	18	29	100	5.7	55.0	107.5	0.5	155.9	0.06	2	3/4"	1,2,3,4,5
VAV-A111	TITUS DESV	AHU-5	A111 CONFERENCE	6	280	135	0.11	22	29	165	7.0	55.0	93.9	0.5	150.5	0.06	2	3/4"	1,2,3,4,5
VAV-A112	TITUS DESV	AHU-6	A112 ATH DIR	5	115	65	0.03	12	24	70	4.8	55.0	117.9	0.5	159.8	0.06	2	3/4"	1,2,3,4,5
VAV-A113	TITUS DESV	AHU-7	A109A HALL, A113 WAITING	5	210	85	0.07	23	32	135	6.5	55.0	99.1	0.5	152.6	0.06	2	3/4"	1,2,3,4,5
VAV-A114	TITUS DESV	AHU-8	A114 GUIDE OFF	5	165	70	0.05	18	29	100	5.7	55.0	107.5	0.5	155.9	0.06	2	3/4"	1,2,3,4,5
VAV-A115	TITUS DESV	AHU-9	A115 MECH/REC	5	205	85	0.08	22	31	205	10.4	55.0	101.6	1.0	158.0	0.23	2	3/4"	1,2,3,4,5
VAV-A116	TITUS DESV	AHU-10	A116 ROBOTICS	10	740	560	0.21	27	27	560	21.8	55.0	90.9	1.5	149.1	0.31	2	3/4"	1,2,3,4,5
VAV-A117	TITUS DESV	AHU-11	A117 CLASSROOM	10	960	600	0.27	27	29	600	24.6	55.0	92.8	2.0	154.0	0.48	2	3/4"	1,2,3,4,5
VAV-A123	TITUS DESV	AHU-12	A122 BOYS, A123 MECH, A124 GIRLS, A125 STORAGE	5	160	90	0.04	18	28	110	5.9	55.0	104.8	0.5	154.8	0.06	2	3/4"	1,2,3,4,5
VAV-A128	TITUS DESV	AHU-13	A126 OFFICE, A128 AG CLASSROOM	12	1075	635	0.20	26	33	700	30.4	55.0	95.0	2.0	147.8	0.54	2	3/4"	1,2,3,4,5
VAV-A130	TITUS DESV	AHU-14	A130 CLASSROOM, A130A STORAGE	10	1030	680	0.34	27	29	680	33.2	55.0	100.0	3.0	156.5	0.82	2	3/4"	1,2,3,4,5
VAV-A131	TITUS DESV	AHU-15	A131 CLASSROOM	10	1060	620	0.32	27	28	625	25.0	55.0	91.8	2.0	153.6	0.48	2	3/4"	1,2,3,4,5
VAV-A132	TITUS DESV	AHU-16	A132 FACS LAB, A133 STORAGE	12	1295	690	0.27	27	25	800	37.8	55.0	98.6	3.0	153.3	0.96	2	3/4"	1,2,3,4,5
VAV-A135	TITUS DESV	AHU-17	A135 FACS CLASSROOM	10	920	595	0.26	27	29	595	24.5	55.0	93.0	2.0	154.0	0.48	2	3/4"	1,2,3,4,5
VAV-A136	TITUS DESV	AHU-18	A129 VESTIBULE, A136 CORRIDOR	8	485	220	0.17	23	29	325	13.2	55.0	92.5	1.0	151.9	0.30	2	3/4"	1,2,3,4,5

NOTES: 1. SOUND DATA SHALL BE TAKEN FROM ARI STANDARD 880 (LATEST EDITION) PUBLISHED DATA. 2. INLET STATIC PRESSURE FOR TERMINAL SELECTION IS 1.0". TERMINAL S.P. INCLUDES COIL APD. PERFORMANCE BASED ON 35% PROPYLENE GLYCOL

4. LH OR RH CONNECTION ON COIL PIPING VARIES, SEE PLAN. SEE VAV HEATING COIL PIPING DETAIL.

EQUIP.					GENERAL	STATIC				мото	?		UNIT	
NO.	MANUFACTURER & MODEL	SERVING	LOCATION	CFM	EXHAUST CFM	PRESS. (IN W.G.)	SONES	WATTS	HP	FRPM	VOLT./PH./CY.	FLA	WEIGHT (LBS)	NOTES
EF-1	AEROVENT ACXD-095BE	BOYS A122, MECH A123, GIRLS A124, STORAGE A125	NEW ROOF	525	-	0.35	6.2		1/4	1245	120/1/60	5.8	76 + CURB	1,2,3,4,15
EF-2	AEROVENT ACXD-070BE	FINISH A118	NEW ROOF	160	-	0.35	5.8		1/6	1502	120/1/60	4.4	59 + CURB	1,2,3,4,19
EF-3A	ECON-AIR DU180HFA	FACS LAB A132	NEW ROOF	2000	-	0.75	11.4		1	922	208/3/60	3.8	160 + CURB	9,10,11
EF-3B	ECON-AIR DU240HFA	FACS LAB A132	NEW ROOF	5224	-	1.25	18.0		5	932	208/3/60	15.8	320 + CURB	9,10,11
EF-4	AEROVENT ACXD-170BE	AG LAB A127	NEW ROOF	2900	1190	0.35	13.7		1	1091	208/3/60	4.6	155 + CURB	2,3,4,13,14,17,20
EF-5	AEROVENT ACXD-160BE	WELDING LAB A121	NEW ROOF	2100	920	0.35	13.2		1	1024	208/3/60	4.6	126 + CURB	2,3,4,13,14,17,20
EF-6	AEROVENT ACX-160D	WOOD LAB A119	NEW ROOF	3600	1640	0.35	18.5		1	1388	208/3/60	4.6	145 + CURB	2,3,4,13,14,17,20
EF-7	AEROVENT ACX-360DHP	WELDING HOODS	NEW ROOF	10000	-	1.75	23.0		5	742	208/3/60	16.7	510 + CURB	2,4,13,14,20
EF-8	AEROVENT ACXD-095BE	CHANGING C134, RESTROOM C135, RESTROOM C136, CHANGING C137, CHANGING C139	EXISTING ROOF	710	-	0.35	8.8		1/4	1400	120/1/60	5.8	76 + CURB	1,2,3,4,15,18
EF-9	AEROVENT ACXD-070BE	STOR B144, JAN B146, RR B151, STOR B152	EXISTING ROOF	170	-	0.35	5.8		1/6	1502	120/1/60	4.4	59 + CURB	1,2,3,4,15,16
EF-10	AEROVENT SCDD-080AE	CONF. B153	HALL B150	300	-	0.35	6.4		1/6	1249	120/1/60	4.4	56	5,6,16,19
EF-11	BROAN MODEL 433004	LIFE SKILLS B133A	LIFE SKILLS B133A	160	-	0.10		207			120/1/60	1.8	-	7,8
EF-12	BROAN MODEL 433004	CENTER BASE CLASS B128	CENTER BASE CLASS B128	160	-	0.10		207			120/1/60	1.8	-	7,8
EF-13	PANASONIC FV-0511VQ1	RESTROOM A107	RESTROOM A107	80	_	0.25	0.6	10.8		1172	120/1/60	0.27	11	12

NOTES: 1. PROVIDE AND INSTALL 120V MOTORIZED BACKDRAFT DAMPER. EC TO POWER OPEN WITH FAN OPERATION. 3. PROVIDE WITH DIRECT DRIVE FAN WITH ECM MOTOR AND FACTORY INSTALLED FAN SPEED CONTROLLER FOR FAN BALANCING.

4. PROVIDE & INSTALL MINIMUM 18" HIGH, INSULATED, SLOPED FACTORY ROOF CURB. VERIFY SLOPE WITH GC PRIOR TO ORDERING. 5. PROVIDE WITH INTEGRAL PLUG TYPE DISCONNECT AND VARIABLE SPEED ECM FAN WITH FACTORY INSTALLED FAN SPEED CONTROLLER FOR FAN BALANCING.

6. PROVIDE & INSTALL FLEXIBLE DUCT CONNECTION OR SHORT PIECE OF FLEXIBLE DUCT AT FAN. 7. SCHEDULED RANGEHOOD IS 30" WIDTH AND STAINLESS STEEL FINISH. CONTRACTOR SHALL VERIFY EXACT WIDTH AND COLOR SELECTION BEFORE ORDERING.

8. REFER TO ARCHITECTURAL PLANS FOR HOOD INSTALLATION HEIGHT ABOVE COOKING SURFACE (18" MINIMUM, 25" MAXIMUM ABOVE COOKING SURFACE). PROVIDE UPBLAST POWER ROOF VENTILATOR.

 PROVIDE HINGED BASE KIT. 11. PROVIDE GREASE FAN WITH GREASE BOX, WHEEL ACCESS PORT, NEMA 3R DISONNECT, VFD FOR VARIABLE SPEED DIRECT DRIVE FAN, UL705, UL762, ULC-S645. 12. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER, FACTORY PLUG DISCONNECT, ECM FAN MOTOR WITH 3 SPEED FAN SPEED CONTROLLER, HANGING VIBRATION ISOLATION, FLEXIBLE DUCT CONNECTIONS OR SHORT PIECE OF

FLEXIBLE DUCT WITH 2-3 FEET STRAIGHT RUN OF INSULATED RIGID 6" AND WALL CAP WITH INTEGRAL BACKDRAFT DAMPER - ARCHITECT TO SELECT COLOR. FAN TO OPERATE WITH TIMER SWITCH BY E.C. 13. TC TO PROVIDE VFD, EC TO INSTALL. 14. F AN TO OPERATE WITH LIGHTED PILOT SWITCH BY T.C.

15. FAN TO OPERATE AS SCHEDULED BY THE TC. 16. FAN TO BE PROVIDED UNDER ALTERNATE #2. 17. FAN SHALL OPERATE AS RELIEF AIR UNDER NORMAL OCCUPIED OPERATION. FAN SHALL BE MODULATED TO "GENERAL EXHAUST" SPEED WHEN LIGHTED PILOT SWITCH BY TC IS ENABLED. FAN SHALL BE MODULATED TO FULL SPEED WHEN ECONOMIZER

19. FAN TO OPERATE WITH LINE VOLTAGE LIGHTED PILOT SWITCH BY EC.

20. PROVIDE WITH 24V MOTORIZED BACKDRAFT DAMPER. TC TO POWER OPEN WITH FAN OPERATION.

~	/	~	\	- ~	′ 	~		HIL	Υ	R SC	HED)ULE	- \	~	/		\sim	$\overline{}$	~ \	CH	7
EQUIP.	MANUFACTURER & MODEL	TONS	MBH CAP	GPM	EWT	LWT	AMB	WPD (FT)	COMPR	ESSORS	COND	CAP STEPS	EER	OPER WT.		ELECTRIC	CAL		UNIT WEIGHT	NOTES	
1101			0711					(,	KW	FLA		0.2.0			V/PH/CY	MCA	MOCP	SCCR	(LBS)		<u>)</u> .
CH - 1	JCI/YORK YLAA0048HE17XCBBCTC	46.6	559.2	220.0	49.5	44.0	95	37.6	46.6	204.0	6.7	4	10.9	3208	208/3/60	258	300	65 KA	3,825	1,2,3,4,5,6,7,8 9,10,11,12,13,14	

NOTES: 1. PERFORMANCE BASED ON 35% PROPYLENE GLYCOL 2. PROVIDE DISCONNECT SWITCH WITH CIRCUIT BREAKER AND 65KA SCCR RATING 3. PROVIDE A MINIMUM OF 2 REFRIGRATION CIRCUITS WITH ELECTRONIC EXPANSION VALVES AND HOT GAS BYPASS ON LEAD CIRCUIT

4. PROVIDE THERMAL DISPERSION FLOW SWITCH(ES). 5. PROVIDE 5-YEAR PARTS ONLY COMPRESSOR WARRANTY

6. PROVIDE HEAT TRACE ON TUBE BUNDLE WITH SINGLE POINT POWER CONNECTION. 7. PROVIDE LOUVERED UPPER COIL GUARDS AND LOWER WIRE ENCLOSURE.

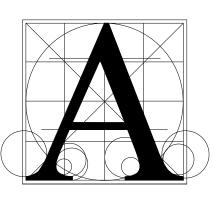
8. PROVIDE COMPRESSOR SOUND BLANKETS AND LOW SOUND VSD DRIVE CONDENSER FANS. MAXIMUM SOUND POWER @ 30' NOT TO EXCEED 93 LWA IN ACCORDANCE WITH AHRI 370 9. PROVIDE LOW AMBIENT COOLING DOWN TO -10° DEG. F AND HIGH AMBIENT COOLING TO 125°.

10. COMPRESSORS SHALL BE SCROLL TYPE MIN QTY OF 4 COMPRESSORS/2 CIRCUITS 11. PROVIDE CONTROL TRANSFORMER AND POWER FACTOR CORRECTION CAPACITORS WITH CORRECTION TO .95 12. PROVIDE CONTROL PANEL. PROVIDE BAS COMMUNICATION VIA BACNET.

13. EER/IPLV SCHEDULED @ AHRI CONDITIONS. CAPACITY IS @ DESIGN CONDITIONS.

			EXI	STING	DUST	COLLE	CTOR	SCHE	DULE				EXG DC-1
EQUIP.	MANUFACTURER & MODEL	SERVING	LOCATION	CFM	STATIC PRESS.	SONES			MOTOR			UNIT WEIGHT	NOTES
NO.	MANUFACTURER & MODEL	SERVING	LUGATION	CFW	(IN W.G.)	SUNES	WATTS	HP	FRPM	VOLT./PH./CY.	FLA	(LBS)	NOTES
EXG DC - 1	NEDERMAN S-1000 89101009	WOOD LAB A119	MEZZANINE ABOVE A119	5000	7.0			10		208/3/60	EXG	100	1

				EXIST	ING WE	LDING H	100D SC	HEDUL	Ε.				EXG HD-A
EQUIP. NO.	MANUFACTURER & MODEL	SERVING	LOCATION	EXHAUST AIR (CFM)	STATIC PRESSURE LOSS (IN. W.G.)	EXHAUST AIR CONNECTION (IN. DIAM)	WIDTH (IN)	DEPTH (IN)	HEIGHT (IN)	NO. OF SLOTS	SLOT HEIGHT (IN)	UNIT WEIGHT (LBS)	NOTES
EXG HD-A		WELDING STATION	WELDING LAB A121	1,000	1.5	8	45"	8"	34"	4	13/32	-	1
NOTES:	1. VC TO RELOCATE OW	WNER'S EXISTING WELDING	HOODS(10) FROM REMOTE	SITE TO WELDIN	IG LAB A121.								



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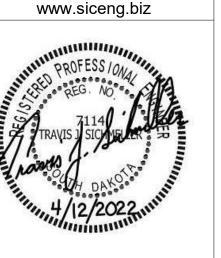
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SE PROJECT NO: 210400723

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number 210400723 date <u>04/12/2</u>022 revision drawn <u>DK</u> checked TS_

NO. DATE DESCRIPTION I 5/3/2022 Addendum M-1

							E	XHA	UST	. НО	OD	SCH	EDU	ILE								HD
EQUIP.	MANUFACTURER & MODEL	SERVING	LOCATION	ТҮРЕ	EXHAUST AIR	MAKE-UP AIR	EXHAUST CANOPY	OVERALL LENGTH W/ANSUL	EXHAUST CANOPY	OVERALL WIDTH W/MAKEUP	EXHAUST AREA	HEIGHT	MAKEUP AIR PLENUM	MATERIAL	FILTERS	LAMPS	ELECT	TRICAL		UNIT WEIGHT	ANSUL UTILITY	NOTES
NO.	MANUFACTURER & MODEL	SERVING	LUCATION	ITFE	(CFM)	(CFM)	LENGTH (IN)	CABINET (IN)	WIDTH (IN)	AIR PLENUM (IN)	(SQ FT)	(IN)	HEIGHT (IN)	MATERIAL	FILIERS	LAMPS	V/PH/CY	MCA	МОСР	(LBS)	CABINET	NOTES
HD-1A	ECON-AIR 5430 ND-2-ACPSP-F	FACS LAB	FACS LAB A132	I	1000	700	60	72	54	66	22.5	30	12	430 S.S WHERE EXPOSED	S.S. BAFFLE W/ HANDLES	(QTY 2) RECESSED LED	120/1/60	-	-	778	LEFT SIDE	1,2,3,4,5,6,7
HD-1B	ECON-AIR 5430 ND-2-ACPSP-F	FACS LAB	FACS LAB A132	I	1000	700	60	72	54	66	22.5	30	12	430 S.S WHERE EXPOSED	S.S. BAFFLE W/ HANDLES	(QTY 2) RECESSED LED	120/1/60	-	-	520	RIGHT SIDE	1,2,3,4,5,6,7,
HD-2A	ECON-AIR 5430 ND-2-ACPSP-F	FACS LAB	FACS LAB A132	I	2612	1270	114	126	54	66	42.75	30	12	430 S.S WHERE EXPOSED	S.S. BAFFLE W/ HANDLES	(QTY 3) RECESSED LED	120/1/60	-	-	1017	RIGHT SIDE	1,2,3,4,5,6,7
HD-2B	ECON-AIR 5430 ND-2-ACPSP-F	FACS LAB	FACS LAB A132	I	2612	1270	114	126	54	66	42.75	30	12	430 S.S WHERE EXPOSED	S.S. BAFFLE W/ HANDLES	(QTY 3) RECESSED LED	120/1/60	-	-	717	LEFT SIDE	1,2,3,4,5,6,7

. PROVIDE AND INSTALL COMPLETE ANSUL FIRE PROTECTION SYSTEM, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE ANSUL SYSTEM INCLUDING ALL COMPONENTS, INSTALLATION & STARTUP. SYSTEM SHALL BE LOCATED IN THE UTILITY CABINET OF HOOD "A" FOR EACH PAIR. PROVIDE WITH 12" UTILITY CABINET ON RIGHT SIDE (HD-1B & HD-2A) OR LEFT SIDE (HD-1A & HD-2B) OF HOOD. SEE PLANS

PROVIDE WITH STAINLESS STEEL CAPTUATE GREASE-STOP SOLD FILTER BANKS, HOOD MOUNTED THE MAL SENSORS AND LCD HOOD MOUNTED CONTROLLER AT 1 VOCATION TO CONTROL ALL HOODS AND ASSOCIATED MAKE-UP AIR UNIT PROVIDE WITH STRUCTURAL AND ALL OTHER TRADES PRIOR TO INSTALLATION.

				ROO	FT0	P N	1AKE	E-UP	AIR	UNIT	SC	HED	UL	E ·	- (AS	HEAT	•				<	MAU
				MIN.OCC.				COOLI	NG		NAT	URAL GAS	HEATIN	NG	МО	TOR	EL	ECTRICA	L		UNIT		
EQUIP. NO.	MANUFACTURER & MODEL	LOCATION	SUPPLY AIR CFM	OUTSIDE AIR CFM	E.S.P. (IN)	NOM. TONS	TOTAL MBH	SENSIBLE MBH	EAT (DB/WB)	LAT (DB/WB)	MBH INPUT	MBH OUTPUT	EAT	LAT	HP	FAN RPM	V./PH./CY.	FLA	MCA	MOCP	WEIGHT (LBS)	NOT	ES
MUA - 1	ECON-AIR A2-D.500-20D	NEW ROOF, FACS LAB	5000	5000	1.0	-	-	-	-	-	503.2	462.9	-20	70	5	1955	208/3/60	15.0	-	-	736 + 76 CURB	1,2,3, 6,7,	4,5, ,9,10
MUA-2	ECON-AIR A4-D.1000-30D	NEW ROOF, WELDING	10000	10000	1.0	-	-	-	-	-	1006.4	925.8	-20	70	7.5	1206	208/3/60	22.3	-	-	1501 + 93 CURB	7,2,3, 6,7,	

NOTES: 1. PROVIDE & INSTALL FULLY INSULATED MINIMUM 24" HIGH FLAT ROOF CURB. FOR ACOUSTICAL PURPOSES, FIELD INSTALL TWO LAYERS OF WATERPROOF SHEETROCK TOPPED WITH BATT INSULATION TO COMPLETELY FILL ALL VOIDS IN THE ROOF CURB. ALL ROOFING WORK TO BE BY ROOFING CONTRACTOR, ALL TRADES TO COORDINATE.

