PRE-K/K (ECC) AND ELEMENTARY SCHOOL RENOVATIONS

Addendum #2
March 30, 2020

For

STAFFORD MUNICIPAL SCHOOL DISTRICT

MWA Architects, Inc.

Addendum includes this cover + 11 (eleven) 8½ x 11 pages
plus 5 (five) 30 x 42 sheets

PRE-K/K (ECC) AND ELEMENTARY SCHOOL RENOVATIONS – ADDENDUM #2

Proposal Part 1 is due no later than April 2, 2020 by 11:00 am
Proposal Part 2 is due no later than April 2, 2020 by 4:00 pm
Proposal bids will be opened and read publicly at 4:30pm.

Proposal packets are to be returned as follows:

Attention: Dedrea Norman, CFO
Stafford MSD
1625 Staffordshire Road
Stafford, TX 77477

To the Plans and Specifications for the Stafford MSD RFP #20 – 002, this addendum forms a part of the Contract Documents and modifies said documents as follow:

GENERAL

Item 1. Modification to Bidding Procedures

A. Use of Electronic Bidding Procedures

While Stafford Municipal School District will be receiving bids using those methods stated in the RFP, Stafford Municipal School District will also **allow, and encourage, electronic bid submissions for this project in lieu of in-person/mailed submissions**. You must choose one method or the other, not both, to submit your bid. Bidders must ensure that all required content for each Part of the submission is fully uploaded to the Bid/Plan Room (Proposal forms, Microsoft Excel file). While a complete, comprehensive, all-inclusive single file is preferred, Bidders will be allowed to pre-load completed portions of their proposal into the Bids/Plan Room, save and return later to submit the proposal form to eliminate issues with last-minute file uploads. The system shall not allow for any late bids or proposals after the closing date and time. The District will not be responsible for any delay of delivery or submission, including delays related to system programs, servers, or acts of nature. Bids or proposals sent in response to all formal solicitations shall be electronically sealed in an electronic lockbox and not accessible to any internal and external user other than the vendor initiating the bid or proposal

Please log into the Bids/Plan Room using the following link:
https://lan.projectmates.com/projectmates/bid/BidLogin.aspx

If you are new to Projectmates you will be asked to create a username and password plus other basic registration information. Once you have logged in, please select “Add to My Bids” to view information about the project, obtain solicitation documents and submit your bid.

Once you are a registered user, you may access a User Guide for Electronic Submissions at the following link: https://university.projectmates.com//PMHelp/Bids/default.htm?qs=96640139036C52B95806FAA673FDD398A9ED7BE2EFE25C2137C12679CA9678FDDA2FDA0BB1FDDF5405304A4436D42F3A

B. Opening and Reading of Proposals

Owner or designee will utilize a virtual meeting to reveal the names of the respondents and the monetary offer stated in Part 1 and the Alternates and unit prices Part 2. To attend the virtual meeting please use the link below to join by video conference or the telephone number and meeting number to join via audio only. To allow meeting organizers the necessary time to receive, organize, and prepare for the virtual meeting, the virtual meeting will begin at 4:30 P.M.

Meeting video conference link: https://leoadaly.webex.com/leoadaly/j.php?MTID=mded4dc2560b0f515cf72235791573b84

Meeting audio only: 1-415-655-0002,,805854695#

Item 2. Addendum No. 1 included agenda used during pre-proposal meeting. Revise substantial completion date in agenda from June 4, 2020 to August 7, 2020 to match August 7, 2020 date for substantial completion in Request for Competitive Seal Proposals.

Item 3. Owner's Betterment Allowance amount in bid form calls for 10% of contractor's bid. Allowances section 01 21 00 has a fixed Owner Betterment Allowances as shown. Provide fixed Owner Betterment Allowances per section 01 21 00 as part of the Base Bid (Not 10% of contractor's bid).

CLARIFICATIONS

Item 4. Where tile and substrate is to be removed per demolition plans at restrooms, provide cementitious backer units as specified.

RFI QUESTIONS AND ANSWER

Q1: Is Telecor acceptable as a substitution/alternate for Stafford ES.

A1: No, these are existing systems at the two schools so any modifications need to match the existing system. In this case the ES is a Rauland Telecenter and the IS/PK is a Telecor XL. Therefore, the substitution request is not acceptable.

SPECIFICATIONS

Item 5. Section 08 45 13 Insulation Translucent Panel Light System

A. Section 08 45 13 makes reference to both translucent panel system and polycarbonate. Provide translucent panel system is to be provided only. Replace specification 08 43 13 entirely.

Item 6. Section 09 67 66 Fluid Applied Athletic Floor Restoration

A. Under section 09 67 66, 2.1, Add Champion Monoflow HD as approved equal for gym floor restoration.

Item 7. Section 10 22 33 Accordion Folding Partitions

A. Under section 10 22 33, 2.1, Add Moderco's model Unifold 4000 as approved equal.

Item 8. Section 10 28 00 Toilet Accessories

A. Under section 10 28 00, 2.2, I, Options and Accessories listed are to be provided for specified hand dryer unit.

B. Under section 10 28 00, 2.2, I, Add VerdeDri by World Dryer as approved equal. Flat white wall guard is to be included to match spec.

Item 9. Section 12 66 00 Telescoping Bleachers (Alternate #1 At ECC Gymnasium)

A. Provide wood decking for bleacher system.

Replace section 12 66 00, 2.2, B as follows:

B. Deck System

1. Footboards shall be ¾'' plywood with top facing. All surfaces shall be thoroughly sealed. Top facing shall receive three coats of colored, opaque, catalyzed epoxy coating. Aluminum trim shall be installed on exposed edges. Adjacent foot boards shall be joined by means of extruded aluminum joiner beam sized for ¾'' footboards.
2. ~~Optional Upgrade – Panelam decking on ¾" plywood.~~
3. ~~Optional Upgrade – Aluminum decking.~~
4. Provide thru-bolt fastening through galvanized steel riser beams at locations of splices in rear riser. Front deck connection shall be provided using front steel nose beams.

Item 10. Section 12 66 00 Telescoping Bleachers (Alternate #1 At ECC Gymnasium)

A. Specification 12 66 00 makes reference to wood and plastic seats. Provide plastic seats.

SPECIFICATIONS

DRAWINGS

Item 11. Sheet MD01-01 (ES)

a. Full size sheet re-issued.

b. Tags for existing terminal units have been updated.

c. Demolish existing terminal unit serving main library space.

Item 12. Sheet MD01-02 (ES)

d. Full size sheet re-issued.

e. Tags for existing terminal units have been updated.

f. Three (3) additional terminal units have been added to the scope. Total of seventy four (74) units are now referenced in view.

Item 13. Sheet M01-01 (ES)

g. Full size sheet re-issued.

h. Tags for existing terminal units have been updated.

i. Note #8 added to “FAN POWERED BOX CONTROLS” schedule.

   i. 8. INSTALL TITUS EXX ROUND RETROFIT TERMINAL KIT ON ALL EXISTING FAN POWERED TERMINAL BOXES. REFER TO UNIT TAG AND RETROFIT TERMINAL KIT SCHEDULE FOR SIZES AND FLOW.

j. Provide new fan powered terminal unit FPT-3 to serve main library space.

Item 14. Sheet M01-02 (ES)

k. Full size sheet re-issued.

l. Tags for existing terminal units have been updated.

m. Three (3) additional terminal units have been added to the scope. Total of seventy four (74) units are now referenced in view.

n. Note #8 added to “FAN POWERED BOX CONTROLS” schedule.

   i. 8. INSTALL TITUS EXX ROUND RETROFIT TERMINAL KIT ON ALL EXISTING FAN POWERED TERMINAL BOXES. REFER TO UNIT TAG AND RETROFIT TERMINAL KIT SCHEDULE FOR SIZES AND FLOW.

Item 15. Sheet M3-01 (ES)

o. Full size sheet re-issued.

p. ROUND FLOW MEASUREMENT schedule added.

q. FPT-3 added to Terminal Unit Schedule.

Item 16. Sheet E02-04 (ES)

r. Revise circuit for EWH-2 to be LC1-40.

s. Revise circuit for CP-2 to be LC1-38.

Item 17. Sheet E03-01 (ES)

t. Revise circuit breaker on circuit LC1-38 to be 20/1.

u. Revise circuit breaker on LB1-38 to be 20/1 GFI. If 20/1 GFI cannot be provided in this panel due to availability of breakers, a remote GFI deadfront device located above counter in the changing room shall be acceptable. Remote GFI deadfront if provided shall be labeled “WASHER”.

Item 18. Sheet E04-00 (ES)

v. Lighting Sequence of Operations:

i. Specialist room type shall be 50% auto on, 30 min auto off, auto continuous dim with off, manual dimmer switch.

1. Sequence of operation: “AUTO ON TO 50%, OCCUPANCY SENSOR AUTO OFF; LOCAL ON/OFF AND DIMMING CONTROLS; WHERE ≥ 150W IN DAYLIGHT AREA, USE CONTINOUS DIMMING DAYLIGHTING CONTROL. LOCAL CONTROLS ONLY.”

Item 19. Sheet MEP02-00 (Pre-K)

w. Update Alternate #1 Notes A1 wiring: Connect with 3-12 +12**N** +12G, 3/4"C.

Item 20. Sheet E01-01 (Pre-K)

x. Coordinate with door hardware contractor to install push-button release in daycare reception desk knee space for door I-5 Main Entry.

END OF ADDENDUM #2 DESCRIPTION

SECTION 08 45 13 – INSULATED TRANSLUCENT PANEL LIGHT SYSTEM

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Insulated translucent panel assemblies; battens and perimeter closure system; aluminum structure; flashing; fasteners and accessories.

