



17 September 2020

4J Eugene School District
Churchill Wood Shop Remodel
CIP Project # 464.678.060

Addendum #1

1 GENERAL ITEMS

1. The non-mandatory Pre-Bid conference was held at 1:00pm, September 15 at Churchill High School. The list of attendees is attached.

2 CLARIFICATIONS TO THE PROJECT MANUAL

1. Section 00 0110 – Table of Contents
 - A. Delete Section 002113 – Instructions to Bidders
2. Add Section 01 5719 – Temporary Environmental Controls
3. Section 06 1000 - Rough Carpentry
 - A. 1.06.B.: Change warranty period to two years.
4. Section 07 9200 – Joint Sealants
 - A. 1.06.B: Change installer warranty period to two years.
 - B. Add 1.06.C requiring manufacturer's warranty of five years.
5. Section 08 1113 – Hollow Metal Doors and Frames
 - A. 1.01.A: Delete frames.
 - B. Delete Section 2.04 HOLLOW METAL FRAMES.
6. Section 08 7100 – Door Hardware
 - A. 1.08.B: Revise to require manufacturer's warranty to be 5 years.
7. Section 26 0923 – Lighting Control Equipment
 - A. 3.02.A: Revise to require manufacturer's warranty to be 5 years.
8. Section 26 5113 – Indoor Lighting Fixtures, Lamps and Ballasts
 - A. Add 1.01.C Salvage demolished lighting fixtures to Owner's storage facility
 - B. Delete 2.02.A.12. 5-year warranty not required.
 - C. Delete 2.02.B.13. 5-year warranty not required.

3 CHANGES AND CLARIFICATIONS TO THE DRAWINGS

1. Sheet G-001 COVER
 - A. Add Sheet A-114 DETAILS to the Drawing Index.
 - B. Add note stating seismic bracing of HVAC equipment and ductwork is delegated design and to be a deferred submittal.
2. Sheet A-111 1ST FLOOR PLAN, EXTERIOR ELEVATIONS, SECTIONS
 - A. Detail 1/A-111: Add existing fire extinguisher cabinet locations and information.
 - B. Detail 1/A-111: Remove text "AND FRAME" from note regarding replacing the door. The existing frame can remain and be reused.
 - C. Detail 1/A-111: Add dimensions and revise note at dust collector concrete pad to provide additional information.
 - D. Details 3,4/A-111: Add detail callouts at ceiling of Spray Booth Room
3. Sheet A-113 1ST FLOOR RCP, ROOF PLAN, DETAILS
 - A. Detail 1/A-113: Add note and detail callout at the new exhaust fan and curb.
 - B. Detail 1/A-113: Add walkway pads and note "INSTALL NEW WALKWAY PADS AS REQUIRED. MATCH EXISTING".
 - C. Detail 4/A-113: Add dimension and note to vision lites.
 - D. Detail 6/A-113: Add deflection track at top of wall.
 - E. Detail 7/A-113: Add additional information to notes regarding anchor bolts.
4. Sheet A-114 DETAILS: Add new sheet.
5. Sheet M-002 EQUIPMENT SCHEDULES - MECHANICAL
 - A. Revise Makeup Air Unit schedule to revise unit to 4200 cfm.
 - B. Revise Spray Booth schedule to revise fan to 4200 cfm, 2 HP.
 - C. Add note to Duct Collector schedule regarding extension of explosion vents.
6. Sheet M-401 ENLARGED PLANS – MECHANICAL
 - A. Detail 1, Revise duct size of makeup air unit and diffuser cfm.
 - B. Details 1 and 2, Add more cleanouts to dust collection ductwork.
 - C. Details 1 and 2, relocate dust collector control panel.
 - D. Detail 1, relocate spark detection panel
 - E. Detail 2, add disconnect switch to fan.
 - F. Detail 4, revise duct size.

4 SUBSTITUTION REQUESTS

1. None

5 DRAWINGS AND ATTACHMENTS

Pre-Bid Conference Attendance List

Section 01 5719 – Temporary Environmental Controls

Section 06 1000 – Rough Carpentry

Section 07 9200 – Joint Sealants

Section 08 1113 – Hollow Metal Doors and Frames

Section 08 7100 – Door Hardware

Section 26 0923 – Lighting Control Equipment

Section 26 5113 – Indoor Lighting Fixtures, Lamps and Ballasts

Drawing Sheet G-001 COVER
Drawing Sheet A-111 1ST FLOOR PLAN, EXTERIOR ELEVATIONS, SECTIONS
Drawing Sheet A-113 1ST FLOOR RCP, ROOF PLAN, DETAILS
Drawing Sheet A-114 DETAILS
Drawing Sheet M-002 EQUIPMENT SCHEDULES – MECHANICAL
Drawing Sheet M-401 ENLARGED PLANS - MECHANICAL

End of Addendum #1

Sign in sheet:

Non-Mandatory Pre-Bid meeting for: Churchill Woodshop Remodel

At Churchill High School

Tuesday, September 15, 2020 2:30 PM

PRINTED Name	Company	Phone Number	Email
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SECTION 00 0110
TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

- 00 0103 - Project Directory
- 00 0110 - Table of Contents
- 00 1113 - Invitation to Bid
- ~~00 2443 - Instructions to Bidders - AIA A704~~
- 00 3100 - Available Project Information
 - 00 3100.01 - GPR Data
- 00 4100 - Bid Form
 - Non-Discrimination Form
 - Non-Collusion Affidavit
- 00 4522 - First-Tier Subcontractor Disclosure Form
- 00 5200 - Agreement Form AIA A101
- 00 7200 - General Conditions AIA A201 with 4J Modifications

SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

- 01 1000 - Summary
 - Form 01 1100A - Asbesto-Containing Materials Notification Statement
 - Form 01 1100B - Asbestos-Containing Materials Statement
 - Form 01 1100C - Full Time Superintendent Disclosure Statement
- 01 2000 - Price and Payment Procedures
 - 01 2010 - 4j Change Request/Proceed Order
- 01 3000 - Administrative Requirements
- 01 3216 - Construction Progress Schedule
- 01 3300 - Delegated Design Requirements
- 01 3553 - Security Procedures
- 01 4000 - Quality Requirements
- 01 5000 - Temporary Facilities and Controls
- 01 5719 - Temporary Environmental Controls
- 01 6000 - Product Requirements
- 01 6116 - Volatile Organic Compound (VOC) Content Restrictions
 - 01 6116.01 - Accessory Material VOC Content Certification Form
- 01 7000 - Execution and Closeout Requirements
- 01 7419 - Construction Waste Management and Disposal
- 01 7800 - Closeout Submittals
- 01 7900 - Demonstration and Training

DIVISION 02 -- EXISTING CONDITIONS

- 02 4100 - Demolition

DIVISION 03 -- CONCRETE

- 03 3000 - Cast-in-Place Concrete

DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES

- 06 1000 - Rough Carpentry

DIVISION 07 -- THERMAL AND MOISTURE PROTECTION

- 07 6200 - Sheet Metal Flashing and Trim
- 07 8400 - Firestopping
- 07 9200 - Joint Sealants

DIVISION 08 -- OPENINGS

- 08 1113 - Hollow Metal Doors and Frames
- 08 3100 - Access Doors and Panels**
- 08 7100 - Door Hardware

DIVISION 09 -- FINISHES

- 09 2116 - Gypsum Board Assemblies
- 09 9123 - Interior Painting

DIVISION 21 -- FIRE SUPPRESSION

- 21 2400 - Dry-Chemical Fire-Extinguishing System

DIVISION 22 -- PLUMBING

- 22 0500 - Common Work Results for Plumbing
- 22 0523 - General-Duty Valves and Specialties for Plumbing Piping
- 22 0529 - Hangers, Supports and Anchors for Plumbing
- 22 0590 - Pressure Testing for Plumbing Systems
- 22 0700 - Insulation for Plumbing
- 22 1500 - General-Service Compressed-Air Systems
- 22 2113 - Pipe and Pipe Fittings Plumbing
- 22 2500 - Plumbing Water Treatment
- 22 3000 - Plumbing Equipment

DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

- 23 0500 - Common Work Results for Heating, Ventilation, and Air Conditioning
- 23 0548 - Seismic Controls for HVAC Equipment
- 23 0553 - Identification for HVAC Piping and Equipment
- 23 0590 - Pressure Testing for HVAC Systems
- 23 0593 - Testing, Adjusting, and Balancing for HVAC
- 23 0700 - Insulation for HVAC
- 23 3101 - HVAC Ducts and Casing - Low Pressure
- 23 3103 - HVAC Industrial Ducts and Casing - High Pressure
- 23 3300 - Air Duct Accessories
- 23 3319 - Duct Silencers
- 23 3400 - HVAC Fans
- 23 3520 - Spray Booths
- 23 3700 - Air Outlets and Inlets
- 23 4000 - HVAC Air Cleaning Devices
- 23 5500 - Fuel Fired Heaters

DIVISION 26 -- ELECTRICAL

- 26 0126 - Submittals and Shop Drawings
- 26 0500 - Common Work Results for Electrical
- 26 0501 - Electrical Demolition
- 26 0519 - Low Voltage Electrical Power and Cables
- 26 0526 - Grounding and Bonding for Electrical Systems
- 26 0529 - Hangers and Supports for Electrical Systems

- 26 0533 - Raceways and Boxes for Electrical Systems
- 26 0553 - Identification for Electrical Systems
- 26 0923 - Lighting Control Equipment
- 26 2416 - Panelboards
- 26 2726 - Wiring Devices
- 26 2816 - Overcurrent Protection Devices
- 26 2913 - Motor and Circuit Disconnects
- 26 5113 - Interior Lighting Fixtures, Lamps and Ballasts

END OF SECTION

SECTION 01 5719
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Construction procedures to promote adequate indoor air quality after construction.

1.02 PROJECT GOALS

- A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.
 - 1. Cleaning of ductwork is not contemplated under this Contract.
 - 2. Contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.
 - 3. Establish condition of existing ducts and equipment prior to start of alterations.
- B. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.
 - 1. Furnish products meeting the specifications.
 - 2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

1.03 RELATED REQUIREMENTS

- A. Section 01 6116 - VOC Limitations.

1.04 REFERENCE STANDARDS

- A. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size 2012, with 2015 amendments.
- B. SMACNA (OCC) - IAQ Guidelines for Occupied Buildings Under Construction 2007.

1.05 DEFINITIONS

- A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.
- B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.
- C. Particulates: Dust, dirt, and other airborne solid matter.
- D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Low VOC Materials: See Section 01 6116.
- B. Low VOC Materials: See other sections for specific requirements for materials with low VOC content.
- C. Auxiliary Air Filters: MERV of 8, minimum, when tested in accordance with ASHRAE Std 52.2.

PART 3 EXECUTION

3.01 CONSTRUCTION PROCEDURES

- A. Prevent the absorption of moisture and humidity by adsorptive materials by:
 - 1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
 - 2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.

3. Provide sufficient ventilation for drying within reasonable time frame.
- B. Begin construction ventilation when building is substantially enclosed.
- C. If extremely dusty or dirty work must be conducted inside the building, shut down HVAC systems for the duration; remove dust and dirt completely before restarting systems.
- D. When working in a portion of an occupied building, prevent movement of air from construction area to occupied area.
- E. Use of HVAC equipment and ductwork for ventilation during construction is not permitted:
 1. Provide temporary ventilation equivalent to 1.5 air changes per hour, minimum.
 2. Exhaust directly to outside.
 3. Seal HVAC air inlets and outlets immediately after duct installation.
- F. Do not store construction materials or waste in mechanical or electrical rooms.
- G. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
 1. Inspect duct intakes, return air grilles, and terminal units for dust.
 2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.
 3. Clean tops of doors and frames.
 4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
 5. Clean return plenums of air handling units.
 6. Remove intake filters last, after cleaning is complete.
- H. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.
- I. Use other relevant recommendations of SMACNA (OCC) for avoiding unnecessary contamination due to construction procedures.

END OF SECTION

**SECTION 06 1000
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. **Structural dimension lumber framing.**
- B. Non-structural dimension lumber framing.
- C. **Sheathing.**
- D. Roof-mounted curbs.
- E. Preservative treated wood materials.
- F. Miscellaneous framing and sheathing.
- G. Concealed wood blocking, nailers, and supports.
- H. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - VOC Limitations.
- B. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

- A. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2015.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. AWPA U1 - Use Category System: User Specification for Treated Wood 2012.
- D. PS 1 - Structural Plywood 2009.
- E. PS 2 - Performance Standard for Wood-Based Structural-Use Panels 2010.
- F. PS 20 - American Softwood Lumber Standard 2010.
- G. WWPA G-5 - Western Lumber Grading Rules 2011.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on wood preservative materials and application instructions.
- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a two year period after Date of Substantial Completion. **(ADD-1)**

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
 - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.

3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER

- A. Grading Agency: Western Wood Products Association; WWPA G-5.
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19, unless noted otherwise in Structural General Notes.
- D. Wood Framing (2 by 2 through 2 by 6):
 1. Grade: 2.
- E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
 1. Grade: No. 1 and Better.
- F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 1. Lumber: S4S, No. 2 or Standard Grade.
 2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

- A. **Roof Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, and as follows:**
 1. **Span Rating: 24/16.**
 2. **Thickness: 1/2 inch, nominal.**
- B. **Wall Sheathing: Any PS 2 type.**
 1. **Bond Classification: Exterior.**
 2. **Grade: Structural I Sheathing.**
 3. **Span Rating: 24.**
 4. **Performance Category: 5/16 PERF CAT.**
 5. **Edge Profile: Square edge.**

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
 3. Anchors: Bolt or ballistic fastener for anchorages to steel.
- B. Deflection Clip: 18 gauge galvanized steel clip with 1 1/2" slot. Simpson STC or similar.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. (PT) Preservative Treatment:
 1. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber exposed to weather.

- c. Treat lumber in contact with roofing, flashing, or waterproofing.
 - d. Treat lumber in contact with masonry or concrete.
 - e. Treat lumber less than 6 inches above grade.
 - f. Treat lumber in other locations as indicated.
2. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative.
- a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
 - b. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

PART 3 EXECUTION

3.01 PREPARATION

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.
- F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.
- H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.
- I. Where top of wall plate meets roof framing and roof deck, provide deflection gap with deflection clips. At roof framing, provide deflection clip at each framing member. At roof deck, provide deflection clip at 16 inches maximum on center, aligned with studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. Coordinate with other trades, preference for wood supports or metal strapping.
- C. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of

solid wood blocking.

- D. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- E. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- F. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where specifically indicated otherwise. Form corners by alternating lapping side members.

3.06 INSTALLATION OF CONSTRUCTION PANELS

- A. **Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.**
 - 1. **At long edges use sheathing clips where joints occur between roof framing members.**
 - 2. **Nail panels to framing; staples are not permitted.**
- B. **Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.**

3.07 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.
- C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.09 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 7419 - Construction Waste Management and Disposal.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - VOC Limitations: Additional requirements for sealants and primers.

