

#### Addendum 2

To: **Bidding Documents** 

Plan-Holders of Record

**Project File** 

Date:

06/19/2024

**Addendum Number:** Two **Architect's Project #: Project Name:** 

20230239 Owasso PS

Enrollment and IT

Center

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This Addendum supplements and amends the original Bidding Documents, shall be taken into account in preparing proposals, and shall become a part of the Construction Documents. The bidder shall indicate receipt of this addendum and all previously issued addenda on the Bid/Proposal Form.

#### **PRIOR ADDENDA**

One

#### **Changes / Clarifications To Specifications:**

- 1. Specification Section 033511 Concrete Floor Finish
  - a. Section has been removed from the set.
- 2. Specification Section 321313 Concrete Paving
  - a. Section has been added to the set.
- 3. Specification Section 321373 Concrete Paving Joint Sealants
  - a. Section has been added to the set.
- 4. Specification Section 096500 Resilient Flooring
  - a. LVT has been removed from the section.



#### **Changes / Clarifications To Drawings:**

- 1. Sheet CS, Cover Sheet
  - a. Sheet Index has been updated to reflect additional sheets
- 2. Sheet G002, Life Safety Plan
  - a. Code Plan Legend note revised.
- 3. Sheet AS101, Site Plan
  - a. Parking stalls added.
  - b. Area of the new concrete drive has been revised.
- 4. Sheet AD101, Demolition Plan First Floor
  - a. Demolition Plan has been updated.
  - b. Demolition Keynotes have been updated.
- 5. Sheet A101, Floor Plan
  - a. Interior walls have been updated to 3 5/8".
  - b. Dimension strings have been updated to reflect wall change.
  - c. LVT has been removed from Enrollment 101.
  - d. Fire Extinguisher in Enrollment 101 has been moved east.
  - e. Area of new slab has been called out.
  - f. Wall removed in Open Work Stations 112.
  - g. Gypsum walls have been added to existing north and west exterior walls.
  - h. Refrigerator and ice machine have been moved to north wall in Break Room 109.
  - i. Cabinets and countertop have been removed from Break Room 109.
  - Plan detail B/A402 has been added.
  - k. Wall section A/A402 has been added.
  - I. Floor Plan General Notes have been updated.
  - m. Partition Types Naming Convention has been updated.
  - n. Interior Finish Schedule has been updated.
  - o. Finish Legend has been updated.
- 6. Sheet A121, Reflected Ceiling Plan First Floor
  - a. Ceilings adjusted for wall-type change.
  - b. Emergency fixtures removed from 2x4 recessed fixtures.
- 7. Sheet A401, Details
  - a. Metal Stud Subtype A legend added to sheet.
  - b. Toilet Accessories General Notes have been updated.

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- c. Specialty Equipment Notes have been updated.
- d. Seat Cover Dispenser removed from Toilet Accessories Schedule.
- e. GL-3 added to Glazing Types.
- f. GL-3 added to C1 and C2 door lites.
- g. P/A401 corner guards added.
- h. R/A401 added to sheet.
- i. Q/A401 has updated signage and recessed linear strip information.
- j. F/A401 has been updated.
- k. E/A401 has been removed.
- I. D/A401 has been updated.
- m. B/A401 Wall cap and wall section R/A401 have been included.
- n. C/A401 has been updated.

#### 8. Sheet A402, Details

a. Sheet A402 has been added to set.

#### 9. Sheet MPD100, Mechanical & Plumbing Demolition Plan

- a. Revised Keynote #5 to show condensing unit to be relocated.
- b. Demolition Notes revised to reference Owasso Public Schools.

#### 10. Sheet M100, Mechanical Plan

a. Condensing units relocated per owner comments. Keynote 16 added to reflect changes.

#### 11. Sheet M200, HVAC Schedules

a. Mechanical unit names updated.

#### 12. Sheet P100, Plumbing Waste and Vent Plan

- a. Floor Sink serving Ice Maker relocated per new location.
- b. Updated Plan showing Floor Mounted Water Closets.
- c. Mechanical Unit names updated to match schedule.
- d. Tag added for Condensate Pump attached to IT Room Mini Split.
- e. New Condensate piping to all relocated AC Units via Keynote 5.
- Condensate from AC Unit routed to exterior instead of mop sink. Keynote 7 updated to reflect.
- g. Keynotes referencing Condensate to Mop Sink/Retrofitting Condensate piping removed.

#### 13. Sheet P101, Plumbing Supply Plan

- a. Ice machine relocated. Corresponding supply line shown in new location.
- b. Updated plan showing floor mounted water closets.





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- c. Hot Water line size upgraded to 1" up til last fixture.
- d. Clarified Back-to-Back WC line sizing. 1-1/2" drop and 1-1/4" routed to each WC from line.

#### 14. Sheet P200, Plumbing Schedules

- a. Dishwasher and IMB removed from Schedule
- b. S-1 fixture revised per owner request.
- c. Pipe Hangers detail amended. Deleted reference to Architect.
- d. Floor Sink added to Fixture Unit Count.

#### 15. Sheet ED100, Electrical Demolition

a. General notes updated.

#### 16. Sheet E100, Lighting Plan

- a. Added combination exit sign with emergency light and bugeye emergency lighting in lieu of integral battery packs.
- b. General note added that all fixtures furnished and installed by owner except for wall packs.
- c. Revised light switch locations per owner comments.
- d. Removed exit sign per owner comments.

#### 17. E200, Power Plan

- a. Added cameras per owner comments.
- b. Added access control per owner comments.
- c. Revised Office 116 power and data.
- d. Note added for contractor to provide cat6 cable.
- e. Added a telephone board.

#### 18. E300, One-Line Diagram & Panel Schedules

a. Added circuit for access control.

#### 19. E402, Electrical Specification

a. Added note for contractor to provide cat6 cables.





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#### LIST OF ATTACHMENTS

- 1. SPECIFICATION SECTION 321313 CONCRETE PAVING
- SPECIFICATION SECTION 321373 CONCRETE PAVING JOINT SEALANTS
- 3. SPECIFICATION SECTION 096500 RESILIENT FLOORING
- 4. CS COVER SHEET
- 5. G002 LIFE SAFETY PLAN
- 6. AS101 SITE PLAN
- 7. AD101 DEMOLITION PLAN FIRST FLOOR
- 8. A101 FLOOR PLAN
- 9. A121 REFLECTED CEILING PLAN FIRST FLOOR
- 10. A401 DETAILS
- 11. A402 DETAILS
- 12. MPD100 MECHANICAL & PLUMBING DEMOLITION PLAN
- 13. M100 MECHANICAL PLAN
- 14. M200 HVAC SCHEDULES
- 15. P100 PLUMBING WASTE AND VENT PLAN
- 16. P101 PLUMBING SUPPLY PLAN
- 17. P200 PLUMBING SCHEDULES
- 18. ED100 ELECTRICAL DEMOLITION
- 19. E100 LIGHTING PLAN
- 20. E200 POWER PLAN
- 21. E300 ONE-LINE DIAGRAM & PANEL SCHEDULES
- 22. E402 ELECTRICAL SPECIFICATION

**END OF ADDENDUM** 

## SECTION 32 1313 CONCRETE PAVING

#### **PART 1 - GENERAL**

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
  - 1. Driveways and roadways.
  - 2. Parking lots.
  - 3. Curbs and gutters.
  - 4. Walkways.
- B. Related Sections include the following:
  - 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.

#### 1.03 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 blast-furnace slag.

#### 1.04 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 manufacturer.
- D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
  - Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- E. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:
  - 1. Cementitious materials.

- 2. Steel reinforcement and reinforcement accessories.
- 3. Fiber reinforcement.
- 4. Admixtures.
- 5. Curing compounds.
- 6. Applied finish materials.
- 7. Bonding agent or epoxy adhesive.
- 8. Joint fillers.
- F. Minutes of preinstallation conference.

#### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. 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.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing 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.
- D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

#### 1.06 PROJECT CONDITIONS

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

#### **PART 2 - PRODUCTS**

#### **2.01 FORMS**

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type 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.
- B. 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.

#### 2.02 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- C. Epoxy-Coated Welded Wire Fabric: ASTM A 884/A 884M, Class A, plain steel.

- D. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- E. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 deformed bars.
- F. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 deformed bars.
- G. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60, deformed bars; assembled with clips.
- H. Plain Steel Wire: ASTM A 82.
- I. Deformed-Steel Wire: ASTM A 496.
- J. Epoxy-Coated-Steel Wire: ASTM A 884/A 884M, Class A coated, deformed.
- K. 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.
- L. Epoxy-Coated Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60, plain steel bars.
- M. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.
- N. 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:
  - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
  - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- O. Epoxy Repair Coating: Liquid two-part epoxy repair coating, compatible with epoxy coating on reinforcement.
- P. Zinc Repair Material: ASTM A 780.

#### 2.03 CONCRETE MATERIALS

- A. Cementitious Material: Use one of cementitious materials, of the same type, brand, and source throughout the Project:
  - 1. Portland Cement
- B. Normal-Weight Aggregates: ASTM C 33, Class coarse aggregate, uniformly graded. Conform to ODOT specifications for highway construction. Provide aggregates from a single source.
- C. Water: ASTM C 94/C 94M.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Provide admixtures as allowed by ODOT specifications for highway construction.

#### 2.04 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Reducer: Monomolecular film
  - Representative Products:
    - a. Confilm, Masterbuilders, Inc.
    - b. E-con evaporation control, L& MConstruction Chemicals, Inc.
- E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
  - 1. Products: Conform to ODOT.
- F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.
  - Products: Conform to ODOT.

#### 2.05 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
  - 1. Color: As indicated by manufacturer's designation Match Architect's sample As selected by Architect from manufacturer's full range.
- B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to requirements, and as follows:
  - 1. Types I and II, non-load bearing IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Chemical Surface Retarder: Water-soluble, liquid-set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
  - 1. Products: Conform to ODOT.

#### 2.06 PAVEMENT MARKINGS

- A. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952E, Type II, with drying time of less than 45 minutes.
  - 1. Color: As indicated.

#### 2.07 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
  - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.
- B. Proportion mixtures to provide normal-weight concrete with the following properties:
  - 1. Compressive Strength (28 Days): 4000 psi
  - 2. Water-Cementitious Materials Ratio at Point of Placement: 0.25 0.44.
  - 3. Slump Limit: 2 inches plus or minus 1 inch.
    - a. Slump Limit for Concrete Containing High-Range Water-Reducing Admixture: Not more than 9 inches after adding admixture to plant- or site-verified, 2- to 3-inch slump.
  - 4. Air Content: 6.5 percent plus or minus 1.5 percent for 3/4-inch (19-mm) nominal maximum aggregate size
- C. Calcium Chloride shall not be permitted in concrete mixtures.
- D. Chemical Admixtures: Conform to ODOT specifications for highway construction.
  - 1. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture plasticizing and retarding admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- E. Cementitious Materials: Conform to the ODOT specifications for highway construction Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements.
  - 1. Fly Ash or Pozzolan: 15 percent.
  - 2. Ground Granulated Blast-Furnace Slag: 25 percent.
  - 3. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 40 percent, with fly ash or pozzolan not exceeding 15 percent.
  - 4. Fly Ash or Pozzolan: not allowed within City of Bixby Right of Way pavements.

#### 2.08 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
  - 1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and 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.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

- 1. For concrete mixes of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
- 2. For concrete mixes larger than 1 cu. yd, increase mixing time by 15 seconds for each additional 1 cu. yd.
- 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

#### **PART 3 - EXECUTION**

#### 3.01 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.
  - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
  - 2. Proof-roll with a loaded 10-wheel tandem-axle dump truck weighing not less than 50 tons.
  - 3. Subbase with soft spots and areas of pumping or rutting exceeding depth of 1/4 inch require correction according to requirements in Division 31 Section "Earth Moving."
- C. Proceed with concrete pavement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

#### 3.02 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.
- B. Precautions to protect fresh concrete from developing plastic shrinkage cracks must be taken in advance of concrete placement when evaporation rate due to any combination of temperature, humidity, and wind velocity is expected to approach 0.2 lb./sq. ft./hr. as determined by Figure 2.1.5 of ACI 305. Acceptable precautions to reduce the rate of evaporation include use of wind breaks, monomolecular film evaporation retarders, fog spray, covering with polyethylene sheeting, or wet cover.

#### 3.03 EDGE FORMS AND SCREED CONSTRUCTION

- A. 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.

#### 3.04 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. 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. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.
- F. 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.

#### 3.05 JOINTS

- A. 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.
  - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. 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.
  - 2. Continue steel reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
  - 3. Provide tie bars at sides of pavement strips where indicated.
  - 4. 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.
  - 2. Extend joint fillers full width and depth of joint.
  - 3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
  - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
  - 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
  - 6. Protect top edge of joint filler during concrete placement with metal, plastic, or 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:
  - 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. Eliminate groover marks on concrete surfaces.
  - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/4-inch- wide joints into concrete when cutting action will not tear, abrade (within 12 hours of concrete pour), or otherwise damage surface and before developing random contraction cracks.
  - 3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated and at construction joints. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

#### 3.06 CONCRETE PLACEMENT

- A. 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.
- B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to fresh concrete after testing.
- F. 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.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
  - Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- H. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.
  - 1. Remove and replace concrete that has been placed for more than 15 minutes without being covered by top layer, or use bonding agent if approved by Architect.
- I. Screed pavement surfaces with a straightedge and strike off.

- 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.
- L. Slip-Form Pavers: When automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce pavement to required thickness, lines, grades, finish, and jointing as required for formed pavement.
  - 1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of paver machine during operations.
- M. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.
- N. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete 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.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mix designs.
- O. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
  - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F 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.
  - 4. Take precautions to prevent development of plastic shrinkage cracks.

#### P. Wind:

1. Take precautions to prevent development of plastic shrinkage cracks.

#### 3.07 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
  - 1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
  - 2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
  - 3. 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.

#### 3.08 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. 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/sq. 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.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
  - 1. Moist Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or 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.

#### 3.09 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
  - 1. Elevation: 1/4 inch.

- 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.
- 4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
- 5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
- 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
- 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
- 8. Joint Spacing: 3 inches.
- 9. Contraction Joint Depth: Plus 1/4 inch, no minus.
- 10. Joint Width: Plus 1/8 inch, no minus.

#### 3.10 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow concrete pavement to cure for 21 days and be dry before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings of dimensions 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

- A. Testing Agency: a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. 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 100 cu. yd. or fraction thereof of each concrete mix placed each day.
    - a. When frequency of testing will provide fewer than five compressive-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.
  - 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.

- 6. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days.
  - a. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressivestrength 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.

#### 3.12 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- B. 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.
- C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after 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.

#### **END OF SECTION 321313**

# SECTION 32 1373 CONCRETE PAVING JOINT SEALANTS

#### **PART 1 - GENERAL**

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Expansion and contraction joints within cement concrete pavement.
  - 2. Joints between cement concrete and asphalt pavement.
- B. Related Sections include the following:
  - 1. Division 07 Section "Joint Sealants" for sealing nontraffic and traffic joints in locations not specified in this Section.
  - 2. Division 32 Section "Asphalt Paving" for constructing joints between concrete and asphalt pavement.
  - 3. Division 32 Section "Concrete Paving" for constructing joints in concrete pavement.

#### 1.03 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- C. Qualification Data: For Installer.
- D. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
  - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
  - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

#### 1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
  - 1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

Owasso OPS Enrollment Center

- 2. Submit not fewer than four pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
- 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
- 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
- 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing of current sealant products within a 36-month period preceding the commencement of the Work.
  - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 for testing indicated, as documented according to ASTM E 548.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.06 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - When ambient and substrate temperature conditions are outside limits permitted by jointsealant manufacturer.
  - 2. When joint substrates are wet or covered with frost.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

#### **PART 2 - PRODUCTS**

#### 2.01 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

#### 2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

#### 2.03 COLD-APPLIED JOINT SEALANTS

Owasso OPS Enrollment Center Project #20230104

- A. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
  - 1. Products:
    - a. Crafco Inc.; Road Saver Silicone SL.
    - b. Dow Corning Corporation; 890-SL.

#### 2.04 JOINT-SEALANT BACKER MATERIALS

- A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
- C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
- D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

#### 2.05 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

#### **PART 3 - EXECUTION**

#### 3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

#### 3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

Owasso OPS Enrollment Center Project #20230104

- C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of backer materials.
  - 2. Do not stretch, twist, puncture, or tear backer materials.
  - 3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
- G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

#### 3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

#### 3.05 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

#### **END OF SECTION 321373**

# SECTION 32 1373 CONCRETE PAVING JOINT SEALANTS

#### **PART 1 - GENERAL**

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Expansion and contraction joints within cement concrete pavement.
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- B. Related Sections include the following:
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#### 1.03 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- C. Qualification Data: For Installer.
- D. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
  - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
  - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

#### 1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
  - 1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

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- 2. Submit not fewer than four pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
- 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
- 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
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#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.06 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - When ambient and substrate temperature conditions are outside limits permitted by jointsealant manufacturer.
  - 2. When joint substrates are wet or covered with frost.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

#### **PART 2 - PRODUCTS**

#### 2.01 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

#### 2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

#### 2.03 COLD-APPLIED JOINT SEALANTS

Owasso OPS Enrollment Center Project #20230104

- A. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
  - 1. Products:
    - a. Crafco Inc.; Road Saver Silicone SL.
    - b. Dow Corning Corporation; 890-SL.

#### 2.04 JOINT-SEALANT BACKER MATERIALS

- A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
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#### 2.05 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

#### **PART 3 - EXECUTION**

#### 3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
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#### 3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

#### 3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

Owasso OPS Enrollment Center Project #20230104

- C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of backer materials.
  - 2. Do not stretch, twist, puncture, or tear backer materials.
  - 3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
- G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

#### 3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

#### 3.05 PROTECTION

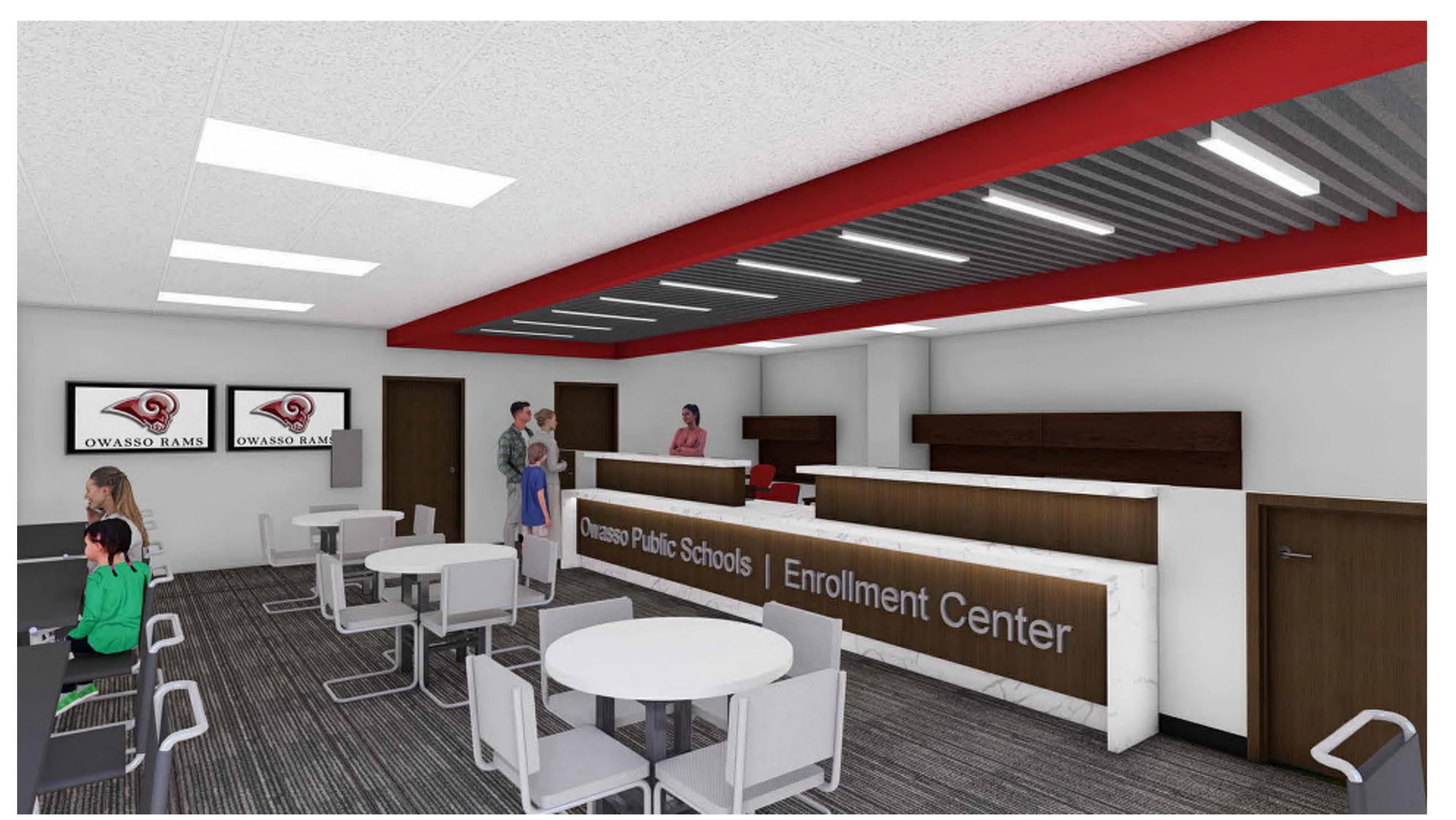
A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

#### **END OF SECTION 321373**

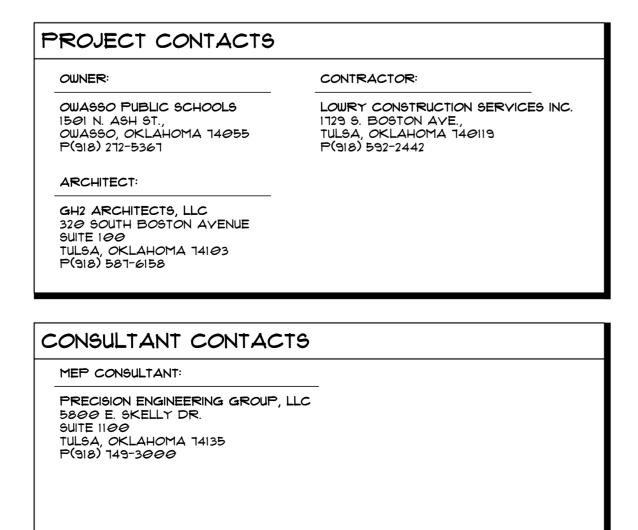
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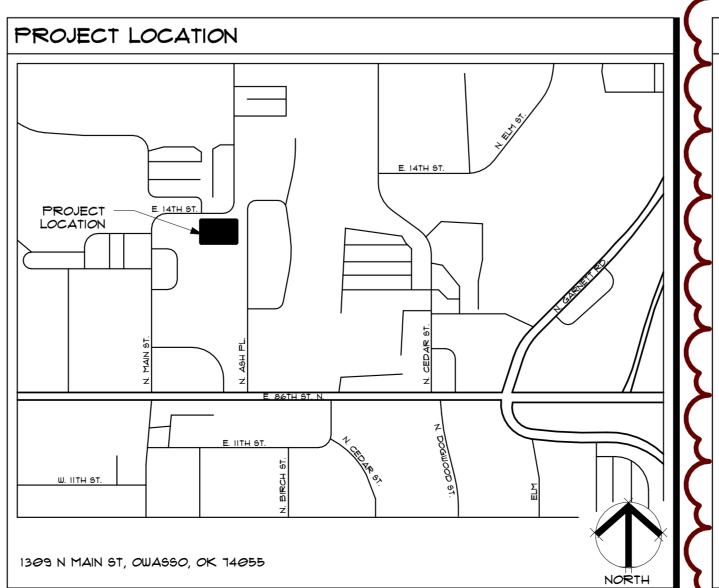
# ENROLLMENT AND IT CENTER

# CONSTRUCTION DOCUMENTS 04/29/2024

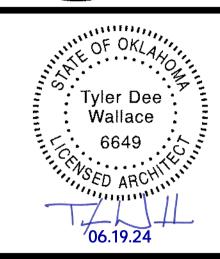


3-D REPRESENTATION FOR ILLUSTRATIVE PURPOSES ONLY, REFER TO DRAWINGS AND DETAILS





	A 1 1994 1, 1995						
	SHEET INDEX	SHEET INDEX					
SHEET NUMBER	SHEET NAME	SHEET NUMBER	SHEET NAME				
SENERAL		P101	PLUMBING SUPPLY CHAINS				
SS	COVER SHEET	P200	PLUMBING SCHEDULES				
3001	PROJECT INFORMATION AND ADAAG INFO AND GUIDLINES	ELECTRICAL					
3002	LIFE SAFETY PLAN	ED100	ELECTRICAL DEMOLITION				
		E001	ELECTRICAL GENERAL NOTES \$ SYMBOLS				
ARCHITECTU	RAL	E100	LIGHTING PLAN				
451 <i>0</i> 1	SITE PLAN	E200	POWER PLAN				
AD101	DEMOLITION PLAN - FIRST FLOOR	E300	ONE-LINE DIAGRAM \$ PANEL SCHEDULES				
AD121	DEMOLITION CEILING PLAN - FIRST FLOOR	E4@1	ELECTRICAL SPECIFICATION				
41 <i>0</i> 1	FLOOR PLAN	E4@2	ELECTRICAL SPECIFICATION				
4121	REFLECTED CEILING PLAN - FIRST FLOOR						
4401	DETAILS	FIRE PROTECTION					
4402	DETAILS	FP100	FIRE PROTECTION PLAN				
MECHANICAI		FP200	FIRE PROTECTION NOTES \$ DETAILS				
MPDI00	MECHANICAL \$ PLUMBING DEMOLITION PLAN						
1001	MECHANICAL GENERAL NOTES, LEGENDS, \$ SYMBOLS						
1100	MECHANICAL PLANS						
1200	MECHANICAL SCHEDULES \$ DETAILS						
PLUMBING							
P001	PLUMBING GENERAL NOTES, LEGENDS, \$ SYMBOLS						
P100	PLUMBING WASTE \$ VENT PLAN						



