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ADDENDUM # 3

To Drawings and Specifications for:

NEW CONSTRUCTION OF FIRE STATION 2 CITY OF SIDNEY 2324 Campbell Road Sidney, Ohio 45365

Project #2207.02

This Addendum must be acknowledged on the Form of Proposal.

TO ALL CONTRACTORS:

This Addendum modifies the original Drawings and Specifications and is to be taken into account in preparing proposals and will become part of the Contract Documents.

SPECIFICATIONS

ITEM 01 SECTION 042000 – UNIT MASONRY

- A. Paragraph 2.6.B.1; Delete clay face brick "Manufacturers" paragraph and replace with "Basis-of-Design" paragraph as follows:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Modular Sunburst Blend, Velour texture, as manufactured by The Belden Brick Company. A comparable product may be considered from one of the following manufacturers, if approved by Architect:
 - a. Glen Gary Corporation
 - b. Bowerston Shale Company

ITEM 02 SECTION 055000 – METAL FABRICATIONS

A. Paragraph 2.6, B.2; revise Basis of Design as follows: "USF 1215 ring & BC cover as manufactured by US Foundry & Mfg. Corp."

ITEM 03 SECTION 071600 – SHEATHING

- A. Paragraph 2.4; add paragraph "C. Glass-Mat Gypsum Sheathing" as follows:
 - C. Glass-Mat Gypsum Sheathing: ASTM C1177/C1177M.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

January 24, 2025

- a. CertainTeed; SAINT-GOBAIN
- b. Gold Bond Building Products, LLC provided by National Gypsum Company
- c. USG Corporation
- 2. Type and Thickness: Type X, thickness as indicated on Drawings.
- 3. Size: 48 by 96 inches for vertical installation.
- B. Paragraph 2.7; add paragraph "C. Sealant for Glass-Mat Gypsum Sheathing" as follows:
 - C. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
 - 1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10, or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.
- C. Add Paragraph "3.4 Installation of Gypsum Sheathing" as follows:

3.4 INSTALLATION OF GYPSUM SHEATHING

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 - 2. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- **B.** Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
- **D.** Seal sheathing joints in accordance with sheathing manufacturer's written instructions.
 - 1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and

openings.

ITEM 04 SECTION 072100 – THERMAL INSULATION

A. Paragraph 2.3, A; revise wet film thickness to read, "according to manufacturer's written instruction, of 35 mils or thicker to meet manufacturer's wall system and performance requirements, over smooth, void-free substrates." in lieu of 50 mils.

ITEM 05 SECTION 072726 – FLUID-APPLIED MEMBRANE AIR BARRIER

A. Delete Paragraph **2.3 Spray Applied Cellulosic Insulation** and associated subparagraphs. Use spray polyurethane foam insulation with fire ignition barrier in lieu of spray applied cellulosic insulation at top of walls to close off deck flutes.

ITEM 06 SECTION 081113 – HOLLOW METAL DOORS AND FRAMES

A. Paragraph 2.1, A.; add "Pioneer Industries: ASSA ABLOY" to list of manufacturers.

ITEM 07 SECTION 081613 – FRP DOORS

A. Add to specifications "SECTION 081613- FRP DOORS" included with this Addendum.

ITEM 08 SECTION 083613 – SECTIONAL DOORS

A. Paragraph 2.3, B; Revise Operation Cycles from 25,000 to 50,000 cycles.

ITEM 09 SECTION 084113 – ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

- A. Paragraph 2.3, A.; add "Oldcastle Building Envelope, Series 6000XT" as a comparable product.
- B. Paragraph 2.3, F.5; revise to add verbiage and add sub-paragraph "a." as follows:
 5. Basis-of-Design, YKK 50T or comparable product by the following:
 a. Oldcastle Building Envelope, WS-500TC.
- C. Delete Paragraph 2.3, G. Flush Entrance Doors. Doors are to change to insulated FRP doors.

ITEM 10 SECTION 123216 – PLASTIC-LAMINATE-CLAD CASEWORK

A. Paragraph 2.1, C.; revise cabinet design type to "Frameless" in lieu of Face-frame.

ITEM 11 SECTION 123640 – STONE COUNTERTOPS

A. Paragraph 2.3, B.1, add sub-paragraph b. as follows:b. Color: Steel Grey Granite

ITEM 12 SECTION 23 2300 – REFRIGERANT PIPING

- A. Paragraph 2.2, A., Clarify Copper Tubing type, add Type C1.
- B. Paragraph 2.2, B., Clarify Copper Coil type, add Type C2.

ITEM 13 SECTION 23 5100 – BREECHINGS, CHIMNEYS, AND STACKS

A. Paragraph 2.1, G., revise as follows: "Outer jacket above the roof shall be factory painted, color selected by Architect. Color choices shall be a minimum of 180 different colors."

ITEM 14 SECTION 32 1216 - ASPHALT PAVING

- A. Add Section 32 1216 ASPHALT PAVING included with this addendum.
- ITEM 15 SECTION 32 1313 CONCRETE PAVING
 - A. Add Section 32 1313 CONCRETE PAVING included with this addendum.

DRAWINGS

ITEM 16 SHEET A2.4 – PLAN DETAILS

- A. Detail 1; add note "Bituminous coating on steel"
- B. Detail 3; add note "Self adhered flexible membrane flashing"
- C. Replace drawings sheets A2.4 with revised sheets A2.4.

ITEM 17 SHEET A3.2 – ROOF DETAILS

- A. Details 1, 3, 5, and 6;
 - a. Change boardstock insulation air/weather barrier note to "1¹/₂" " in lieu of 2".
 - b. Add note "1/2" glass-mat gyp. sheathing"
- B. Details 2 & 4; in lieu of filling metal deck voids with spray-applied cellulosic insulation at wall intersections with metal roof deck, revise noting to read "Fill voids with closed-cell spray foam insulation. Provide ignition barrier coating on (interior) exposed side."
- C. Replace drawings sheet A3.2 with revised sheet A3.2.

ITEM 18 SHEET A3.4 – ROOF DETAILS

- A. Detail 1;
 - a. Change boardstock air/weather barrier insulation note to "1¹/₂" " in lieu of 2".
 - b. Add note "1/2" glass-mat gyp. sheathing"
- B. Replace drawings sheets A3.4 with revised sheets A3.4.

ITEM 19 SHEET A3.6 – ROOF DETAILS

- A. Add, Detail 8 Lightning Protection Detail.
- B. Replace drawings sheets A3.6 with revised sheets A3.6.

ITEM 20 SHEET A4.1 – EXTERIOR ELEVATIONS

- A. Exterior Elevation (Key) Notes; add Note 19 as follows, "Cast stone medallion. Inscribed lettering in cast stone with stain color; lettering font as selected by architect. Refer to detail 2/A6.5 for lettering height."
- B. South Elevation; add key note 19 referencing cast stone medallion.
- C. Replace drawings sheets A4.1with revised sheets A4.1.

ITEM 21 SHEET A6.1 - WALL CONSTRUCTION DETAILS

- A. All Details, revise noting referencing perimeter foundation insulation to read, "2" **Extruded Polystyrene Board Insulation (R-10 min.).**"
- B. Detail 2; revise detail
 - a. Change boardstock air/weather barrier insulation to "1¹/₂" " in lieu of 2".
 - b. Add note "1/2" glass-mat gyp. sheathing"
- C. Replace drawings sheet A6.1 with revised sheet A6.1.

ITEM 22 SHEETS A6.3 – A6.9, WALL SECTIONS or DETAILS

- A. Revise Section (Key) Notes 3.2, 4.5, 7.1, and 7.22 as follows:
 - 3.2 2" Extruded Polystyrene Board Insulation (R-10 min.).
 - 4.5 Cast stone. Refer to details on A6.5.
 - 7.1 Boardstock air barrier/wall insulation, 1.5" @ CFMF walls, 2.5" @ masonry walls. Refer to project manual.
 - 7.22 Fill voids with closed-cell spray foam insulation. Provide ignition barrier coating on (interior) exposed side.
- B. Add Section (Key) Note 7.26 as follows:
 - 7.26 1/2" glass-mat gypsum sheathing.

ITEM 23 SHEET A6.3 WALL SECTIONS

- A. All Details, add key **Note 7.26** referencing the addition of glass-mat gypsum sheathing.
- B. Revise Section Notes per Item 22 of this Addendum.
- C. Replace drawings sheet A6.3 with revised sheet A6.3.

ITEM 24 SHEET A6.4 WALL SECTIONS

- A. Detail 1, add key Note 7.26 referencing the addition of glass-mat gypsum sheathing.
- B. Revise Section Notes per Item 22 of this Addendum.
- C. Replace drawings sheet A6.4 with **revised sheet A6.4**.

ITEM 25 SHEET A6.5 ENTRY WALL SECTIONS

- A. Add, Detail 2 Cast Stone Detail.
- B. Revise Section Notes per Item 22 of this Addendum.
- C. Replace drawings sheet A6.5 with revised sheet A6.5.

ITEM 26 SHEET A6.6 WALL SECTIONS

- A. Detail 4, add key Note 7.22 referencing spray foam at top of wall.
- B. Revise Section Notes per Item 22 of this Addendum.
- C. Replace drawings sheet A6.6 with revised sheet A6.6.

ITEM 27 SHEET A7.1 – ROOM AND DOOR SCHEDULE

- A. Door and Frame Schedule: revise doors 122, 124, and 125 material to FRP.
- B. Add Material abbreviation "FRP Fiber Reinforced Polymer"
- C. Replace drawings sheets A7.1 with revised sheets A7.1.

ITEM 28 SHEET A7.3 – HEAD, JAMB, AND SILL DETAILS

- A. Details J10, S10, H11, J11;
 - a. Change rigid board insulation note to "1¹/₂" " in lieu of 2".
 - b. Add note "1/2" glass-mat gyp. sheathing"
- B. Replace drawings sheet A7.3 with revised sheet A7.3.

ITEM 29 SHEETS A8.1 & 8.2 – EQUIPMENT PLANS

A. Revise Equipment Plan (Key) Note 37 to read, "Training manhole; refer to specifications."

ITEM 30 SHEET A9.1 – INTERIOR ELEVATIONS

- A. Elevations 6, 14, and 15; add Solid Surface and Plastic Laminate material color designation marker, refer to specifications for colors related to marker.
- B. Replace drawings sheet A9.1 with revised sheet A9.1.

ITEM 31 SHEET A9.2 – INTERIOR ELEVATIONS

- A. Elevations 1, and 6-9; add Solid Surface and Plastic Laminate material color designation marker, refer to specifications for colors related to marker.
- B. Replace drawings sheet A9.2 with revised sheet A9.2.

ITEM 32 SHEET A9.3 – INTERIOR ELEVATIONS

- A. Elevations 1, 2, and 3; add Solid Surface and Plastic Laminate material color designation marker, refer to specifications for colors related to marker.
- B. Replace drawings sheet A9.3 with revised sheet A9.3.

ITEM 33 SHEET S1.1 – FOUNDATION PLAN

- A. Revise foundation at Storm Shelter to match S1.3
- B. Replace drawings sheet S1.1 with revised sheet S1.1.

ITEM 34 SHEET S1.3 – MEZZANINE FRAMING PLAN

- A. Mezzanine Framing Plan; revise note referencing Training Manhole.
- B. Replace drawings sheet S1.3 with revised sheet S1.3.

ITEM 35 SHEET S2.3 –FRAMING DETAILS

- A. Revise Section 13 to indicate 10" CMU in lieu of 12".
- B. Replace drawings sheet S2.3 with revised sheet S2.3.

ITEM 36 SHEET H0.1 – LEGENDS AND SCHEDULES

- A. Update Seismic Control Specifications and Seismic General Requirements.
- B. Replace drawings sheet H0.1 with revised sheet H0.1.

ITEM 37 SHEET H0.2 – DUCTWORK MATERIAL SCHEDULES

- A. Clarify material for ductwork type G2.
- B. Replace drawings sheet H0.2 with revised sheet H0.2.

ITEM 38 SHEET H0.3 – PIPING MATERIAL SCHEDULES

- A. Revise Refrigerant Piping Coil type to C2.
- B. Replace drawings sheet H0.3 with revised sheet H0.3.

ITEM 39 SHEET H0.4 – EQUIPMENT SCHEDULES

- A. Fan & Roof Ventilator Schedule
 - 1. Revise Notes column for Tag EF-4 and EF-6.
 - 2. Remove (Schedule) Notes 6.
- B. Replace drawings sheet H0.4 with revised sheet H0.4.

ITEM 40 SHEET H0.5 – VRF SYSTEM SCHEDULE

- A. Revise FC-2A & FC-2B unit type.
- B. Replace drawings sheet H0.5 with revised sheet H0.5.

ITEM 41 SHEET H1.1 – 1ST FLOOR PLAN

- A. Revise DOAS Unit duct penetration into fitness room
- B. Add pressure monitor to Heavy Decon room
- C. Modifiy pressure monitor to TOG room
- D. Add unit heater to entry vestibule
- E. Modifiy construction Note 42 to read "Differential pressure monitor. Refer to Detail 11, H3.3."
- F. Added construction Note 45 as follows: "Two-position control damper. Damper shall be insulated and have blade seals, equal to Greenheck #ICD-45."
- G. Replace drawings sheet H1.1 with revised sheet H1.1.

ITEM 42 SHEET H3.3 - DETAILS

- A. Add detail 11.
- B. Replace drawings sheet H3.3 with revised sheet H3.3.

ITEM 43 SHEET H4.3 - CONTROLS

- A. Modifiy sequence and connection points on control diagrams 3 and 5.
- B. Replace drawings sheet H4.3 with revised sheet H4.3.

ITEM 44 SHEET E0.7 – PANEL SCHEDULES

- A. Modify Panel "B" to two 42 circuit panels, one with Feed-Thru-Lugs
- B. Add circuits and spares as indicated.
- C. Replace drawings sheet E0.7 with revised sheet E0.7.

ITEM 45 SHEET E2.1 – FIRST FLOOR LIGHTING PLAN

- A. Construction (Key) Notes; revise Note 2 to clarify Inverter/UPS power to lighting in Storm Shelter (Decon)/App Bay.
- B. Revise First Floor Lighting Plan in Rooms 120 and 119 as indicated.
- C. Replace drawings sheet E2.1 with revised sheet E2.1.

ITEM 46 SHEET E3.1 – FIRST FLOOR POWER PLAN

- A. Construction (Key) Notes; revise Note 3 to read "**Provide 120V 1PH power for pressure monitoring station.**"
- B. Add power for Air Pressure Monitoring Stations.
- C. Add power to Fire Alarm Panel.
- D. Add power to new vestibule unit heater.
- E. Replace drawings sheet E3.1 with revised sheet E3.1.

ITEM 47 SHEET E4.1 – FIRST FLOOR SYSTEMS PLAN

- A. General Notes; revise Note B to read "System vender may utilize single station smoke/CO detection, tied to FA system in dorm rooms or system device combination smoke/CO detector with low frequency sounder base and 177 candela strobe as required by Code"
- B. Construction (Key) Notes; delete Note 10 and revise Notes 1, 2, and 8 as follows:
 - 1. Smoke Detector for release of magnetic door holder.
 - 2. Magnetic door holder powered from fire alarm panel by E.C. Holder furnished by door hardware supplier
 - 8. Smoke detector programmed for release of magnetic door holder.
- C. First Floor Systems Plan;
 - 1. Clarify location of Fire Alarm Panel
 - 2. Coordinate exterior camera/card reader location with Technology Drawings.
 - 3. Clarify requirements for magnetic door holders and associated smoke detectors.
- D. Replace drawings sheet E4.1 with revised sheet E4.1.

SECTION 08 1613 - FRP DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide FRP (fiberglass reinforced polyester) doors as included
- B. Hardware for FRP doors will be furnished under Division 08 Door Hardware, except continuous gear hinges, but installed under this Section.
- C. Related Work Specified Elsewhere
 - 1. Section 087100 Door Hardware.

1.2 SYSTEM PERFORMANCE

- A. Provide door assemblies that have been designed and fabricated to comply with requirements for system performance characteristics listed below, as demonstrated by testing manufacturers corresponding standard systems according to test methods designated
 - 1. Thermal Transmission (exterior doors): NFRC 100, "U" value of not more than 0.31 (BTU/HR by sq. ft. by degrees F) per AAMA 1503.01.
 - 2. Airflow Leakage: ASTM E283, 0.01 CFM/S.F. @ 6.24 PSF
 - 3. Flame Spread/Smoke Developed: Provide FRP doors and panels with the following ratings in accordance with ASTM E84-79a:
 - a. Exterior panel of exterior door
 - 1) Flame Spread: Not greater than 170 (Class C).
 - 2) Smoke Developed: Not greater than 390 (Class C).
 - b. Interior panels.
 - 1) Flame Spread: Not greater than 15 (Class A).
 - 2) Smoke Developed: Not greater than 310 (Class A).
 - 4. Abrasion Resistance: Face sheet to have no greater than .029 average weight loss percentage after Taber Abrasion Test 25 cycles at 500 gram weight with H-18 wheel.
 - 5. Stain Resistance: Face sheet to be unaffected after 24 hour exposure to SVS-1 white spray enamel. Must retain 02 or .54 or less with MacBeth Coloimeter.
 - 6. Chemical Resistance: Face sheet to be unaffected after 4 hour exposure to acetic acid (10 percent solution), acetone, sodium hypochlorite (5.25 percent solution) and hydrochloric acid (10 percent solution). No discoloration or panel damage will be allowed.
 - 7. Intrusion Resistance: ASTM E2395, Grade 30. ASTM F1233, Class 1. ASTM E1886, 2 impacts have no observable damage.

1.3 ACTION SUBMITTALS

- A. Product Data: Submit door manufacturer's product data, specifications, and installation instructions for each type of door.
 - 1. Include details of core and edge construction, trim for openings and louvers (if any), and similar components.
 - 2. Include certifications as may be required to show compliance with specifications.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, requirements for factory finishing, and other pertinent data.
- C. Samples for Verification: For each type of exposed finish required:
 - 1. Two sets of samples in manufacturer's standard size.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of thermally rated door assemblies for tests performed by a qualified testing agency indicating compliance with performance requirements

1.5 QUALITY ASSURANCE

- A. Standards: Comply with the requirements and recommendations in applicable specification and standards by AAMA, except to the extent more stringent requirements are indicated.
- B. Doors shall be provided to conform with the American with Disabilities Act Accessibility Guidelines (ADAAG) and State and Local Regulations. These requirements supersede Technical Specifications in this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Doors shall be packaged individually and shipped in individual cartons. Doors shall be floated within the cartons, with no portion of the door or hardware to be in contact with the outer corrugated shell.

1.7 WARRANTY

- A. The manufacturer shall warrant, agree to replace at no cost to the Owner, doors which fail within the warranty period. Failure of materials includes excessive deflection and deterioration of finish or construction in excess of normal weathering.
- B. The warranty period to be 10 years from Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTUERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide SL 17 Pebble Grain Hybrid Door as manufactured by Special-Lite, Inc. or comparable products by one of the following:
 - 1. Cline Doors
 - 2. REBCO, Inc.
 - 3. Tiger Door, LLC.

2.2 MATERIALS

- A. Construction
 - 1. Door Thickness: 1-3/4 inches.
 - 2. Stiles and Rails: Aluminum Alloy 6063-T5, minimum of 2-5/16-inch depth.
 - 3. Corners: Mitered.
 - 4. Provide joinery of 3/8-inch diameter full-width tie rods through extruded splines top and bottom as standard tubular shaped stiles and rails reinforced to accept hardware as specified.
 - 5. Securing Internal Door Extrusions: 3/16-inch angle blocks and locking hex nuts for joinery. Welds, glue, or other methods are not acceptable.
 - 6. Furnish extruded stiles and rails with integral reglets to accept face sheets. Lock face sheets into place to permit flush appearance.
 - 7. Rail caps or other face sheet capture methods are not acceptable.
 - 8. Extrude top and bottom rail legs for interlocking continuous weather bar.
 - 9. Meeting Stiles: Pile brush weatherseals. Extrude meeting stile to include integral pocket to accept pile brush weatherseals.
 - 10. Bottom of Door: Install bottom weather bar with nylon brush weatherstripping into extruded interlocking edge of bottom rail.
- B. Door
 - 1. Door Face Sheets
 - a. Standard face sheets shall be manufactured using a corrosion resistant resin system with light stabilizing additives. The resin shall be reinforced with fiberglass, 40% by weight.
 - b. Face sheet shall be 0.120 inch thick with finish color throughout. Abuseresistant engineered surface.
 - 2. Internal Construction
 - a. Core
 - 1) Material: Poured-in-place polyurethane foam.
 - 2) Density: Minimum of 5 pounds per cubic foot.

- 3) R-Value: Minimum of 9.
- b. Aluminum Members:
 - 1) Extrusions: ASTM B 221.
 - 2) Sheet and Plate: ASTM B 209.
 - Alloy and Temper: As required by manufacturer for strength, corrosion resistance, application of required finish, and control of color.
- c. Components: Door and frame components from same manufacturer.
- d. Fasteners:
 - 1) Material: Aluminum, 18-8 stainless steel, or other noncorrosive metal.
 - 2) Compatibility: Compatible with items to be fastened.
 - 3) Exposed Fasteners: Screws with finish matching items to be fastened.
- e. Sill:
 - 1) Adjustable nylon brush weatherstrip.
- C. Door Frames
 - 1. Tubular Aluminum Alloy 6063-T5, 1/8-inch minimum wall thickness. Frame size 2" x 4-1/2"-inch.
 - 2. Applied Door Stops: 0.625-inch high, with screws and weatherstripping. Door stop shall incorporate pressure gasketing for weathering seal. Counterpunch fastener holes in door stop to preserve full metal thickness under fastener head.
 - 3. Frame Members: Thermally Broken Aluminum Frame Assembly.
 - 4. Caulking: Caulk joints before assembling frame members.
 - 5. Joints:
 - a. Secure joints with fasteners.
 - b. Provide hairline butt joint appearance.
 - 6. Applied Stops: For side, transom, and borrowed lites and panels. Applied stops shall incorporate pressure gasketing for weathering seal. Reinforce with solid bar stock fill for frame hardware attachments.
 - 7. Hardware:
 - a. Premachine and reinforce frame members for hardware in accordance with manufacturer's standards and hardware schedule.
 - b. Factory install hardware.
 - 8. Anchors:
 - a. Anchors appropriate for wall conditions to anchor framing to wall materials.
 - b. Door Jamb and Header Mounting Holes: Maximum of 24-inch centers.
 - c. Secure head and sill members of transom, side lites, and similar conditions.
- D. Hardware
 - 1. For hardware furnished by others, refer to Division 08 "Door Hardware".
 - 2. Meeting stiles on pairs of doors and top and bottom rigidity weather bars shall

have Schlegel type pile weatherstripping. The meeting stiles weatherstripping shall be placed in an adjustable astragal. No additional weatherstripping is required. No vinyl, plastic, or other type weatherstripping is acceptable.

3. FRP doors shall be premachined in accordance with templates from the specified hardware manufacturers and approved hardware schedule. Surface applied hardware shall utilize the Riv-Nut or similar blind fastener for attachment. FRP doors shall be reinforced for specified hardware in accordance with the manufacturer's standards. Hardware, excepting the door closer, threshold, or other field applied hardware as noted, shall be installed on the door assembly at the factory and shipped applied to the door assembly at the job site. Glass and glazing, louvers, or panels for the door assembly shall be factory supplied and installed and shipped installed to the job site.