2. PROVIDE UNIT CONFIGURED FOR SINGLE ZONE CONSTANT VOLUME APPLICATION WITH, FREEZESTAT, FACTORY INSTALLED OF FOR DIRECT DRIVEN SUPPLY FAN, FACTORY INSTALLED CONTROLS, SINGLE WALL CONSTRUCTION WITH 1" FOIL FACED INSULATION, 2" METAL MESH FILTERS, PHASE AND BROWNOUT PROTECTION, FACTORY WEATHER PROOF NON-FOSED DISCONNECT SWITCH(S), FACTORY INSTALLED HAIL GUARDS AND HINGED SERVICE ACCESS PANELS, AND STAINLESS STEEL LP GAS HEAT EXCHANGER, VFD FOR MUA-1 TO BE FACTORY INSTALLED IN THE UTILITY CABINET OF EXHAUST HOOD HD-1B.

3. PROVIDE AND INSTALL 208 VOLT MOTORIZED BACKDRAFT DAMPER, EC TO OPEN AND CLOSE WITH UNIT APERATION.
4. PROVIDE WITH 2 STAGE LP GAS HEAT. PROVIDE & INSTALL FLUE GAS EXTENSION KIT.

5. EC TO PROVIDE & INSTALL CONVENIENCE OUTLET. 6. PROVIDE WITH EXHAUST CONTACTOR AFTER AIRFLOW SWITCH, FIELD WIRED BY EC.

PROVIDE (1) ADDITIONAL SET OF FILTERS.

8. UNIT SHALL BE ENABLED WITH WELDING STATION EXHAUST FAN EF-2 OPERATION BY EC. SEE EXHAUST FAN SCHEDULE. 9. PROVIDE & INSTALL 3-WAY DIFFUSER. 10. UNIT TO BE PROVIDED UNDER ALTERNATE #1.

EQUIP.	MANUFACTURER & MODEL	SERVING	COOLING CAPACITY	HEATING CAPACITY	REFRIGERA	ANT PIPING	ELE	CTRICAL			DIMENSIONS		UNIT WEIGHT	NOTES
NO.	MANUFACIONEN & MODEL	JENVING	(BTU/HR.)	(BTU/HR @47F)	LIQUID	SUCTION	V./PH./CY.	FLA	MOCP	WIDTH	HEIGHT	DEPTH	(LBS)	NOTES
DSA-B110	DAIKIN FTXS09LVJU	MAIN DATA 140	9,000	12,000	1/4"	3/8"	208/1/60	N/A	N/A	31-1/2"	11-5/8"	8-7/16"	20	1,2,3,4,5,6
DSA-B133A	DAIKIN FXZQO7TAVJU (CEILING CASSETTE)	LIFE SKILLS B133A	7,500	8,500	1/4"	1/2"	208/1/60	N/A	N/A	22-5/8"	10-1/4"	22-5/8"	34.2	1,2,3,5,6,7
DSA-B134	DAIKIN FXZQO7TAVJU (CEILING CASSETTE)	CONFERENCE B134	7,500	8,500	1/4"	1/2"	208/1/60	N/A	N/A	22-5/8"	10-1/4"	22-5/8"	34.2	1,2,3,5,6,7
3. 4. 5.	UNIT POWER IS FED FROM PROVIDE WITH (1) ADDIT TC TO INSTALL SENSOR N PC TO PROVIDE AND INST	AND IS INCLUDED II IONAL WASHABLE FIL EAR LOW VOLTAGE T- ALL 1-1/4" INSULATI	N SCHEDULED ELI FER. STAT BY VC FOR	ECTRICAL DATA FOR A	ASSOCIATED OU ALARM AS REG	JTDOOR UNIT IN	NSTALLED IN PLEN	UM SPACE A	BOVE CORRI	DOR CEILING.				

		Dl	JCTLE	SS SPL	.IT \$	SYSTE	EM OU	TDO(DR L	JNIT	SCHED	ULE		DSC
EQUIP.	MANUEACTURER & MOREL	CERVINO	COOLING	HEATING	REFRIGER/	ANT PIPING	ELE	CTRICAL			DIMENSIONS		UNIT	NOTEC
NO.	MANUFACTURER & MODEL	SERVING	CAPACITY (BTU/HR)	CAPACITY (BTU/HR @47F)	LIQUID	SUCTION	V./PH./CY.	MCA	MOCP	WIDTH	HEIGHT	DEPTH	WEIGHT (LBS)	NOTES
DSC-B110	DAIKIN RXS09QMVJU	DSA-140	9,000	12,000	1/4"	3/8"	208/1/60	8	15	30-1/8"	21-5/8"	11-1/4"	75	1,2,3
SC-B133A	DAIKIN 2MXS18GVJU	DSA-B133A & DSA-B134	4,800- 16,300	4,700- 19,400	1/4"	1 X 3/8" 1 X 1/2"	208/1/60	15.8	20	34-1/4"	28-15/16"	12-5/8"	123	1,2,3,4

4. CONCEALED DUCTS MAY BE INSULATED WITH RIGID BOARD OR FLEXIBLE FIBERGLASS INSULATION. EXPOSED DUCTS SHALL BE INSULATED WITH RIGID BOARD FIBERGLASS INSULATION ONLY.

2. PROVIDE & INSTALL WALL MOUNT BRACKET WITH VIBRATION ISOLATION AND ALL NECESSARY SUPPORTS FOR INSTALLATION IN PLENUM SPACE ABOVE CORRIDOR CEILING, SEE PLANS.

INVERTER COMPRESSOR. 4. PROVIDE WITH ALL REQUIRED ACCESSORIES AND CONTROLS FOR DUAL ZONE CONTROL.

NOTES: 1. FOLLOW ALL SMACNA STANDARDS, SEE SPECIFICATIONS.

2. ALL DUCTWORK 18" AND GREATER IN WIDTH SHALL BE CROSS-BROKEN. 3. ALL SYSTEMS TO BE COMPLETELY INSULATED UNLESS OTHERWISE NOTED.

			HVAC	SHEET	METAL	DUCTW	ORK CO	NSTRU	CTION	& INSU	JLATIO	N SCHEDU	LE			
	DU	CTWORK						INSULATI	ON THICKNESS	(EXTERIOR WRA	AP UNLESS OTHI	ERWISE NOTED)				
SYSTEM	MAX DIMENSION OF RECTANGULAR DUCTS OR DIAMETER OF ROUND DUCTS	GALVANIZED SHEET METAL GAUGE	PRESSURE RATING	CONSTRUCTION	RECTANGULAR SUPPLY AIR BEFORE VAV	ROUND SUPPLY AIR BEFORE VAV	RECTANGULAR SUPPLY AIR AFTER VAV	ROUND SUPPLY AIR AFTER VAV	RETURN AIR	EXHAUST AIR DUCT	DRYER & RANGE HOOD EXHAUST AIR DUCT	EXHAUST AIR DUCT SERVING WELDING HOODS	TRANSFER AIR	PLENUM TO PLENUM TRANSFER SLEEVES	EXTERIOR SUPPLY AIR & RETURN AIR DUCTWORK	NOTES
	UP THRU 12"	26		WHEN LONGEST								1-1/2" FULL			1/2"	
LOW	OVER 12" THRU 30"	24		SIDE IS 36" OR GREATER, SHALL						1-1/2"		LENGTH OF			LINER	
PRESSURE	OVER 30" THRU 54"	22	2" W.G.	BE CONSTRUCTED USING DUCTMATE	-	-	1/2" LINER	1-1/2"	1/2" LINER	WITHIN 15' OF	1-1/2"	RECTANGULAR DUCT, ROUND	1/2" LINER	1/2" LINER	2" EXTERIOR WRAP WITH	1,2, 3,4
DUCTWORK	OVER 54" THRU 84"	20		35/25 SLIDE ON SYSTEM, TDF			LINER		LINEI	PRV		RUNOUTS	LINER	LINER	VENTURECLAD	0, 1
	OVER 84"	18		FLANGE								UN-INSULATED			JACKETING	
	UP THRU 18"	24		SHALL BE	1-1/2"											
MEDIUM	OVER 19" THRU 48"	22		CONSTRUCTED USING DUCTMATE	(1/2" LINER	4 4 /0 !!										1,2,
PRESSURE DUCTWORK	OVER 48" THRU 72"	20	3" W.G.	35/25 SLIDE ON SYSTEMS, TDF	WITHIN	1-1/2"	-	-	-	-	-	-	-	-	-	3,4
	OVER 73" THRU 96"	18		FLANGE	15' OF RTU)											

	EQUIP.	MANUFACTURER & MODEL	LOCATION		PERATING RESSURE	RELIEF PRESSURE	FUEL	INPUT	OUTPUT	AFUE %/	VOLUME		MOTOR		UNIT WEIGHT	NOTES
	NO.	MANOFACTOREN & MODEL	LOCATION	MEDIA F	(PSI)	(PSI)	FUEL	MBH	MBH	MIN EWT	(GAL)	HP	V./PH./CY.	FLA	(LBS)	NOTES
	B-1	THERMAL SOLUTIONS EVS-3000	MECHANICAL C101	35% PP GLYCOL	30	75	NAT GAS	1000-3000	870-2610	87.5% 130°F MIN	43.1	2	208/3/60	7.4	2,193 +FLUID	1,2,3,4,5,7,8
	B-2	THERMAL SOLUTIONS EVS-3000	MECHANICAL C101	35% PP GLYCOL	30	75	NAT GAS	1000-3000	870-2610	87.5% 130°F MIN	43.1	2	208/3/60	7.4	2,193 +FLUID	1,2,3,4,5,7,
	FUTURE B-3	THERMAL SOLUTIONS EVS-3000	MECHANICAL C101	35% PP GLYCOL	30	75	NAT GAS	1000-3000	870-2610	87.5% 130°F MIN	43.1	2	208/3/60	7.4	2,193 +FLUID	5,6
\																
7		8. VC TO PROVIDE & INS		LE WALL VENT WALL PENETR PVC COMBUSTI	TING WITH 1 RATIONS WEA TON AIR PIP	1" CERAMIC ATHER TIGHT PING THRU E	INSULATION T. EXG SIDEWALL	THRU EXG S	SIDEWALL AN		MIN 2' BE	LOW VEN	T TERMINATION			
	EQUIP.	8. VC TO PROVIDE & IN: VENT LENGTHS/CLEAR/ 9. PC TO PROVIDE & IN: PENETRATIONS WEATH	STALL 8" AL29-4C DOUB ANCES. SEAL EXTERIOR STALL 8" SCHEDULE 40 ER TIGHT.	LE WALL VENT WALL PENETR PVC COMBUSTI	ING WITH 1 RATIONS WEATON AIR PIP	1" CERAMIC ATHER TIGHT PING THRU E	INSULATION T. EXG SIDEWALL EXP	THRU EXG S AND TERMI	SIDEWALL AN	ELBOW DOWN,	SC	HEC	DULE ACCEPTABLE	. SE <i>i</i>	AL EXTERIOR	ET NOTES
7	EQUIP.	8. VC TO PROVIDE & INS VENT LENGTHS/CLEAR/ 9. PC TO PROVIDE & INS	STALL 8" AL29-4C DOUB ANCES. SEAL EXTERIOR STALL 8" SCHEDULE 40 ER TIGHT.	LE WALL VENT WALL PENETR PVC COMBUSTI	TING WITH 1 RATIONS WEA TON AIR PIP TDED CALCI ON SYSTEM	1" CERAMIC ATHER TIGHT PING THRU E	INSULATION T. EXG SIDEWALL	ANSI	SIDEWALL AN	TANK PRESSURE RA (PSIG)	SC	HEC	DULE	. SE <i>i</i>	AL EXTERIOR	ET NOTES
7		8. VC TO PROVIDE & IN: VENT LENGTHS/CLEAR/ 9. PC TO PROVIDE & IN: PENETRATIONS WEATH	STALL 8" AL29-4C DOUB ANCES. SEAL EXTERIOR STALL 8" SCHEDULE 40 ER TIGHT.	LE WALL VENT WALL PENETR PVC COMBUSTI	TING WITH 1 RATIONS WEA ON AIR PIP TDED CALCE SYSTEM (G	1" CERAMIC ATHER TIGHT PING THRU E	INSULATION T. EXG SIDEWALL EXP SYSTEM VOLUME WITH SAFETY	ANS	SIDEWALL AN INATE WITH CON ANGE (°F)	TANK PRESSURE RA (PSIG) MAX	SC	HEC	DULE ACCEPTABLE	E L)	AL EXTERIOR	R WALL ET NOTES

1. HIS HYDRONIC EXPANSION TANK HAS BEEN SIZED FOR 1800 GALLONS, WHICH IS 1.5 TIMES THE CALCULATED SYSTEM VOLUME OF 1200 GALLONS.

HIS HYDRONIC EXPANSION TANK HAS BEEN SIZED FOR 665 GALLONS, WHICH IS 1.5 TIMES THE CALCULATED SYSTEM VOLUME OF 445 GALLONS.

NUMER PROVIDED 5" FLANGED CENTRIFUGAL STYLE AIR SEPARATOR WITH REMOVABLE STRAINER, MANUAL BLOWDOWN VALVE WITH CHAINED CAP.

WINTER PROVIDED 4" FLANGED CENTRIFUGAL STYLE AIR SEPARATOR WITH REMOVABLE STRAINER, MANUAL BLOWDOWN VALVE WITH CHAINED CAP.

REPANSION TANK AND AIR SEPARATORS PROVIDED BY OTHERS UNDER THE BOILER ROOM HEATING EQUIPMENT BID PACKAGE, INSTALLED BY PC.

(OWNER PROVIDED) NATURAL GAS BOILER SCHEDULE

EQUIP.	MANUFACTURER & MODEL	SERVING	LOCATION	GPM	HEAD	TYPE		ELE	CTRICAL		WEIGHT	NOTES
NO.	MANUFACIONER & MODEL	SENVING	LOCATION	urm	HEAD	IIFE	HP/(W)	RPM	V./PH./CY.	FLA	WEIGHI	NUIES
CP-1	ARMSTRONG 4380 4X4X6-4P-2HP	B-1 CIRCULATOR	MECHANICAL C101	261	20 '	IN-LINE	2	1800	208/3/60	7.5	249	1,2,9
CP-2	ARMSTRONG 4380 4X4X6-4P-2HP	B-2 CIRCULATOR	MECHANICAL C101	261	20 '	IN-LINE	2	1800	208/3/60	7.5	249	1,2,9
FUTURE CP-3	ARMSTRONG 4380 4X4X6-4P-2HP	FUTURE B-3 CIRCULATOR	MECHANICAL C101	261	20 '	IN-LINE	2	1800	208/3/60	7.5	249	2,8,9
CP-4	ARMSTRONG 4030 4X3X10-4P-10HP	PRIMARY PUMP - HYDRONIC HEATING (180°) WATER LOOP	MECHANICAL C101	355	67 '	BASE MOUNT END SUCTION	10	1800	208/3/60	30.8	356	1,2,4,5,6
CP-5	ARMSTRONG 4030 4X3X10-4P-10HP	BACK-UP PUMP - HYDRONIC HEATING (180°) WATER LOOP	MECHANICAL C101	355	67 '	BASE MOUNT END SUCTION	10	1800	208/3/60	30.8	356	1,2,4,5,6
CP-6	ARMSTRONG 4030 3X2.5X10-4P-7.5HP	PRIMARY PUMP - HYDRONIC CHILLED/HEATING(120°) WATER LOOP	MECHANICAL C101	235	70 '	BASE MOUNT END SUCTION	7.5	1800	208/3/60	24.2	310	1,3,4,5,6
CP-7	ARMSTRONG 4030 3X2.5X10-4P-7.5HP	BACK-UP PUMP - HYDRONIC CHILLED/HEATING(120°) WATER LOOP	MECHANICAL C101	235	70 '	BASE MOUNT END SUCTION	7.5	1800	208/3/60	24.2	310	1,3,4,5,6
CP-8	ARMSTRONG 4030 4X3X8-4P-5HP	CHILLER CIRCULATOR	MECHANICAL C101	235	50'	BASE MOUNT END SUCTION	5	1800	208/3/60	16.7	264	1,3,4,5,6
CP-9	ARMSTRONG 4380 4X4X6-4P-1.5HP	CROSSOVER HEAT INJECTION INTO CHILLED/HEATING 2-PIPE SYSTEM	MECHANICAL C101	235	15'	IN-LINE	1.5	1800	208/3/60	6.6	249	1,2,6,9

6. OWNER PROVIDED WITH SHAFT GROUNDING KITS AND FLEX CONNECTIONS. 7. NOT USED.
8. FUTURE UNIT FOR REFERENCE ONLY. 9. EXPANSION TANK AND AIR SEPARATORS PROVIDED BY OTHERS UNDER THE BOILER ROOM HEATING EQUIPMENT BID PACKAGE, INSTALLED BY PC.

				PUMP SCHED	ULE								CP
EQUIP.		MANUFACTURER & MODEL	SERVING	LOCATION	GPM	HEAD	TYPE		ELE	CTRICAL		WEIGHT	NOTES
NO.		MANUFACIURER & MUDEL	SERVING	LUCATION	GPM	HEAD	ITPE	HP/(W)	RPM	V./PH./CY.	FLA	WEIGHI	NUIES
CP-10		BELL & GOSSETT PL-36B	DOMESTIC HOT WATER RECIRC. 120° CTE ADDITION	MECHANICAL C101	1.5	29.0	IN-LINE	1/6	3300	120/1/60	2.1	13.1	1,2,3,4
NOTES:	2. 3.	PUMP SHALL BE BRONZE CONSTRUC PROVIDE & INSTALL PVI DIGITEM	E ACROSS PUMP SUCTIONS & DISCHARGE FOR B CTION AND PROVIDED WITH FACTORY INSTALLED IP V55 DIGITAL WATER TEMPERING SYSTEM WIT B NATURAL GAS WATER HEATER PIPING DIAGRAM	AQUASTAT/TIMECLOCK CONTROL AND THE DIGITAL MIXED OUTLET TEMPERATU			RING. EC TO) PROVIDE	120V POWE	R, TC TO CONTE	ROL.		

GAS WATER HEATER SCHEDULE MANUFACTURER & MODEL (BTU/HR) C.W. H.W. GAS HEIGHT DIAMETER VOLTAGE FLA NAT. GAS | 199.9 | 1 1/2" | 1 1/2" | 3/4" | 76 1/2" | 27 3/4" | 120/1/60 | 5.0 | 523 | 1,2,3,4,5,6,7,8 BTH-199 235 NAT. GAS | 199.9 | 1 1/2" | 1 1/2" | 3/4" | 76 1/2" | 27 3/4" | 120/1/60 | 5.0 | 523 | 1,2,3,4,5,6,7,8 NOTES: 1. PROVIDE & INSTALL BLADDER STYLE FLOOR MOUNTED AMSE DOMESTIC EXPANSION TANK AMERICAN WHEATLEY BDT 026 WITH REPLACEABLE HEAVY DUTY BUTYL BLADDER (LISTED ON PLANS AS ET-3). 2. PROVIDE & INSTALL SIDEWALL TERMINATIONS FOR DIRECT VENT/SEALED COMBUSTION PER MANUFACTURER'S REQUIREMENTS, CONCENTRIC TERMINATIONS SHALL NOT BE ACCEPTABLE. TERMINATE VENTING PER MANUFACTURER'S REQUIREMENTS. COMBUSTION AIR AND VENTING TERMINATIONS SHALL BE SEPARATED BY A MINIMUM OF 4'.