1.2 SUMMARY

B. Section includes:
Insulated translucent panel assemblies; battens and perimeter closure system; aluminum structure; flashing; fasteners and accessories.

1.3 SYSTEM REQUIREMENTS

A. General: Conform to ICC Evaluating service acceptance criteria for sandwich panel assemblies and approved plastic panels.

B. Engineering Requirements:
1. Self Supporting Structure: Provide self supporting, translucent panel and aluminum structure installed over structural curbs and supports.
2. Design Loads: Confirm with local building code requirements.
3. Safety factor:
a.1.65 for load carrying members
b.2.0 for load carrying fasteners.
4. Allowable deflection (ASTM E72):
a. Structural members: not to exceed L/60 of the clear span.
b. Panel assemblies: not to exceed L/60 of the clear span.
c. In addition the maximum deflections of the translucent panels shall not exceed the allowable deflection required for long term performance and warranty requirements of the translucent panel system or the requirement of ICC Evaluation Service for the translucent sandwich panels.

1.4 SUBMITTALS

A. Product Data:
1. Manufacturer’s product data, including construction details, material descriptions, profiles and finishes of skylight components, and manufacturer’s installation instructions.
2. Sample Warranty: Provide manufacturers warranty indicating conformance with the specified warranty requirements of this section.

B. Shop Drawings:
1. Indicate size, material, and finish. Show locations and installation procedures.
2. Include details of joints, dimensions, and attachment to adjacent construction.

C. Structural Calculations: Structural analysis data and calculations signed and sealed by a professional engineer licensed in the State of Texas responsible for their preparation to certify conformance with project specific design loads and governing code requirements as described herein and indicated on the drawings.

D. Installer Qualifications: signed by erector, certifying compliance with project qualification requirements.

E. System Certification:
1. Manufacturer's Certification: Certify that system complies with specified performance characteristics and referenced standards.
2. In addition, provide valid certified product test reports from a qualified independent testing agency and other data needed to prove compliance with the specified requirements for the following:
a. Flame Spread and Smoke Development, Interior Face Sheet: ASTM E84 – Class A
b. Burn Extent: ASTM D635, minimum CC2 for exterior face sheet, and CC1 for interior face sheet.
c. Color Stability: ASTM D2244 – maximum 4.0 Delta E in five (5) years, warranted to 8.0 Delta E in 10 years.
d. Water penetration: ASTM E331- no uncontrolled water penetration at a static air pressure difference equal to 20 percent of the positive design wind pressure with a minimum of 6.24 psf and a maximum of 12 psf.
e. Air infiltration: ASTM E283 - maximum air leakage of 0.06 cfm per square foot of surface when tested at static air pressure difference of 6.24 psf
f. ICC-ES Evaluation Report - Current as of date of submission utilizing products and material components as specified.
g. U Value: Test report indicating that the complete assembly (Framing and Panel) has been tested in accordance with NFRC 100, and meets requirements of the specification.
h. Impact resistance:
1) Seaward Zones and Inland 1 Zones: Product Evaluation Reports showing that the system has been tested and meets the standards set forth by the Texas Department of Insurance for installations located in the Seaward Zones, and Inland 1 Zones per 2006 IBC/IRC with Texas revisions.
2) All Other Wind Zones: Repel an impact equal to 60 ft-lbs minimum without fracture or tear when impacted by a 3-1/4 inch diameter, 5 pound free-falling ball.

1.5 SYSTEM REQUIREMENTS

C. General: Conform to ICC Evaluating service acceptance criteria for sandwich panel assemblies and approved plastic panels.

D. Engineering Requirements:
1. Self Supporting Structure: Provide self supporting, translucent panel and aluminum structure installed over structural curbs and supports.
2. Design Loads: Refer to design criteria on structural drawings.
3. Safety factor:
a. 1.65 for load carrying members
b. 2.0 for load carrying fasteners.
4. Allowable deflection (ASTM E72):
a. Structural members: not to exceed L/60 of the clear span.
b. Panel assemblies: not to exceed L/60 of the clear span.
c. In addition the maximum deflections of the translucent panels shall not exceed the allowable deflection required for long term performance and warranty requirements of the translucent panel system or the requirement of ICC Evaluation Service for the translucent sandwich panels.

E. Performance Requirements:
1. Manufacturer:
a. Configure and fabricate complete translucent panel assembly.
b. Prepare structural analysis data and calculations to certify conformance with project specific design loads and governing code requirements concerning uplift, positive windload plus dead load, and negative windload plus dead load.
2. Erector (Installer):
a. Coordinate translucent panel assembly with roofing system and associated work.
b. Coordinate translucent panel assembly with adjacent materials.
c. Install complete watertight translucent panel assembly.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
1. Specialized in manufacturing translucent panel assemblies of type specified with minimum ten (10) consecutive years experience. Show evidence of materials specified being satisfactorily used on at least three (3) projects of similar size and type.

B. Erector's Qualifications:
1. Specialized in installing translucent panel assemblies of type specified with minimum five (5) consecutive years experience and show evidence of satisfactory completion of projects of similar size, scope, and type.

1.7 PRE-INSTALLATION CONFERENCE

A. Refer to Section 01 31 13 – Project Coordination.

B. In addition, notify Architect for observation of fasteners when fasteners are in place, but prior to covering such fasteners with flashings or closures.

1.8 PRODUCT HANDLING

A. Pre-assemble and seal panel units at the factory. Deliver translucent panel assemblies to the job site in rugged shipping units ready for erection.

B. Storage, Handling and Protection:
1. Store panel units on the long edge, on blocking or dunnage, several inches above the ground, blocked and under cover to prevent warping
2. Store, handle and protect materials in accordance with manufacturer's instructions.

1.9 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements and openings by field measurements before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

B. When practical, take accurate field measurements before preparation of shop drawings and fabrication, so as to not delay job progress. Work from dimensions verified in field.

1.10 WARRANTY

A. Manufacturer's Warranty: Warrant the work specified herein against becoming unserviceable, causing an objectionable appearance resulting from either defective or non-conforming materials and workmanship, or failure to perform as required.
   1. System Warranty: Defects are defined to include uncontrolled leakage of water, abnormal aging or deterioration, loss of structural integrity of panel assembly or face sheet, or delamination of face sheet from core.
      a. Warranty period: 5 years from date of Substantial Completion
   2. Translucent Facing Material Warranty (Polycarbonate and Fiberglass as applicable): Defects are defined to include fiberbloom (fiber exposure), delamination of coating from exterior sheet, abnormal cracking, abnormal aging, more than 8.0 Delta E units of discoloration, or loss of light transmission greater than 6 percent, as described herein.
      a. Warranty period: 10 years non-pro rata from date of Substantial Completion

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers listed whose products meet or exceed the specifications are acceptable for use on the Project.
   1. Kalwall Corporation, Inc. locally distributed by Griesenbeck Architectural Products, Inc. 713-781-3287, dustin@griesenbeck.com
   2. CPI Daylighting, Inc. as locally distributed by Conner-Legrand, Inc. (972) 221-1800
   3. Major Industries.

2.2 SYSTEM DESCRIPTION

A. Pre-finished, factory assembled panel system consisting of flat translucent panel units, battens and perimeter closures, flashing, and related accessories installed over structural curbs and supports.

B. Physical Properties, testing shall be in accordance with the specified reference standards:
   1. Water penetration: ASTM E331- no uncontrolled water penetration at a static air pressure difference equal to 20 percent of the positive design wind pressure with a minimum of 6.24 psf and a maximum of 12 psf.
   2. Air infiltration: ASTM E283 - maximum air leakage of 0.06 cfm per square foot of surface when tested at static air pressure difference of 6.24 psf
   3. Roofing Class: Non-classified, according to IBC 2610
   4. Interior flame spread classification: ASTM E84 - Class A
   5. Burn Extent: ASTM D635.
   6. Delamination: IBC 803.2 - Interior face sheets shall not delaminate or become detached when subjected to 200 degrees F for not less than 30 minutes
   7. Color stability: ASTM D2244 - Full thickness and unaffected by abrasion or scratching. Color change shall not exceed 8.0 Delta E units during 10 years of use.
   8. Self-ignition: ASTM D1929 - Greater than 650 degrees F
   9. Impact resistance:
      a. Seaward Zones, and Inland 1 Zones per 2006 IBC/IRC with Texas revisions: Repel an impact equal to 200 ft-lbs minimum without fracture or tear when impacted by a 3-1/4 inch diameter, 5 pound free-falling ball.
      b. All Other Wind Zones: Repel an impact equal to 60 ft-lbs minimum without fracture or tear when impacted by a 3-1/4 inch diameter, 5 pound

free-falling ball.

2.3 SYSTEM COMPONENTS

A. General: Provide translucent panel system utilizing glass fiber face sheets as described below.

B. Insulated Translucent Sandwich Panel Units:
1. Architectural grade glass fiber reinforced polymer facings bonded to an aluminum grid core under a controlled process of heat and pressure to form a double-faced, self-supporting, true sandwich panel with the following properties:
a. Face Sheet Color: see individual options specified below for each type of facing material.
b. Light Transmission: Not less than 18 percent to 24 percent (18% to 24%)
c. Shading Coefficient (SC): minimum 0.24
d. U-value, panel, tested in accordance with NFRC-100: 0.29 or better

C. Metal Materials: ASTM B221, Extruded aluminum alloy 6063-T5/T6 or 6061-T5/T6. Size and shape shall conform to requirements for structural support.