SO PS - ENROLLMENT & IT CENTER

COVER SHEET

GH2 ARCHITECTS

GH2.COM

GH2 PROJECT NUMBER: 20230239
ISSUE DATE:

04/29/2024
ISSUE:
CONSTRUCTION
DOCUMENTS

OTHER ISSUE DATES:

NO. DESCRIPTION

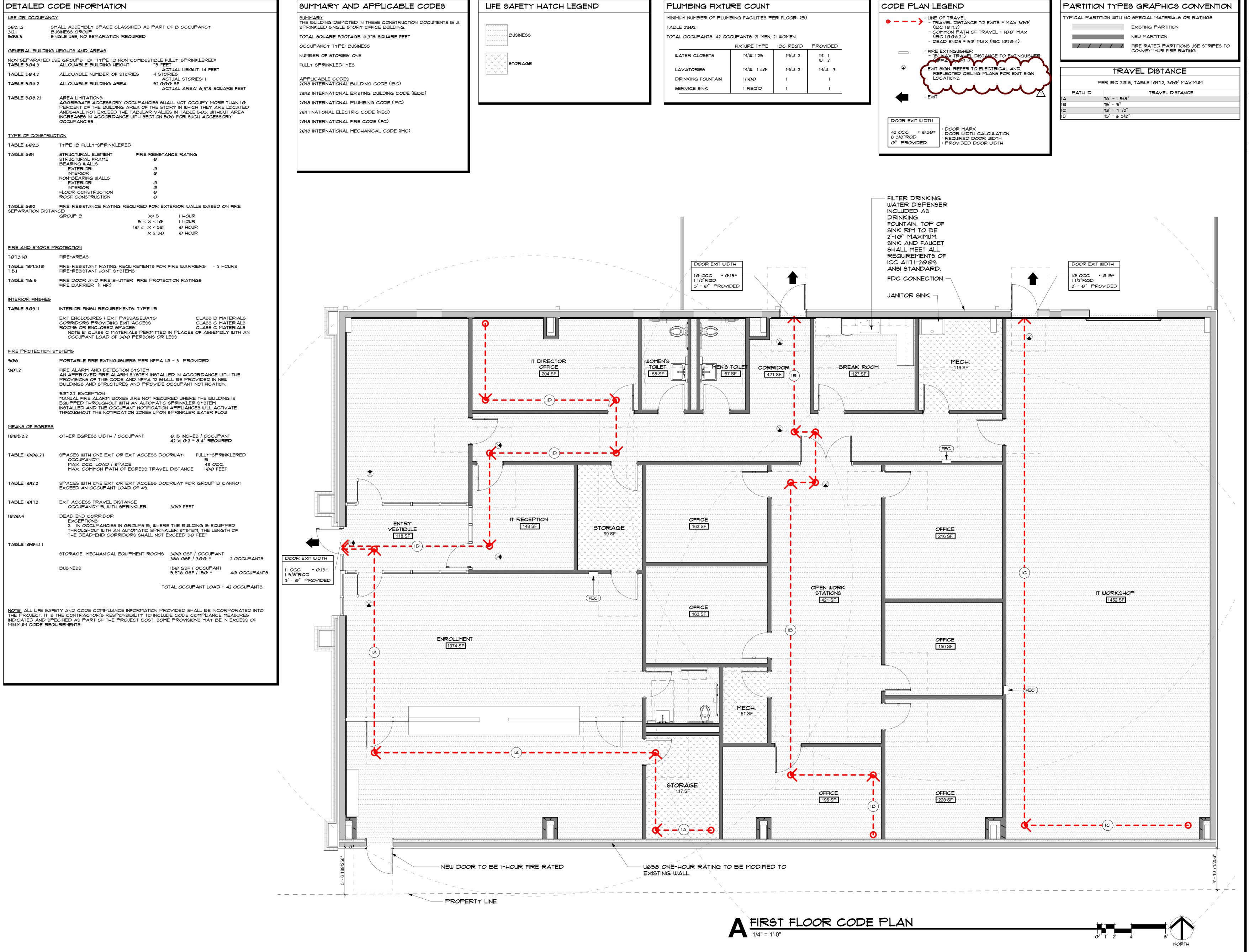
Addendum 01

Addendum 02

SHEET NAME:
COVER SHEET

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SHEET NUMBER:



Tyler Dee
Wallace
6649
06.19.24

PS - ENROLLMENT & IT CENTI

**G002** HEF SAFETY PLAN

GH2 ARCHITECTS

GH2.COM

GH2 PROJECT NUMBER:
20230239

20230239
ISSUE DATE:
04/29/2024

CONSTRUCTION DOCUMENTS

OTHER ISSUE DATES:

NO. DESCRIPTION

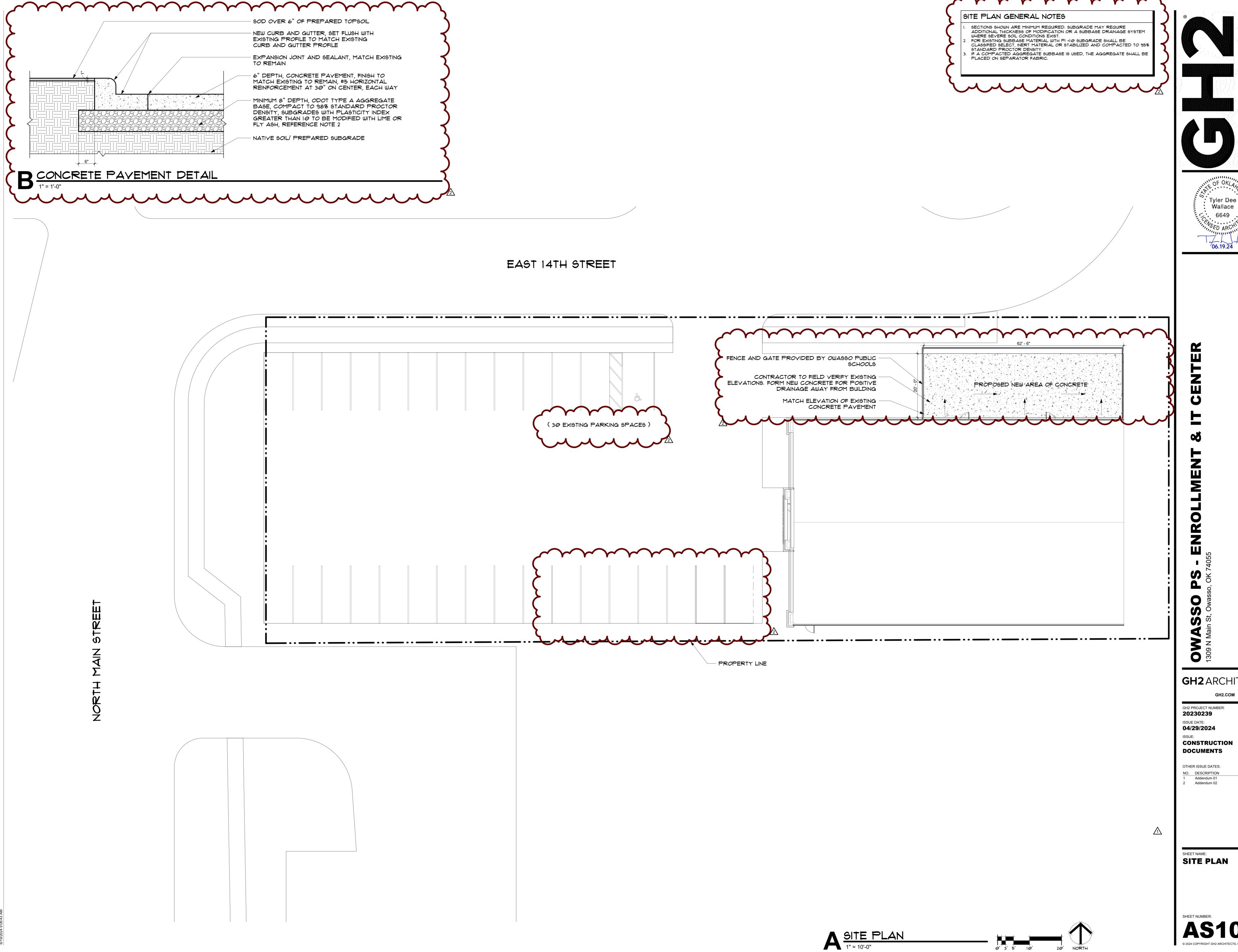
1 Addendum 02

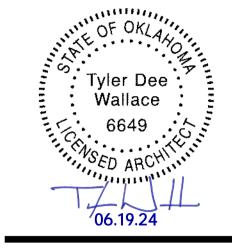
SHEET NAME:

LIFE SAFETY PLAN

SHEET NUMBER:

G002



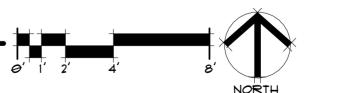


**GH2** ARCHITECTS

DATE 05.24.2024 06.18.2024

A FIRST FLOOR DEMOLITION PLAN

1/4" = 1'-0"



### DEMOLITION GENERAL NOTES

- COORDINATE ALL DEMOLITION WITH NEW CONSTRUCTION AND RENOVATION WORK PRIOR TO START. EXTENT AND LOCATIONS OF BUILDING, SITE AND MECHANICAL, ELECTRICAL AND PLUMBING SYSTEM DEMOLITION IS
- ITEMS SHOWN ON DEMOLITION PLANS WITH DASHED LINEWORK ARE TO BE REMOVED. SEE ADDITIONAL NOTES ON FLOOR PLAN.
- VERIFY QUANTITY OF MATERIALS REQUIRED FOR DEMOLITION AND NEW
- I. DISPOSE OF ALL ITEMS IN A LEGAL MANNER.
- REMOVE EXISTING INTERIOR PARTITIONS AS INDICATED ON PLAN TO
- AND REPAIRED IF DAMAGE OCCURS DURING DEMOLITION OR CONSTRUCTION. PATCH AND REPAIR EXISTING SUBSTRATES THAT ARE TO REMAIN AS REQUIRED TO PREPARE THEM FOR NEW WORK AND FINISHES AS DEFINED ELSEWHERE IN THE DOCUMENTS. REPAIR CRACKS AND / OR STRUCTURAL DAMAGE RESULTING FROM DEMOLITION SHALL BE TO THE SATISFACTION OF THE OWNER AND THE ARCHITECT.
- AT ALL TIMES.
- 0. REMOVE ALL ABANDONED AND NON-OPERATIONAL CABLING ABOVE CEILINGS IN AREA OF WORK. TAKE CARE TO NOT CUT EXISTING DATA OR FIBER THAT IS DATA, AND PLUMBING ITEMS NOT REUSED SHALL BE REMOVED IN THEIR
- ADDITIONAL DEMOLITION INFORMATION.
- REMOVE ITEMS IDENTIFIED AS SALVAGED OR SCHEDULED FOR RE-USE. STORE IN PROTECTED AREA UNTIL REINSTALLATION. REPAIR DAMAGE CAUSE BY CARELESS REMOVAL OR IMPROPER STORAGE OR REPLACE SUCH ITEMS TO THE OWNER'S SATISFACTION.
- REMOVE AND DISPOSE OF EXISTING FLOORING IN AREAS SHOWN TO BE REPLACED. REMOVE TO SUBSTRATE, LEAVING SURFACE READY FOR THE INSTALLATION OF NEW FINISH AS SCHEDULED. PATCH HOLES AND IMPERFECTIONS IN SUBSTRATE AS REQUIRED.
- 5. REMOVE FIXTURES, RECEPTACLES, DEVICES, ETC. AS REQUIRED TO FACILITATE DEMOLITION. STORE DEVICES AND REINSTALL WHERE DIRECTED.
- 6. REMOVE ALL ITEMS FROM WALLS WITHIN AREAS OF WORK AND PREPARE FOR
- I. CONTRACTOR IS RESPONSIBLE FOR PROTECTION AND FINAL CONDITION OF ALL EXISTING ADJACENT FINISHES TO REMAIN.
- THAT ARE NOT CLEARLY DEFINED BY THE DOCUMENTS.
- 19. REMOVE ALL PLUMBING LINES TO A POINT BELOW THE FINISH SLAB. PLUG AND CAP ALL LINES TO ENSURE A LEAK FREE CONDITION, INCLUDING SEWER GASES.
- CONDITIONS SUCH AS FLOODING AND POLLUTION.
- WORK AND THE CONDITIONS WITHIN WHICH THE WORK MUST BE ACCOMPLISHED.
- 24. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE CONSTRUCTION DOCUMENTS.
- 25. CONTRACTOR IS RESPONSIBLE FOR TESTING FOR LEAD BASED PAINT, AND
- 26. PROTECT ADJACENT SURFACES AND FEATURES FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO RESTORE

# DEMOLITION LEGEND

\_\_\_\_ EXISTING TO BE REMOVED

	DEMOLITION KEYOTES
KEY NOTE NUMBER	KEY NOTE TEXT
1	REMOVE PARTITION IN ITS ENTIRETY, INCLUDING ALL ELECTRICAL DEVICES.
2	REMOVE DOOR, HARDWARE, AND FRAME ASSEMBLY IN ITS ENTIRETY.
3	REMOVE WINDOW SYSTEM IN ITS ENTIRETY.
4	REMOVE EXISTING INTERIOR INSULATION AND METAL PANEL, PREPARE FOR 1-HOUR RATING
5	REMOVE ALL ROOM FINISHES INCLUDING CEIING AND FLOORING, UNLESS NOTED OTHERWISE.
6	REMOVE ALL RESTROOM PLUMBING FIXTURES AND ACCESSORIES, INCLUDING TOILET PARTITIONS, MIRRORS, HAND WASHING ACCESSORIES AND FLOOR DRAINS.
٦	REMOVE PORTION OF EXTERIOR WALL - PREPARE AREA FOR NEW DOOR OR WALL OPENING.
8	REMOVE EXISTING EXTERIOR SIGNAGE AND RETURN TO OWNER.
9	REMOVE INTERIOR CEILING IN ITS ENTIRETY
10	PATCH AND REPAIR EXISTING GYPSUM WALL
11	REMOVE PORTION OF POST-TENSION SLAB FOR NEW SEWER AND WATER. LOCATE POST-TENSION CABLES PRIOR TO WORK.

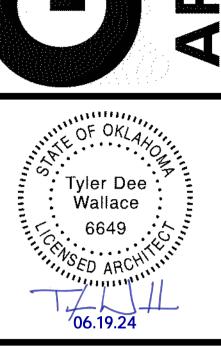
- APPROXIMATE. VERIFY AND COORDINATE EXACT EXTENTS AND START AND STOP POINTS WITH NEW WORK.
- CONSTRUCTION.
- LOCATE AND PROTECT ANY STRUCTURAL COMPONENTS THAT ARE WITHIN WALLS, CEILINGS OR FLOORS, UNLESS SPECIFICALLY IDENTIFIED TO BE REMOVED.
- ACCOMMODATE NEW CONSTRUCTION. COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR REUSED OR RELOCATED DEVICES OR FIXTURES. CONFIRM IF A WALL IS OR IS NOT LOAD BEARING PRIOR TO REMOVING ANY PORTION. IF A WALL IS FOUND TO BE LOAD BEARING, AND IS NOT ADDRESSED IN THE DRAWINGS, CONTACT THE ARCHITECT FOR DIRECTION TO RETAIN THE STRUCTURAL INTEGRITY OF THE SUPPORTED STRUCTURE.
- ALL EXISTING WALLS, FLOORS AND CEILINGS TO REMAIN SHALL BE PATCHED
- DUST WALLS SHALL BE INSTALLED AS REQUIRED TO ISOLATION DEMOLITION AREA FROM OCCUPIED AREA. COORDINATE WITH OWNER. MAINTAIN FIRE EXITS
- REMOVE EXISTING LIGHT FIXTURES AND CEILINGS IN THEIR ENTIRETY, UNLESS NOTED OTHERWISE. LOCATIONS OF EXISTING FIXTURES ARE BASED ON GENERAL FIELD OBSERVATIONS. CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF FIXTURES AND REPORT ANY DISCREPANCIES TO THE ARCHITECT. DE-ENERGIZE CIRCUITS UNTIL READY FOR NEW LIGHTING. COORDINATE WITH ELECTRICAL DRAWINGS TO DETERMINE IF CIRCUITS WILL BE REUSED, RELOCATED, OR ABANDONED. REMOVE CONDUCTORS AND CONDUIT BACK TO SOURCE FOR CIRCUITS THAT WILL BE ABANDONED.
- TO REMAIN FOR THE FUNCTIONING IT ROOM / SERVER. REMOVE ELECTRICAL OUTLETS, TELEPHONE / DATA OUTLETS, LIGHT SWITCHES, AND OTHER DEVICES IN PARTITIONS TO BE DEMOLISHED. REMOVE WIRING BACK TO CLOSEST WALL TO REMAIN AND TERMINATE IN NEW JUNCTION BOX. ALL ELECTRICAL, TELEPHONES,
- REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR
- 4. CONTACT ARCHITECT BEFORE REMOVING OR DEMOLISHING ANY EXISTING CONSTRUCTION OR ITEMS NOT SHOWN TO BE REMOVED.

- 18. CONTACT ARCHITECT FOR ANY UNSEEN CONDITIONS OR UNCERTAIN AREAS
- 20. COMPLY WITH REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION. DO NOT USE WATER WHEN IT MAY CREATE HAZARDOUS OR OBJECTIONABLE
- . EXISTING BUILDINGS TO REMAIN IN WATERTIGHT CONDITION.
- 2. ANY MATERIALS TO BE RECLAIMED SHALL BE AT THE DISCRETION OF THE CONTRACTOR IF NOT INDICATED OR REQUIRED TO BE SALVAGED AND TURNED OVER TO THE OWNER.
- 23. VISIT THE EXISTING FACILITY TO DETERMINE THE EXTENT AND NATURE OF THE SUBMISSION OF BID WILL CONSTITUTE ACCEPTANCE OF EXISTING CONDITIONS.
- MEETING LOCAL CODES GOVERNING METHODS OF REMOVING TOXIC MATERIALS AND TOXIC RESIDUE.

ORIGINAL CONDITION ITEMS OR AREAS DAMAGED DURING CONSTRUCTION.

EXISTING TO REMAIN

~ ~	M M M M M M
	DEMOLITION KEYOTES
KEY NOTE NUMBER	KEY NOTE TEXT
1	REMOVE PARTITION IN ITS ENTIRETY, INCLUDING ALL ELECTRICAL DEVICES.
2	REMOVE DOOR, HARDWARE, AND FRAME ASSEMBLY IN ITS ENTIRETY
3	REMOVE WINDOW SYSTEM IN ITS ENTIRETY.
4	REMOVE EXISTING INTERIOR INSULATION AND METAL PANEL, PREPAR FOR 1-HOUR RATING
5	REMOVE ALL ROOM FINISHES INCLUDING CEIING AND FLOORING, UNLES NOTED OTHERWISE.
6	REMOVE ALL RESTROOM PLUMBING FIXTURES AND ACCESSORIES, INCLUDING TOILET PARTITIONS, MIRRORS, HAND WASHING ACCESSORIE AND FLOOR DRAINS.
٦	REMOVE PORTION OF EXTERIOR WALL - PREPARE AREA FOR NEW DOOR OR WALL OPENING.
8	REMOVE EXISTING EXTERIOR SIGNAGE AND RETURN TO OWNER.
9	REMOVE INTERIOR CEILING IN ITS ENTIRETY



**GH2** ARCHITECTS

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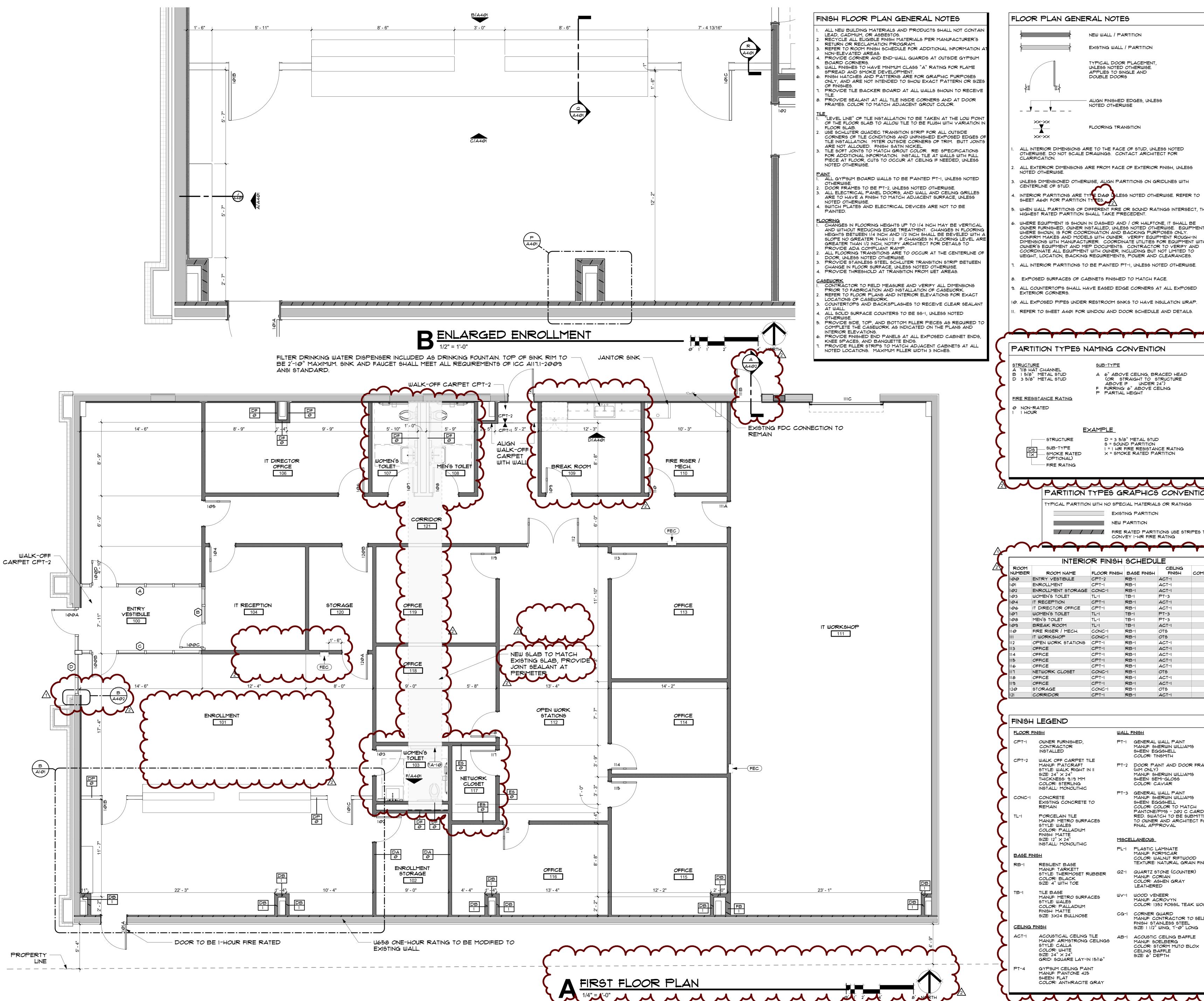
ISSUE DATE: 04/29/2024 CONSTRUCTION **DOCUMENTS** 

OTHER ISSUE DATES: NO. DESCRIPTION 05.24.2024 Addendum 01 06.18.2024 2 Addendum 02

**DEMOLITION PLAN** 

- FIRST FLOOR





NEW WALL / PARTITION EXISTING WALL / PARTITION TYPICAL DOOR PLACEMENT UNLESS NOTED OTHERWISE. APPLIES TO SINGLE AND DOUBLE DOORS ALIGN FINISHED EDGES, UNLESS NOTED OTHERWISE FLOORING TRANSITION

Tyler Dee

Wallace



OTHERWISE. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT FOR

- ALL EXTERIOR DIMENSIONS ARE FROM FACE OF EXTERIOR FINISH, UNLESS
- UNLESS DIMENSIONED OTHERWISE, ALIGN PARTITIONS ON GRIDLINES WITH CENTERLINE OF STUD.
- SHEET AGOI FOR PARTITION TYPES. WHEN WALL PARTITIONS OF DIFFERENT FIRE OR SOUND RATINGS INTERSECT, THE
- HIGHEST RATED PARTITION SHALL TAKE PRECEDENT. WHERE EQUIPMENT IS SHOWN IN DASHED AND / OR HALFTONE, IT SHALL BE OWNER FURNISHED, OWNER INSTALLED, UNLESS NOTED OTHERWISE. EQUIPMENT, WHERE SHOWN, IS FOR COORDINATION AND BACKING PURPOSES ONLY.
- DIMENSIONS WITH MANUFACTURER. COORDINATE UTILITIES FOR EQUIPMENT WITH OWNER'S EQUIPMENT AND MEP DOCUMENTS. CONTRACTOR TO VERIFY AND COORDINATE ALL EQUIPMENT WITH OWNER, INCLUDING BUT NOT LIMITED TO WEIGHT, LOCATION, BACKING REQUIREMENTS, POWER AND CLEARANCES. ALL INTERIOR PARTITIONS TO BE PAINTED PT-1, UNLESS NOTED OTHERWISE.
- EXPOSED SURFACES OF CABINETS FINISHED TO MATCH FACE.
- ALL COUNTERTOPS SHALL HAVE EASED EDGE CORNERS AT ALL EXPOSED EXTERIOR CORNERS.
- 0. ALL EXPOSED PIPES UNDER RESTROOM SINKS TO HAVE INSULATION WRAP. REFER TO SHEET A401 FOR WINDOW AND DOOR SCHEDULE AND DETAILS.