1.03 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2006 (Reapproved 2011).
- B. ASTM C834 - Standard Specification for Latex Sealants 2014.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2014.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants 2013.
- E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2008 (Reapproved 2012).
- F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2002 (Reapproved 2013).
- G. SWRI (VAL) - SWRI Institute Validated Products Directory Current Listings at www.swrionline.org.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Substrates for which use of primer is required.
 - 6. Substrates for which laboratory adhesion and/or compatibility testing is required.
 - 7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
 - 8. Sample product warranty.
 - 9. Certification by manufacturer indicating that product complies with specification requirements.
 - 10. SWRI Validation: Provide currently available sealant product validations as listed by SWRI (VAL) for specified sealants.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Installer Warranty: Correct defective work within a two year period after Date of Substantial Completion. **(ADD-1)**
- C. Manufacturer Warranty: Correct defective work within a five year period after Date of Substantial Completion **(ADD-1)**
- D. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. Adhesives Technology Corporation.
 - 2. BASF Construction Chemicals-Building Systems.
 - 3. Bostik Inc.
 - 4. Dow Corning Corporation.
 - 5. Pecora Corporation.
 - 6. Tremco Global Sealants.
 - 7. W.R. Meadows, Inc.
 - 8. Substitutions: See Section 01 6000 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - a. Other joints indicated below.
 - 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. Other joints indicated below.
 - 3. Do not seal the following types of joints.
 - a. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - b. Joints where installation of sealant is specified in another section.
- B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
- C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
 - 1. Wall and Ceiling Joints in Wet Areas: Non-sag polyurethane sealant for continuous liquid immersion.
 - 2. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
 - 3. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
 - 4. Narrow Control Joints in Interior Concrete Slabs: Self-leveling epoxy sealant.

5. Other Floor Joints: Self-leveling polyurethane "traffic-grade" sealant.

2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products with levels of volatile organic compound (VOC) content as indicated in Section 01 6116.

2.04 NONSAG JOINT SEALANTS

Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.

1. Movement Capability: Plus and minus 50 percent, minimum.
2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
5. Color: Match adjacent finished surfaces.
6. Service Temperature Range: Minus 20 to 180 degrees F.

Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.

7. Movement Capability: Plus and minus 50 percent, minimum.
8. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
9. Color: To be selected by Architect from manufacturer's standard range.
10. Service Temperature Range: Minus 40 to 180 degrees F.

Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.

11. Color: To be selected by Architect from manufacturer's standard range.
12. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).

2.05 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
 1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
 2. Open Cell: 40 to 50 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker backing tape where backer rod cannot be used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire-rated hollow metal doors. **(ADD-1)**

1.02 RELATED REQUIREMENTS

- A. Section 08 7100 - Door Hardware.
- B. Section 09 9123 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2011.
- D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2014.
- E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2011.
- F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2015.
- G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable 2015.
- H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2014.
- I. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames 2014.
- J. ICC A117.1 - Accessible and Usable Buildings and Facilities 2009.
- K. ITS (DIR) - Directory of Listed Products current edition.
- L. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames 2002.
- M. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames 2011.
- N. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2016.
- O. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2016.
- P. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2017.
- Q. UL (DIR) - Online Certifications Directory Current Edition.
- R. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.
- S. UL 1784 - Standard for Air Leakage Tests of Door Assemblies Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
- C. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

D. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
- B. Maintain at project site copies of reference standards relating to installation of products specified.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Doors and Frames:
 - 1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
 - 2. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
 - 3. Steelcraft, an Ingersoll Rand brand; Product [_____].
 - 4. Stiles.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

- A. Requirements for Hollow Metal Doors and Frames:
 - 1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
 - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
 - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
 - 4. Door Edge Profile: Manufacturers standard for application indicated.
 - 5. Typical Door Face Sheets: Flush.
 - 6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
 - 7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
 - 8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
 - a. Based on SDI Standards: Provide at least A40/ZF120 (galvanized) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvanized) for corrosive locations.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

- A. Door Finish: Factory primed and field finished.
- B. Fire-Rated Doors:
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 3 - Extra Heavy-duty.
 - b. Physical Performance Level A 1 000 000 cycles; in accordance with ANSI/SDI A250.4.

- c. Model 2 - Seamless.
- d. Door Face Metal Thickness: 16 gage, 0.053 inch, minimum.
- 2. Fire Rating: 1 hour, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
 - a. Temperature-Rise Rating (TRR) Across Door Thickness: In accordance with local building code and authorities having jurisdiction.
 - b. Provide units listed and labeled by UL (DIR) or ITS (DIR).
 - c. Attach fire rating label to each fire rated unit.
 - d. Smoke and Draft Control Doors (Indicated with letter "S" on Drawings and/or Door Schedule): Self-closing or automatic closing doors in accordance with NFPA 80 and NFPA 105, with fire-resistance-rated wall construction rated the same or greater than the fire-rated doors, and the following;
 - 1) Maximum Air Leakage: 3.0 cfm/sq ft of door opening at 0.10 inch w.g. pressure, when tested in accordance with UL 1784 at both ambient and elevated temperatures.
 - 2) Gasketing: Provide gasketing or edge sealing as necessary to achieve leakage limit.
 - 3) Label: Include the "S" label on fire-rating label of door.
- 3. Door Core Material: Manufacturers standard core material/construction in compliance with requirements.
- 4. Door Thickness: 1-3/4 inch, nominal.

2.04 (ADD-1)

2.05 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.06 ACCESSORIES

- A. Door Window Frames: Door window frames with glazing securely fastened within door opening.
 - 1. Size: As indicated on drawings. 100 square inches maximum.
 - 2. Glazing: 60 minute fire rated safety glass, in compliance with requirements of authorities having jurisdiction.
- B. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.
- C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coat inside of other frames with bituminous coating to a thickness of 1/16 inch.

3.02 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Install door hardware as specified in Section 08 7100.
- E. Coordinate installation of electrical connections to electrical hardware items.
- F. Touch up damaged factory finishes.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood and hollow metal doors.
- B. Hardware for fire-rated doors.
- C. Thresholds.
- D. Weatherstripping, seals and door gaskets.

1.02 RELATED REQUIREMENTS

- A. Section 08 1113 - Hollow Metal Doors and Frames: Hardware Coordination.

1.03 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- C. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
- D. ICC A117.1 - Accessible and Usable Buildings and Facilities 2009.
- E. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2016.
- F. NFPA 101 - Life Safety Code 2015.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware will be installed upon.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- C. Convey Owner's keying requirements to manufacturers.
- D. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.
- E. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- C. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
 - 1. Submit manufacturer's parts lists.
 - 2. Bitting List: List of combinations as furnished.
- F. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

- G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- C. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with 5 years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide manufacturer's five year warranty for door closers. **(ADD-1)**

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

- A. Provide hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.
 - 3. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
 - 4. Applicable provisions of NFPA 101, Life Safety Code.
 - 5. Fire-Rated Doors: NFPA 80.
 - 6. Hardware on Fire-Rated Doors, Except Hinges: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.
- D. Finishes: Identified in schedule.

2.02 LOCKS AND LATCHES

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
 - 1. If no hardware set is indicated for a swinging door provide an office lockset.
 - 2. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
 - 3. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
 - 1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying: Coordinate keying with Owner and existing hardware in the building..
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.
- D. Mounting heights for hardware from finished floor to center line of hardware item. As indicated in the following list; unless noted otherwise in Door Hardware Sets Schedule or on the drawings.
 - 1. For steel doors: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."

3.03 FIELD QUALITY CONTROL

3.04 ADJUSTING

- A. Adjust work under provisions of Section 01 7000.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION

- A. Protect finished Work under provisions of Section 01 7000.
- B. Do not permit adjacent work to damage hardware or finish.

3.07 SCHEDULE

A. Spray Room Door

QTY		DESCRIPTION	CATALOG NO.	FINISH	MFR
8	EA	HINGE	5BB1HW 5 X 4.5 NRP	652	IVE
1	SET	AUTO FLUSH BOLT	FB31T	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	VANDL VESTIBULE LOCK	ND93P6D SPA XN12-035 K510-066	626	SCH
1	EA	COORDINATOR	COR X FL	628	IVE
4	EA	MOUNTING BRACKET	MB	689	LCN
1	EA	CARRYBAR	CB1	652	IVE
2	EA	SURFACE CLOSER	4111 DEL SCUSH WMS	689	LCN
2	EA	ARMOR PLATE	8400 30" X 2" LDW B-CS	630	IVE
4	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	ASTRAGAL	43SP	SP	ZER
2	EA	DOOR SWEEP	8192AA	AA	ZER

VERIFY KEYWAY

- B. Compressor Enclosure Door
 - 1. Hinges provided by Pre-hung door supplier.
 - 2. Provide storage room lockset to match manufacturer and series as spray room door.
 - 3. Provide gasketing at frame.

END OF SECTION

SECTION 26 09 23
LIGHTING CONTROL EQUIPMENT

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide lighting control equipment:
 - 1. Automatic wall switches.
 - 2. Motion sensors.

1.02 QUALITY ASSURANCE

- A. Minimum Standards:
 - 1. UL 916 Energy Management Equipment.
 - 2. NEMA enclosure standards.

PART 2 PRODUCTS

2.01 AUTOMATIC WALL SWITCH

- A. Automatic wall switch shall be completely self-contained and shall replace standard toggle switch. Motion sensor shall sense motion by using both passive infrared, and sound technology.
- B. Switch shall sense motion in room and switch 120 or 277 V electronic or magnetic ballasts using zero crossing circuitry.
- C. Time delay and sensitivity shall be adjustable.
- D. Switch shall be immune to RFI, EMI, and voltage fluctuations.
- E. Switch shall have manual on / automatic off mode.
- F. Switch shall not require a neutral connection.
- G. Acceptable products: Sensorswitch WSD-PST with switch or approved.

2.02 ULTRASONIC CEILING MOTION SENSOR

- A. Motion sensor shall sense motion by using ultrasound sensor.
- B. Time delay and sensitivity shall be adjustable.
- C. Acceptable products: Novitas 01-100 or approved.

2.03 DUAL ULTRASONIC / INFRARED CEILING MOTION SENSOR

- A. Motion sensor shall sense motion by using passive infrared and ultrasound sensors.
- B. Time delay shall be adjustable.
- C. Sensor shall be immune to false activation due to air movement.
- D. Switch shall be immune to RFI, EMI, and voltage fluctuations.
- E. Acceptable products: Sensorswitch CM-PDT, Unenco CU15000 2000 or approved.

2.04 WALL SWITCH DIMMER

- A. Switch to be fully compatible with ballast / fixtures to be controlled
- B. Switch shall be slide style with integral on/off control.
- C. Switch shall have locator LED that illuminates when load is off.
- D. Switch shall have decora style faceplate.
 - 1. Finish to match other wall switched on project.
- E. Acceptable product: Leviton, Hunt Dimming, Lutron, or approved.

PART 3 EXECUTION

3.01 INSTALLATION

- A. System shall be installed as shown on Drawings.
- B. Motion sensor manufacturer shall verify Drawings to ensure coverage is adequate.
- C. At Owner's request, return once within 60 days to adjust sensitivity of all motion sensors and to adjust programming of lighting control system.

3.02 WARRANTY

- A. Light level sensors, automatic wall switches, and ceiling motion sensors shall have a manufacturer's 5 year warranty. **(ADD-1)**

END OF SECTION

SECTION 26 51 13
INDOOR LIGHTING FIXTURES, LAMPS AND BALLASTS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This Section includes supply and installation of luminaires, supports and accessories; and supply of plaster frames, trim rings and backboxes for plaster, tile, drywall or concrete ceilings.
- B. Provide and install lamps in all light fixtures. Refer to lighting fixture schedule.
- C. Salvage demolished lighting fixtures to Owner's storage facility. **(ADD-1)**

1.02 REFERENCE STANDARDS

- A. National Electrical Manufacturer's Association (NEMA).
 - 1. NEMA LE1: Fluorescent Luminaires.
 - 2. NEMA SSL: LED.

1.03 COORDINATION

- A. Confirm compatibility and interface of other materials with luminaire and ceiling system. Report discrepancies to the Engineer/Architect, and defer ordering until clarified.
- B. Supply plaster frames, trim rings and backboxes to other trades.
- C. Coordinate with Division 23 to avoid conflicts between luminaires, supports, fittings, and mechanical equipment.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Refer to Fixture Schedule.

2.02 BALLASTS

- A. Linear Fluorescent Electronic Ballast
 - 1. Program start, universal voltage, extreme system
 - 2. THD < 10%
 - 3. Ballast Power Factor > 99%
 - 4. 0 degree F minimum lamp starting temperature
 - 5. Operating input voltage +/- 20%
 - 6. Operating input frequency 50/60 Hz
 - 7. Audible noise rating "A" or better
 - 8. Output frequency > 40 KHz with no visible flicker
 - 9. Lamp current crest factor < 1.5
 - 10. Constant light output for line voltage variation of +/- 10%
 - 11. Ballast factor 0.71
 - 12. No PCBs
 - ~~13. 5 year warranty + \$15.00 labor allowance. (ADD-1)~~
 - 14. Meets FCC Class A specifications for EMI/RFI
 - 15. Meets ANSI C62.41 Cat A for transient protection
 - 16. UL listed

17. Acceptable product: Osram Sylvania Xtreme System Low Ballast Factor, Advance, or approved.
- B. Compact Fluorescent Electronic Ballast
 1. Program rapid start
 2. THD < 10%
 3. Ballast Power Factor > 99%
 4. 0 degree F minimum lamp starting temperature
 5. Operating input voltage +/- 10%
 6. Operating input frequency 50/60 Hz
 7. Audible noise rating "A" or better
 8. Output frequency > 25 KHz with no visible flicker
 9. Lamp current crest factor < 1.5
 10. Constant light output for line voltage variation of +/- 10%
 11. Ballast factor > 0.95
 12. No PCBs
 - ~~13. 5 year warranty + \$10.00 labor allowance. (ADD-1)~~
 14. Meets ANSI C62.41 Cat A for transient protection
 15. UL listed (Osram/Sylvania)
 16. Acceptable product: Sylvania Quicktronic Professional or approved

2.03 LUMINAIRES

- A. Prime coat and finish in high reflectance baked white enamel, two coats minimum on exposed and reflective surfaces, giving reflectance of 85 percent. Paint after fabrication.
- B. Reflective plates: 22-gauge (0.80 mm) metal.
- C. Provide 20-gauge (0.90 mm) steel housing.
- D. Provide Hinged Frames with Catches; removable for cleaning without tools. Support lay-in lenses on four sides with flip ends on short dimension.
- E. Provide gasketing, stops, and barriers to form light traps and prevent light leaks.
- F. Design luminaire to dissipate ballast and lamp heat.
- G. Use formed or ribbed backplates, endplates, reinforcing channels.
- H. Suitable for mounting on low density ceilings, where applicable.

2.04 RECESSED LUMINAIRES

- A. Recessed Incandescent Luminaires: Prewired type with junction box forming an integral part of the assembly.
- B. Supply recessed luminaire complete with trim type required for ceiling system installed. Before ordering, confirm ceiling construction details and architectural finish for each area.

2.05 LED LUMINAIRES

- A. General
 1. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified.
 2. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant.
 3. LED drivers shall include the following features unless otherwise indicated:
 - a. Minimum efficiency: 85 percent at full load.
 - b. Minimum Operating Ambient Temperature: -20°C (-4°F).