D. Aluminum Finish: Exposed aluminum shall be clear anodized aluminum meeting the performance requirements of AAMA 611.

E. Translucent Glass Fiber Assembly:
1. Facing: glass fiber reinforced thermoset resin polymers, formulated specifically for architectural use.
a. Grid Size: 12 inch by 24 inch
b. Grid Pattern: Shoji
c. Face sheet thickness: 0.045 interior; 0.070 exterior.
d. Exterior face sheet color: Crystal
e. Interior face sheet color: White
2. Flammability: Panels shall be self-extinguishing.
3. Weatherability of exterior face sheets: ASTM D1435 - Panels shall pass test with and without protective coatings. Results shall be determined by the average of at least three (3) white samples.
4. Fiber blooming: ASTM D4060 - Exterior face sheet shall have a permanent erosion barrier.
5. Appearance:
a. Face sheets: Uniform in color, free of ridges and wrinkles. Clusters of air bubbles/pinholes are not acceptable.
b. Exterior face sheets: smooth, and shall not vary more than plus or minus ten (10) percent in thickness
c. UV Maintenance: If required by the manufacturer to maintain warranty, the manufacturer shall perform routine scheduled inspections, and when required, shall provide recoating of exterior face sheet to maintain performance regarding weatherability and UV protection during the warranty period. Manufacturer shall certify that application of coating does not affect fire resistance.
6. Grid Core:
a. Aluminum I-beams: direct mechanical interlocking of muntin-mullion and perimeter.
1) Facing material shall have full contact with bonding surface.
2) Ferrous metals are not permitted.
3) Fabricate to prevent variations in alignment at intersections.
7. Adhesive:

a. Factory applied to adhere translucent facing to grid core.
b. Adhesive bonding lines shall be straight with a neat, sharp edge, and shall cover the entire width of the I-beam. White spots at intersections of muntins and mullions shall not exceed four (4) for each 50 square feet of panel, nor shall they be more than 3/64 inch in width.

8. Battens and Perimeter Closure System
   a. Closure system: screw clamp-tight closure system. Field install aluminum battens and cap plates.
   b. Aluminum perimeter frame, including rafters, shall be self-draining of water infiltration and condensation by means of internal gutters which direct moisture to exterior.
9. Acceptable Manufacturers: Kalwall Corporation, as locally distributed by Griesenbeck Architectural Products, Inc. (713) 781-3287; Major Industries, as locally distributed by RPC, Inc. (281) 227-3577.

F. Gaskets: Provide factory installed continuous extruded black rubber gaskets above and below translucent panels.

G. Insulation: No. 1 Dry Class glass fiber, in density to achieve specified performance requirements.

2.4 ACCESSORIES

A. Anchors and Fasteners: stainless steel, as instructed by manufacturer.

B. Other materials, components: As required for a complete watertight and airtight installation as instructed by manufacturer.

C. Flashing: Refer to Section 07 62 00, Sheet Metal Flashing, except pivot base and sill flashing as provided pre-finished by translucent panel assembly manufacturer shall be aluminum.

D. Sealants: Refer to Section 07 92 00, Building Sealants.

2.5 FABRICATION

A. Fabricate system free of visual distortion and defects.

B. Provide for removal of condensation to exterior. Fabricate to drain water entering joints, or migrating moisture occurring within unit, to exterior

C. Provide weathertight assembly.

PART 3 – EXECUTION

3.1 PREPARATION

A. Provide structural framing and support curbs as indicated on the drawings and required by the translucent panel system manufacturer.

B. Prepare openings including isolating dissimilar materials from aluminum system which may cause damage by electrolysis.

C. Provide temporary enclosures, if required.

3.2 ERECTION

A. Verify acceptability of structural framing and curbs for support of panel system prior to commencement of installation. Commencement indicates acceptance of conditions.

B. Erect panel systems in locations indicated on the drawings in accordance with approved shop drawings and manufacturers printed instructions.

C. Install, fasten and seal assembly in accordance with manufacturer's printed instructions. Clean aluminum prior to application of sealants.

D. After other trades have completed work on adjacent material, inspect translucent panel installations and make adjustments necessary to insure proper installation.

E. Install complete system water and air tight.

3.3 FIELD QUALITY CONTROL

A. Water Test: Test skylights according to procedures in AAMA 501.2.

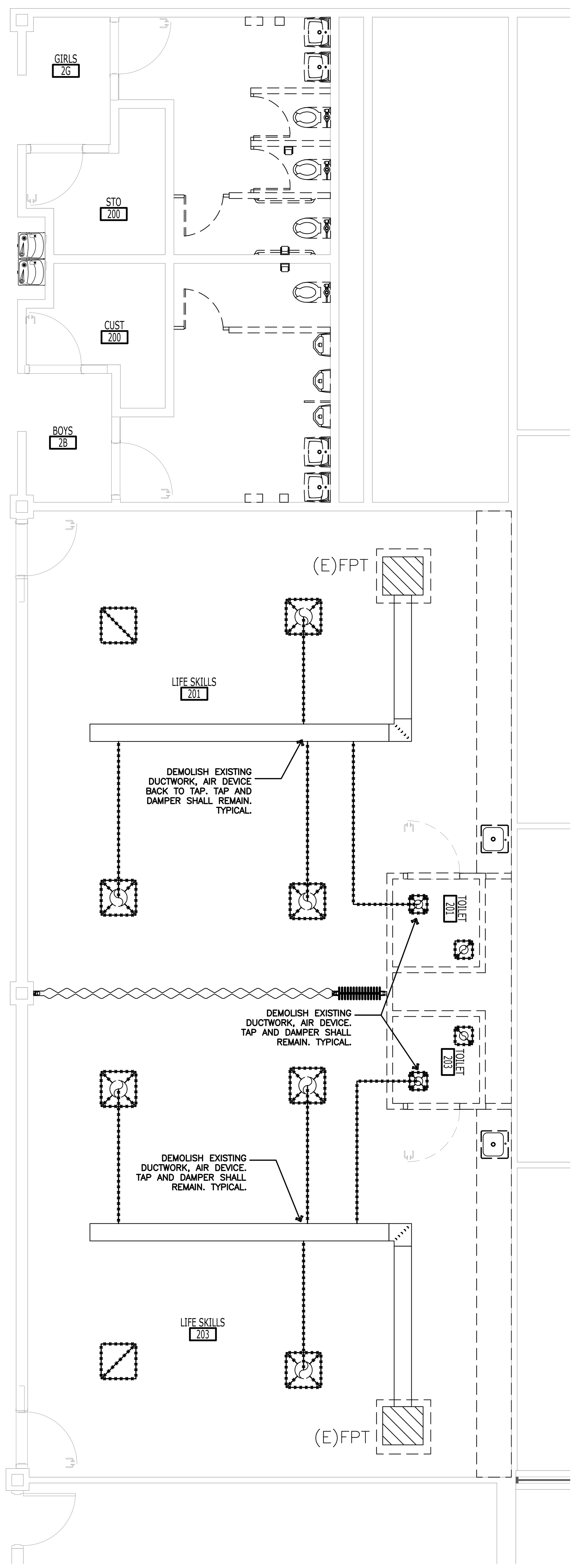
B. Repair or replace work that does not pass field testing or that is damaged by testing and retest work.

3.4 CLEANING AND PROTECTION

A. Clean the skylight system inside and outside, immediately after installation, according to manufacturer's instructions.

B. Protect skylight system from damage caused by other trades during construction. Repair or replace work damaged during construction.

