

ADDENDUM #5

Date: October 16, 2026

Project: New Locker Room Facility and Renovations to the
Existing Concession and Tennis Facilities Project at the
Merrillville High School
276 E 68th Place
Merrillville, Indiana 46410

Architect's Project #26027

To: Prospective Bidders

This addendum forms a part of the Bid Documents and modifies the original Bid Documents dated October 2, 2026 as noted below. Acknowledge receipt of this addendum in the space on the Bid Form. Failure to do so may subject bidder to disqualification.

GENERAL

1. Bid Due date shall be rescheduled to Tuesday, October 27, 2026, 1:00pm.

SPECIFICATIONS

2. The attached Specification Section 07 3113 Asphalt Fiberglass Shingles shall become part of the Project Manual.
3. The attached Specification Section 09 6519 Resilient Flooring shall become part of the Project Manual.
4. The attached Specification Section 09 6723 Resinous Flooring shall become part of the Project Manual.
5. Specification Section 26 3200 Emergency Generator – Paragraph 1.11 Generator – Revise as follows:

1.11 GENERATOR

- A. Genset-1: Provide a pad mounted generator – Kohler Model 500REZK Natural Gas Fired Generator with Weather Enclosure, Automatic Transfer Switch, 500 KVA 277/480V, Block Heater, Battery Charger and Decision-Maker 8000 Controller.
- B. Genset-2: Provide a pad mounted generator – Kohler Model 60REZGB Natural Gas Fired Generator with Weather Enclosure, Automatic Transfer Switch, 54 KVA 120/240V, Block Heater, Battery Charger and Decision-Maker 550 Controller.
- C. Other Manufacturers: Subject to compliance with requirements, other available manufacturers offering comparable products that may be incorporated into the Work include:

1. Cummins
 2. Caterpillar
6. The attached Specification Section 31 3421 Geotextile shall become part of the Project Manual.
 7. The attached Specification Section 32 1216 Asphalt Paving shall become part of the Project Manual.

DRAWINGS

8. See attached Revised Drawing Sheet C1.0.0-ABCD – Master Site Plan – High School Campus - This plan shows clouded and tagged revisions dated 10/16/2026.
9. See attached Revised Drawing Sheet C1.0.2-AC – Partial Site Plan – Demolition – Existing Concession & New Locker Room Facility - This plan shows clouded and tagged revisions dated 10/16/2026.
10. See attached Drawing Sheet C1.0.4-D – Site Plan – Demolition – High School Substation #2 - dated 10/16/2026 This drawing is being issued in its entirety.
11. See attached Revised Drawing Sheet C1.1.1-AC – Partial Utility Plan – New Construction – Existing Concession & New Locker Room Facility - This plan shows clouded and tagged revisions dated 10/16/2026.
12. See attached Drawing Sheet C1.3.0-D – Partial Utility Plan – New Construction – High School Substation #2 - dated 10/16/2026 This drawing is being issued in its entirety.
13. See attached Revised Drawing Sheet A1.1.0-A – Master Floor Plan – This plan shows clouded and tagged revisions dated 10/16/2026.
14. See attached Revised Drawing Sheet A1.1.1-A – Partial Floor Plan – Area A – This plan shows clouded and tagged revisions dated 10/16/2026.
15. See attached Revised Drawing Sheet A1.1.2-A – Partial Floor Plan – Area B – This plan shows clouded and tagged revisions dated 10/16/2026.
16. See attached Revised Drawing Sheet A2.1.1-A – Partial Reflective Ceiling Plan – Area A - This plan shows clouded and tagged revisions dated 10/16/2026.
17. See attached Revised Drawing Sheet A2.1.2-A – Partial Reflective Ceiling Plan – Area B - This plan shows clouded and tagged revisions dated 10/16/2026.
18. Drawing Sheet S1.1.1-A – Partial Foundation Plan – Area A - **revise north, south, and center load bearing wall footings to be 3'-0" x 12" with 4 #5 rebar continuous.**
19. Drawing Sheet S1.1.2-A – Partial Foundation Plan – Area B - **revise north, south, and center load bearing wall footings to be 3'-0" x 12" with 4 #5 rebar continuous.**
20. See attached Revised Drawing Sheet S2.1.1-A – Partial Structural Plan – Area A - This plan shows clouded and tagged revisions dated 10/16/2026.
21. See attached Revised Drawing Sheet E2.1.2-A – Partial Power Plan – Area B - This plan shows clouded and tagged revisions dated 10/16/2026.
22. See attached Revised Drawing Sheet A1.0.1-B – Floor Plan – Demolition - This plan shows clouded and tagged revisions dated 10/16/2026.
23. See attached Revised Drawing Sheet A1.1.0-B – Floor Plan – New Construction - This plan shows clouded and tagged revisions dated 10/16/2026.
24. See attached Revised Drawing Sheet A2.1.0-B – Reflected Ceiling Plan – Demolition & New Construction - This plan shows clouded and tagged revisions dated 10/16/2026.
25. See attached Revised Drawing Sheet A3.1.0-B – Roof Plan – Demolition & New Construction - This plan shows clouded and tagged revisions dated 10/16/2026.