- c. Input Voltage: 120 - 277V ($\pm 10\%$) at 60 Hz.
 - d. Integral short circuit, open circuit, and overload protection.
 - e. Power Factor: ≥ 0.95 .
 - f. Total Harmonic Distortion: $\leq 20\%$.
4. LED modules shall include the following features unless otherwise indicated:
- a. Comply with IES LM-79 and LM-80 requirements.
 - b. Minimum CRI 80 and color temperature 4000°K unless otherwise specified in LUMINAIRE SCHEDULE.
 - c. Minimum Rated Life: 50,000 hours per IES L70.
 - d. Light output lumens as indicated in the LUMINAIRE SCHEDULE.
- B. LED Downlights:
- 1. Housing, LED driver, and LED module shall be products of the same manufacturer.
- C. LED Troffers:
- 1. LED drivers, modules, and reflector shall be accessible, serviceable and replaceable from below the ceiling.
 - 2. Housing, LED driver, and LED module shall be products of the same manufacturer.
- D. Supply recessed luminaire complete with trim type required for ceiling system installed. Before ordering, confirm ceiling construction details and architectural finish for each area.

2.06 PENDANTS/CABLE HANGERS

- A. Swivel sockets permitting normal fixture motion and self-adjustment. Adjustable to provide fixture height alignment.
- B. One piece, white finish, with matching canopies.
- C. Fixtures shall be factory counter-weighted and balanced to provide level hanging. Weights shall not be visible.
- D. Cable hangers shall be adjustable for a minimum of 18”.

2.07 LAMP TYPE AND COLOR

- A. Refer to Lighting Fixture Schedule.
- B. All lamps of each type and color shall be by the same manufacturer.

2.08 LINEAR FLUORESCENT LAMPS

- A. Low mercury, TCLP compliant, 85 CRI, 4100K color temperature.
- B. Minimum of 3000 Initial Lumens.
- C. Acceptable manufacturers: Osram Sylvania F032/850/XP/ECO, GE, Philips.

2.09 COMPACT FLUORESCENT LAMPS

- A. Low mercury, TCLP compliant 81 CRI, 4100K color temperature.
- B. Acceptable manufacturers: GE, Philips, Osram Sylvania.

PART 3 EXECUTION

3.01 COORDINATION

- A. Refer to Reflected Ceiling Plans for exact locations with respect to ceiling construction.
- B. Consult Finish Schedule for ceiling and wall construction and finish.

- C. Prior to ordering lighting fixtures, coordinate style of mounting with ceiling construction and trim details for ceiling system finally selected.

3.02 SURFACE MOUNTING

- A. Attach with means that will draw fixtures snugly to finished surface without bending or tipping. Twist-on clips with studs not allowed on exposed "T" grid ceilings, except where specified. Support from channel above ceiling framing members with bolt at each corner of fixture.

3.03 PENDANTS

- A. Support from structure per paragraph titled "SUPPORT".
- B. Provide steel, stranded safety cable between fixture and structure to support fixture in the event of a pendant breakage.

3.04 SUPPORT

- A. Suspended ceiling:
 1. Positively attach all light fixtures to the suspended ceiling system. The attachment device shall have a capacity of 150% of the lighting fixture weight acting in any direction.
 2. Support grid with No. 12 minimum gage hangers attached to the grid members within 3 inches of the corner of each fixture, attached to structure above.
 3. Attach two No. 12 minimum hangers from the fixture housing to the structure above. These wires may be slack.
 4. Where suspended fixtures do not align with grid, provide "bridging" above grid and support from structure.
 5. Support pendant-hung lighting fixtures directly from the structure above with No. 9 minimum wire or approved alternate support.
- B. Support all other fixtures from structure by method rated at least five times support weight.

3.05 ACCESS

- A. Recessed fixtures shall have code accessible supply. Use reach-through type fixtures in non-accessible ceilings or other suitable means. Coordinate with ceiling installer.

3.06 FIRE RATED CEILINGS

- A. Where a ceiling carries a fire rating, recessed fixtures shall carry UL rating for use in protective enclosures. Coordinate installation of protective enclosures to provide sufficient air space for heat dissipation. 3 inch minimum all around.

3.07 CLEAN-UP

- A. At time of acceptance, fixtures and lamps shall be clean, with visible labels removed. Touch-up any blemishes.
- B. Remove ballast leakage and dispose of cleaning materials in accordance with EPA regulations.

3.08 FIXTURES AS RACEWAYS

- A. Code Reference: NEC 410-31.
- B. Through-Wiring: In continuous rows of fluorescent lighting, a connection to a single point in the row indicates that the branch circuit conductors are to be routed through the fixture wiring compartments and a connection made to each ballast.

3.09 LAMP INSTALLATION

- A. Install lamps in accordance with manufacturer's instructions.

3.10 EXTRA STOCK

- A. Provide extra lamps of all types, based on initial lamping quantity: Incandescent 25%, all others 10%. Where a fraction occurs, round up to next larger integer.

3.11 BURNOUT REPLACEMENT

- A. Make replacements from extra stock as required until 90 days after Substantial Completion date. Deliver remaining lamps to Owner.

END OF SECTION

CHURCHILL HIGH SCHOOL WOOD SHOP REMODEL

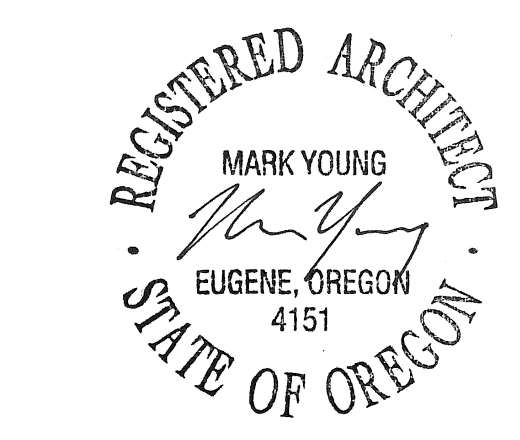
AUGUST 17, 2020 100% CONSTRUCTION DOCUMENTS

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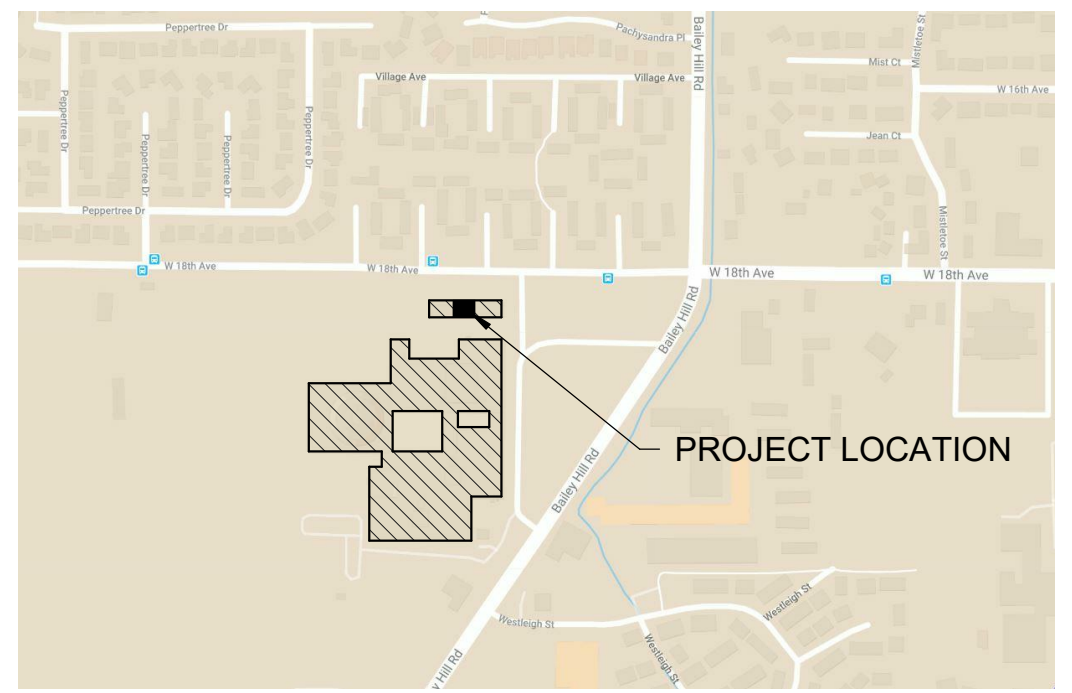
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VICINITY MAP

BUILDING CODE INFORMATION
BUILDING CODE: OSSC 2019
FIRE CODE: 2019 OREGON FIRE CODE

BUILDING AREA: 13,234SF, ONE STORY BUILDING
+1,792SF GREENHOUSE
15,026SF TOTAL

CONSTRUCTION TYPE: VB, NON-SPRINKLERED
FIRE SEPARATION DISTANCE IS GREATER THAN 30' ON ALL SIDES FOR SINGLE BUILDING

FIRE AREAS:
BUILDING IS SEPARATED WITH A 2-HR FIRE BARRIER INTO TWO FIRE AREAS, EACH LESS THAN 12,000SF

OCCUPANCY: GROUP E: ALL SPACES USED FOR EDUCATION PURPOSES THROUGH 12TH GRADE.

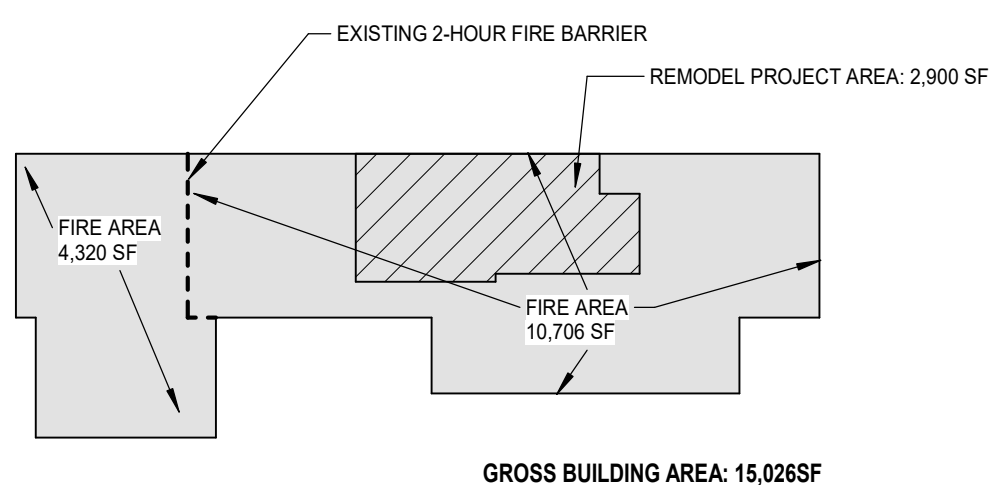
MAIN BUILDING HEIGHT AND AREA LIMITATIONS (E OCCUPANCY)
FOR E OCCUPANCY, NONSPRINKLERED TYPE VB
TABLE 504.3 HEIGHT: 40'
TABLE 504.4 STORIES: 1
TABLE 506.2 AREA: 9,500SF
506.3 FRONTAGE INCREASE: 0.75 (30' FRONTAGE ALL SIDES)
ALLOWABLE AREA 16,625SF

ACTUAL AREA INCLUDING GREENHOUSE: 15,026SF

416.3.1 - SPRAY FINISHING OPERATIONS IN GROUP E OCCUPANCIES SHALL BE LOCATED IN A SPRAY ROOM PROTECTED WITH AN AUTOMATIC SPRINKLER SYSTEM AND SEPARATED VERTICALLY AND HORIZONTALLY FROM THE REMAINDER OF THE BUILDING BY FIRE BARRIER WALLS AND HORIZONTAL ASSEMBLIES WITH NOT LESS THAN 1-HOUR FIRE RESISTANCE RATING.

(SEE AM&M SUBMITTED TO WAIVE THE AUTOMATIC SPRINKLER SYSTEM REQUIREMENT).

DEFERRED SUBMITTALS:
SEISMIC BRACING OF HVAC EQUIPMENT AND DUCTWORK TO BE DELEGATED DESIGN.



2 GROSS AREAS AND FIRE AREAS
1/4" = 1'-0"

ARCHITECTURAL ABBREVIATIONS

&	AND
(E)	EXISTING
@	AT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AV	AUDIO / VISUAL
BD	BOARD
BLW	BELOW
BOC	BOTTOM OF CONCRETE
BOS	BOTTOM OF SLAB
BOT	BOTTOM
BOTT	BOTTOM
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COE	CITY OF EUGENE (BUILDING DEPARTMENT)
COL	COLUMN
COMP	COMPENSATING
CONC	CONCRETE
CONT.	CONTINUOUS
D.J.	DRIFT JOINT
DBL	DOUBLE
DEPR	DEPRESSION
DIA	DIAMETER
DS	DOWN SPOUT
DW	DISHWASHER
DWG	DRAWING
DWR	DRAWER
ELEV	ELEVATION
ELEV	ELEVATOR
ENC	ENCLOSURE
ENT.	ENTRY
EQ	EQUAL
F.O.	FACE OF
F.O.F.	FACE OF FINISH
FC	FAN COIL
FCS	FIBER CEMENT SIDING
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN	FINISH
FLR, FL	FLOOR
FO	FACE OF
FR	FIRE RATED
FRMG	FRAMING
FRP	FIBER REINFORCED PLASTIC
FS	FIRE SPRINKLER
GF	GROUND FLOOR
GL	GLAZING
GWB	GYPSPUM WALL BOARD
GYP	GYPSPUM WALL BOARD
HGT	HEIGHT
HR	HOUR

ARCHITECTURAL ABBREVIATIONS

HR	HANDRAIL
HS	HOLLOW STEEL
INSUL	INSULATION
LOCKR	LOCKER
LOC	LOCATION
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MIN	MINIMUM
MIR	MIRRORED
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
N/A	NOT APPLICABLE
O.C.	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OPNG	OPENING
OPP	OPPOSITE
PLAM	PLASTIC LAMINATE
PTD	PAINTED
R.O.	ROUGH OPENING
RCB	RUBBER COVE BASE
RCF	REFLECTED CEILING PLAN
REF	REFRIGERATOR
REINF	REINFORCING
REQ	REQUIRED
SAM	SELF-ADHERING MEMBRANE
SF	STOREFRONT
SF	SQUARE FEET
SHWR	SHOWER
SIM	SIMILAR
SPEC	SPECIFICATIONS
EQ	EQUAL
SS	STAINLESS STEEL
STFT	STOREFRONT
STL	STEEL
STRUC	STRUCTURE
SUSP	SUSPENDED
TBD	TO BE DETERMINED
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF SLAB
TWF	THROUGH WALL FLASHING
TYP	ACOUSTIC CEILING TILE
UNO	UNLESS NOTED OTHERWISE
W	WITH
W/O	WITHOUT
WA	WALL ASSEMBLY
WH	WATER HEATER
WP	WATER PROOFING
WRB	WEATHER RESISTANT BARRIER