END OF SECTION 08 45 13



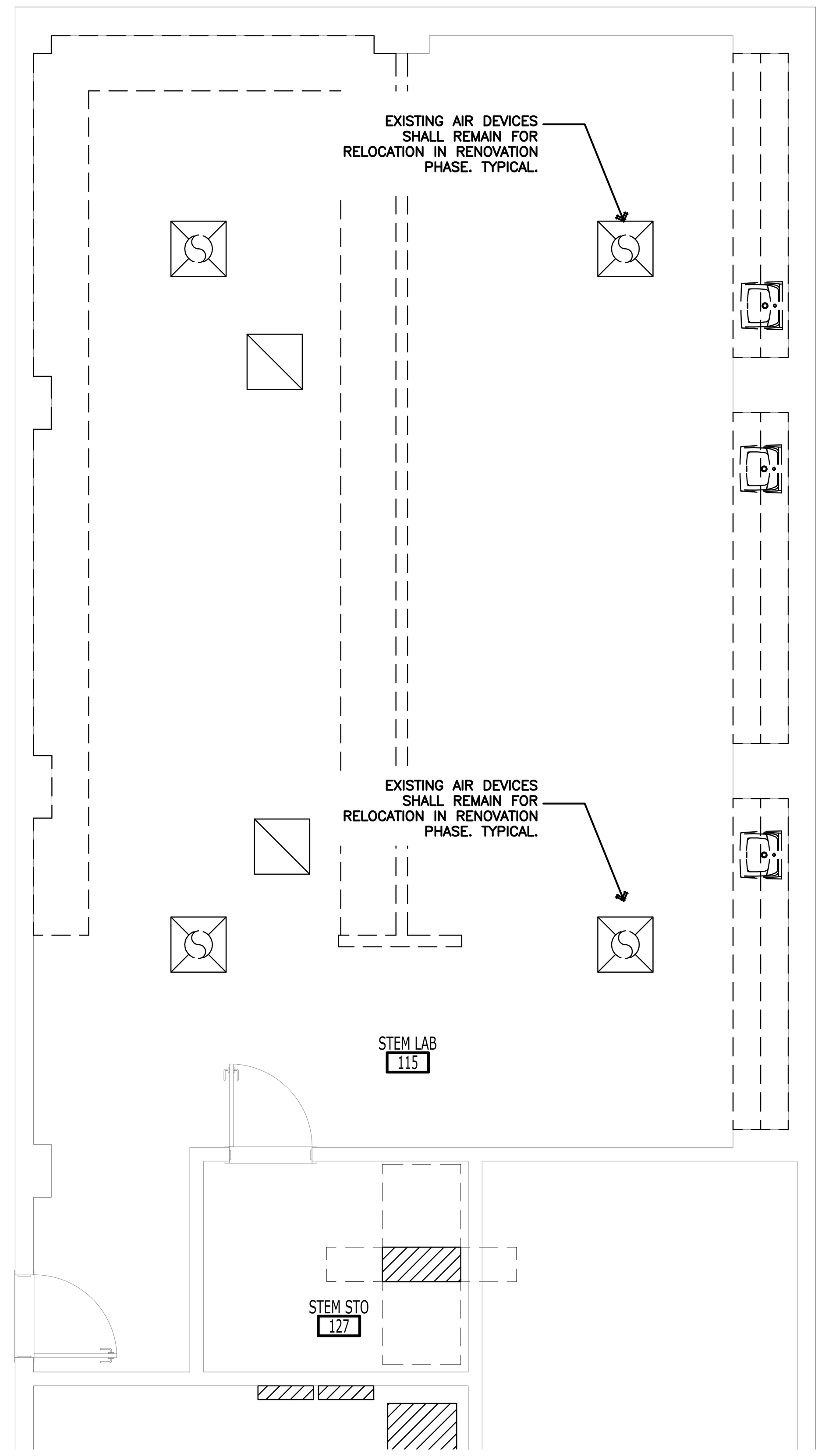
3 ENLARGED MECHANICAL DEMO PLAN

SCALE: 1/4" = 1'-0"

NORTH

NOTES:

1. DEMOLISH EXISTING AIR DEVICES. BRANCH DUCT SHALL REMAIN TO RECONNECT IN RENOVATION.



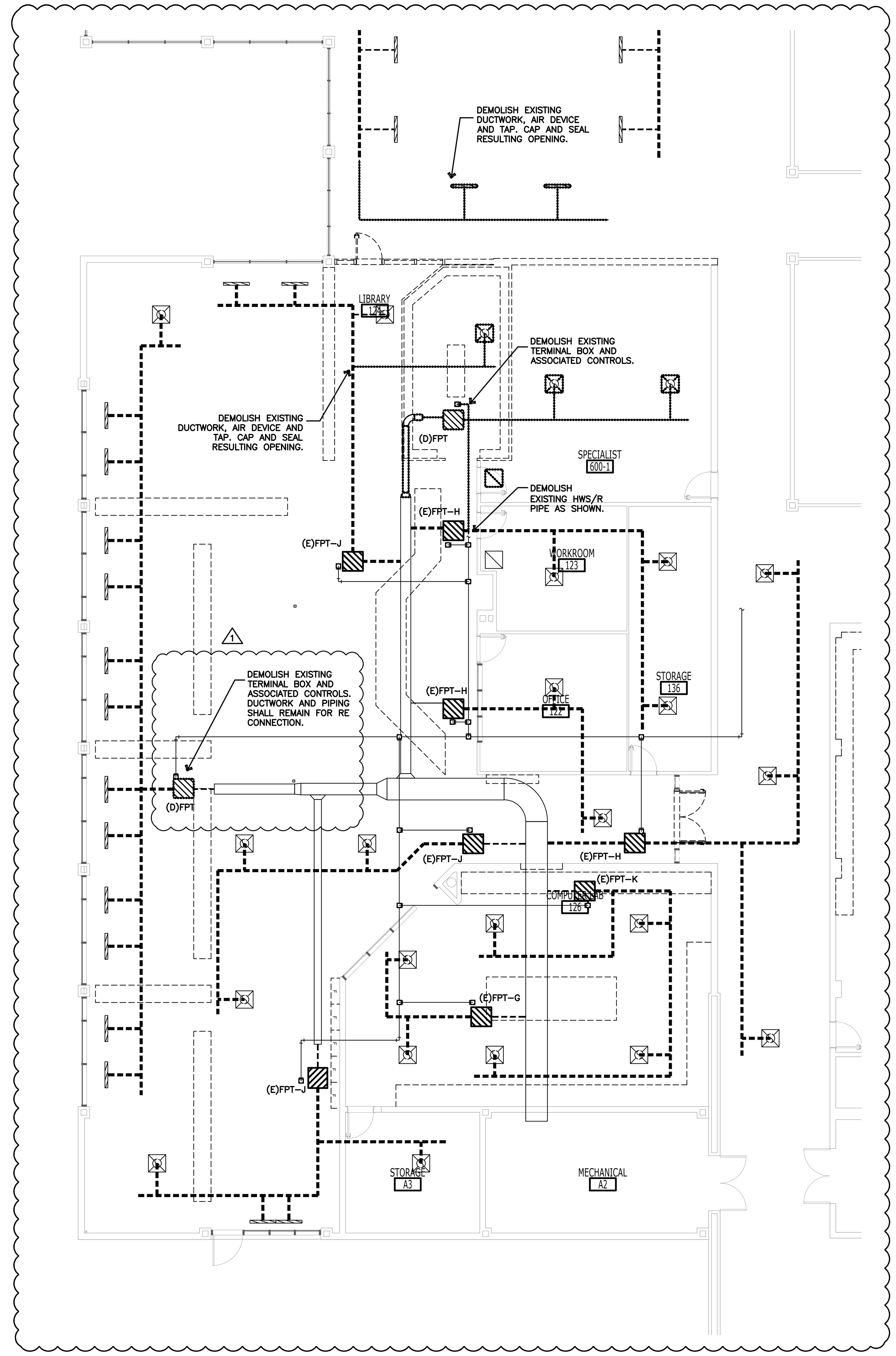
2 ENLARGED MECHANICAL RR PLAN

SCALE: 1/4" = 1'-0"

NORTH

NOTES:

1. DEMOLISH EXISTING AIR DEVICES. BRANCH DUCT SHALL REMAIN TO RECONNECT IN RENOVATION.



1 ENLARGED MECHANICAL DEMO PLAN

SCALE: 1/8" = 1'-0"

NORTH

FAN POWERED BOX CONTROLS (DEMO)

1. THIS SECTION IS APPLICABLE TO EIGHT (8) EXISTING FAN POWERED TERMINAL UNITS SHOWN ON PLAN.
2. DISCONNECT AND DEMOLISH ALL EXISTING PNEUMATIC CONTROLS, ACCESSORIES, AND TUBING.
3. CONTRACTOR SHALL VERIFY THAT UNIT FAN AND MOTOR ARE IN OPERABLE CONDITION.
4. IF FAN AND MOTOR ARE FOUND TO BE INOPERABLE, CONTRACTOR SHALL DEMOLISH EXISTING TERMINAL UNIT AND REPLACE WITH NEW.
5. REFERENCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

MECHANICAL DEMO GENERAL NOTE

1. DISCONNECT AND DEMOLISH ALL EXISTING PNEUMATIC CONTROLS, ACCESSORIES, AND TUBING BACK TO PNEUMATIC BRANCH BOX.
2. ALL CONTROLS DEMOLITION AND REPLACEMENT SHALL OCCUR DURING UNOCCUPIED HOURS.
3. DEMOLITION OF PNEUMATIC CONTROLS AND INSTALLATION OF DDC CONTROLS SHALL BE DONE IN SEQUENTIAL ORDER SO THAT ALL EQUIPMENT IS OPERABLE DURING OCCUPIED HOURS.
4. ALL EQUIPMENT WITH PNEUMATIC CONTROLS THAT HAVE YET TO BE DEMOLISHED SHALL BE OPERABLE DURING OCCUPIED HOURS.