SUB-TYPE

A 6" ABOVE CEILING, BRACED HEAD (OR STRAIGHT TO STRUCTURE ABOVE IF UNDER 24") F FURRING: 6" ABOVE CEILING P PARTIAL HEIGHT

EXAMPLE

D = 3 5/8" METAL STUD S = SOUND PARTITION - STRUCTURE 1 = 1 HR FIRE RESISTANCE RATING \_ SMOKE RATED (OPTIONAL) X = SMOKE RATED PARTITION

# PARTITION TYPES GRAPHICS CONVENTION

TYPICAL PARTITION WITH NO SPECIAL MATERIALS OR RATINGS EXISTING PARTITION

NEW PARTITION FIRE RATED PARTITIONS USE STRIPES TO CONVEY 1-HR FIRE RATING

RB-I ACT-I

PT-I GENERAL WALL PAINT MANUF: SHERWIN WILLIAMS SHEEN: EGGSHELL COLOR: TINSMITH

SHEEN: SEMI-GLOSS COLOR: CAVIAR

PT-3 GENERAL WALL PAINT MANUF: SHERWIN WILLIAMS

PL-I PLASTIC LAMINATE

MANUF: FORMICAR

MANUF: CORIAN

LEATHERED

WOOD YENEER

CG-I CORNER GUARD

MANUF: ACROVYN

COLOR: ASHEN GRAY

COLOR: WALNUT RIFTWOOD TEXTURE: NATURAL GRAIN FINISH

QUARTZ STONE (COUNTER)

COLOR: 1352 FOSSIL TEAK WOOD

MANUF: CONTRACTOR TO SELECT

FINISH: STAINLESS STEEL SIZE: 1 1/2" WING, 7'-0" LONG

ACOUSTIC CEILING BAFFLE

COLOR: STORM MUTO BLOX

MANUF: SOELBERG

CEILING BAFFLE

SIZE: 6" DEPTH

PT-2 DOOR PAINT AND DOOR FRAME (HM ONLY)

MANUF: SHERWIN WILLIAMS

SHEEN: EGGSHELL COLOR: COLOR TO MATCH

PANTONE/PMS - 202 C CARDINAL RED. SWATCH TO BE SUBMITTED

TO OWNER AND ARCHITECT FOR FINAL APPROVAL

<u>WALL FINISH</u>

	INTERIC	R FINISH	SCHEDU	LE	
ROOM NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	CEILING FINISH	COMMENTS
100	ENTRY VESTIBULE	CPT-2	RB-1	ACT-1	
101	ENROLLMENT	CPT-1	RB-1	ACT-1	
102	ENROLLMENT STORAGE	CONC-1	RB-I	ACT-1	
103	WOMEN'S TOILET	TL-1	TB-1	PT-3	
104	IT RECEPTION	CPT-1	RB-1	ACT-1	
106	IT DIRECTOR OFFICE	CPT-1	RB-1	ACT-1	
107	WOMEN'S TOILET	TL-1	TB-1	PT-3	
108	MEN'S TOILET	TL-1	TB-1	PT-3	
109	BREAK ROOM	TL-1	TB-1	ACT-1	
110	FIRE RISER / MECH.	CONC-1	RB-1	OTS	
111	IT WORKSHOP	CONC-1	RB-1	OTS	
112	OPEN WORK STATIONS	CPT-1	RB-1	ACT-1	
113	OFFICE	CPT-1	RB-1	ACT-1	
114	OFFICE	CPT-1	RB-1	ACT-1	
115	OFFICE	CPT-1	RB-I	ACT-1	
116	OFFICE	CPT-1	RB-1	ACT-1	
117	NETWORK CLOSET	CONC-1	RB-1	OTS	
118	OFFICE	CPT-1	RB-1	ACT-1	
119	OFFICE	CPT-1	RB-1	ACT-1	
120	STORAGE	CONC-1	RB-1	OTS	

# FINISH LEGEND

CPT-1 OWNER FURNISHED, CONTRACTOR INSTALLED WALK OFF CARPET TILE MANUF: PATCRAFT STYLE: WALK RIGHT IN II SIZE: 24" × 24" THICKNESS: 9.19 MM COLOR: STERLING

> CONCRETE EXISTING CONCRETE TO

MANUF: METRO SURFACES STYLE: WALES COLOR: PALLADIUM FINISH: MATTE SIZE: 12" × 24" INSTALL: MONOLITHIC

RESILIENT BASE MANUF: TARKETT

STYLE: THERMOSET RUBBER COLOR: BLACK SIZE: 4" WITH TOE TILE BASE MANUF: METRO SURFACES STYLE: WALES COLOR: PALLADIUM FINISH: MATTE SIZE: 3×24 BULLNOSE

ACOUSTICAL CEILING TILE STYLE: CALLA

MANUF: ARMSTRONG CEILINGS COLOR: WHITE SIZE: 24" × 24" GRID: SQUARE LAY-IN 15/16' GYPSUM CEILING PAINT MANUF: PANTONE 425

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Main St. Owas

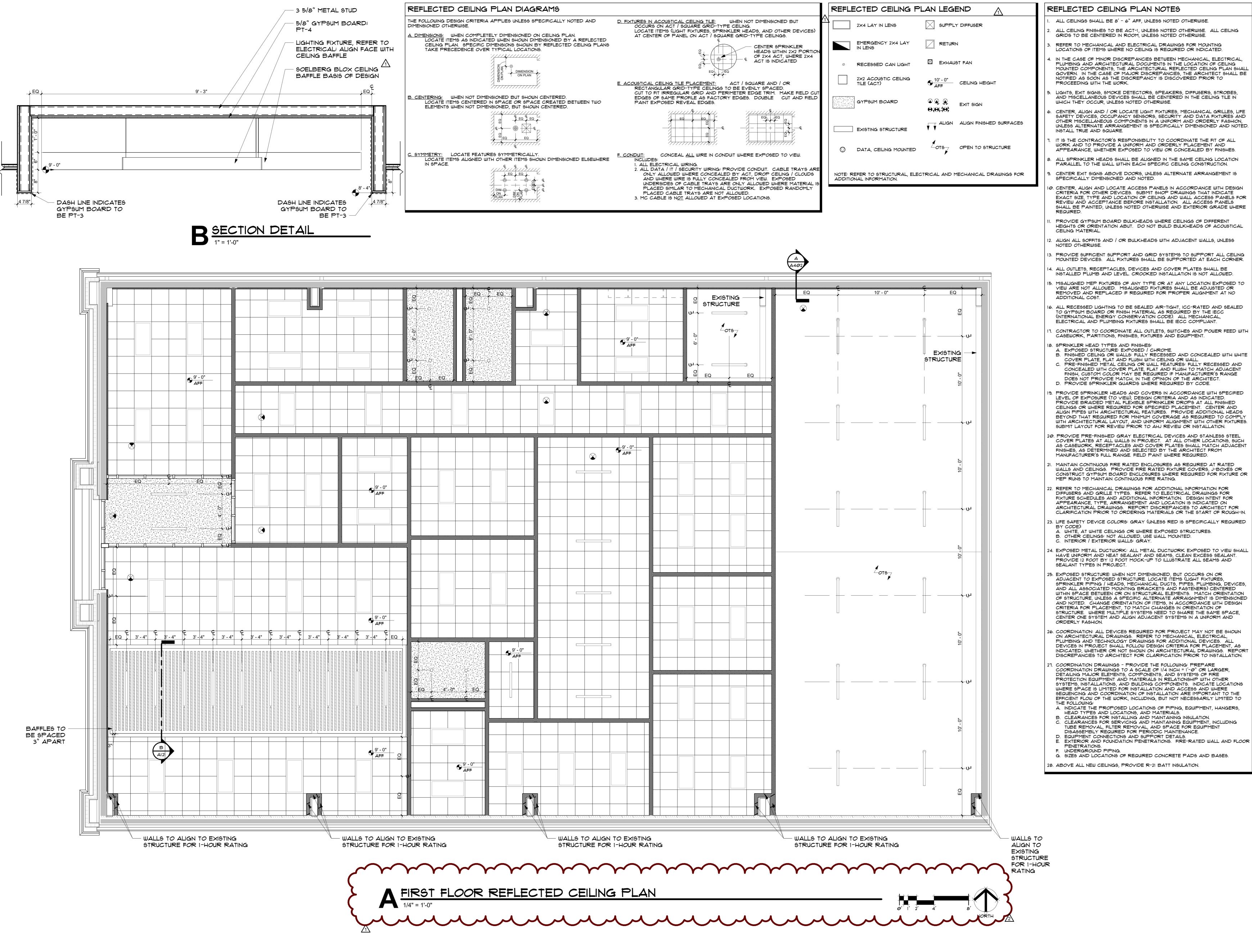
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NO. DESCRIPTION Addendum 01 Addendum 02

05.24.2024

**FLOOR PLAN** 

SHEET NUMBER:



Tyler Dee ' Wallace 6649

**309** N I

**GH2** ARCHITECTS

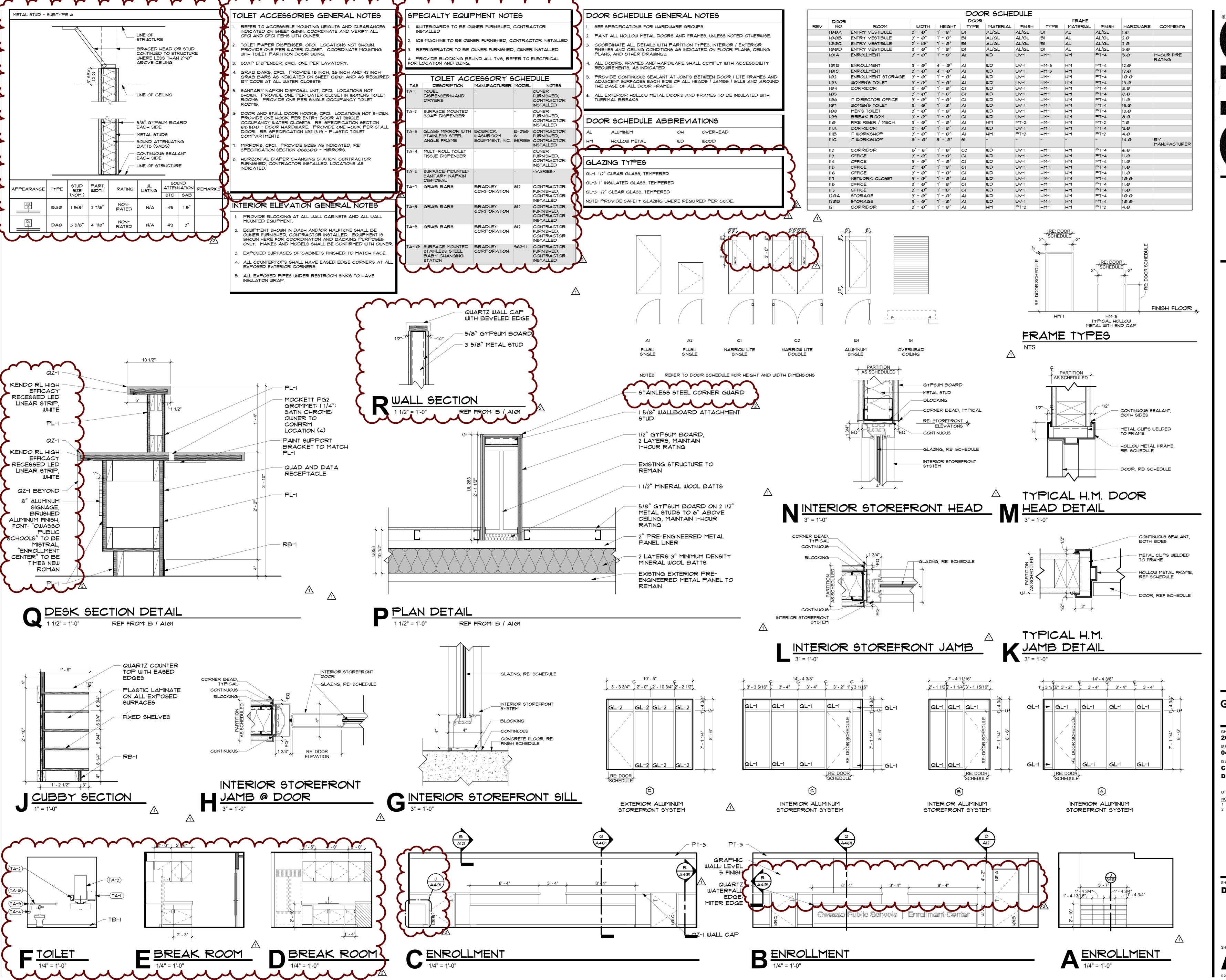
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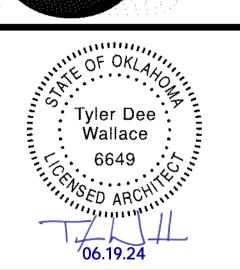
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CONSTRUCTION **DOCUMENTS** 

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SHEET NAME: REFLECTED **CEILING PLAN FIRST FLOOR** 





06.19.24

OWASSO PS - ENROLLMENT & IT CE 1309 N Main St, Owasso, OK 74055

A401

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04/29/2024
ISSUE:
CONSTRUCTION
DOCUMENTS

 NO.
 DESCRIPTION
 DATE

 1
 Addendum 01
 05.24.2024

 2
 Addendum 02
 06.18.2024

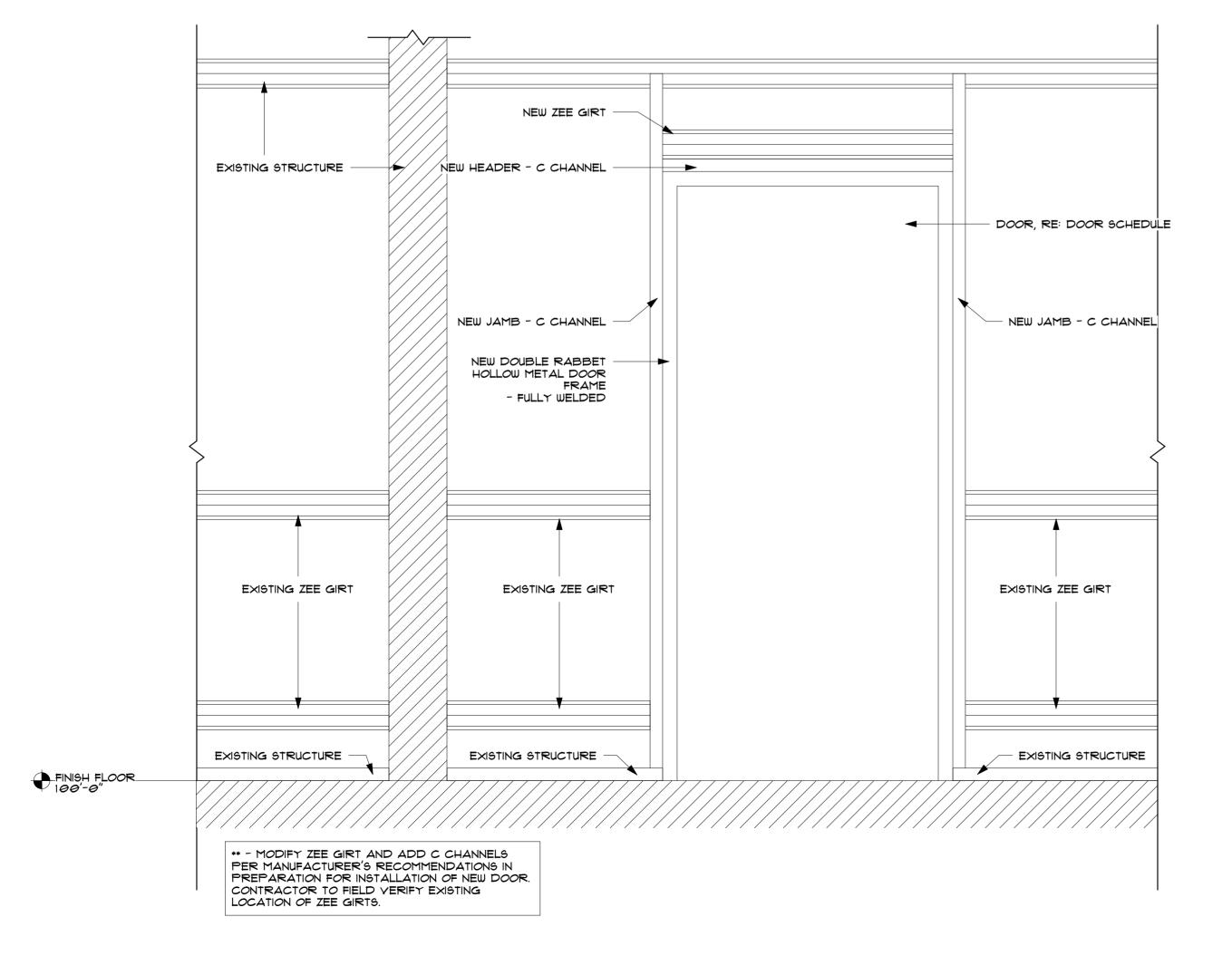
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DETAILS

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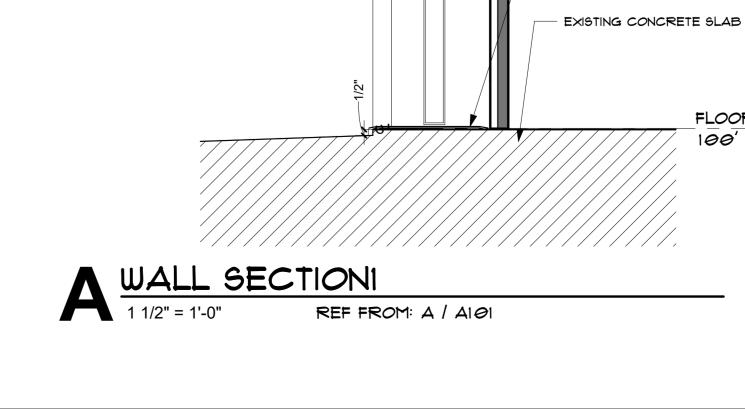
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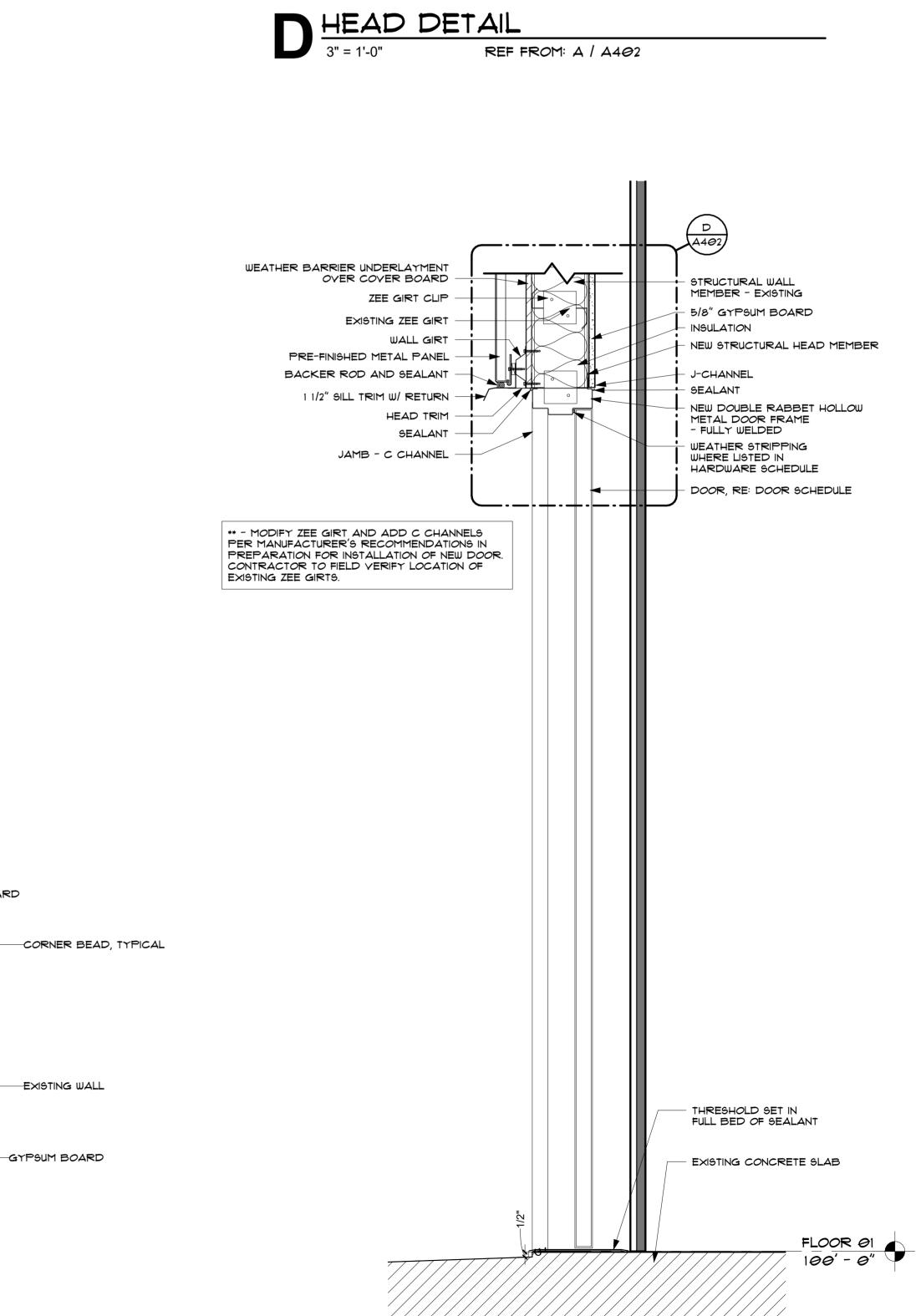
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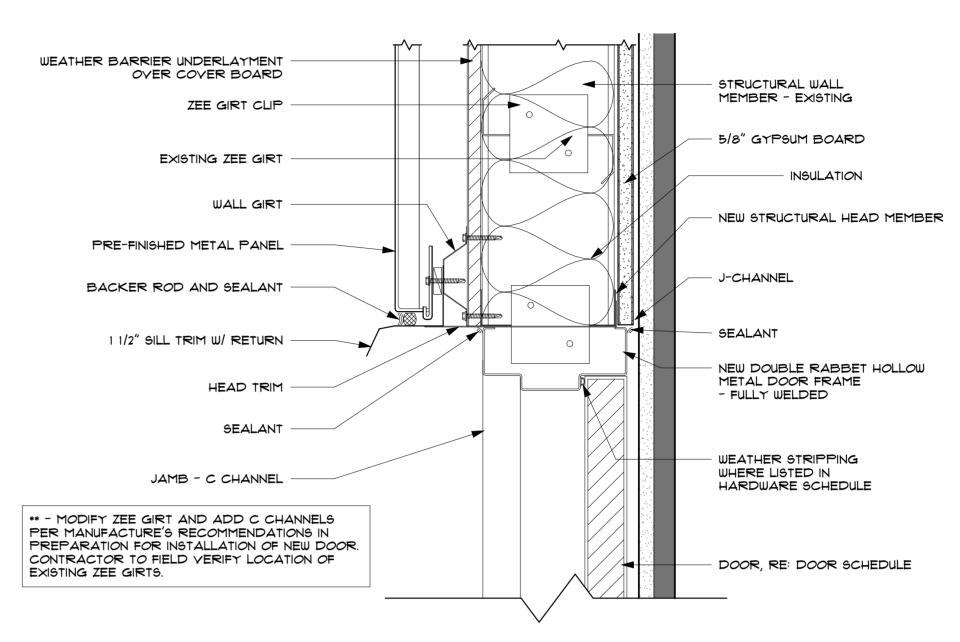


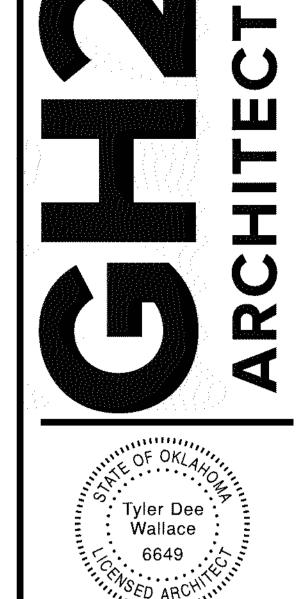


-GYPSUM BOARD









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NROLL

Main St. Owas

GH2 PROJECT NUMBER: 20230239

CONSTRUCTION **DOCUMENTS** 

OTHER ISSUE DATES:

NO. DESCRIPTION

1 Addendum 02

**DETAILS** 

ISSUE DATE: 04/29/2024

ISSUE:

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ABDOU JAAEAR 18906 STANDARD ONLAHOMA CONTAHOMA CONTAHOMA

78906 SW

OWASSO PS - ENROLLMENT & IT C 1309 N Main St, Owasso, OK 74055

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GH2 PROJECT NUMBER: **20230239** 

ISSUE DATE:
05/10/2024
ISSUE:
PERMIT SET

OTHER ISSUE DATES:

NO. DESCRIPTION DATE

ADD #1 5-24-2

ADD #2 6-18-2-

SHEET NAME:
MECHANICAL &
PLUMBING
DEMOLITION PLAN

SHEET NUMBER:

MPD100

KEYNOTES #

TOP OF THERMOSTAT AT 48" A.F.F. COORDINATE EXACT LOCATION WITH

SUPPLY/RETURN/EXHAUST AIR DUCTWORK ROUTED ABOVE SUSPENDED

SHALL BE AS RECOMMENDED BY DUCT LINER MANUFACTURE AND SHALL

ANGERS. FIELD VERIFY EXACT LOCATION WITH EXISTING CONDITIONS

CONDENSATE PIPES TO NEAREST AHJ APPROVED RECPTOR

FOR BALANCING OF OUTDOOR AIR.