DRAWING INDEX

Sheet Number	Sheet Name
GENERAL	
G-001	COVER
ARCHITECTURAL	
A-111	1ST FLOOR PLAN, EXTERIOR ELEVATION, SECTIONS
A-113	1ST FLOOR RCP, ROOF PLAN, DETAILS
A-114	DETAILS
STRUCTURAL	
S-101	ROOF FRAMING PLAN
MECHANICAL	
M-001	SYMBOLS, LEGENDS AND ABBREVIATIONS- MECHANICAL
M-002	EQUIPMENT SCHEDULES- MECHANICAL
M-003	EQUIPMENT SCHEDULES- MECHANICAL
M-101	DEMO GROUND FLOOR PLAN- MECHANICAL
M-103	DEMO ROOF PLAN- MECHANICAL
M-201	FLOOR PLANS- MECHANICAL
M-203	ROOF PLAN- MECHANICAL
M-401	ENLARGED PLANS- MECHANICAL
M-501	DETAILS- MECHANICAL
PLUMBING	
P-001	SYMBOL, LEGENDS AND ABBREVIATIONS- PLUMBING
P-101	DEMO FLOOR PLANS- PLUMBING
P-201	FLOOR PLANS- PLUMBING
ELECTRICAL	
E-001	SYMBOLS LIST AND SCHEDULES
E-100	FLOOR PLAN- DEMOLITION
E-110	FLOOR PLAN- LIGHTING
E-120	FLOOR PLAN- POWER AND SIGNAL
E-130	MEZZANINE PLAN- ELECTRICAL
E-601	ONE LINE/ DETAILS

REVISIONS TO THIS SHEET

REV.	DATE	DESCRIPTION
2	ADD-1	9-17-2020

SET ISSUE DATE

8-17-2020 100% CD'S

PROJECT TRACKING

RBA #: 2002
P.I.C.: MARK YOUNG
PM / PA: PAUL HARMAN

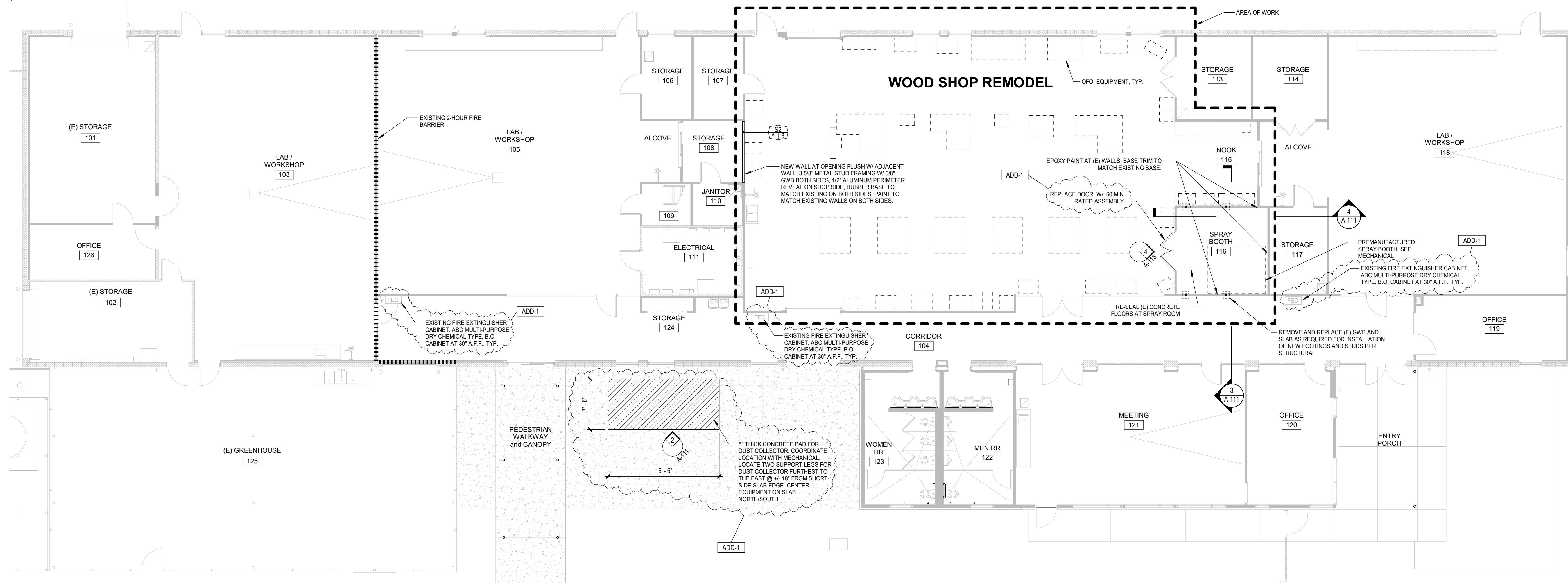
Owner
4J SCHOOL DISTRICT

Project Name
4J CHURCHILL HS WOODSHOP REMODEL

Project Address
1850 BAILEY HILL ROAD EUGENE, OREGON 97405

COVER

G-001



REVISIONS TO THIS SHEET

REV.	DATE	DESCRIPTION
2	ADD-1	9-17-2020
1	REV-1	9-9-2020

SET ISSUE DATE

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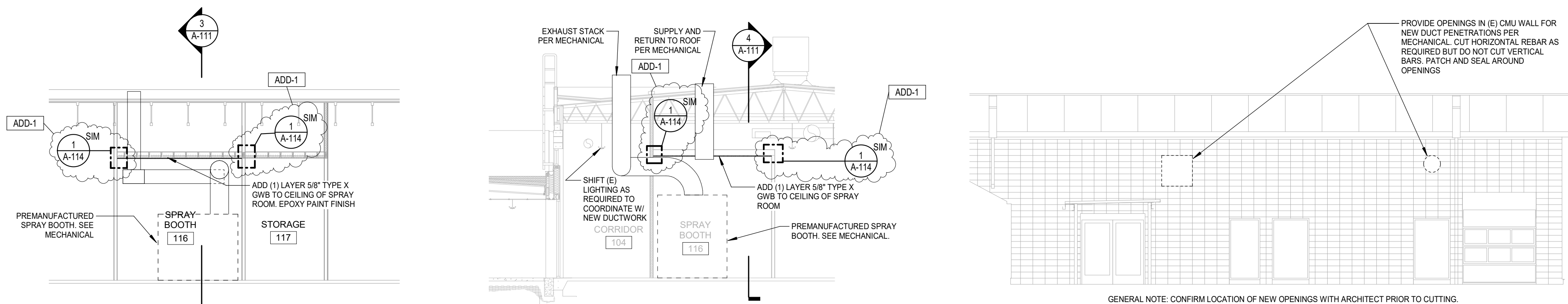
Owner
4J SCHOOL DISTRICT

Project Name
4J CHURCHILL HS WOODSHOP REMODEL
Project Address
**1850 BAILEY HILL ROAD
EUGENE, OREGON 97405**

**1ST FLOOR PLAN,
EXTERIOR
ELEVATION,
SECTIONS**

A-111

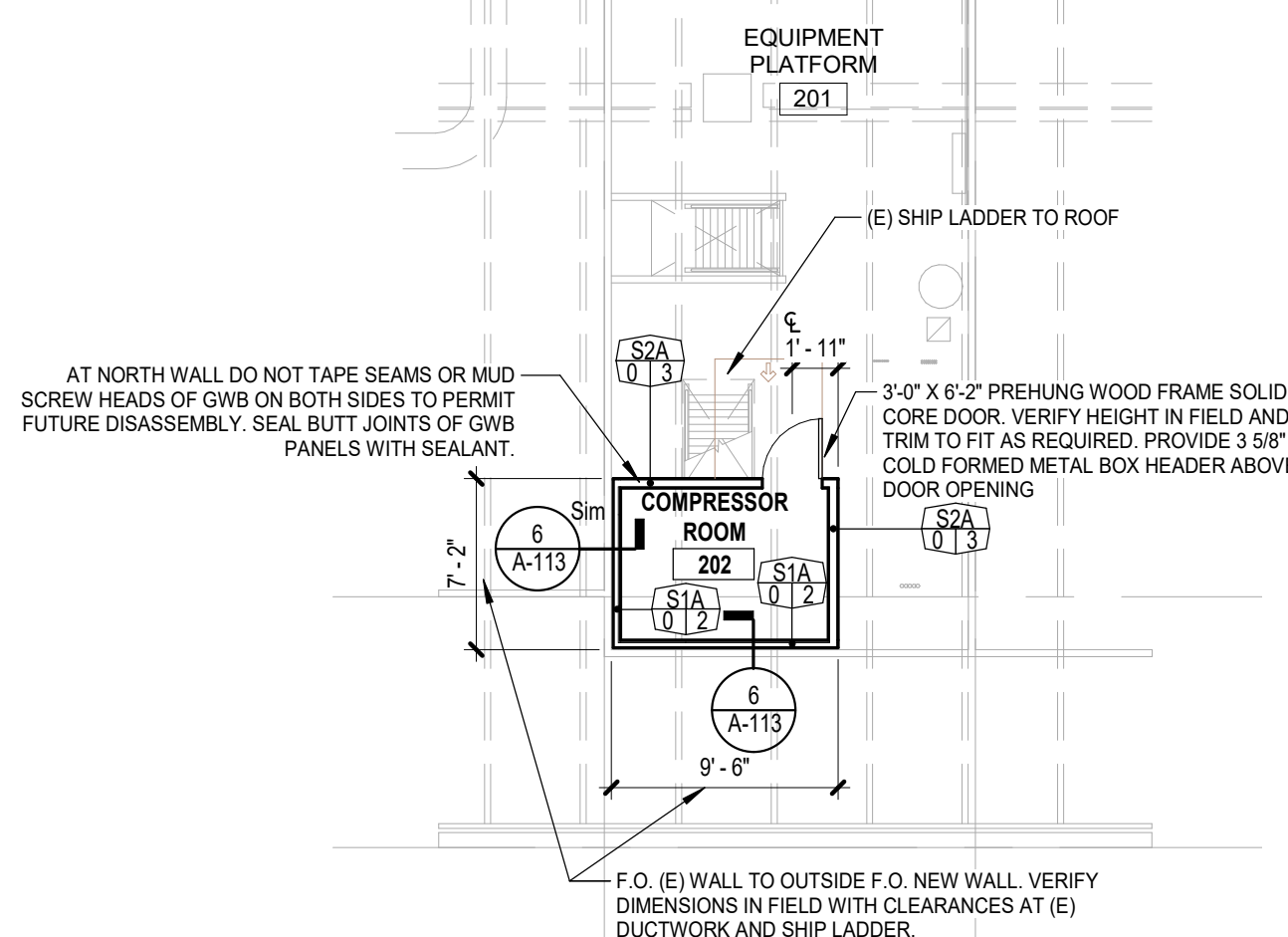
1 1ST FLOOR PLAN
1/8" = 1'-0"



4 SECTION AT SPRAY BOOTH
1/8" = 1'-0"

3 CROSS SECTION AT SPRAY BOOTH
1/8" = 1'-0"

2 EXTERIOR ELEVATION- SOUTH
1/8" = 1'-0"

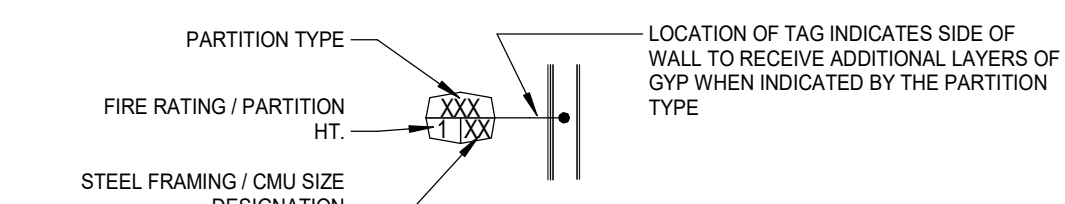


5 MEZANNINE PARTIAL PLAN
1/8" = 1'-0"

GENERAL NOTES

1. ALL WALL TYPES TO PROVIDE 5/8" GYPSUM WALL BOARD ON STUDS AT 16" O.C. U.N.O.
2. "A" NOTE IN PARTITION AND EXTERIOR WALL TYPE DESIGNATION REFERS TO "ACOUSTIC".
- AT INTERIOR "A" TYPE WALLS, PROVIDE SOUND ATTENUATION BLANKET
3. SOUND ATTENUATION BLANKET TO BE 3 1/2" U.N.O.

INTERIOR PARTITION TYPE TAG

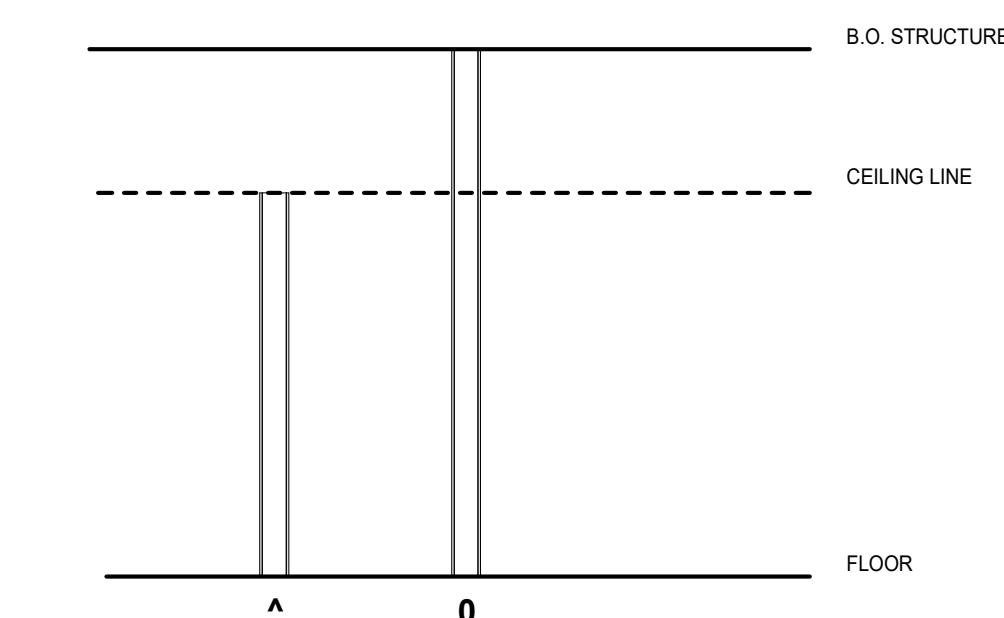


STEEL FRAMING SIZE DESIGNATION

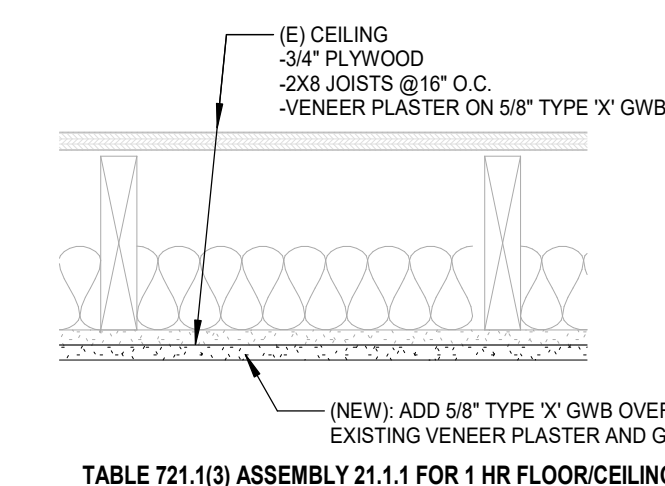
ID.	STUD SIZE
2=	2 1/2"
3=	3 5/8"

GENERAL NOTES - WALL TYPES

PARTITION HEIGHT DESIGNATION



- KEY**
- A: NON RATED TO B.O. CEILING
 - 0: NON RATED, EXTEND STUDS TO B.O. STRUCTURE ABOVE. EXTEND GYP. BOARD BOTH SIDES TO B.O. STRUCTURE ABOVE U.N.O.