STANTON ENGINEERING GROUP

REVISIONS
ISSUED FOR BIDS
MARCH 06, 2020
ADDENDUM #2
MARCH 30, 2020 1

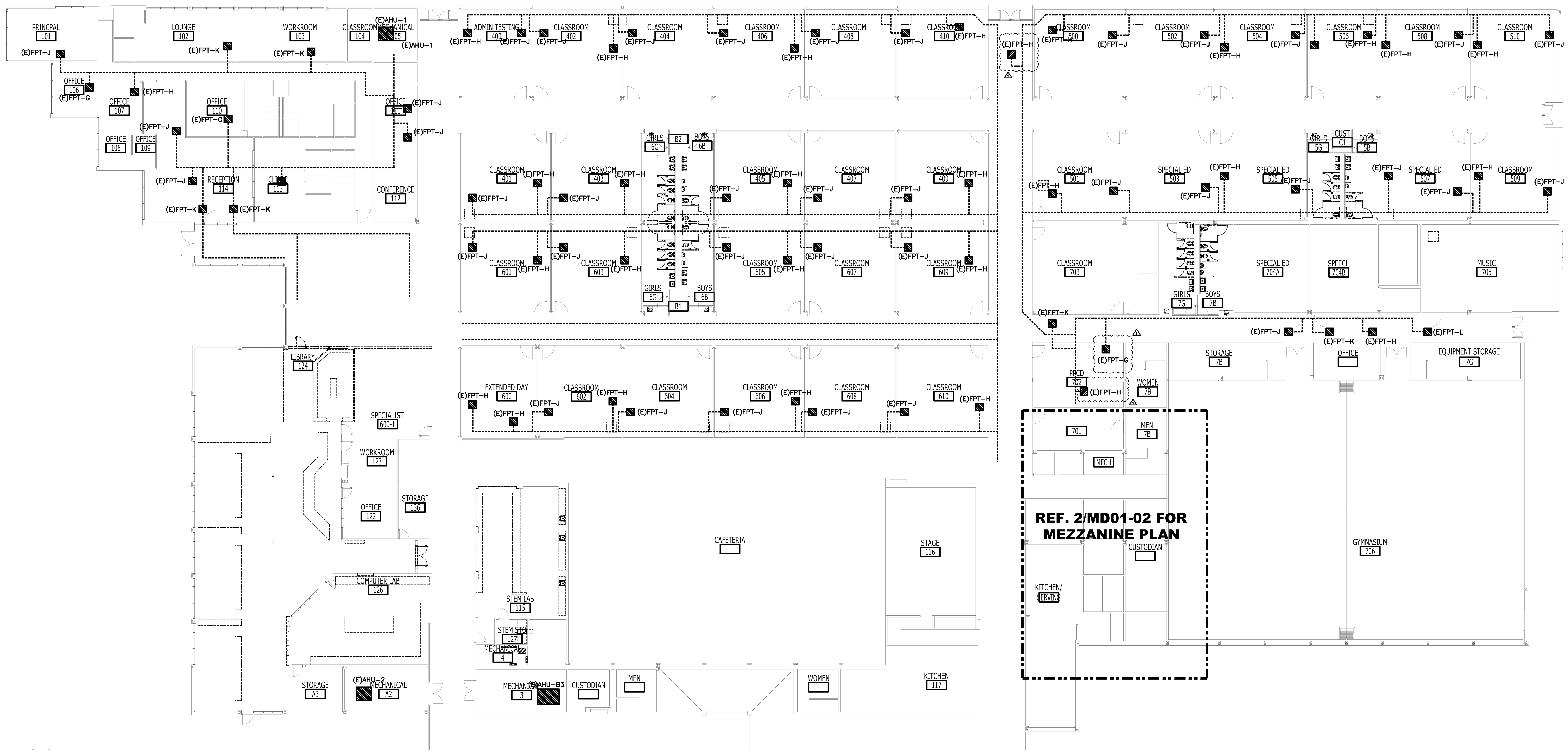
SMSD ELEMENTARY SCHOOL
STAFFORD MUNICIPAL SCHOOL DISTRICT
1250 CONSTITUTION AVE.
STAFFORD, TX 77477

STATE OF TEXAS
TYLER W. HERRING
106052
LICENSED PROFESSIONAL ENGINEER
03.30.2020

MWA ARCHITECTS
ARCHITECTS AND PLANNING CONSULTANTS
6161 SAVOY SUITE 1212
HOUSTON, TEXAS 77036

PROJ. NO.: 19-12
DATE: 03/06/2020
ISSUED FOR: ISSUED FOR BID

ENLARGED MECH. DEMO PLANS
MD01-01



1 MECHANICAL FLOOR PLAN-CONTROLS UPDATE

SCALE: 1/16" = 1'-0"

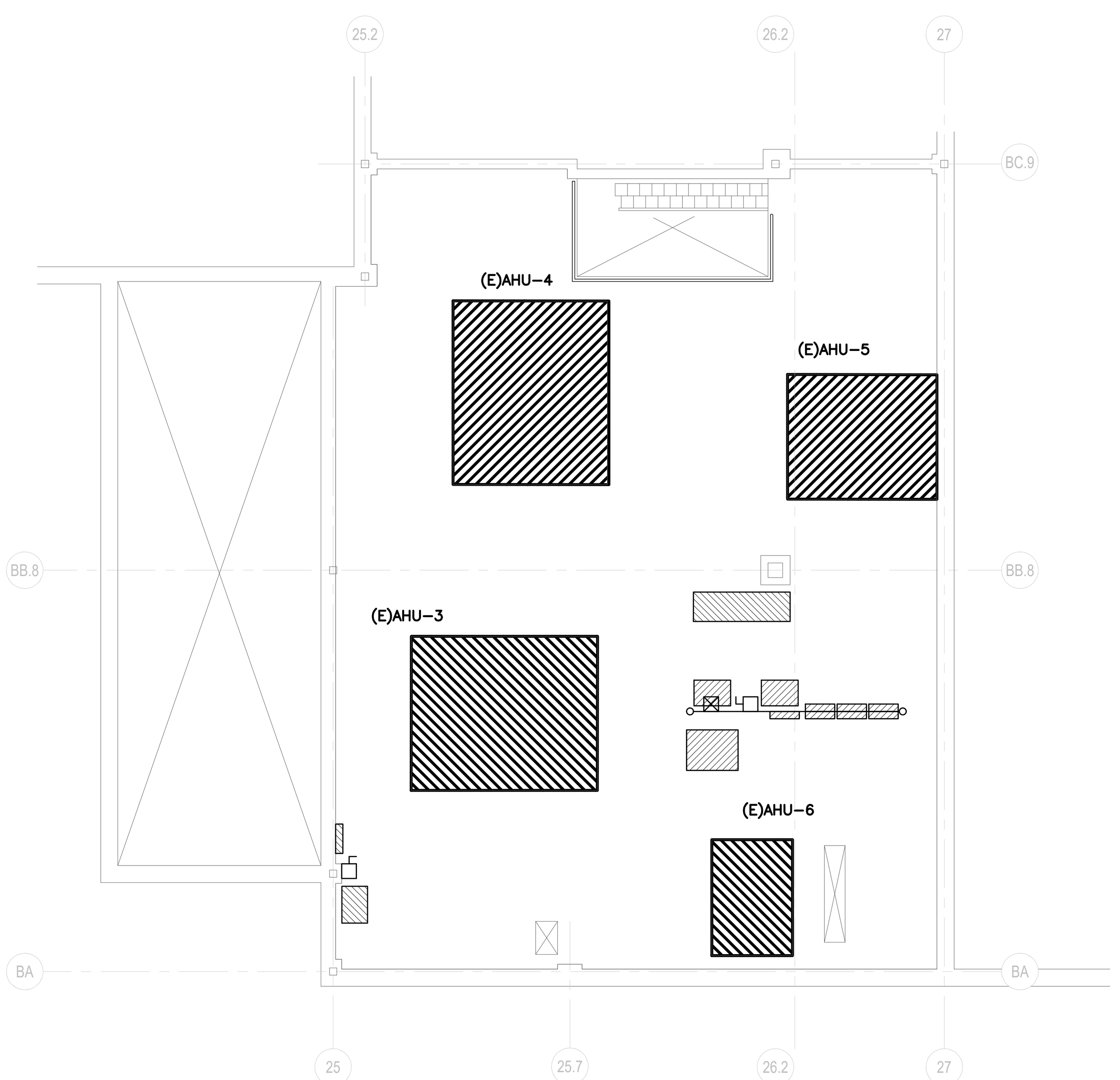
NORTH

FAN POWERED BOX CONTROLS (DEMO)

1. THIS SECTION IS APPLICABLE TO SEVENTY FOUR (74) EXISTING FAN POWERED TERMINAL UNITS SHOWN ON PLAN.
2. DISCONNECT AND DEMOLISH ALL EXISTING PNEUMATIC CONTROLS, ACCESSORIES, AND TUBING.
3. CONTRACTOR SHALL VERIFY THAT UNIT FAN AND MOTOR ARE IN OPERABLE CONDITION.
4. IF FAN AND MOTOR ARE FOUND TO BE INOPERABLE, CONTRACTOR SHALL DEMOLISH EXISTING TERMINAL UNIT AND REPLACE WITH NEW.
5. REFERENCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

MECHANICAL DEMO GENERAL NOTE

1. DISCONNECT AND DEMOLISH ALL EXISTING PNEUMATIC CONTROLS, ACCESSORIES, AND TUBING BACK TO PNEUMATIC BRANCH BOX.
2. ALL CONTROLS DEMOLITION AND REPLACEMENT SHALL OCCUR DURING UNOCCUPIED HOURS.
3. DEMOLITION OF PNEUMATIC CONTROLS AND INSTALLATION OF DDC CONTROLS SHALL BE DONE IN SEQUENTIAL ORDER SO THAT ALL EQUIPMENT IS OPERABLE DURING OCCUPIED HOURS.
4. ALL EQUIPMENT WITH PNEUMATIC CONTROLS THAT HAVE YET TO BE DEMOLISHED SHALL BE OPERABLE DURING OCCUPIED HOURS.



2 MECHANICAL MEZZANINE PLAN

SCALE: 1/8" = 1'-0"

NORTH

AIR HANDLING UNIT CONTROLS (DEMO)

1. DISCONNECT AND DEMOLISH EXISTING PNEUMATIC O/A DAMPER CONTROL ACTUATOR.
2. FOR UNITS WITH EXISTING DDC CONTROLS, CONFIRM CONTROLLER IS CAPABLE OF MEETING SPECIFICATION REQUIREMENTS.
3. DEMOLISH VFD ASSOCIATED WITH AHU-3.