26. See attached Revised Drawing Sheet P1.1.0-B – Plumbing Plan – New Construction - This plan shows clouded and tagged revisions dated 10/16/2026.
27. See attached Revised Drawing Sheet P1.1.1-B – Plumbing Detail Plan – New Construction - dated 10/16/2026 This drawing is being issued in its entirety.
28. See attached Revised Drawing Sheet E1.1.0-B – Lighting Plan – Demolition & New Construction - This plan shows clouded and tagged revisions dated 10/16/2026.
29. See attached Revised Drawing Sheet A1.1.0-C – Floor Plan – Demolition & New Construction - This plan shows clouded and tagged revisions dated 10/16/2026.
30. Revised Drawing Sheet E1.1.0-C – Lighting & Data Plan - This plan shows clouded and tagged revisions dated 10/16/2026.

Attached to Addendum #5

- Specification Section 07 3113 Asphalt Fiberglass Shingles
- Specification Section 09 6519 Resilient Flooring
- Specification Section 09 6723 Resinous Flooring
- Specification Section 31 3421 Geotextile
- Specification Section 32 1216 Asphalt Paving

- Revised Drawing Sheet C1.0.0-ABCD – Master Site Plan – High School Campus
- Revised Drawing Sheet C1.0.2-AC – Partial Site Plan – Demolition – Existing Concession & New Locker Room Facility
- Drawing Sheet C1.0.4-D – Site Plan – Demolition – High School Substation #2
- Revised Drawing Sheet C1.1.1-AC – Partial Utility Plan – New Construction – Existing Concession & New Locker Room Facility
- Drawing Sheet C1.3.0-D – Partial Utility Plan – New Construction – High School Substation #2
- Revised Drawing Sheet A1.1.0-A – Master Floor Plan
- Revised Drawing Sheet A1.1.1-A – Partial Floor Plan – Area A
- Revised Drawing Sheet A1.1.2-A – Partial Floor Plan – Area B
- Revised Drawing Sheet A2.1.1-A – Partial Reflective Ceiling Plan – Area A
- Revised Drawing Sheet A2.1.2-A – Partial Reflective Ceiling Plan – Area B
- Revised Drawing Sheet E2.1.2-A – Partial Power Plan – Area B

- Revised Drawing Sheet A1.0.1-B – Floor Plan – Demolition
- Revised Drawing Sheet A1.1.0-B – Floor Plan – New Construction
- Revised Drawing Sheet A2.1.0-B – Reflected Ceiling Plan – Demolition & New Construction
- Revised Drawing Sheet A3.1.0-B – Roof Plan – Demolition & New Construction
- Revised Drawing Sheet P1.1.0-B – Plumbing Plan – New Construction
- Revised Drawing Sheet P1.1.1-B – Plumbing Detail Plan – New Construction
- Revised Drawing Sheet E1.1.0-B – Lighting Plan – Demolition & New Construction