WITH MINIMUM 1" INSULATION.

REQUIREMENTS.

NEW DUCTWORK.

ROUTE REFRIGERANT PIPING TO ASSOCIATED CONDENSING UNIT. ROUTE

ALL NEW AND EXISTING EXTERIOR REFRIGERANT PIPING SHALL BE INSULATED WITH AN OUTDOOR RATED UV RESISTANT INSULATION (ARMACELL ARMAFLEX SHIELD OR EQUAL). ALL INDOOR REFRIGERANT PIPING SHALL BE INSULATED

REFER TO ELECTRICAL AND FIRE ALARM PLAN FOR SMOKE DETECTION

10. ROUTE 6" EXHAUST DUCT FROM EXHAUST FAN AND DISCHARGE TO WALL CAP

1. EXISTING UNITS AC-1 & AC-2 IS TO BE RELOCATED AND RETROFITTED WITH

12. EXISTING UNITS AC-3 & AC-4 TO BE ELEVATED TO COORDINATE WITH NEW CEILING OR LIGHTING IN STORAGE, AND RETROFITTED WITH NEW DUCTWORK.

3. MOUNT DUCTLESS AC UNIT ON WALL AS HIGH AS POSSIBLE BELOW CEILING. VERIFY EXACT ROUTING OF LIQUID AND SUCTION LINES TO GROUND MOUNTED

CONDENSING UNIT. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

15. PROVIDE 4" CONCRETE HOUSE KEEPING PAD FOR NEW CONDENSING UNIT

16. EXISTING CONDENSING UNIT TO BE RELOCATED. PROVIDE NEW 4" HOUSE KEEPING PAD, REFRIGERATION LINE SET, CONTROL WIRING, DRYER AND TOP

SERVING AC-5.

4. MOUNT TOP OF THERMOSTAT AT 48" A.F.F.

R-22 CHARGE AS NEEDED.

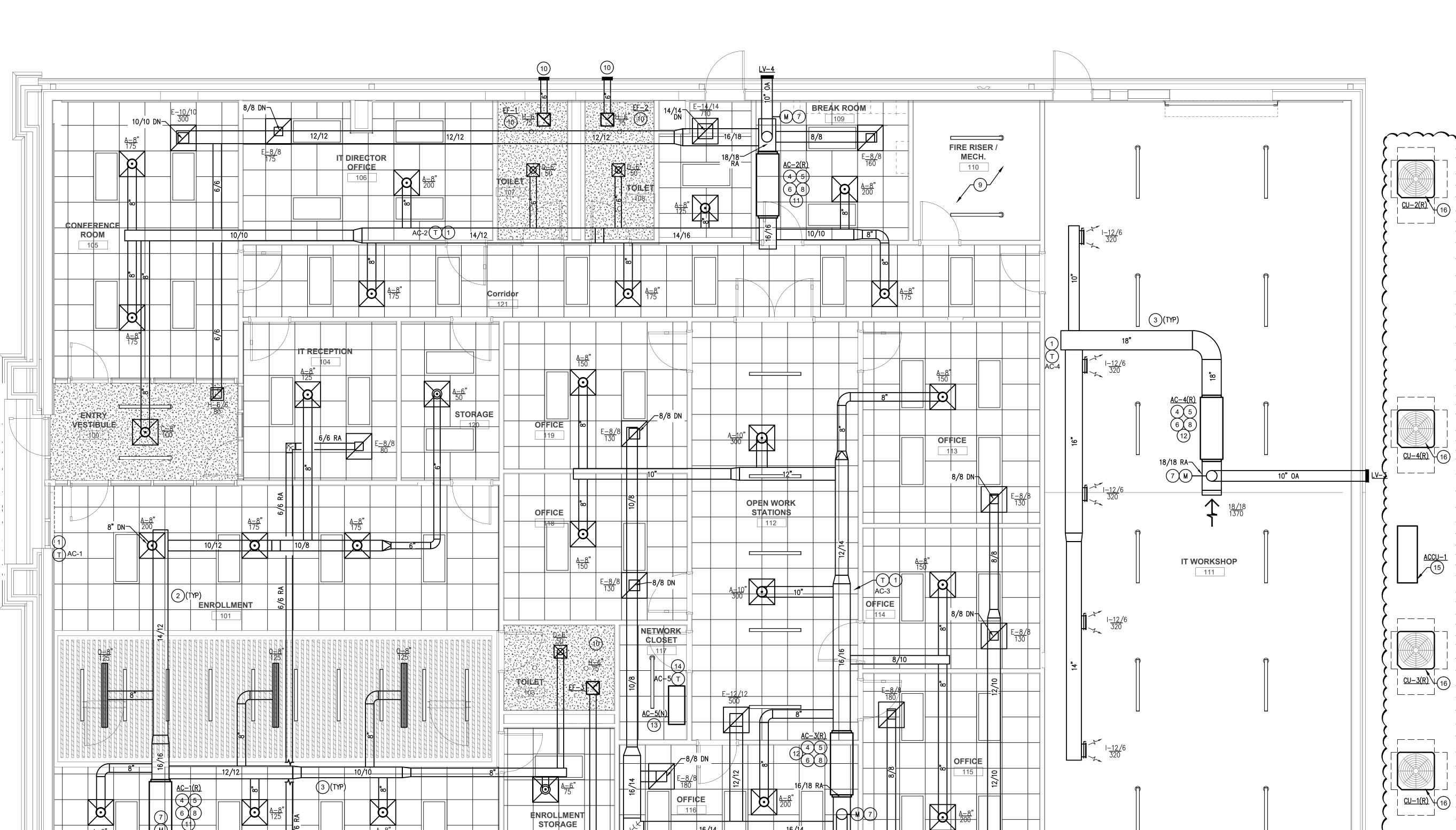
↑ ADD #1 

SHEET NAME:
MECHANICAL

BALANCE DAMPERS ARE REQUIRED FOR BALANCING THE HVAC SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND INSTALL EVEN IF NOT SHOWN ON THE AIR OUTLET SCHEDULE OR PLANS. ALL

EQUAL) SHALL BE PROVIDED WITH CONCEALED CEILING

REGULÁTOR REMOTE CONTROL KIT 270-301.



DAMPERS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION OR REMOTE ADJUSTMENT PROVIDED. WHERE DAMPERS ARE INSTALLED ABOVE A HARD LID CEILING A YOUNG REGULATOR CABLE INSIDE OR OUTSIDE AIR STREAM AIR CONTROL DAMPER (OR

EXISTING BUILDING SLAB IS A POST—TENSION SLAB. COORDINATE ALL FLOOR PENETRATION WITH LOCATIONS OF TENONS. SLAB PENETRATIONS SHALL BE RELOCATED IF CONFLICTING WITH TENON LOCATIONS. UNDER NO CIRCUMSTANCES SHALL THE TENONS BE CUT. CONTRACTOR SHALL

SCAN SLAB AND LOCATE TENON PRIOR TO ANY UNDER SLAB

<u>LV-1</u>

<u>LV-2</u>

1. AUXILIARY DRAIN PAN AND FLOAT SWITCH TO BE RE-USED. CONTRACTOR TO CONFIRM OPERATION

FAN COIL DATA

MANUFACTURE

LENNOX

AC-1(R) | EX/RELO | ENROLLMENT | LENNOX | CB30M-65-4P | 1600 |

AC-4(R) EXISTING IT WORKSHOP LENNOX CB30M-65-4P 1600

2. PROVIDE NEW 2" MERV8 FILTER AND RACK. 3. PROVIDE NEW REFRIGERATION DRYER.

AC-2(R) | EX/RELO | COR/BRK/OFC | LENNOX

AREA SERVED

MARK

 $\sim\sim$ 

EXISTING

AC-3(R) SEXISTING OFFICES

1. CONTRACTOR SHALL CONFIRM SPLIT SYSTEM OPERATION AND PROVIDE OWNER WITH REPAIR OR REPLACEMENT COST. 5. CHECK REFRIGERANT AND CHARGE.

CB30M-65-4P | 1600 |

CB30M-65-4P | 1600 |

3. PROVIDE PROGRAMMABLE 7 DAY PROGRAMMABLE THERMOSTAT WITH TIME OF DAY INTERLOCK WITH MOTORIZED DAMPER, AUTOMATIC SWITCHOVER AND LOCKING COVER. COORDINATE NUMBER OF STAGES WITH UNIT. 7. PROVIDE ALL NECESSARY COMPONENTS FOR CODE COMPLIANCE AND A COMPLETE AND OPERATIONAL SYSTEM.

320 | 0.7" | 0.5 | 15.0

175 | 0.7" | 0.5 | 15.0

220 | 0.7" | 0.5 | 15.0

230 | 0.7" | 0.5 | 15.0

						IR-	C00	LED S	SPLIT S	YST	ΈM	(COOLING	G ONLY	Y, NE	W)							
				F/	AN COIL D	DATA									CONDENSER	DATA					1	
MARK	AREA SERVED			FAN						WEIGHT						COOLING CAPAG	CITY (MBH)		ELECTRICAL	DATA	WEIGHT	REMA
	THE TOLKYES	MANUFACTURER	MODEL	CFM (H/M/L)	E.S.P.	HP/(W)	VOLT/PH	MCA MOCP	CONFIGURATION	(LBS)	MARK	MANUFACTURER	MODEL	TONNAGE	STAGES	TOTAL (MIN/MAX)	SENSIBLE (MAX)	EER/SEER	VOLT/PH MCA	MOCP	(LBS)	I TALLINIA
																			1			

AC-5 NETWORK CLOSET 117 MITSUBISHI PKA-A12LA1 385/325/265 0.10 30 208/1 1.0 - WALL MOUNT 28 ACCU-1 MITSUBISHI PUY-A12NKA7 1.0 INVERTER 4,400/12,000 10,560 13.3/21.3 208/1 11 28 92 ALL

. COOLING CAPACITIES ARE RATED AT 98.0° DB/62.5° WB AMBIENT OUTDOOR AIR TEMPERATURE, AND INDOOR DESIGN TEMPERATURE 80° DB/67° WB/50% RH., AND NOMINAL AIR QUANTITY LISTED.

. PROVIDE WIRELESS REMOTE AND MOUNT ON WALL BELOW UNIT. 5. ROUTE CONDENSATE FROM DUCTLESS WALL MOUNTED AC UNIT TO AHJ APPROVED RECEPTOR AND TERMINATE WITH AIR GAP.

4. OUTDOOR UNIT SHALL HAVE A MINIMUM LISTED RATING. 6. PROVIDE MANUFACTURER'S CLEARANCES FOR UNITS.

E. PROVIDE ALL NECESSARY COMPONENTS FOR CODE COMPLIANCE AND A COMPLETE AND OPERATIONAL SYSTEM. '. PROVIDE INLINE CONDENSATE PUMP DACA-CP1-1 IF REQUIRED.

I. APPROVED EQUALS: CARRIER, LG, MITSUBISHI

LOUVER SCHEDULE											
MARK	SERVICE	MANUFACTURE	MODEL	SIZE	CFM	REMARKS					
LV-1	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	320	1,2,3,4					
LV-2	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	175	1,2,3,4					
LV-3	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	220	1,2,3,4					
LV-4	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	230	1,2,3,4					
REMARKS:						•					

LV-2	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	175	1,2,3,4
LV-3	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	220	1,2,3,4
LV-4	INTAKE	UNITED ENERTECH	FL-D-4	14"X14"	230	1,2,3,4
2. FINISH COLO 3. LISTED MAN CAPACITIES AS 4. BACK DRAF	IUFACTURER IS USE S A MINIMUM. T DAMPER.	D BY ARCHITECT AFTE ED AS A BASIS FOR C 120 VOLT DAMPER C	DESIGN. ALTER		RERS SHALL MEET	THE LISTED

			EXHAL	JST	FAN	SCHEDU	LE		
MARK	AREA SERVED	MANUFACTURE	MODEL	TYPE	ACTUAL CFM	TOTAL STATIC PRESSURE (IN WC)	ELECTRICAL (VOLTS/PH)	WEIGHT (LBS.)	REMARKS
EF-1	RESTROOM	GREENHECK	SP-110-VG	CEILING	75	0.375	120/1	12	ALL
EF-2	RESTROOM	GREENHECK	SP-110-VG	CEILING	75	0.375	120/1	12	ALL
EF-2	RESTROOM	GREENHECK	SP-110-VG	CEILING	75	0.375	120/1	12	ALL
NOTES									

1. UNIT TO BE SUPPLIED WITH BACKDRAFT DAMPER. 2. E.C. TO INTERLOCK CONTROL TO RESTROOM LIGHT SWITCH.

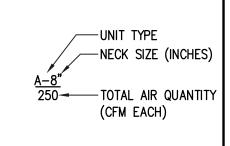
3. UNIT TO BE SUPPLIED WITH DISCONNECT SWITCH. 4. PROVIDE MANUFACTURER'S WALL CAP. PAINT TO MATCH BUILDING EXTERIOR. 5. PROVIDE WITH VIBRATION ISOLATOR HANGING KIT.

	GRII	LES,	REGIST	ERS, I	DIFFUS	ERS S	CHE	DULE	
MARK	SERVICE	TYPE	MANUFACTURER	MODEL	CONSTRUCTION	FACE SIZE	FINISH	MOUNTING	REMARKS
Α	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINIUM	24X24	WHITE	LAY-IN	1,2,3,5
В	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINIUM	12X12	WHITE	LAY-IN	1,2,3,5
С	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINIUM	24X24	WHITE	FLANGED	1,2,3,4,5
D	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINIUM	12X12	WHITE	FLANGED	1,2,3,5
Ε	RETURN/EXH	CEILING	TITUS	50F	ALUMINIUM	24X24	WHITE	LAY-IN	2,5
F	RETURN/EXH	CEILING	TITUS	50F	ALUMINIUM	12X12	WHITE	LAY-IN	2,5
G	RETURN/EXH	CEILING	TITUS	50F	ALUMINIUM	24X24	WHITE	FLANGED	2,4,5
Н	RETURN/EXH	CEILING	TITUS	50F	ALUMINIUM	12X12	WHITE	FLANGED	2,4,5
1	SUPPLY	DUCT	TITUS	DLSV	ALUMINUM		WHITE	FLANGED	4
J	RETURN	WALL	TITUS	355ZFL	ALUMINIUM		WHITE	FLANGED	4,5,7
K	SUPPLY	WALL	TITUS	300FL	ALUMINIUM	PLAN	WHITE	FLANGED	5,7
L	TRANSFER	WALL	TITUS	350FL	ALUMINIUM		WHITE	FLANGED	5,7
М	SUPPLY	CEILING	TITUS	350FL	ALUMINIUM	PLAN	WHITE	LAY-IN	1,2,4,5
0	SUPPLY	LINEAR	TITUS	FL-25(HT)	ALUMINUM	48" TWO SLOT	WHITE	FLANGED	1,2,5,7,9
DEMARKS	1				1	'		-	

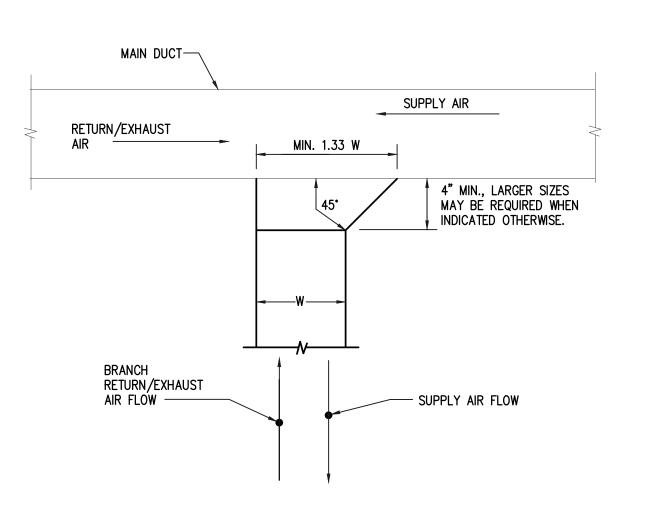
1. BRANCH DUCT SERVING DIFFUSER TO BE SAME SIZE AS DIFFUSER NECK UNLESS OTHERWISE NOTED. 2. REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATION. 3. PROVIDE WITH 4-WAY THROW PATTERN UNLESS OTHERWISE NOTED ON PLAN.

4. PROVIDE WITH OPPOSED BLADE DAMPER. 5. REFER TO PLAN FOR NECK SIZES. 6. PROVIDE TWO GRILLES, ONE ON EACH SIDE OF WALL. 7. PAINT GRILLE/DIFFUSER. REFER TO ARCHITECT FOR COLOR. 8. 0° DEFLECTION.

9. 2.5" SLOT WIDTH. PROVIDE INSULATED PLENUM. COORDINATE MOUNTING FRAME WITH ARCHITECTURAL FLOATING CEILING.

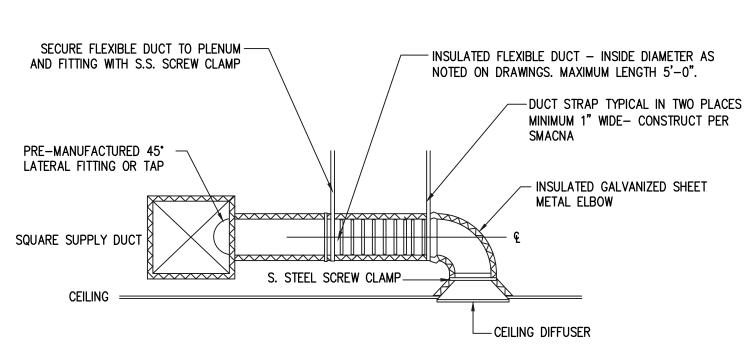


—TOP BEAM CLAMP TYP BEAM HANGER STRAP-— THREADED ROD BOTTOM OF--SHEET METAL STRUCTURE SCREWS TYP RECTANGULAR DUCT-\_\_\_2"x2"x1/4" ANGLE OR 1 5/8"x1 5/8" UNISTRUT TWIST STRAP — 16 GAUGE GALV STEEL BAND (2" WIDE) — ROUND DUCT -RECTANGULAR DUCT PERPENDICULAR TO STRUCTURE RECTANGULAR DUCT PARALLEL TO STRUCTURE



PERPENDICULAR TO JOIST

2	BRANCH DUCT TAKEOFF
	SCALE: N.T.S.



1 DUCT BRANCH RUNOUT DETAIL
SCALE: N.T.S.

**GH2** ARCHITECTS

GH2 PROJECT NUMBER: 20230239 ISSUE DATE: 05/10/2024

**PERMIT SET** 

M

ENROL

ASSO

OTHER ISSUE DATES: NO. DESCRIPTION 5-24-24 **∕**1 ADD #1 ■ <u>2</u> ADD #2

SHEET NAME:
MECHANICAL SCHEDULES & DETAILS

ROUTE DRAIN PAN AND T&P RELIEF PIPING DOWN FROM WH-1 TO MOP SINK AND DISCHARGE SEPARATELY WITH A MINIMUM 2" AIR GAP.

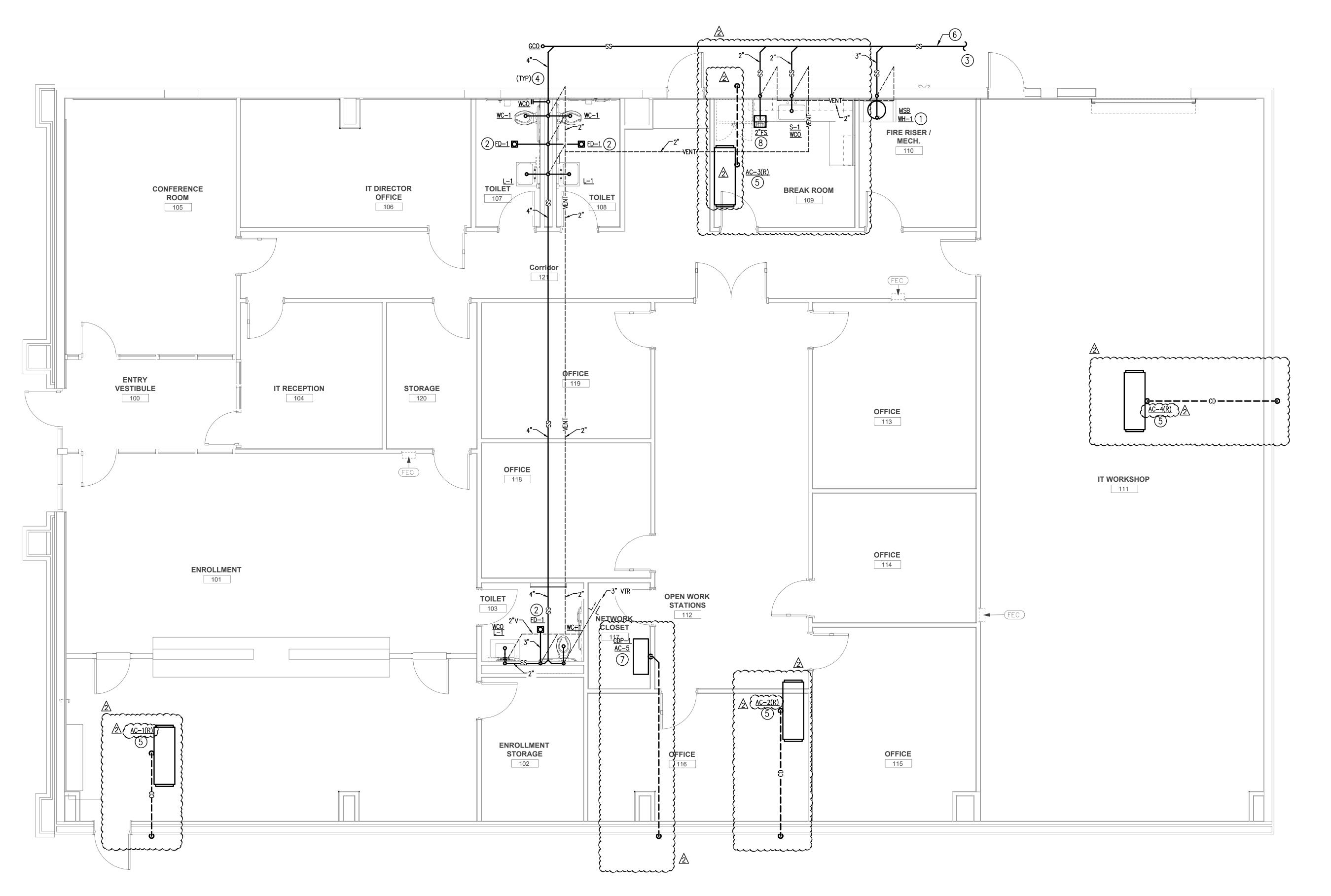
PROVIDE "TRAP GUARD" OR SIMILAR BARRIER-TYPE TRAP SEAL PROTECTION DEVICE FOR FLOOR DRAIN/SINK. CONNECT NEW SANITARY PIPING TO MINIMUM 4" EXISTING SANITARY PIPING. ALL EXISTING SANITARY SHALL BE FIELD VERIFIED PRIOR TO START OF CONSTRUCTION INCLUDING BUT NOT LIMITED TO: CONNECTION POINT, INVERT,

DIRECTION OF FLOW, AND LOCATION. . CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING STRUCTURAL FOOTINGS

PRIOR TO CONSTRUCTION AND MODIFY ROUTING AS REQUIRED. (TYPICAL)

5. PROVIDE NEW 3/4" CONDENSATE PIPING. INSULATE WITH 1/2" CLOSE CELL INSULATION. DRAIN TO EXTERIOR ABOVE GRADE.

COORDINATE ROUTING WITH EXISTING FIRE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING/BACKFILL/NEW CONCRETE. 3/4" CONDENSATE FROM WALL MOUNTED AC UNIT TO BE ROUTED ABOVE OFFICE CEILING LEVEL VIA CONDENSATE PUMP (CDP-1). ROUTE TO BUILDING EXTERIOR AND DISCHARGE WITH MIN 1" AIR GAP TO GRADE. ENSURE MINIMUM 1/8" SLOPE PER FOOT. INSULATE WITH 1/2" CLOSE CELL INSULATION. 8. LOCATE FLOOR SINK 1/2 EXPOSED WITH COUNTER. COORDINATE EXACT LOCATION WITH ARCHITECTURAL PLAN. ROUTE ICE MACHINE BIN AND COOLING COIL TO FLOOR SINK AND TERMINATE WITH MINIMUM 1" AIR GAP.