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REVISIONS

ISSUED FOR BIDS
MARCH 06, 2020

ADDENDUM #2
MARCH 30, 2020 (1)

SMSD ELEMENTARY SCHOOL
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1250 CONSTITUTION AVE.
STAFFORD, TX 77477

STATE OF TEXAS
TYLER W. HERRING
106052
03.30.2020

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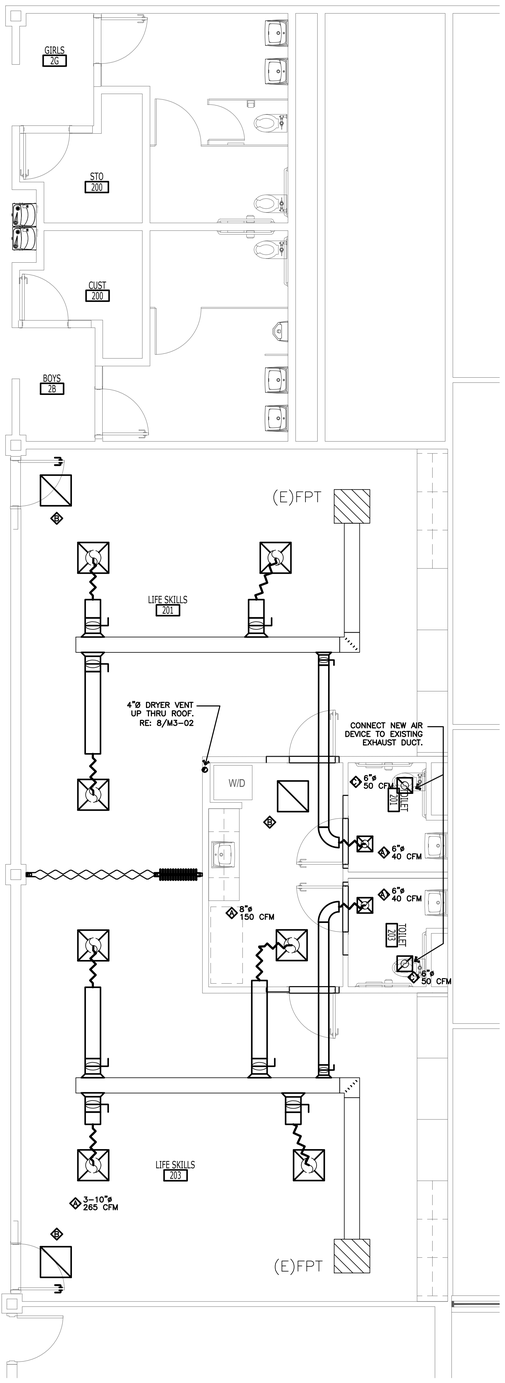
PROJ. NO.: 19-12
DATE: 03/06/2020
ISSUED FOR: ISSUED FOR BID

MECH. DEMO PLAN -CONTROLS UPDATE

MD01-02



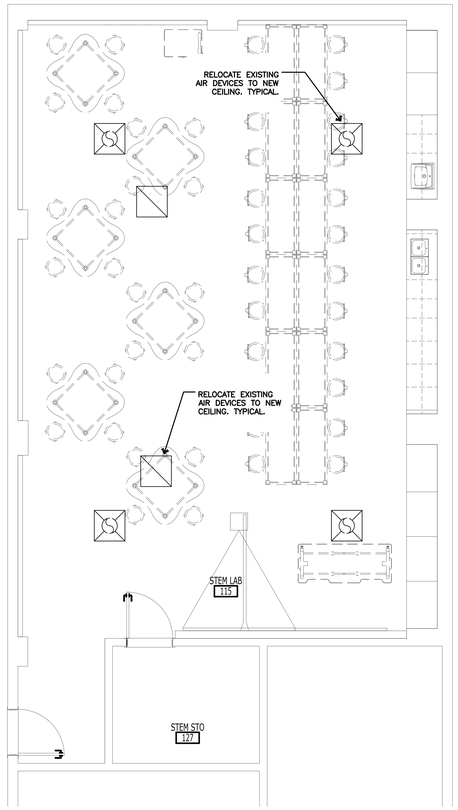
3 **ENLARGED MECHANICAL RENO PLAN**

SCALE: 1/4" = 1'-0"

NOTES:

1. CONNECT NEW AIR DEVICES TO EXISTING TAPS. BALANCE TO CFM SHOWN.

NORTH



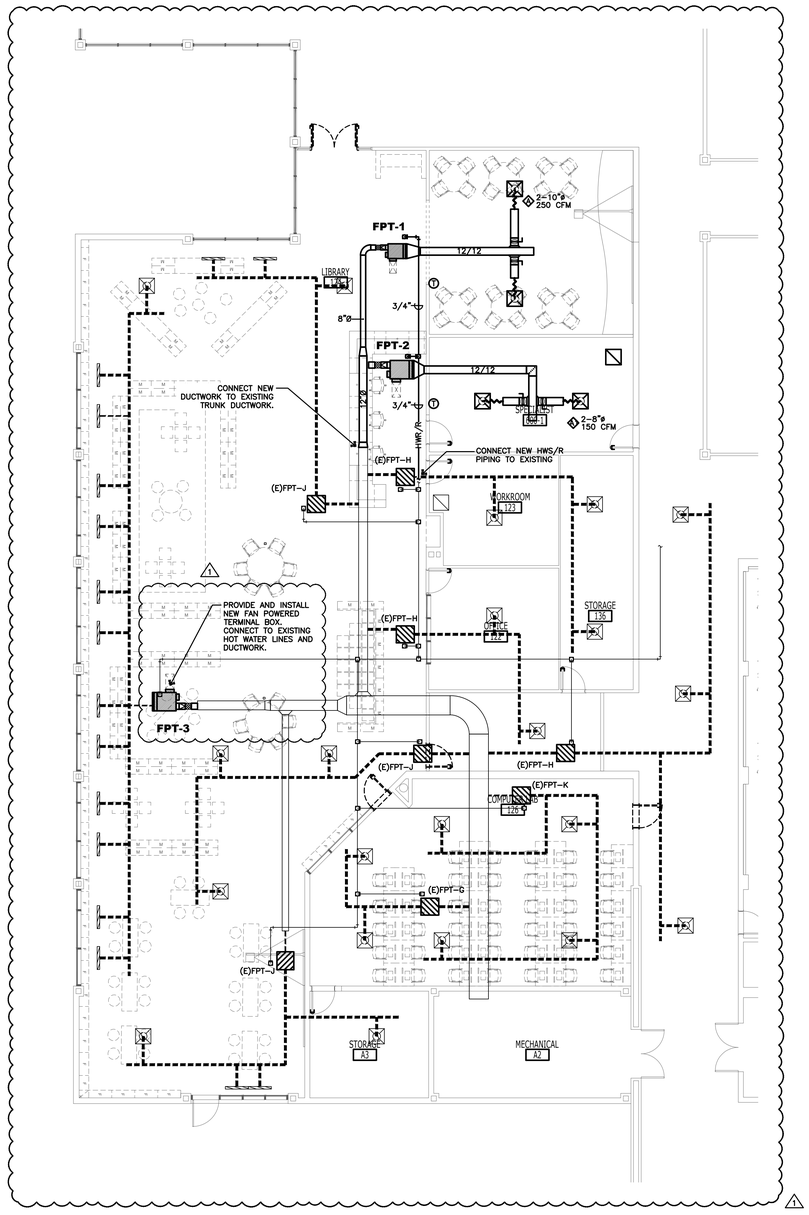
2 **ENLARGED MECHANICAL RENO PLAN**

SCALE: 1/4" = 1'-0"

NOTES:

1. CONNECT NEW AIR DEVICES TO EXISTING TAPS. BALANCE TO CFM SHOWN.

NORTH



1 **ENLARGED MECHANICAL RENO PLAN**

SCALE: 1/4" = 1'-0"

NOTES:

1. CONNECT NEW AIR DEVICES TO EXISTING TAPS. BALANCE TO CFM SHOWN.

NORTH

FAN POWERED BOX CONTROLS

1. THIS SECTION IS APPLICABLE TO EIGHT (8) EXISTING FAN POWERED TERMINAL UNITS SHOWN ON PLAN.
2. PROVIDE NEW DDC FAN POWERED TERMINAL UNIT CONTROLLER. NEW DDC CONTROLLER TO BE MOUNTED ON EXISTING TERMINAL BOX. COST OF INSTALLING CONTROLLER MOUNTING SHALL BE INCLUDED IN BID.

2.a. TERMINAL UNIT CONTROL POINTS:

UNIT ENABLE	DO
ZONE TEMPERATURE	AI (TEMPERATURE)
SUPPLY AIR TEMPERATURE	AI (TEMPERATURE)
PRIMARY AIR SUPPLY	AI (CFM)
PRIMARY AIR DAMPER	AO
HEATING COIL VALVE	AO
MAXIMUM PRIMARY AIR SETPOINT	DATA POINT
MINIMUM PRIMARY AIR SETPOINT	DATA POINT

3. PROVIDE NEW ELECTRONIC DAMPER ACTUATOR FOR TERMINAL BOX.
4. REPLACE EXISTING PNEUMATIC THERMOSTATS WITH NEW TEMPERATURE SENSOR.
5. PROVIDE NEW STATIC PRESSURE SENSOR.
6. PROVIDE NEW ELECTRONIC VALVE AND ACTUATOR FOR HOT WATER COIL.
7. ~~REFER TO SPECIFICATIONS FOR ASBESTOS ABATEMENT.~~
8. INSTALL TITUS EXX ROUND RETROFIT TERMINAL KIT ON ALL EXISTING FAN POWERED TERMINAL BOXES. REFER TO UNIT TAG AND RETROFIT TERMINAL KIT SCHEDULE FOR SIZES AND FLOW.