3. SEE NATURAL GAS WATER HEATER PIPING DIAGRAM. 4. PROVIDE & INSTALL RIGID CONDENSATE DRAIN PIPING WITH CONDENSATE NEUTRALIZER TO FLOOR SINK PER MANUFACTURER'S RECOMMENDATIONS. FLEXIBLE PIPING SHALL NOT BE ACCEPTABLE. 5. CONDENSATE DRAIN PIPING TO BE SUPPORTED APPROXIMATELY 6" ABOVE FINISHED FLOOR WITH SPLIT RING STANDOFFS WITH ELBOW DOWN INTO OPEN QUARTER OF FLOOR SINK GRATE.

6. 4" POURED CONCRETE HOUSEKEEPING PAD BY P.C. CONCRETE PAD TO BE LARGE ENOUGH TO ACCOMMODATE FLOOR MOUNTED EXPANSION TANK. 7. DOMESTIC HOT WATER TO BE STORED AT 140°F, TEMPERED DOWN TO 120°F.

8. PROVIDE & INSTALL PVI DIGITEMP V71 DIGITAL WATER TEMPERING SYSTEM WITH DIGITAL MIXED OUTLET TEMPERATURE CONTROL & MONITORING. 120V POWER & PLUG PROVIDED & INSTALLED BY EC, MONITORING BY TC.

EQUIP.	MANUELATURER A MAREL	10047700	0511		0.004				was		ELECT	RICAL		RUNOUT	UNIT	NOTEO
NO.	MANUFACTURER & MODEL	LOCATION	CFM	MBH	GPM	LAT	EWT	LWT	WPD	НР	V/PH/CY	RPM	FLA	SIZE	WEIGHT (LBS)	NOTES
HUH-1	SIGMA CORP 062H	MECH/REC. A115	970	50.0	5.9	109.5	180	160	1.57	1/20	120/1/60	1050	1.1	1"	71.0 + WATER	1,2,3,

QUIP.	MANUFACTURER & MODEL	LOCATION	CFM	МВН	GPM	LAT	EWT	LWT	WPD		ELECT	RICAL		RUNOUT	UNIT WEIGHT	NOTES
NO.	MANUFACIURER & MUDEL	LUCATION	U C F IVI	МВП	GPM	LAI	EWI	LWI	(FT)	НР	V/PH/CY	RPM	FLA	SIZE	(LBS)	NUTES
CUH-1	SIGMA SFF-A-06-SRI	VEST. A100	600	45.0	5.3	132.0	180	160.0	4.02	1/10	120/1/60	1075	1.7	1"	125 + WATER	1,3,4,5,6
CUH-2	SIGMA SFF-A-04-SRI	VEST. A129	400	33.5	3.95	140.2	180	160.0	2.39	1/10	120/1/60	1075	1.7	1"	125 + WATER	1,3,4,5,6
CUH-3	SIGMA SFF-A-04-CR	VEST. B149	400	33.5	3.95	140.2	180	160.0	2.39	1/10	120/1/60	1075	1.7	1"	125 + WATER	2,3,4,5,6,7

7. UNIT TO BE PROVIDED UNDER ALTERNATE #2.

		FINN	IED -	TUBE	RA	DIA	TIO	N HE	ATE	ER SC	HE	DUL	E			E PLANS FOR LENGTH OF ELEMENT, "X" RAD IX
QUIP.			CAPACITY	AVG WATER	FLOW			ELEN	MENT				ENCLO	SURE		
NO.	MANUFACTURER & MODEL	TYPE AND/OR MOUNTING		TEMP. (°F)	GPM/ FOOT	TUBE Size	FIN SIZE	FINS/FT	BTU/FT	LENGTH	ROWS	GAUGE	LENGTH	HEIGHT	DEPTH	NOTES
RAD-IX	SIGMA SWE-12S-44C075	CU-AL / STYLE "S" SLOPE TOP	VARIES	170	0.1	3/4"	4" SQ.	48	1,118	SEE PLAN	1	16	SEE PLAN	12"	5-1/4"	1,2,3,4,5,6
		% PROPYLENE GLYCOL.	OUNTED 6" I	BELOW CEILING	G, SEE	INVERTED	FIN TUBE	RADIATION	PIPING D	ETAIL.						

3. PROVIDE FULL BACK PLATE, CORNERS, ACCESS TO VALVES. 4. PROVIDE HANGER BRACKETS TO SUPPORT PIPING WITHIN ENCLOSURE.

5. ENCLOSURE COLOR TO BE SELECTED BY ARCHITECT & OWNER.

6. PROVIDE WITH (1) ADDITIONAL SET OF DISPOSABLE FILTERS.

6. SEE PLANS FOR BASE BID VS ALTERNATE #2.

	PIPING		INSU	LATION THICK	IESS	
SYSTEM	TYPE/MATERIAL	FITTINGS	PIPE SIZES 1" OR SMALLER	PIPE SIZES 1-1/4" TO 2"	PIPE SIZES 2-1/2" AND LARGER	NOTES
DOMESTIC COLD, HOT, AND HOT RECIRC	TYPE L COPPER	SOLDER, PRO-PRESS	1/2"	1"	1-1/2"	1,2
COMPRESSED AIR	SCH 40 BLACK STEEL	SEE SPECS FOR STEEL FITTINGS		NONE		1
BELOW GRADE STORM PIPING	SEE SPECIFICATIONS (SCH 40 PVC WHERE PERMITTED)	SEE SPECIFICATIONS (SCH 40 DWV SOLVENT WELD WHERE PERMITTED)		NONE		1,3
ABOVE GRADE STORM PIPING	SEE SPECIFICATIONS (SCH 40 PVC WHERE PERMITTED)	SEE SPECIFICATIONS (SCH 40 DWV SOLVENT WELD WHERE PERMITTED)		1"		1,3,5
BELOW GRADE SANITARY NASTE & VENT PIPING	SEE SPECIFICATIONS (SCH 40 PVC WHERE PERMITTED)	SEE SPECIFICATIONS (SCH 40 DWV SOLVENT WELD WHERE PERMITTED)		NONE		1,3
ABOVE GRADE SANITARY NASTE & VENT PIPING	SEE SPECIFICATIONS (SCH 40 PVC WHERE PERMITTED)	SEE SPECIFICATIONS (SCH 40 DWV SOLVENT WELD WHERE PERMITTED)	NONE	, WITH EXCER SEE NOTE 4		1,3
CONDENSATE DRAIN PIPING/VENTING	TYPE M COPPER, SCH 40 PVC OR ABS WHERE PERMITTED	SOLDER, PRO-PRESS, SOLVENT WELD		1/2"		1,3
HOT WATER, CHILLED WATER, DUAL TEMP SUPPLY & RETURN	TYPE L COPPER, SCH 40 BLACK STEEL	SOLDER, PRO-PRESS, SEE SPECS FOR STEEL FITTINGS	1/2"	1"	1-1/2"	1,2,4

NOTES: 1. SEE SPECIFICATIONS.

2. IF USING UPONOR PEX-A PIPING, NO CRIMP FITTINGS SHALL BE ACCEPTED. CONTRACTOR MUST BE TRAINED AND FOLLOW ALL MANUFACTURER'S

RECOMMENDATIONS AND MUST FULFILL ALL AVAILABLE UPONOR 25 YEAR FITTING AND PIPE SYSTEM WARRANTY COVERAGE. 3. NO PVC PIPING ALLOWED IN RETURN AIR PLENUMS.

4. WHERE CHILLED WATER PIPING IS RUN ON THE EXTERIOR OF THE BUILDING, INSULATION SHALL BE 1-1/2" EXTRUDED POLYSTYRENE, WITH UV RESISTANT

5. WHERE STORM PIPING IS EXPOSED AND ROUTED VERTICALLY IN WELDING LAB A121 & STORAGE A120, PIPING SHALL HAVE PVC 0.020" JACKET WITH 1" EXTRUDED POLYSTYRENE STYROFOAM INSULATION FROM DROP DOWN TO FLOOR PENETRATION.

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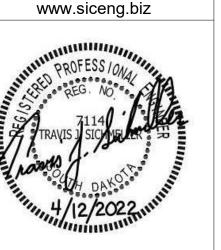
415 South Main Avenue P.O. Box 2140 Sioux Falls, South Dakota 57101 Phone: (605) 339-1711

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SE PROJECT NO: 210400723

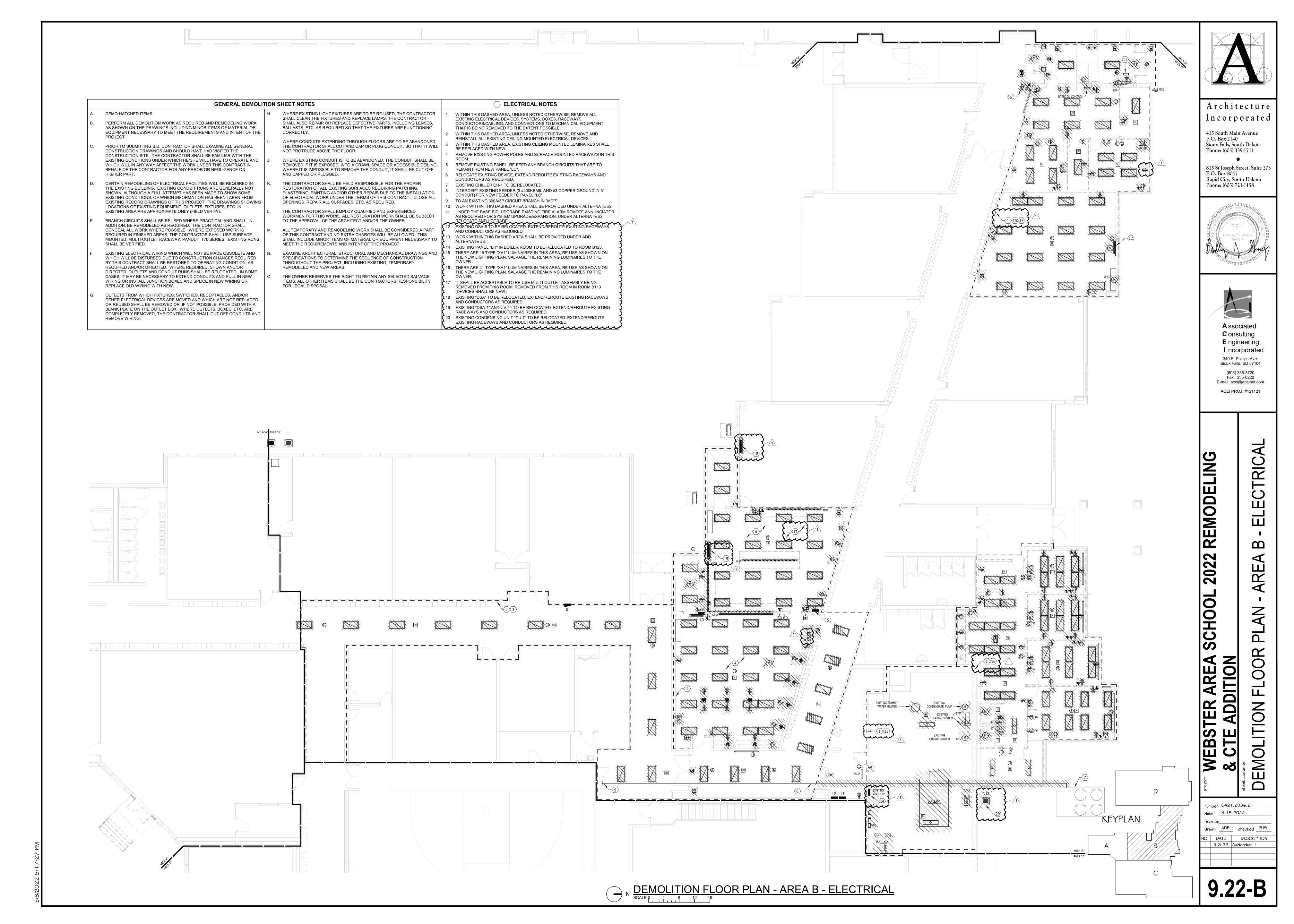
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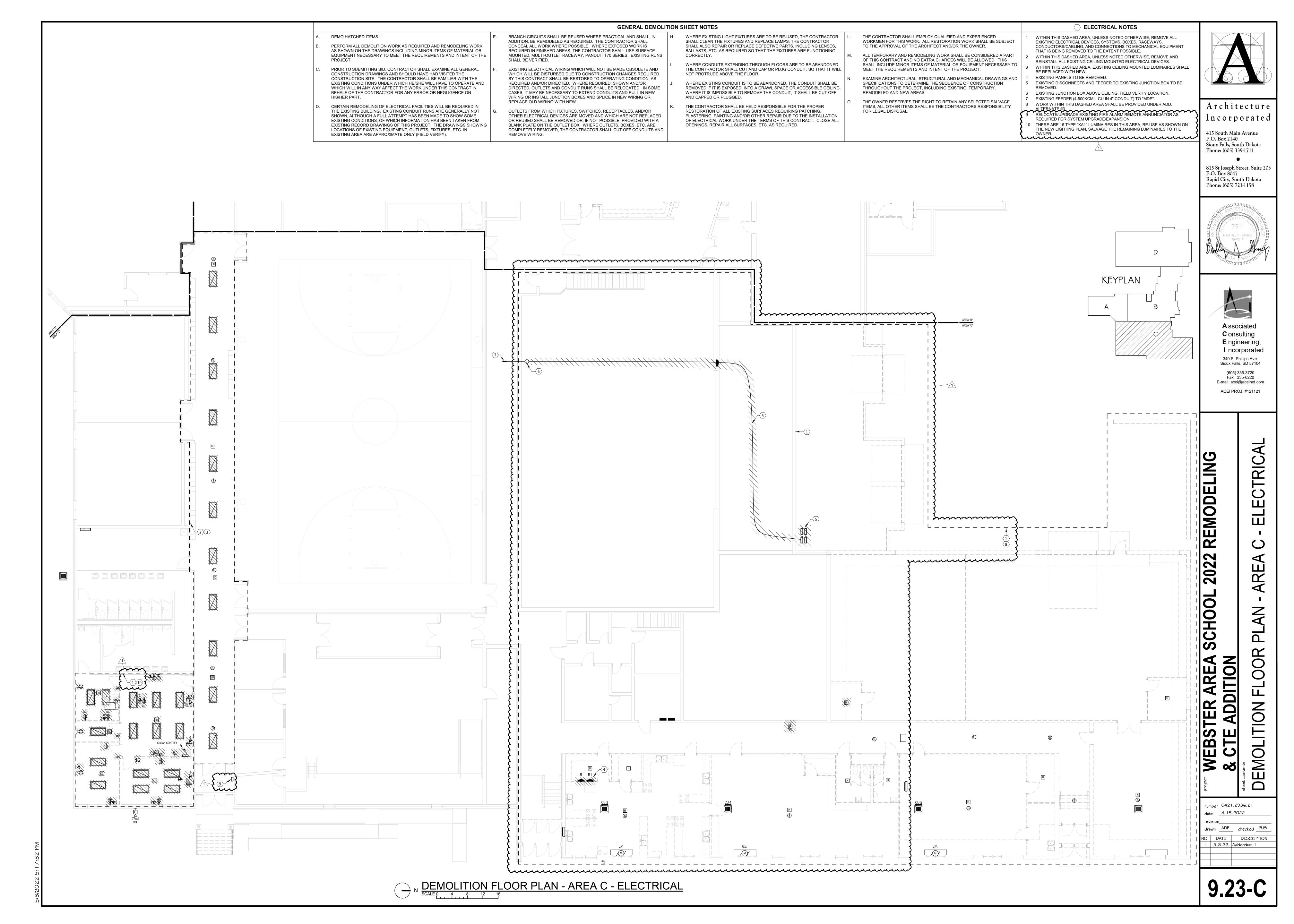
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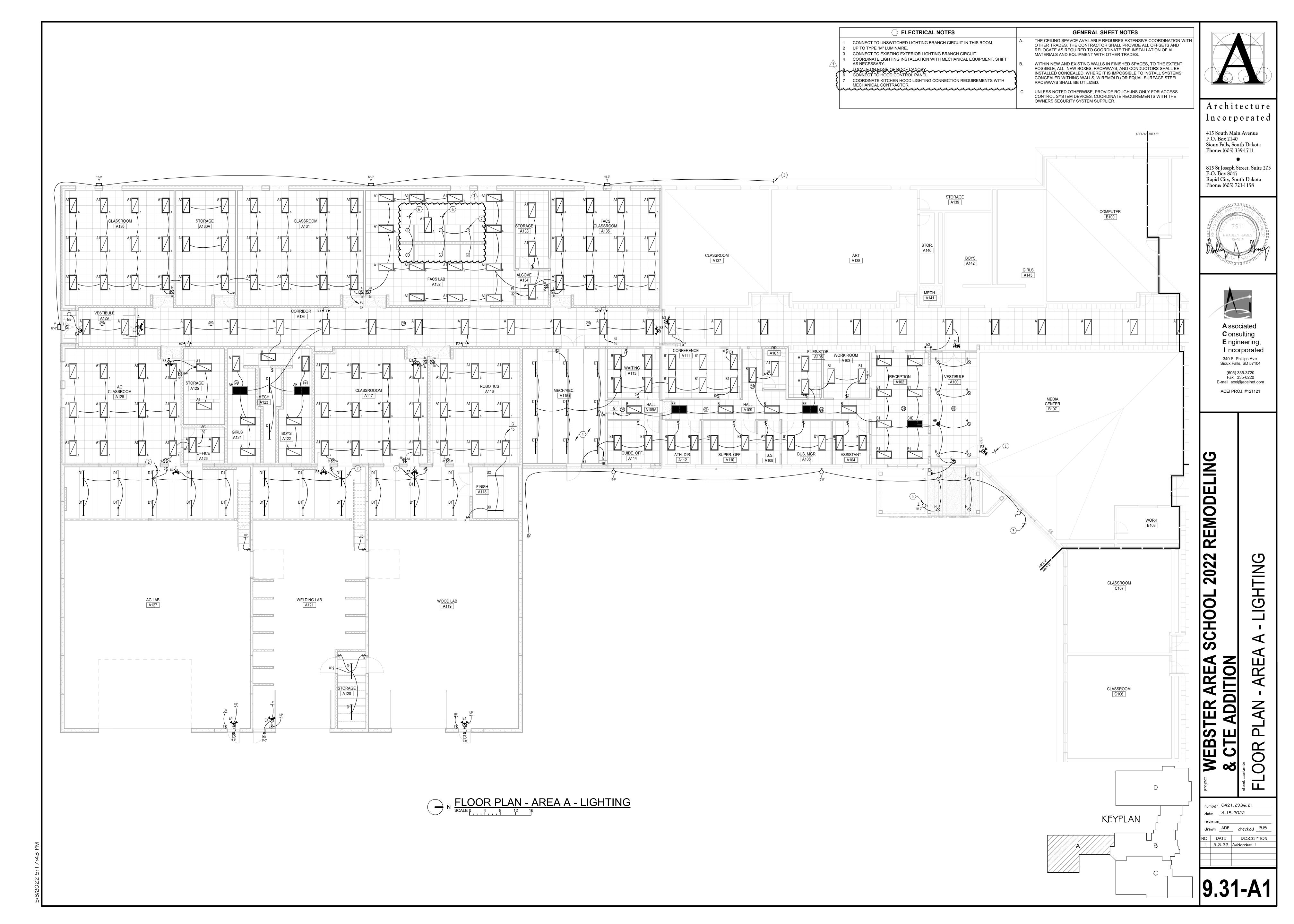
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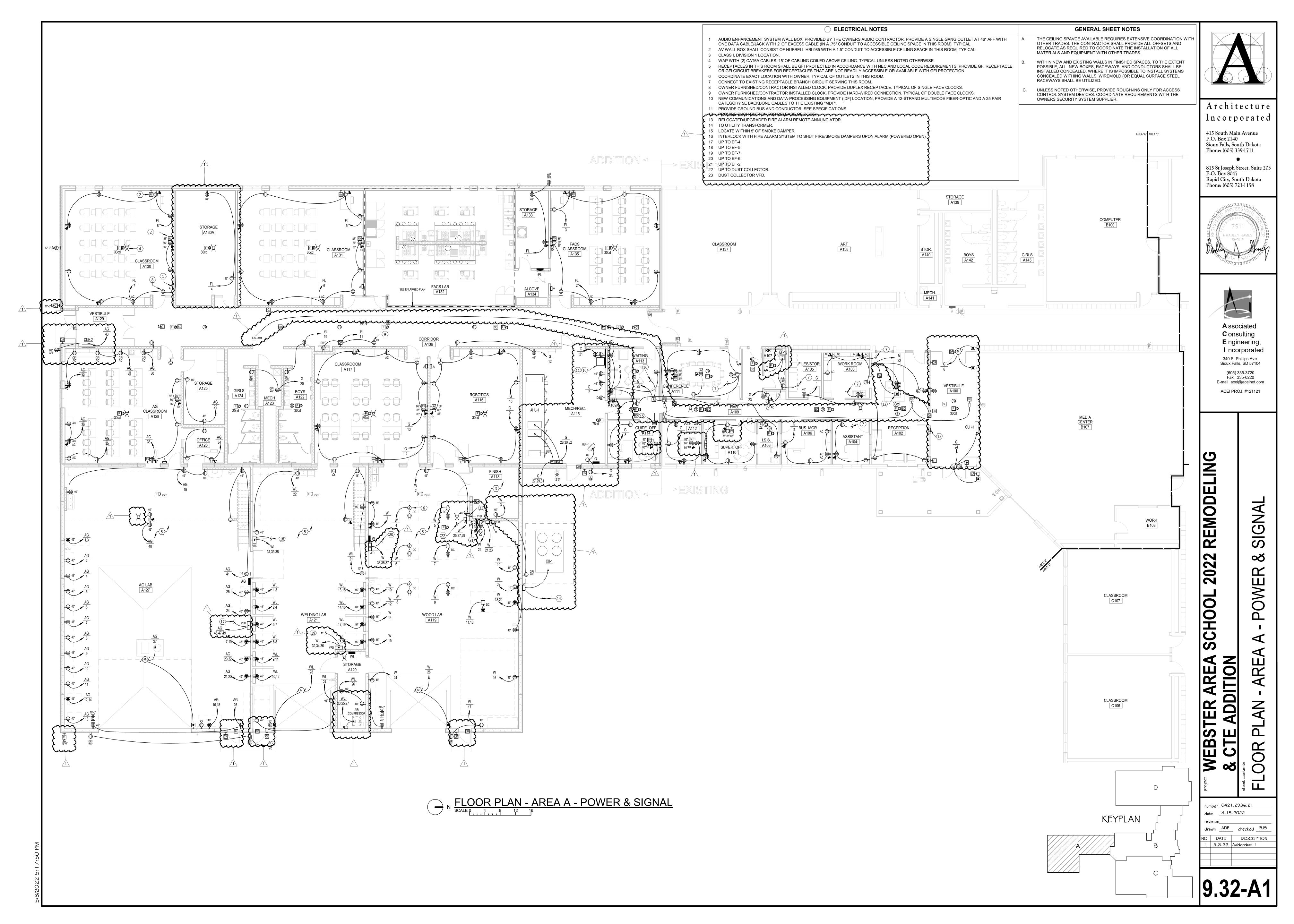
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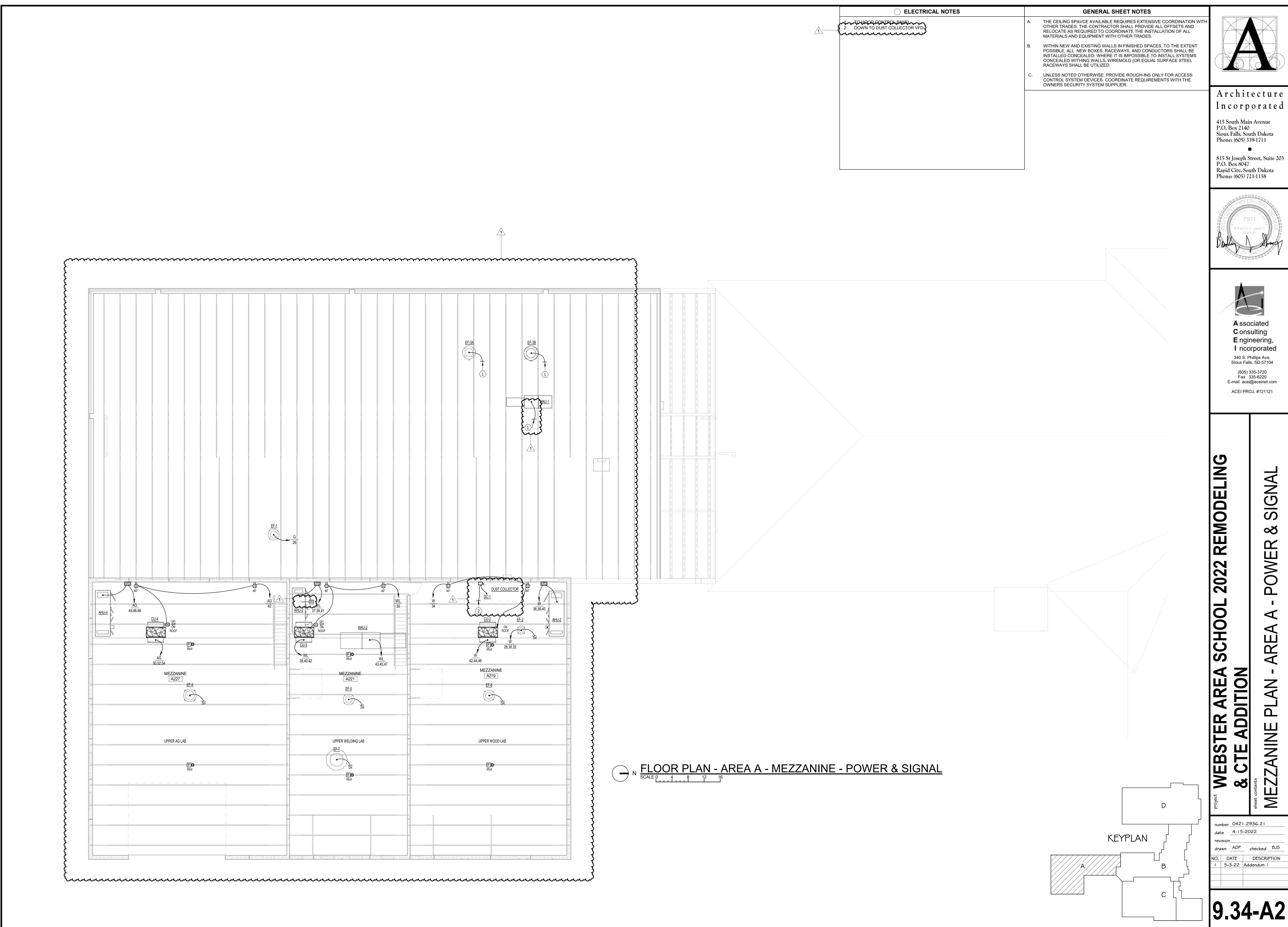
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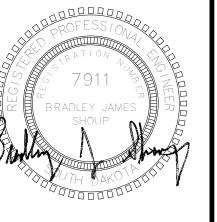