2.3 FINISH

- A. Aluminum
 - 1. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
- B. FRP
 - 1. Manufacturer's custom colored pigmented sealer. The sealer shall be as durable and stain resistant as the FRP face sheet.
 - a. Color: Custom color, as selected by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Inspection
 - 1. Installer shall examine aluminum doorframes and verify that frames are correct for proper hanging of corresponding doors. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Ensure openings to receive frames are plumb, level, square, and in tolerance.

3.3 INSTALLATION

- A. Comply with manufacturer's recommendations and specifications for the installation of the doors and frames.
- B. Set units plumb, level and true in line, without warp or rack of doors or frames. Anchor securely in place. Separate aluminum and other metal surfaces with bituminous coatings or other means as approved by the Architect.
- C. Anchor frames securely in place.
- D. Separate aluminum from other metal surfaces with bituminous coatings.
- E. Set thresholds in bed of mastic and backseal.
- F. Install exterior doors to be weathertight in closed position.
- G. Stuff fiberglass insulation to fill any voids along aluminum frames on all exterior doors.
- H. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- I. Remove and replace damaged components as determined by Architect.

3.4 ADJUSTING

A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.5 CLEANING

- A. Clean surface promptly after installation of doors and frames, exercising care to avoid damage to the protective coatings in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that would damage finish.

3.6 PROTECTION

- A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.
- B. Ensure that the doors and frames will be without damage or deterioration (other than normal weathering) at the time of acceptance.
- C. Provide Owner with all adjustment tools and instructions sheets. Arrange an inservice session to Owner at Owner's convenience.

END OF SECTION 08 1613

SECTION 32 1216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Hot-mix asphalt paving.
 - 2. Asphalt surface treatments.
 - 3. Pavement-marking paint.
- B. Related Sections:
 - 1. Division 31 Section "Earth Moving" for aggregate subbase and base courses and for aggregate pavement shoulders.
 - 2. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants and fillers at paving terminations.

1.3 DEFINITION

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Shop Drawings: Indicate pavement markings, lane separations, and defined parking spaces. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- C. Material Certificates: For each paving material, from manufacturer.
- D. Material Test Reports: For each paving material.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.

- Regulatory Requirements: Comply with materials, workmanship, and other applicable Β. standards of ODOT for asphalt paving work.
- C. Preinstallation Conference: Conduct conference at regular project meeting.

1.6 **PROJECT CONDITIONS**

- Α. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature of 60 deg F.
 - Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at 2. time of placement.
 - Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of 3. placement.
- Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces Β. and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- Β. Coarse Aggregate: ASTM D 692, sound; angular crushed stone or crushed gravel.
- C. Fine Aggregate: ASTM D 1073 or AASHTO M 29, sharp-edged natural sand or sand prepared from stone or gravel.
 - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

2.2 **ASPHALT MATERIALS**

- Asphalt Binder: AASHTO M 320 or AASHTO MP 1a, PG 64-22. Α.
- B. Asphalt Cement: ASTM D 3381 for viscosity-graded material.
- Tack Coat: ASTM D 977 or AASHTO M 140 emulsified asphalt, or ASTM D 2397 or C. AASHTO M 208 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- D. Water: Potable.

Undersealing Asphalt: ASTM D 3141, pumping consistency. E.

AUXILIARY MATERIALS 2.3

- Α. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- Β. Sand: ASTM D 1073 or AASHTO M 29, Grade Nos. 2 or 3.
- Paving Geotextile: AASHTO M 288, nonwoven polypropylene; resistant to chemical C. attack, rot, and mildew; and specifically designed for paying applications. Use if required by unforeseen conditions.
- D. Joint Sealant: ASTM D 6690 or AASHTO M 324, Type I, hot-applied, singlecomponent, polymer-modified bituminous sealant.
- Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, Ε. complying with AASHTO M 248, Type N; colors complying with FS TT-P-1952.
 - 1. Color: White (automobiles); Yellow (busses).
- F. Precast, air-entrained concrete, 2500-psi minimum compressive Wheel Stops: strength, 4-1/2 inches high by 9 inches wide by 72 inches long. Provide chamfered corners, drainage slots on underside, and holes for anchoring to substrate.
 - Dowels: Galvanized steel, 3/4-inch diameter, 10-inch minimum length. 1.

2.4 MIXES

- Α. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes meeting ODOT specifications designed according to procedures in AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Base Course: ODOT Item 448 Type 2 Pg 64-22.
 - Surface Course: ODOT Item 448 Type 1, (449) Pg 64-22 with an application of 3. 'Reclamite' Asphalt Rejuvenating Agent).

PART 3 - EXECUTION

3.1 **EXAMINATION**

Α. Verify that subgrade is dry and in suitable condition to begin paving.

- Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify Β. soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - Completely proof-roll subgrade in one direction, repeating proof-rolling in 1. direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 2. 15 tons.
 - 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.
- D. Verify that utilities, traffic loop detectors, and other items requiring a cut and installation beneath the asphalt surface have been completed and that asphalt surface has been repaired flush with adjacent asphalt prior to beginning installation of imprinted asphalt.

3.2 PATCHING

- Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing Α. pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- Β. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sg. vd..
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface laver finished flush with adjacent surfaces.

3.3 REPAIRS

- Α. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
 - Install leveling wedges in compacted lifts not exceeding 3 inches thick. 1.
- Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a Β. depth of 1/4 inch.
 - 1. Clean cracks and joints in existing hot-mix asphalt pavement.

- Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. 2. Fill flush with surface of existing pavement and remove excess.
- Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. 3. Fill flush with surface of existing pavement and remove excess.

3.4 SURFACE PREPARATION

- Α. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
 - 1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.
- C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.01 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. 2. Remove spillages and clean affected surfaces.

PAVING GEOTEXTILE INSTALLATION 3.5

- Apply asphalt binder uniformly to existing pavement surfaces at a rate of 0.20 to 0.30 A. gal./sq. yd..
- Place paving geotextile promptly according to manufacturer's written instructions. Β. Broom or roll geotextile smooth and free of wrinkles and folds. Overlap longitudinal joints 4 inches and transverse joints 6 inches.
 - Protect paving geotextile from traffic and other damage and place hot-mix 1. asphalt paving overlay the same day.

3.6 HOT-MIX ASPHALT PLACING

- Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Α. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - 2. Place hot-mix asphalt surface course in single lift.
 - Spread mix at minimum temperature of 250 deg F. 3.
 - 4 Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.

- Regulate paver machine speed to obtain smooth, continuous surface free of pulls 5. and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - After first strip has been placed and rolled, place succeeding strips and extend 1. rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.7 JOINTS

- Construct joints to ensure a continuous bond between adjoining paving sections. A. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to joints.
 - Offset longitudinal joints, in successive courses, a minimum of 6 inches. 2.
 - Offset transverse joints, in successive courses, a minimum of 24 inches. 3.
 - Construct transverse joints at each point where paver ends a day's work and 4. resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations.".
 - Compact joints as soon as hot-mix asphalt will bear roller weight without 5. excessive displacement.
 - 6. Compact asphalt at joints to a density within 2 percent of specified course densitv.

3.8 COMPACTION

- General: Begin compaction as soon as placed hot-mix paving will bear roller weight Α. without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- Β. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling ioints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

- Average Density: 96 percent of reference laboratory density according to 1. ASTM D 6927 or AASHTO T 245, but not less than 94 percent nor greater than 100 percent.
- Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt D. is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- Protection: After final rolling, do not permit vehicular traffic on pavement until it has G. cooled and hardened.
- Erect barricades to protect paving from traffic until mixture has cooled enough not to H. become marked.
- 3.9 INSTALLATION TOLERANCES
 - Pavement Thickness: Compact each course to produce the thickness indicated within A. the following tolerances:
 - 1. Base Course: Plus or minus 1/2 inch.
 - Surface Course: Plus 1/4 inch, no minus. 2.
 - Β. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch.
 - 2. Surface Course: 1/8 inch.
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.10 **PAVEMENT MARKING**

- Α. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- Β. Allow paving to age for 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.

Apply paint with mechanical equipment to produce pavement markings, of dimensions D. indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.11 FIELD QUALITY CONTROL

- Testing Agency: Engage a gualified testing agency to perform tests and inspections. Α.
- In-place compacted thickness of hot-mix asphalt courses will be Β. Thickness: determined according to ASTM D 3549.
- Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested C. for compliance with smoothness tolerances.
- In-Place Density: Testing agency will take samples of uncompacted paving mixtures D. and compacted pavement according to ASTM D 979 or AASHTO T 168.
 - Reference maximum theoretical density will be determined by averaging results 1. from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
 - 2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
 - One core sample will be taken for every 1000 sq. yd. or less of installed a. pavement, with no fewer than 3 cores taken.
 - Field density of in-place compacted pavement may also be determined by b. nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- Replace and compact hot-mix asphalt where core tests were taken. E.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

DISPOSAL 3.12

Α. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION 321216

SECTION 32 1313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
 - 1. Driveways and roadways.
 - 2. Curbs and gutters.
 - 3. Walkways, sidewalks.
- B. Related Sections include the following:
 - 1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.
 - 2. Division 31 Section "Earth Moving" for subgrade preparation, grading, and subbase course.
 - 3. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants of joints in concrete pavement and at isolation joints of concrete pavement with adjacent construction.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blastfurnace slag.

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Qualification Data: For testing agency.

- Material Test Reports: From a qualified testing agency indicating and interpreting test D. results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
 - Include service record data indicating absence of deleterious 1. Aggregates. expansion of concrete due to alkali-aggregate reactivity.
- Material Certificates: Signed by manufacturers certifying that each of the following E. materials complies with requirements:
 - 1. Cementitious materials.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.
 - Curing compounds. 4.
 - Joint fillers. 5.
- Field quality-control test reports. F.
- G. Mock-ups:
 - 1. Provide mock-up sample area of Medium-to-Coarse-Textured Broom Finish for Architect's review and approval on concrete walkways or other areas scheduled to receive this finish.

1.5 QUALITY ASSURANCE

- Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who A. complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- Β. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - Personnel conducting field tests shall be gualified as ACI Concrete Field Testing 1. Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
- C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.
- Concrete Testing Service: Engage a qualified independent testing agency to perform D. material evaluation tests and to design concrete mixtures.
- E. Preinstallation Conference: Conduct conference at scheduled project meeting.

Before submitting design mixtures, review concrete pavement mixture a. design and examine procedures for ensuring quality of concrete materials and concrete pavement construction practices.

1.6 **PROJECT CONDITIONS**

Traffic Control: Maintain access for vehicular and pedestrian traffic as required for Α. other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

- Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type A. materials to provide full-depth, continuous, straight, smooth exposed surfaces.
 - 1. Use flexible or curved forms for curves with a radius 100 feet or less.
- Β. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- Recycled Content: Provide steel reinforcement with an average recycled content of Α. steel so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- Β. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- D. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete, and as follows:
 - Equip wire bar supports with sand plates or horizontal runners where base 1. material will not support chair legs.

2.3 CONCRETE MATERIALS

- Cementitious Material: Use one of the following cementitious materials, of the same Α. type, brand, and source throughout the Project:
 - 1. Portland Cement: ASTM C 150, Type I:
- Normal-Weight Aggregates: ASTM C 33, coarse aggregate, uniformly graded. Β. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
 - Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement. 2.
- C. Water: ASTM C 94/C 94M.
- Air-Entraining Admixture: ASTM C 260. D.

2.4 **CURING MATERIALS**

- Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, Α. weighing approximately 9 oz./sq. yd. dry.
- Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-Β. polyethylene sheet.
- Water: Potable. C.
- D. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
 - 1. Products:
 - Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB. a.
 - Dayton Superior Corporation; Day Chem Rez Cure (J-11-W). b.
 - Euclid Chemical Company (The); Kurez DR VOX. C.
 - Kaufman Products, Inc.; Thinfilm 420. d.
 - Lambert Corporation; Agua Kure-Clear. e.
 - L&M Construction Chemicals, Inc.; L&M Cure R. f.
 - Meadows, W. R., Inc.; 1100 Clear. g.

2.5 RELATED MATERIALS

- Α. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- Β. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.6 CONCRETE MIXTURES

- Prepare design mixtures, proportioned according to ACI 301, for each type and Α. strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
 - Use a gualified independent testing agency for preparing and reporting proposed 1. concrete mixture designs for the trial batch method.
- Proportion mixtures to provide normal-weight concrete with the following properties: Β.
 - 1. Compressive Strength (28 Days): 4000 psi.
 - Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.50. 2.
 - Slump Limit: 4 inches. 3.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normalweight concrete at point of placement having an air content as follows:
 - Air Content: 6 percent plus or minus 1.5 percent for 3/4-inch nominal maximum 1. aggregate size
- D. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.7 CONCRETE MIXING

- Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete Α. according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
 - When air temperature is between 85 deg F and 90 deg F, reduce mixing and 1. delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 **EXAMINATION**

- Α. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- Β. Proceed with concrete pavement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

3.2 PREPARATION

Remove loose material from compacted subbase surface immediately before placing Α. concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- Α. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

- General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, A. and supporting reinforcement.
- Β. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

- Α. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
- Β. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.
 - Continue steel reinforcement across construction joints, unless otherwise 1. indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.

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- Provide tie bars at sides of pavement strips where indicated. 2.
- Butt Joints: Use bonding agent at joint locations where fresh concrete is placed 3. against hardened or partially hardened concrete surfaces.
- 4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
- 5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 50 feet, unless otherwise indicated.
 - Extend joint fillers full width and depth of joint. 2.
 - Terminate joint filler not less than 1/2 inch or more than 1 inch below finished 3. surface if joint sealant is indicated.
 - Place top of joint filler flush with finished concrete surface if joint sealant is not 4. indicated.
 - Furnish joint fillers in one-piece lengths. Where more than one length is 5. required, lace or clip joint-filler sections together.
 - Protect top edge of joint filler during concrete placement with metal, plastic, or 6. other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows to match jointing of existing adjacent concrete pavement:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 3/8-inch radius. Repeat grooving of contraction joints after applying surface finishes.
 - Doweled Contraction Joints: Install dowel bars and support assemblies at joints 2. where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, walkways and joints in concrete with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

- Α. Inspection: Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- Remove snow, ice, or frost from subbase surface and reinforcement before placing Β. concrete. Do not place concrete on frozen surfaces.

- Moisten subbase to provide a uniform dampened condition at time concrete is placed. C. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- Comply with ACI 301 requirements for measuring, mixing, transporting, and placing D. concrete.
- E. Do not add water to concrete during delivery or at Project site.
- F. Do not add water to fresh concrete after testing.
- G. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- Consolidate concrete according to ACI 301 by mechanical vibrating equipment H. supplemented by hand spading, rodding, or tamping.
 - Consolidate concrete along face of forms and adjacent to transverse joints with 1. an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or Use only square-faced shovels for hand spreading and side forms Consolidate with care to prevent dislocating reinforcement, consolidation. dowels, and joint devices.
- Screed pavement surfaces with a straightedge and strike off. Ι.
- J. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- K. Curbs and Gutters: When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.
- Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete L. work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F. uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - Do not use calcium chloride, salt, or other materials containing antifreeze agents 3. or chemical accelerators unless otherwise specified and approved in mix designs.
- Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather M. conditions exist:

- Cool ingredients before mixing to maintain concrete temperature below 90 deg F 1. at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
- 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
- 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FLOAT FINISHING

- General: Do not add water to concrete surfaces during finishing operations. A.
- Β. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom. perpendicular to line of traffic.

CONCRETE PROTECTION AND CURING 3.8

- General: Protect freshly placed concrete from premature drying and excessive cold or Α. hot temperatures.
- Β. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sg. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, E. curing compound, or a combination of these as follows:
 - Moist Curing: Keep surfaces continuously moist for not less than seven days 1. with the following materials:
 - Water. a.
 - Continuous water-fog spray. b.
 - Absorptive cover, water saturated and kept continuously wet. Cover C. concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

Curing Compound: Apply uniformly in continuous operation by power spray or 2. roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.9 PAVEMENT TOLERANCES

- Α. Comply with tolerances of ACI 117 and as follows:
 - Elevation: 1/4 inch. 1.
 - 2. Thickness: Plus 3/8 inch. minus 1/4 inch.
 - 3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch.
 - Joint Width: Plus 1/8 inch, no minus. 4.

FIELD QUALITY CONTROL 3.10

- Α. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- Β. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain at least 1 composite sample for each 5000 sq. ft. or fraction thereof of each concrete mix placed each day.
 - When frequency of testing will provide fewer than five compressivea. strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 - 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one 5. set of three standard cylinder specimens for each composite sample.
 - Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 6. 2 specimens at 28 days.
 - A compressive-strength test shall be the average compressive strength a. from 2 specimens obtained from same composite sample and tested at 28 davs.
- C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no

compressive-strength test value falls below specified compressive strength by more than 500 psi.

- D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- G. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

REPAIRS AND PROTECTION 3.11

- Α. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- Β. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
- Protect concrete from damage. Exclude traffic from pavement for at least 14 days after C. placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.
- E. Protect tactile tiles against damage during construction period to comply with Tactile Tile manufacturer's specification.
- F. Protect tactile tiles against damage from rolling loads following installation by covering with plywood or hardwood.
- G. Clean tactile tiles not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean tactile tile by method specified by Tactile Tile manufacturer.

Comply with manufacturers maintenance manual for cleaning and maintaining tile surface and it is recommended to perform annual inspections for safety and tile Η. integrity.

3.12 CONCRETE FINISH SCHEDULE

CONCRETE FINISH SCHEDULE								
ITEM	FINISH							
Lean concrete fill at soft soils or over Excavations	N/A							
Exterior walks, stoops, steps, aprons, and curbs, and exterior concrete not otherwise indicated	Medium-to-Coarse-Textured Broom Fin- ish							
Exterior formed concrete exposed to view not oth- erwise indicated	Fine Broom Finish							

END OF SECTION 32 1313

















ENTRY PORCH SECTION

 $\begin{pmatrix} 2 \\ A3.4 \end{pmatrix}$

SCALE: 1 1/2"= 1'-0"



ROOF DETAILS



112'-8" TRUSS BEARING HT. 9 🖼 AL-8 GROUND FLOOR 15 IN CORNER NORTH ELEVATION 1 ` SCALE: 1/8" = 1'-0" A4.1 5 $\langle 15 \rangle$ 6 EAST ELEVATION $\begin{pmatrix} 2 \\ A4.1 \end{pmatrix}$ SCALE: 1/8" = 1'-0" **+** 134'-10 57/64 119'-4" BEARING HT $\begin{pmatrix} 122 \\ J \end{pmatrix}$ $\begin{pmatrix} 122 \\ H \end{pmatrix}$ 4'-4 3/16" $\langle \uparrow \rangle$ $\langle \uparrow \rangle$ $\langle \uparrow \rangle$ 14'-0" GROUND FLOOR 3 SOUTH ELEVATION A4.1 SCALE: 1/8" = 1'-0" 119'-4" + TRUSS BEARING HT @ APPARATUS TRUSS BEARING HT. @ STAIR 15 🛛 9 🗲 🖌 15 🎽 100'-0" WEST ELEVATION 4 WESIELE A4.1 SCALE: 1/8" = 1'-0"