REVISIONS

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ENLARGED MECH. PLANS

M01-01

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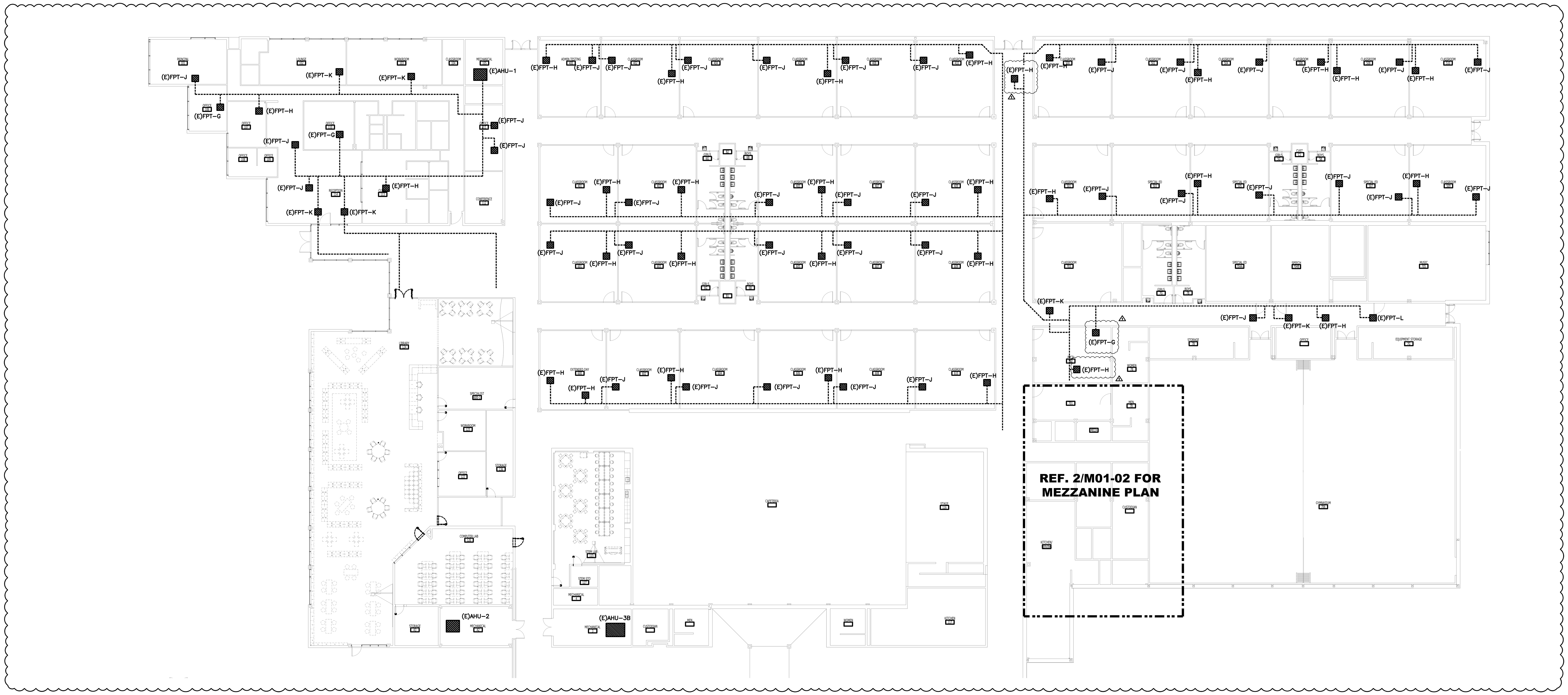


1 MECHANICAL FLOOR PLAN-CONTROLS UPDATE

SCALE: 1/16" = 1'-0"

NORTH

AIR HANDLING UNIT CONTROLS (OVERALL)

1. AHU-3B: PROVIDE NEW ELECTRONIC DAMPER ACTUATOR FOR OUTSIDE AIR.
2. AHU-1: PROVIDE AND INSTALL NEW VFD SIZED FOR 15.0 HP MOTOR.
3. AHU-2: PROVIDE AND INSTALL NEW VFD SIZED FOR 10.0 HP MOTOR.
4. DEMOLISH ALL EXISTING PNEUMATIC TUBING.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

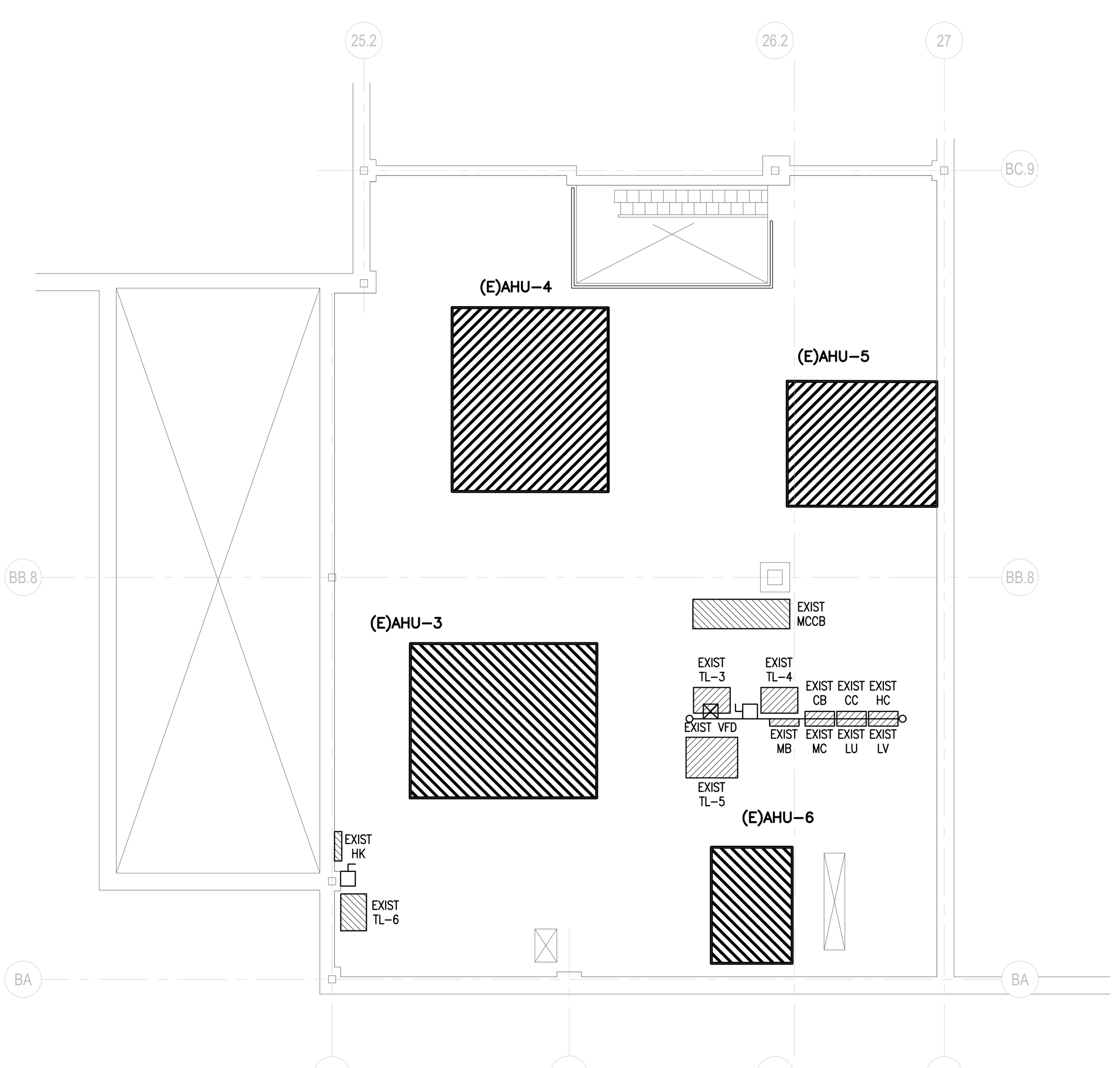
FAN POWERED BOX CONTROLS

1. THIS SECTION IS APPLICABLE TO SEVENTY FOUR (74) EXISTING FAN POWERED TERMINAL UNITS SHOWN ON PLAN.
2. PROVIDE NEW DDC FAN POWERED TERMINAL UNIT CONTROLLER. NEW DDC CONTROLLER TO BE MOUNTED ON EXISTING TERMINAL BOX. COST OF INSTALLING CONTROLLER MOUNTING SHALL BE INCLUDED IN BID.

2.a. TERMINAL UNIT CONTROL POINTS:

UNIT ENABLE	DO
ZONE TEMPERATURE	AI (TEMPERATURE)
SUPPLY AIR TEMPERATURE	AI (TEMPERATURE)
PRIMARY AIR SUPPLY	AI (CFM)
PRIMARY AIR DAMPER	AO
HEATING COIL VALVE	AO
MAXIMUM PRIMARY AIR SETPOINT	DATA POINT
MINIMUM PRIMARY AIR SETPOINT	DATA POINT

3. PROVIDE NEW ELECTRONIC DAMPER ACTUATOR FOR TERMINAL BOX.
4. REPLACE EXISTING PNEUMATIC THERMOSTATS WITH NEW TEMPERATURE SENSOR.
5. PROVIDE NEW STATIC PRESSURE SENSOR.
6. PROVIDE NEW ELECTRONIC VALVE AND ACTUATOR FOR HOT WATER COIL.
7. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. INSTALL TITUS EXX ROUND RETROFIT TERMINAL KIT ON ALL EXISTING FAN POWERED TERMINAL BOXES. REFER TO UNIT TAG AND RETROFIT TERMINAL KIT SCHEDULE FOR SIZES AND FLOW.