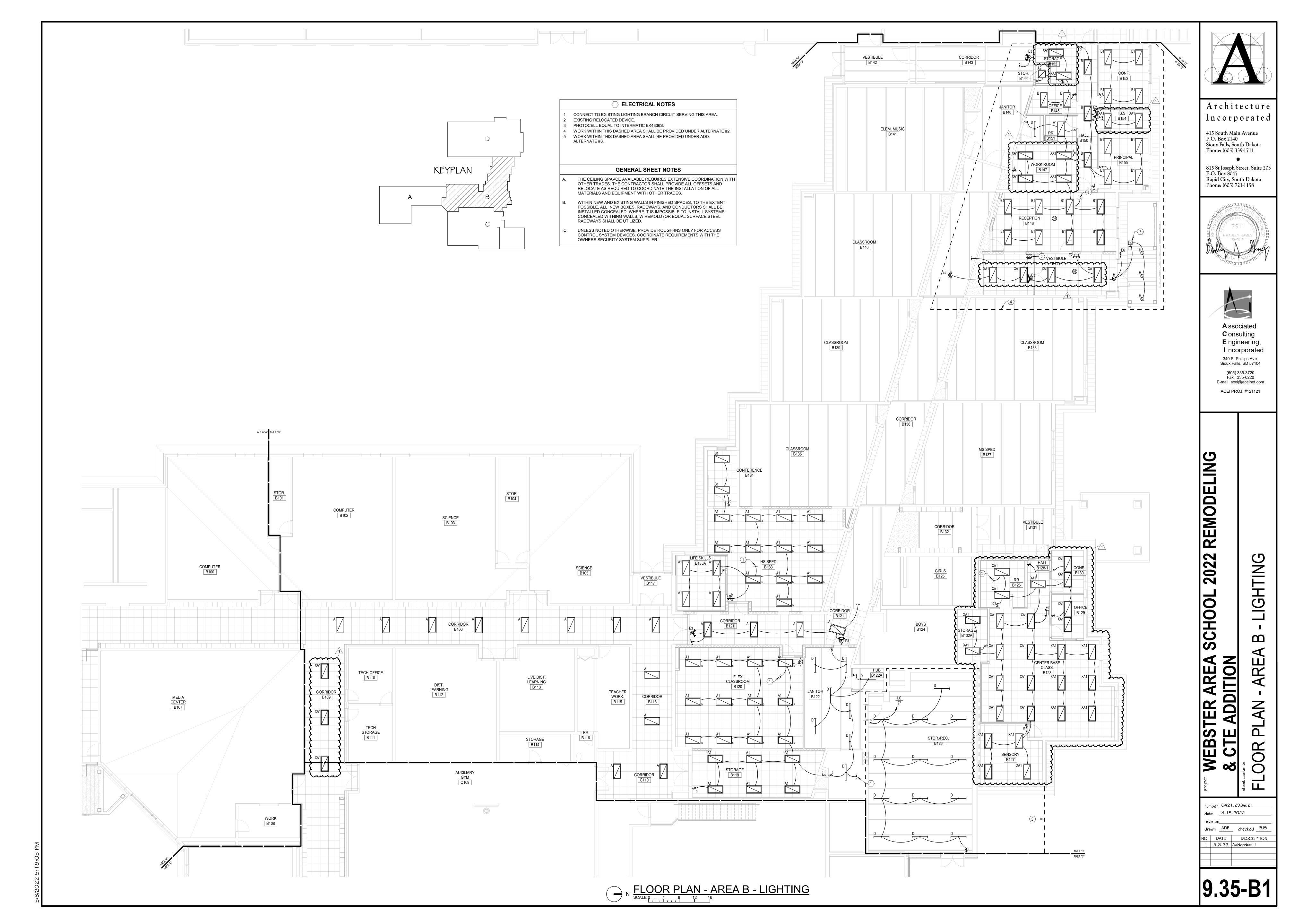


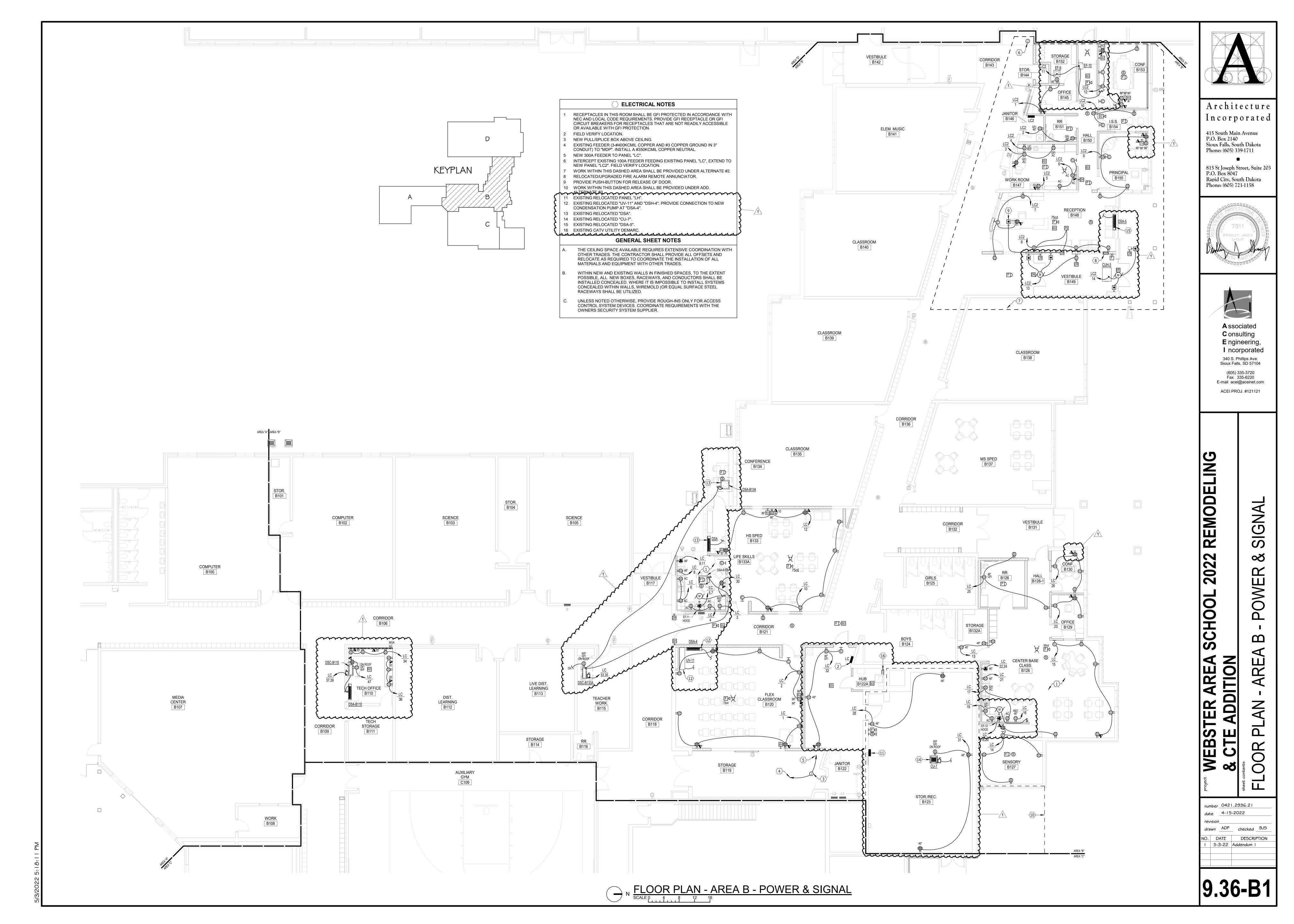


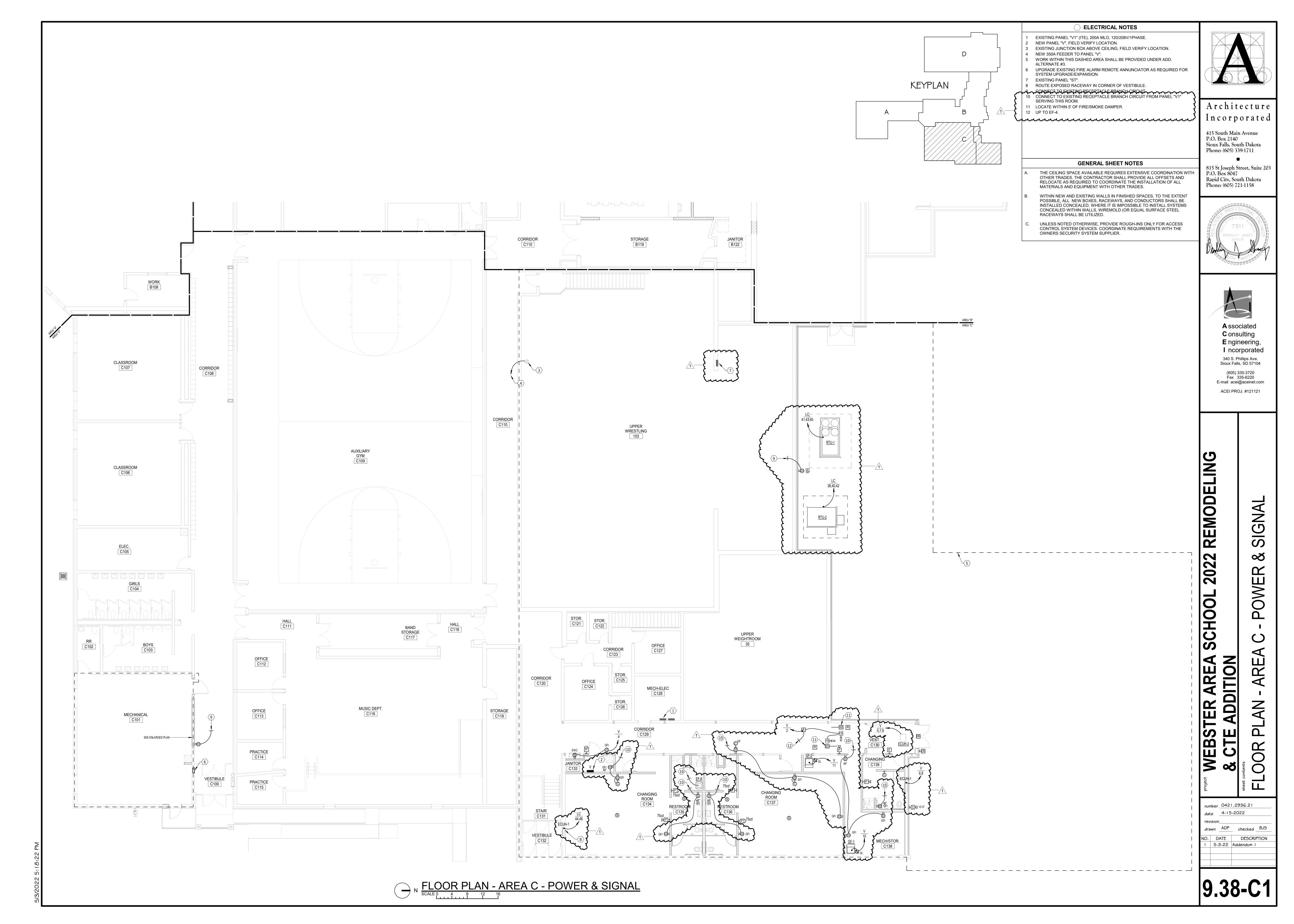
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ELECTRICAL NOTES

- RECEPTACLES IN THIS ROOM SHALL BE GFI PROTECTED IN ACCORDANCE WITH NEC AND LOCAL CODE REQUIREMENTS. PROVIDE GFI RECEPTACLE OR GFI CIRCUIT BREAKERS FOR RECEPTACLES THAT ARE NOT READILY ACCESSIBLE OR AVAILABLE WITH GFI PROTECTION.
- COORDINATE QUANTITY OF FLOW AND TAMPER SWITCHES WITH FIRE
- PROTECTION CONTRACTOR

 3 FINAL CONNECTION TO EQUIPMENT SHALL BE PROVIDED UNDER ALTERNATE #1. PROVIDE BOXES AND RACEWAYS AS REQUIRED FOR FUTURE INSTALLATION
- UNDER THE BASE BID. HOOD CONTROL PANEL.
- HOOD ANSUL SYSTEM PULL STATION.
- PROVIDE BRANCH CIRCUIT UNDER THE BASE BID. PROVIDE DROP CORD UNDER ALTERNATE #1, TYPICAL.
- BOILER EMERGENCY OFF" MUSHROOM HEAD PUSHBUTTON SWITCH. INTERLOCK WITH SHUNT TRIP CIRCUIT BREAKER IN PANEL "M". 8 PROVIDE PROTECTIVE COVER SIMILAR TO STI 13020CR.
- 9 TO UTILITY TRANSFORMER.
- 10 TO SPARE 60A/3P CIRCUIT BREAKER IN "MDP". 11 CONNECT TO EXISTING RECEPTACLE BRANCH CIRCUIT SERVING THIS ROOM. 12 MONITOR HOOD ANSUL SYSTEM WITH FIRE ALARM SYSTEM. INTERLOCK ANSUL

GENERAL SHEET NOTES

THE CEILING SPACE AVAILABLE REQUIRES EXTENSIVE COORDINATION WITH OTHER TRADES, THE CONTRACTOR SHALL PROVIDE ALL OFFSETS AND RELOCATE AS REQUIRED TO COORDINATE THE INSTALLATION OF ALL MATERIALS AND EQUIPMENT WITH OTHER TRADES.