SH SCHEDULE											DOOR AND FRAME	SCHEDULE											_		а В Е Е
DM NAME	RM # RO	DOM HT.	FLOOR	BASE	FAST	WALL I	FINISH SOUTH	WEST	CEILING	NOTES	RM TAG	w	DOOR HT		F GIZ	MATI	FR FI	AME GLZ	DEPTH	HEAD JAN	IB SILL	Fire Hard. Rating Set	Remarks	\mathbf{P}	72-691 10.00 10.00
Т.	-	9'	FM	RB	G-P3	G-P3	G-P3	G-P3	G-P1		100 A PR	2'-6"	7'-0"	AL C	ITC	AL	AL-6	ITC/IC	6"	H12 J12	2 S12/S14	- 1		S P	37) 49 ytagir ytagir
BY	-	9' 9'	PC	RB	G-P2 / G-P5	G-P5	G-P2	G-P2	APC-1 / G-P1	1	100 B	3'-0"	7'-0" 7'-0"	AL C	TC TC	AL	AL-5 AL-3	TC/C	6"	H8 J8	,	- 2	7		(9; w.fre @fre
Т.	-	8'	R	R	T-2 / G-P4	T-2 / G-P4	T-2 / G-P4	T-2 / G-P4	G-P1	3	103 A	3'-0"	7'-0"	WD A	-	HM	HM-1	-	6 1/8"	H1 J1		- 22		Ψ	ww info
	-	8' -	PC CONC	RB RB	G-P2	G-P2	G-P2 M-PF2	G-P2	G-P2		104 A 105 A	3'-0"	7'-0" 7'-0"	WD A	-	HM	HM-1 HM-3	-	6 1/8" 5 3/4"	H1 J1	;	- 27			
RAGE	-	9'	PC	RB	G-P2	G-P2	G-P2	G-P2	APC-1		106 A	3'-0"	7'-0"	WD A	-	НМ	HM-1	-	6 1/8"	H1 J1		- 25		Q Z	
ET/SHOWER	-	8' 9'	R CT	R	T-2 / G-P4	T-2 / G-P4	T-2 / G-P4	T-2 / G-P4	G-P1	2	107 A 108 A	3'-0"	7'-0" 7'-0"	WD A	-	HM	HM-1 HM-1	-	6 1/8" 6 1/8"	H1 J1		- 20	2	E SS	
ET/SHOWER	-	8'	R	R	T-2 / G-P4	T-2 / G-P4	T-2 / G-P4	T-2 / G-P4	G-P1	2	108 B	3'-0"	7'-0"	WD A	-	HM	HM-1	-	6 1/8"	H1 J1		20 MIN 7	1	IS	
M 1	-	9' 9'	CT	RB	G-P3	G-P3	G-P3	G-P3	APC-1		109 A 110 A	3'-0"	7'-0" 7'-0"	WD A	-	HM	HM-1 HM-1	-	6 1/8" 6 1/8"	H1 J1		20 MIN 20	1	°° ∪ °°	
M 3	-	9'	СТ	RB	G-P3	G-P3	G-P3	G-P3	APC-1		111 A	3'-0"	7'-0"	WD A	-	HM	HM-1	-	6 1/8"	H1 J1		- 19	2		
	- - 0'	9' / 10'	CT	RB	G-P3	G-P3	G-P3	G-P3 G-P2/G-P5/	APC-1	1	112 A	3'-0"	7'-0" 7'-0"	WD A	-	HM	HM-1	-	6 1/8"	H1 J1		- 19	2	ΞΞ	
RIDOR	- 8'	/ 9'	PC	RB	G-P2 / G-P4	G-P2	G-P2 / G-P5	T-1 G-P2	APC-1 / G-P1 / G-P4	1	114 A	3'-0"	7'-0"	AL C	ITC	AL	AL-3	ITC/IC	6"	H10 J10/	J11 S12/S14	- 3	3, 7	ы С С	65
	- 9	'-6" 9'		RB	G-P2	G-P2	G-P2	G-P2	APC-1		115 A	3'-0"	7'-0" 7'-0"	WD D	TC FR	HM	HM-1	-	6 1/8" 6 1/8"	H1 J1		- 23	7	AI AI	I AVE.
NOUT GEAR	-	-	CONC	RB	M-PE2	M-PE2	M-PE2	M-PE2	EXP-P3	4,7, 8	116 A	3'-0"	7'-0"	AL C	ITF	AL	AL-2	IF	6"	H11 J10/	J11 S12/S14	- 5	3, 7		MIAM X 220 OHIC
ON/LAUNDRY	-	9' 0'	CONC	RB	M-PE2	M-PE2	M-PE2	M-PE2	APC-2	4,7	116 B	1'-10"	6'-8" 6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15	- 26	2		:6 N. 0. BO) DNEY,
R	-	-	CONC	RB	M-PE1	M-PE1	M-PE1	M-PE1	EXP-P3	4	116 D	1'-10"	6'-8"	WD A	-	НМ	HM-4	-	6 1/8"	H1 J1	S15	- 26	2		22 SIC 22
ARATUS BAY	-	-	CONC	RB	M-PE1	M-PE1	M-PE1	M-PE1	EXP-P3 / APC-2	4,7,8	116 E	1'-10"	6'-8" 6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15	- 26	2		10
GHT RM.	-	-	RT	RB	M-PE1	M-PE	M-PE	M-PE	EXP-P3	4, 7, 8	116 G	1'-10"	6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15	- 26	2		536
	-	-	CONC	RB	M-PE1	M-PE1	M-PE1	M-PE1	EXP	4	116 H	1'-10"	6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15	- 26	2		DH 4
INING	-	-	CONC	RB	M-PE1	G-PE1 / FRP	G-PET G-PE1/FRP	M-PE1 M-PE1/G-PE1/ FRP	EXP-P3	4 4, 5, 8	116 J	1'-10"	6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15 S15	- 26	2		ΕΥ, C
	-	-	CONC	RB	M-PE1	G-PE1	M-PE1	M-PE1	EXP	4	116 K	1'-10"	6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15	- 26	2		IDNI
IPMENT PLATFORM	-	-	CONC	RB	-	G-PE1	-	M-PE1	EXP-P3	4,8	116 L 116 M	1'-10"	6'-8" 6'-8"	WD A WD A	-	НМ	HM-4 HM-4	-	6 1/8" 6 1/8"	H1 J1 H1 J1	S15 S15	- 26	2	Z Z	≻ °
								-0.			116 N	1'-10"	6'-8"	WD A	-	HM	HM-4	-	6 1/8"	H1 J1	S15	- 26	2	DE O	Z
REFER TO SPECIFICATIONS	HEDOL			IIONS		SH SCHEL		25.			116 D	1'-10"	6'-8" 6'-8"	WD A WD A	-	НМ	HM-4 HM-4	-	6 1/8" 6 1/8"	H1 J1 H1 J1	S15 S15	- 26	2		
SYM DESCRIPTION			SPEC.		SYMDESCRIPTION1.PAINT NOTED	N WALL AN ACCE	NT PAINT COLOR	. REFER TO			117 A	3'-0"	6'-8"	AL C	TC	AL	AL-3	TC/C	6"	H6 J6	;	- 9	3, 7	TA I	
FLOORS: CT CARPET TILE CONC SEALED CONCRE	TE		096813 033000	3	 1/A8.1 FOR AC WALL TILE TO WALL S) PAIN 	CCENT WALLS L D BE INSTALLED	OCATIONS. TO 5'-0" A.F.F. (TY	PICAL FOR ALL			117 B 118 A	3'-0"	7'-0" 7'-0"	HM C HM C	тс	НМ	HM-3	-	5 3/4"	H7 J7 H7 J7	,	- 24		N N	Ö
PC POLISHED CONCE FM ENTRANCE FLOO	RETE R MATS		033000 124813	3	TILE TO BE IN 3. WALL TILE TO	STALLED FULL	WALL HEIGHT BEI TO 5'-0" A.F.F. (TY	HIND LAVATORY. PICAL FOR ALL			119 A	3'-0"	7'-0"	WD A	-	HM	HM-3	-	8 3/4"	H5A J5/	A S5A	- 23A	5, 6, 8	ВШ	≻
RT ATHLETIC RUBBE R RESINOUS FLOOF	R TILE RING		096519 096723	3	WALLS), PAIN4. EXPOSED ST5. EPP OVER GX	IT REMAINING W RUCTURE TO BE	ALL ABOVE TO C E PAINTED WHITE	EILING. WALL :. HE TOP OF DOOF	0		119 B 119 C	3'-0"	7'-0" 7'-0"	HM A HM A	-	НМ	HM-3	-	8 3/4"	H5A J5/ H7A J7/	a 55A A 55A	90 MIN 15 90 MIN 15	1, 4, 5, 6, 9	≥ <u>K</u>	
BASE: T TILE			093000)	FRAME.MIRRORS INS	STALLED TO 7'-4"	A.F.F. ON EAST A	ND WEST	X .		119 D	3'-0"	7'-0"	HM A	-	НМ	HM-3	-	8 3/4"	H7A J7/	A S5A	- 16A	6, 7, 8		, L RQ
RB RESILIENT BASE R RESINOUS FLOOF	RING		096513 096723	3	WALLS, REFE	ER TO 1/A8.1 FOF	R LOCATION AND	LENGTH. ND BASE			120 A 122 A	3'-0"	7'-0" 7'-0"	HM A HM D	- TC	НМ	нм-з НМ-3	-	5 3/4"	H7 J7 H5 J5	;	- 21	7		BEL
WALLS: T WALL TILE			093000)	6. ALL EXPOSE	D DUCTWORK TO	J BE PAINTED PA	INT COLOR 5.	\wedge		122 B	3'-0"	7'-0"	AL C	ITC	AL	AL-4	ITC/IC	6"	H13 J13/	J14 S13/S14	- 3	7		AMF
G-P PAINTED GYPSON M-PE PAINTED MASONF FRP FIBERGLASS REIN	N BOARD RY, EPOXY NF. PANELS		099123 099123 097720	5 })	GENERAL N SYM DESCRIPTION	OTES:			3	2	122 C OHD 122 D OHD	D 14'-0" D 14'-0"	16'-0" 16'-0"	-	-	-		-	-	H9 J9 H9 J9	S9 S9	-			24 C
CEILINGS:			005440		A WHERE DISSI DO SO UNDEI	IMILAR FLOOR M R THE CENTERL	IATERIALS MEET, INE OF THE DOO	THEY SHOULD R, U.N.O.		- Second Se		2 14'-9"	-16'-8"			·····	~~~~~	\sim	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- 48		<u> </u>			23;
APC-1 ACOUSTIC PANEL APC-2 ACOUSTIC PANEL G-P PAINTED GYPSUM	L CEILING L CEILING /I BOARD, E	NAMEL	095113 095113 099123) }	B ALL INTERIOF SHALL BE KEI MUD, DIRT AN	R MASONRY UNI PT CLEAN DURIN ND CONCRETE C	IS ARE FINISH MA NG CONSTRUCTIO ORE DRILLING S	ATERIALS AND ON FROM DUST, LURRY. MASK OF	2	۶	122 F 122 G OHD		7'-0" 16'-0"		- 		AL-1			H14 J14 H9 J9	4 		<u> </u>		
G-PE PAINTED GYPSUM EXP-P PAINTED EXPOSE	A BOARD, E	EPOXY URE	099123 099123	3	SCREEN AS N C MATERIALS A	NECESSARY TO I	MAINTAIN CLEAN D EXPOSED IF CE	LINESS. EILING DOES NO	т		122 H OHD	0 14'-0"	16'-0"	-	-	-		-	-	H9 J9	S9	-			
PAINT COLORS 1 SHERWIN WILLIAN	MS EXTRA \	WHITE SW	/ 7006		FULLY EXTEN	ID OR ATTACH TO	U WALLS.		3	_	122 I OHL 122 J OHL	D 14-0 D 14'-0"	16'-0"	-	-	-		-	-	H9 J9	S9 S9	-		AND TEOF	OFF The
2 SHERWIN WILLIAM 3 SHERWIN WILLIAM	MS REFLEC	GRAY SW	7661 / 7664							· /	123 A	3'-0"	7'-0"	HM D	TC	НМ	HM-3	-	5 3/4"	H7 J7	,	- 16		Junit's A	
5 SHERWIN WILLIAM	MS SLATE T MS RED BA	Y SW 6321							3	<u> </u>	124 A 124 B	3'-0"	7'-0	FRP A			AL-1	<u> </u>	6"	H14 J1	4	- 5	7		
																						hinter		FREYTA 8533	G Lo
										۶	202 A PR	<u> </u>	7-0	HM A	- 	AL HM	HM-2	<u> </u>	4 7/8	H3 J3			h	ALL CISTON	BCH/LINN ¹
											202 B	2'-8"	7'-0" 7' 0"	HM A	-	HM	HM-3	-	5 3/4"	H7 J7	,	11			A SULLING OFF
											ABBREVIATIONS	s	1-0	GLA	ZING		T IIVI-Z	-	DOOR SCHEI	DULE NOTES:				Eand JP	02
											PR PAIR OF OHD OVERHE	DOORS		FR	FIRE-PF OF 20 M	ROTECTIO MINUTES	N-RATED G	_AZING	1. PROVIE RESIST	DE SMOKE SEA	AL IN DOOR OF	PENINGS OF ALL CO	ONSTRUCTION D WALLS	Daniel J. Freytag, L Expiration Date:	icense #8533 12/31/2025
														ITC TC ITE	INSULA TEMPEI	TED TEMP RED CLEA	ERED CLEA R ERED EROS		2. PROVIE	DE SOUND SEA	LS AT HEAD /	JAMB. DOW ROLLER SHAF	DES - FUILI		
											MATERIALS			IC C	INSULA CLEAR				4. STORM	OF OPENING.	REFER TO SPI	ECIFICATIONS. D FRAME SYSTEM	TO MEET ICC		
											AL ALUMINU HM HOLLOW	UM V METAL		\wedge	INSULA	ALD I KOS	ILD		5. SINGLE 6. DOOR	E COMMUNICAT	FING DOOR FR	RAME. E-CON MEETING RE	EQUIRED	These designs and all iter herein, whether in writing	ns depicted or graphically, as
											FRP FIBER R	EINFORCED POL		3					7. THUMB 8. TO AVO	PRINT ACCES	S CONTROL, E	AUGH-OPENING. BY OTHERS. PROVI HES IN COMMUNIC	IDE ROUGH IN. CATING DOOR	instruments of professiona not be altered or changed without the prior knowledg	al service, may , in any way, ge, and written
											funn	uuu	·····						FRAME LATCH 9. MOUNT	, LOCATE CEN ON STORM DC DOOR HOLDE	Terline of L)or. :R 80" A.F.F. M(ATCH 2" BELOW CE OUNT STRIKE TO W	ENTERLINE OF	consent of the Architect. A made without the Architect approval will void all such	Any change t's written documents
																			TO DOC GENERAL NO	or. Dte:				and instruments and the A be personally liable for an or loss caused thereby.	vrchitect will not y damage, harm
																			REFER TO SF	PECIFICATIONS	S FOR DOOR H	IARDWARE		REVISIONS	
																								STORM SHELTER REVIEW PLAN APPROVAL / BIDDING ADDENDUM 2	1/10/2025
																								ADDENDUM 3	1/24/2025
																									ATE
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				E LATCH 2" / STORM																				DRAWN BY CH AF/RS	IECKED BY DF
				LATCH																					SCHEDUI F
119 B, 119C	<u>י</u> 119 CATING ר	A, 119D																							
																									1
(5) LAIC (A7.1) SCALE: 1/4"	= 1'-0"																							A/.	I

5111	DESCRIPTION	SPEC.
FLOORS		
СТ	CARPET TILE	096813
CONC	SEALED CONCRETE	033000
PC	POLISHED CONCRETE	033000
FM	ENTRANCE FLOOR MATS	124813
RT	ATHLETIC RUBBER TILE	096519
R	RESINOUS FLOORING	096723
BASE:		
Т	TILE	093000
RB	RESILIENT BASE	096513
R	RESINOUS FLOORING	096723
WALLS:		
Т	WALL TILE	093000
G-P	PAINTED GYPSUM BOARD	099123
M-PE	PAINTED MASONRY, EPOXY	099123
FRP	FIBERGLASS REINF. PANELS	097720
CEILING	6:	
APC-1	ACOUSTIC PANEL CEILING	095113
APC-2	ACOUSTIC PANEL CEILING	095113
G-P	PAINTED GYPSUM BOARD, ENAMEL	099123
G-PE	PAINTED GYPSUM BOARD, EPOXY	099123
EXP-P	PAINTED EXPOSED STRUCTURE	099123
PAINT CO	DLORS	
4		7000

107 E TOILET/SHOWER

BASIS OF	DESIGN		MECHANICAL						
MANUFACTURER	CATALOG NUMBER	DESCRIPTION	CONNECTION	NOTES					
CASEWORK - REFER TO DIV 12									
STEVENS	10101	BASE CABINET WITH ADJUSTABLE SHELF							
STEVENS	10120	BASE CABINET WITH ONE RIGHT HINGE DOOR AND ADJUSTABLE SHELVES							
STEVENS	10121	BASE CABINET WITH ONE LEFT HINGE DOOR AND ADJUSTABLE SHELVES							
STEVENS	10201	BASE CABINET BLIND CORNER WITH ONE LEFT HINGE DOOR WITH ONE ADJUSTABLE SHELF							
STEVENS	10339	BASE CABINET WITH ONE 6-1/8"H DRAWER AND TWO EQUAL DRAWERS							
STEVENS	10430	BASE CABINET WITH ONE 6-1/8"H DRAWER AND TWO HINGE DOORS BELOW WITH ONE ADJUSTABLE SHELF							
STEVENS	10479	SINK BASE WITH A SINGLE 6-1/8"H BLANK PANEL AND TWO HINGE DOORS, REMOVABLE BACK	SINK & FIXTURES PROVIDED BY PLUMBING CONTRACTOR. COORDINATE INSTALLATION.						
STEVENS	10580	ADA WALL SINK WITH ACCESS PANEL	FIXTURES PROVIDED BY PLUMBING CONTRACTOR. COORDINATE INSTALLATION.	INTEGRAL SINK PROVIDED BY COUNTER MANUFACTURER, BASIS OF DESIGN CORIAN SOLID SURFACE LAVATORY 8254 (18" X 12 3/4" X 5")					
STEVENS	25101	TALL CABINET WITH FOUR ADJUSTABLE SHELVES AND ONE FIXED SHELF							
STEVENS	25129	TALL CABINET WITH TWO HINGE DOORS AND FOUR ADJUSTABLE SHELVES AND ONE FIXED SHELF		PROVIDE LOCK ON CASEWORK AS INDICATED ON INTERIOR ELEVATIONS					
CUSTOM	SEE 7/A9.2	TALL CABINET WITH TWO RIGHT HINGE DOORS, ADJUSTABLE SHELVES ABOVE, CLOTHES HANGING ROD ON LEFT SIDE, ADJUSTABLE SHELVES ON RIGHT SIDE, AND SHELF BELOW		NO BACK PANEL. PROVIDE LOCK ON CASEWORK: SLABBED CABINET MORTISE CYLINDER CAM LOCKS, CORE BY HARDWARE SUPPLIER, REFER TO HARDARE SCHEDULE, KEYED TO MATCH DOOR ON HALLWAY SIDE.					
CUSTOM	SEE 6/A9.2	TALL CABINET WITH TWO LEFT HINGE DOORS, ADJUSTABLE SHELVES ABOVE, ADJUSTABLE SHELVES ON LEFT SIDE, CLOTHES HANGING ROD ON RIGHT SIDE, AND SHELF BELOW		NO BACK PANEL. PROVIDE LOCK ON CASEWORK: SLABBED CABINET MORTISE CYLINDER CAM LOCKS, CORE BY HARDWARE SUPPLIER, REFER TO HARDARE SCHEDULE, KEYED TO MATCH DOOR ON HALLWAY SIDE.					

124 E WEIGHT ROOM

4 124 E WE A9.3 SCALE: 1/4" = 1'-0"

5 124 W WEIGHT ROOM A9.3 SCALE: 1/4" = 1'-0"

ALL NOTES MAY NOT \supset INTERIOR ELEVATION NOTES BE REFERENCED ON THIS SHEET. CIATES INC. CABINET FILLER, SIZE AS REQUIRED. N Q Q PROVIDE ANY NECESSARY SUPPORTS UNDER COUNTER. WHITE BOARD, REFER TO SPECIFICATIONS. ENGINEERS TACTICAL TRAINING TIE-OFF, REFER TO STRUCTURAL. STEEL STRUCTURE FOR TRAINING TIE-OFFS, REFER TO STRUCTURAL FUR OUT WALL AROUND TACTICAL TRAINING WINDOW WITH 2X4 TUBE STEEL. COVER WITH PLYWOOD SHEATHING. REFER TO SECTION 3/A6.7. FIELD VERIFY WITH OWNER / ARCHITECT. CHASE AROUND DUCT. PROVIDE LOCK ON CASEWORK. REFER TO CASEWORK SCHEDULE. 8. TOILETRY NICHE, REFER TO SPECIFICATIONS. 9. WOOD SHELVING WITH METAL BRACKETS, PROVIDE ANY NECESSARY 10. BLOCKING/SUPPORTS. SSC 11. STAINLESS STEEL SHELF, PROVIDE ANY NECESSARY BLOCKING/ SUPPORTS. 12. WHITE STEEL WIRE SHELF, PROVIDE ANY NECESSARY BLOCKING/ SUPPORTS. PROVIDE BLOCKING FOR FUTURE SHOWER SEAT. \triangleleft 13. 14. WALL-MOUNTED TV, BY OWNER, 60" A.F.F. COORDINATE WITH S ∞ TECHNOLOGY DRAWINGS. PROVIDE NECESSARY DATA/ELECTRIC CONNECTIONS AND BLOCKING. COORDINATE LOCATION WITH OWNER/ ARCHITECT. FREYTAG ARCHITE 43" STATION MONITOR U.N.O., BY OWNER, COORDINATE WITH 15. TECHNOLOGY DRAWINGS. PROVIDE NECESSARY DATA/ELECTRIC CONNECTIONS AND BLOCKING. COORDINATE LOCATION WITH OWNER/ ARCHITECT. 60" A.F.F. U.N.O. MIRROR, REFER TO SPECIFICATIONS. 16. 17. GRANITE/STONE COUNTERTOP 18. SOLID SURFACE COUNTERTOP 19. N.I.C. GRAPHIC PROVIDED BY OWNER. ELEVATION GENERAL NOTES VERIFY ANY DIMENSIONS FOR OWNER PROVIDED EQUIPMENT WITH Α. OWNER / ARCHITECT PRIOR TO CASEWORK FABRICATION. REFER TO MOUNTING HEIGHTS ON SHEET A2.3 FOR ANY RESTROOM В. \mathbf{N} ō NOT SHOWN ON INTERIOR ELEVATIONS. CONSTRUCTION TATION PROVIDE ANY NECESSARY BLOCKING. C. D. COORDINATE LOCATIONS WITH MECHANICAL, ELECTRICAL, Ζ PLUMBING AND TECHNOLOGY DRAWINGS. SID S Ο IRE CIT NEW ELEVATION LEGEND Ш - CASEWORK NOMINAL WIDTH (SIDE TO SIDE) -CASEWORK NOMINAL HEIGHT (NOT INCLUDING COUNTER) 362924 324 —CASEWORK NOMINAL DEPTH (BACK TO FRONT) 10129 CASEWORK ITEM, SEE SCHEDULE ON A9.1 ATE OF DANIEL FREYTAG 8533 ERED Dame Stution Daniel J. Freytag, License #8533 Expiration Date: 12/31/2025 These designs and all items depicted herein, whether in writing or graphically, as instruments of professional service, may not be altered or changed, in any way, without the prior knowledge, and written consent of the Architect. Any change made without the Architect's written approval will void all such documents and instruments and the Architect will not be personally liable for any damage, harm or loss caused thereby. REVISIONS TORM SHELTER REVIEW AN APPROVAL / BIDDING ADDENDUM 2 1/10/2025 ADDENDUM 3 1/21/2025 COMM. NUMBER DATE 2207.02 11/22/24 DRAWN BY CHECKED BY AF/RS DF INTERIOR ELEVATIONS A9.3

- 8. SEE SECTIONS 5/S2.4 AND 6/S2.4 FOR TYPICAL INDOOR AND OUTDOOR MECHANICAL EQUIPMENT PADS.
- 9. SEE SHEETS S0.0 AND S0.1 FOR GENERAL STRUCTURAL INFORMATION.

CONT. WALL FOOTING SCHEDULE									
MARK SIZE REINFORCING									
F16	1'-4" WD. x 1'-0" DP.	(2) #4 CONT. BOT.							
F24	2'-0" WD. x 1"-0" DP.	(2) #4 CONT. BOT.							
F30	2'-6" WD. x 1'-0" DP.	(3) #4 CONT. BOT.							
F36	3'-0" WD. x 1'-0" DP.	(3) #4 CONT. #4 @ 12" O.C. TRANS.							
TS16	TS16 1'-4" x 8" DP. THICKENED SLAB (2) #4 CONT. BOT.								

SPREAD FOOTING SCHEDULE								
MARK SIZE REINFORCING								
F3.0	3'-0" x 3'-0" x 1'-0" DP.	(3) #4 E.W. BOT.						
F4.0 4'-0" x 4'-0" x 1"-0" DP. (4) #4 E.W. BOT.								