FLOOR ASSEMBLY

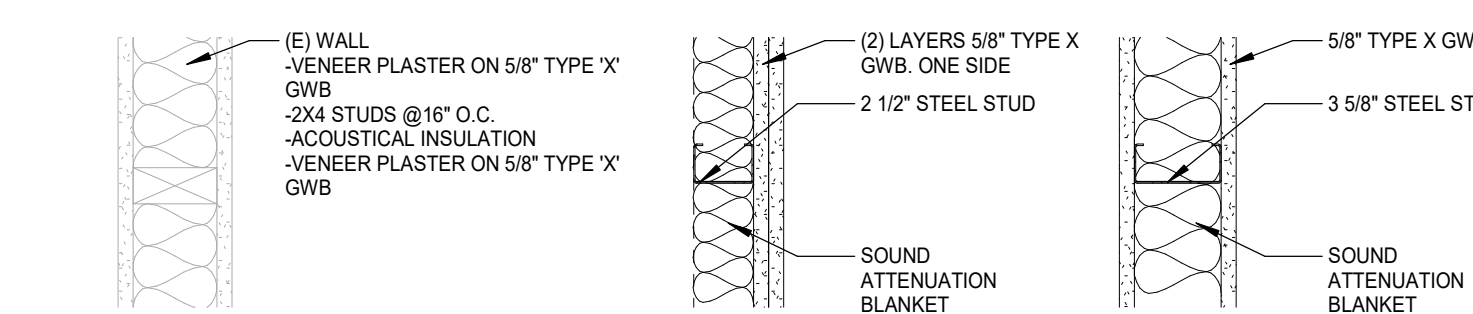


TABLE 721.1(2) ASSEMBLY 14.1.2 FOR 1 HR PARTITION

WALL TYPES



REVISIONS TO THIS SHEET

REV.	DATE	DESCRIPTION
2	ADD-1	9-17-2020
1	REV-1	9-9-2020

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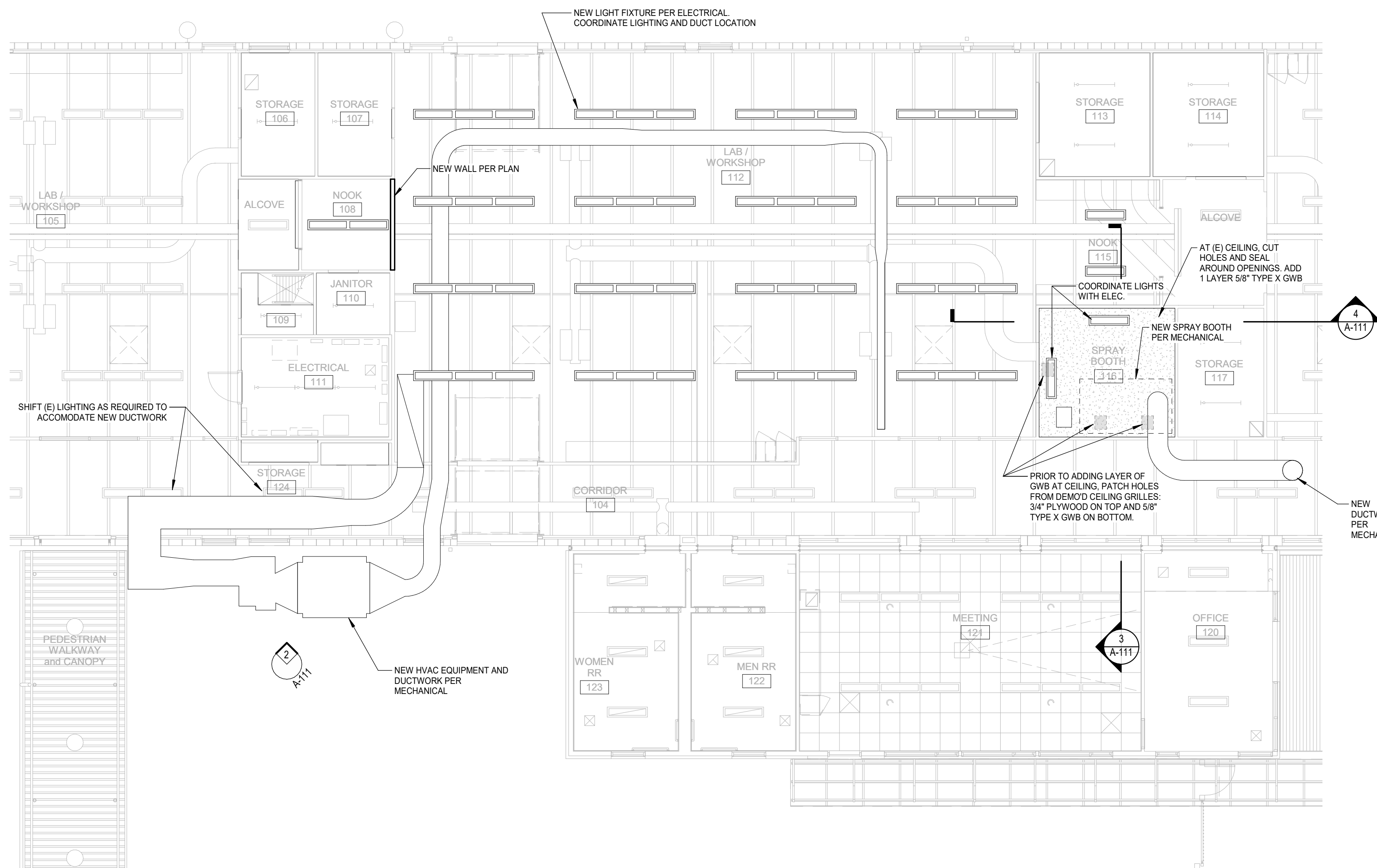
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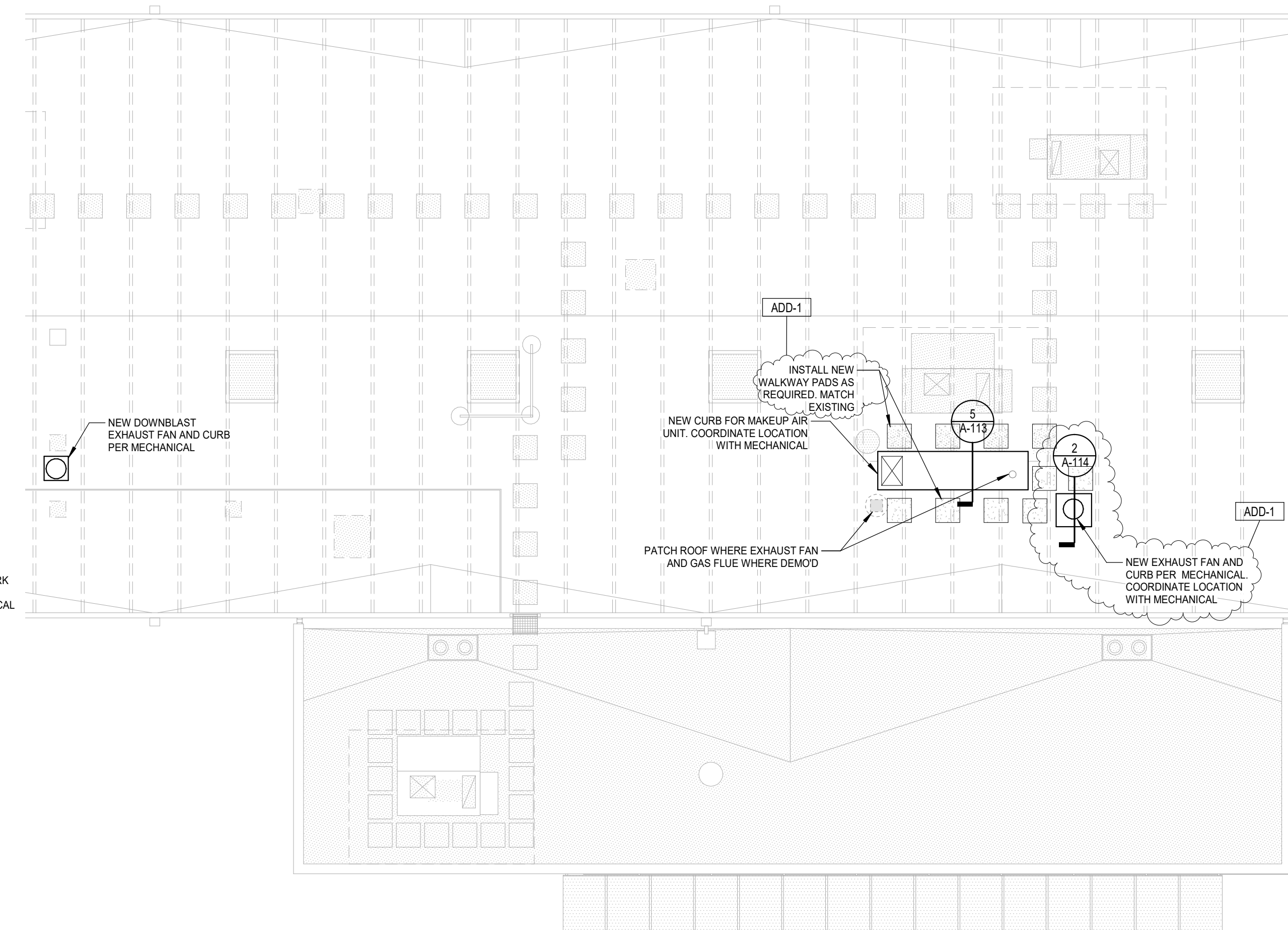
Owner
4J SCHOOL DISTRICT

Project Name
4J CHURCHILL HS WOODSHOP REMODEL
Project Address
1850 BAILEY HILL ROAD EUGENE, OREGON 97405

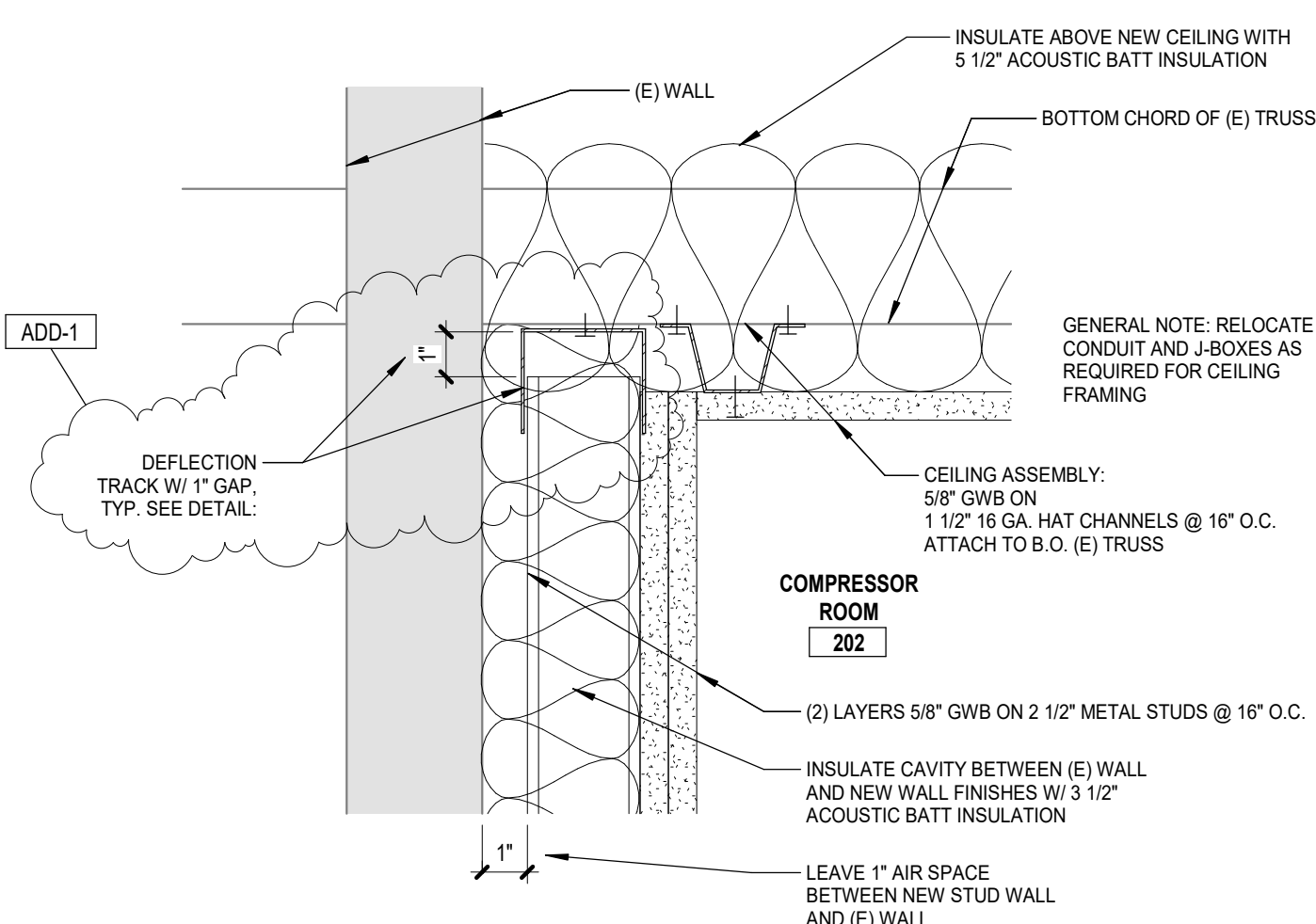
1ST FLOOR RCP, ROOF PLAN, DETAILS



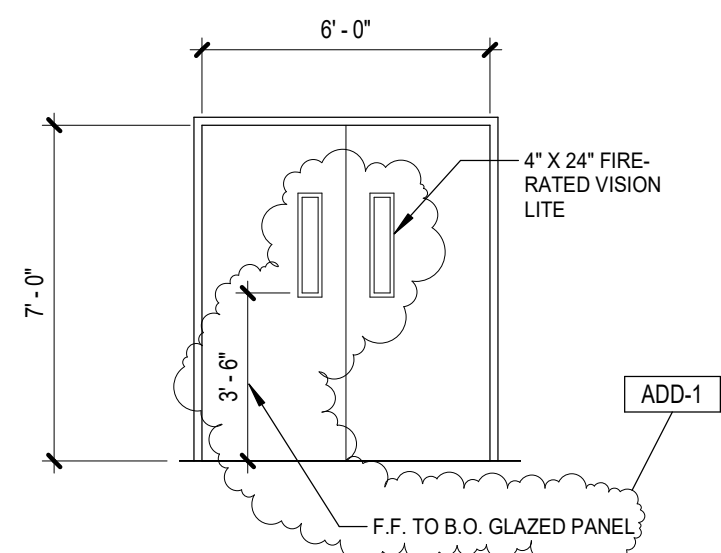
2 1ST FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"