1 PLUMBING DWV PLANS
P100 SCALE: 1/4" = 1'-0"

**GH2** ARCHITECTS

GH2 PROJECT NUMBER: **20230239** 

ISSUE DATE: **05/10/2024** ISSUE:
PERMIT SET

OTHER ISSUE DATES: NO. DESCRIPTION

ADD #1

ADD #2

SHEET NAME:
PLUMBING WASTE
& VENT PLAN

# RDINATE ALL PENETRATIONS TIONS. UNDER

# KEYNOTES#

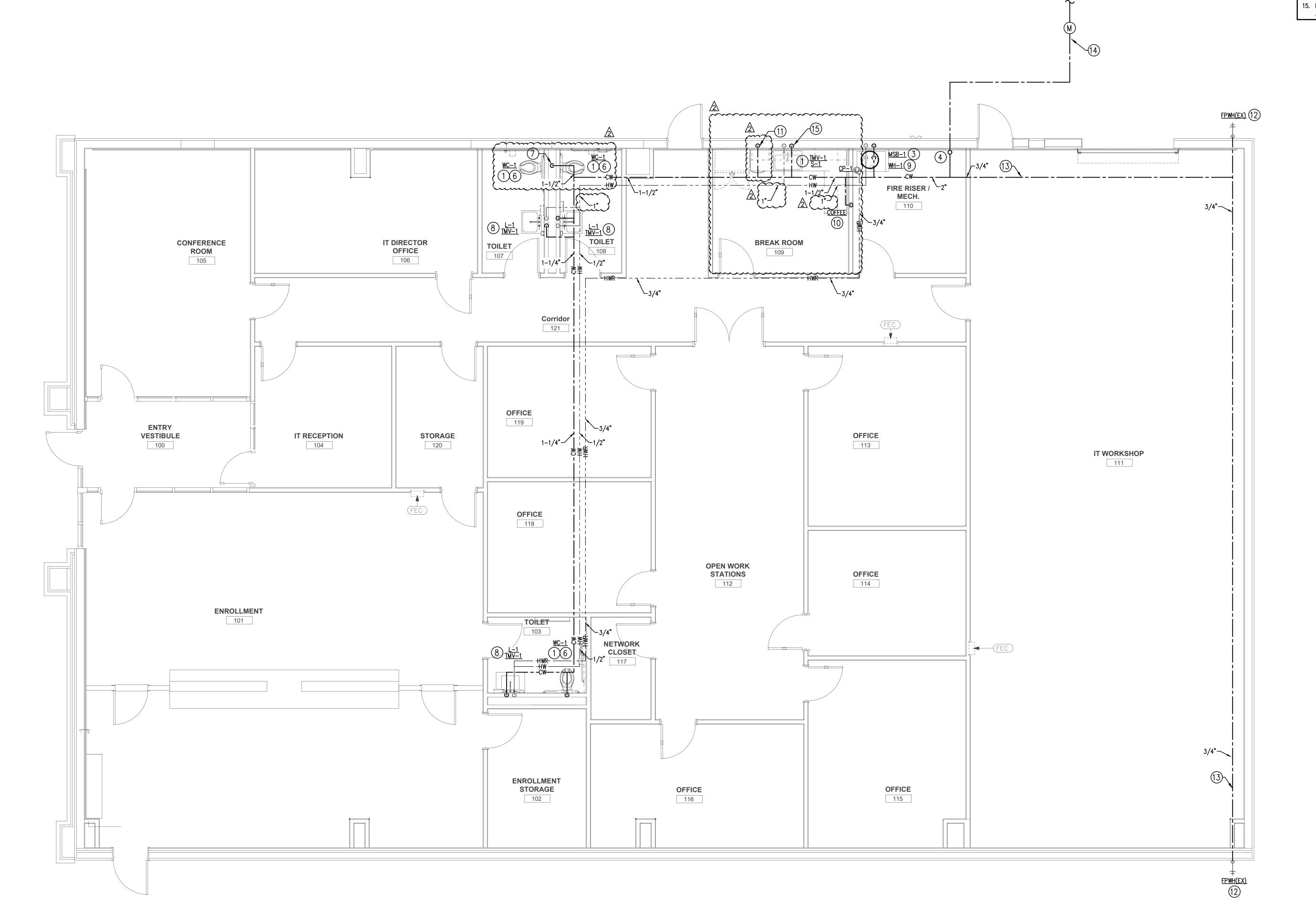
- PROVIDE WATER HAMMER ARRESTER ON ALL FLUSH VALVES, DISHWASHER AND ICE MAKERS PER PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M (TYPICAL)

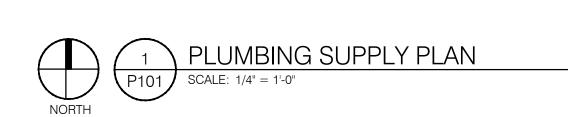
  STUB UP NEW 1-1/2" CW SUPPLY IN BUILDING AND PROVIDE SHUT-OFF VALVE. PROVIDE PRESSURE REDUCING VALVE SET AT 70 PSI IF PRESSURE EXCEEDS 75PSI AT LOW DEMAND TIMES.
- 3. ROUTE 3/4" HW & CW DOWN IN WALL TO MOP SINK.
- . COORDINATE EXACT WATER SUPPLY STUB-UP LOCATION WITH EXISTING FIRE RISER AND PIPING. WATER PIPING ROUTED BELOW SLAB TO BE TYPE K SOFT COPPER WITH NO JOINTS.
- COORDINATE NEW DOMESTIC WATER SERVICE WITH LOCAL UTILITY COMPANY AND LOCAL AHJ. COORDINATE METER AND BACKFLOW PREVENTION REQUIREMENTS AND PROVIDE AND INSTALL AS NECESSARY.
  - DE 1-1/4"CW TO WATER CLOSET FLUSH VAL
- PROVIDE 1-1/4"CW TO WATER CLOSET FLUSH VALVE.
   PROVIDE 1-1/2"CW TO BACK-TO-BACK WATER CLOSET FLUSH VALVES.
   1/2"CW AND 1/2"HW TO HAND SINK OR LAVATORY. PROVIDE THERMOSTATIC
- MIXING VALVE (TMV). THERMOSTATIC MIXING VALVE TO BE SET TO 105°F.

  PROVIDE NEW 1"CW & 1"HW DOWN TO WATER HEATER. ROUTE WATER HEATER T&P TO FLOOR DRAIN AND TERMINATE WITH AIR GAP.
- 10. EXTEND 1/2" CW TO COFFEE MACHINE, PROVIDE INLINE BACKFLOW WATTS 3/8" SD3-FN PER ASSE-1022
- 3/8" SD3-FN PER ASSE-1022
  1. 1/2" CW TO ICE MACHINE. PROVIDE INLINE FILTER (IF NOT PROVIDED WITH UNIT), SHUT-OFF VALVE AND FINAL TERMINATION.
- UNIT), SHUT-OFF VALVE AND FINAL TERMINATION.

  12. RECONNECT EXISTING HOSE BIBS TO NEW WATER LINES. FIELD VERIFY EXACT LOCATIONS.
- 13. ROUTE EXPOSED WATER LINES AS HIGH AS POSSIBLE.
- 14. RETROFIT EXISTING WATER DOWNSTREAM OF EXISTING METER WITH 1-1/2" LINE AND ROUTE TO NEW ENTRY.
- 15. PROVIDE FAUCET MOUNT FILTRATION SYSTEM TO BREAKROOM SINK. REFER TO ARCHITECTURAL FLOOR PLAN (SHEET A101) FOR REQUIREMENTS.







GH2 ARCHITECTS

GH2.0
GH2 PROJECT NUMBER:
20230239
ISSUE DATE:

ISSUE DATE:
05/10/2024
ISSUE:
PERMIT SET

OTHER ISSUE DATES:

NO. DESCRIPTION DATE

ADD #1 5-24-24

ADD #2 6-18-24

SHEET NAME:
PLUMBING
SUPPLY PLANS



REMARKS

1,2,4,5,17

L-1	LAVATORY (WALL HUNG, ADA)	AMERICAN STANDARD 0355.012	WALL CARRIER SUPPORT, FAUCET HOLES ON 4"   CENTERS, FAUCET A.S. 5500.174, DRAIN   M953455 0020A	1-1/2"	1-1/4"	1/2"	1/2"	1,2,4,5,17
S-1	SINK (UNDERMOUNT, STAINLESS STEEL)	KOHLER K-3821-1-1-NA	STAINLESS STEEL DROP IN SINGLE-BOWL SINK, 32"x22"x10" BOWL WITH REAR CENTER DRAIN HOLE.  FAUCET: DELTA 19810-SS-DST SINGLE-HANDLE PULLDOWN FAUCET, STAINLESS FINISH. PROVIDE WITHOUT ESCUTCHEON.  DRAIN: ELKAY LK35 3-1/2" STAINLESS STEEL DRAIN.	2"	1-1/2"	1/2"	1/2"	1,2,4,17
FCO-1	FLOOR CLEAN OUT	ZURN ZB1400-SZ1	POLISHED BRONZE TOP	PLAN	<u></u>	<u>\</u>		
FD-1	FLOOR DRAIN	ZURN Z415–BZ1	POLISHED BRONZE TOP WITH TRAP SEAL PROTECTION DEVISE	3"	1-1/2"			18
FS-1	FLOOR SINK	JAY R. SMITH 320-Y03	12"X12"X6" CAST IRON BODY WITH ACID RESISTANT COATED INTERIOR AND DOME STRAINER. COORDINATE GRATE TYPE WITH ARCHITECT AND KITCHEN DESIGN.	2"	1-1/2"			
MSB-1	MOP SINK BASIN	FIAT MSB-2424	FAUCET: FIAT 830-AA, HOSE & BRACKET: 832-AA, MOP HANGER: 889-CC	3"	2"	3/4"	3/4"	15
TMV-1	THERMOSTATIC MIXING VALVE	LEONARD 170-FL				3/8"	3/8"	
WCO-1	WALL CLEAN OUT	ZURN ZS1469		PLAN				10

. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS, MOUNT PER ADA REQUIREMENTS WHERE INDICATED.

PROVIDE CHROME PLATED WALL ESCUTCHEON(S) AT ALL WATER SUPPLY WALL PENETRATIONS. PROVIDE CHROME PLATED, HEAVY DUTY, COMMERCIAL GRADE, ANGLE SUPPLY WITH WHEEL HANDLE STOP(S) AND STAINLESS STEEL FLEXIBLE RISER HOSE(S) FOR HOT AND COLD WATER SUPPLIES (AS REQUIRED). . PROVIDE ALL PUBLIC LAVATORY FAUCETS WITH VANDAL RESISTANT, 0.5 GPM MAXIMUM FLOW CONTROL, SPRAY OUTLET, OMNI MODEL A212-05-VR. 4. PROVIDE 17 GAUGE CHROME PLATED P-TRAP WITH CLEANOUT AND WALL ESCUTCHEON. INSTALL WASTE ELL AT BOTTOM OF BOWL AND PIPE HORIZONTALLY BACK TO P-TRAP INSTALLED AGAINST WALL.

FACTORY PRE-CHARGED, PERMANENTLY SEALED,

ENGINEERED WATER HAMMER ARRESTER.

5. PROVIDE PLUMBEREX PRO EXTREME OR EQUAL UNDERSINK PROTECTIVE PIPE COVERING MODEL X4333, FOR WASTE, HOT, AND COLD PIPING, COLOR: WHITE. COVERS SHALL BE SECURED WITH SNAP-CLIP FLUSH REUSABLE FASTENERS. PROVIDE ALL REQUIRED ACCESSORIES FOR A COMPLETE INSTALLATION MEETING CURRENT ADA STANDARDS WHERE REQUIRED.

6. UNIT SHALL PROVIDE 8.0 GPH OF 50 DEGREE FAHRENHEIT WATER BASED ON 80 DEGREE FAHRENHEIT INLET WATER AND 90 DEGREE FAHRENHEIT ROOM

TEMPERATURE. 7. PROVIDE SOLID BLOCKING IN WALL BEHIND UNIT FOR MOUNTING.

1260XL

8. WATER HAMMER ARRESTORS SHALL BE PROPERLY SIZED, PROPERLY LOCATED IN AN EFFECTIVE RANGE FROM EQUIPMENT, AND IN ACCORDANCE WITH PDI

. PROVIDE ROUND ACCESS COVER (DEPRESSED CENTER IN CARPETED AREA TO MARK LOCATION AND ACCOMMODATE FLOOR FINISH) WITH NICKEL-BRONZE SCORED FRAMES & PLATES. SIZE AS INDICATED ON DRAWINGS. ENSURE AMPLE CLEARANCE AT CLEANOUT FOR RODDING OF DRAINAGE SYSTEM. 10. PROVIDE CAULKED OR THREADED CLEANOUT, EXTEND ACCESS COVER TO FINISHED WALL SURFACE. ENSURE AMPLE CLEARANCE AT CLEANOUT FOR RODDING

1. ADJUSTABLE GRADE CLEANOUT, DURA-COATED CAST IRON BODY WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLUG AND ROUND SCORIATED SECURED HEAVY DUTY TOP, ADJUSTABLE TO FINISHED GRADE.

- 12. PLUMBING CONTRACTOR SHALL COORDINATE WALL THICKNESS AT FREEZE PROOF WALL HYDRANT INSTALLATION WITH SUPPLIER WHEN ORDERING FIXTURES. 13. PROVIDE P-TRAP WITH CLEANOUT PLUG AND ESCUTCHEON.
- 14. PROVIDE CHROME PLATED WHEEL HANDLE STOPS WITH ESCUTCHEON AND FLEXIBLE RISER.
- 15. SINK FAUCETS TO BE PROVIDED WITH INTEGRAL CHECK VALVES.
- 16. PROVIDE FULL SIZE DRAIN LINE(S) FROM EQUIPMENT. DISCHARGE OVER FLOOR SINK OR HUB DRAIN WITH 2" AIR GAP.
- 17. INSTALL THERMOSTATIC MIXING VALVE (TMV) ON HW SUPPLY TO LAVATORIES, SHOWERS AND HAND SINKS. SET OUTLET TEMPERATURE @ 105°F.

18. PROVIDE BARRIER TYPE EVAPORATION PREVENTION OR TRAP PRIMER ON FLOOR DRAINS WHERE REQUIRED BY LOCAL CODE

MIN	IMUM PII	PEI	NSUL	OITA.	1						
THICKNESS											
BASED ON 2015 INTERNATIONAL ENERGY CONSERVATION CODE TABLE C403.2.10											
FLUID	INSULATION CONDUCTIVITY		PIPE SIZE								
OPERATING TEMP RANGE	(BTU*IN./(H*F T <sup>2</sup> **F) <sup>b</sup> )	> 1"	1" TO 1-1/2"	1-1/2" TO 4"	4" TO 8"						
< 40°F	0.20-0.26	0.5"	1.0"	1.0"	1.0"						
40-60°F	0.21-0.27	0.5"	0.5"	1.0"	1.0"						
105-140°F	0.21-0.28	1.0"	1.0"	1.5"	1.5"						
141-200°F	0.25-0.29	1.5"	1.5"	2.0"	2.0"						
*REFER TO C REQUIRED.	403.11.3 FOR W	*REFER TO C403.11.3 FOR WHEN PIPING INSULATION IS									

DACED ON 0045		ENERGY CONCERVATION	. OODE TADLE 0404 F
BASED ON 2015	IN IERNA HONAL	. ENERGY CONSERVATION	CODE TABLE C404.5.
NOMINAL PIPE		MAXIMUM PIPIN	NG LENGTH (FT)
SIZE	VOLUME	PUBLIC LAVATORY FAUCETS	OTHER FIXTURES & APPLIANCES
1/4	0.33	6	50
3/8	0.75	3	50
1/2	1.5	2	43
3/4	3	0.5	21
1	5	0.5	13
1-1/4	8	0.5	8
1-1/2	11	0.5	6
2 OR LARGER	18	0.5	4

REMARKS:  1. PROVIDE	AQUASTA	T/TIMFR T	O TURN	ON 30 M	MINUTES E	PRIOR TO	OCCUPA	NCY AND C	FF AT FNI	D OF	OCCUPAN	CY.	<b>\</b>
2. PROVIDE OFF AT 2°F	THERMOS	TAT TO C	ONTROL HEATER	SPEED O	F PUMP.	PUMP SH	IALL TUR	N ON AT 10	OF LESS T	ΓHAN	WAT3ER H	CY. HEATER SET	POINT AND
			C	DNC	ENS	ATE	EPU	MP S	CHE	ED	ULE		
MA	RK MANUF MOD		RVES	GPM	HEAD FT.	V./~	HZ	HP			DESCF	RIPTION	
CDF 1	LCU-	20S MUI	_TIPLE	1.2	15	115/1	60	1/9		,	1.58 US Q	T CAPACITY	!
	T <u>ES:</u> MOUNT CO	NDENSATE	PUMP (	ON WALL	IN MANOR	R ALLOWIN	NG FOR M	MAINTENANC	E OF PUM	1P/W	ALL-MOUN	TED AC UNI	Г.
					[	EXP.	ANS	SION	TAN	<u> </u>	SCHE	EDULI	E
					MARK	MANUFA	CTURER	MODEL	GAL	•	ACCEPTAN CE GAL.	CONNECTI ON SIZE	REMARKS
					WH-1	AMT	ROL	ST-12	4.4		11.0	3/4"	ALL

REMARKS:

INSTRUCTIONS.

3. OR EQUAL:

WATER HEATER SCHEDULE (ELECTRIC)

CIRCULATION PUMP SCHEDULE

**GALLONS** 

8. WATER HEATER STAND WITH 2" SECONDARY DRAIN PAN. ROUTE FULL SIZED DRAIN TO AHJ APPROVED RECPTOR.

DOMESTIC HW

G.P.H. RISE (KW)

10

1. EXPANSION TANK: STEEL SHELL, HEAVY DUTY BUTYL NSF/ANSI 61, FACTORY

PRECHARGED TO 50 PSIG. MAX OPERATING TEMPERATURE 200°, MAX OPERATING

DOMESTIC WATER SYSTEM. FIELD VERIFY PRESSURE REQUIREMENTS.

2. FIELD CHARGE EXPANSION TANK TO SYSTEM PRESSURE BEFORE CONNECTION TO

PRESSURE 150 PSI, 1 YEAR MANUFACTURER'S WARRANTY. INSTALL PER MANUFACTURER'S

STOR. TEMP. \*F

PROVIDE TEMPERATURE AND PRESSURE RELIEF VALVE PER ASME OR AGA APPROVAL.

. ELECTRIC ELEMENTS SHALL OPERATE SIMULTAINEOUS (NON—SIMULTANEOUS)

MODEL

003

OTHER MANUFACTURER OFFERING EQUIVALENT PRODUCTS: STATE, RHEEM, BRADFORD WHITE.

MOUNT ON PLATFORM. ROUTE P&T PIPE TO MOP SINK BELOW OR APPROVED RECEPTOR.

MANUFACTURER MODEL

INSTALL PER MANUFACTURER'S INSTRUCTIONS.

MANUFACTURER

TACO

. MOUNT ON PLATFORM PER DETAIL.

. PROVIDE EXPANSION TANK.

A.O. SMITH DEL-30

RECOVERY F. ELEMENT TOTA VOLTS PHAS AMPS REMARKS

-- | 90 | 2.0/2.0 | 4.0 | 208/1/60 | --- | 1,2,3,4,5,6,**\** 

| MIN. RETURN |

TEMP

125**°**F

WATTS

52

VOLT/PH

REMARKS >

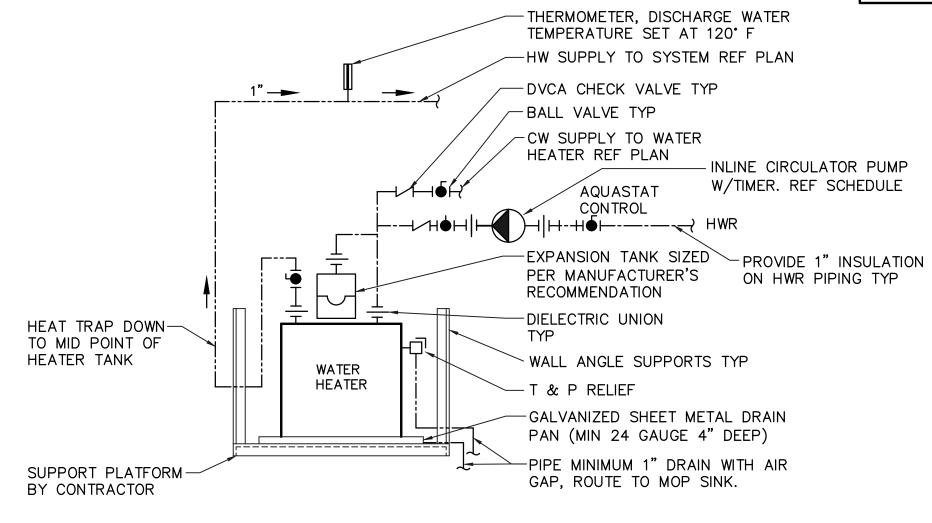
MARK

FIXTURE

WATER CLOSET

(FLOOR MOUNT,

WATER HAMMER



FIXTURE UNIT COUNT

MSB=1 MOP SINK 1 2-0 20 3.0 3.0

1. QUANTITIES NOTED ON THIS LIST SHALL NOT BE USED FOR BIDS OR PURCHASING AND SHALL BE CONTRACTORS RESPONSIBILITY TO VERIFY.

DESCRIPTION

BREAKROOM SINK

PUBLIC LAVATORY

WATER CLOSET

MARK

S-1

L-1

WC-1

QUANITY D.F.U. TOTAL W.S.F.U. TOTAL W.S.F.U.