S	EISMIC CONTROL SPECIFICATIONS	SE
PAR	T 1 - GENERAL	1. T E
1.1	SUMMARY A. THIS SECTION INCLUDES THE FOLLOWING: 1. SEISMIC CONTROL REQUIREMENTS.	[(
1.2	 PERFORMANCE REQUIREMENTS A. SEISMIC CERTIFICATION AND ANALYSIS: EACH TRADE CONTRACTOR SHALL RETAIN A SPECIALTY CONSULTANT OR EQUIPMENT MANUFACTURER TO DEVELOP A SEISMIC RESTRAINT SYSTEM AND PERFORM SEISMIC CALCULATIONS IN ACCORDANCE WITH THE OBC AND ASCE 7, AND ADDITIONAL REQUIREMENTS SPECIFIED IN THIS SECTION. A PROFESSIONAL ENGINEER EXPERIENCED IN SEISMIC RESTRAINT DESIGN AND INSTALLATION AND LICENSED IN THE STATE OF OHIO SHALL BE RESPONSIBLE FOR CALCULATIONS, RESTRAINT SELECTIONS AND INSTALLATION DETAILS. 	2.
	2. THE SEISMIC RESTRAINT DESIGN SHALL CLEARLY INDICATE THE ATTACHMENT POINTS TO THE BUILDING STRUCTURE AND DESIGN FORCES IN ALL HORIZONTAL AND VERTICAL AXES AT THE ATTACHMENT POINTS. THE SEISMIC RESTRAINT ENGINEER SHALL COORDINATE ALL ATTACHMENTS WITH THE BUILDING'S STRUCTURAL ENGINEER OF RECORD, WHO SHALL VERIFY THE ATTACHMENT METHODS AND THE ABILITY OF THE BUILDING STRUCTURE TO ACCEPT THE LOADS IMPOSED.	4. 5.
	3. THE SEISMIC RESTRAINT DESIGN SHALL BE BASED ON ACTUAL EQUIPMENT DATA (DIMENSIONS, WEIGHT, CENTER OF GRAVITY, ETC.) OBTAINED FROM SUBMITTALS OR THE MANUFACTURERS. THE EQUIPMENT MANUFACTURER SHALL VERIFY THAT THE ATTACHMENT POINTS ON THE EQUIPMENT CAN ACCEPT THE COMBINATION OF SEISMIC, WEIGHT, AND OTHER LOADS IMPOSED. FOR LIFE SAFETY SYSTEMS AND OTHER SYSTEMS THAT MUST REMAIN OPERATIONAL DURING AND AFTER AN EARTHQUAKE, THE MANUFACTURER SHALL PROVIDE CERTIFICATION THAT THE EQUIPMENT CAN ACCEPT THE LOADS IMPOSED AND REMAIN OPERATIONAL.	6. 7.
	4. ANALYSIS SHALL INCLUDE CALCULATED DEAD LOADS, STATIC SEISMIC LOADS, AND CAPACITY OF MATERIALS UTILIZED FOR THE CONNECTION OF THE EQUIPMENT OR SYSTEM TO THE STRUCTURE. ANALYSIS SHALL DETAIL ANCHORING METHODS, BOLT DIAMETER, EMBEDMENT AND/OR WELDED LENGTH. ALL SEISMIC RESTRAINT DEVICES SHALL BE DESIGNED TO ACCEPT, WITHOUT FAILURE, THE FORCES DETAILED IN THE CODE ACTING THROUGH THE EQUIPMENT OR SYSTEM'S CENTER OF GRAVITY.	
1.3	SUBMITTALS A. DELEGATED-DESIGN SUBMITTAL: THE SEISMIC RESTRAINT DESIGN, CONSISTING OF CALCULATIONS, RESTRAINT SELECTION, INSTALLATION DETAILS, AND OTHER DOCUMENTATION, SHALL BE SUBMITTED. THIS SUBMITTAL SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, AS STATED ABOVE. THIS SUBMITTAL WILL BECOME PART OF THE PROJECT DESIGN CALCULATIONS, INCLUDED IN THE PROJECT RECORDS, AND WHEN REQUIRED, WILL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION.	
	B. SEISMIC RESTRAINT DEVICES: PRODUCT DATA, VERIFICATION OF SEISMIC CAPABILITIES AND INSTALLATION DETAILS.	
	C. WELDING CERTIFICATES.	
	D. FIELD QUALITY-CONTROL TEST REPORTS.	
1.4	QUALITY ASSURANCE A. COMPLY WITH SEISMIC-RESTRAINT REQUIREMENTS IN THE OBC UNLESS REQUIREMENTS IN THIS SECTION ARE MORE STRINGENT.	
	B. WELDING: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL."	
	C. ALL SEISMIC RESTRAINTS AND COMBINATION ISOLATOR / RESTRAINTS SHALL HAVE VERIFICATION OF THEIR SEISMIC CAPABILITIES. MANUFACTURERS MAY VERIFY THEIR CAPABILITIES BY TESTING THAT IS WITNESSED BY AN INDEPENDENT PROFESSIONAL ENGINEER OR AN ASSOCIATION THAT HAS DEVELOPED A UNIFORM SET OF TEST STANDARDS. INDEPENDENT APPROVAL CAN ALSO BE OBTAINED BY AGENCIES SUCH AS OSHPD (OFFICE OF STATEWIDE HEALTH, PLANNING AND DEVELOPMENT) FROM THE STATE OF CALIFORNIA, NES, ICBO ES, FACTORY MUTUAL, UNDERWRITERS LAB, RECOGNIZED INDUSTRY STANDARDS ORGANIZATIONS SUCH AS VISCMA, ETC.	
PAR	T 2 - PRODUCTS	
2.1	SEISMIC-RESTRAINT DEVICES	
	A. SEISMIC RESTRAINT DEVICES MAY INCLUDE ANY MANUFACTURER'S SYSTEM(S) SUITABLE FOR THE BUILDING CONSTRUCTION APPLICATION.	
	B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:	
	1. THE VMC GROUP (VIBRATION MOUNTING AND CONTROLS)	
	2. MASON INDUSTRIES	
	3. KINETICS NOISE CONTROL.	

SMIC GENERAL REQUIREMENTS

E PROJECT HAS SEISMIC LOAD SUPPORT REQUIREMENTS SED ON THE SEISMIC USE GROUP (OCCUPANCY) SIGNATION OF THE FACILITY OF "IV" AND SEISMIC DESIGN ATEGORY "C". REFER TO DRAWING S0.01 FOR ADDITIONAL FORMATION.

ISMIC DESIGN REQUIREMENTS FOR MECHANICAL AND ECTRICAL COMPONENTS SHALL BE PROVIDED AS REQUIRED Y 2024 OHIO BUILDING CODE CHAPTER 16, SECTION 1613 ARTHQUAKE LOADS AND BY REFERENCE, THE AMERICAN DCIETY OF STRUCTURAL ENGINEERS (ASCE) STANDARD 7-16 NIMUM DESIGN LOADS FOR BUILDING AND OTHER RUCTURES" (2016).

HAPTER 13 OF ASCE 7-16 DEFINES THE REQUIREMENTS FOR IE MECHANICAL AND ELECTRICAL COMPONENTS.

HE COMPONENT IMPORTANCE FACTOR, IP SHALL BE 1.5 FOR L COMPONENTS PER ASCE 7-16, 13.1.3 SINCE THE OMPONENTS ARE REQUIRED TO FUNCTION FOR LIFE SAFETY IRPOSES AFTER AN EARTHQUAKE AS WELL AS THE OMPONENTS ARE ALL LOCATED WITHIN AN OCCUPANCY ATEGORY "IV" STRUCTURE.

SCE 7-16, TABLE 13.6-1 DEFINES THE SEISMIC AMPLIFICATION CTOR Ap AND RESPONSE FACTOR Rp FOR EACH COMPONENT HAT SHALL BE USED IN DETERMINING THE ATTACHMENT EQUIREMENTS.

RTAIN COMPONENTS TO BE SEISMICALLY BRACED AND PPORTED ARE TO ALSO INCLUDE VIBRATION ISOLATION HERE INDICATED.

RE SUPPRESSION PIPING SHALL BE SEICMIC BRACED PER THE EQUIREMENTS OF NFPA 13-2022.

MECHANICAL AND ELECTRICAL SYSTEMS MUST FUNCTION TER AN EARTHQUAKE. EQUIPMENT, COMPONENTS, PIPING, CTWORK, CONDUIT, COMMUNICATION CABLING, ETC. SHALL SEISMICALLY BRACED. EXCEPTIONS:

JMBING:

- PIPING ON TRAPEZE HANGERS WHERE THE LARGEST PIPE IS NO GREATER THAN 2" AND THE TOTAL WEIGHT OF ALL PIPES IS LESS THAN 10LB/FT. (WEIGHT IS OPERATIONAL WEIGHT)
- CAST IRON OR PVC PIPE 2" AND SMALLER SHALL BE CONSIDERED AN IMPORTANCE FACTOR OF IP=1.0 AND THEREFORE, DO NOT REQUIRE BRACING.
- COPPER AND STEEL PIPING 2" OR LESS ON SINGLE HANGERS.

٩C

- DUCTWORK LESS THAN 6 SQ. FT.
- INLINE DUCTWORK COMPONENTS, I.E. FANS, TERMINAL UNITS, HUMIDIFIERS, ETC. THAT ARE 75 LBS OR LESS.
- PIPING ON TRAPEZE HANGERS WHERE THE LARGEST PIPE IS NO GREATER THAN 2" AND THE TOTAL WEIGHT OF ALL PIPES IS LESS THAN 10LB/FT. (WEIGHT IS OPERATIONAL WEIGHT)
- COPPER AND STEEL PIPING 2" OR LESS ON SINGLE HANGERS.

ECTRICAL:

CONDUIT LESS THAN 2.5".

- LIGHT FIXTURES INDEPENDENTLY SUPPORTED FROM STRUCTURE WITH SUPPORTS DESIGNED FOR 1.4 TIMES THE FIXTURE WEIGHT.
- CEILING FANS SUSPENDED FROM STRUCTURE WITH ATTACHMENT DESIGNED FOR 1.4 TIMES THE FAN WEIGHT.

GENERAL NOTES - HVAC

- PROVIDE COMPLETE AND FUNCTIONAL HVAC SYSTEMS PER HVAC PLANS INCLUDING FURNISHING, INSTALLING, TESTING AND WARRANTY OF ALL WORK.
- WORK SHALL BE IN ACCORDANCE WITH THE 2017 OHIO BUILDING AND MECHANICAL CODES INCLUDING REFERENCED CODES AND STANDARDS, ALL FEDERAL, STATE, AND LOCAL CODES AND ALL APPLICABLE LAWS, ORDINANCES AND REGULATIONS.
- WORK SHALL BE PERFORMED USING BEST QUALITY INSTALLATION PRACTICE BY A QUALIFIED TRADE CONTRACTOR AND THEIR QUALIFIED SUBCONTRACTORS. ALL CONTRACTORS SHALL BE LICENSED AND BE BONDED FOR THE WORK.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA AND OWNER SAFETY STANDARDS AND PRACTICES. ALL ON SITE PERSONNEL SHALL BE SAFETY TRAINED AND OWNER CERTIFIED.
- OBTAIN REQUIRED PERMITS RELATED TO THE WORK AND PAY ALL PERMIT AND INSPECTION FEES.
- 5. THE AUTHORITY HAVING JURISDICTION SHALL INSPECT AND APPROVE ALL WORK. PROVIDE A FINAL CERTIFICATE OF APPROVAL FROM THE AUTHORITY HAVING JURISDICTION AND PRESENT TO THE OWNER BEFORE REQUESTING FINAL PAYMENT AND RELEASE OF RETAINAGE.
- ALL EQUIPMENT AND MATERIAL REQUIRED FOR COMPLETE AND FUNCTIONAL HVAC SYSTEMS ARE INCLUDED IN THE CONTRACT.

GENERAL REQUIREMENTS - HVAC

- PROTECT ALL FURNISHED MATERIAL AND EQUIPMENT FROM THEFT AND DETERIORATION OR CONTAMINATION DUE TO WEATHER OR CONSTRUCTION ACTIVITIES.
- PROTECT OWNERS PROPERTY AND PROPERTY OF OTHER CONTRACTORS.
- REMOVE ALL CONSTRUCTION DEBRIS FROM SITE. RECYCLE DEBRIS WHERE POSSIBLE. DISPOSE OF ALL HAZARDOUS MATERIAL IN ACCORDANCE WITH ENVIRONMENTAL LAWS.
- PROVIDE ALL CUTTING AND PATCHING REQUIRED TO INSTALL MATERIAL AND EQUIPMENT.
- PROVIDE APPROPRIATE FIRESTOPPING SYSTEM FOR ANNULAR SPACE OPENINGS AROUND DUCT AND PIPE PENETRATIONS THROUGH FIRE RESISTANCE RATED CONSTRUCTION. ANNULAR SPACE OPENINGS AT DUCT OR PIPE PENETRATIONS IN NON RATED CONSTRUCTION TO BE CLOSED AIR AND WATER TIGHT.
- MATERIALS AND EQUIPMENT SHALL BE ONE OF THE BRAND OR MANUFACTURERS LISTED OR AN APPROVED EQUAL.
- ELECTRONIC SHOP DRAWINGS SHALL BE PROVIDED IN .PDF FORMAT FOR THE ENGINEER'S APPROVAL FOR ALL MATERIALS AND EQUIPMENT. SHOP DRAWINGS SHALL BE SPECIFICALLY EDITED TO ELIMINATE SUPERFLUOUS INFORMATION AND SHALL CLEARLY SHOW SPECIFICS FOR THE MATERIAL AND EQUIPMENT PROVIDED.
- COORDINATE INSTALLATION OF ACTUAL EQUIPMENT AND SYSTEMS PROVIDED WITH OTHER TRADES.
- INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS. PROVIDE REQUIRED CLEARANCES TO MEET CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS AND MAINTENANCE SERVICE.
- 10. ALL WORK AREAS SHALL BE CLEANED TO MATCH ORIGINAL CONDITION.
- I. PROVIDE TESTING, ADJUSTING AND BALANCING (TAB) REPORTS FOR AIR AND WATER SYSTEMS. A CERTIFIED AABC OR NEBB FIRM SHALL PROVIDE THE BALANCE.
- 12. MAINTAIN RECORD DRAWINGS AND PROVIDE TO THE OWNER OR HIS AGENT.
- 13. PROVIDE TWO (2) BOUND, PAPER COPIES OF ALL OPERATING AND MAINTENANCE MANUALS. PROVIDE AN ELECTRONIC COPY OF THE OPERATING AND MAINTENANCE MANUAL.
- 14. PROVIDE WARRANTY FOR ALL WORKMANSHIP, EQUIPMENT AND MATERIAL. WARRANTY SHALL BE 1 YEAR FOR PART AND LABOR, PROVIDE EXTENDED WARRANTY PERIOD FOR PARTS AND/OR LABOR AS IDENTIFIED OR AS STANDARD FOR CERTAIN ITEMS OF EQUIPMENT.

UCTWO	RK LEGEND	GENERA	L LEGEND		5	-6983 Com	com
20/12	RECTANGULAR DUCT	EC) 492- acino	aginc
20/12	FIRST FIGURE IS SIDE SHOWN	FC GC	FIRE PROTECTION CONTRACTOR.		n v	(937	offeyt
10"Ø		НС	HVAC CONTRACTOR.		Ĭ	ACACA!	info@
10"ø		PC	PLUMBING CONTRACTOR.	$\left \right = \frac{1}{c}$	ξΞ		
	STAINLESS STEEL DUCT	тс	TEMPERATURE CONTROLS CONTRACTOR.	6	ζQ		
	FLEXIBLE FABRIC STEEL DUCT	AFF	NOT IN CONTRACT. ABOVE FINISHED FLOOR - TO BOTTOM OF ITEM	00	ŚΞ		
	INSULATED FLEXIBLE DUCT		UNLESS INDICATED OTHERWISE IN DRAWING.		ر م		
		(E) FS	EXISTING.	à	5		
		EM	EMERGENCY.	U) ビ		
	ELBOW WITH TURNING VANES	МН	MOUNTING HEIGHT.		ΩΞ		
		S	SURFACE MOUNTED.		JU		10
20/12	ROUND RUNOUT DUCT TAP TO RECTANGULAR DUCT WITH SPIN-IN FITTING, SEE DETAIL	WP			2 2 2	AVE.	45365
			WHICH IS SHOWN.				
10"ø	ROUND RUNOUT DUCT FITTING IN ROUND DUCT		DETAIL NOTE SYMBOL - APPLIES ONLY TO DETAIL ON WHICH IS SHOWN.			N.N.	VEY, O
		H-1	EQUIPMENT REFERENCE SYMBOL. ELECTRICAL CONNECTION REQUIRED.			226	SID
	VOLUME DAMPER	H-1	EQUIPMENT REFERENCE SYMBOL. NO ELECTRICAL CONNECTION REQUIRED.				
		123	ROOM NUMBER.				5365
	FIRE DAMPER	$\left \right \qquad \xrightarrow{B} \\ H2 $	DETAIL SYMBOL DETAIL "B" SHOWN ON SHEET H2.				10 4
	SUPPLY DUCT SECTION - RISE, DROP						НО
	RETURN DUCT SECTION - RISE, DROP	H1 A	SECTION STIMBOL SECTION "A" DESIGNATION, SHOWN ON SHEET H1.	ЦО	2		νEΥ,
	SUPPLY AIR DEVICE S1				S	Ъ	SID
<u>S1-8"</u> 300	SEE SCHEDULE AND DETAIL 8" NECK SIZE	H1	ELEVATION "A" DESIGNATION, SHOWN ON SHEET H1.		N	N	
	TRANSEER AIR DEVICE		CONNECTION, NEW TO EXISTING.		Ĕ		
	R1 DEVICE TAG, SEE SCHEDULE AND DETAIL	FD1	UP TO SYMBOL UP TO "FD1", SHOWN ON FLOOR ABOVE.	11 H	4	LL	
	RETURN/EXHAUST DEVICE TAG: R=RETURN, E=EXHAUST		ITEM TO BE REMOVED.	NS N	ST	0	
<u>R1</u> 300	300 = REQUIRED AIR FLOW (CFM) DEVICE SIZE AS INDICATED IN AIR DEVICE SCHEDULE				Ш	Σ	
	SIDEWALL AIR DEVICE SEE AIR DEVICE SCHEDULE			J	R	Ū	SOAL
<u>300-8' 6"</u>	24/12 = DEVICE SIZE 300 = AIR FLOW (CFM)	PIPING L	EGEND] Ш] Z	ш		
L.	8' 6" = MOUNTING HEIGHT (AFF) LINEAR SLOT PLENUM		INDICATES DIRECTION OF FLOW				PBE
∭─── <u>S3-6"</u> 150-2	S3 - DEVICE TAG, SEE AIR DEVICE SCHEDULE 6" = ROUND DUCT CONNECTION SIZE 150 = AIR FLOW (CEM)	CD	CONDENSATE DRAIN				CAN
	2 = NO. OF SLOTS						324 (
<u>(E)</u> 120	EXISTING AIR DEVICE REBALANCE TO AIR FLOW INDICATED	3/2/11/0	PRESSURE GAS PIPES, 3 PIPES TOTAL				Ň.
(1)	ROOM TEMPERATURE SENSOR	0.375"L	REFRIGERANT LINE SET - LIQUID, SUCTION, AND HIGH PRESSURE GAS PIPES				52
C	CO/NO ₂ SENSOR	0.875"S 0.75"HPG	0.375 L = LIQUID PIPE SIZE 0.875"S = SUCTION PIPE SIZE 0.75"HPG = HIGH PRESSURE/LOW PRESSURE			III	E #638 :025
	PUSHBUTTON	0 375"	GAS SIZE.	H AN	0	••••	CENSI 12/31/2
P	PRESSURE MONITOR	0.625"S	0.375"L = LIQUID PIPE SIZE 0.625"S = SUCTION PIPE SIZE	Ц.	REY D INSKI 3822	STERED	SKI, LI
			BRANCH SELECTOR BOX	Ш. 	JEFF ZEL 6(PEG1	
HVA			EQUIPMENT SIZE AS DEPICTED ON BRANCH SELECTOR SCHEDULE		Ś.★	· pRO	:RY D. XPIRA
H0.2	LEGENDS AND SCHEDULES DUCTWORK MATERIAL SCHEDULES		SHUT-OFF VALVE, SEE SCHEDULE FOR TYPE				
H0.3	3 PIPING MATERIAL SCHEDULES						
H0.5	5 VRF SYSTEM SCHEDULE 1 1ST FLOOR PLAN		CAP				
H1.2	2 MEZZANINE & MECHANICAL ROOM PLANS 3 ROOF PLAN		PIPE HOSE THREAD CONNECTION				
H2.2	1 SECTIONS 2 SECTIONS	- <u>-</u>	CONNECTION, BOTTOM				
H3.1	1 DETAILS 2 DETAILS		CONNECTION, TOP				
H3.3	3 DETAILS 4 DETAILS		CONNECTION, SIDE	These design whether in wind instruments of	is and all items of riting or graphica of professional so	depicted herein, illy, as ervice, may not	
H3.5	5 DETAILS 6 DETAILS		ELBOW, 90°, LONG RADIUS	the prior know the Architect.	cnanged, in any wledge, and writt Any change m ritten approval w	way, without ten consent of ade without the rill void all such	
H4.1	1 CONTROLS		ELBOW, 45°, LONG RADIUS	documents and instrume personally lial	nts and the Arch ble for any dama	nitect will not be age, harm or	
H4.3	3 CONTROLS 1 VENTILATION	(—	ELBOW, TURNED DOWN	loss caused t	hereby.		
110.				REVIS	IONS		
				PLAN / 3 ADDEM	APPROVAL / BII NDUM 3	DDING	01/21/25
				COMM.	NUMBER	DATE	
				220	7.02		24
					JZ		זסי
				L	EGENDS AND	SCHEDULES	
			Nauman & Zelinski llc.		HO	.1	

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PROJECT # 23015

HVAC	INDEX OF
SHEET	DRAWING TITLE

H0.2	DUCTWORK MAT
H0.3	PIPING MATERIA
H0.4	EQUIPMENT SCH
H0.5	VRF SYSTEM SC
H1.1	1ST FLOOR PLA
H1.2	MEZZANINE & MI
H1.3	ROOF PLAN
H2.1	SECTIONS
H2.2	SECTIONS
H3.1	DETAILS
H3.2	DETAILS
H3.3	DETAILS
H3.4	DETAILS
H3.5	DETAILS
H3.6	DETAILS
H4.1	CONTROLS
H4.2	CONTROLS
H4.3	CONTROLS