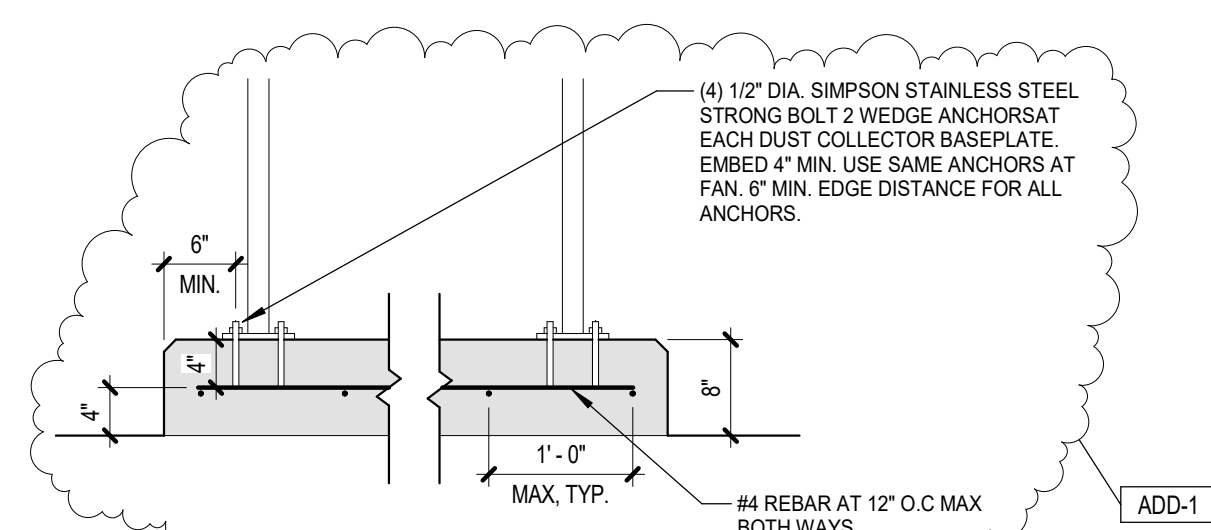
1 PARTIAL ROOF PLAN
1/8" = 1'-0"



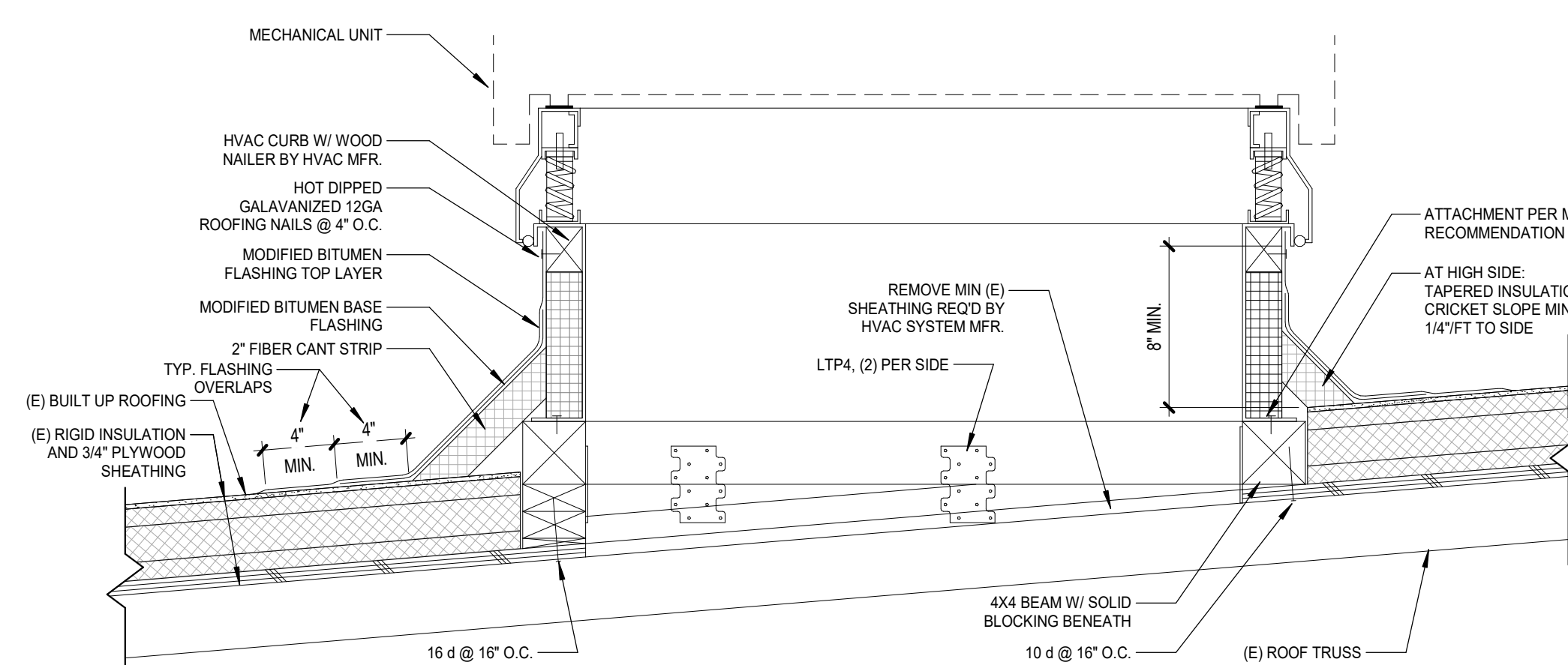
6 DETAIL- TOP OF WALL AT COMPRESSOR ROOM
3" = 1'-0"



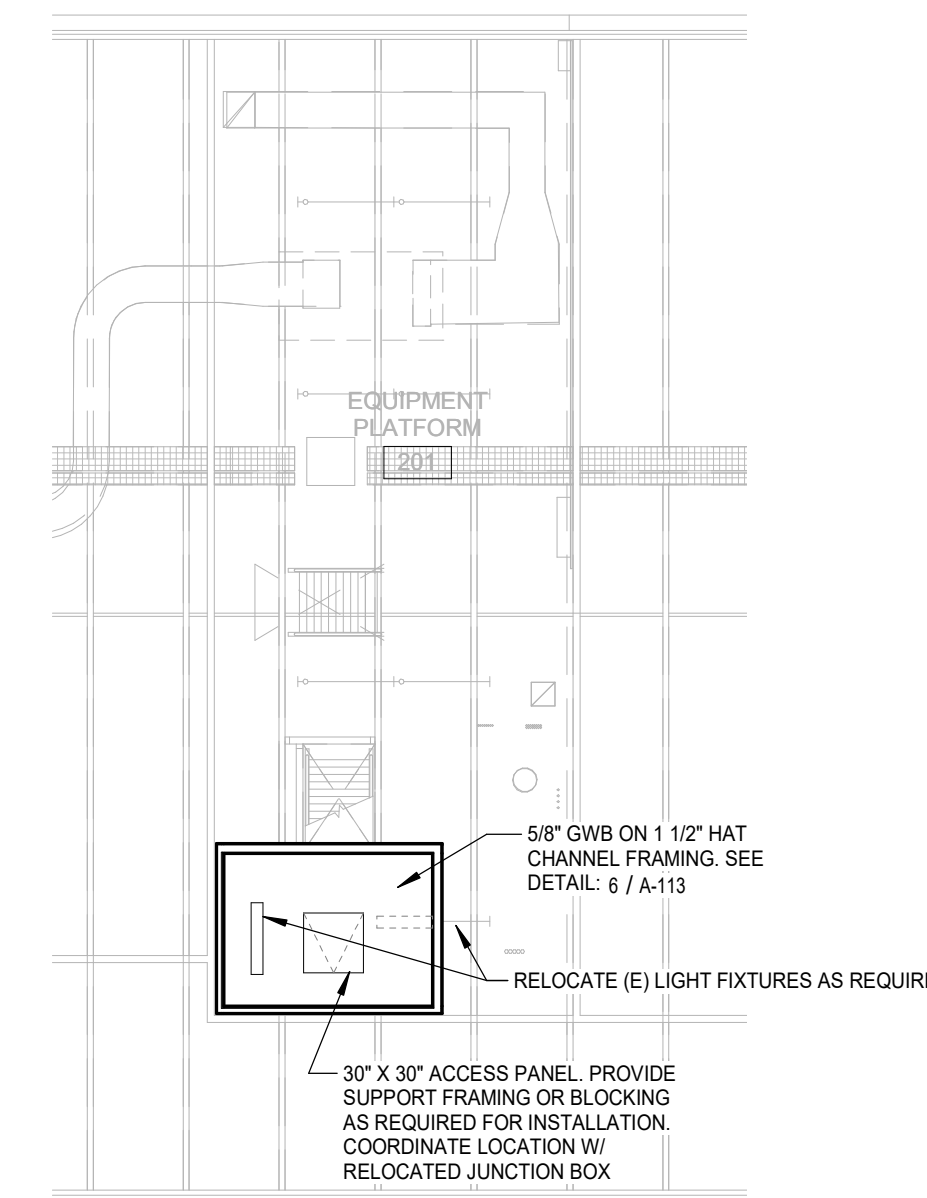
4 DOOR ELEVATION AT SPRAY ROOM
1/4" = 1'-0"



7 TYPICAL HOUSEKEEPING PAD
3/4" = 1'-0"



5 ROOF CURB
1 1/2" = 1'-0"



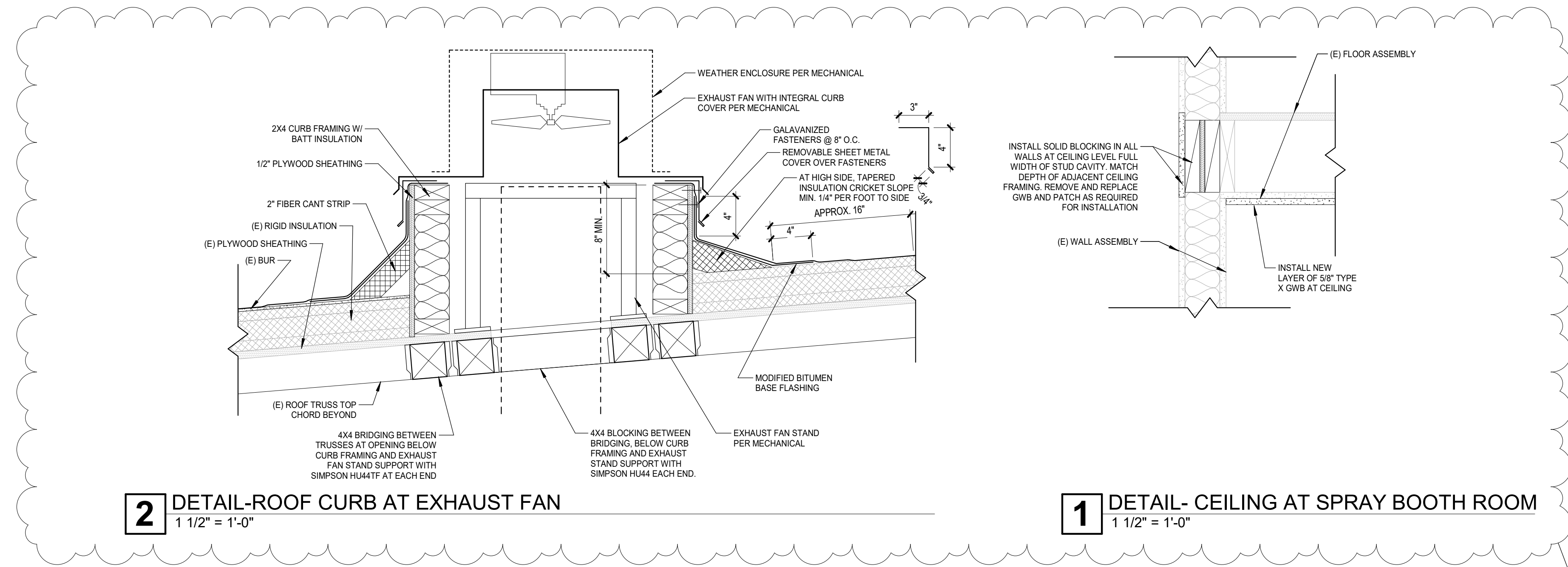
3 MEZZANINE REFLECTED CEILING PLAN
1/8" = 1'-0"

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2 DETAIL-ROOF CURB AT EXHAUST FAN
1 1/2" = 1'-0"

1 DETAIL- CEILING AT SPRAY BOOTH ROOM
1 1/2" = 1'-0"

ADD-1

REVISIONS TO THIS SHEET

REV.	DATE	DESCRIPTION
2	ADD-1	9-17-2020

SET ISSUE DATE

8-17-2020 100% CD'S

PROJECT TRACKING

RBA #: 2002
P.I.C.: MARK YOUNG
PM / PA: PAUL HARMAN

Owner
4J SCHOOL DISTRICT

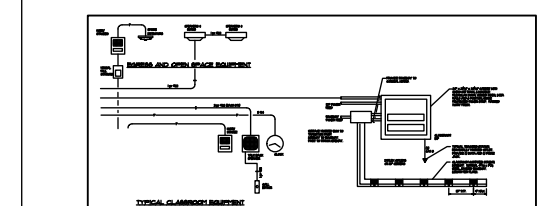
Project Name
**4J CHURCHILL HS
WOODSHOP REMODEL**
Project Address
**1850 BAILEY HILL ROAD
EUGENE, OREGON 97405**

DETAILS

ADD-1

A-114

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REVISIONS TO THIS SHEET

REV.	DATE
1 ADD-1	9/17/2020

SET ISSUE DATE

REVIEW SET	6/26/2020
50% CDs	7/16/2020
100% CDs	8/17/2020

PROJECT TRACKING

RBA #:
P.I.C.:
PM / PA:

Owner
4J SCHOOL DISTRICT

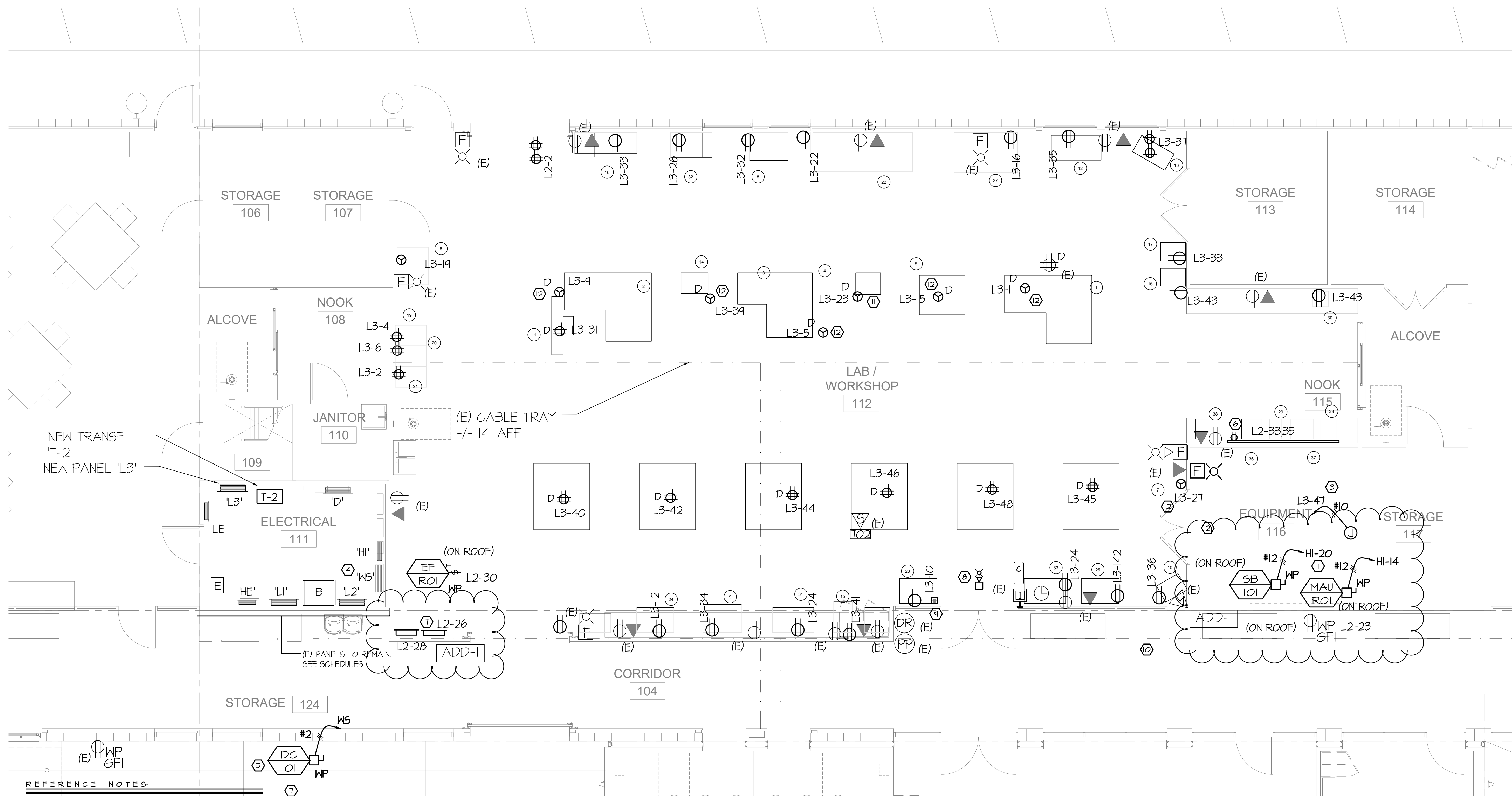
Project Name
**4J CHURCHILL HS
WOODSHOP REMODEL**

Project Address
**1850 BAILEY HILL ROAD
EUGENE, OREGON 97405**

SHEET NAME

**FLOOR PLAN - POWER
AND SIGNAL**

E-120



REFERENCE NOTES:

- ① PAINT SPRAY BOOTH - CLASS I DIV 1
- ② PAINT SPRAY AREA - CLASS I DIV 2
- ③ LOCATE FOR SPRAY BOOTH CONNECTION. CONNECT SUPPRESSION PANEL TO FA SYSTEM.
- ④ PROVIDE NEW 175/3 IN PANEL C BREAKER POSITION. REMOVE (E) PANEL C BREAKER AND FEEDER FROM W5 TO C - SEE ONE-LINE DIAGRAM.
- ⑤ CONNECT TO SPARE 100/3 (G BREAKER POSITION). ROUTE FEEDER THROUGH VFD. SEE MECHANICAL.
- ⑥ NEW 2-CIRCUIT PLUGMOLD. CONNECT TO SPARE BREAKERS IN PANEL L2.
- ⑦ CONNECT DUST COLLECTOR CONTROL PANEL & SPARK DETECTION PANEL. SEE MECHANICAL.
- ⑧ SPARK DETECTION SYSTEM ALARM HORN/STROBE. SEE MECHANICAL.
- ⑨ DUST COLLECTOR REMOTE START/STOP. SEE MECHANICAL.
- ⑩ RELOCATE (E) EXPOSED WIRING TO CLEAR NEW DUCTWORK. SEE MECH.
- ⑪ 208V 30A RECEPTACLE AND CIRCUITRY.
- ⑫ 208V 20A RECEPTACLE AND CIRCUITRY.

FLOOR PLAN - POWER & SIGNAL

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

1
E-120



GENERAL NOTES:

1. BRANCH CIRCUIT WIRING OTHER THAN FEEDERS, NOT SHOWN. LOAD ON EACH 20 AMP POWER CIRCUIT SHALL NOT EXCEED 12 AMPS AND 9 AMPS ON RECEPTACLE CIRCUITS. CONNECT MECHANICAL AND OTHER EQUIPMENT PER SCHEDULES. EQUIPMENT WITH LARGER THAN 20 AMP CIRCUITS AS NOTED. SEE PANEL SCHEDULES FOR CIRCUIT ASSIGNMENTS.
2. CIRCUITRY TO RECEPTACLES OTHER THAN STANDARD SHALL BE BASED ON RECEPTACLE RATINGS. SEE PANEL SCHEDULES FOR CIRCUIT AMPERAGE SIZING.
3. SEE ARCHITECTURAL PLANS FOR EXACT EQUIPMENT LOCATIONS AND EQUIPMENT SCHEDULES.
4. ALL DROP CORD RECEPTACLES SHALL BE LOCKING TYPE.
5. SEE SHEET E-130 FOR ADDITIONAL CONNECTIONS AND INTERLOCKS FOR THE DUST COLLECTION / SPARK DETECTION SYSTEMS.

DUCT SILENCERS

TAG	LOCATION	SERVICE	TYPE	DIRECTION	AIRFLOW (CFM)	MAX TSP (IN WG)	DYNAMIC INSERTION LOSS (dB) AT OCTAVE BAND								SIZE			APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES
							63 HZ	125 HZ	250 HZ	500 HZ	1,000 HZ	2,000 HZ	4,000 HZ	8,000 HZ	WIDTH (IN)	HEIGHT (IN)	LENGTH (IN)			
DS-101	DC-101 OUTLET	DUST COLLECTOR	ELBOW	FORWARD	10,200	0.61	4	7	10	14	24	18	18	17	58	14	42+24	320	VAW SYSTEMS REA	1
DS-102	DC-101 RETURN	DUST COLLECTOR	INLINE	FORWARD	10,200	0.25	12	20	35	38	49	36	31	19	40	40	84	500	VAW SYSTEMS RSA	2

GENERAL NOTES:

- A. DIRECTION INDICATES PERFORMANCE RELATIVE TO AIRFLOW DIRECTION. FORWARD INDICATES NOISE AND AIRFLOW MOVE IN THE SAME DIRECTION, REVERSE INDICATES NOISE AND AIRFLOW MOVE IN OPPOSITE DIRECTIONS.
- B. PERFORMANCE DATA OBTAINED IN ACCORDANCE WITH ASTM E477 UNDER IDEAL FLOW CONDITIONS.

NOTES:

- 1. HIGH VELOCITY SILENCER: MAXIMUM FACE VELOCITY OF 2,000 FPM.
- 2. MEDIUM VELOCITY SILENCER: MAXIMUM FACE VELOCITY OF 1,200 FPM.
- 3. LOW VELOCITY SILENCER: MAXIMUM FACE VELOCITY OF 750 FPM.

MAKE-UP AIR UNIT

TAG NUMBER	LOCATION	SERVICE	MAX OSA CFM	MIN OSA CFM	PRE-FILTER MERV RATING	FAN		NATURAL GAS FIRED HEATING COIL						APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES		
						TYPE	MOTOR BHP	MOTOR HP	VFD	VOLT/ PHASE	INPUT (MBH)	OUTPUT (MBH)	CONTROL				EAT (°F)	LAT (°F)
MAU-R01	ROOF	SPRAY ROOM	4200	4200	8	FC CENTRIFUGAL	4.03	5	NO	480/3	235	216	MOD 25.1	22	70	750	GREENHECK DG	1

GENERAL NOTES:

- A. PROVIDE FLEXIBLE EQUIPMENT CONNECTION AT DUCT CONNECTIONS.

NOTES:

- 1. WITH WEATHER HOOD, AUTO OUTDOOR AIR DAMPER, DOWNWARD SUPPLY, END INLET

FANS

TAG	LOCATION	SERVICE	TYPE	DRIVE	AIRFLOW			ELECTRICAL				APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES
					MAX (CFM)	TSP (IN WG)	FAN SPEED (RPM)	VOLT/ PHASE	POWER (BHP)	RATING (HP)	GEN. POWER (Y/N)			
EF-R01	ROOF	AIR COMPRESSOR CLOSET	ROOFTOP - DOWNBLAST	DIRECT	1,400	0.5	1,047	120/1	0.24	1/2	NO	70	GREENHECK G	1

GENERAL NOTES:

- A. FURNISH WITH MANUFACTURER'S CURB AND AUTOMATIC DAMPER W/ 120 VOLT 2-POSITION ACTUATOR.

NOTES:

- 1. EC MOTOR.

DUST COLLECTOR

TAG NUMBER	LOCATION	SERVICE	TYPE	AIRFLOW		MOTOR				APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES
				CFM	ESP (IN WG)	FAN RPM	FAN HP	VOLT/ PHASE	VFD			
DC-101	EXTERIOR	WOOD SHOP	CARTRIDGE	10200	14	1760	40	460/3	YES	4000/1900	AMERICAN AIR FILTER PULSEPAK PRIME 10-2H	

GENERAL NOTES:

- A. DUST COLLECTION SYSTEM INCLUDES SEPARATELY MOUNTED EXHAUST FAN, ABORT GATE, CONTROL PANEL, AND SPARK DETECTION SYSTEM.
- B. DUCT SILENCERS ARE RESPONSIBILITY OF DUST COLLECTION SYSTEM MANUFACTURER. SEE SEPARATE SCHEDULE.
- C. WEIGHT SHOWN IS FOR DUST COLLECTION UNIT / FAN.
- D. PROVIDE EXTENSION SLEEVE TO EACH EXPLOSION VENT ON TOP OF UNIT, TERMINATE AT ROOF HEIGHT.

SPRAY BOOTH

TAG NUMBER	LOCATION	SERVICE	STYLE	FAN TYPE	AIRFLOW			WORKING DIMENSIONS			MANUFACTURER & MODEL	NOTES	
					CFM	ESP (IN WG)	MOTOR (HP)	FAN RPM	LENGTH (INCHES)	WIDTH (INCHES)			HEIGHT (INCHES)
SB-101	SPRAY ROOM	WOOD SHOP	CROSSFLOW	TUBE-AXIAL	4200	1.25	2	1900	72	72	84	GLOBAL FINISHING SOLUTIONS IFP-876	

GENERAL NOTES:

- A. MOUNT ON FLOOR.
- B. FAN W/ MOTOR COVER AND METAL SUPPORT STAND TO BE FURNISHED W/ SPRAY BOOTH. INSTALL ON ROOF. SEE MECH ROOF PLAN.

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REVISIONS TO THIS SHEET

REV.	DATE	DESCRIPTION
1	09/09/20	BID SET
2	09/17/20	ADD-1

SET ISSUE DATE

PROJECT TRACKING

RBA #:
P.I.C:
PM / PA:

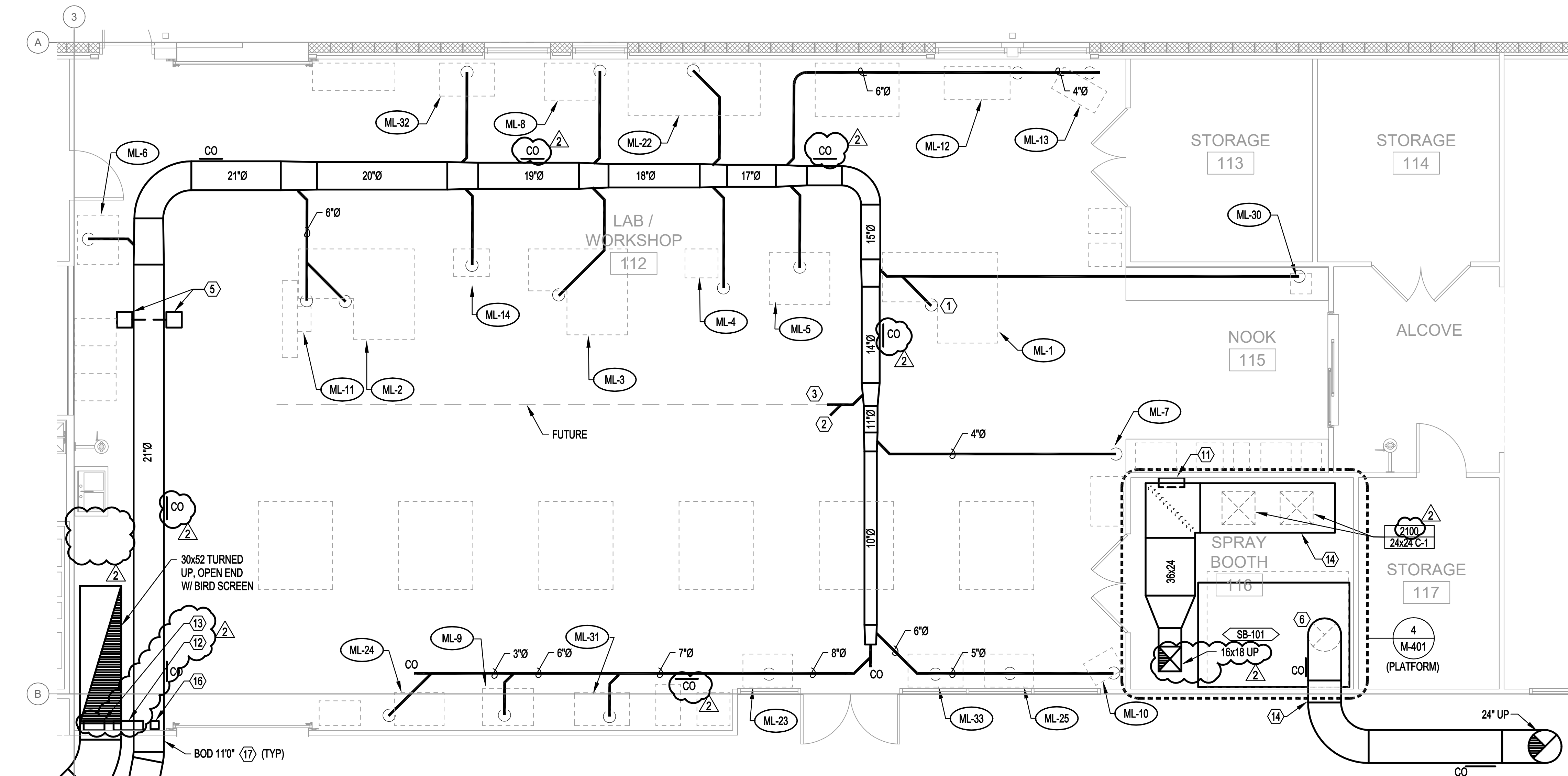
Owner
4J SCHOOL DISTRICT

Project Name
4J CHURCHILL HS WOODSHOP REMODEL
Project Address
1850 BAILEY HILL ROAD EUGENE, OREGON 97405