3 | 1.0 | 3.0 | 2.0 | 6.0

3 | 4.0 | 12.0 | 10.0 | 30.0

5.0 20.0

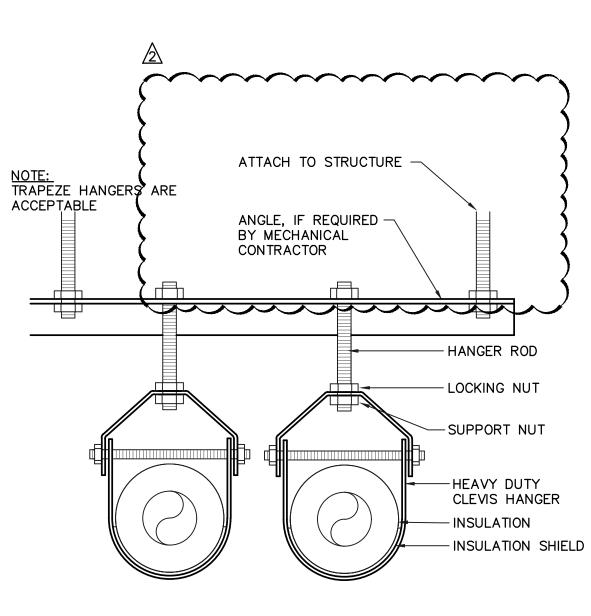
1 | 1.0 | 2.0 | 2.0

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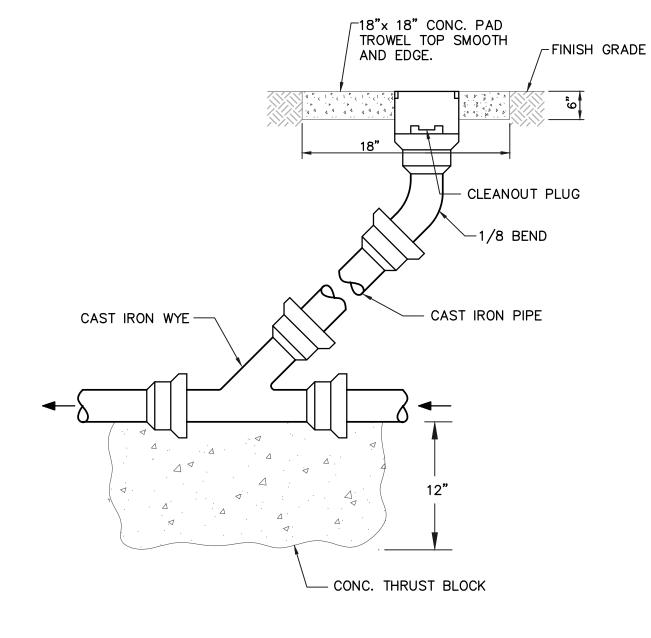
MARK

REMARKS:

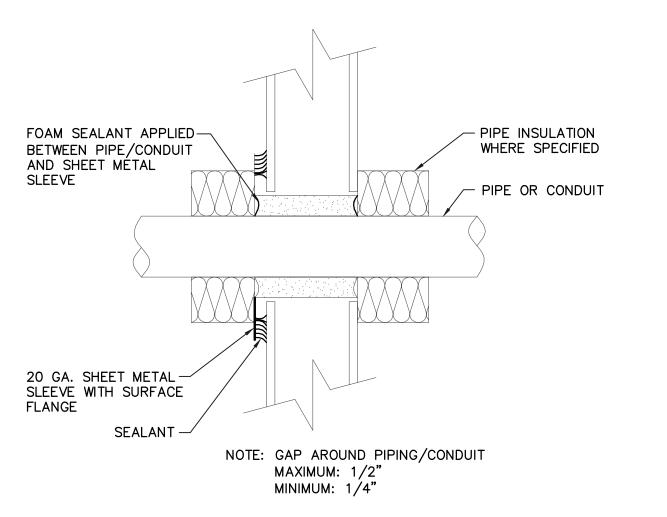
# ELECTRIC WATER HEATER



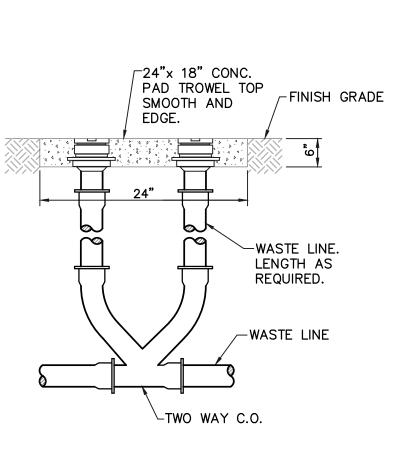
6 PIPE HANGERS
SCALE: N.T.S



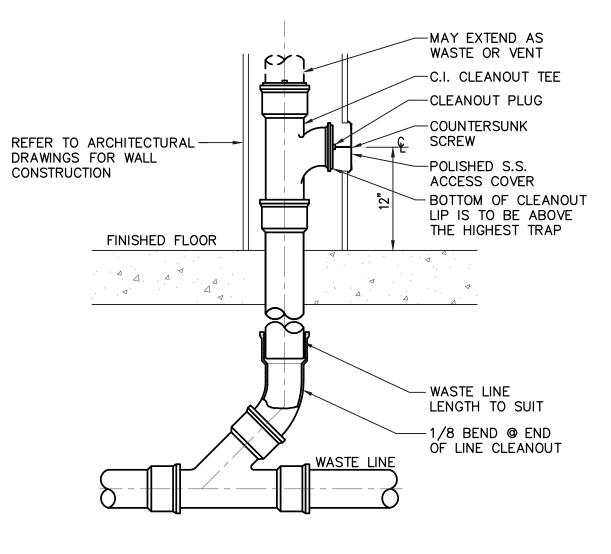
5 FINISHED GRADE CLEANOUT SCALE: N.T.S



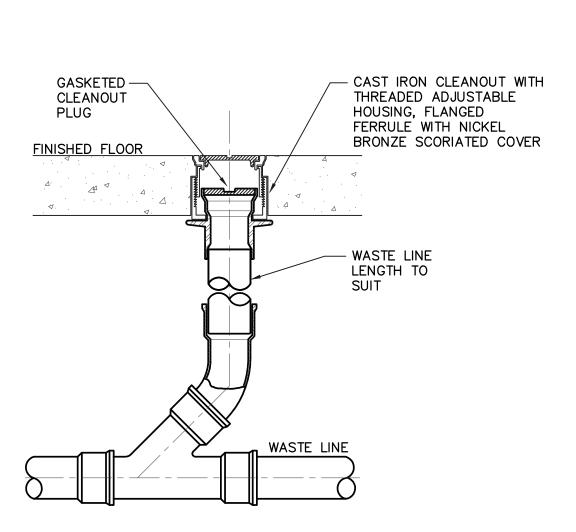
4 PIPE PENETRATION SCALE: N.T.S



3 TWO WAY CLEANOUT (GRADE)
SCALE: N.T.S



2 WALL CLEANOUT SCALE: N.T.S



1 FLOOR CLEANOUT

NROL **S**0

**GH2** ARCHITECTS

GH2.COM GH2 PROJECT NUMBER:

20230239 ISSUE DATE: 05/10/2024

**PERMIT SET** 

OTHER ISSUE DATES: NO. DESCRIPTION 5-24-24 ADD #1 ADD #2

**PLUMBING** SCHEDULES

EXISTING BUILDING SLAB IS A POST-TENSION SLAB. BEFORE ANYWORK, THE CONTRACTOR SHALL X-RAY THE SLAB TO IDENTIFY THE LOCATIONS OF POST-TENSION TENDONS WITHIN THE SLAB. UNDER NO CIRCUMSTANCES TENONS SHALL BE CUT.

- WALL SHOWN DASHED TO BE DEMOLISHED. REMOVE ALL ELECTRICAL DEVICES BACK TO PANELBOARD.
- 2. EXISTING ELECTRICAL WATER HEATER TO BE REMOVED. REMOVE ALL ASSOCIATED ELECTRICAL DEVICES BACK TO PANEL BOARD.

**KEY NOTES** 

3. EXISTING FIRE ALARM PANEL TO BE REMOVED. 4. ALL EXISTING LIGHTING IN THIS ROOM TO BE REMOVED. REFER TO E100 FOR NEW LIGHTING

### **ELECTRICAL DEMOLITION GENERAL NOTES**

- CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND SHALL BE FAMILIAR WITH THE LIMITS OF DEMOLITION REQUIRED FOR ALL TRADES. COORDINATE DEMOLITION WITH REQUIREMENTS OF NEW CONSTRUCTION PRIOR TO
- INITIATING WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE REMOVAL AND DISCARDING OF ALL DEMOLITION WASTE INCLUDING ANY UNFORESEEN ITEMS
- WITHIN THE SCOPE OF THE PROJECT. CONTRACTOR SHALL COORDINATE DEMOLITION OPERATIONS WITH CONTINUING OWNER OCCUPATION OF ADJACENT SPACES. ALL DEMOLITION WORK TO BE COORDINATED WITH OWNER AND CONDUCTED UNDER
- CONTROLLED CONDITIONS. REPAIR/PATCH AS REQUIRED FOR DEMOLITION OF VARIOUS CONSTRUCTION ITEMS. VERIFY AND COORDINATE ANY REQUIRED OPENINGS WITH RESPECTIVE TRADES. FOR ANY WORK THAT SHALL OCCUR OUTSIDE OF DEMOLITION AREA, CONTRACTOR
- SHALL RETURN SPACE TO ORIGINAL CONDITION. THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR ALL REQUIRED ELECTRICAL DEMOLITION OF THIS SPACE TO COMPLETE THIS PROJECT. REFER TO MECHANICAL AND ARCHITECTURAL DRAWINGS.

PRIOR TO DEMOLITION FIELD VERIFY AND IDENTIFY ANY EXISTING EQUIPMENT TO REMAIN IN SERVICE THAT IS SERVED BY SYSTEMS TO BE DEMOLISHED. NOTIFY ENGINEER OF ANY SUCH CONDITIONS AND REMOVE AND/OR RELOCATE THE SERVICES AS DIRECTED. 

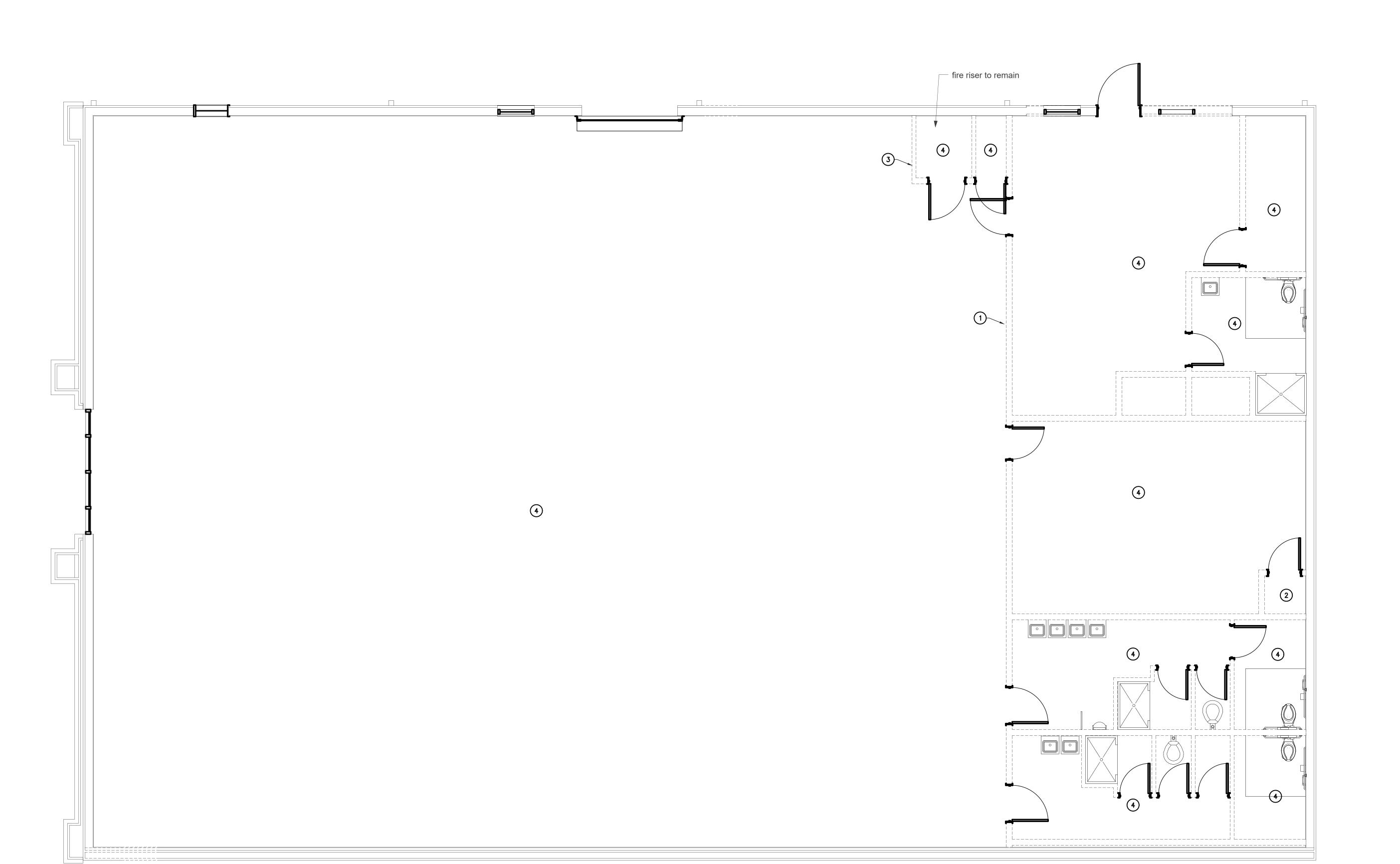
7. NOT USED. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THIS PROJECT IS PROVIDED BY THE CONTRACTOR UNLESS SPECIFICALLY CALLED OUT TO BE PROVIDED

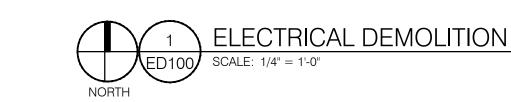
> CONTRACTOR WILL BE RESPONSIBLE FOR ANY TEMPORARY POWER REQUIRED FOR THE COMPLETION OF

ALL NOTES ON THE ARCHITECTURAL DEMOLITION SHEETS APPLY TO THIS WORK.

BY OTHERS.

- CONTRACTOR IS TO REMOVE ALL EXISTING ELECTRICAL DEVICES, CONDUIT WIRE ETC THAT WILL NOT BE REUSED UNLESS NOTED OTHERWISE.WHERE REQUIRED, COORDINATE EQUIPMENT ELECTRICAL TERMINATION REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
- THE DEFINITION OF ELECTRICAL IS ALL WIRING I.E. POWER, DATA, PHONE, ETC. THEREFORE WHEN A NOTE REFERS TO DISCONNECTING, CONNECTING OR RECONNECTING ELECTRICAL IT REFERS TO ALL WIRING NOT JUST POWER.
- WHEN REMOVING OR RELOCATING AN ELECTRICAL DEVICE ALL ELECTRICAL SERVICE MATERIAL I.E. CONDUIT, WIRE, FITTINGS, HANGERS, ETC. THAT ARE NOT TO BE REUSED ARE TO BE REMOVED BACK TO THE FEEDING ELECTRICAL PANEL..









**GH2** ARCHITECTS

GH2 PROJECT NUMBER: 20230239

ISSUE DATE: 05/10/2024 **PERMIT SET** 

OTHER ISSUE DATES: ADD #1

SHEET NAME:
ELECTRICAL
DEMOLITION

SHEET NUMBER:

ED100

	LIGHTING FIXTURE SCHEDULE														
CONSTRUCTION		LIGHT SOURCE					ELECTRICAL			ELECTRI	CAL		PRODUCT		
YPE DESCRIPTION	MOUNTING	LAMP	LUMENS DOWN	LUMENS UP		CRI	BALLAST/DRIVER	Voltage	WATTS		EMERGENCY COMPONENT	MFR	CATALOG NUMBER	NOT	
A1 3" ARCHITECTURAL LINEAR (SURFACE MOUNT ACT)	SURFACE	LED	750 lm/ft	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	120V	29 W	7.25		LUX	EOS 3.0-S LAM 750 4 35K 8 UNV S1 (FINISH)		
3" ARCHITECTURAL LINEAR (SURFACE MOUNT GYP)	SURFACE	LED	750 lm/ft	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	120V	29 W	7.25		LUX	EOS 3.0-S LAM 750 4 35K 8 UNV S1 (FINISH) HC		
43 3" ARCHITECTURAL LINEAR (SUSPENDED)	SUSPENDED	LED	750 lm/ft	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 1%	120V	29 W	7.25		LUX	EOS 3.0-P-D LAM 750 4 35K 8 UNV S1 (FINISH) HC 102		
4FT STRIP LIGHT	SUSPENDED	LED	5,000 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 10%	120V	33W			H.E. WILLIAMS	75R - 4 - L50/835 - ACF/D96 - DIM - UNV		
32 4FT STRIP LIGHT	SUSPENDED	LED	8,500 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 10%	120V	57W			H.E. WILLIAMS	75R - 4 - L85/835 - ACF/D96 - DIM - UNV		
C1 4" DOWNLIGHT	RECESSED	LED	3,000 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 10%	120V	28W			H.E. WILLIAMS	4DR - TL - L30/835 - DIM - UNV - R - W - OF CS N - F1		
1 2X4 TROFFER	RECESSED	LED	4,000 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 10%	120V	32W			H.E. WILLIAMS	LT - 24 - L40/835 - AF - EM/10W - DIM - UNV		
22 2X4 TROFFER	RECESSED	LED	5,000 lm	0 lm	3500 K	80	LED DRIVER, 0-10V DIMMING, 10%	120V	38W			H.E. WILLIAMS	LT - 24 - L52/835 - AF - EM/10W - DIM - UNV		
EX1 EXIT SIGN	SURFACE	LED						120V	5W		NI-CAD BATTERY	ISOLITE	EUG - EM - R -1C MNTEB		
EX2 EXIT SIGN & EMERGENCY COMBO	SURFACE	LED						120V	5W		NI-CAD BATTERY	ISOLITE	CMB-EM-R-U-WH-MTEBP-L1		
EM EMERGENCY BUG EYE	SURFACE	LED						120V	5W		NI-CAD BATTERY	ISOLITE	EL16-WH-MB-L67		
N1 EXTERIOR WALL PACK	WALL	LED	3,000 lm	0 lm	4000 K	70	LED DRIVER, 0-10V DIMMING, 10%	120V	19W			LSI	XWS LED 3L SIL 3 UNV DIM 40 70CRI BLK		
R EXTERIOR EGRESS LIGHT	WALL	LED	546 lm	0 lm	4000 K	70	LED DRIVER	120V	10W		10W EM BATTERY	ISOLITE	ODLE 10 EM BK MB		

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### POST-TENSION SLAB NOTE

EXISTING BUILDING SLAB IS A POST-TENSION SLAB. BEFORE ANYWORK, THE CONTRACTOR SHALL X-RAY THE SLAB TO IDENTIFY THE LOCATIONS OF POST-TENSION TENDONS WITHIN THE SLAB. UNDER NO CIRCUMSTANCES TENONS SHALL BE CUT.

# **KEY NOTES**

- EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CONNECTED AHEAD OF ALL LIGHTING CONTROLS AS PER NEC ARTICLE 700.12
- 2. REPLACE EXISTING EXTERIOR WALL PACKS. REUSE EXISTING CIRCUIT. CONTROL VIA PHOTO CELL TORK 2001 SERIES OR APPROVED EQUAL. FIELD VERIFY EXACT LOCATIONS.

# NOTE

• ALL LIGHT FIXTURES EXCEPT FOR WALL PACKS ARE OWNER FURNISHED AND OWNER INSTALLED. EXIT SIGNS ARE CONTRACTOR FURNISHED AND

m

CONTRACTOR INSTALLED.



### **LIGHTING GENERAL NOTES**

- ALL RECESSED LIGHTING FIXTURES IN LAY-IN CEILINGS SHALL
- BE INSTALLED WITH 6' LONG FLEXIBLE METAL CONDUIT. ALL MOUNTING HEIGHTS FOR LIGHTING FIXTURES ARE TO THE
- BOTTOM OF THE FIXTURES UNLESS INDICATED OTHERWISE.
- SEE ARCHITECTURAL EXTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF EXTERIOR LIGHTING FIXTURES.
- ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH GOOD INSTALLATION PRACTICES, SPECIFICATIONS, AND THE LATEST EDITIONS OF ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES. ALL COMPONENTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- PLANS SHOWN ARE DIAGRAMMATICAL IN NATURE AND DO NOT INDICATE EVERY FITTING, TRANSITION, BOX, ETC REQUIRED. THEREFORE, CONTRACTOR IS TO COORDINATE ALL ELECTRICAL REQUIREMENTS WITH OTHER TRADES PRIOR TO
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE AND OPERATIONAL SYSTEMS SHOWN ON PLAN.
- ALL CONDUIT, POWER WIRES, RECEPTACLE BOXES, RECEPTACLES, AND OVERLOAD PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
- ALL CONDUIT SIZES SHALL BE DETERMINED BY ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED.
- WIRING DEVICES:

INSTALLATION.

- a. SWITCHES +46" ). RECEPTACLES +18"
- c. VOICE/DATA +18"
- 10. EXIT SIGN MOUNTING:
- a. WALL FIXTURE: CENTER 12" ABOVE DOOR OPENING b. CEILING/PENDANT FIXTURE: ON CEILING OR AT HEIGHT SPECIFIED ON DRAWINGS
- EXIT SIGNS, EMERGENCY BATTERY PACKS, AND NIGHT LIGHTS SHALL NOT BE SWITCHED.
- ELECTRICAL CONTRACTOR WILL PROVIDE A ROOF MOUNTED PHOTOCELL IN A NEUTRAL POSITION THAT IS NOT FACING EAST OR WEST, TO CONTROL ALL EXTERIOR LIGHTS AND SIGNS.
- PROVIDE SEPARATE BOXES FOR GANGED SWITCHES ON SEPARATE BRANCH CIRCUITS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND DETAILS FOR THE EXACT LOCATION OF ALL LIGHTING FIXTURES AND ANY OTHER EQUIPMENT INSTALLED IN THE CEILING SYSTEMS. VERIFY EXACT MOUNTING HEIGHTS AND FINISHES WITH ARCHITECT PRIOR TO ROUGH-IN.
- ADDITIONAL EXIT AND EMERGENCY LIGHTS MAY BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. ADDITIONAL FIXTURES SHALL BE ADDED AS DIRECTED BY THE LOCAL
- MAXIMUM COMBINED FEEDER AND BRANCH CIRCUITS SHALL NOT EXCEED 5% VOLTAGE DROP, AND THE MAXIMUM ON THE FEEDER OR BRANCH CIRCUIT SHALL NOT EXCEED 3% VOLTAGE DROP. ELECTRICAL CONTRACTOR TO INCREASE WIRE/CONDUIT SIZE AS NECESSARY TO MAINTAIN VOLTAGE DROP RECOMMENDATIONS.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR GROUNDING OF ALL ELECTRICAL EQUIPMENT.
- . EMERGENCY LIGHT MOUNTING:
- a. WALL FIXTURE: 12" BELOW FINISHED CEILING OR +10'-0" IN AREAS OF EXPOSED STRUCTURE, UNLESS NOTED
- PENDANT FIXTURE: BOTTOM OF FIXTURE AT HEIGHT
- SPECIFIED ON DRAWINGS. PACK MOUNTED ON INTERIOR SIDE OF WALL 12" BELOW FINISHED CEILING OR AT BAR JOIST IN AREAS OF EXPOSED

LEGEND	
IMAGE	DESCRIPTION AND MODEL NUMBER
2	2 BUTTON WITH LIGHT ICON - PICO KEYPAD (PJ2-2B-GWH-L01 (CW-1-WH))
P 3RL	3 BUTTON WITH RAISE/LOWER AND LIGHT ICON — PICO KEYPAD (PJ2-3BRL-GWH-LO1 (CW-1-WH))
OS	RADIO POWR SAVR WIRELESS CEILING OCCUPANCY SENSOR (LRF2-OCR2B-P)
W OS	RADIO POWR SAVR WIRELESS WALL OCCUPANCY SENSOR (LRF2-OWLB-P)
HUB	STARTER HUB, FLUSH-MOUNT ADAPTER AND POWER SUPPLY (HJS-0-FM)
8 <b>S</b>	8 A LIGHTING, 3 A FAN (1/10 HP MOTOR, 120 V ONLY), SPEC GRADE ELECTRONIC SWITCH 120-277 V (MRF2S-8S-DV-WH)
os 8SS	MAESTRO WIRELESS SWITCH: 120-277 V, 8 A ELECTRONIC FLUORESCENT BALLASTS OR LED DRIVERS, OCCUPANCY/VACANCY SINGLE-POLE SWITCH SENSOR (MRF2S-8SS-WH)
8T -	POWPAK DIMMING MODULE WITH 0-10 V CONTROL. (RMJS-8T-DV-B)



**GH2** ARCHITECTS

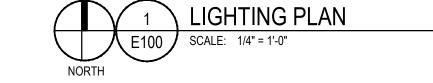
GH2 PROJECT NUMBER:

20230239 ISSUE DATE: 05/10/2024

PERMIT SET

OTHER ISSUE DATES: ADD #1 ■ <u>2</u> ADD #2

LIGHTING PLAN



### POST-TENSION SLAB NOTE

EXISTING BUILDING SLAB IS A POST-TENSION SLAB.

BEFORE ANYWORK, THE CONTRACTOR SHALL

X-RAY THE SLAB TO IDENTIFY THE LOCATIONS OF

POST-TENSION TENDONS WITHIN THE SLAB. UNDER

NO CIRCUMSTANCES TENONS SHALL BE CUT.

1. PROVIDE FIVE DEDICATED DUPLEX RECEPTACLES 48" AFF FOR NETWORK RACK. REFER TO PANEL SCHEDULES ON SHEET E300 FOR HOMERUNS.

2. PROVIDE A GFCI CIRCUIT BREAKER IN LIEU OF A GFCI OUTLET IF THE OUTLET LOCATION IS NOT

GFCI OUTLET IF THE OUTLET LOCATION IS NOT READILY ACCESSIBLE.

3. PROVIDE (1) 4—GANG FLOOR BOX (LEGRAND EFB45S OR EQUAL), WITH (2) 20AMP DUPLEX

RECEPTACLES AND (2) DATA PORTS.

RECONNECT AS REQUIRED.

COORDINATE WITH ARCHITECT FOR COVER FINISH.

RELOCATED MECHANICAL UNIT. EXTEND AND

5. INTERLOCK INDOOR UNIT WITH OUTDOOR UNIT AS REQUIRED. COORDINATE WITH MECHANICAL PLANS

6. POWER AND CONTROL EXHAUST FAN WITH RESTROOM LIGHTS.

7. 2 KEYSTONE JACK FOR FIBER (LC) UNDER

8. 1-1/2"C. FOR HDMI FROM BEHIND DISPLAY TO DESK.