DUCT INSULATION SCHEDULE						DUCT CONSTRUCTION MATERIAL SCHEDULE							
<u>UALITY ASSURANCE</u> ISULATION SHALL MEET NFPA 255. 25 FLAME SPREAD & 50 SMOKE DEVELOPMENT. UL 181. NFPA 90A/90B. ASTM 1136. AND ASTM						DUCTWORK SYSTEM SCHEDULE							
84.										SMAC	A CLASS.		
RODUCTS		30.1-2010			DUCT	WORK SYSTEMS	LOCATION	MATERIAL	SP. CONSTR.	SEAL CLASS	NOTE		
PROTECTIVE METAL JACKET COVERS - 0.016" ALUMINUM.			RETURN AIR		CONCEALED	G1	-2"	C					
INSULAT	<u>70</u> ION SHALL BE INSTALLED IN STI	RICT ACCORDANCE WITH I	MANUFACTU	RER'S RECOMMENDATIONS.		RETURN AIR		EXPOSED	G2	-2"	C	1	
DUCTWO	ORK SHALL BE SEALED PRIOR TO	O INSTALLATION OF INSUL	ATION.			OUTDOOR	RETURN/EXHAUST AIR	ALL	G1	-2"	C		
ALL EXT	ERIOR DUCT INSULATION SHALL	BE SEALED WATERTIGHT	•						GI	+4"	A		
REINSUL	ATE DUCTWORK WHERE EXIST	ING INSULATION IS DAMAG	ED IN CONNE	ECTION OF NEW DUCTWORK		C		EXPOSED	62	-2		1	
ALL INSU	JLATION VAPOR BARRIERS SHAI	LL BE MAINTAINED.				L			02	2			
ADHESIN	E SHALL BE APPLIED TO AID IN	STALLATION.				A	IR TRANSFER	ALL	G1	-1"	NOT REQ'D.		
REQUIRE	ED INTERNAL DUCT LINING IS INI	DICATED ON DRAWINGS. L	INED DUCTW	ORK NEED NOT BE FURTHER INSULATED.		SUPPLY A	AIR - VAV UPSTREAM	CONCEALED	G1	+4"	Α		
	DILS, REHEAT BOX COILS, CONT	ROL DAMPER, FIRE DAMPE	ERS & SMOKE	DAMPERS SHALL BE INSULATED IF SYSTEM		SUPPLY A	AIR - VAV UPSTREAM	EXPOSED	G2	+4"	Α	1	
						SUPPLY AIR	R - VAV DOWNSTREAM	CONCEALED	G1	+1"	C		
ALL INSU	JLATION SHALL BE MARKED WIT	H MANUFACTURER, "R" VA	LUE, FLAME	SPREAD & SMOKE DEVELOPMENT.	_	SUPPLY AIR	R - VAV DOWNSTREAM	EXPOSED	G2	+1"	C	1	
					— -	SUPPLY AIR	CURPLY ALD	CONCEALED	G1	+3"	В		
	SYSTEM	INSULATION THICKNESS	TYPE	LOCATION NOT	TES -				11	.10"			
	SUPPLY AIR DUCT	1.5"	1	CONCEALED		FLEXIBLE	DUCTWORK - SUPPLY	UNCONDITIONED	C1	+10	N.A.		
	SUPPLY AIR DUCT	2"	2	EXPOSED	— -	FLEXI				+10"			
	SUPPLY AIR DUCT	2"	1	IN ATTIC		RET./	/EXH./TRANSFER	CONCEALED	C2	-5"	N.A.		
	SUPPLY AIR DUCT	INTEGRAL W/ DUCT	4	EXTERIOR 2	2	KITCHE	N HOOD EXHAUST	ALL	SS1	-2"	С		
0		4 = 1				DOMESTIC	WATER HEATER INTAKE	ALL	P1	-2"	A		
		1.5"	1		[DOMESTIC	WATER HEATER FLUE	ALL	P1	+4"	A		
			Ζ	EXPOSED		GAS FIRED	UNIT HEATER INTAKE	ALL	G1	-2"	А		
	JUIDOON AIN SUFFLI	INTEGRAL W/ DOCT	4			GAS FIRE	D UNIT HEATER FLUE	ALL	D1	+4"	A		
	RETURN AIR DUCT	-	-	CONCEALED		RADIAN		ALL	G1	-2"	A		
	RETURN AIR DUCT	-	-	EXPOSED		RADIA		ALL	D1	+4"	A	2	
RETURN AIR DUCT		1.5"	1	IN ATTIC			STIC DRYER VENT	ALL	A1 \$\$1	+/-2	A		
	RETURN AIR DUCT	1"	3 FC-1, FC-3, FC-4, FC-5						551	12	^		
RELIEF AIR DUCT & PLENUMS -		- ALL		— [•]	ТҮРЕ	MATERIAL	DESCRIPTION						
						22 GA. MIN., SPIRAL ALUMINUM.							
	AUST AIR DUCT & PLENUMS					Δ1		JOINTS FASTENED BY SCREWS/RIVETS - SCREWS SHALL NOT PROTUDE					
TTPE	DASIS OF DESIGN	APPROVED EQUALS		DESCRIPTION		AI	ALOWINOW	FURTHUR THAN 1/8" INTO AIR STREAM - OMC 504.8.2. SUPPORT AT 4' INTERNVALLS					
			MATERIAL FI K = 0.30 \bigcirc 75	BERGLASS DUCT WRAP ON DUCT									
		KNAUF	DENSITY - 0.75 PCF JACKET - FOIL REINFORCED JOINTS - OVERLAPPING STAPLE ALL JOINTS AT 6" CENTERS. FASTENERS - MECHANICAL ON 24" & WIDER DUCT.					BLACK INNER FABRIC WITH GALVANIZED STEEL HELIX REINFORICING, $R = 6.0$ (MIN.) FIBERGLASS INSULATION, REINFORCED METALIZED VAPOR BARRIER, 0.05 PERM, JH, 181					
1	OWENS-CORNING SOFTR TYPE 75	JM CERTAIN TEED			.	C1							
								CLASS 1 DUCT, MEET N	NFPA 90A & 90B, 2	25/50 FLAME	SMOKE SPRE	٩D	
			TAPE - 3" WI	DE									
						C 2	CHLORINATED	REINFORCING, R = 4.2	EINFORCING, R = 4.2 (MIN.) FIBERGLASS INSULATION,				
			MATERIAL FI	BERGLASS BOARD ON DUCT		CZ	POLYETHYLENE	REINFORCED METALIZ	ED VAPOR BARRIE	R, 0.05 PERN	I, UL 181,		
			DENSITY - 3.	0 PCF				CLASS 1 DUCT, MEET N	NFPA 90A & 90B, 2	25/50 FLAME,	SMOKE SPREA	AD.	
2	OWENS-CORNING	KNAUF	JACKET - AS	J		54			01 225400				
L	TYPE 703	CERTAIN TEED	FASTENERS	- METAL PINS & CLIPS ON 12" CENTERS ADHESI	VE -	DI	DOUBLE WALL FLUE	REFER TO SPECIFICATIO	UN 235100.				
			NONE TAPE - 3" WII	DE		64							
			VAPOR PATO	CHED		G1	GALVANIZED STEEL	24 GA. MIN., HOT DIP	PED, GALVANIZED	BOTH SIDES,	G90 PER ASTN	VI A653.	
							(mm)	24 GA. MIN., HOT DIPF	PED, HEAT TREATE	D GALVANNE	ALED BOTH S	IDES PEI	
			MATERIAL FI K = 0.23 @ 75	BERGLASS DUCT LINER 5 DEG. F		G2	GALVANNEALED STEEL	ASTM A653, PAINT UN	IFORM GRAY MA	TTE APPEARA	NCE, A40 PER	ASTM	
		KNAUF	JACKET - NO	NE				A055.					
3	QUIET R ROTARY DUCT LINER	JM CERTAIN TEED	FASTENERS	- METAL PINS & CLIPS ON 12" CENTERS ADHESI'	VE -	P1	POLYPROPYLENE	SCHEDULE 40 POLYPRO	OPYLENE PIPE ANI	O FITTINGS PE	R UL 1738		
		JOHNS MANVILLE	COMPLIES W	/ITH ASTM C916									
			LEADING ED	GES - METAL NOSING				FACTORY BUILT SYSTE	M - SELKIRK MOD	EL G OR EQU	AL BY CAPTIVE	AIRE O	
								METALFAB TYPE 304 S	TAINLESS STEEL S	HEET - SINGLI	EWALL		
						\$\$1	STAINLESS STEEL	IOINTS & SEAMS: VEE	A. MIN ASTM A4 BANDS AND SEAL	480. ΔΝΤ			
						331	EXHAUST DUCT	FINISH: CONDITION A,	NO ADDITIONAL	FINISH.			
		PRO-R DUCT	HIGH EFFICIE R = 8.1	ENCY PRE-INSULATED OUTDOOR AIR DUCT				DUCT ACCESSORIES: C	LEANOUT AT BOT	TOM OF RISE	R TO FAN AND	90	
4	IHERMADUCT	TUFF DUCT	WEATHER P					CHANGE IN DIRECTION.					
			BUNDED ALL	JIVIINUIVI FUIL WITH ZERU PERMABILITY									
						T1	THERMADUCT	REFER TO INSULATION	SCHEDULE.				
o===													
<u> 01ES:</u>					_								

1. PROVIDE TWO LAYERS OF FIRE BARRIER WRAP ON ALL INTERIOR TYPE I KITCHEN HOOD GREASE DUCT. 2. DUCT SIZE INDICATED ON PLAN IS INTERIOR DIMENSION.

NULLS

1. DUCTWORK SYSTEMS ARE TO MATCH BASE MATERIALS FOR EXPOSED INSTALLATIONS. 2. FLUE REQUIRES 1" MINIMUM CLEARANCE TO COMBUSTABLES IN ATTIC. PROVIDE ATTIC INSULATION SHIELD AND INSTALL PER MANUFACTURER'S RECOMMENDATION.

PIPING SYSTEMS - HVAC

GENERAL NOTES:

QUALITY ASSURANCE

PIPING SHALL CONFORM TO OBC REQUIREMENTS.

PIPING SHALL COMPLY WITH ASME B31.9 "BUILDING SERVICES PIPING".

WELDING PROCEDURES & TESTING SHALL COMPLY WITH ANSI STANDARD B31.1.0. PRODUCTS

REINFORCED FORGED WELDING OUTLETS EQUAL TO BONNET WELDOLET AND THREADOLET MAY BE USED WHERE BRANCH IS TWO SIZES SMALLER THAN THE MAIN. DIELECTRIC CONNECTORS SHALL BE PROVIDED AT CONNECTIONS BETWEEN FERROUS

& COPPER PIPING. PIPING WITHIN 2'-0" OF SMALL HEATING/COOLING UNITS MAY BE TYPE "C3" PIPING. MECHANICALLY FORMED TEES AND COUPLING (T-DRILL) ARE NOT PERMITTED

MECHANICAL JOINT PIPING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURED RECOMMENDATIONS.

UNIONS: COPPER TUBING - WROUGHT OR CAST COPPER, CLASS 150, SOLDERED ENDS THREADED STEEL PIPE - MALLEABLE IRON W/GROUND SEAT, 300 LB SCREWED ENDS FLANGES:

COPPER TUBING - CLASS 150 CAST COPPER ALLOY, SOLDERED

STEEL PIPE - CLASS 150 SLIP-ON OR WELD NECK GASKETS - 1/16" THICK FULL FACE COMPRESSED SHEET GASKET SUITABLE FOR PRESSURE AND TEMPERATURE RANGES OF THE APPLICATION

BULB WELLS FOR TEMPERATURE SENSING SPECIFIED IN THE CONTROLS AND INSTRUMENTATION SECTION SHALL BE FURNISHED BY THE CONTROL SUBCONTRACTOR AND INSTALLED BY THE PIPING CONTRACTOR. OTHER TYPES OF CONTROL DEVICES (DIFFERENTIAL PRESSURE SWITCHES, FLOW METERS, ETC.) SHALL ALSO BE INSTALLED BY THE PIPING CONTRACTOR. DEVICES, FITTINGS (TEES, WELDOLETS, THREADOLETS), LOCATIONS AND INSTALLATION DETAILS SHALL BE CLOSELY COORDINATED WITH THE CONTROLS SUBCONTRACTOR AND DEVICE MANUFACTURER'S INSTRUCTIONS.

AUTOMATIC CONTROL VALVES SHALL BE FURNISHED BY THE CONTROLS SUBCONTRACTOR FOR INSTALLATION BY THE HVAC PIPING CONTRACTOR. FLARE FITTINGS FOR FLARE END VALVES SHALL BE PROVIDED BY THE HVAC PIPING CONTRACTOR.

EXECUTION

PIPE AND TUBING SHALL BE CUT AND FABRICATED TO FIELD MEASUREMENTS AND RUN PARALLEL TO NORMAL BUILDING LINES. PIPE INTERIOR SHALL BE CLEANED OF FOREIGN MATTER AND BURRS BEFORE ERECTION OF PIPE.

SUPPORT PIPING FROM BUILDING STRUCTURE WITH RODS, ANGLES & CLAMPS ATTACHED TO STRUCTURE. HANG PIPING WITH CLEVIS HANGER OR ROLLER SUPPORTS. HANGERS SHALL BE INSTALLED ON CENTERS AS RECOMMENDED BY MANUFACTURER. PIPING SHALL BE PITCHED FOR DRAINAGE. THE LOW POINTS SHALL BE FITTED WITH A 3/4" BALL DRAIN VALVE WITH HOSE THREAD ADAPTOR.

PROVIDE PIPING SLEEVES AT FLOORS, WALLS & ROOFS IN NEW CONSTRUCTION. EXISTING WALL TO BE SAW CUT TO PASS NEW PIPING.

PIPING SHALL NOT BE RUN ABOVE ELECTRICAL SWITCHGEAR OR PANELBOARDS, NOR ABOVE THE ACCESS SPACE OF SUCH EQUIPMENT - NEC ARTICLE 384. ANNULAR SPACE AROUND PIPING THRU ALL WALLS SHALL BE SEALED OFF WITH

PERMANENT PLIABLE CAULKING OR APPROVED PATCHING SEALANT.

CLOSE OPEN ENDS OF PIPING DURING CONSTRUCTION. CLEAN INTERIOR PIPING AFTER INSTALLATION BY FLUSHING WITH CLEAN POTABLE WATER TO CLEAR ALL INTERNAL DEBRIS.

TESTING

PIPING SHALL BE AIR TESTED AT 50% HIGHER THAN MAXIMUM SYSTEM OPERATING PRESSURE FOR EIGHT (8) HOURS BEFORE FLUSHING

PLASTIC SNAP-ON PIPE MARKERS SHALL BE INSTALLED ON PIPING INDICATING SERVICE

		PIPING SYSTEM		TYPE			
	C	OIL CONDENSATE DRAINAGE	C3				
	R	REFRIGERANT PIPING - TUBE	C1				
	Ч	REFRIGERANT PIPING - COIL		$\left(\begin{array}{c} C2 \end{array} \right) 3$			
	TYPE	DESCRIPTION	TYPE	DESCRIPTION			
3	C1 / C2	BRAZED COPPER REFER TO SPECIFICATION FOR INFORMATION	C3	SOLDERED COPPER TYPE "DWV" HARD COPPER ASTM B88 CAST DWV COPPER FITTINGS 95-5 SOLDER			

TYPE F1

EXECUTION

PRODUCTS

E1

E2

IDENTIFICATION & MARKING

	AND DIR	ECTION OF FLOW.	INSTALL	ED ON PIPING INDICATING SERVICE
		PIPING SYSTEM		ТҮРЕ
	C	OIL CONDENSATE DRAINAGE		C3
	R	EFRIGERANT PIPING - TUBE		C1
	F	REFRIGERANT PIPING - COIL		$\left(\begin{array}{c} c_2 \end{array} \right) \xrightarrow{3}$
	TYPE	DESCRIPTION	TYPE	DESCRIPTION
3 {	C1/C2	BRAZED COPPER REFER TO SPECIFICATION FOR INFORMATION	C3	SOLDERED COPPER TYPE "DWV" HARD COPPER ASTM B88

COMM. NUMBER DATE

01/21/25

3 ADDENDUM 3

2207.02 11/13/24 DRAWN BY CHECKED BY DJZ JDZ

H0.3

PIPING MATERIAL SCHEDULES

AIR DEVICE SCHEDULE

GENERAL NOTES

AIR DEVICES BASED ON PRICE. EQUAL BY: REFER TO SPECIFICATION.

MAXIMUM SOUND LEVEL AT NC-25 AT INDICATED AIR FLOW.

BALANCING DAMPER GENERALLY PROVIDED IN DUCT, NOT AT DEVICE.

STANDARD WHITE BAKED ACRYLIC FINISH UNLESS NOTED OTHERWISE. PC-12 FINISH SHALL HAVE COLOR SELECTED BY ARCHITECT, FINAL PAINTING BY THE G.C. DIFFUSERS SHALL BE 4-WAY THROW UNLESS OTHERWISE NOTED OR INDICATED ON DRAWINGS. VERIFY CEILING TYPE AND PROVIDE APPROPRIATE MOUNTING FRAME WHERE REQUIRED.

TAG	DESCRIPTION	MODEL NO.	MATERIAL	ACCESSORIES	NOTES
S1 & S1A	2'X2' SQUARE PLAQUE DIFFUSER ROUND DUCT CONNECTION	SPD (ASPD)	STEEL (A) = ALUMINUM	INSULATED BACKPAN (STYLE 31)	
S2 & S2A	12"X12"SQUARE PLAQUE DIFFUSER ROUND DUCT CONNECTION	SPD (ASPD)	STEEL (A) = ALUMINUM	INSULATED BACKPAN (STYLE 31)	1
S3	12"X12"SQUARE PLAQUE DIFFUSER ROUND DUCT CONNECTION SURFACE MOUNTED	SPD	STEEL	SURFACE MOUNT FRAME INSULATED BACKPAN (STYLE 31)	1
S4	SPIRAL DUCT GRILLE DOUBLE DEFLECTION BLADES	SDGE	STEEL	BALANCING DAMPER AIR SCOUP	
R1	RETURN GRILLE DEVICE SIZE - 24" X 24" 45° HORIZONTAL BLADES 1/2" SPACING BLADES PARALLEL TO LONG DIMENSION	635	ALUMINUM	RETURN AIR CANOPY (RAC)	
R2	RETURN GRILLE DEVICE SIZE - 24" X 12" 45° HORIZONTAL BLADES 1/2" SPACING	635	ALUMINUM	RETURN AIR CANOPY (RAC)	
R3	RETURN GRILLE DEVICE SIZE - 12" X 12" 45° HORIZONTAL BLADES 1/2" SPACING	635	ALUMINUM	RETURN AIR CANOPY (RAC)	1
R4	RETURN GRILLE DEVICE SIZE - 24" X 12" 45° HORIZONTAL BLADES 1/2" SPACING	635	ALUMINUM	RETURN AIR CANOPY (RAC) SURFACE MOUNT FRAME	
E1	EXHAUST GRILLE DEVICE SIZE - 24" X 24" 45° HORIZONTAL BLADES 1/2" SPACING BLADES PARALLEL TO LONG DIMENSION	635	ALUMINUM		
E2	EXHAUST GRILLE DEVICE SIZE - 24" X 12" 45° HORIZONTAL BLADES 1/2" SPACING	635	ALUMINUM		
E3	EXHAUST GRILLE DEVICE SIZE - 12" X 12" 45° HORIZONTAL BLADES 1/2" SPACING	635	ALUMINUM		1
E4	EXHAUST GRILLE DEVICE SIZE - REFER TO DRAWING 45° HORIZONTAL BLADES 1/2" SPACING BLADES PARALLEL TO LONG DIMENSION	635	ALUMINUM	SURFACE MOUNT FRAME PC-12 BALANCING DAMPER	2
E5	EXHAUST GRILLE DEVICE SIZE - 12" X 12" 45° HORIZONTAL BLADES 1/2" SPACING	635	ALUMINUM	SURFACE MOUNT FRAME	

NOTES:

1. DEVICE TO BE SURFACE MOUNTED IN CENTER OF ACOUSTIC CEILING PAD FOR LAY-IN APPLICATION.

2. DEVICE SURFACE MOUNTED TO END OF DUCTWORK.

							2400	ELE/		IVE	MOUNT				400	ESSODIE		ONE	CONTRO		(j		0m 0m
FAN BASIS OF	& ROOF VENIL DESIGN - GREENHECK		<u> </u>				3400	ELE		PE	MOUNT		APPL		ACC	ESSORIE	ES & OPTI	ONS	CONTRO		Z	,	.92-69 inc.co inc.co
<efer tc<br="">√FD DRIV</efer>	EN MOTORS SHALL BE PROVID	MANUFACTURERS ED WITH SHAFT GROUNDING RING	S, VFD DUTY MOTORS.					Z					۲ <mark> </mark>	0 °F)				I	ER H		S II	5	937) 4 eytag eytag
REFER TC	INSTALLATION DETAILS.							TH FAI			INE		RATED ONTR(VE 20	ATION	ROL	N URB	R FINISH	SWITC	IPER R	μÜ	Ë, Ë	() www.fre fo@fre
	1							CT WI CT BY		8	D, INL		EASE I DKE C	N PRO	N HOL	CONTI 00F C	DOF CI ENSIO	ERIOF			A H	Ż	≥ .⊆
TAG	SERVICE	DESCRIPTION	MODEL NUMBER & SIZE		CAP		ELECTRICAL		L L	F CUR	E/FLO(62 GRE	OSIOI	ATION	RMAL (ED RC	VDER C XY INT CONN		ORIZE VITY D ES		D	
					AIRFLOW (CFM)	E.S.P. (IN. W.C.)	MOTOR HP V/PH	DISC	VFD ECM DIRE	BELT ROO	BASE	NAL CEIL	UL 26 UL 26	HIGH	VIBR	SLOF	HING CURI	POW EPO)	MAN DIAL	MOT GRA NOTE	SC	Z	
EF-1	APPARATUS BAY		SQ-18-M2-VG	-	5,875	1	3 208/3	•	••		•				•					• 1, 5	AS		
EF-2 EF-3	STORM SHELTER	INLINE CENTRIFUGAL	SQ-90-VG SQ-97-VG	-	100	0.25	1/4 120 / 1	•			•				•					• • 1	a l	$\frac{n}{2}$	
EF-4	TOG	INLINE CENTRIFUGAL	SQ-90-VG	12.5" x 12.5"	300	0.5	1/6 120 / 1	•	• •		•				•							\int	
EF-5	LIVING QUARTERS	INLINE CENTRIFUGAL	SQ-99-VG	12.5" x 12.5"	525	0.75	1/4 120 / 1	•	• •		•				•						AC I	Ę	
EF-6			CUE-080-VG	12.5" x 12.5"	225	0.5	1/10 120 / 1	•	••							•					ז אַ 4	Ľ)	
IF-1	GEAR DRYER INTAKE	INLINE CENTRIFUGAL	SQ-95-VG	-	600	0.5	1/2 120 / 1 1/6 120 / 1	•		•	•				•					• • 1,4 • • 1	RE	140	/E. 5365
IH-1	SCBA	ROOF HOOD	CRSI-8	10.5" x 10.5"	250	-				•						•				• 2, 3, 4		4	MI AV 20 110 45
NOTES:																	<u> </u>						NIA OX 2: 2, OH
1. REFER	TO HOA CONTROLLER DETAILS	1 & 2, H3.5 FOR INSTALLATION INF	ORMATION.																				226 n P.O. B SIDNE
4. FAN CU	RB COLOR SELECTED BY ARCH	ITECT.																					65
5 FAN SIZ	ED FOR FUTURE EXPANSION.	`	RADIA		FR SC		- GAS																453
m	·······	3	GENERAL NO	DTES																			OHIO
			E	ASIS OF DESIGN: RE QUAL BY: REFER TO	-VERBER-RA	AY TION															<u> </u>		o ,≺
Г				MODEL #	s	SERVICE	MOUNTING	мо	DULATING RA	NGE	AMPS	s	VOL	T/PH	DIMEN	NSIONS	WEIC	SHT N	IOUNTING HEIGHT	NOTES		! >	- NO
-													100		0.51	L	(20	-	401.01	4.0.0		/ Ц - フ	ັ ເ
	HOOD BY GREENHECK GRRS FEATURES:	-W-36-T-G-O-N OR EQUAL BY DEN	LAR.	MP3-25-80		ARATUS BAY			65 - 80		5		120) / 1	25	- 5"	14	5	16'-6"	1, 2, 3			<u>ī</u>
	 500 CFM EXHAUS EXHAUST FAN PO EXHAUST COLLAR 	T RATE. WERED THROUGH HOOD.	RH-2	MP3-25-80	APPA	ARATUS BAY	CEILING SUSPENDED		65 - 80		5		120) / 1	25'	' - 5"	14	5	16'-6"	1, 3)
	 TOUCHSCREEN U RECESSED LED L 	SER INTERFACE	RH-3	MP3-50-150	APPA	ARATUS BAY	CEILING SUSPENDED	1	110 - 150		5		120) / 1	50'	' - 9"	23	5	16'-6"	1, 3	STI T A	: Ц С	5
	 3/4" GAS SOLENO RANGE GAS SHU REMOTE MANUAL 	ID VALVE FOFF PULL STATION	RH-4	MP3-50-150	APPA	ARATUS BAY	CEILING SUSPENDED		110 - 150		5		120) / 1	50'	' - 9"	23	5	16'-6"	1, 3			-
	 INTEGRATED FIRE INTEGRATED SYS 	E SUPPRESSION SYSTEM TEM CONTROLS (INTERLOCK WITI	NOTES:) WITH MICROPROCE		D THERMOSTA	T. MODEL #TH-PC-M.														U U U	ļÉ	
	BAS) • FIRE PIPING, GRE • DRY CONTACTS F	ASE FILTER	2. PROVIDE	SIDE SHIELD TO PRO	JECT HEAT	AWAY FROM W	ALL.) 02
	HOOD TO INCLUDE TEMPERA	TURE SENSOR WHICH WILL	OL.																		Z –		EL L
	AUTOMATICALLY START EF-7 TEMPERATURE EXCEEDS 125	(REMOTE KITCHEN EF) WHEN ° (ADJ)																					MPB
	HOOD POWERS EXHAUST FA 120V/1PH/8MCA/15MOCP	Ν.																					CAL
	REFER TO DETAIL 3, SHEET H	13.4 FOR INSTALLATION DIAGRAM.	GAS F		L HEA.	TER SCI	HEDULE																2324
L			<u>GENERAL N</u>	I <u>OTES</u> BASIS OF DESIGN: N	MODINE																		
			UNIT NO.	MODEL #	¥	M	IOUNTING		MBH)		CFM		AMPS	VOLT/	РН	DIN	MENSIONS	3	WEIGHT	NOTES			822
								INPU							L (IN.)	D (IN.)	H (IN.)				×	ノ シE #63 2025
			GUH-1	PTC-215		CEILIN	IG SUSPENDED	21	5 / 202		3,865		9.15	120 /	1 42	2.5	22	31	265	1, 2, 3	d	- ··· · · · · · · · · · · · · · · · · ·	ICENS
			NOTES: 1. CONDEN	SATE NEUTRALIZING	KIT.																0 <i>F</i>	LINSK 3822 1STER ^E	NAL EV ISKI, L
			2. STANDAF 3. STAINLES	RD CONVENIENCE PA	ACKAGE WIT HANGER.	H DISCONNECT	T SWITCH, CONDENSATE PU	UMP, AND	DOW VOLTAG	GE THER	MOSTAT	CONTA	ACTS.								Let		
																					15.	×	RY D.
					HEAI	ER SCH	EDULE															177	
				BASIS OF DESIGN: F	RAYWALL																		
			UNIT NO.	DESCRIPTI	ON	MANUFA	CTURER / MODEL	МО	UNTING		ĸw	MB	вн 🛛 🖌	AIR FLOW (CFM)	v			6 H (IN)	VOLTAGE PHASE	[/] NOTES			
				MIDSIZED FAN FOR	CED WALL	RAVIALL 205	SERIES #E305572DWP	\\\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	RECEQUE		15	F		100		···· <i>)</i>	3_5/9"	10 1/0"	120 / 4	2.2			
						DAT WALL 305		VVALL			G.1	5		100	9-1	n/4	J-J/δ	ı∠-1/8″	120/1	2, 3			
			EUH-2	FORCED UNIT H	IEATER	RAYWALL 510	UU SERIES #F2F5105N	WAL	LL HUNG		5	17.	.1	400	14-1	5/32"	6-1/2"	17-3/4"	208 / 3	1, 2, 3	These derive	items dest i	herein
			EUH-3	FAN FORCED WAL	L HEATER	RAYWAL	L AFA # AFA840D	WALL I	RECESSED		4	13.	.6	175	14-	1/8"	4"	19-1/2"	208 / 3	2, 3	These designs and all whether in writing or guinstruments of profess be altered or changed	ems depicted h aphically, as onal service, m in any way wit	ierein, ay not
			NOTES: 1. WALL MC	OUTING BRACKET #AS	5105.																the prior knowledge, and the Architect. Any char Architect's written appr	d written conse nge made with oval will void al	out ont of out the l such
			2. DISCONN 3. INTEGRA	ECT SWITCH WITH U L THERMOSTAT.	JNIT.																documents and instruments and th personally liable for any loss caused thereby	e Architect will / damage, harm	not be 1 or
			FIEC		r REHI																		
				IOTES																	3 ADDENDUM 3	טאוועטיס , _	01/21/25
				BASIS OF DESIGN: F	RAYWALL																		
			UNIT NO.	DESCRIPTIO	ON	MANUFAC			DUCT	EAT (°F)	LAT (°F)	ĸw	AIR FLO		PH			5	WEIGHT	NOTES	COMM. NUMB	ER DATE	
										、 · /					L (IN.)	ט (IN.)	H (IN.)			2207.02		11/13/24
			DH-1	DUCT MOUNTED	HEATER	RAYWALL	. # 8PD10-1810-1-3	18"	10"	0	50	15	600	208 /	3 11-	1/2"	9-1/8"	11"	27	1, 2	DRAWN BY	CHEC	KED BY
			NOTES: 1. INTEGRA	L DISCONNECT SWIT	TCH.			_		_		_		_		_				_			LES
			2. UNIT MOI	JNTED THERMOSTAT	T AND DUCT	PROBE.																	
																-		-	-,		_		
																		1AN & 2		KI LLC.	F	10.4	