WITHIN NEW AND EXISTING WALLS IN FINISHED SPACES, TO THE EXTENT POSSIBLE, ALL NEW BOXES, RACEWAYS, AND CONDUCTORS SHALL BE INSTALLED CONCEALED. WHERE IT IS IMPOSSIBLE TO INSTALL SYSTEMS CONCEALED WITHIN WALLS, WIREMOLD (OR EQUAL SURFACE STEEL RACEWAYS SHALL BE UTILIZED.

UNLESS NOTED OTHERWISE, PROVIDE ROUGH-INS ONLY FOR ACCESS CONTROL SYSTEM DEVICES. COORDINATE REQUIREMENTS WITH THE OWNERS SECURITY SYSTEM SUPPLIER.

415 South Main Avenue P.O. Box 2140 SYSTEM WITH APPROPRIATE SHUNT TRIP CIRCUIT BREAKERS IN PANEL "FL".

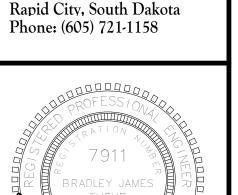
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REMODELING 202

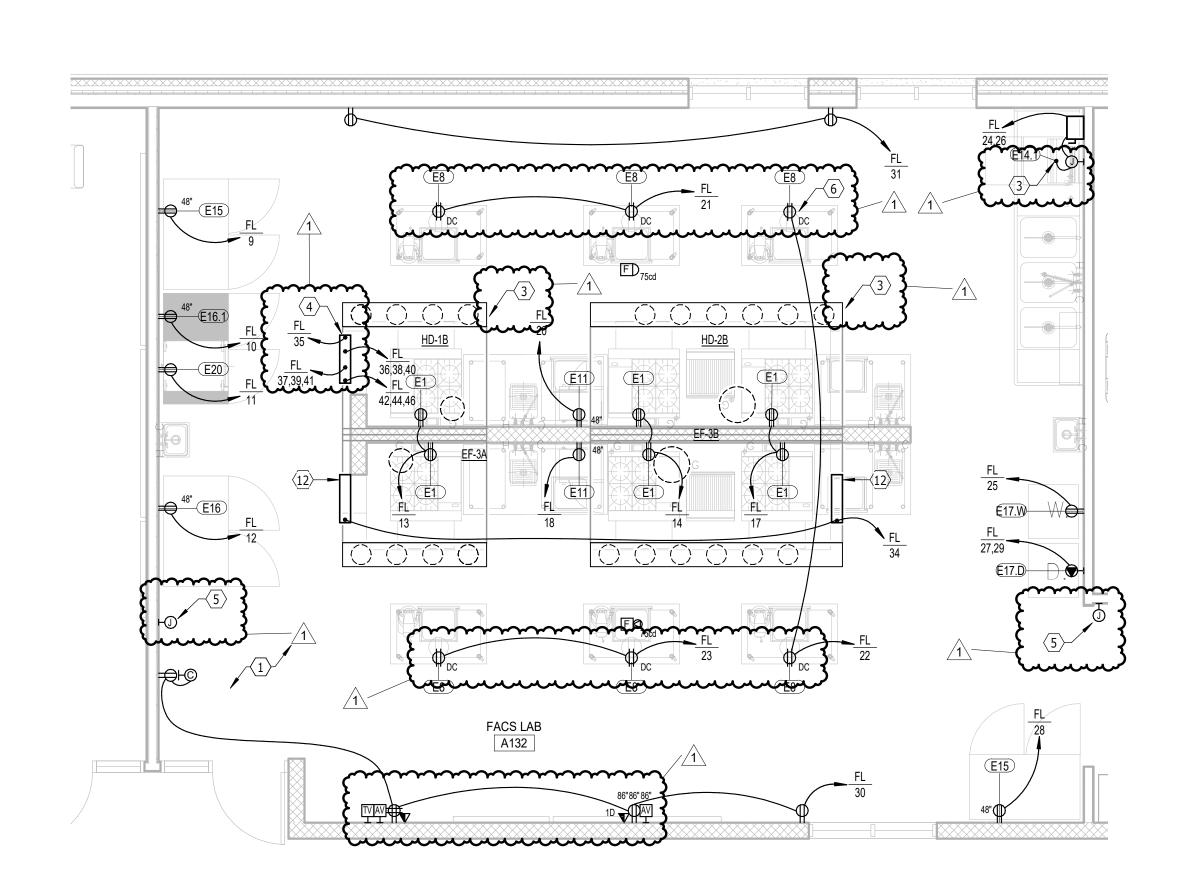
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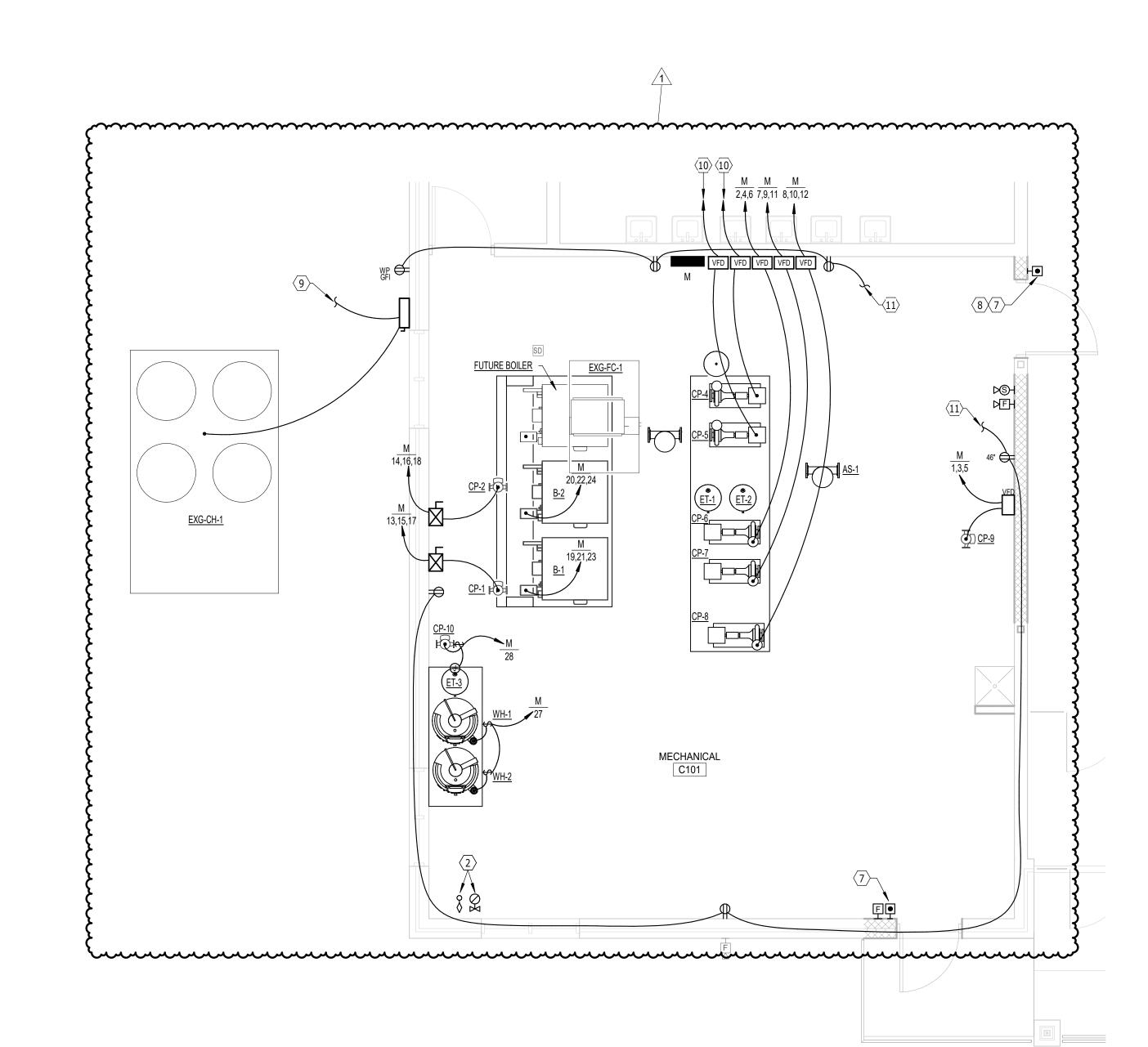
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5-3-22 Addendum I

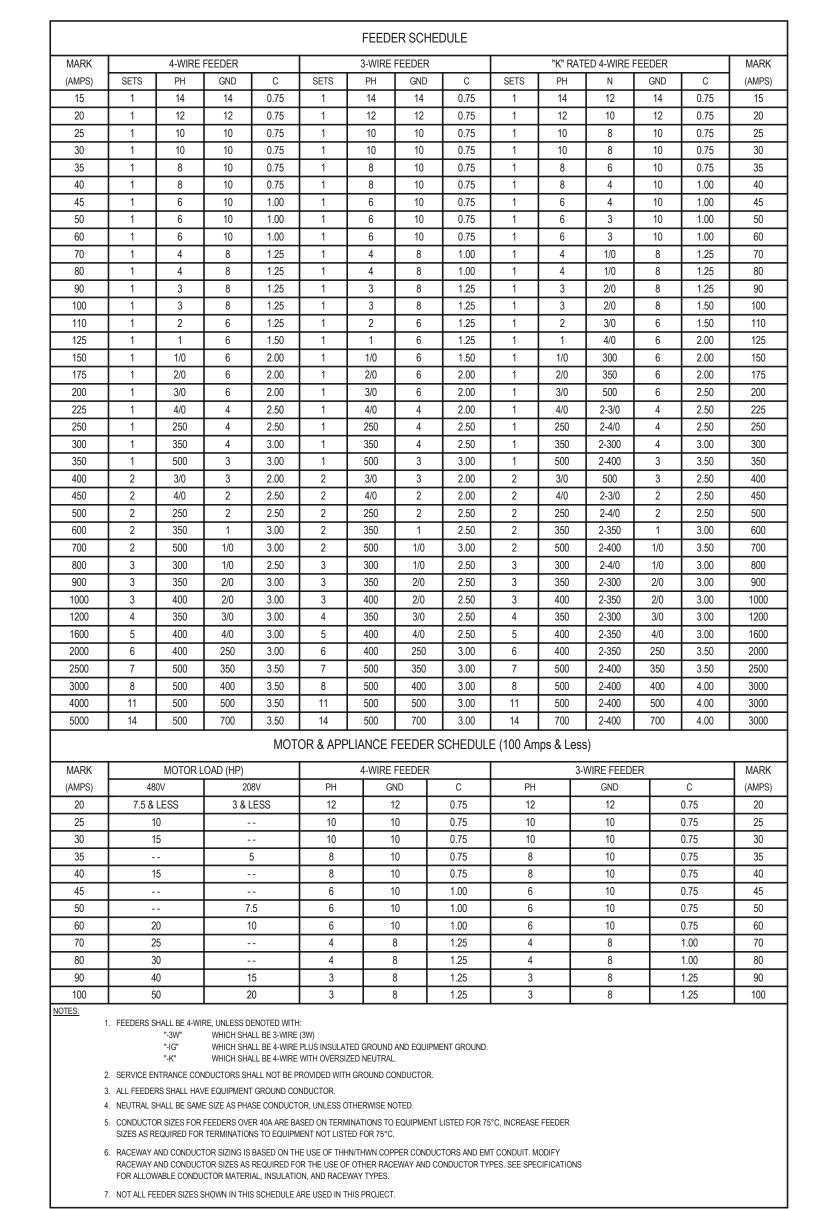
EQUIPMENT SCHEDULE ITEM QTY DESCRIPTION 6 RANGE W/ FOUR BURNERS, GRIDDLE & OVEN 120 - 3.4 5-15 18 || || SIX LOCATIONS HON INDICATE AND PROVIDED HIVER AS DECURED WERE AND PROVIDED FOR DECERTACHE AS DECURED FOR DECEMBENTS WITH OWNED AND ADDRESS OF THE PROVIDED FOR DECEMBENT O 14/11 INDERGOUNTEBRISHWASHER 11 1 1 20/209248 1 20/209248 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 1 20/20924 115 1 6.0 5-15 48 TWO LOCATIONS REACH-IN REFRIGERATOR 115 1 10.0 5-15 48 REACH-IN FREEZER 115 1 10.0 5-15 48 (1) (FUTURE) REACH-IN FREEZER * * * * * * * WILLIAM VENTING REQUIREMENTS WITH OWNER (1) (BY OWNER) LAUNDRY WASHER / DRYER 1 MOBILE HEATED CABINET 120 1 16.7 5-20 18

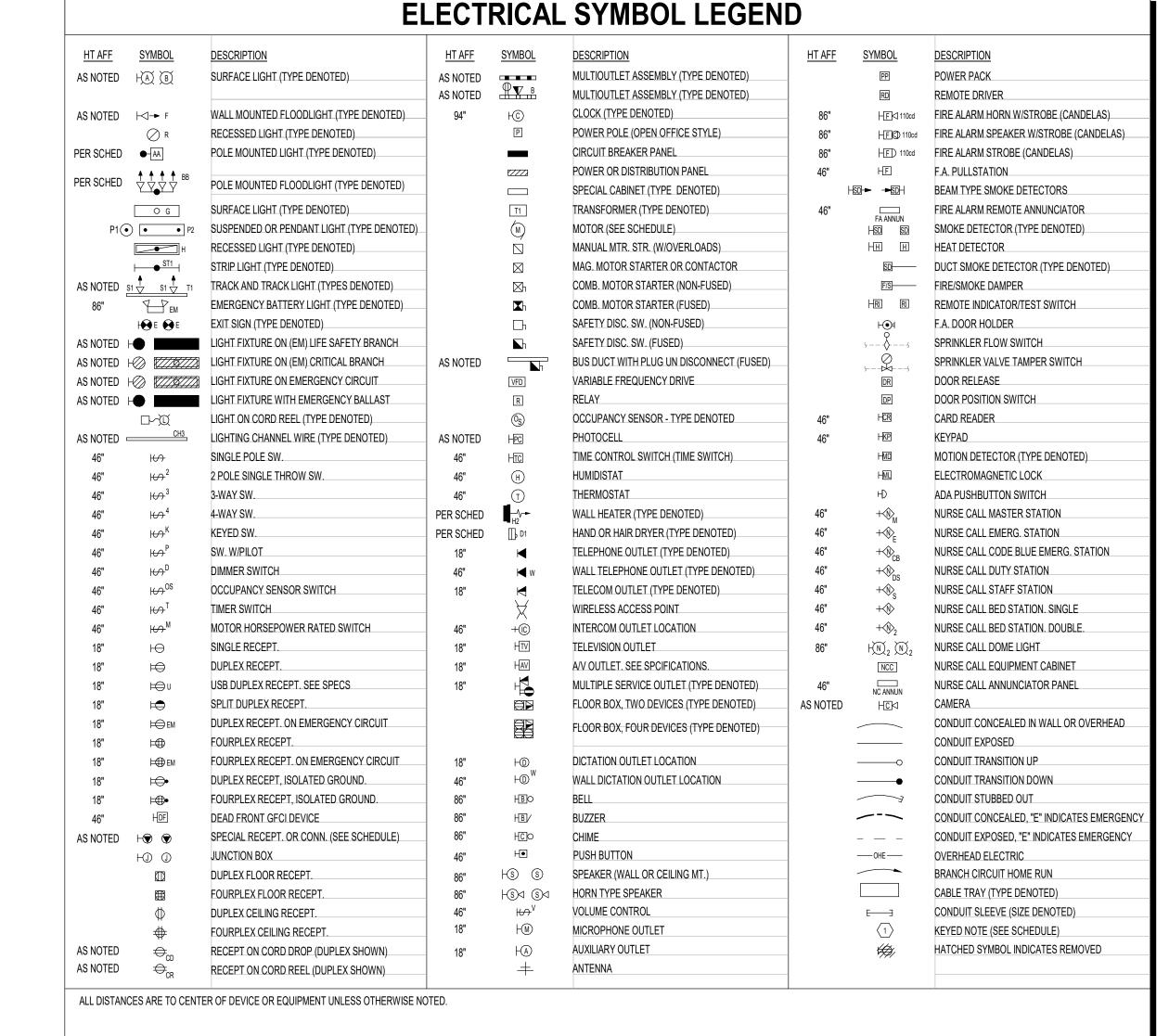


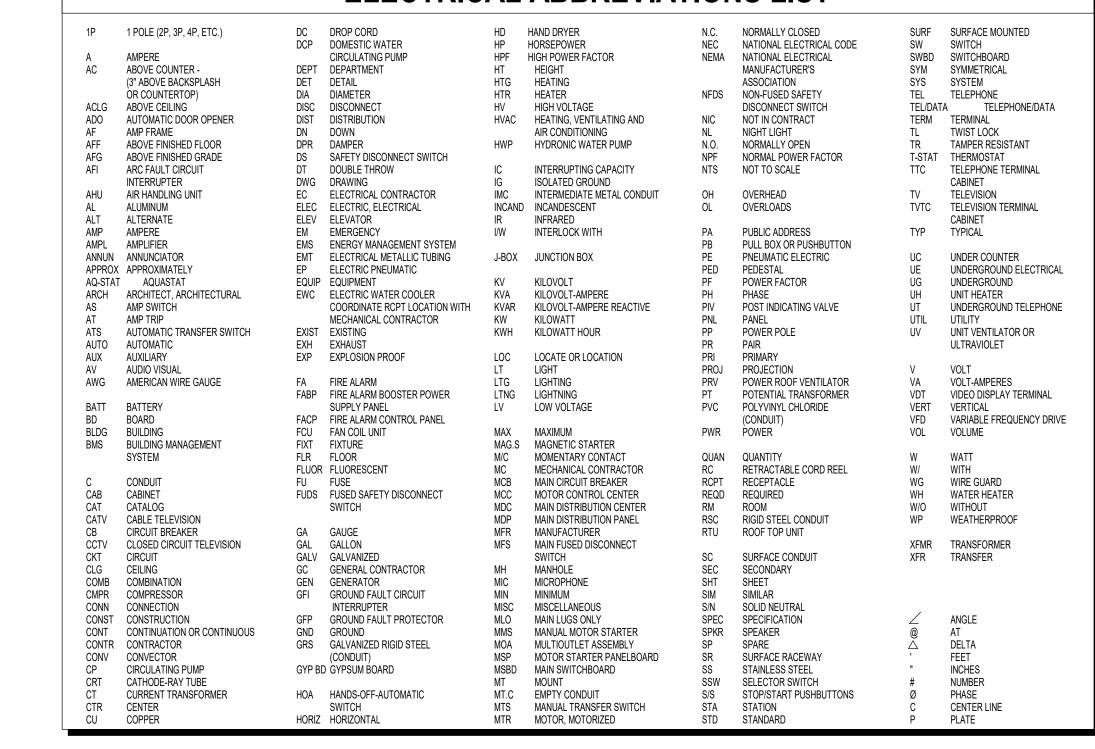
N ENLARGED FACS LAB A132 - POWER & SIGNAL