9. DOOR SHALL BE PROVIDED WITH ACCESS CONTROL DEVICES AS REQUIRED. PROVIDE A LOW VOLTAGE TRANSFORMER WITH 120V CONNECTION ON PRIMARY SIDE IF NEEDED FOR ELECTRICAL STRIKE DEVICE. PROVIDE A CARD READER AND INTERLOCK WITH ACCESS CONTROL PANEL AS REQUIRED. VERIFY WITH OWNER FOR EXACT REQUIREMENTS.

10. PROVIDE A 4'X8' PLYWOOD TELEPHONE
BACKBOARD WITH SIEMENS #ECGB-5 GROUND
BAR OR APPROVED EQUAL AND (2) 2"C TO
BUILDING TELEPHONE SERVICE. COORDINATE
EXACT REQUIREMENTS WITH SERVICE PROVIDER.

### **KEY NOTES**

ALL WORK SHALL BE ACCOMPLISHED IN STRICT
 ACCORDANCE WITH GOOD INSTALLATION PRACTICES,
 SPECIFICATIONS, AND THE LATEST EDITIONS OF ALL
 APPLICABLE LOCAL, STATE AND NATIONAL CODES. ALL
 COMPONENTS SHALL BE INSTALLED PER

COMPONENTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

PLANS SHOWN ARE DIAGRAMMATICAL IN NATURE AND DO NOT INDICATE EVERY FITTING, TRANSITION, BOX,

ETC REQUIRED. THEREFORE, CONTRACTOR IS TO

OTHER TRADES PRIOR TO INSTALLATION.

**POWER GENERAL NOTES** 

3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE AND OPERATIONAL SYSTEMS SHOWN ON

COORDINATE ALL ELECTRICAL REQUIREMENTS WITH

ALL CONDUIT, POWER WIRES, RECEPTACLE BOXES, RECEPTACLES, AND OVERLOAD PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

. ALL CONDUIT SIZES SHALL BE DETERMINED BY ELECTRICAL CONTRACTOR, UNLESS OTHERWISE

5. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR GROUNDING OF ALL ELECTRICAL EQUIPMENT.

FOR GROUNDING OF ALL ELECTRICAL ECURION WIRING DEVICES:

a. SWITCHES +46"b. RECEPTACLES +18"

c. VOICE/DATA +18"
8. WIRING SHALL INCLUDE FINAL CONNECTION TO ALL EQUIPMENT IN CONFORMANCE WITH EQUIPMENT SUPPLIER WIRING DIAGRAMS.

9. UPON COMPLETION OF ELECTRICAL INSTALLATION AND PRIOR TO ENERGIZING CIRCUIT:

THREE PHASE MOTOR LOADS.

a. INSPECT WIRE AND CABLE FOR PHYSICAL DAMAGE.b. PERFORM CONTINUITY TEST.

VERIFY PROPER PHASING CONNECTION TO ALL

CONTRACTOR IS RESPONSIBLE FOR PROVIDING
COMPLETE PANELBOARD TYPEWRITTEN IDENTIFICATION

SCHEDULES.

. WHERE BRANCH CIRCUITS ARE GROUPED, SIZE

CONDUIT AND DERATE CURRENT CARRYING CONDUCTORS PER NEC.

2. WHERE EQUIPMENT NAMEPLATE PROTECTIVE DEVICE RATING DIFFERS FROM SIZE PROVIDED, CHANGE OUT BRANCH CIRCUIT WIRING AND OVERCURRENT DEVICE TO APPROPRIATE RATING PER NEC.

FOR INSTALLATION OF BRANCH CIRCUITS. USE COPPER WIRE CONDUCTORS. ALUMINUM CONDUCTORS FOR FEEDERS WILL NEED TO BE APPROVED BY ENGINEER AND OWNER.

13. NO ALUMINUM WIRE CONDUCTORS SHALL BE USED

14. EQUIPMENT SHALL BE OF MATERIALS SUITABLE FOR AND RATED FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED.

15. WORKING CLEARANCES FOR ELECTRICAL EQUIPMENT SHALL BE IN COMPLIANCE WITH NEC 110. THE EXCLUSIVELY DEDICATED SPACE EXTENDING FROM FLOOR TO STRUCTURAL CEILING WITH A WIDTH AND DEPTH OF THE PANELBOARD OR SWITCHBOARD MUST BE CLEAR OF ALL PIPING, DUCTS, EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES IN ACCORDANCE WITH NEC 408.

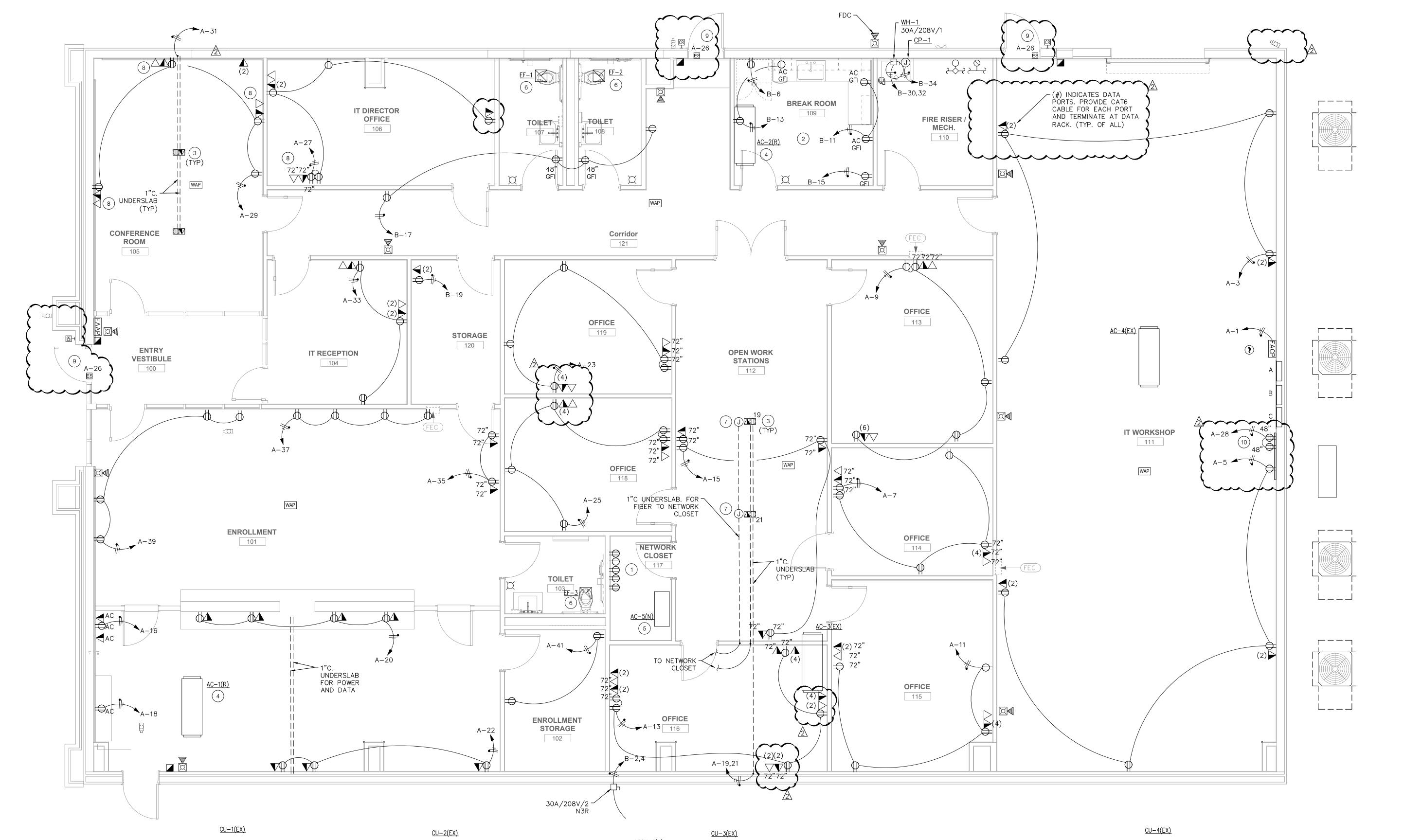
16. MAXIMUM COMBINED FEEDER AND BRANCH CIRCUITS SHALL NOT EXCEED 5% VOLTAGE DROP, AND THE MAXIMUM ON THE FEEDER OR BRANCH CIRCUIT SHALL NOT EXCEED 3% VOLTAGE DROP. ELECTRICAL CONTRACTOR TO INCREASE WIRE/CONDUIT SIZE AS NECESSARY TO MAINTAIN VOLTAGE DROP RECOMMENDATIONS.

7. WHERE CONNECTED TO A 20A. BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL RECEPTACLE (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20A.

18. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.

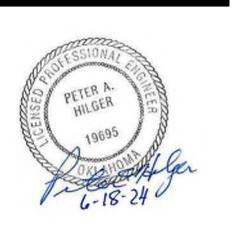
9. PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR
MOUNTED AND GRADE MOUNTED ELECTRICAL
EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR
ENTRAINED, POLYFIBER REINFORCED CONCRETE, 4"
WIDER AND 4" LONGER THAN EQUIPMENT TO BE
PLACED ON IT. REFER TO ELECTRICAL DETAIL
DRAWINGS FOR TRANSFORMER, GENERATOR, OR

SWITCHGEAR PADS THAT MAY EXCEED









SO PS - ENROLLMENT & IT CENT

E200 POWER PLAN

GH2 ARCHITECTS

GH2.COM

GH2 PROJECT NUMBER: **20230239**ISSUE DATE:

05/10/2024
ISSUE:
PERMIT SET

 OTHER ISSUE DATES:

 NO.
 DESCRIPTION
 DATE

 1/2
 ADD #1
 5-24-24

 2
 ADD #2
 6-18-24

SHEET NAME:
POWER PLAN

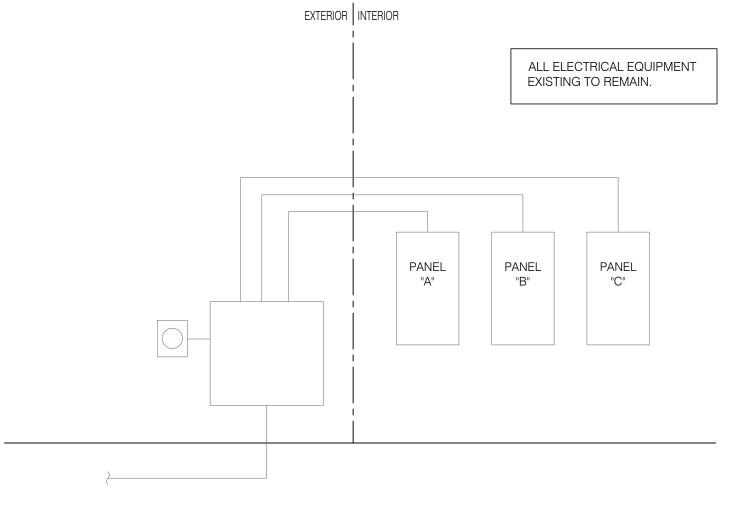
SHEET NUMBER:

E200

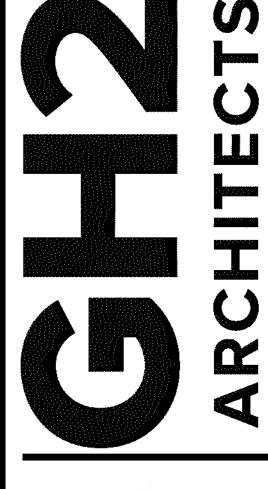
	В	ELI	ECTR	RICAL	. P	Α	NE	LS	CI	HE	DU	LE	ELECTRICAL PANEL SCHEDULE													
SERV			0,1PH,3V	V,+G,IG			RATIN			A M					SECTION		1									
	L TYPE:	NEMA 1			_		ATIN		EXISTING PHASE OKT					_	MOUNTIN	NG:	SURF	ACE								
EQUIP				LOADS	W			_	-		скт		VMF	_	LOADS				EQU							
No.	DESCRIPTION	NOTE	AMPS	(KVA)		PH		#	Α	В	#			-	(KVA)	AMPS	NOTE	DESCRIPTION	No.							
	NETWORK RACK		1.5	0.180		12		1			2	20/2	_	_	1.144	9.5		ACCU-1								
	NETWORK RACK		1.5	0.180	_	12	20/1	3		•	4		12		1.144	9.5		-								
	NETWORK RACK		1.5	0.180	12	12	20/1	5			6	20/1	12	12	0.480	4.0	GF	ICEMAKER								
	NETWORK RACK		1.5	0.180	12	12	20/1	7			8				0.000	0.0										
	NETWORK RACK		1.5	0.180	12	12	20/1	9			10			П	0.000	0.0										
	REC: BREAK ROOM		8.3	1.000	12	12	20/1	11		П	12		П	П	0.000	0.0										
	REC: BREAK ROOM		8.3	1.000	12	12	20/1	13	*		14		П	П	0.000	0.0										
	REFRIGERATOR		8.3	1.000	12	12	20/1	15		*	16			П	0.000	0.0										
	REC: RR & CORRIDOR		8.3	1.000	12	12	20/1	17			18		П	П	0.000	0.0										
	PRINTER		10.0	1.200	12	12	20/1	19			20		П	П	0.000	0.0										
			0.0	0.000	т	П		21	-	*	22		П	П	0.000	0.0										
			0.0	0.000	T	П		23	$\vdash$	$\vdash$	24		П	П	0.000	0.0										
			0.0	0.000	T			25			26		П	П	0.000	0.0										
			0.0	0.000	т	Н		27	-	*	28		Н	Н	0.000	0.0			-							
			0.0	0.000	T	Н		29			30	30/2	10	Н	2.000	16.7		WATER HEATER	-							
			0.0	0.000	т	Н		31		-	32		10	_	2.000	16.7			-							
			0.0	0.000	$^{-}$			33	-	*	34	20/1		12	0.000	0.0		CP-1								
			0.0	0.000	$^{+}$	Н		35	-	-	36		-		0.000	0.0			_							
			0.0	0.000	+	Н		37			38		Н	Н	0.000	0.0	1		_							
			0.0	0.000	+	Н		39	-		40	20/2	Н	Н	0.000	0.0	EX	SPD	_							
			0.0	0.000	t			41			42	2012			0.000	0.0		-								
TOTAL	L CONNECTED LOAD: L CONNECTED AMPS: L CALCULATED LOAD: L CALCULATED AMPS:	13.87	AMPS				E "A" E "B"		-		KVA KVA						C# - VI BM - BN EX - EX FA - RE GF - GI LCK - H ST - SH	ELBOARD NOTES: A LTG CONTACTOR # MERG LTG HANDLE-ON CLA SISTING ED HANDLE-ON CLAMP FCI TY PE CIRCUIT BREAKER HAND PADLOCKABLE-OFF D HUNT TRIP EFER TO ONE-LINE DIAGRAM	! DEVICE							

	Α	ELI	ECTR	ICAL	. P.	ΑN	IEL	. S	СН	EDI	JLE						EXISTING		
SERV	ICE:	120/24	0.1PH,3W	/.+G.IG	BU	S RA	TING	:	200A	MCB				SECTION	IS:	1			
PANE	L TYPE:	NEMA		,	AIC	RAT	ING:		EXIST	NG				MOUNTI	NG:	SURF	ACE		
EQUIP				LOADS	WR	E		CKT	PHASE	CK	П	W	RE	LOADS				EQU	
No.	DESCRIPTION	NOTE	AMPS	(KVA)	N	рн а	B/P	#	A	3 #	CB/	P PH	N	(KVA)	AMPS	NOTE	DESCRIPTION	No.	
	FIRE ALARM CONTROL PANEL	FA	1.5	0.180	12	12 20	0/1	1	*	2	20/	1 12	12	1.548	12.9		INTERIOR LIGHTS	$\top$	
	REC: IT WORKSHOP		6.0	0.720	12	12 20	0/1	3		4	20/	1 12	12	1.526	12.7		INTERIOR LIGHTS	$\top$	
	REC: IT WORKSHOP		6.0	0.720	12	12 20	0/1	5		6		$\top$	П	0.000	0.0	EX	EXTERIOR LIGHTS		
	REC: OFFICE 114		7.5	0.900	12	12 20	0/1	7	*	8		$\top$	П	0.000	0.0	EX	EXTERIOR LIGHTS		
	REC: OFFICE 113		7.5	0.900	12	12 20	0/1	9		10			П	0.000	0.0				
	REC: OFFICE 115		7.5	0.900	12	12 20	0/1	11		12			П	0.000	0.0	EX	EXISTING LOAD		
	REC: OFFICE 116		7.5	0.900	12	12 20	0/1	13	*	14			П	0.000	0.0		-		
	REC: OPEN WORK STATIONS		6.0	0.720	12	12 20	0/1	15		16	20/	1 12	12	1.200	10.0		PRINTER	$\top$	
	REC: OPEN WORK STATIONS		1.5	0.180	12	12 20	0/1	17		18	20/	1 12	12	1.200	10.0		PRINTER		
	REC: OPEN WORK STATIONS		3.0	0.360	П	12 20	0/2	19	*	20	20/	1 12	12	0.720	6.0		REC: ENROLLMENT		
			3.0	0.360	П	12		21		22	20/	1 12	12	0.720	6.0		REC: ENROLLMENT		
	REC: OFFICE 119		7.5	0.900	12	12 20	0/1	23		24	20/	1 12	12	0.180	15		CONDENSATE PUMP	+	
	REC: OFFICE 118		7.5	0.900	12	12 20	0/1	25	*	26	20/	1 12	12	0.500	4.2		ACCESS CONTROL	$\top$	
	REC: IT DIRECTOR OFFICE		6.0	0.720	12	12 20	0/1	27		28	20/	1 12	12	0.720	6.0		TELEPHONE BOARD	坏	
	REC: CONFERENCE		6.0	0.720	12	12 20	0/1	29		30		Т	П	0.000	0.0				
	REC: CONFERENCE		6.0	0.720	12	12 20	0/1	31	*	32		Т	П	0.000	0.0				
	REC: IT RECEPTION		4.5	0.540	12	12 20	0/1	33		34		Т	П	0.000	0.0		L		
	REC: TVS		3.0	0.360	12	12 20	0/1	35		36		$\top$	П	0.000	0.0				
	REC: ENROLLMENT		6.0	0.720	12	12 20	0/1	37	*	38		$\top$	П	0.000	0.0				
	REC: ENROLLMENT		6.0	0.720	12	12 20	0/1	39		40	30/	2	П	0.000	0.0		SPD		
	REC: STORAGE		1.5	0.180	12	12 20	0/1	41		42			П	0.000	0.0				
TOTAL	L CONNECTED LOAD: L CONNECTED AMPS: L CALCULATED LOAD: L CALCULATED AMPS:	18.12	AMPS			ASE '				8 KV 6 KV						C# - VI BM - BN EX - EX FA - RE GF - GI	ELBOARD NOTES:  A LTG CONTACTOR#  MERG LTG HANDLE-ON CLA  ISTING  ED/HANDLE-ON CLAMP  FCI TY PE CIRCUIT BREAKER  HAND PADLOCKABLE-OFF D		
																	HUNT TRIP		
																OL - RE	FER TO ONE-LINE DIAGRAM	Λ	

SERVI	С	<b>[ELI</b>	ECTR	RICAL	P	Ά	NE	L S	CI	ΗE	DU	LE						EXISTING	
	CE:	120/24	0,1PH,3V	V,+G,IG	BL	JS R	ATIN	G:	200	A M	CB				SECTION	IS:	1		
PANE	L TYPE:	NEMA	1		Al	C R	ATING	3:	EXIS	STIN	G				MOUNTIN	NG:	SURF	ACE	
EQUP				LOADS	VMF	Æ		CKT	PHA:	SE	CKT		VMF	Œ	LOADS				EQU
No.	DESCRIPTION	NOTE	AMPS	(KVA)	N	PH	CB/P	#	Α	В	#	CB/P	PH	N	(KVA)	AMPS	NOTE	DESCRIPTION	No.
	EXISTING LOAD	EX	0.0	0.000	Г	П		1	*		2		П	П	0.000	0.0	EX	EXISTING LOAD	
		EX	0.0	0.000		П		3		*	4		П	П	0.000	0.0	EX		
	EXISTING LOAD	EX	0.0	0.000		П		5			6		П		0.000	0.0	EX	EXISTING LOAD	
		EX	0.0	0.000	Г	П		7			8		П	П	0.000	0.0	EX		
	EXISTING LOAD	EX	0.0	0.000		П		9		•	10				0.000	0.0	EX	EXISTING LOAD	
	-	EX	0.0	0.000	Г	П		11			12		П	П	0.000	0.0	EX	-	
	EXISTING LOAD	EX	0.0	0.000	Г	П		13	*		14		П	П	0.000	0.0	EX	EXISTING LOAD	
		EX	0.0	0.000		П		15		*	16		П	П	0.000	0.0	EX		
	EXISTING LOAD	EX	0.0	0.000		П		17			18		П		0.000	0.0	EX	EXISTING LOAD	
		EX	0.0	0.000	Г	П		19	*		20		П		0.000	0.0	EX		
	EXISTING LOAD	EX	0.0	0.000	Г	П		21		*	22		П		0.000	0.0	EX	EXISTING LOAD	
		EX	0.0	0.000	Г	П		23			24		П	П	0.000	0.0	EX		
			0.0	0.000	Г	П		25	*		26		П		0.000	0.0			
			0.0	0.000	Г	П		27		*	28		П	П	0.000	0.0			
			0.0	0.000	Г	П		29			30		П	П	0.000	0.0			
			0.0	0.000	Г	П		31	*		32		П		0.000	0.0			
			0.0	0.000		П		33			34		П	П	0.000	0.0			
			0.0	0.000	Г	П		35			36		П	П	0.000	0.0			
			0.0	0.000	Т	П		37	*		38		П	П	0.000	0.0			$\neg$
			0.0	0.000	Т	П		39		*	40		П	П	0.000	0.0			
		-	0.0	0.000	T	П		41			42		П	П	0.000	0.0			$\top$









PS - ENROLLMENT & IT CENTER

OL - REFER TO ONE-LINE DIA GRAM

GH2'ARCHITECTS

GH2.0 GH2 PROJECT NUMBER: 20230239 ISSUE DATE: 05/10/2024

ISSUE:
PERMIT SET

 OTHER ISSUE DATES:
 NO.
 DESCRIPTION
 DATE

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 ADD #1
 5-24-24

 ♠
 ADD #2
 6-18-24

ONE-LINE DIAGRAM
& PANEL
SCHEDULES

SHEET NUMBER:

E300
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70 and expansion/contraction properties of RNC or RAC. Install a pull wire in each empty raceway that is left for installation of conductors or cables under other divisions or contracts. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at

Make all joints and connections in a manner that will ensure mechanical strength and electrical continuity. For raceways penetrating freezer and cooler walls, effectively seal raceways by installing a conduit fitting at the boundary of the two spaces and filling it with an approved pliable material after conductors or cables have been installed. Provide fitting whenever raceways pass from non-cooled to cooled spaces, raceways transition from outside a facility or enclosure to inside, or whether buried or exposed.

B. ABOVE GROUND RACEWAY USE:

least 24 inches of slack at each end of pull wire.

Install all circular raceways concealed above suspended ceilings or concealed in walls or floors wherever possible except where otherwise indicated. Provide GRS for all conduits exposed to weather or other

Unless noted otherwise, all other raceway may be EMT where approved by local code. Use compression type fittings for EMT, with all fittings NRTL listed for the environment in which they are used. Unless noted otherwise, set-screw type fittings are not allowed.

C. UNDERGROUND RACEWAY USE: Provide GRS installed below grade with a corrosion-resistant bonded-plastic or approved mastic coating. This shall include the 90-degree elbow below grade and the entire vertical transition to above grade. RNC conduit may be used underground where permitted by local code and where not specifically restricted by these documents. When used, provide plastic-coated GRS, as specified above, for all bends greater than 30 degrees, including the 90-degree elbows below grade and the entire vertical risers for transitions from below to above grade or above slab.

D. EQUIPMENT CONNECTIONS

Use FMC for final connection to each motor, transformer, and any device that would otherwise transmit motion, vibration, or noise. Use LFMC where exposed to liquids, vapors, or sunlight, and to connect to kitchen and food service equipment. Provide all FMC and LFMC with an insulated bonding conductor.

Use only metal raceways for all power wiring from the output of variable frequency drives to their respective

BUSHINGS AND LOCKNUTS

Rigidly terminate conduits entering sheet metal enclosures to the enclosure with a bushing and locknut on the inside and a locknut or an approved hub on the outside. Conduit shall enter the enclosure squarely. Provide bushings and locknuts made of galvanized malleable iron with sharp, clean-cut threads.

Where EMT enters a box, provide approved EMT compression connectors. Use insulated, grounding, or combination bushings wherever connection is subject to vibration or moisture, when required by NFPA 70, or both.