2 MECHANICAL MEZZANINE PLAN

SCALE: 1/8" = 1'-0"

NORTH

AIR HANDLING UNIT CONTROLS (MEZZANINE)

1. AHU-3,4,5,6: PROVIDE NEW ELECTRONIC DAMPER ACTUATOR FOR OUTSIDE AIR.
2. AHU-3: PROVIDE AND INSTALL NEW VFD SIZED FOR 25.0 HP MOTOR.
3. AHU-5: PROVIDE AND INSTALL NEW VFD SIZED FOR 10.0 HP MOTOR.
4. AHU-6: PROVIDE AND INSTALL NEW VFD SIZED FOR 3.0 HP MOTOR.
5. DEMOLISH ALL EXISTING PNEUMATIC TUBING.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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MECHANICAL PLAN -CONTROLS UPDATE

M01-02

GENERAL MECHANICAL NOTES

1. REFER TO WRITTEN SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. DUCT SIZES SHOWN ARE NET FREE AIR PASSAGE DIMENSIONS, DUCTS ARE NOT LINED, BUT ARE EXTERNALLY INSULATED. RUNOUTS TO CEILING OUTLETS SHALL BE EXTERNALLY INSULATED GALVANIZED SHEET METAL WITH SPIN–IN V.D. AT TRUNK TAPS, SEE DETAIL 4/M3–02.
3. MAIN CHILLED/HOT WATER PIPING SHALL BE HUNG FROM TOP CHORD OF JOISTS. ALTERNATE PIPE HANGERS BETWEEN JOISTS TO ASSURE EVEN LOADING OF EACH JOIST. SEE DETAIL 7/M3–02 FOR PIPE SUPPORT DETAIL.
4. REFER TO ARCHITECTURAL REFLECTED CEILING DRAWINGS FOR EXACT LOCATIONS OF CEILING OUTLETS IN RELATION TO OTHER CEILING ENTITIES. OUTLETS MUST BE COMPATIBLE WITH THE CEILING TYPES FOR THE VARIOUS AREAS.
5. IN AREAS WHERE SUPPLY AIR ENTERS CEILING CAVITY THRU RETURN AIR GRILLES AND FREE RETURNS TO AHU'S VIA CEILING CAVITY, PROVIDE RETURN AIR OPENING IN WALL–TO–DECK ABOVE CEILING THAT BLOCK PATH, REFER TO ARCHITECTURAL DRAWINGS. RETURN AIR ELBOWS SHALL BE SIZED AT 1 SQ. FT PER 400 CFM SUPPLY AIR, REFER TO DRAWINGS.
6. COORDINATE INSTALLATION OF EQUIPMENT AND PIPING WITH THE ELECTRICAL CONTRACTOR TO INSURE NEC CLEARANCE (42 INCHES) IN FRONT OF ALL ELECTRICAL PANELS.
7. ARRANGE PIPING CONNECTIONS TO ALL EQUIPMENT TO ALLOW EASY REMOVAL OF EQUIPMENT, SUB–ASSEMBLIES, COILS, FANS, MOTORS, FILTERS, ACCESS PANELS, ETC... PROVIDE UNIONS, FLANGES AND VALVES AT CONNECTIONS. PROVIDE AND INSTALL VICTAULIC JOINTS AT COILS, REF. SPECIFICATIONS. PLACE STOP VALVES ON SYSTEM SIDE OF REMOVABLE PIPE SECTIONS.
8. DO NOT INSTALL DUCTWORK OR WATER PIPING OVER THE TOP OF ELECTRICAL PANELS.
9. CONTRACTOR SHALL FIELD MEASURE STRUCTURAL ELEMENTS AND COORDINATE EQUIPMENT, PIPING AND DUCT ROUTING TO FIT EXISTING CONSTRUCTION. PROVIDE OFFSETS, BOOTS OR ENVELOP OBSTRUCTIONS THAT CANNOT BE AVOIDED. CONSTRUCTION SHALL BE PER SMACNA FIGURE 2–10.

MECHANICAL SYMBOL SCHEDULE

CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
RS	REFRIGERANT SUPPLY
RR	REFRIGERANT RETURN
D	CONDENSATE LINE
	PETE'S PLUG
	ISOLATION VALVE
	ELECTRONIC CONTROL VALVE
	BUTTERFLY VALVE
	BALL VALVE
	UNION OR FLANGE
	STRAINER
	AUTOMATIC AIR VENT
T	LOCAL CONTROL THERMOSTAT
T	TEMPERATURE SENSOR
H	HUMIDITY SENSOR
FD	FIRE DAMPER
SD	SMOKE DAMPER
FSD	FIRE/SMOKE COMBINATION DAMPER
MD	MOTORIZED DAMPER
C	
CO	
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST GRILLE
RA	RETURN AIR OPENING IN WALL
VD	VOLUME DAMPERS
	DUCT ELEVATION CHANGE
	90° DUCT ELBOW WITH TURNING VANES
	FLEXIBLE DUCT

M	DAMPER MOTOR
T	TEMPERATURE TRANSMITTER
FS	FLOW SWITCH
P	DIFFERENTIAL PRESSURE SENSOR
SD	DUCT SMOKE DETECTOR
PS	STATIC PRESSURE SENSOR
PH	STATIC PRESSURE SENSOR HI–LIMIT
	ACCESS PANEL
A.P.	ACCESS PANEL
AHU	AIR HANDLING UNIT
B	BOILER
CH	CHILLER
CHP	CHILLED WATER PUMP
CT	CONSTANT VOLUME TERMINAL
DH	DEHUMIDIFIER
E/A	EXHAUST AIR
EF	EXHAUST FAN
F&B	FACE & BYPASS
FF	FLY FAN
HDT	HORIZONTAL DRAW THROUGH
HWP	HOT WATER PUMP
KEF	KITCHEN EXHAUST FAN
KSF	KITECHEN SUPPLY FAN
O/A	OUTSIDE AIR
OBD	OPPOSED–BLADES DAMPER
PT	PRE–TREAT
R/A	RETURN AIR
RAHU	ROOF–MOUNTED AIR HANDLING UNIT
S/A	SUPPLY AIR
SA	SOUND ATTENUATOR
SF	SUPPLY FAN
SPD	SPILTER DAMPER
SZ	SINGLE ZONE
VAV	VARIABLE AIR VOLUME
VB	VAV BOX
VD	VOLUME DAMPER
VDT	VERTICAL DRAW THROUGH
VFD	VARIABLE FREQUENCY DRIVE
WH	WATER HEATER
ø	DESIGNATION FOR "ROUND"
⊖	DESIGNATION FOR "OVAL"

AIR TERMINAL UNIT SCHEDULE

MARK	INLET SIZE	TOTAL CFM	MIN. PRIMARY CFM	ASHRAE 62.1 MINIMUM	E.S.P. (W.G.)	HP	MIN. HEATING CAPACITY, MHB	GPM/SIZE	MAX P.D. FOR WATER	TITUS MODEL	TITUS UNIT SIZE
FPT–1	10" ø	500	275	275	0.3"	1/6 HP	12.2	0.6 / 3/4''	5 FT	DTFS	B
FPT–2	8" ø	300	95	55	0.3"	1/6 HP	5.3	0.3 / 3/4''	5 FT	DTFS	B
FPT–3	8" ø	2400	1700	1700	0.3"	3/4 HP	65.6	3.4 / 3/4''	6 FT	DTFS	E

1

NOTES:
1. VOLTAGE FOR ALL FPT SHALL BE 120V/1PH.
2. HOT WATER COIL SHALL BE A MINIMUM OF 2 ROWS.
3. STATIC PRESSURES SHOWN ARE EXTERNAL TO UNITS. MANUFACTURER SHALL ADD DAMPER, HEATING COIL, CASING, FILTER, SOUND ATTENUATOR AND OTHER UNIT LOSSES BEFORE SELECTING FAN.
4. HEATING WATER IS BASED ON 180°F EWT AND 140°F LWT
5. REFERENCE 10/M3–02 FOR DETAIL AND WRITTEN SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

AIR DEVICE SCHEDULE

MARK	DESCRIPTION
A	CEILING DIFFUSER – 24" X 24" FACE, PATTERN TYPE, STEEL CONSTRUCTION, WHITE FINISH, NECK SIZE SHOWN ON DRAWING TITUS TMS A1–12" X 12"
B	CEILING RETURN GRILLE – 24" X 24" PERFORATED FACE, STEEL CONSTRUCTION, WHITE FINISH TITUS PAR B1–12" X 12"
C	CEILING EXHAUST GRILLE – 24" X 24" PERFORATED FACE, STEEL CONSTRUCTION, WHITE FINISH, NECK SIZE SHOWN ON DRAWING TITUS PAR C1–12" X 12"

NOTES:
1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN TO VERIFY CEILING TYPE.
2. PROVIDE RADIATION DAMPERS FOR ALL CEILING DEVICES INSTALLED IN RATED CEILINGS. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN TO VERIFY CEILING RATING.

1

ROUND FLOW MEASUREMENT

MARK	INLET SIZE	MIN. PRIMARY CFM	MAX. PRIMARY CFM	TITUS MODEL
(E) FPT–G	6" ø	200	400	EXX
(E) FPT–H	8" ø	401	700	EXX
(E) FPT–J	10" ø	701	1200	EXX
(E) FPT–K	12" ø	1201	1700	EXX
(E) FPT–L	14" ø	1701	2400	EXX

NOTES:
1.FURNISH AND INSTALL TITUS MODEL EXX SINGLE DUCT RETROFIT TERMINALS OF THE SIZES AND CAPACITIES SHOWN IN THE PLANS.
2.THE TERMINAL CASING SHALL BE MINIMUM 22–GAUGE GALVANIZED STEEL.
3.THE TERMINAL SHALL INCORPORATE A MULTI–POINT, CENTER AVERAGING VELOCITY SENSOR. A MINIMUM OF FOUR MEASURING PORTS MUST BE PARALLEL TO THE TAKE–OFF POINT FROM THE SENSOR. SENSORS WITH MEASURING PORTS IN SERIES ARE NOT ACCEPTABLE. THE SENSOR MUST PROVIDE A SIGNAL MEASURABLE BY THE CONTROLLER AT INLET VELOCITIES OF 500 FPM. THE SENSOR MUST PROVIDE CONTROL SIGNAL ACCURACY OF ±5 PERCENT, WITH THE SAME SIZE INLET DUCT AT ANY INLET CONDITION.

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MECHANICAL SYMBOLS & SCHEDULES
M3-01