				3400		ELI	ECTR		DRIVE TYPE		MOU	NTING		APF	PLICAT	ION	A	CCES	SOR	ES &	ΟΡΤΙ	ONS		(CONTI	ROLS				Ū		2-6983	c.com
TORS.						T WITH FAN	T BY E.C.), INLINE		\SE RATED	KE CONTROL ABOVE 200 °F)	PROOF	SOLATION	HOUSING	ON I KUL DF CURB	JF CURB	NOISI	AT FINISH		OFF SWITCH	CONTROLLER	OLLER	DAMPER	MPER		IATES IN	VEERS	(937) 492	www.freytagin info@freytagin
IBER & SIZE	ROOF OPENING (L x W)	CAP AIRFLOW (CFM)	ACITY E.S.P. (IN. W.C.)	ELECTRICAL MOTOR HP	//PH		DISCONNECT FD	CM	DIRECT SELT	ROOF CURB	ASE/FLOOF	SUSPENDED VALL	SEILING	JL 762 GREA	JL 864 SMOK HIGH TEMP (,	EXPLOSION I	/IBRATION IS	NSULATION	HERMAL CC	HINGED ROO	URB EXTEN	OWDER CO			IAL SPEED	IOA CONTRO	AOTORIZED			000	NGIN		
M2-VG	-	5,875	1	3 2	08 / 3	•		•	•				0			ш	•		_ 0	–	0							1, 5		SSA	Ξ		
0-VG	-	400	0.25	1/10 1	20 / 1	•		•	•			•					•										•	1		X Y	TS		
)-VG	12.5" x 12.5"	300	0.5	1/6 1	20 / 1	•		•	•			•					•										•	<u> </u>	2/3	۵۵ ۱۸	\odot		
9-VG	12.5" x 12.5"	525	0.75	1/4 1	20 / 1	•		•	•			•					•									•	•	1		A	Ë		
80-VG	12.5" x 12.5"	225	0.5	1/10 1	20 / 1	•		•	•	•																	•	1,4	2	Y	Ц С		
5-VG	-	600	0.5	1/2 1	20 / 1	•		•	•		· · · · ·	•					•										•	1, 4		2	RC	Æ.	5365
ji-8 	10.5" x 10.5"	250	-	-	-					•																	•	2, 3, 4				226 N. MIAMI P	P.O. BOX 220 SIDNEY, OHIO 4
RADIA GENERAL NC BJ	NT HEATE	VERBER-RA	HEDULE	E - GAS																													۲, OHIO 45365
UNIT NO.	IO.MODEL #SERVICEMOUNTINGMODULATING RANGE (MBH)AMPS $VOLT/PH$ DIMENSIONS $WEIGHT$ (LBS)MOUNTING HEIGHTMOUNTING HEIGHTMOUNTING1MP3-25-80APPARATUS BAYCEILING SUSPENDED $65-80$ 5 $120/1$ $25'-5''$ 145 $16'-6''$ $16'-6''$ 2MP3-25-80APPARATUS BAYCEILING SUSPENDED $65-80$ 5 $120/1$ $25'-5''$ 145 $16'-6''$ $16'-6''$ 3MP3-50-150APPARATUS BAYCEILING SUSPENDED $110-150$ 5 $120/1$ $50'-9''$ 235 $16'-6''$															NOT	ES			S S	≻	SIDNE											
RH-1	MODEL # SERVICE MOUNTING MOUNTING MOUNTING AMPS VOLT/PH Image: Constraints of the constraint of the constraints of the constraint of the constraints of the constraint of the constra																1, 2	, 3			Ž	N											
RH-2	MP3-25-80	APPA	RATUS BAY	CEILING SUSP	ENDED			65 - 80)		:	5		1	20 / 1			25' - {	5"		14	5		16'-	6"		1,	3			Ĕ	SIC	
RH-3	MP3-50-150	APPA	RATUS BAY	CEILING SUSP	ENDED			10 - 15	50			5		1	20 / 1			50' - 9	9"		23	5		16'-	·6"		1,	3			4	С,	
RH-4	MP3-50-150	APPA	RATUS BAY	CEILING SUSP	ENDED			10 - 15	50			5		1	20 / 1			50' - 9	9"		23	5		16'-	·6"		1,	3			S	Õ	
GAS F	ED WITH MICROPROCESSOR BASED THERMOSTAT, MODEL #TH-PC-M. ESIDE SHIELD TO PROJECT HEAT AWAY FROM WALL. FIRED UNIT HEATER SCHEDULE NOTES BASIS OF DESIGN: MODINE MODEL # MOUNTING (MBH) INPUT/OUTPUT CFM AMPS VOLT/PH L (N) D (M) H (N) VEIGHT NK																					2324 CAMPBE											
UNIT NO.	INOTES MODEL # DIMENSIONS MOUNTING (MBH) INPUT/OUTPUT CFM AMPS VOLT/PH L (IN.) DIMENSIONS WEIGHT															NO	TES					3822											
GUH-1	PTC-215		CEILING	G SUSPENDED		2	215 / 2	02			3,80	65		9.15	5 1	120 / 1		L (IN 42.5	.) 5	D (II 22	N.)	Н (З	IN.) 81		265		1, 2	2, 3	Ĥ	, 10 11.	*		CENSE #63 2/31/2025
NOTES: 1. CONDENS 2. STANDAR 3. STAINLES	SATE NEUTRALIZING 2D CONVENIENCE PAG 3S STEEL HEAT EXCH	KIT. CKAGE WIT IANGER.			SATE PUM	1P, AN	ND LO'	N VOL	TAGE ⁻	THEF	RMOSTA	AT CON	NTAC	TS.															C OF		→ JEFFREY D → ZELINSKI • 63822	Profession Profession	RY D. ZELINSKI, LIC XPIRATION DATE 1
	OTES	HEAI		EDULE																										4		<i>S</i>	JEFFE E
	BASIS OF DESIGN: R	AYWALL																		MENS	IONS												
UNIT NO.	DESCRIPTIC	N	MANUFAC	CTURER / MODEL		M	OUNT	ING			KW		MBH		AIR F (CF	LOW M)		L (IN.	.)	D (II	N.)	Н (IN.)	_ VO _ F	ltag Phase	E/ E	NO	TES					
EUH-1	MIDSIZED FAN FORG HEATER	CED WALL	RAYWALL 305	SERIES #E3055T2D	VВ	WALL	L REC	ESSED)		1.5		5		10	0		9-1/4		3-5/	8"	12-	1/8"		120 / 1		2	, 3					
EUH-2	VERTICAL MOUNT FORCED UNIT HI	ED FAN EATER	RAYWALL 510	00 SERIES #F2F5105	N	WA	ALL H	JNG			5		17.1		40	0	1	4-15/3	32"	6-1/	2"	17-	3/4"		208 / 3		1, 2	2, 3					
EUH-3	FAN FORCED WALL	HEATER	RAYWALI	L AFA # AFA840D		WALL	L REC	ESSED)		4		13.6		17	5		14-1/8	3"	4"		19-	1/2"		208 / 3		2	, 3	These of whether	lesigns ar in writing	d all items d or graphica	epicted herei ly, as	n,
NOTES: 1. WALL MO 2. DISCONNI 3. INTEGRAL	UTING BRACKET #A5 ECT SWITCH WITH UI L THERMOSTAT.	105. NIT.																											instrum be alter the prio the Arc Architer docume and ins persona loss car	ents of pro ed or char r knowled hitect. An ct's writter ents rruments a ally liable fr used there	ofessional se ged, in any ge, and writt y change ma approval w approval w and the Arch or any dama by.	rvice, may no way, without en consent of ade without th Il void all sucl itect will not b ge, harm or	e n n
ELEC	TRIC DUCT	REHE	EAT COI	L SCHED	JLE																								RE F 3 A	VISION LAN APP DDENDU	IS ROVAL / BIE M 3	DING	01/21/25
GENERAL N	OTES BASIS OF DESIGN: R	AYWALL																															
UNIT NO.	BASIS OF DESIGN: RAYWALL BASIS OF DESIGN: RAYWALL DUCT DUCT EAT LAT KW AIR FLOW VOLT / PH L(IN.) D (IN.) H (IN.) WEIGHT NOTES NOTES <th< td=""><td>СОМ</td><td>M. NU</td><td>MBER</td><td>DATE</td><td>8/24</td></th<>													СОМ	M. NU	MBER	DATE	8/24															
DH-1	DUCT MOUNTED H	IEATER	RAYWALL	# 8PD10-1810-1-3	18	8"		10"	0		50	15	5	600		208 / 3		11-1/2	2"	9-1/	8"	1	1"		27		1	, 2	DRA	WN B	Y	CHECKE	"24 D BY
NOTES: 1. INTEGRAL 2. UNIT MOU	L DISCONNECT SWIT	CH. AND DUCT	PROBE.		<u> </u>				1	I			1				I		1							I				EQ	JIPMENT S	JD	۷

				3400		ELE	CTRIC		DRIVE TYPE	,	MOU	INTIN	IG	AP	PLIC	ATION			SSOF	RIES 8		IONS			CONT	ROL	S			<u>Ú</u>		2-6983	c.com
ORS.					T WITH FAN	T BY E.C.					œ), INLINE		ASE RATED	KE CONTROL	(ABOVE 200 °F) PROOF	SOLATION	I HOUSING		OF CURB	NSION	DAT FINISH	RIOR FINISH		CONTROLLER	COLLER	DAMPER	MPER		IATES IN	VEERS	(937) 492	www.treytagina info@freytagina
3ER & SIZE	ROOF OPENING (L x W)	CAPA AIRFLOW (CFM)	ACITY E.S.P. (IN. W.C.)	ELECTRICAL MOTOR HP	DISCONNEC	DISCONNEC	VFD	ECM	DIRECT	ROOF CURE	BASE/FLOO	SUSPENDE	MALL CEILING	UL 762 GRE	UL 864 SMO	HIGH TEMP EXPLOSION	VIBRATION	INSULATION		HINGED RO	CURB EXTE	POWDER CO	EPOXY INTE		DIAL SPEED	HOA CONTR	MOTORIZED	GRAVITY DA		SOC	NGII		
12-VG -VG	-	5,875 400	1 0.25	3 24 1/10 12	08 / 3 • 20 / 1 •	, ,		•	 - -			•			_		•									•	•	1, 5		AS	ш С		
-VG	-	100	0.5	1/4 12	20 / 1	•		•	•		,	•					•									•	•	1		∞	Ë		
-VG	12.5" x 12.5"	300 525	0.5	1/6 1:	20 / 1							•					•									•	•		3	Q	Ш		
0-VG	12.5" x 12.5"	225	0.5	1/10 1:	20 / 1)		•	•	•		•														•	•	1,4	B _R	Ā	Ē		
HP-VG	15.5" x 15.5"	500	1.5	1/2 1:	20 / 1	,		•	•	•																	•	1, 4		Ш,	\mathcal{Q}		5
-VG I-8	- 10.5" x 10.5"	600 250	0.5	1/6 1: -	20 / 1			•	•	•		•					•									•	•	1 2, 3, 4			AF	AIAMI AVE.	220 DHIO 4536
RADIA General NC B/	NT HEATE	-VERBER-RA		E - GAS																												226	, OHIO 45365
	MODEL #	SI	ERVICE	MOUNTIN	G	МО	DULA ⁻ (N	ГING /IBH)	RANGI	E	AN	MPS		V	OLT/	'PH	DI		SIONS	5	WEI (LE	GHT 3S)		MOUI HEI	NTING GHT	i	NO	TES			2	≻	IDNEY
RH-1	MP3-25-80	APPAI	RATUS BAY	CEILING SUSP	ENDED		65	5 - 80				5			120 /	1		25' -	5"		14	45		16	6"		1, 2	2, 3		1	NON CONC	DNE	S
RH-2	MP3-25-80	APPAI	RATUS BAY	CEILING SUSP	ENDED		65	5 - 80				5			120 /	1		25' -	5"		14	45		16	6"		1,	3	RUG 1			II S	
RH-3	MP3-50-150		RATUS BAY				11() - 150) 			5			120 /	1		50' -	9"		23	35		16	6" 6"		1,	3	NST		ST/	О	
	MP3-50-150		RATUS BAY		ENDED		110) - 150	J			5		-	120/	1		50' -	9"		23	35		16	5-6"		1,	3	١Ō		Ш	\geq	
GAS F	TIRED UNIT	THEAT	TER SC	HEDULE																													2324 CAMPBELL
UNIT NO.	BASIS OF DESIGN: M MODEL #			MOUNTING		(MBH)	літ			CF	M		AMI	PS	VOLT/F	эн —		C	DIMEN	ISION	S		,	WEIGI	-TT	NC	DTES					3822
GUH-1	PTC-215		CEILI	NG SUSPENDED		21	5 / 202				3,8	65		9.1	5	120 /	1	L (IN 42.	1.) 5	D (IN.) 22	н	(IN.) 31		265		1,	2, 3	I A	70. H.	*		ENSE #6: 2/31/2025
NOTES: 1. CONDENS 2. STANDAR 3. STAINLES	ATE NEUTRALIZING D CONVENIENCE PA S STEEL HEAT EXCH	KIT. CKAGE WITH IANGER.		CT SWITCH, CONDENS	GATE PUMP,	, AND	DLOW	VOLT	AGE T	HERN	IOST	AT C	ONTA	CTS.		1														8. 8	★ JEFFREY D. ★ ZELINSKI 63822	200 PECISTERED	RY D. ZELINSKI, LIC XPIRATION DATE 1
GENERAL NO	DTES	HEAII	ER SCH	1EDULE																													JEFF H
	BASIS OF DESIGN: R	AYWALL																				<u>د</u>											
UNIT NO.	DESCRIPTIC	NO	MANUF	ACTURER / MODEL		MO	UNTIN	G		ł	W		MB	н	All	R FLOW (CFM)		L (IN	l.)	D (IN.)	U Н	(IN.)		OLTA PHAS	GE /	NC	DTES					
EUH-1	MIDSIZED FAN FOR HEATER	CED WALL	RAYWALL 30	5 SERIES #E3055T2DV	VB W	ALL F	RECES	SED			1.5		5			100		9-1/4	4"	3-{	5/8"	12	2-1/8"		120 /	1	2	2, 3					
EUH-2	VERTICAL MOUN FORCED UNIT H	TED FAN IEATER	RAYWALL 5	100 SERIES #F2F5105	N	WAL	LL HUN	IG			5		17.	1		400		14-15/	/32"	6-	1/2"	17	7-3/4"		208 /	3	1,	2, 3					
EUH-3	FAN FORCED WALI	L HEATER	RAYWA	LL AFA # AFA840D	W	ALL F	RECES	SED			4		13.	6		175		14-1/	/8"	2	1"	19	9-1/2"		208 /	3	2	2, 3	These d whether instrume	esigns and in writing ents of pro	l all items d or graphical fessional se	epicted hereir ly, as rvice, may no way, without	ı, t
NOTES: 1. WALL MOI 2. DISCONNE 3. INTEGRAL	JTING BRACKET #A5 ECT SWITCH WITH U . THERMOSTAT.	5105. NIT.																											the prior the Arch Architec docume and inst persona loss cau	knowledg itect. Any t's written nts uments au ly liable fo sed therek	e, and writte change ma approval wi nd the Arch r any damag y.	and on white an onsent of ade without the ll void all such itect will not b ge, harm or	e I
	TRIC DUCT	REHE	EAT CC	IL SCHEDU	JLE																								р В В В В В В В В В В В В В В В В В В В	LAN APPR	OVAL / BID 1 3	DING	01/21/25
GENERAL NO	BASIS OF DESIGN: R	AYWALL												1		1																	
UNIT NO.	DESCRIPTIC	ON	MANUF	ACTURER / MODEL	DUC ⁻ WIDT	T H	DUC HEIG	CT HT	EAT (°F)	•	LAT (°F)		ĸw	AIR FI (CF	LOW M)	VOLT /	PH	L (IN	C N.)	DIMEN D (ISION IN.)	IS Н	(IN.)		WEIGI (LBS	НТ))	NC	DTES	Сом	M. NUI	MBER	DATE	/24
DH-1		HEATER	RAYWAL	L # 8PD10-1810-1-3	18"		10		0		50		15	60	0	208/	3	11-1/	/2"	9-′	1/8"		11"		27			1, 2	DRA	WN BY	· · ·		D BY
NOTES: 1. INTEGRAL 2. UNIT MOU	DISCONNECT SWIT	CH. AND DUCT	PROBE.									_																		EQU	IPMENT S	CHEDULES	