4. CONDUCTORS AND CABLES Annealed (soft) copper complying with ICEA S-95-658/NEMA WC70 and UL standards 44 or 83 as applicable

Compact stranded, aluminum alloy (AA-8000 series), complying with ICEA S-95-658/NEMA WC70; No. 1/0 AWG or larger only. Terminations: Tinned, compression type only; NRTL-listed for copper and aluminum conductors at 75 degrees

Increase the raceway size as required, at no additional cost to the Owner, to accommodate the increased size of the aluminum Conductors.

Option applies only for the following feeders or services No. 2 AWG and larger (based on copper conductors): 1. Service entrance conductors. Feeders to switchboards

Aluminum conductor size shall meet or exceed the ampere rating of the scheduled copper conductors at

3.Feeders to panelboards. Exception: Apartment unit load center feeder conductors shall be copper; aluminum is not acceptable. Feeders to motor control centers. 5.Feeders to transformers

Where aluminum conductors terminate existing panelboards, switchboards or switchgear that utilize compression connections use hydraulic-compression type connectors with a zinc base, anti oxidizing compound. Use compression tools of the type that will not release unless the correct pressure has been

Measure the temperature of all aluminum conductors at all splices and terminations. Make each test under typical building load Conditions after the building is occupied and in operation for a minimum of two weeks.

Take measurements with a non-contact type infrared thermometer, with target size not exceeding one inch at five feet and an accuracy of two percent or better. Submit the meter specifications and calibration date

Aluminum Conductor Manufacturer: General Cable or approved equal. Conductor Insulation Types: 90-degree C-rated, Type THHN/THWN-2 or XHHW-2 complying with ICEA

S-95-658/NEMA WC70 Sizes of conductors and cables indicated or specified are in American Wire Gage (AWG).

All feeder and branch circuit conductors No. 8 AWG and larger: Stranded.

All conductors, No. 10 AWG and smaller: Solid copper.

Replace all joints or splices indicating excessive heating.

All Branch Circuit Wiring: Not smaller than No. 12 AWG. If no conductor size is indicated on the Drawings for a branch circuit, provide conductors and conduit sized per NFPA 70 and based on the indicated branch circuit overcurrent protective device (OCPD) rating and number of poles. Where no circuit size (i.e., conductors and OCPD) is indicated on the drawings for a branch circuit, provide three No. 12 AWG conductors, in 3/4-inch raceway, and a 20A circuit breaker.

Control Wiring: Stranded copper conductors, 600V insulation, of the proper type, size, and number as required to accomplish specified function. Minimum size: No. 14 AWG, unless noted otherwise. Flexible Cords and Cables: Stranded copper conductors for all, unless noted otherwise.

Connections: Apply a zinc based anti oxidizing compound to connections. Do not use terminals on wiring

Special Purpose Conductors And Cables, Such As Low Voltage Control And Shielded Instrument Wiring: As recommended by the system equipment manufacturer unless indicated otherwise. Copper Conductor Manufacturers: Advance Wire and Cable, AFC Cable, Alan Wire, Alflex, American Insulated Wire, Encore Wire, Northern Cables, Okonite, or Southwire.

5. CONDUCTORS AND CABLES INSTALLATION

devices to feed through to the next device.

Install all wiring in approved raceway and enclosures, except where specified or indicated for low-voltage wiring, where specified or indicated for direct-buried cables, or where type MC cable is indicated or specified as acceptable.

Install all conductors and cables in raceways continuous without taps or splices. Splice or tap only in approved boxes and enclosures with approved solderless connectors, or crimp connectors and terminal blocks for control wiring, and keep to the minimum required. Insulate all splices, taps, and joints as required by codes. All materials used to terminate, splice, or tap conductors: designed for, properly sized for, and NRTL listed for

the specific application and conductors involved, and installed in strict accordance with the manufacturer's recommendations, using the manufacturer's recommended tools. Where wiring is indicated as installed, but the connection is indicated "FUTURE" or "BY OTHER DIVISION, TRADES, OR CONTRACTS", leave a minimum 3-foot "Pigtail" at the box, tape the ends of the conductors, and

Common or shared neutrals are not allowed unless shown on the drawings to be used or specifically noted to

Where multi-wire branch circuits (i.e., shared neutral) are allowed, they shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point the branch circuit originates. Multi-pole breakers or 3 single-pole breakers with a handle tie are two examples.

When multiple home runs are combined into a single raceway such that the number of conductors exceeds four (conductor count is made up of any combination of phase and neutral conductors), the following restrictions apply, which are in addition to those in NFPA 70: Normal or Non-Essential circuits:

1. Maximum of 16 conductors in a single raceway. For up to eight conductors in a raceway, minimum raceway size: 3/4-inch. For greater than eight conductors, minimum raceway size: 1-inch. Do not install any other type of circuit in this raceway.

Minimum wire size for all conductors in this raceway: No. 10 AWG.

3. Only 15A and 20A branch circuit homeruns may be combined into one raceway.

1. Do not use multi-conductor circuits, with a shared neutral, for any GFCI circuit breaker or receptacle

For branch circuits fed from GFCI circuit breakers, limit the one-way conductor length to 100 feet between the panelboard and the most remote receptacle or load on the GFCI circuit.

Properly identify all terminal blocks and wire terminals for control wiring with vinyl stick-on markers or equivalent. Provide Engineer with a list of proposed identifying numbers for review prior to installing markers. Provide an equipment-grounding conductor or bonding jumper, as applicable, in all feeders and branch circuits, For other than wiring devices, refer to paragraphs, articles, sections, divisions, or drawings to obtain mounting sized in accordance with NFPA 70 Tables 250.66 or 250.122, as applicable, unless indicated as larger on the heights for specific equipment or systems.

Wiring shall have insulation of the proper color to match color code system in the table below unless there is a color system currently in use by the facility, in which case the colors are to match the existing system. In larger sizes where properly colored insulation is not available, use vinyl plastic electrical tape of the appropriate color around each conductor at all termination points, junctions, and pull boxes.

System Voltage: 240V and under, including 208Y/120, 120/240, 120/208, and 240D/120 systems:

 Phase A: Black. Phase B: Red Phase C: Blue.

4.Neutral: White. 5. Equipment Ground: Green. 6. Isolated Ground: Green with yellow stripe.

480V and 480Y/277V Phase A: Brown 2.Phase B: Orange.

Phase C: Yellow. 4. Neutral: Gray. Equipment ground: green. 6. MC CABLE

A. CABLE SPECIFICATIONS

Metal-clad cable (MC Cable): 600V, unjacketed; UL Standard 83, 1569, and 1685; NFPA 70 Article 330 aluminum or galvanized steel interlocked armor; THHN- or XHHW-insulated conductors; color code: ICEA Method 1, with green insulated grounding conductor; listed for use in UL 1, 2, and 3 hour through-penetration firestop systems. MC Cable manufacturers: AFC Cable Systems, Encore Wire Corporation, Kaf-Tech, or

B. APPLICATIONS OF MC CABLE

In lieu of flexible conduit and wiring from light fixtures located in accessible ceilings to junction boxes attached to building structure directly above the ceiling. Provide cable whips of sufficient lengths to allow for relocating each light fixture within a 5 foot radius of its installed location, but not exceeding 6 feet in unsupported lengths.

For vertical drops in stud walls.

3. In lieu of EMT, only for 15A and 20A branch circuits (with up to four (4) conductors, not including ground conductor), and only in dry concealed locations above grade, except where specifically not permitted by NFPA

A. ELECTRICAL SERVICE 70, owner, landlord, ahj, or noted in list below.

C. PROHIBITED USE OF MC CABLE UNLESS NOTED ABOVE

Examples of those uses include, but are not limited to the following: . Homeruns to panelboards (refer to Section 26: Definitions).

Where exposed to view. 3. Where exposed to damage 4. Hazardous locations. Wet locations. When restricted otherwise.

When specifically disallowed by the local AHJ. 8. When specifically disallowed by the landlord.

7. MC CABLE INSTALLATION

Secure and support cable per NFPA 70 Article 330 . Secure cable within 12 inches of every box or fitting. Securing and supporting intervals shall not exceed six feet. Maintain consistent spacing to avoid derating due to bundling per NFPA 70 Section 310.15. Utilize steel cable hangers, Arlington SMC series or equivalent, to support wherever possible so cables can be routed in a neat and workmanship like manner.

8. JUNCTION BOXES, PULL BOXES, CABINETS, AND WIREWAYS

Provide junction boxes, pull boxes, cabinets, and wireways wherever necessary for proper installation of various electrical systems according to NFPA 70 and where indicated on the drawings. Size as required for the specific function or as required by NFPA 70, whichever is larger. Construction shall be of a NEMA design suitable for the environment installed.

Junction boxes shall be 4 inches square or larger with galvanized covers.

9. OUTLET BOXES

All outlets including light fixture, switch, receptacle, and similar outlets: galvanized steel knockout boxes suitable in design to the purpose they serve and the space they occupy. Size as required for the specific function or as required by NFPA 70, whichever is larger. Set all outlet boxes in walls, columns, floors, or ceilings so they are flush with the finished surface, accurately set, and rigidly secured in position. Provide plaster rings, extension rings and/or masonry rings as required for flush mounting. Provide approved cast outlet boxes with hubs and weatherproof covers in all areas subject to damp, wet, or harsh conditions.

Manufacturers: Appleton, Cooper, Erikson Electrical, Hoffman, Killark Electric, O-Z/Gedney, Raco, Robroy Industries, Scott Fetzer, Spring City Electrical, Thomas and Betts, Walker Systems, or Woodhead. 10. OUTLET LOCATIONS

Coordinate locations of outlet boxes. Outlets are only approximately located on the small scale drawings. Use great care in the actual location by consulting the various large scale detailed drawings used by other division trades, and by securing definite locations from the Architect

loads must have a permanently-affixed red label stating "FA" in white letters adjacent to the circuit breaker. 11. MOUNTING HEIGHTS Unless noted otherwise, install wiring devices vertically aligned at height indicated on construction drawings.

All duplex receptacles shall be specification grade, tamper resistant, 20 amp. GFCI protected where Unless indicated otherwise, install vertically.

Where installed horizontally, install with the neutral slot mounted at the top. Above counter: mount vertically aligned.

Mechanical and electrical equipment rooms and janitors closets: mount vertically aligned Weatherproof exterior receptacles: horizontally aligned.

GFCI receptacles: Same as general receptacles

Isolated ground receptacles: Same as general receptacles

Clock Receptacles: 84 inches above finished floor.

SPD receptacles: Same as general receptacles .

Concrete Block Walls: As long as ADA requirements are maintained, dimensions above may be adjusted slightly as required to compensate for variable joint dimensions such that bottom or top of boxes, as applicable, are at block joints.

B. SWITCHES

All switches shall be specification grade, 277v, 20 amp. type as indicated on drawings. General: All switches shall be mounted at the same height throughout the project unless noted otherwise. Above Counters: Same as for receptacles.

Concrete Block Walls: As long as ADA requirements are maintained, dimensions above may be adjusted slightly as required to compensate for variable joint dimensions, such that bottom or top of boxes, as applicable, are at block joints.

Walls with Wainscoting: 6 inches minimum above wainscoting, but not exceeding 48 inches above finished

C. TELEPHONE/DATA OUTLET BOXES

General: Match mounting height of adjacent wiring device listed above.

Minor changes relative to the location of electrical equipment may be made to comply with structural and building requirements as determined in the course of construction. Provide all wiring devices of the same manufacturer and not mixed on the project, to the maximum extent possible. Provide color of toggles and receptacles as requested by the Architect

Wiring Devices: Unless noted otherwise, devices shall be commercial grade, and rated for 20A.

Wiring device manufacturers: Cooper, Hubbell, Legrand, or Leviton. Floor Boxes: UL 514A listed for scrub water exclusion. For slab on grade - Watertight, Class 1, and fully adjustable cast iron box. For slab above grade - Concrete-tight, fully adjustable, stamped galvanized steel box. Floor box shape, quantity of gangs, type and quantity of devices, finish, and flange type per drawings. Floor box manufacturers: Hubbell, Legrand, Thomas and Betts, or Walker.

13. SWITCH AND OUTLET COVER PLATES Switch and Outlet Plates: Colored, smooth nylon; by the same manufacturer as the wiring devices, wherever possible. Verify desired materials and colors with Architect before installation. Switch plates in unfinished rooms

and spaces: Stamped steel, cadmium plated. Install groups of switches under one ganged-plate, usually

horizontally; or, where required by details, vertically. Set all cover plates plumb, parallel, and finished flush with

14. WEATHERPROOF COVER PLATES

Provide GFCI receptacles for designated weatherproof receptacles, unless indicated otherwise on the

Unattended Exterior, Wet Locations or Other Locations as Indicated: In-use, NEMA 3R, recessed or flush mount, NRTL labeled plates molded from a clear high impact ultraviolet stabilized polycarbonate material for easy verification that cords are plugged in and that the GFCI is functioning. Back box must be suitable for conduit connecting. Coordinate back box with wall depth. Intermatic WP1000RC/HRC or equal. Attended Wet Or Damp Locations: Weatherproof cover plates NRTL listed for wet locations with cover(s) closed; die-cast aluminum or Type 302 stainless steel; single-cover for switches and vertically mounted

Cover Plates: By the same manufacturer as the wiring devices; complying with NFPA 70 ARTICLES 406.9 (A) or (B) requirements for attended or unattended use as applicable. 15. ELECTRICAL SERVICE AND GROUNDING

receptacles; double-cover for horizontally mounted receptacles; self-closing covers.

See drawings for type, size, voltage, phase, and other requirements.

B. CONNECTION TO SERVING UTILITIES Provide raceways, terminations, metering provisions, and miscellaneous equipment as required for electrical and telecom services for connection by the serving utility, in strict compliance with the requirements of all applicable codes and of the serving utility involved. Verify all service terminations and connection points in the field and work in conjunction with the utility involved in the installation of all services. Provide all materials and equipment required for complete utility connection but not furnished by the serving utility. Notify the utility companies involved within two weeks after notice to proceed of all required information necessary for the utility to supply the project without delay. Pay all charges of the serving utility for the electrical service(s).

C. GROUNDING Permanently and effectively ground and bond the electrical installation in a thorough and efficient manner, and in conformance, at a minimum, with NFPA 70, or these documents, where they exceed code requirements. Use bare or insulated conductors as specified herein, and other materials indicated on the Drawings.

16. DISTRIBUTION AND CONTROL EQUIPMENT

A. POWER DISTRIBUTION PANELBOARDS: CIRCUIT BREAKER, 1200A BUS OR **SMALLER** 

Panelboards: Dead-front distribution panelboards with number and sizes of circuit breakers as indicated on the drawings; where installed as service entrance equipment, permanently label as suitable for use as service entrance equipment; fully-rated for the available fault current indicated on the drawings; hinged, lockable front door that covers the circuit breaker handles. Circuit breakers: Quick-make, quick-break, indicating type; engraved nameplates for circuit identification of each circuit breaker. Provide a typewritten card directory indicating exactly what each circuit breaker controls on the inside face of the door for circuit identification.

Manufacturers: Square D. Eaton, G.E., or Siemens.

where indicated on the drawings.

B. LIGHTING AND APPLIANCE PANELBOARDS

Panelboards: Complete with bolt-on thermal magnetic, molded case circuit breakers assembled in a dead-front finished cabinet containing a typewritten card directory indicating exactly what each circuit breaker controls; fully-rated and with the integrated short circuit current ratings indicated on the drawings. Plug-in type breakers will not be acceptable. All two- and three-pole breakers: Common trip type.

 Type SWD Circuit Breakers: Use when breaker serves as a switch for 120V or 277V lighting circuits. 2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip). Use as indicated on drawings.

3. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip). Use as indicated on drawings. 4. Handle Clamp: Loose attachment for holding circuit breaker handle in "on " position. Use for all circuits containing emergency lighting loads, fire alarm loads, and as indicated on drawings. Breakers serving fire alarm

5. Handle padlocking device: fixed attachment for locking circuit breaker handle in "on" or "off" position. Use as indicated on drawings. Manufacturers: Square D (as applicable, based on voltage and ampere ratings and required short-circuit interrupting ratings as scheduled on the drawings) or approved equal by Eaton, G.E., or Siemens.

D. DISCONNECT (SAFETY) SWITCHES Disconnect (Safety) Switches: Heavy-duty, fused or non-fused (as indicated on drawings or required) NEMA KS1, externally operated, visible-blade safety switches; NEMA enclosure type indicated on the drawings or suitable for the environment in which installed. based on fusible switch and fuse sizes indicated, include Class

R, J, or L fuse provisions as applicable. Where indicated, provide fusible switches permanently labeled as suitable for use as service entrance equipment, with integral and separate neutral and ground assemblies, suitable for the sizes of conductors indicated. Do not double-lug any terminations not specifically listed as suitable for more than one conductor.

Provide switches where not furnished with the starting equipment, at all other points required by NFPA 70, and

Manufacturers: Eaton, G.E., Siemens, or Square D.

system that used letters.

Provide each circuit and set of fuse clips throughout the work with sizes and types as required or indicated. All fuses larger than 600A: UL Class L, similar to type KRP-C Bussmann Low Peak or equal. Fuses used to protect motors: UL Class RK5, Bussmann Fusetron or equal. Fuses used to protect all other electrical equipment: UL Class RK1, dual element, Bussmann LPS/LPN or equal. All fused devices shall be labeled as to type and size of fuse required.

Furnish three spare fuses of each size and type used on the project (except for main switch fuses, furnish one spare), neatly contained in a properly labeled cabinet. Manufacturers: Bussmann, Edison Fuse, Mersen/Ferraz Shawmut, or Littlefuse.

G. DRY-TYPE TRANSFORMERS Transformers: General purpose, NRTL listed/labeled. Comply with NEMA ST 20 and UL 1561.

Insulation Class: For three-phase transformers less than 15 kVA and all single-phase, 185 degrees C NRTL-component-recognized insulation system with a maximum of 115 degree C rise above a 40 degree C ambient temperature; for three-phase transformers 15 kVA and larger, 220 degrees C, NRTL-component-recognized insulation system with a maximum of 150 degree C rise above a 40 degree C ambient temperature. NRTL-component-recognized insulation system replaces the UL 1446 insulation rating

Phases, Voltages, and Sizes: As indicated on the drawings.

Sound Level: Not exceeding 3 dBa less than NEMA ST 20 standards for the sizes indicated when factory tested according to IEEE C57.12.91.

Full-Capacity Primary Taps: For three-phase below 25 kVA and all single-phase, one 5 percent tap above and one 5 percent tap below; 25 kVA to 500 kVA, six 2.5 percent taps (2 above, 4 below); above 500 kVA, four 2.5 percent (2 above, 2 below).

Transformer Core and Coil Assemblies: Mounted on integral vibration-absorbing pads. Transformers 75 kVA and larger shall be floor mounted unless indicated otherwise. Transformers 45 kVA and smaller may be wall mounted where wall construction is suitable for the load. Floor mounted transformers shall

be securely bolted to a 4 inch house keeping pad with vibration isolation pads. Wall mounted or suspended transformers shall have a means of isolating vibration from the support. Wall mounts must be by same manufacturer as and provided with transformer. Transformers up through 1000 kVA shall be mounted on elastomeric vibration isolation pads. Pad shall be

constructed of neoprene, rubber, glass fiber, or a combination thereof. Pads shall be "ribbed" or "waffled" in texture. Pads shall be selected for smallest durometer (hardness), preferably less than 50. Deflection of pad shall be 0.25 inches static minimum. Stack pads until the desired deflection is achieved. Make final conduit connections to transformers with flexible conduit, with at least 6 inches of slack in all

directions. Minimum flexible conduit length shall be 2 feet. Transformer Enclosures: Removable front cover, core and coil encapsulated within resin compound, drip-proof, fabricated of heavy gauge sheet steel construction. Dry locations: Ventilated, NEMA 250 Type 2. Damp or wet

non-ventilated, NEMA 250 Type 4X, stainless steel. Provide energy-efficient transformers complying with federal regulation 10 CFR 431.192 thru 431.196

locations: Ventilated with weather shields, NEMA 250 Type 3R. Corrosive locations: Totally enclosed,

K-rated transformers shall be provided as indicated on the drawings and be listed for 115 degree C rise. Manufacturers: ACME, Eaton, G.E., Siemens, Hammond, Sola/Hevi-Duty, or Square D.

H. FRACTIONAL HORSEPOWER MANUAL CONTROLLER Manual motor starters for fractional horsepower single-phase motors shall consist of a manually operated toggle switch equipped with melting alloy type overload relay. Thermal unit shall be of one piece construction and interchangeable. Starter shall be inoperative if thermal unit is removed. Provide flush mounted units in finished areas and surface mounted units in unfinished areas. Starters shall have NEMA I general purpose enclosure, unless otherwise indicated, and be rated for the motor horsepower required. Provide with handle guard with locking provisions and an integral pilot light.

Manufacturers: Square D Class 2510 Type F, Eaton 9101 series, G.E. CR101 series, Siemens MSF series, or Westinghouse MST series.

17. LIGHT FIXTURES, LAMPS AND BALLASTS

A. LIGHT FIXTURE LOCATIONS

Light fixtures shown on the drawings represent general arrangements only. Refer to architectural drawings for more exact locations. Coordinate location with all other trades before installation to avoid conflicts. Coordinate light fixture locations in mechanical rooms with final installed piping and ductwork layouts.

LIGHT FIXTURES Refer to Light Fixture Schedule on electrical drawings for requirements. see general requirements in these specifications for substitution requirements.

LED Drivers: Comply with NRTL requirements and ANSI C82.77; designed for type and quantity of lamps served; sound levels not exceeding Class A ambient noise levels; lamp current crest factor of 1.5 or less; 90-percent power factor or greater; line transient withstand ratings as defined in ANSI/IEEE C62.41, Category A.; total harmonic distortion less than 20 percent; shall tolerate sustained open circuit and short circuit output conditions without damage; shall not over-drive LEDs at a current or voltage above LED rated values; ROHS

C. DIMMABLE LIGHT FIXTURES For dimmable light fixtures provide both control and power wiring between light fixture and control device and between light fixtures. Quantity of low voltage and line voltage wiring and wire type shall be per manufacturer's

compliant; meets EN610000 requirements for input harmonics.

recommendations. Coordinate light fixture and control device dimming types for compatibility. 18. MISCELLANEOUS ELECTRICAL

A. WIRING OF MECHANICAL EQUIPMENT

D. DATA SYSTEM PROVISIONS

Provide all raceways and power wiring for all Division 23 equipment requiring electrical connections, including but not limited to pumps, water heaters, and HVAC equipment, and all line-voltage control and interlock wiring not provided under Division 23. Connect per manufacturers' wiring diagrams. Coordinate with Division 23 for disconnects and variable frequency drives (VFD) furnished with equipment, and provide all disconnect switches and final connections as required. If VFD is separate or does not have an integral disconnect feature, provide disconnect switch with auxiliary contact such that motor will be turned off if switch is off, provide VFD cable, Belden or approved equivalent, for connection of VFD to motor when required. After installing wiring, verify that each motor load has the correct phase rotation.

Verify the actual "Maximum Overcurrent Protection" (MOCP) device ratings and "Minimum Circuit Ampacity" (MCA) conductor sizing for mechanical equipment from the equipment nameplate. Base electrical installations on actual required amperages, which may vary somewhat from the conductor and equipment sizes shown on the drawings; however, in no case, reduce the size of conductors indicated on the drawings without authorization from the Engineer. Provide properly sized electrical wiring and equipment without extra cost to the Owner. Notify the Engineer of all changes required in the electrical installation due to equipment variances so that the effects on feeders, branch circuits, panelboards, fuses and circuit breakers can be checked prior to purchasing and installation. Be responsible for coordinating with Division 23 to verify the actual ampacities and correct sizes of all conductors and overcurrent protective devices for all equipment, and correct overload

heaters for all motors, when starters are provided under Division 26. B. WIRING OF THERMOSTATS, TIME AND TEMPERATURE CONTROLS

Provide all raceways, power wiring, and line-voltage control and interlock wiring not provided under Division 23, for all thermostats, temperature control devices, and controls, including, but not limited to, night-stats, water heater interlocks, time switches and override timers. See mechanical drawings for locations and temperature control diagrams. Low-voltage conductors for thermostats and temperature control system may be run exposed above finished accessible ceilings, if approved and listed for this purpose, but shall be installed in conduit within walls and where exposed in the work areas. C. TELEPHONE SYSTEM PROVISIONS

Provide incoming telephone service raceways as indicated on drawings or as required by the serving telephone company. Provide 3/4-inch thick plywood board, fire-retardant-treated and stamped FRT, securely anchored to the wall, at the location and of the size as indicated on the drawings. Provide flush mounted telephone outlet boxes with 3/4 inch conduit stub-up to accessible ceiling space at locations as indicated on the drawings. Furnish and install cat6 cable as required.

Provide flush mounted data outlet boxes with 3/4 inch conduit stub-up concealed to accessible ceiling space at locations as indicated on the drawings. Furnish and install cat6 cable as

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GH2 PROJECT NUMBER: 20230239

ISSUE DATE: 05/10/2024

ADD #2

**PERMIT SET** OTHER ISSUE DATES: NO DESCRIPTION ADD #1 5-24-24

**ELECTRICAL SPECIFICATION**