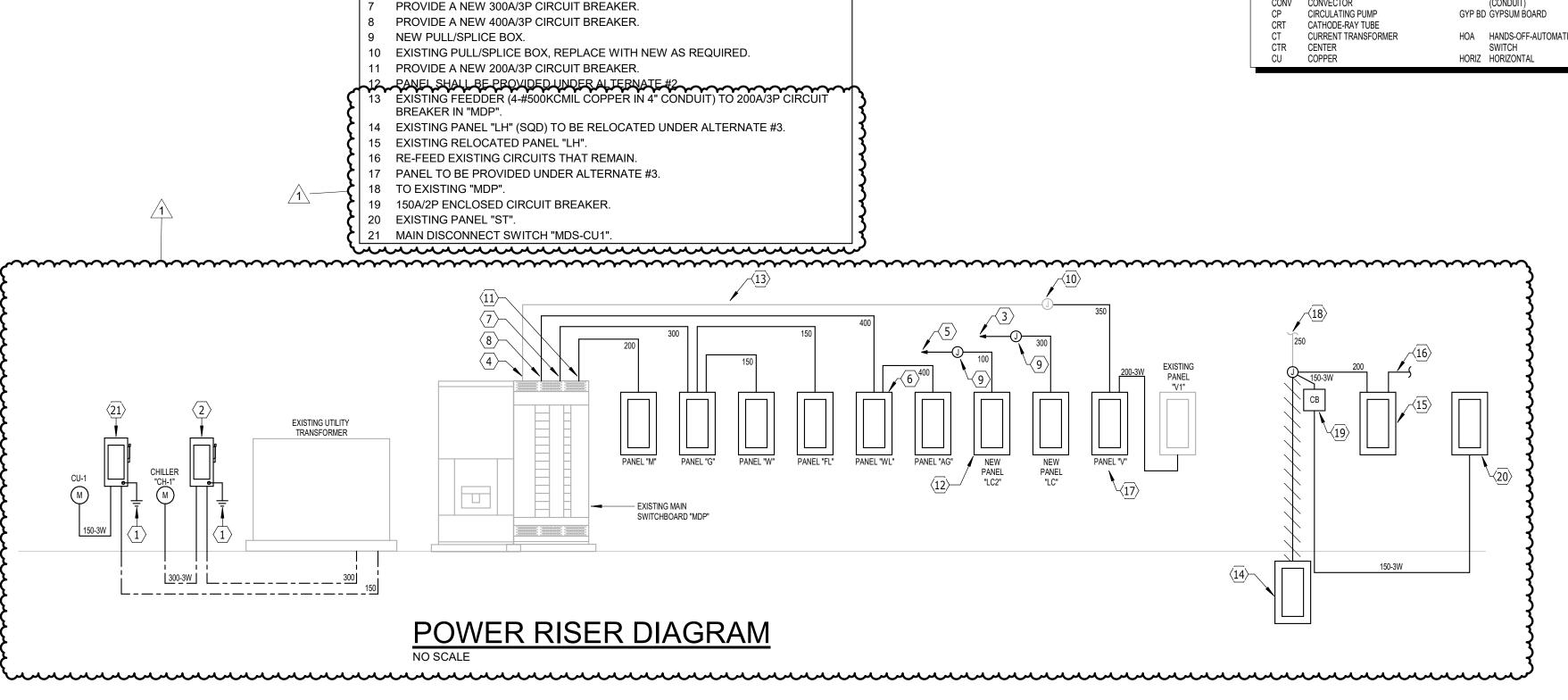


N ENLARGED MECHANICAL C101 - ELECTRICAL
SCALE D. . 7 . 4 9 8









ELECTRICAL NOTES

GROUND IN ACCORDANCE WITH THE NEC AND LOCAL CODE REQUIREMENTS.

TO A 300A/3P CIRCUIT BREAKER IN "MDP". PROVIDE #350 COPPER NEUTRAL.

REPLACE EXISTING 200A/3P CIRCUIT BREAKER WITH A NEW 300A/3P CIRCUIT

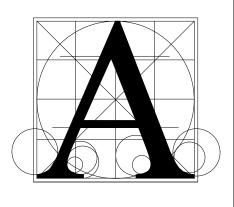
INTERCEPT EXISTING 100A FEEDER TO EXISTING PANEL "LC" THAT IS BEING

EXISTING FEEDER (3-400KCMIL COPPER AND #3 COPPER GROUND IN 3" CONDUIT)

MAIN DISCONNECT SWITCH "MDS-CH".

PROVIDE FEED-THROUGH LUGS.

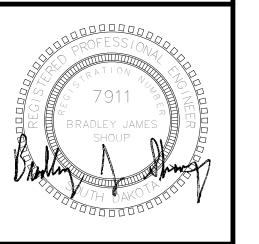
REMOVED. FOR NEW FEEDER TO PANEL "LC2".



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 \mathbf{m}

 \Box

 $\mathbf{\Omega}$

ELECTRICAL ABBREVIATIONS LIST

WEBSTER AREA SCHOOL 2022 RE & CTE ADDITION

number 0421.2936.21

date 4-15-2022

revision

drawn ADP checked BJS

O. DATE DESCRIPTION

I 5-3-22 Addendum I

9.50

LOCATION: A	G I AR A12		PA	NEL	BOA_			20 V. 3 ø 4	1 W					
MOUNTING: S MAIN DEVICE: 40 BUS AMPS: 40	URFACE N 00 A MLO				A.I.C.	-	10,000	AMPS SY		ICAL				
LOAD DESCRIPTION	BKR	POLES	СКТ		A		В	С		СКТ	POLES	BKR	LO	AD DESCRIPTION
RCPT TABLE SAW	30 A	2	1	1.2	0.6	-				2	1			S. WORK BENCH
			3			1.2	0.6			4	1	_		S. WORK BENCH
RCPT S. WORK BENCH	20 A	1	5					0.6	0.6	6	1			S. WORK BENCH
RCPT S. WORK BENCH	20 A	1	7	0.6	0.6					8	1			S. WORK BENCH
RCPT S. WORK BENCH	20 A	1	9			0.6	0.6			10	1			S. WORK BENCH
RCPT S. WORK BENCH	20 A	1	11					0.6	1.0	12	2			RADIAL ARM SAW
RCPT DRILL PRESS	20 A	1	13	1.1	1.0					14			<u> </u>	
RCPT W. AG LAB A127	20 A	1	15			0.5	3.1			16	2	50 A	RCPT F	PLASMA CUTTER
RCPT WELDER	50 A	2	17					3.1	3.1	18				
			19	3.1	3.1			-		20	2	50 A	RCPT \	VELDER
RCPT WELDER	50 A	2	21			3.1	3.1			22				
			23					3.1	0.6	24	1	20 A	RCPT I	N. WORK BENCH
RCPT N. WORK BENCH	20 A	1	25	0.6	0.4					26	1	20 A	RCPT	E. AG LAB A127
MOTORS OH DOOR A127	20 A	1	27			1.7	0.4			28	1	20 A	RCPT I	EXTERIOR
RCPT STORAGE A125	20 A	1	29					0.4	0.4	30	1	20 A	RCPT (CLASSROOM A 128
RCPT CLASSROOM A 128	20 A	1	31	0.4	0.5					32	1	20 A	RCPT (CLASSROOM A 128
RCPT CLASSROOM A 128	20 A	1	33			0.9	0.7			34	1	20 A	RCPT (OFFICE A 126
RCPT CLASSROOM A 128	20 A	1	35					0.4	0.5	36	1	20 A	RCPT (CLASSROOM A 128
LITES MEZZ A 227	20 A	1	37	0.6	0.8					38	1	20 A	LITES	AG LAB
LITES OFFICE A126	20 A	1	39			0.9	1.2			40	1	20 A	RCPT A	AG LAB A127
RCPT AG LAB A127	20 A	1	41					0.4	0.5	42	1	20 A	RCPT I	MEZZANINE A227
MOTORS CUH-2	20 A	1	43	0.4	2.1					44	3	35 A	MOTOR	RS AHU-4
MOTORS EF-4	15 A	3	45			0.0	2.1			46				
			47					0.0	2.1	48				
			49	0.0	5.4					50	3	75 A	MOTOR	RS CU-4
Spare	20 A	1	51			0.0	5.4			52				
Spare	20 A	1	53					0.0	5.4	54				
		TOTAL L	DAD:	22	kVA	25	kVA	22 k	VA					
		TOTAL A	MPS:	1	83 A	21	2 A	186	Α					
LOAD CLASSIFICATION	<u>' </u>	CONNE	CTED		DEMA	ND	EST	MATED		-		PANEL T	OTALS	<u> </u>
Power		0 V			0.009) VA						
RCPT		43683			61.45			342 VA			COI	NNECTED	ΙΟΔΟ·	69634 VA
MOTORS		24060						060 VA				MATED DE		
					100.00									
LITES		2214	VA		125.00	J%o	27	67 VA				CTED CUR		
											EST. DEN	MAND CUR	RENT:	148 A
NOTES:														
TO I LO.					NEC AND									

LOCATION: ST		A 120	PA	NEL		DLTAGE	: 208Y/12	20 V. 3 ø 4					
MOUNTING: SU MAIN DEVICE: 400 BUS AMPS: 400	A MLO	NEMA1				RATING PECIAL		AMPS SY	MMETR	RICAL			
LOAD DESCRIPTION	BKR	POLES	СКТ		Α		В	С		СКТ	POLES	BKR	LOAD DESCRIPTION
RCPT S. WELDER	50 A	2	1	3.1	3.1					2	2	50 A	RCPT S. WELDER
			3			3.1	3.1			4			
RCPT S. WELDER	50 A	2	5					3.1	3.1	6	2	50 A	RCPT S. WELDER
			7	3.1	3.1					8			
RCPT S. WELDER	50 A	2	9			3.1	3.1			10	2	50 A	RCPT S. WELDER
			11					3.1	3.1	12			
RCPT N. WELDER	50 A	2	13	3.1	3.1					14	2	50 A	RCPT N. WELDER
			15			3.1	3.1			16			
RCPT N. WELDER	50 A	2	17					3.1	3.1	18	2	50 A	RCPT N. WELDER
			19	3.1	3.1					20			
RCPT W. WELDING LAB A121	20 A	1	21			0.7	0.2			22	1	20 A	RCPT W. WELDING LAB A12
MOTORS AIR COMPRESSOR	60 A	3	23					3.8	0.4	24	1	20 A	RCPT E. WELDING LAB A121
			25	3.8	0.4					26	1	20 A	RCPT STORAGE 120
			27			3.8	1.7			28	1	20 A	MOTORS OH DOOR WELD
LITES WELDING LAB	20 A	1	29					0.5	0.4	30	1	20 A	RCPT MEZZANINE A221
MOTORS EF-5	15 A	3	31	0.6	2.0					32	3	35 A	MOTORS EF-7
			33			0.6	2.0			34			
			35					0.6	2.0	36			
MOTORS AHU-3	15 A	3	37	0.8	3.4					38	3	45 A	MOTORS CU-3
			39			0.8	3.4			40			
			41					0.8	3.4	42			
MOTORS MAU-2	50 A	3	43	2.8	0.0					44	1	20 A	Spare
			45			2.8	0.0			46	1	20 A	Spare
			47					2.8	0.0	48	1	20 A	Spare
Spare	20 A	1	49	0.0	22.0					50	3	20 A	PANEL "AG"
Spare	20 A	1	51	0.0		0.0	25.4			52			
Spare	20 A	1	53			0.0		0.0	22.3	54			
		TOTAL L		60	kVA	59	kVA	54 k		<u> </u>			
		TOTAL A			02 A		7 A	454					
LOAD CLASSIFICATION		CONNE			DEMAI			IMATED				DANEI	TOTALS
												FANLL	TOTALS
Power		0 V			0.00%) VA					
RCPT		107392			54.66			696 VA					D LOAD: 172875 VA
MOTORS		63272	· VA		100.00)%	632	272 VA			ESTIN	MATED D	EMAND : 124944 VA
LITES		2729	VA		125.00	1%	34	11 VA			CONNE	CTED CL	IRRENT: 480 A
											EST. DEN	MAND CL	IRRENT: 347 A
									1				1

			PA	NEL	BOA	RD:	LC						
LOCATION: JA								20 V. 3 ø 4		ICAI			
MOUNTING: SU MAIN DEVICE: 40 BUS AMPS: 40	00 A MLO					PECIAL		AMPS SYI	IVIIVIE I R	IICAL			
LOAD DESCRIPTION	BKR	POLES	CKT		Α		В	C		СКТ	POLES	BKR	LOAD DESCRIPTION
RCPT FLEX CLASSROOM	20 A	1	1	1.1	1.1		<u>Б</u>	C		2	1	20 A	RCPT FLEX CLASSROOM
RCPT FLEX CLASSROOM	20 A	1	3	1.1	1.1	0.8	0.7			4	1	20 A	RCPT LIFE SKILLS B133A
RCPT LIFE SKILLS B133A	50 A	2	5			0.6	0.7	3.1	0.7	6	1	20 A	RCPT LIFE SKILLS B133A
			7	3.1	1.2			3.1	0.7	8	1	20 A	RCPT LIFE SKILLS B133A
RCPT LIFE SKILLS B133A	30 A	2	9	5.1	1.2	2.1	1.1			10	1	20 A	RCPT HS SPED B133
			11			2.1	1.1	2.1	1.1	12	1	20 A	RCPT HS SPED B133
RCPT STORAGE B132A	20 A	1	13	0.5	1.1			2.1		14	1	20 A	RCPT SENSORY B127
RCPT C.B. CLASS B128	20 A	1	15	0.0		0.5	0.8			16	1	20 A	RCPT C.B. CLASS B128
RCPT C.B. CLASS B128	20 A	1	17			0.0	0.0	0.7	3.1	18	2	50 A	RCPT C.B. CLASS B128
MOTORS C.B. CLASS B128	20 A	1	19	0.9	3.1			0	<u> </u>	20			
RCPT C.B. CLASS B128	20 A	1	21			1.2	2.1			22	2	30 A	RCPT C.B. CLASS B128
RCPT OFFICE B129	20 A	1	23					0.7	2.1	24			
RCPT RR B126	20 A	1	25	0.5	0.5					26	1	20 A	RCPT CONF. B130
LITES STORAGE B123	20 A	1	27			0.8	0.4			28	1	20 A	RCPT STORAGE B123
LITES EXTERIOR AREA C	20 A	1	29					0.2	0.6	30	1	20 A	MOTORS LIFE SKILLS B133A
RCPT STORAGE B123	20 A	1	31	0.5	0.7					32	1	20 A	RCPT JANITOR B122
MOTORS DSC-B133A	20 A	2	33			0.5	0.5			34	1	20 A	RCPT TECH OFFICE B110
			35					0.5	0.5	36	1	20 A	RCPT TECH OFFICE B110
MOTORS DSC-B110	15 A	2	37	0.7	2.6					38	3	35 A	MOTORS RTU-2
			39			0.7	2.6			40			
MOTORS RTU-1	80 A	3	41					7.2	2.6	42		-	
			43	7.2	2.0					44	2	25 A	HEAT ECUH-1
			45			7.2	2.0			46			
RCPT TECH OFFICE B110	20 A	1	47					0.4	0.0	48	1	20 A	Spare
Spare	20 A	1	49	0.0						50			
Spare	20 A	1	51			0.0				52			
Spare	20 A	1	53					0.0		54			
		TOTAL LO			kVA		kVA	25 k\					
		TOTAL A	MPS:	22	21 A	19	6 A	212	Α				
LOAD CLASSIFICATION		CONNE	CTED		DEMAI	ND	EST	IMATED				PANEL	TOTALS
RCPT		38815	VA		62.88	%	24	407 VA					
MOTORS		31886	VA		100.00	%	31	886 VA			COI	NNECTE	D LOAD : 74964 VA
LITES		916 \	/A		125.00	1%	11	45 VA			ESTIN	MATED D	EMAND : 60787 VA
HEAT		3952	VA		100.00	1%	39	52 VA			CONNEC	CTED CU	JRRENT: 208 A
													JRRENT: 169 A

			PA	NEI	LBOA	ARD :	FL							
LOCATION: AL MOUNTING: RE MAIN DEVICE: 200 BUS AMPS: 200	CESSED O A MLO	-			A.I.C.		10,000	20 V. 3 ø 4 AMPS SY		RICAL				
LOAD DESCRIPTION	BKR	POLES	СКТ		Α		В	С		СКТ	POLES	BKR	LO	AD DESCRIPTION
RCPT STORAGE A113	20 A	1	1	0.7	0.9					2	1	20 A		CLASSROOM A135
RCPT CLASSROOM A135	20 A	1	3	U	0.0	1.1	0.4			4	1	20 A		STORAGE 130A
RCPT CLASSROOM A131	20 A	1	5					1.1	1.1	6	1	20 A		CLASSROOM A131
RCPT CLASSROOM A130	20 A	1	7	1.1	1.1					8	1	20 A		CLASSROOM A130
RCPT REACH-IN FRIDGE	20 A	1	9		***	0.7	1.2			10	1	20 A		REACH-IN FREEZER
RCPT HEAT CABINET	20 A	1	11			0.7	1.2	2.0	1.2	12	1	20 A		REACH-IN FREEZER
RCPT RANGE	20 A	1	13	0.8	0.8			2.0	1.6	14	1	20 A	RCPT F	
SHUNT TRIP		<u> </u>	15	0.0	0.0	0.0	0.0			16			SHUNT	
RCPT RANGE	20 A	1	17			0.0	0.0	0.8	1.6	18	1	20 A		MICROWAVE
SHUNT TRIP			19	0.0	1.6			0.0	1.0	20	1	20 A		MICROWAVE
RCPT FOOD MIXER	20 A	1	21	0.0	1.0	1.2	1.2			22	1	20 A		OOD MIXER
RCPT FOOD MIXER	20 A	1	23			1.2	1.2	1.2	3.2	24	2	35 A		RS DISHWASHER
RCPT WASHER	20 A	1	25	1.2	3.2			1.2	0.2	26				TO DIOTIVITOTIEIT
RCPT DRYER	30 A	2	27	1.2	0.2	2.5	0.7			28	1	20 A	RCPT F	REACH-IN FRIDGE
			29			2.0	0.7	2.5	0.9	30	1	20 A		FACS LAB 132
RCPT FACS LAB 132	20 A	1	31	0.4	1.5			2.0	0.5	32	1	20 A		AB 132 / CLASS 135
LITES CLASS 131/ CLASS 130	20 A	1	33	0.4	1.0	1.5	0.2			34	1	20 A		ACS LAB A132
LITES FACS LAB 132	20 A	1	35			1.5	0.2	0.6	0.6	36	3	15 A		RS EF-3A
MOTORS EF-3B	35 A	3	37	2.0	0.6			0.0	0.0	38			IVIO I OI	NO EI FOR
			39	2.0	0.0	2.0	0.6			40				
I			41			2.0	0.0	2.0	1.8	42	3	35 A	MOTOF	RS MUA-2
Spare	20 A	1	43	0.0	1.8			2.0	1.0	44				NO INIO/A-Z
Spare	20 A	1	45	0.0	1.0	0.0	1.8			46				
Spare	20 A	1	47			0.0	1.0	0.0	0.0	48	1	20 A	Spare	
Spare	20 A	1	49					0.0	0.0	50	ı	20 A	Spare	
			51							52				
			53							54				
		TOTAL L		1-	7 kVA	15	kVA	20 k'	./^	54				
+		TOTAL A			43 A		2 A	167		-				
LOAD CLASSIFICATION												DANEL	TOTALO	
		CONNE		'	DEMA			IMATED				PANEL	TOTALS	
Power		0 V			0.00			O VA						
RCPT		29361			67.03			680 VA			CON	NECTE	D LOAD:	51059 VA
MOTORS		19673	VA		100.00)%	196	673 VA			ESTIN	IATED D	EMAND:	42393 VA
LITES		3467	VA		125.00)%	43	33 VA			CONNEC	CTED CU	RRENT:	142 A
											EST. DEM	IAND CU	RRENT:	118 A
NOTES: 1. PROVIDE GFI CIRCUIT BRE	AKERS A	S REQUIF	RED B	Y THE	NEC AND	LOCAL	CODE RE	EQUIREMI	ENTS.					