				3400		EL	ECTR	C	DRIVE TYPE		MO	UNTIN	IG	APF	PLICA	ΓΙΟΝ	-	ACCE	SSOR	RIES 8		IONS			CON	ITRO	LS				U U		-6983	Com Com
TORS.						r with FAN	T BY E.C.				~	, INLINE		SE RATED	(E CONTROL	PROOF	SOLATION	DNISUOH		F CURB	NOISI	AT FINISH	RIOR FINISH	CTION	OFF SWITCH	JLLER	DAMPER	MPER			AIES IN	VEERS	(937) 492	www.freytaginc info@freytaginc
IBER & SIZE	ROOF OPENING (L x W)	CAP AIRFLOW (CEM)	ACITY E.S.P.	ELECTRICA MOTOR HP	L V/PH	ISCONNECT	ISCONNEC ⁻	CM	IRECT	OOF CURB	ASE/FLOOF	USPENDED	/ALL EILING	L 762 GREA	L 864 SMOK		IBRATION I	ISULATION		INGED ROC	URB EXTEN	OWDER CO	POXY INTEF	DC CONNE	IANUALON	OA CONTR	OTORIZED	RAVITY DA	OTES		0C	NGIN		
M2-VG	-	5,875	1	3	208 / 3	•		•	•			•	<u>s o</u>			<u>ш</u>	•	<u> </u>	<u> </u>			•	ш		2 (G	z 1, 5		SC	Ξ		
0-VG	-	400	0.25	1/10	120 / 1	•		•	•			•					•									•	•		1		X	TS		
0-VG	- 12.5" x 12.5"	300	0.5	1/4	120 / 1	•		•	•			•					•											5		3		\odot		
9-VG	12.5" x 12.5"	525	0.75	1/4	120 / 1	•		•	•			•					•											\				Ë		
80-VG	12.5" x 12.5"	225	0.5	1/10	120 / 1	•		•	•	•																•	•	{	1,4		\geq	六		
	15.5" x 15.5"	500	1.5	1/2	120 / 1	•		•	•	•																•	•		1, 4	İ	L L	2		365
SI-8	10.5" x 10.5"	250	-	-	-					•																	•		2, 3, 4	E		<	226 N. MIAMI AV	P.O. BOX 220 SIDNEY, OHIO 45
RADIA GENERAL NO BA EC	NT HEATE TES ASIS OF DESIGN: RE QUAL BY: REFER TO	-VERBER-R/ SPECIFICA	HEDULE AY TION	- GAS																										DF				EY, OHIO 45365
UNIT NO.	MODEL #	s	ERVICE	MOUNT	NG	N	NODUL	ATING (MBH)	RANG	ε	А	MPS		VC	OLT/PH	1	DI	MENS L	SIONS	5	WEI (LE	GHT BS)		MOU HE	JNTIN EIGHT	G	N	OTES	s			N S	Ъ	SIDNE
RH-1	MP3-25-80	APPA	RATUS BAY	CEILING SUS	PENDED			65 - 80)			5		1	20 / 1			25' -	5"		14	45		10	6'-6"		1	, 2, 3	3			Z	Z	
RH-2	MP3-25-80	APPA	RATUS BAY	CEILING SUS	PENDED			65 - 80)			5		1	20 / 1			25' -	5"		14	45		10	6'-6"			1, 3				Ĕ		
RH-3	MP3-50-150	APPA	RATUS BAY	CEILING SUS	PENDED		1	10 - 15	50			5		1	20 / 1			50' -	9"		23	35		10	6'-6"			1, 3		TR			U)	
								40 45	-0									501	0"									4.0		NN.			Ō	
GAS F	A DED WITH MICROPROCESSOR BASED THERMOSTAT, MODEL #TH-PC-M. JIDED SHIELD TO PROJECT HEAT AWAY FROM WALL. S FIRED UNIT HEATER SCHEDULE RAL NOTES BASIS OF DESIGN: MODINE NO. MODEL # MOUNTING (MBH) INPUT/OUTPUT CFM AMPS VOLT/PH L (N.) D (N.) H (N.) WEIGHT (N.)																						2324 CAMPBEL											
	S FIRED UNIT HEATER SCHEDULE RAL NOTES BASIS OF DESIGN: MODINE NO. MODEL # MOUNTING (MBH) INPUT/OUTPUT CFM AMPS DIMENSIONS WEIGHT																NOTE	=5					822											
GUH-1	PTC-215		CEILING	SUSPENDED			215 / 2	TPUT			3,8	865		9.1	5	120 / 1	1	L (IN 42.5	1.) 5	D (IN.) 2	н	1 (IN.) 31		26	5		1, 2,	3	H.	, <u>0</u> ,	*		∕ NSE #63: 31/2025
NOTES: 1. CONDENS 2. STANDARI 3. STAINLES: ELECT GENERAL NO	ATE NEUTRALIZING D CONVENIENCE PA S STEEL HEAT EXCH T RIC UNIT DTES	KIT. SCKAGE WIT HANGER. HEAT	H DISCONNECT	SWITCH, CONDER	ISATE PUN	/ip, at	ND LO	V VOL	TAGE 1	THER	RMOST	TAT CO	ONTAC	CTS.																TE OF O	10. 	★ JEFFREY D. ★ ZELINSKI 53822	POLY COLORERED	JEFFERY D. ZELINSKI, LICI FXPIRATION DATE 12
	BASIS OF DESIGN: R	AYWALL																				•					1							
UNIT NO.	DESCRIPTIO	ON	MANUFAC	TURER / MODEL		Μ	IOUNT	ING			KW		MBH	•	AIR I (C	FLOW FM)		L (IN	I.)		SION	S Н	I (IN.)	V	/olt/ Pha	AGE / SE	N	NOTE	S					
EUH-1	MIDSIZED FAN FOR	CED WALL	RAYWALL 305 S	SERIES #E3055T2F	WB	WAL	L REC	ESSED)		1.5		5		1	00		9-1/4	4"	3-5	, 5/8"	1:	2-1/8"		120	/ 1		2, 3	3					
FUH-2		TED FAN	RAYWALL 510	0 SERIES #E2E510	5N		و۔ بنا ۱۱۵				5		17 1	1	, л	00		14-15/	32"		/2"	1	7_3///"		208	/3		1 2	3					
	FORCED UNIT H					VV					ں ٭		17.1		4	75		,	رم الم	0-			0.4.10**		200	/ 0		·, ∠,		These de	signs and	all items d	epicted herei	n,
EUH-3 NOTES:	FAN FORCED WAL	LHEATER	RAYWALL	AFA # AFA840D		WAL	LREC	-SSED)		4		13.6		1	75		14-1/	8"		."	19	9-1/2"		208	/ 3		2, 3	5	whether instrume be altered the prior	n writing on the of profing of the of	or graphical essional se ged, in any v	ly, as rvice, may no way, without en consent of	ot
1. WALL MOU 2. DISCONNE 3. INTEGRAL	UTING BRACKET #A5 ECT SWITCH WITH U THERMOSTAT.	5105. INIT.	EAT COI	L SCHED	ULE																									the Architect Architect documer and instr personall loss caus	Any tect. Any tect. Any s written a ts uments ary liable for sed thereb	change ma approval wil and the Archi any damag y. S OVAL / BID	de without th I void all such tect will not b ge, harm or	ne n De
GENERAL NO	ILECTRIC DUCT REFEAT COIL SCHEDULE INERAL NOTES BASIS OF DESIGN: RAYWALL															3 AE	UUUNשים.			u 1/21/25														
UNIT NO.	DESCRIPTIC		MANUFAC	TURER / MODEL	DL	JCT			EA	Ţ			ĸw			OLT / I	PH		C	DIMEN	SION	S			WEIC	SHT	N	NOTE	ES		/ NILIA			
					WI	u ו H 			(°F)	(°F)		45	(CFN	vi)			L (IN	1.)	D (IN.)	H	l (IN.)		(LB	ວ) ,			-		2207.02			3/24
DH-1 NOTES:	DUCT MOUNTED	HEATER	RAYWALL	# 8PD10-1810-1-3	1	8"		10"	0		50		15	600	נ	208/3	3	11-1/	/2"	9-1	/8"		11"		27			1, 2	<u> </u>	DRA				זם ט. Z
1. INTEGRAL 2. UNIT MOU	DISCONNECT SWIT NTED THERMOSTAT	CH. AND DUCT	PROBE.																												EQU	IPMENT S	CHEDULES	

				3400		EL	ECTR	C	DRIVE TYPE		MO	UNTIN	IG	APF	PLICA	ΓΙΟΝ	-	ACCE	SSOR	RIES 8		IONS			CON	ITRO	LS				U U		-6983	Com Com
TORS.						r with FAN	T BY E.C.				~	, INLINE		SE RATED	(E CONTROL	PROOF	SOLATION	DNISUOH		F CURB	NOISI	AT FINISH	RIOR FINISH	CTION	OFF SWITCH	JLLER	DAMPER	MPER			AIES IN	VEERS	(937) 492	www.freytaginc info@freytaginc
IBER & SIZE	ROOF OPENING (L x W)	CAP AIRFLOW (CEM)	ACITY E.S.P.	ELECTRICA MOTOR HP	L V/PH	ISCONNECT	ISCONNEC ⁻	CM	IRECT	OOF CURB	ASE/FLOOF	USPENDED	/ALL EILING	L 762 GREA	L 864 SMOK		IBRATION I	ISULATION		INGED ROC	URB EXTEN	OWDER CO	POXY INTEF	DC CONNE	IANUALON	OA CONTR	OTORIZED	RAVITY DA	OTES		0C	NGIN		
M2-VG	-	5,875	1	3	208 / 3	•		•	•			•	<u>s 0</u>			<u>ш</u>	•	<u> </u>	<u> </u>			•	ш		2 (G	z 1, 5		SC	Ξ		
0-VG	-	400	0.25	1/10	120 / 1	•		•	•			•					•									•	•		1		X	TS		
0-VG	- 12.5" x 12.5"	300	0.5	1/4	120 / 1	•		•	•			•					•											5		3		\bigcirc		
9-VG	12.5" x 12.5"	525	0.75	1/4	120 / 1	•		•	•			•					•											\				Ë		
80-VG	12.5" x 12.5"	225	0.5	1/10	120 / 1	•		•	•	•																•		{	1,4		\geq	六		
	15.5" x 15.5"	500	1.5	1/2	120 / 1	•		•	•	•																•	•		1, 4	İ	L L	2		365
SI-8	10.5" x 10.5"	250	-	-	-					•																	•		2, 3, 4	E		<	226 N. MIAMI AV	P.O. BOX 220 SIDNEY, OHIO 45
RADIA GENERAL NO BA EC	NT HEATE TES ASIS OF DESIGN: RE QUAL BY: REFER TO	-VERBER-R/ SPECIFICA	HEDULE AY TION	- GAS																										DF				EY, OHIO 45365
UNIT NO.	MODEL #	s	ERVICE	MOUNT	NG	N	NODUL	ATING (MBH)	RANG	ε	А	MPS		VC	OLT/PH	1	DI	MENS L	SIONS	5	WEI (LE	GHT BS)		MOU HE	JNTIN EIGHT	G	N	OTES	s			N S	Ъ	SIDNE
RH-1	MP3-25-80	APPA	RATUS BAY	CEILING SUS	PENDED			65 - 80)			5		1	20 / 1			25' -	5"		14	45		10	6'-6"		1	, 2, 3	3			Z	Z	
RH-2	MP3-25-80	APPA	RATUS BAY	CEILING SUS	PENDED			65 - 80)			5		1	20 / 1			25' -	5"		14	45		10	6'-6"			1, 3				Ĕ		
RH-3	MP3-50-150	APPA	RATUS BAY	CEILING SUS	PENDED		1	10 - 15	50			5		1	20 / 1			50' -	9"		23	35		10	6'-6"			1, 3		TR			U)	
								40 45	-0									501	0"									4.0		NN.			Ō	
GAS F	A DED WITH MICROPROCESSOR BASED THERMOSTAT, MODEL #TH-PC-M. JIDED SHIELD TO PROJECT HEAT AWAY FROM WALL. S FIRED UNIT HEATER SCHEDULE RAL NOTES BASIS OF DESIGN: MODINE NO. MODEL # MOUNTING (MBH) INPUT/OUTPUT CFM AMPS VOLT/PH L (N.) D (N.) H (N.) WEIGHT (N.)																						2324 CAMPBEL											
	S FIRED UNIT HEATER SCHEDULE RAL NOTES BASIS OF DESIGN: MODINE NO. MODEL # MOUNTING (MBH) INPUT/OUTPUT CFM AMPS DIMENSIONS WEIGHT																NOTE	=5					822											
GUH-1	PTC-215		CEILING	SUSPENDED			215 / 2	TPUT			3,8	865		9.1	5	120 / 1	1	L (IN 42.5	1.) 5	D (IN.) 2	н	1 (IN.) 31		26	5		1, 2,	3	H.	, <u>0</u> ,	*		∕ NSE #63: 31/2025
NOTES: 1. CONDENS 2. STANDARI 3. STAINLES: ELECT GENERAL NO	ATE NEUTRALIZING D CONVENIENCE PA S STEEL HEAT EXCH T RIC UNIT DTES	KIT. SCKAGE WIT HANGER. HEAT	H DISCONNECT	SWITCH, CONDER	ISATE PUN	/ip, at	ND LO	V VOL	TAGE 1	THER	RMOST	TAT CO	ONTAC	CTS.																TE OF O	10. 	★ JEFFREY D. ★ ZELINSKI 53822	POLY COLORERED	JEFFERY D. ZELINSKI, LICI FXPIRATION DATE 12
	BASIS OF DESIGN: R	AYWALL																				•					1							
UNIT NO.	DESCRIPTIO	ON	MANUFAC	TURER / MODEL		Μ	IOUNT	ING			KW		MBH	•	AIR I (C	FLOW FM)		L (IN	I.)		SION	S Н	I (IN.)	V	/olt/ Pha	AGE / SE	N	NOTE	S					
EUH-1	MIDSIZED FAN FOR	CED WALL	RAYWALL 305 S	SERIES #E3055T2F	WB	WAL	L REC	ESSED)		1.5		5		1	00		9-1/4	4"	3-5	, 5/8"	1:	2-1/8"		120	/ 1		2, 3	3					
FUH-2		TED FAN	RAYWALL 510	0 SERIES #E2E510	5N		و۔ بنا ۱۱۵				5		17 1	1	, л	00		14-15/	32"	6.1	/2"	1	7_3///"		208	/3		1 2	3					
	FORCED UNIT H					VV							17.1		4	75		,	رم» ا	0-			0.4.10**		200	/ 0		·, ∠,		These de	signs and	all items d	epicted herei	n,
EUH-3 NOTES:	FAN FORCED WAL	LHEATER	RAYWALL	AFA # AFA840D		WAL	LREC	-SSED)		4		13.6		1	75		14-1/	8"		."	19	9-1/2"		208	/ 3		2, 3	5	whether instrume be altered the prior	n writing on the of profing of the of the of the of the of the of the of the office of	or graphical essional se ged, in any v	ly, as rvice, may no way, without en consent of	ot
1. WALL MOU 2. DISCONNE 3. INTEGRAL	UTING BRACKET #A5 ECT SWITCH WITH U THERMOSTAT.	5105. INIT.	EAT COI	L SCHED	ULE]	the Architect Architect documer and instr personall loss caus	Any tect. Any tect. Any s written a ts uments ary liable for sed thereb	change ma approval wil and the Archi any damag y. S OVAL / BID	de without th I void all such tect will not b ge, harm or	ne n De
GENERAL NO	ILECTRIC DUCT REFEAT COIL SCHEDULE INERAL NOTES BASIS OF DESIGN: RAYWALL															3 AE	UUUNשים.			u 1/21/25														
UNIT NO.	DESCRIPTIC		MANUFAC	TURER / MODEL	DL	JCT			EA	Ţ			ĸw			OLT / I	PH		C	DIMEN	SION	S			WEIC	SHT	N	NOTE	ES		/ NILIA			
					WI	u ו H מיי			(°F)	(°F)		45	(CFN	vi)			L (IN	1.)	D (IN.)	H	I (IN.)		(LB	ວ) ,			-		2207.02			3/24
DH-1 NOTES:	DUCT MOUNTED	HEATER	RAYWALL	# 8PD10-1810-1-3	1	8"		10"	0		50		15	600	נ	208/3	3	11-1/	/2"	9-1	/8"		11"		27			1, 2	<u> </u>	DRA				זם ט. Z
1. INTEGRAL 2. UNIT MOU	DISCONNECT SWIT NTED THERMOSTAT	CH. AND DUCT	PROBE.																												EQU	IPMENT S	CHEDULES	

Nauman & Zelinski llc.	
204 S. Ludlow Street Suite 400 Dayton, Ohio 45402 Phone: (937) 223-3821 ~ Fax: (937) 223-3849 PROJECT # 23015	

VRF SYSTEM - PIPING DIAGRAM

OUTDOOR A	IR TEMP., I	HEATING BA	ASED UP	ON -1°F C	UTDOOR A	IR TEMP.													
BRANCH				COOLIN	IG CAPACIT	Y	HEATING	G CAPACITY	REFRIGER	RANT PIPING	EL	ECTRICA	NL	CABI		SIONS			
ELECTOR	CFM	E.S.P.	SENS. MBH	TOTAL MBH	EAT (DB/WB)	LAT (DB/WB)	МВН	EAT / LAT	GAS	LIQUID	V/PH	MCA	MOCP	WIDTH [IN]	DEPTH [IN]	HEIGHT [IN]	(LBS)	MODEL NO.	NOTES
BS-1	735	0.8	17	21.6	75 / 62.4	52.6 / 52	26	70 / 104	5/8	3/8	208 / 1	3	15	17	21 - 5/8	50 - 1/4	113	TPVFYP024AM141A	1, 3
BS-1	297	-	8	10.9	75 / 62.4	52 / 52	12.9	70 / 107	1/2	1/4	208 / 1	0.2	15	30 - 7/16	9 - 11/32	11 - 25/32	25	TPKFYP012NLMU-E	1, 2, 3, 4, 5
BS-1	297	-	8	10.9	75 / 62.4	52 / 52	12.9	70 / 107	1/2	1/4	208 / 1	0.2	15	30 - 7/16	9 - 11/32	11 - 25/32	25	TPKFYP012NLMU-E	1, 2, 3, 4, 5
BS-1	735	0.8	17	21.6	75 / 62.4	52.6 / 52	26	70 / 104	5/8	3/8	208 / 1	3	15	17	21 - 5/8	50 - 1/4	113	TPVFYP024AM141A	1, 3
BS-1	585	0.8	13.5	16	75 / 62.4	52.7 / 52	19	70 / 101	1/2	1/4	208 / 1	3	15	17	21 - 5/8	50 - 1/4	113	TPVFYP018AM141A	1, 3
BS-1	400	0.8	9	10.8	75 / 62.4	52.2 / 52	13	70 / 101	1/2	1/4	208 / 1	3	15	17	21 - 5/8	50 - 1/4	113	TPVFYP012AM141A	1, 3
BS-1	335	-	8	10.8	75 / 62.4	52 / 52	13	70 / 101	1/2	1/4	208 / 1	0.3	15	22 - 7/16	22 - 7/16	8 - 3/16	36	TPLFYP012FM140A	1, 2, 3

ИF	P., HEATING BASE	D UPON -1°F	OUTDOOR	AIR TEMP.												
	HEATING CAPACITY	REFR	IGERANT P	IPING	MAX PIPING LENGTH		REFRIGERANT	E		AL.	[DIMENSION	3			NOTES
	MBH @ -1°F	GAS	LIQUID	H/L PRESSURE	FROM BS-1 [FT]	TYPE	ADDITIONAL CHARGE (LBS)	V/PH	MCA	МОСР	WIDTH (IN.)	DEPTH (IN.)	HEIGHT (IN.)	(LBS)	MODEL NO.	NOTES
	149	1 - 1/8	7/8	NOTE 1	100	R-410a	36.2	208 / 3	54 / 54	90 / 90	98 - 1/2	29 - 3/8	71 - 5/8	1218	TURYH1443BN40AN	1, 2, 3, 4, 5

1. BASIS OF DESIGN UNIT DOES NOT REQUIRE A HOT GAS REHEAT PIPE FROM THE OUTDOOR UNIT TO BS-1. THE NON-BASIS OF DESIGN SYSTEM MAY REQUIRE THIS PIPE; HC SHALL PROVIDE ALL REQUIRED PIPING COMPONENTS IF A NON-BASIS OF DESIGN UNIT IS PROVIDED.

BRANCH SELECTOR BOX SCHEDULE

BASIS OF DES EQUAL BY: RE	BIGN: MITSUBISHI/TRA EFER TO SPECIFICATIO	NE ON										
			* 01	ELECTRI	CAL		CABIN	ET DIMENS	IONS	UNIT		
UNIT	SERVED	AREA SERVED	# OF CIRCUITS	V/PH	МСА	МОСР	WIDTH (IN.)	DEPTH (IN.)	HEIGHT (IN.)	WEIGHT (LBS)	MODEL NO.	NOTES
BS-1	CD-1	LIVING QUARTERS	8	208 / 1	0.8	15	35 - 7/8	21 - 1/2	9-7/8	106	TCMBM0108JA11N4	

AIR TERMINAL UNITS SCHEDULE

GENERAL NOTES UNITS ARE VARIABLE AIR VOLUME

CV - CONSTANT VOLUME

VV - VARIABLE VOLUME

DESIGN BASIS- PRICE MODLE SDV

UNITS WITH REHEAT SHALL HAVE SCR CONTROL & DISCONNECT SWITCH

HEATING CONDITIONS BASED ON 55 DEG F. EAT, 95 DEG F. LAT.

COIL PRESSURE DROP: 0.5" W.G. UNIT. IN ET SIZE TYPE MIN. AIRFLOW MAX. AIRFLOW

	NO.	INLET SIZE	ITPE	[CFM]	[CFM]	KVV	
	1-1	5	CV	225	225	2.8	
	1-2	5	CV	85	85	1.1	
	1-3	7	VV	0	500	6.3	
	1-4	10	CV	825	825	-	
	1-5	6	CV	300	300	3.8	
1							

NOTES:

1. UNIT SERVES KITCHEN HOOD. REFER TO CONTROL DIAGRAM FOR ADDITIONAL INFORMATION.

VOLTAGE / PHASE	SEE NOTES
-	
208 / 3	
208 / 3 208 / 3	
208 / 3 208 / 3 208 / 3	1
208 / 3 208 / 3 208 / 3	1

NOTES:

DOAS UNIT SCHEDUL	E
UNIT TAG	DOAS-1
BASIS OF DESIGN	MITSUBISHI
SERVICE	LIVING QUARTERS
DESCRIPTION	PACKAGED DOAS UNIT
MOUNTING	GROUND
EVAPORATOR FAN	
AIRFLOW (CFM)	1,935
ESP. (" W.G.)	1.5"
FAN TYPE	DIRECT DRIVE
VARIABLE FREQUENCY DRIVE	YES
DISCHARGE LOCATION	SIDE
FILTER	
PRE-FILTER	2" MERV 8
FINAL FILTER	4" MERV 13
COOLING - BASED ON 90 / 74 (DB/WB) O.A.	
TOTAL (MBH)	131
SENSIBLE (MBH)	76
ENTER. AIR (DB/WB)	90 / 74
SUPPLY AIR (DB/WB)	54.4 / 54.3
ISMRE	8.4
HOT GAS REHEAT	
TOTAL (MBH)	67
ENTER. AIR (DB/WB)	54.4 / 54.3
LEAV. AIR (DB)	86.2
HEATING - REQ. NATURAL GAS INPUT PRES MIN./14" W.C. MAX. -BASED ON 0°F O.A.	SURE: 4.5" W.C.
GAS INPUT (MBH)	200
OUTPUT (MBH)	162
ENTER. AIR DB	0
SUPPLY AIR (DB)	77.5
ELECTRIC	
MCA	53.8
МОСР	60
VOLTAGE/HZ/PHASE	208 / 3
PHYSICAL UNIT DATA	
LENGTH (IN.)	98.6"
WIDTH (IN.)	86.4"
HEIGHT - NOT INCLUDING CURB (IN.)	69.5"
MAX UNIT OP. WEIGHT (LBS)	2,172
UNIT OPTIONS	
ECONOMIZER HOOD	
MIN. O.A. HOOD	•
CONSTANT AIR VOLUME	
VARIABLE AIR VOLUME	•
SINGLE SPEED / STAGED COMPRESSORS	
DIGITAL SCROLL COMPRESSORS	
INVERTER DUTY COMPRESSOR	•
STAINLESS STEEL HEAT EXCHANGER	•
RETURN AIR SMOKE DETECTOR	
CO2 SENSOR D.V.C.	
14" ROOF CURB ADAPTER	
POWERED RELIEF FAN	
BAROMETRIC GRAVITY RELIEF DAMPER	
DISCHARGE AIR TEMP. CONTROL	•

H0.5

Nauman & Zelinski LLC. 204 S. Ludlow Street Suite 400 Dayton, Ohio 45402 Phone: (937) 223-3821 ~ Fax: (937) 223-3849 PROJECT # 23015