- Revised Drawing Sheet A1.1.0-C – Floor Plan – Demolition & New Construction
- Revised Drawing Sheet E1.1.0.C – Lighting & Data Plan

END OF ADDENDUM #5



ADDENDUM 5

DATE: October 16, 2026
FROM: Millies Engineering Group
Project: Merrillville HS Locker Room-Restroom
PROJECT NO: 2609156

A. SPECIFICATIONS:

1. Section 230700 – Mechanical Insulation

- a. Added 2.03 Ductwork and Equipment Insulation, sub-section A. 2. Aluminum Supply and Exhaust Ductwork.

2. Section 230923 – Temperature Controls

- a. Added in its entirety.

3. Section 237414 – RT HVAC Units

- a. Removed Section 2.02 Equipment, sub-section O. Single Zone Variable Air Volume Unit Controls.

4. Section 237415 – RT DOAS Units

- a. Removed Section 2.02 Equipment, sub-section Q. Single Zone Unit Controls.

A. DRAWINGS:

1. Sheet M1.1.0-A – See sheet for additional information.

- a. Revised gas piping.
- b. Revised location of generator.
- c. Added combustion air and vent for UH-1.

2. Sheet M1.1.0-B – See sheet for additional information.

- a. Revised grille location and associated ductwork.
- b. Revised location of control panels.

3. Sheet M1.2.0-A – See sheet for additional information.

- a. Added combustion air and vent kit for UH-1.



ADDENDUM 5

4. Sheet M2.1.0 – See sheet for additional information.

- a. Revised RT-1, 2, 3, and 4 electrical data.

5. Sheet M2.1.2 – See sheet for additional information.

- a. Added sheet in its entirety.

6. Sheet M2.1.2 – See sheet for additional information.

- a. Added sheet in its entirety.

END OF ADDENDUM 5

SECTION 23 09 23
TEMPERATURE CONTROLS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS:

- A. Conform to all applicable provisions of Section 23 05 00.

1.02 DESCRIPTION OF WORK:

- A. Extend the existing direct digital temperature control Facilities Management System (FMS) to control the new systems as herein specified, shown on drawings and as required to comply with required sequences of automatic control and Point List.
 - 1. Provide new graphics to match the existing facility standards.
 - 2. Extend the communication network with necessary servers and controllers for new VAV air handling units, multi-zone air handling units, Chillers, Boilers, Rooftop VAV units, VAV boxes, exhaust fans, lighting zone controls, etc.
 - 3. Provide all necessary Control devices, instruments, panels, dampers, valves, electronic actuators, instruments, etc.
 - 4. Provide all necessary Thermostats, temperature sensors, pressure sensors, control relays, current sensing relays, switches, alarms, etc.
 - 5. Provide all necessary transformers and low voltage wiring.
 - 6. Provide complete start-up, testing, and adjustment of the FMS and provide owner training of the system.
 - 7. Provide training of maintenance personnel.
- B. Provide five (5) year software maintenance agreement to license all software and provide/install updates for five (5) years.
- C. The FMS System shall be compatible with and communicate directly with the existing school district network and web-based interface to allow access from any WAN or internet station. Interface shall provide full access for data acquisition and control.

1.03 MANUFACTURER:

- A. The temperature control (TC) system shall be manufactured and installed by one of the following:
 - 1. Distech Controls, furnished and installed by an Authorized Distech Controls System Integrator. Precision Control Systems, Inc. in Griffith, IN telephone (219) 838-1177

- B. The temperature control contractor shall be a recognized national manufacturer, installer and service provider of the specified temperature controls. Distributors, manufacturer's representatives and wholesalers are not acceptable for this project.