 λ

			PA	NEI	_BOA	ARD:	W							
LOCATION: WO MOUNTING: SU MAIN DEVICE: 200 BUS AMPS: 200	RFACE N				A.I.C.		10,000	20 V. 3 ø 4 AMPS SY		ICAL				
LOAD DESCRIPTION	BKR	POLES	СКТ		A		В	С		СКТ	POLES	BKR	LO	AD DESCRIPTION
RCPT W. WOOD LAB A119	20 A	1	1	0.4	0.2					2	1	20 A	RCPT V	V. WOOD LAB A1
RCPT FINISH A118	20 A	1	3			0.2	0.6			4	1	20 A	RCPT V	VOOD LAB A119 D
RCPT WOOD LAB A119 DC	20 A	1	5					0.6	0.6	6	1	20 A	RCPT V	VOOD LAB A119 D
RCPT WOOD LAB A119 DC	20 A	1	7	0.6	0.6					8	1	20 A	RCPT V	VOOD LAB A119 D
RCPT WOOD LAB A119 DC	20 A	1	9			0.6	1.2			10	1	20 A	RCPT E	BELT/DISC SANDE
RCPT WOOD LAB A119 DC	20 A	2	11					1.2	0.6	12	1	20 A	RCPT S	S. WOOD LAB A11
-			13	1.2	0.6					14	1	20 A	RCPT S	S. WOOD LAB A11
RCPT S. WOOD LAB A119	20 A	1	15			0.6	1.8			16	1	20 A	RCPT N	IITER SAW
RCPT E. WOOD LAB A119	20 A	1	17					0.4	1.5	18	2	20 A	RCPT F	PLANER
RCPT JOINTER	20 A	1	19	1.0	1.5					20				
MOTORS CNC MACHINE	20 A	2	21			1.4	0.2			22	1	20 A	RCPT (NC COMPUTER
-			23					1.4	0.4	24	1	20 A	RCPT E	. WOOD LAB A11
MOTORS DUST COLLECTOR	25 A	3	25	1.6	1.7					26	1	20 A	MOTOF	RS OH DOOR A119
-			27			1.6	0.5			28	3	20 A	MOTOF	RS EF-2
-			29					1.6	0.5	30				
LITES WOODS LAB	20 A	1	31	0.8	0.5					32				
MOTORS EF-6	15 A	3	33			0.6	0.4			34	1	20 A	RCPT N	/IEZZANINE A219
-			35					0.6	1.3	36	3	20 A	MOTOF	RS AHU-2
-			37	0.6	1.3					38				
RCPT N. WOOD LAB A119	20 A	1	39			0.2	1.3			40				
ITES MEZZ. A219/221	20 A	1	41					0.8	4.0	42	3	50 A	MOTOF	RS CU-2
Spare	20 A	1	43	0.0	4.0					44				
Spare	20 A	1	45			0.0	4.0			46				
Spare	20 A	1	47					0.0	0.0	48	1	20 A	Spare	
			49							50				
			51							52				
			53							54				
		TOTAL L	OAD:	16	6 kVA	14	kVA	15 k'	VA					
		TOTAL A	MPS:	1	32 A	11	9 A	123	Α					
LOAD CLASSIFICATION		CONNE	CTED		DEMA	ND	EST	IMATED				PANEL	TOTALS	
Power		0 V	Ą		0.00	%) VA						
RCPT		16559			80.19			280 VA			COI	NECTE	D LOAD.	44745 VA
MOTORS		26649			100.00			649 VA						41852 VA
ITES														
LIIEO		1597	VA		125.00	J 7/0	19	96 VA					JRRENT:	
											EST. DEN	IAND CL	JRRENT:	116 A

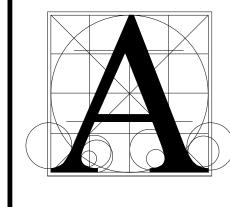
		ı			_BOA	IIVD.	LUZ	_					
LOCATION: MOUNTING: SUF MAIN DEVICE: 100 BUS AMPS: 100	A MLO	NEMA1			A.I.C. I	_	10,000	20 V. 3 ø 4 AMPS SY		ICAL			
LOAD DESCRIPTION	BKR	POLES	СКТ		A	F	3	С		СКТ	POLES	BKR	LOAD DESCRIPTION
RCPT OFFICE B145	20 A	1	1	0.4	0.4	-				2	1	20 A	RCPT RR B151
RCPT WORK ROOM B147	20 A	1	3	.	0.1	0.7	0.6			4	1	20 A	RCPT WORK ROOM B147
RCPT WORK ROOM B147	20 A	1	5				0.0	1.2	0.4	6	1	20 A	RCPT WORK ROOM B147
RCPT RECEP. B148	20 A	1	7	0.7	0.5				.	8	1	20 A	RCPT RECEP. B148
RCPT PRINCIPAL B155	20 A	1	9	<u> </u>	0.0	0.9	0.4			10	1	20 A	RCPT I.S.S B154
10TORS EF-9 & EF-10	20 A	1	11					1.1	1.1	12	1	20 A	RCPT CONF. B153
OTORS VESTIBULE B149	20 A	1	13	1.0	0.8					14	1	20 A	MOTORS CUH-3
Spare	20 A	1	15			0.0	0.0			16	1	20 A	Spare
pare	20 A	1	17					0.0	0.0	18	1	20 A	Spare
pare	20 A	1	19	0.0	0.0					20	1	20 A	Spare
			21							22			
			23							24			
			25							26			
			27							28			
			29							30			
		TOTAL L	OAD:	4	kVA	3 k	VA	4 k\	′Α				
		TOTAL A	MPS:	3	2 A	21	Α	31.	A				
OAD CLASSIFICATION		CONNE	CTED		DEMAN	ND	EST	MATED				PANEL	TOTALS
ower		0 V	Ą		0.00%	6	() VA					
RCPT		7263	VA		100.00	%	72	63 VA			CON	INECTE	D LOAD: 9707 VA
MOTORS		2750			100.00			50 VA					EMAND: 9707 VA
101010		2100	<u>ν</u> Λ		100.00	70		00 VA					RRENT: 27 A
											ESI. DEN	MIND CO	RRENT: 27 A
IOTES:													

MAIN DEVICE: 400 BUS AMPS: 400	_				SI	PECIAL:							
LOAD DESCRIPTION	BKR	POLES	СКТ		A	ı	В	С		СКТ	POLES	BKR	LOAD DESCRIPTION
RCPT RECEPTION A102	20 A	1	1	0.7	0.7					2	1	20 A	RCPT
RCPT BUS. MGR A106	20 A	1	3			0.9	0.9			4	1	20 A	RCPT WAITING A113
RCPT HALL 109 / I.S.S A108	20 A	1	5					0.5	0.2	6	1	20 A	MOTORS VESTIBULE A10
RCPT ATH. DIR. A112	20 A	1	7	1.1	1.1					8	1	20 A	RCPT GUID OFF. A114
RCPT ROBOTICS A116	20 A	1	9			1.1	1.1			10	1	20 A	RCPT ROBOTICS A116
RCPT CORR. A136 EWC	20 A	1	11					0.5	0.4	12	1	20 A	RCPT MECH A115
RCPT CLASSROOM A 117	20 A	1	13	1.1	1.1					14	1	20 A	RCPT CLASSROOM A 117
LITES ROBOTICS A116	20 A	1	15			1.2	1.4			16	1	20 A	LITES CORRIDOR A136
LITES HALL109 / RECEP. 102	20 A	1	17					1.2	1.5	18	1	20 A	LITES MECH 115/ OFFICE
RCPT BOYS A112	20 A	1	19	0.4	0.4					20	1	20 A	RCPT GIRLS A 124
RCPTMECH A115 DATA	20 A	1	21			0.7	0.9			22	1	20 A	RCPT RECEP. A102
RCPT HALL A109 UC REF	20 A	1	23					0.6	0.5	24	1	20 A	MOTORS VRST. A100
RCPT FIRE	20 A	1	25	0.0	0.7					26	1	20 A	MOTORS EF-1
MOTORS AHU-1	60 A	3	27			3.6	1.8			28	3	30 A	AHU-1
			29					3.6	1.8	30			
			31	3.6	1.8					32			
RCPT MECH A115 / HUH-1	20 A	1	33			0.6	0.0			34	1	20 A	Spare
			35						0.0	36	1	20 A	Spare
			37		15.7					38	3	150 A	PANEL "W"
			39				14.3			40			
			41						14.7	42			
		TOTAL L	OAD:	28	kVA	28	kVA	25 k	VA				
		TOTAL A	MPS:	23	37 A	23	9 A	209	Α				
LOAD CLASSIFICATION		CONNE	CTED		DEMAN	ID	EST	IMATED				PANEL	TOTALS
Lighting		4 V	Ą		125.00	%		5 VA					
Power		0 V	Ą		0.00%	, D		O VA			COI	NECTE	D LOAD: 81353 VA
RCPT		30604	VA		66.349	6	20	302 VA			ESTIN	MATED D	EMAND : 72747 VA
MOTORS		43995	VA		100.00	%	439	995 VA			CONNEC	CTED CU	JRRENT: 226 A
LITES		6861	VA		125.00	%	85	76 VA			EST. DEN	MAND CU	JRRENT: 202 A

PANELBOARD: G

LOCATION: JAMOUNTING: S MAIN DEVICE: 40 BUS AMPS: 40	URFACE N 00 A MLO				A.I.C. F		E: 208Y/12 B: 10,000			ICAL				
LOAD DESCRIPTION	BKR	POLES	скт		A		В	C	<u>,</u>	СКТ	POLES	BKR	LO	AD DESCRIPTION
PANEL "V1"	200 A	2	1	8.3	0.1					2	1			RS FIRE/SMOKE
			3		•	8.3	0.2			4	1			CORR. C129 EWC
HEAT ECUH-3	20 A	3	5					0.2	2.0	6	2		HEAT E	
			7	0.2	2.0					8				
			9			0.2	1.2			10	1	20 A	MOTOF	RS GF-1
MOTORS GF-2	20 A	1	11					1.2	0.0	12	1		Spare	
Spare	20 A	1	13	0.0	0.0					14	1		Spare	
Spare	20 A	1	15			0.0	0.0			16	1		Spare	
Spare	20 A	1	17					0.0	0.0	18	1		Spare	
·			19							20				
			21							22				
			23							24				
			25							26				
			27							28				
			29							30				
			31							32				
			33							34				
			35							36				
			37							38				
			39							40				
			41							42				
		TOTAL LO	OAD:	11	kVA	10	kVA	3 k\	/A					
		TOTAL AI	MPS:	9	6 A	9	0 A	28	Α					
LOAD CLASSIFICATION		CONNE	CTED		DEMAN	ID	EST	MATED				PANEL T	TOTALS	
RCPT		180 \	/A		100.00	%	18	80 VA						
MOTORS		2520	VA		100.00	%	25	20 VA			CON	NECTED	LOAD:	23660 VA
MISC		16640			100.00		_	340 VA						23660 VA
HEAT		4362			100.00			62 VA				CTED CUF		
		-1002	v/\		100.00	,,,	+3	<i></i> V/\			EST. DEM			
											LSI. DEN	IMIND COL	VVENI:	00 A
NOTES:														

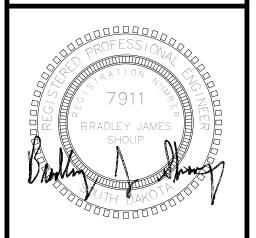
LOCATION: MI MOUNTING: SU MAIN DEVICE: 20 BUS AMPS: 20	JRFACE N 00 A MLO	AL C101	PA	NEL	A.I.C.	DLTAGE	208Y/12 22,000	20 V. 3 ø 4 AMPS SYN		RICAL				
LOAD DESCRIPTION	BKR	POLES	СКТ		A		В	С		СКТ	POLES	BKR	LO	AD DESCRIPTION
MOTORS CP-9	15 A	3	1	8.0	3.0					2	3	50 A	MOTOF	RS CP-6
			3			0.8	3.0			4				
			5					0.8	3.0	6				
MOTORS CP-7	50 A	3	7	3.0	2.0					8	3	35 A	MOTOF	RS CP-8
			9			3.0	2.0			10				
			11					3.0	2.0	12				
MOTORS CP-1	15 A	3	13	0.9	0.9					14	3	15 A	MOTOF	RS CP-2
			15			0.9	0.9			16				
			17					0.9	0.9	18				
MOTORS B-1	15 A	3	19	0.9	0.9					20	3	15 A	MOTOF	RS B-2
			21			0.9	0.9			22				
			23					0.9	0.9	24				
(SHUNT TRIP)			25	0.0	0.0					26			(SHUN	ΓTRIP)
RCPT WH-1 & 2	20 A	1	27			1.2	0.7			28	1	20 A	,	RS CP-10
MOTORS FUTURE BOILER	15 A	3	29					0.9	0.9	30	3	15 A		RS FUTURE PUMP
			31	0.9	0.9					32				
			33			0.9	0.9			34				
(SHUNT TRIP)			35					0.0	0.0	36	1	20 A	Spare	
,			37		0.0					38	1	20 A	Spare	
			39				0.0			40	1	20 A	Spare	
			41						0.0	42	1	20 A	Spare	
		TOTAL L		14	kVA	16	kVA	14 kV	Α				•	
		TOTAL A	MPS:	1	19 A	13	5 A	119 /	4	1				
LOAD CLASSIFICATION	<u> </u>	CONNE			DEMA			IMATED		1		PANEL	TOTALS	
RCPT		1200	VA		100.00)%	12	00 VA						
MOTORS		43554	VA		100.00)%	43	554 VA			CON	INECTE	LOAD:	44754 VA
						•								44754 VA
											CONNEC			
											EST. DEM	AND CU	KKENI:	124 A