1. SEE ROOFTOP UNIT MOUNTING DETAIL, DETAIL 1, SHEET H3.6.

2. COOLING COIL CONDENSATE TRAP PER DETAIL 4, SHEET H3.1

3. REFER TO H4.1 FOR UNIT CONTROLS.

PROJECT # 23015

Bra s															
S	anch Panel:	Α													
S	LOCATION:				M	IOUNTIN	G: Surface			А.	I.C R/	TING			
	SUPPLY FROM:	MDP	~~		EN	CLOSUR	E: Type 1			M	AINS	TYPE:	M.L.O		
	VOLTAGE:	120/2	08 Wye	9-3-4	МС	B RATIN	G: NA			MAIN	IS RA	TING:	225 A		
			1	1			1		1						
скт	Description	Trip	Poles	Note		4		3		C	Note	Poles	Trip	Description	скт
1	Lighting	20 A 20 A	1		1485 VA	90 VA	1000 VA	1000 VA				1	20 A 20 A	Lighting	2
5	Service Cord	20 A	1	1					500 VA	500 VA	1	1	20 A	Service Cord	6
7	Service Cord	20 A	1	1	500 VA	500 VA	4000.1/4	4000.1/4			1	1	20 A	Service Cord	8
9 11	Service Cord	20 A 20 A	1	1			1000 VA	1000 VA	500 VA	1600 VA	1	1	20 A 20 A	OH DOOR 1	10
13	OH DOOR 2	20 A	1		1600 VA	1600 VA				1000 171		1	20 A	OH DOOR 3	14
15	OH DOOR 4	20 A	1				1600 VA	1600 VA				1	20 A	OH DOOR 5	16
17	OH DOOR 6	20 A	1		540 VA	000 \/A			1600 VA	1600 VA		1	20 A	OH DOOR 7	18
21	App Bay 122	20 A	1		540 VA	900 VA	720 VA	900 VA				1	20 A	App Bay 122	20
23	App Bay 122	20 A	1						900 VA	400 VA		1	20 A	CLG FANS	24
25	CLG FANS	20 A	1		400 VA	1000 VA	100.1/4	400.1/4				1	20 A	GEN. CHRG.	26
27	CO/NOX Svs	20 A 20 A	1				180 VA	180 VA	1000 VA	360 VA		1	20 A 20 A	Weight Rm 124	28
31	Drying Cabinet	20 A	1		180 VA	540 VA						1	20 A	Weight Rm.124	32
33	Decon 123	20 A	1				360 VA	1000 VA				1	20 A	GEN. HTR.	34
35	Spare	20 A	1		0.\/A	1400 \/A			0 VA	1400 VA		1	20 A	RAD. HIR.	36
39	FC-2A/2B	15 A	2		0 0 7	1400 07	300 VA	0 VA				1	20 A	Spare	40
41									300 VA	0 VA		1	20 A	Spare	42
43	DH-1	20 A	3		5000 VA	0 VA	5000 \/A	0.1/4				3	30 A	TOG WASH	44
45 47							3000 VA	UVA	5000 VA	0 VA					40
49	ATU1-1	20 A	3		933 VA	367 VA						3	20 A	ATU1-2	50
51							933 VA	367 VA	0001/4	007.1/4					52
53		 Total	I oad:		1703	<u>5 \/Δ</u>	1714	0 \/A	933 VA	367 VA					54
NOTE	ES:	Total	Loau.		1700		1/14	0 17	1030						
										1					
Load	Classification				Connect	ed Load	Demand F	actor E	stimated.			Р	anel T	otals	
_ighti	ng				1575	VA	125.00	%	1969 VA						
Motor	-				35300	D VA	80.00%	6	28240 VA	T	otal C	onn. L	oad: {	51135 VA	
Powe	<u>r</u>				4000	VA	70.00%	6	2800 VA	Тс	otal Es	st. Dem	and:	40191 VA	
Rece	ptacles				10260	J VA	70.00%	6	7182 VA	Tota	al Cor	nn. Cur	rent:	142 A	
										10	ai Esi	. Dema	ma	112 A	
		-													
Bra	anch Panel: LOCATION:	С			M	IOUNTIN	G: Flush			A.	I.C R/	ATING			
Bra	anch Panel: LOCATION: SUPPLY FROM:	C MDP	08 W/ve	3.4	M EN MC		G: Flush E: Type 1 G: NA			A. M/	I.C RA	ATING TYPE:	M.L.O		
Bra	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE:	C MDP 120/2	08 Wye	-3-4	M EN MC	IOUNTIN CLOSUR B RATIN	G: Flush E: Type 1 G: NA			A. M/ MAIN	I.C RA AINS ⁻ IS RA	ATING TYPE: TING: :	M.L.O 225 A		
Bra s	anch Panel: LOCATION: 3UPPLY FROM: VOLTAGE:	C MDP 120/2	08 Wye	÷-3-4	M EN MC	IOUNTIN CLOSUR B RATIN	G: Flush E: Type 1 G: NA			A. M/ MAIN	I.C RA AINS ⁻ IS RA	ATING TYPE: TING: 1	M.L.O 225 A		
Bra s ckt	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description	C MDP 120/2 Trip	08 Wye	e-3-4	M EN MC	IOUNTIN CLOSUR B RATIN	G: Flush E: Type 1 G: NA	3		A. M/ MAIN	I.C RA AINS ⁻ IS RA Note	ATING TYPE: TING: Poles	M.L.O 225 A Trip	Description	скт
Вга <u>скт</u> 1 3	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting	C MDP 120/2 Trip 20 A 20 A	08 Wye	e-3-4	M EN MC 699 VA	IOUNTIN CLOSUR B RATIN A 317 VA	G: Flush E: Type 1 G: NA	3 1260 VA		A. M/ MAIN	I.C RA AINS ⁻ IS RA Note	ATING TYPE: TING: Poles 1 1	M.L.O 225 A Trip 20 A 20 A	Description Lighting Toilet 107 9	СКТ 2 4
Вга е скт 1 3 5	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114	C MDP 120/2 Trip 20 A 20 A 20 A	08 Wye	e-3-4	M EN MC	IOUNTIN CLOSUR B RATIN A 317 VA	G: Flush E: Type 1 G: NA	3 1260 VA	1780 VA	A. M/ MAIN C 1080 VA	I.C RA AINS ⁻ IS RA Note	ATING TYPE: TING: 1 1 1	M.L.O 225 A 20 A 20 A 20 A	Description Lighting Toilet 107,9 Kitchen 114	СКТ 2 4 6
Br a s CKT 1 3 5 7	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114 Kitchen 114	C MDP 120/2 Trip 20 A 20 A 20 A 20 A	08 Wye	e-3-4	M EN MC 699 VA 180 VA	IOUNTIN CLOSUR B RATIN A 317 VA 360 VA	G: Flush E: Type 1 G: NA 688 VA	3 1260 VA	1780 VA	A. M/ MAIN C 1080 VA	I.C RA AINS ⁻ IS RA Note	ATING TYPE: TING: TING: 1 1	M.L.O 225 A 20 A 20 A 20 A	Description Lighting Toilet 107,9 Kitchen 114 Kitchen 114	CKT 2 4 6 8
Вга 5 7 9 11	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114 Kitchen 114 Kitchen 114	C MDP 120/2 Trip 20 A 20 A 20 A 20 A 20 A	08 Wye	-3-4	M EN MC 699 VA 180 VA	IOUNTIN CLOSUR B RATIN A 317 VA 360 VA	G: Flush E: Type 1 G: NA 688 VA 540 VA	3 1260 VA 360 VA	1780 VA	A. M/ MAIN C 1080 VA	I.C RA AINS IS RA	ATING TYPE: TING: Poles 1 1 1 1 1 1	M.L.O 225 A 20 A 20 A 20 A 20 A 20 A 20 A	Description Lighting Toilet 107,9 Kitchen 114 Kitchen 114 Kitchen 114	CKT 2 4 6 8 10
Br a s CKT 1 3 5 7 9 11 13	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114	C MDP 120/2 Trip 20 A 20 A 20 A 20 A 20 A 20 A	08 Wye	e-3-4	M EN MC 699 VA 180 VA	IOUNTIN CLOSUR B RATIN A 317 VA 360 VA	G: Flush E: Type 1 G: NA 688 VA 540 VA	3 1260 VA 360 VA	1780 VA	A. M/ MAIN C 1080 VA 360 VA	I.C RA AINS ⁻ IS RA	ATING TYPE: TING: : Poles 1 1 1 1 1 1 1 1 1 1	M.L.O 225 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	Description Lighting Toilet 107,9 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114	CKT 2 4 6 8 10 12 14
Bra s CKT 1 3 5 7 9 11 13 15	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114	C MDP 120/2 Trip 20 A 20 A 20 A 20 A 20 A 20 A 20 A	08 Wye	-3-4	M EN MC 699 VA 180 VA 180 VA	IOUNTIN CLOSUR B RATIN A 317 VA 360 VA 180 VA	G: Flush E: Type 1 G: NA 688 VA 688 VA 540 VA	3 1260 VA 360 VA 360 VA	1780 VA	A. M/ MAIN C 1080 VA 360 VA	I.C RA AINS ⁻ IS RA Note	ATING TYPE: TING: TING:	M.L.O 225 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A 20	Description Lighting Toilet 107,9 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Dayroom 114	CKT 2 4 6 8 10 12 14 16
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Br a s CKT 1 3 5 7 9 11 13 15 17 19 21	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Sitchen 114 Kitchen 114 Sitchen 114 Jan. 104 DORMS EUH-1	C MDP 120/2 Trip 20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	08 Wye	-3-4 Note	M EN MC 699 VA 180 VA 180 VA 1260 VA	IOUNTIN CLOSUR B RATIN A 317 VA 360 VA 180 VA	G: Flush E: Type 1 G: NA 688 VA 540 VA 720 VA	3 1260 VA 360 VA 360 VA	1780 VA 540 VA 540 VA	A. M/ MAIN C 1080 VA 360 VA 1080 VA	I.C RAAINS	ATING TYPE: TING: : 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	M.L.O 225 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A 20	Description Lighting Toilet 107,9 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Dayroom 114 DORMS DORMS REFRIG	CKT 2 4 6 8 10 12 14 16 18 20 22
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Bra 5 7 9 11 13 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 NOTE -oad -ightin Other -owe Recept	anch Panel: LOCATION: SUPPLY FROM: VOLTAGE: Description Lighting Lighting Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Jan. 104 DORMS EUH-1 REFRIG. RANGE Gas Valve Decon Damp. Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare	C MDP 120/2 20 A 20 A 20 A 20 A 20 A 20 A 20 A 20	08 Wye Poles 1 1 1 1 1 1 1 1 1 1 1 1 1	3-4 Note 1 1 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	M EN MC MC 180 VA 180 VA 180 VA 1260 VA 1260 VA 2000 VA 2000 VA 1260 VA 1107 60 VA 1107 60 VA 1107	IOUNTIN CLOSUR B RATIN A 317 VA 360 VA 180 VA 180 VA 1267 VA 1267 VA 0 VA 0 VA 2 VA 2 VA 2 VA	G: Flush E: Type 1 G: NA 688 VA 540 VA 540 VA 720 VA 720 VA 4160 VA 4160 VA 0 VA 0 VA 1103 0 VA 1103 0 VA 70.009 70.009 70.009	3 1260 VA 360 VA 360 VA 1267 VA 1267 VA 0 VA 0 VA 0 VA 0 VA 0 VA 0 VA 0 VA 0 VA 0 VA 0 VA	1780 VA 540 VA 540 VA 180 VA 180 VA 180 VA 1600 VA 6 0 VA 860 5 5 1796 VA 3290 VA 4438 VA 13006 VA	A. MAIN MAIN C 1080 VA 1080 VA 1080 VA 1080 VA 1267 VA 1267 VA 1267 VA 0 VA 0 VA 1267 VA 1267 VA	I.C RA AINS IS RA IS RA 1 1 1 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1	ATING TYPE: TING: Poles 1 1 1 1 1 1 1 1 1 1 1 1 1	M.L.O 225 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A 20	Description Lighting Toilet 107,9 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Kitchen 114 Dayroom 114 DORMS DORMS REFRIG. REFRIG. REFRIG. ATU1-3 Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare Spare CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 24 26 28 30 32 34 36 38 40 42	

	В	ranch Panel	: В										ľ	Swi	itchboard: N	IDP						
NG YE: M.L.O G: 225 A	LOCATION: MOUNTING: Surface A.I.C RATING SUPPLY FROM: MDP ENCLOSURE: Type 1 MAINS TYPE: F.T.L / M.L.O VOLTAGE: 120/208 Wye-3-4 MCB RATING: NA MAINS RATING: 225 A TWO 42 CIRCUIT PANELS TWO 42 CIRCUIT PANELS				4 1 1 1	Location: Supply From: Mounting: Surface Enclosure: Type 1				Volts Phases Wires	s: 120/208 Wye s: 3 s: 4	A.I.C. Rating: Mains Type: M.L.C Mains Rating: 600 A MCB Rating: 1 A	A.I.C. Rating: Mains Type: M.L.O Mains Rating: 600 A MCB Rating: 1 A									
les Trip Description CKT		Description	Trip Po	les Note	A 42 VA 56	39 VA	В		c	Note Po	oles Trip	Description	СКТ	Notes:								
120 ALighting2120 ALighting4120 AService Cord6120 AService Cord8120 AService Cord10	3 5 7 9	Site Lighting IT 105 Report Rm.117 Report Rm.117	20 A 1 20 A 1 20 A 1 20 A 1 7 20 A 1	1 1 1 1 3	60 VA 18	781 V. 30 VA	A 720 V/	A 720 VA	720 VA		1 20 A 1 20 A 1 20 A 1 20 A 1 20 A	IT 105 Report Rm.117 App Bay 122 Washer	4 6 8 10	СКТ	Circuit Description	# of Poles	Frame	Trip Rating	Load	Wire Size	Feed	Cond
1 20 A OH DOOR 1 12		App Bay 122	20 A 1	1				180 VA	360 VA	· · ·	1 20 A	Decon 119	12	1	PANEL 'A'	3	200 A	200 A	51135 VA	3-#4/0, 1-#4/0, 1-#6	- Teeu	2"
20 A OH DOOR 3 14 20 A OH DOOR 5 16		WH-1 Ice Maker	20 A 1 20 A 1	1 18 1 1	80 VA 54	40 VA 180 V	A 1260 V	A			1 20 A 1 20 A	Exterior Rec.	14	2	PANEL 'B'	3	200 A	200 A	57963 VA	3-#4/0, 1-#4/0, 1-#6		2"
1 20 A OH DOOR 7 18	17	EF-2	20 A 1	1				500 VA	1133 V/	۹ :	3 20 A	EF-1	18	4	DOAS-1	3	200 A 100 A	200 A 100 A	30687 VA 15600 VA	3-#4/0, 1-#4/0, 1-#6		1.25
1 20 A App Bay 122 20 1 20 A App Bay 122 22	19	EF-4 FF-5	20 A 1	1 50 1	00 VA 11	33 VA 50 VA	1133 V	Δ					20	5	CD-1A	3	100 A	100 A	10800 VA	3-#2, 1-#2, 1-#8		1.25
1 20 A CLG FANS 24	23	EF-7	20 A 1	1		00 17	1100 1	1000 VA	500 VA		2 15 A	FC-1	24	6	CD-1B	3	100 A	100 A	10800 VA	3-#2, 1-#2, 1-#8		1.25
1 20 A GEN. CHRG. 26	25	FC-3	15 A 2	2 50	00 VA 50	00 VA	A 500.1/						26	7	SCBA	3	60 A	60 A	6000 VA	3-#6, 1-#6, 1-#10		_
1 20 A Weight Rm.124 30	29	 FC-5	15 A 2	2		500 V	A 500 V/	500 VA	500 VA		2 15 A 	FC-4 	30	9	Spare	3	100 A	100 A	UVA			
1 20 A Weight Rm.124 32	31			- 50	00 VA 5	O VA					2 20 A	FC-6	32	10								
1 20 A GEN. HTR. 34 1 20 A RAD HTR 36	33	ATU1-5	20 A 3	3		333 V.	A 50 VA	333 VA	500 VA		 2 60 A	 AIR COMP	34	11								
1 20 A RAD. HTR. 38	37			- 3	33 VA 50	00 VA				-			38	12			Tatal			400070 \/A		
1 20 A Spare 40	39	Other	20 A 3	3		833 V	A 2496 V	A	0400.1//		2 30 A	Dryer	40	>				onn. Load:		182973 VA		
3 30 A TOG WASH 44				- 8	33 VA 50	00 VA		833 VA	2496 VA	4 -	 2 15 A	 BS-1	42	Legend	:			otal Amps.		500 A		
46	45	EUH-2	20 A 3	3		1667 V	/A 500 V	۹.		-			46									
48	47			- 10		00.1/4		1667 VA	100 VA	· ·	1 20 A	FA PANEL	48									
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	55	 Drogg Man		- 13	333 VA 16	67 VA	A 4002 V	<u>^</u>			 1 20 A	 IT 105	56	Motor			46450 VA	80.00	0% 371 0% 371	60 VA Total Conn. Load:	182973 VA	
	59	Motor	20 A 1	1		100 V	A 4992 V	A 1600 VA	1333 V	<u>م</u>	3 30 A	HOSE HOIST	60	Other		2	26700 VA	70.00	0% 186	690 VA Total Est. Demand:	135049 VA	
	61	EUH-3	20 A 3	3 13	333 VA 13	33 VA				· ·			62	Power		6	60840 VA	70.00	0% 425	588 VATotal Conn. Current:	508 A	
Panel Totals	63			-		1333 V	/A 1333 V	A 1333 V/A	100 VA		 1 20 A	 Press Mon	64	Recepta	acles		44764 VA	70.00	0% 313	335 VA Total Est. Demand	375 A	
	67							1000 VA					68	}								
n. Load: 51135 VA	69							0.1/4	0.1/4				70	Notes:								
Demand: 40191 VA	73	Spare	20 A 1	1	0 VA			0 VA	0 VA		1 20 A 1 20 A	Spare	72									
Current: 142 A	75	Spare	20 A 1	1		0 VA	0 VA				1 20 A	Spare	76									
emand 112 A		Spare	20 A 1	1	0.)//0			0 VA	0 VA		1 20 A	Spare	78	b								
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	(83	Spare	20 A 1	1				0 VA	0 VA		1 20 A	Spare	84									
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		E9:											t									
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G. 225 A	Mote	or			11150 V/	A 80.0	00%	8920 VA		Total Con	n. Load:	57963 VA	5		(#)	CONS	STRU	CTION	NOTE	S I		
	Othe	er			22000 V/	A 70.0	0%	15400 VA	\ Т	otal Est. D	Demand:	42563 VA										
les Trip Description CKT	Pow	er			7300 VA	A 70.0	00%	5110 VA	То	tal Conn.	Current:	161 A)	1.	PROVIDE G	FCI BREAK	ER OR CIR	CUIT PROTEC	TOR.		
1 20 A Lighting 2	Rec	eptacles			15924 V/	A 70.0	00%	11147 VA	\ To	otal Est. Do	emand	118 A		>	2.	PROVIDE A	FCI BREAK	ER.				
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1 20 A Kitchen 114 6 1 20 A Kitchen 114 8	<u>(</u> —												[5								
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NAUMAN & ZELINSKI LLC. 204 S. Ludlow Street Suite 400 Dayton, Ohio 45402 Phone: (937) 223-3821 ~ Fax: (937) 223-3849 PROJECT # 23015

	ARCHITECTS ENGINEERS	226 N. MIAMI AVE. P.O. BOX 220 www.frevtracinc.com	SIDNEY, OHIO 45365 info@freytaginc.com
NEW CONSTRUCTION OF	FIRE STATION 2	CITY OF SIDNEY	2324 CAMPBELL ROAD SIDNEY, OHIO 45365
A PTE OF OF		A CONTERPONDENCE	JEFFERY D. ZELINSKI, LICENSE #63822 EXPIRATION DATE 12/31/2025
These design whether in wr instruments o be altered or of the prior know the Architect's wr documents and instrumer personally lial loss caused th 2 ADDEN 3 ADDEN COMM. N 2207 DRAWN	s and all items iting or graphic f professional s changed, in an /ledge, and wri Any change n itten approval v ants and the Arco le for any dam hereby. ONS APPROVAL / B IDUM 2 IDUM 3 IDUM 3 IUMBER r.02 BY AC	depicted herein, ally, as service, may not y way, without titen consent of nade without the will void all such whitect will not be nage, harm or BIDDING 01/10/2 01/23/2 DATE 11/13/2 CHECKEE TCR	25 25 24 29 BY
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FIRST FLOOR LIGHTING PLAN

STORM SHELTER

A. PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE LARGER THAN 3-1/2 IN² AREA FOR RECTANGULAR OPENING OR 2 - 1/16" IN DIAMETER SHALL BE CONSIDERED OPENING AND SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE. REFERENCE STRUCTURAL DRAWINGS.

B. LIGHTING FIXTURES IN STORM SHELTER SHALL HAVE INTEGRAL EMERGENCY BATTERY BALLAST(S) IN FIXTURE(S) CAPABLE TO ILLUMINATE FIXTURE AT 1000 LUMENS FOR A MINIMUM OF 180 MINUTES (2 HOURS) OR THE E.C. SHALL PROVIDE SEPARATE EMERGENCY BATTERY LIGHTING UNIT WITH SIMILAR LUMEN OUTPUT AND BATTERY BACKUP. GENERAL NOTES

A. CONNECT ALL EXIT/EMERGENCY EGR LOCAL CONTROLS.

	⟨ # > CONSTRUCTION NOTES	2-6983 IC.COM
RESS LIGHTING AHEAD OF	1. CONNECT EXIT/EM EGRESS LIGHT TO APPARATUS BAY LIGHTING CIRCUIT AHEAD OF CONTROLS. 10' - 0" MOUNTING HEIGHT UNLESS NOTE OTHERWISE.	ES IN ER 19 (937) 49 v.freytagin @freytagin
	2. PROVIDE STANDALONE UPS (1 KW-120V OUTPUT) TO POWER EMERGENCY LIGHTING FIXTNEES AND EXHAUST FAN SERVING STORM SHELTER (DECON/LAUNDRY ROOM AND TOILET) UPS SHALL BE SIZED TO SUPPORT LIGHTING AND FAN LOAD FOR A MINIMUM OF 2 HOURS UPON LOSS OF BUILDING NORMAL AND STANDBY POWER. UPS SHALL BE UL LISTED AND SUITABLE FOR WALL MOUNTING; WITH WALL BRACKET; 1-120V OUTPUT BREAKER. MOUNT ON WALL NEAR CEILING; SERVE FROM 'EMERGENCY' CCT.	SSOCIATI ENGINEE
	3. CIRCUIT LIGHTS TO EXTERIOR LIGHTING RELAY PANEL, LOCATED IN MAIN ELECTRIC ROOM.	N P
	 PROVIDE 4-POLE LIGHTING CONTACTOR WITH 120V COIL FOR CONTROL OF EXTERIOR LIGHTING. PHOTOCELL ON/OFF. LOCATE PHOTOCELL ON ROOF PARAPET ABOVE. 	U U W U
	5. LIGHTING RELAY PANEL FOR APP BAY AND EXTERIOR LIGHTING CONTROL.	Ĭ I I I I I I I I I I I I I
	6. PROVIDE LIGHTING CIRCUIT CONNECTION TO EXTERIOR STATION SIGNAGE.	С Ц "

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NEW CONSTRUCTION OF

STATION 2

FIRE

These designs and all items depicted herein, whether in writing or graphically, as instruments of professional service, may not be altered or changed, in any way, without the prior knowledge, and written consent of the Architect. Any change made without the Architect's written approval will void all such documents.

documents and instruments and the Architect will not be personally liable for any damage, harm or loss caused thereby.

PLAN APPROVAL / BIDDING

COMM. NUMBER DATE

FIRST FLOOR LIGHTING PLAN

E2.1

01/23/25

11/13/24

CHECKED BY

REVISIONS

3 ADDENDUM 3

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Nauman & Zelinski LLC.
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PROJECT # 23015