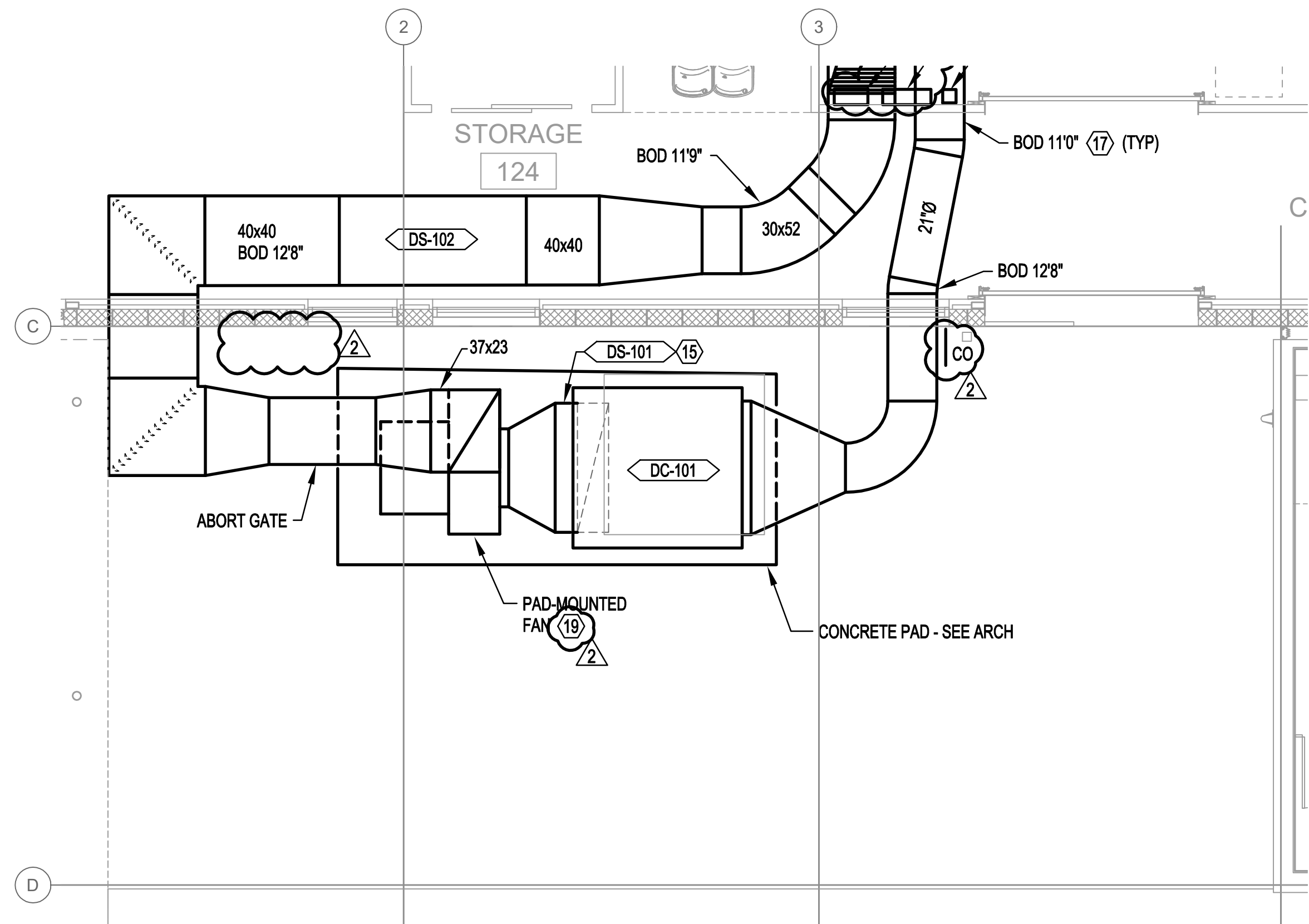
EQUIPMENT SCHEDULES - MECHANICAL

M-002

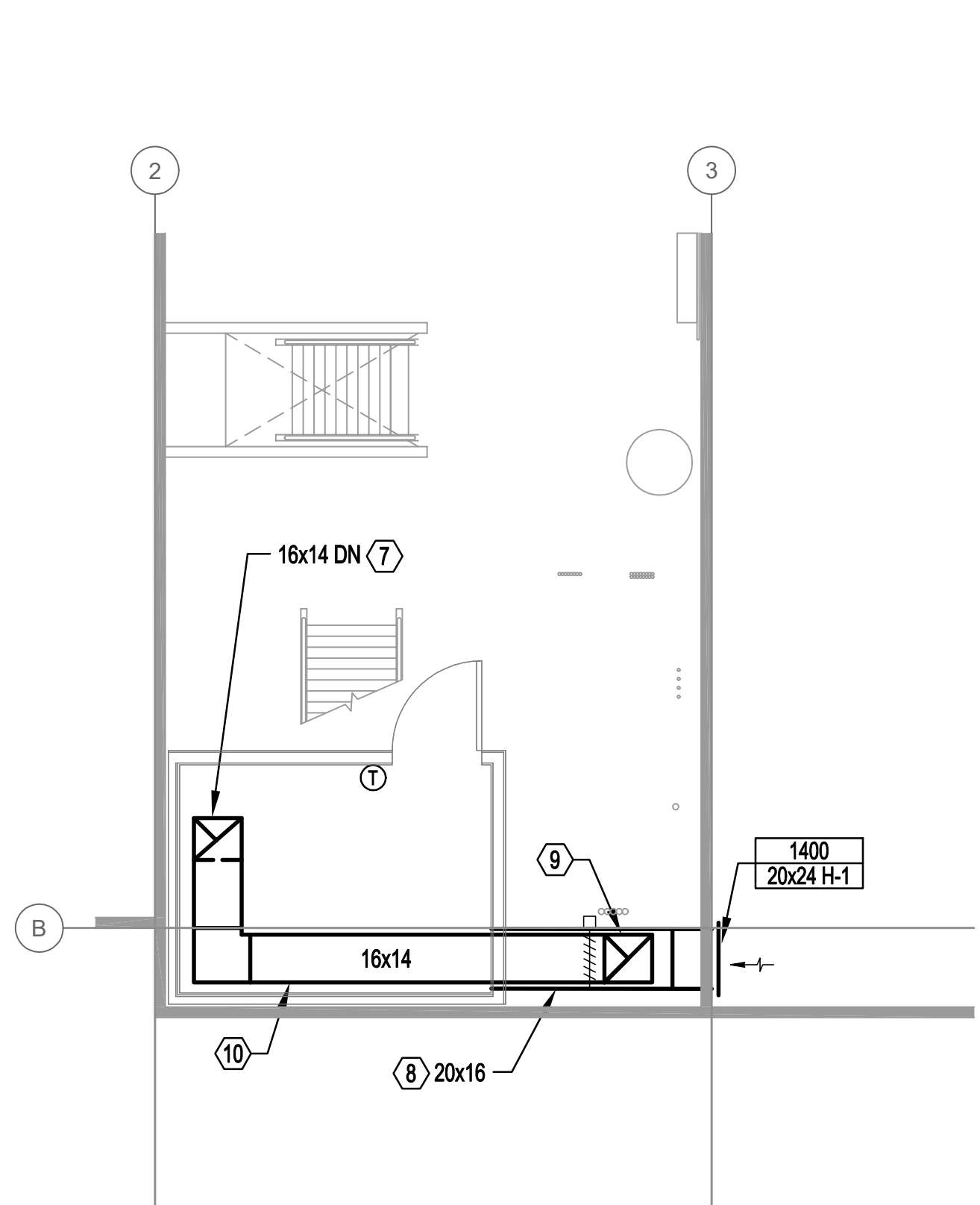
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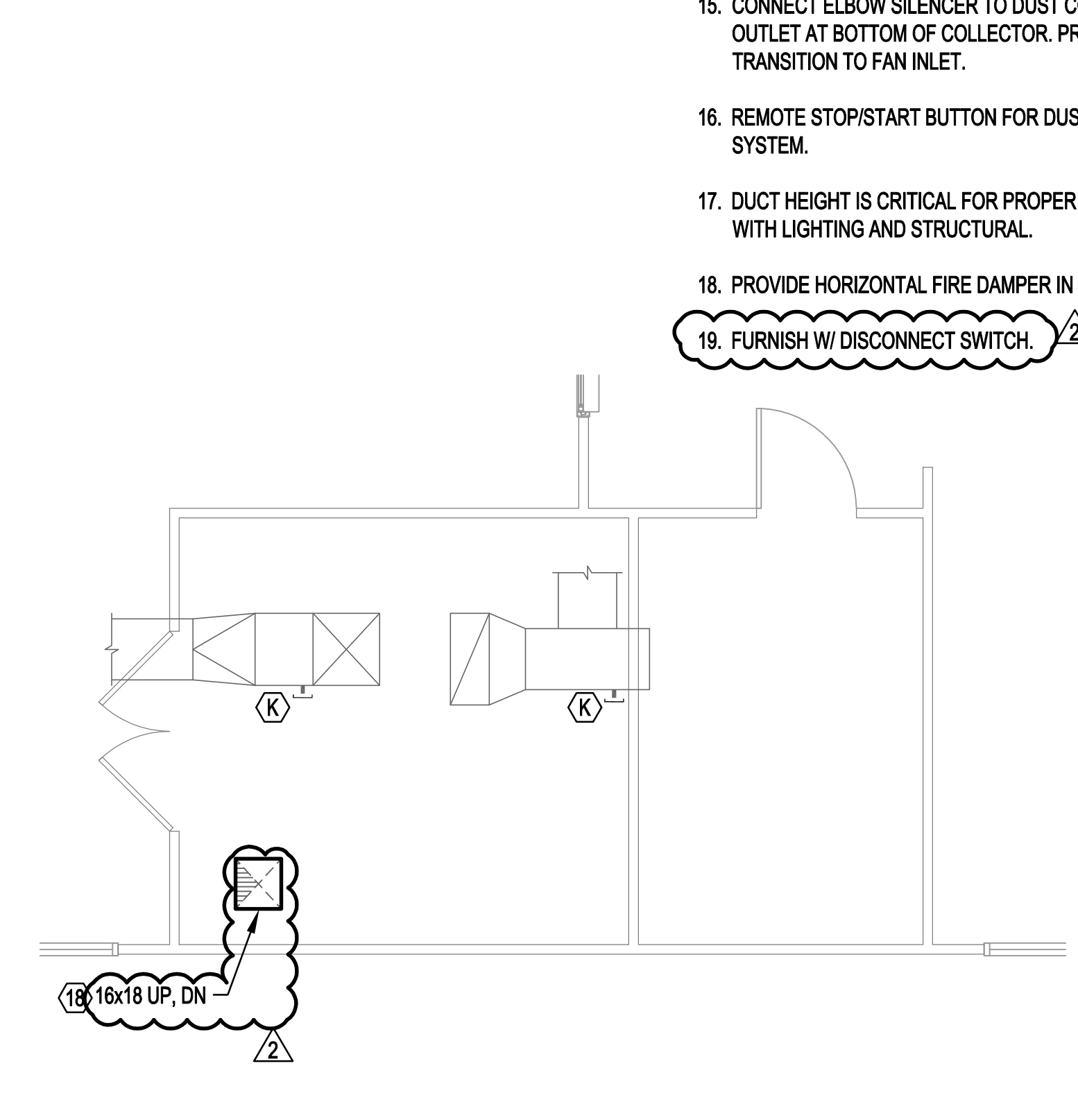
1 WOOD SHOP ENLARGED PLAN - MECHANICAL
SCALE: 1/4" = 1'-0"



2 DUST COLLECTOR ENLARGED PLAN - MECHANICAL
SCALE: 1/4" = 1'-0"



3 PLATFORM ENLARGED PLAN - MECHANICAL
SCALE: 1/4" = 1'-0"



4 MECHANICAL PLATFORM ENLARGED PLAN - MECHANICAL
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
2. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

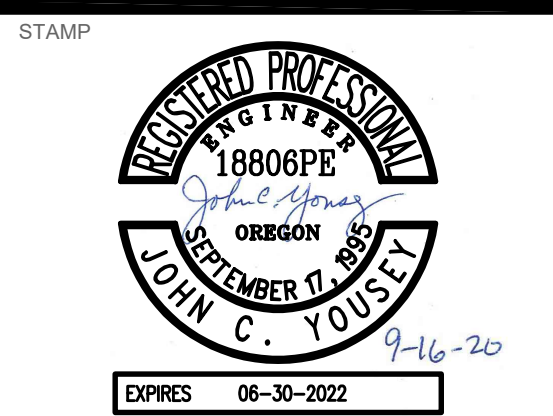
NOTES:

1. PROVIDE BLAST GATE FOR AIR BALANCING. LOCK AT FIXED POSITION AFTER BALANCING. PROVIDE FLEX DUCT DROP TO EQUIPMENT CONNECTION. SEE EQUIPMENT SCHEDULE FOR DUCT SIZING (TYPICAL).
2. BLAST GATE AND OPEN-ENDED 8" DUCT. BALANCE TO 1600 CFM. AS FUTURE EQUIPMENT IS INSTALLED ON THE BRANCH RE-BALANCE SO THAT THE SUM OF NEW EQUIPMENT AND AT THIS BLAST GATE REMAINS 1600 CFM.
3. CAP 8" DUCT FOR FUTURE.
4. LOCATION OF SPRAY NOZZLE. SEE PLUMBING DRAWINGS.
5. SPARK DETECTOR (TYP 2). LOCATE MIN 4 FT FROM FINAL BRANCH DUCT CONNECTION. MAINTAIN 23 FT STRAIGHT DUCT BETWEEN DETECTORS AND SPRAY NOZZLE.
6. 24" SPRAY BOOTH EXHAUST DUCT. CONNECT TO SPRAY BOOTH OUTLET. PROVIDE RADIUS ELBOW TO RUN HORIZONTALLY OUT TO HALLWAY. SLOPE HORIZONTAL DUCT TOWARD BOOTH.
7. TERMINATE DUCT AT CEILING OF AIR COMPRESSOR ROOM. NO GRILLE REQUIRED.
8. MOUNT DUCT AT FLOOR OF PLATFORM. TERMINATE AT LOW WALL OF AIR COMPRESSOR ROOM. NO GRILLE REQUIRED.
9. UP TO EF-R01 ON ROOF.
10. ROUTE DUCT IN JOIST SPACE ABOVE AIR COMPRESSOR ROOM.
11. SPRAY BOOTH CONTROL PANEL.
12. DC-101 CONTROL PANEL.
13. SPARK DETECTION CONTROL PANEL.
14. MOUNT DUCT TIGHT TO UNDERSIDE OF HARD CEILING.
15. CONNECT ELBOW SILENCER TO DUST COLLECTOR OUTLET AT BOTTOM OF COLLECTOR. PROVIDE TRANSITION TO FAN INLET.
16. REMOTE STOP/START BUTTON FOR DUST COLLECTION SYSTEM.
17. DUCT HEIGHT IS CRITICAL FOR PROPER COORDINATION WITH LIGHTING AND STRUCTURAL.
18. PROVIDE HORIZONTAL FIRE DAMPER IN FLOOR.
19. FURNISH W/ DISCONNECT SWITCH.

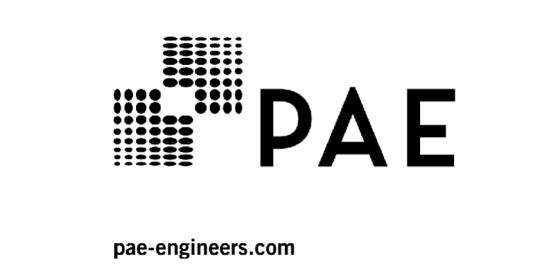
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ENLARGED PLANS - MECHANICAL

M-401