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ACEI PROJ. #121121

2022 REMODELING

WEBSTER AREA SCHOOL

& CTE ADDITION

TOTAL OF LEASE AND LEASE AND

number 0421.2936.21

date 4-15-2022

revision ______

drawn ADP _____ checked _____BJS

 drawn
 ADP
 checked
 BJS

 NO.
 DATE
 DESCRIPTION

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 5-3-22
 Addendum I

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11	EQUIP	MENT SCHEDULE FOR WEBSTER SCHOOL ADDI	TION, WEBST	TER SD			ACE	El Project #: 121121		
11	NO.	DESCRIPTION	KW	НР	MCA	VOLTS	PH	NOTES		SPECIFIC NOTES:
,	1	AIR HANDLING UNT AHU-1 SUPPLY FAN	_	10	_	208	3	1,2	1.	PROVIDE CONNECTION TO VFD/DISCONNECTION TO VFD/DISC
,	2	AHU-1 RETURN FAN	_	5	-	208	3	1,2		CONTRACTOR (MC).
,	3	AHU-2	_	3	_	208	3	1	2.	INTERLOCK WITH FIRE ALARM SYSTEM FOR
,	4	AHU-3	-	2	-	208	3	1,2	3.	PROVIDE A SINGLE POINT POWER CONNEC
,	5	AHU-4	-	5	-	208	3	1		DISCONNECTING MEANS. CONTROL BY MC
	6	BOILER B-1	-	2	-	208	3	3,4	4.	INTERLOCK "BOILER EMERGENCY OFF" PU
,	7	B-2	-	2	-	208	3	3,4	5.	PROVIDE A NEMA 3R FUSED MAIN FUSED D
•	8	B-3(FUTURE)	-	2	-	208	3		6.	PROVIDE A COMBINATION MAGNETIC STAR
,	9	CHILLER CH-1	-	-	260	208	3	5		CONTACTS, AND PILOT LIGHTS.
•	10	PUMP CP-1	-	2	-	208	3	6	7.	PROVIDE CONNECTION TO VFD/DISCONNE
,	11	CP-2	-	2	-	208	3	6	8.	PROVIDE A MANUAL MOTOR STARTER DISC
,	12	CP-3(FUTURE)	-	2	-	208	3		9.	PROVIDE A SINGLE POINT POWER CONNEC
,	14	CP-4	-	10	-	208	3	7	10.	PROVIDE A NEMA 3R NON-FUSED DISCONN
,	15	CP-5	-	10	-	208	3	7	11.	INSTALL EXISTING DISCONNECT SWITCH A
,	16	CP-6	-	7.5	-	208	3	7		VFD FROM EXISTING SHOP. PROVIDE A NO
,	17	CP-7	-	7.5	-	208	3	7	12.	PROVIDE CONNECTION TO FAN AND BACKE
,	18	CP-8	-	5	-	208	3	7		AND CONTROL BY MC.
,	19	CP-9	-	1.5	-	208	3	7	13.	PROVIDE CONNECTION TO FAN AND BACKE
,	19	CP-10	-	1/6	-	120	1	8		LIGHT SWITCH FOR CONTROL. DISCONNEC
,	20	CONDENSING UNIT CU-1	-	-	129.5	208	3	27	14.	PROVIDE CONNECTION TO VFD IN HOOD CO
,	21	CU-2	-	-	40.9	208	3	9,23	15.	PROVIDE CONNECTION TO VFD/DISCONNE
,	22	CU-3	-	-	34.6	208	3	9,23	16.	PROVIDE CONNECTION TO FAN AND PILOT
,	23	CU-4	-	-	56	208	3	9,23	17.	PROVIDE CONNECTION TO FAN AND PROVI
,	23	SPLIT SYSTEM OUTDOOR UNIT DSC-B110	-	-	15	208	1	10	18.	PROVIDE A INTERMATIC EI210LA TIMER SW
,	23	DSC-B133A	-	-	20	208	1	10	19.	PROVIDE A MANUAL MOTOR STARTER WITI
,	23	SPLIT SYSTEM INDOOR UNIT DSA-B110	-	-	15	208	1	8,26	20.	PROVIDE ELECTRICAL CONNECTIONS SHO
,	23	DSA-B133A	-	-	20	208	1	8,26	21.	PROVIDE A NONFUSED DISCONNECT SWITCH
	23	DSA-B134	-	-	20	208	1	8,26	22.	PROVIDE A BERKO SSHOWH4008-HTWHSM
,	26	CABINET UNIT HEATER CUH-1	-	1/10	-	120	1	8		MANAGEMENT CONNECTION FOR CONTRO
•	27	CUH-2	-	1/10	-	120	1	8	23.	PROVIDE RACEWAYS FROM UNIT TO PANEL
,	28	CUH-3	-	1/10	-	120	1	8	24.	PROVIDE A BERKO SSHOWH4008 RECESS I
•	29	DUST COLLECTOR(EXISTING) DC-1	-	10	-	208	3	11		MANAGEMENT CONNECTION FOR CONTRO
,	30	EXHAUST FAN EF-1	-	1/4	-	120	1	12	25.	PROVIDE A BERKO FFCH558-FFCHRE-FFCH
,	31	EF-2	-	1/6	-	120	1	13		MANAGEMENT CONNECTION FOR CONTRO
,	32	EF-3A	-	1	-	208	3	14	26.	CONNECT CONDENSATE PUMP TO UNIT.
,	33	EF-3B	-	5	-	208	3	14	27.	PROVIDE A NEMA 3R FUSED MAIN FUSED D
,	34	EF-4	-	1	-	208	3	15		
•	35	EF-5	-	1	-	208	3	15		GENERAL NOTES:
,	36	EF-6	-	1	-	208	3	15	A.	SEE KITCHEN EQUIPMENT SCHEDULE FOR
,	37	EF-7	-	5	-	208	3	15	В.	SEE MECHANICAL EQUIPMENT SCHEDULES
•	38	EF-8	-	1/4	-	120	1	12		
,	39	EF-9	-	1/6	-	120	1	12		
,	40	EF-10	-	1/6	-	120	1	16		
,	41	EF-11	.2	-	-	120	1	17		
,	42	EF-12	.2	-	-	120	1	17		
,	43	EF-13	.1	-	-	120	1	18		
•	44	FURNACE GF-1	-	1/2	-	120	1	19		
,	45	GF-2	-	1/2	-	120	1	19		
,	46	EXHAUST HOOD HD-1A	-	-	-	120/208	1	20		
	46	HD-1B	-	-	-	120/208	1	20		
,	47	HD-2A	-	-	-	120/208	1	20		
,	48	HD-2B	-	-	-	120/208	1	20		
	49	UNIT HEATER HUH-1	-	1/20	-	120	1	8		
,	50	MAKE UP AIR UNIT MUA-1	-	-	22	208	3	14		
,	51	MUA-2	-	-	32	208	3	9		
,	52	ROOFTOP UNIT RTU-1	-	-	65.6	208	3	9		
,	53	RTU-2	-	-	25.8	208	3	9		
,	59	WATER HEATER WH-1	.6	-	-	120	1	8		
,	60	WH-2	.6	-	-	120	1	8		
,	61	AIR COMPRESSOR	-	10	-	208	3	21		
,	62	ELECTRIC CAB. UNIT HEATER ECUH-1	4	_	_	208	1	22		

4 - - 208 1

208

208 3

64 ECUH-3

# **SPECIFIC NOTES**:

1. PROVIDE CONNECTION TO VFD/DISCONNECT AND FAN. VFD/DISCONNECT AND CONTROL BY MECHANICAL

# CONTRACTOR (MC). 2. INTERLOCK WITH FIRE ALARM SYSTEM FOR SHUTDOWN UPON ALARM.

3. PROVIDE A SINGLE POINT POWER CONNECTION, CIRCUIT BREAKER IN PANELBOARD TO SERVE AS

DISCONNECTING MEANS. CONTROL BY MC. 4. INTERLOCK "BOILER EMERGENCY OFF" PUSHBUTTON SWITCHES WITH SHUNT TRIP CIRCUIT BREAKER IN PANELBOARD.

5. PROVIDE A NEMA 3R FUSED MAIN FUSED DISCONNECT SWITCH (FUSE AT 300A). CONTROL BY MC. 6. PROVIDE A COMBINATION MAGNETIC STARTER/NONFUSED DISCONNECT SWITCH WITH H.O.A., 2 N.O, AND 2 N.C.

CONTACTS, AND PILOT LIGHTS.

7. PROVIDE CONNECTION TO VFD/DISCONNECT AND PUMP. VFD/DISCONNECT AND CONTROL BY MC.

8. PROVIDE A MANUAL MOTOR STARTER DISCONNECT SWITCH. CONTROL BY MC.

9. PROVIDE A SINGLE POINT POWER CONNECTION. DISCONNECT AND CONTROL BY MC. 10. PROVIDE A NEMA 3R NON-FUSED DISCONNECT SWITCH. CONTROL BY MC.

11. INSTALL EXISTING DISCONNECT SWITCH AND VFD AND PROVIDE CONNECTION TO UNIT. OBTAIN DISCONNECT AND

VFD FROM EXISTING SHOP. PROVIDE A NON-FUSED DISCONNECT SWITCH AT UNIT. 12. PROVIDE CONNECTION TO FAN AND BACKDRAFT DAMPER (OPEN WHEN FAN OPERATES). DISCONNECT

AND CONTROL BY MC. 13. PROVIDE CONNECTION TO FAN AND BACKDRAFT DAMPER (OPEN WHEN FAN OPERATES). PROVIDE PILOT

LIGHT SWITCH FOR CONTROL. DISCONNECT BY MC. 14. PROVIDE CONNECTION TO VFD IN HOOD CONTROL PANEL. DISCONNECT AT FAN AND CONTROL BY MC.

15. PROVIDE CONNECTION TO VFD/DISCONNECT AND FAN. DISCONNECT AND CONTROL BY MC.

^{16.} PROVIDE CONNECTION TO FAN AND PILOT LIGHT SWITCH FOR CONTROL. DISCONNECT BY MC.

17. PROVIDE CONNECTION TO FAN AND PROVIDE SWITCH FOR CONTROL. SWITCH TO SERVE AS DISCONNECTING MEANS. 18. PROVIDE A INTERMATIC EI210LA TIMER SWITCH FOR CONTROL. DISCONNECT BY MC.

19. PROVIDE A MANUAL MOTOR STARTER WITH THERMAL OVERLOAD. CONTROL BY MC.

20. PROVIDE ELECTRICAL CONNECTIONS SHOWN ON THE FLOOR PLANS.

21. PROVIDE A NONFUSED DISCONNECT SWITCH.

22. PROVIDE A BERKO SSHOWH4008-HTWHSM SURFACE MOUNTED ELECTRIC CABINET UNIT HEATER WITH BUILDING

MANAGEMENT CONNECTION FOR CONTROL. COORDINATE CONTROL CONNECTION WITH MECHANICAL CONTRACTOR. 23. PROVIDE RACEWAYS FROM UNIT TO PANELBOARD UNDER THE BASE BID.

24. PROVIDE A BERKO SSHOWH4008 RECESS MOUNTED ELECTRIC CABINET UNIT HEATER WITH BUILDING

MANAGEMENT CONNECTION FOR CONTROL. COORDINATE CONTROL CONNECTION WITH MECHANICAL CONTRACTOR. 25. PROVIDE A BERKO FFCH558-FFCHRE-FFCHDS RECESS CEILING MOUNTED ELEC. CABINET UNIT HEATER WITH BUILDING MANAGEMENT CONNECTION FOR CONTROL. COORDINATE CONTROL CONNECTION WITH MECHANICAL CONTRACTOR.

PROVIDE A NEMA 3R FUSED MAIN FUSED DISCONNECT SWITCH (FUSE AT 150A). CONTROL BY MC.

# **GENERAL NOTES:**

A. SEE KITCHEN EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

B. SEE MECHANICAL EQUIPMENT SCHEDULES FOR EQUIPMENT BEING PROVIDED UNDER ALTERNATES.

YPE	MFR.	NUMBER	LAMPS	VOLTS	ACEI Project No:	NOTE
Α	COLUMBIA METALUX LITHONIA	EQUAL 24CGTS-NUV EQUAL	LED/4000K	120	LED, 2'X4' RECESSED FLAT PANEL, BACKLIT, SELECTABLE LUMENS AND COLOR TEMP. SET TO 3700 LUMENS/40K.	
AE	COLUMBIA METALUX LITHONIA	EQUAL 24CGTS-NUV-EL14W EQUAL	LED/4000K	120	SAME AS TYPE "A" EXCEPT EMERGENCY BACKUP.	
AF	COLUMBIA METALUX	EQUAL 24CGTS-NUV-DF-24W-U	LED/4000K	120	SAME AS TYPE "A" EXCEPT FLANGE MOUNT.	
AFE	WILLIAMS COLUMBIA DAY-BRITE	EQUAL EQUAL 24CGTS-NUV-EL14W-DF-24W-U	LED/4000K	120	SAME AS TYPE "AF" EXCEPT EMERGENCY BACKUP.	
A1	WILLIAMS COLUMBIA METALUX	EQUAL 24CGTS-NUV	LED/4000K	120	SAME AS TYPE "A" EXCEPT SET TO 5200 LUMENS/40K.	
 A1E	LITHONIA COLUMBIA METALUX	EQUAL EQUAL 24CGTS-NUV-EL14W	LED/4000K	120	SAME AS TYPE "A1" EXCEPT EMERGENCY BACKUP.	
~~~	LITHONA	EQUAL FOUND TO THE PROPERTY OF	~~~~	~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~
XA1	EXISTING		LED/4000K	120	EXISTING 2'X4' RECESSED EDGE LIT FLAT PANEL.	~~
A2	METALUX LITHONIA COLUMBIA	24CGTS-NUV3 EQUAL EQUAL	LED/4000K	120	SAME AS TYPE "A" EXCEPT SET TO 6900 LUMENS/40K.	
A2E	METALUX LITHONIA COLUMBIA	24CGTS-NUV-EL14W EQUAL EQUAL	LED/4000K	120	SAME AS TYPE "A2" EXCEPT EMERGENCY BACKUP.	
В	DAY-BRITE WILLIAMS	2FGXG-43L-840-4-DS-UNV-DIM EQUAL	LED/4000K	120	LED, 2'X4' RECESSED ARCHITECTURAL, ROUND ACRYLIC DIFFUSER, APPROXIMATELY 4300 LUMENS.	
BE	COLUMBIA DAY-BRITE WILLIAMS	EQUAL 2FGXG-43L-840-4-DS-UNV-DIM-BSL10LST EQUAL	LED/4000K	120	SAME AS TYPE "B" EXCEPT EMERGENCY BACKUP.	
B1	COLUMBIA DAY-BRITE WILLIAMS	EQUAL 2FGXG-48L-840-4-DS-UNV-DIM EQUAL	LED/4000K	120	SAME AS TYPE "B" EXCEPT APPROXIMATELY 4800 LUMENS.	
31E	COLUMBIA DAY-BRITE WILLIAMS	EQUAL 2FGXG-48L-840-4-DS-UNV-DIM-BSL10LST EQUAL	LED/4000K	120	SAME AS TYPE "B1" EXCEPT EMERGENCY BACKUP.	
С	COLUMBIA DAY-BRITE	EQUAL OWL-4-50L-840-UNV	LED/4000K	120	LED, 4' SURFACE WRAPAROUND, ACRYLIC LENS,	
D	METALUX CREE DAY-BRITE	FSI4-55L840-UNV-DIM-PAF	LED/4000K	120	APPROXIMATELY 5000 LUMENS. LED, INDUSTRIAL FIXTURE, CABLE HUNG, PAINT AFTER	1
DW	CREE DAY-BRITE	FSI4-55L840-UNV-DIM-PAF	LED/4000K	120	FABRICATION, APPROXIMATELY 5500 LUMENS. SAME AS TYPE "D" EXCEPT WALL MOUNTED.	
D1	CREE DAY-BRITE	FSI4-55L840-UNV-DIM-PAF	LED/4000K	120	SAME AS TYPE "D" EXCEPT SURFACE MOUNTED.	
DX	LUMAX ABB HAZLUX	XFMLED-S-4K-4-4-UN-P/XFM-4403	LED/4000K	120	LED, HAZARDOUS LOCATION, APPROXIMATELY 6500	
	SURE-LITES DUAL-LITE	EQUAL			LUMENS. LED EXIT LIGHT, SINGLE STENCIL FACE, RED LETTERS,	
E	LIGHTALARMS PATHWAY	EVE-U-R-W-E-I EQUAL EQUAL	INCLUDED	120	WHITE HOUSING, SELF-TESTING/SELF-DIAGNOSTIC ELECTRONICS, DIRECTIONAL ARROWS AND MOUNTING AS INDICATED.	
E1	SURE-LITES DUAL-LITE LIGHTALARMS PATHWAY	EQUAL EVE-U-R-W-E-I EQUAL EQUAL	INCLUDED	120	SAME AS TYPE E EXCEPT DOUBLE FACE.	
E2	EMERGI-LITE DUAL-LITE	LZ2-I	INCLUDED	120	EMERGENCY LIGHTING UNIT, WHITE THERMO-	
E3	SURE-LITES CHLORIDE DUAL-LITE LIGHTALARMS MULE	LTURW-I	INCLUDED	120	PLASTIC HOUSING. LED EXIT LIGHT/EMERGENCY TANDEM UNIT, SINGLE STENCIL FACE, RED LETTERS, WHITE THERMOPLASTIC HOUSING, DIRECTIONAL ARROWS AND MOUNTING AS INDICATED, SELF-TESTING/SELF-DIAGNOSTIC ELECTRONICS.	
E4	CHLORIDE DUAL-LITE LIGHTALARMS MULE	LTURW-3-I	INCLUDED	120	SAME AS TYPE "E3" EXCEPT REMOTE CAPACITY.	
E5	CHLORIDE DUAL-LITE LIGHTALARMS MULE	OCR-S-Z-0605	INCLUDED		REMOTE HEAD, DIE-CAST ALUMINUM, DARK BRONZE FINISH.	
E6	ASTRALITE EMERGI-LITE LIGHTALARMS	BZ-LUX-SD-CW	INCLUDED	120	LED EXTERIOR EMERGENCY LUMINAIRE, SELF-DIAGNOSTICS, COLD WEATHER OPTION.	
Н	PORTFOLIO ALPHABET WILLIAMS	621-4-XTM19-20LM-40K-83-DA60-120-10V-NC	LED/4000K	120	LED, 4" RECESSED ROUND DOWNLIGHT, WIDE DISTRIBUTION, APPROXIMATELY 1700 DELIVERED LUMENS, DAMP LOCATION LISTED.	
⊣ 1	PORTFOLIO ALPHABET WILLIAMS	621-4-XTM19-30LM-40K-83-DA60-120-10V-NC	LED/4000K	120	SAME AS TYPE "H" EXCEPT APPROXIMATELY 2500 LUMENS.	
I1E	PORTFOLIO ALPHABET WILLIAMS	621-4-XTM19-30LM-40K-83-DA60-120-10V-NC-EM	LED/4000K	120	SAME AS TYPE "H1" EXCEPT EMERGENCY BACKUP.	
L	FOCAL POINT LIGHTOLIER PRESCOLITE	6RN/P6RSL10840CLPZ10U	LED/4000K	120	LED, 6" RECESSED ROUND DOWNLIGHT, WIDE DISTRIBUTION, UL WET LOCATION, LENSED, APPROXIMATELY 1000 LUMENS.	
M	COLUMBIA DAY-BRITE	FBY18L840-UNV-LFA/FBY-WG-HCH10-VHOOK	LED/4000K	120	LED HIGH BAY, APPROXIMATELY 18,000 LUMENS.	1
ME	METALUX COLUMBIA DAY-BRITE METALUX	FBY18L840-UNV-LFA-BSL20B2/FBY-WG-HCH10-VHOOK	LED/4000K	120	SAME AS TYPE "M1" EXCEPT EMERGENCY BACKUP.	1
Υ	BEACON NLS LIGHTING CREE	NV-W-T3-16L-7-40K-UNV-WM-BRZ	LED/4000K	120	LED, EXTERIOR WALL MOUNTED FIXTURE, DARK BRONZE FINISH, APPROXIMATELY 4700 LUMENS.	
Y1	BEACON NLS LIGHTING CREE	NV-W-T3-32L-7-40K-UNV-WM-BRZ	LED/4000K	120	SAME AS TYPE "Y" EXCEPT APPROXIMATELY 9600 LUMENS.	
Z	NLS LIGHTING	NV-F1-30-16L-45-40K-UNV-KM-BRZ-NA	LED/4000K	120	LED, EXTERIOR BUILDING MOUNTED FLOOD LIGHT, DARK BRONZE FINISH, APPROXIMATELY 4550 LUMENS.	
AA	NLS LIGHTING	NV1-T#-64L-7-40K7-UNV-DPS7-BRZ WITH NAFCO VS-RSSA-25-4040-07-AB-FP-S1-VDA POLE.	LED/4000K	120	LED, SITE LIGHTING UNIT, APPROXIMATELY 16,000 LUMENS, 25' ROUND STRAIGHT STEEL POLE, VIBRATION DAMPENER, BRONZE FINISH.	2
AA2	NLS LIGHTING	(2)NV1-T#-64L-7-40K7-UNV-DPS7-BRZ WITH NAFCO	LED/4000K	120	SAME AS TYPE "AA" EXCEPT TWO LUMINAIRES AT	2
AA2	NLS LIGHTING	VS-RSSA-25-4040-07-AB-FP-D180-VDA POLE. (2)NV1-T#-64L-7-40K7-UNV-DPS7-BRZ LUMINAIRES	LED/4000K	120	180 DEGREES. EXISTING SITE LIGHTING UNIT, ROUND POLE, TWO LUMINAIRES AT ORIENTATIONS SHOWN ON THE SITE PLAN,	2,3
	NLS LIGHTING	TO MOUNT ON EXISTING POLE. (2)NV1-T#-64L-7-40K7-UNV-DPS7-BRZ WITH NAFCO			APPROXIMATELY 16,000 LUMENS. SAME AS TYPE "AA2" EXCEPT 2 LUMINAIRES AT 90 DEGREES.	2

LIGHTING FIXTURE SCHEDULE

SPECIFIC NOTES:

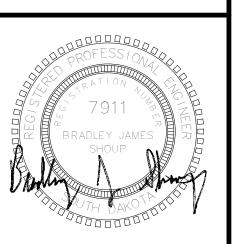
1. PROVIDE CABLE LENGTHS AS REQUIRED FOR MOUNTING AT HEIGHTS INDICATED ON THE DRAWINGS.

2. SEE SITE PLAN FOR OPTICAL DISTRIBUTION TYPES. 3. PROVIDE PLUGS FOR EXISTING POLE PENETRATIONS NOT BEING UTILIZED FOR NEW LUMINAIRES.

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REMODELING 202 SCHOOL

ADDITION 6

number 0421.2936.21

IO. DATE DESCRIPTION 5-3-22 Addendum I