1.04 QUALITY ASSURANCE:

- A. Provide a competent and experienced FMS Project Manager. The Project Manger shall attend scheduled Project Meetings as required and shall be empowered to make technical, scheduling and related decisions. At minimum, the Project Manager shall:
 - 1. Manage the scheduling of the work to ensure that adequate materials, labor and other resources are available as needed.
 - 2. Maintain the scheduling of the work and report monthly in writing on progress.
 - 3. Maintain a legible copy on-site of, at minimum, the following documentation:
 - a. The FMS Contract Documents including all approved Change Orders.
 - b. All FMS related written Requests for Information and responses.
 - c. All approved Shop Drawings and other submittals.
 - d. A copy of the FMS Contract Schedule.
 - e. Primary FMS related correspondence and minutes
 - f. A record of daily on-site manpower deployment
 - g. Other records as pertinent and required by the Contract Documents.
- B. Provide a complete, neat and workmanlike installation. Use only manufacturer employees who are skilled, experienced, trained, and familiar with the specific equipment, software and configurations to be provided for this Project.

1.05 SHOP DRAWING SUBMITTALS:

- A. Shop Drawings, Product Data, and Samples:
 - 1. Submit shop drawings within 45 days of contract award.
 - 2. Submittals shall be prepared by Cad format on 17" x 11" size and bound in brochure form. The submittals shall show the relatedness of all specified DPNS functions.
 - 3. Submittals shall be in defined packages. Each package shall be complete and shall only reference itself and previously submitted packages.
 - 4. Equipment and systems requiring approval of local authorities must comply with such regulations and be approved. Filing expenses shall be included as part of this contract where filing is necessary. Provide a copy of all related correspondence and permits to the Owner.
 - 5. Prepare an index of all submittals and shop drawings for the installations. Index shall include a shop drawing identification number, Contract Documents reference and item description. Submit this index prior to the submittal of any shop drawings and within 4 weeks after Contract award.

6. At a minimum, submit the following:
- a. Product data sheets for all products including Software, Valves, Dampers, Relays, Panels, Gauges, Sensors, Thermostats, Switches, Pressure Controllers, Facilities Management Panels, Stand Alone and Application Specific Controllers, etc. Submittal shall indicate arrangements, capacities, range, voltage, horsepower, construction, etc.
 - b. FMS network architecture diagrams including all Controllers and interconnections.
 - c. Schematics, sequences and flow diagrams.
 - d. Points schedule for each real and virtual (software) point in the FMS, including: Tag, Point Type, System Name, Object Name, Expanded ID, Display Units, Controllers Type, Address, Cable Destination, Module Type, Terminal ID, Panel, Slot Number, Reference Drawing, and Cable Number.
 - e. Detailed Bill of Material list for each Controller, identifying quantity, part number, description, and optional features.
 - f. Control Damper Schedule including a separate line for each damper and a column for each of the damper attributes, including: Code Number, Fail Position, Damper Type, Damper Operator, Blade Type, Bearing Type, Seals, Duct Size, Damper Size, Mounting, and Actuator Type.
 - g. Control Valve Schedules including a separate line for each valve and a column for each of the valve attributes: Code Number, Configuration, Fail Position, Pipe Size, Valve Size, Body Configuration, Close off Pressure, Capacity, Valve CV, Calculated CV, Design Pressure, Actual Pressure, and Actuator Type.
 - h. Details of all FMS interfaces and connections to the work of other trades.
 - i. Training provided, including outlines for each session.

1.06 RECORD DOCUMENTATION:

A. Operation and Maintenance Manuals:

1. Six (6) copies of the Operation and Maintenance Manuals shall be submitted upon completion of the project. The entire Operation and Maintenance Manual shall be furnished on Compact Disc media, and include the following for the FMS provided:
 - a. Table of contents.
 - b. As-built system record drawings. Computer Aided Drawings (CAD) record drawings shall represent the as-built condition of the system and incorporate all information supplied with the approved submittal.
 - c. Manufacturers product data sheets for all products including software.
 - d. System Operator's manuals.
 - e. Archive copy of all site-specific databases and sequences.
 - f. FMS network diagrams.
 - g. Wiring termination schedules.
 - h. Interfaces to all third-party products and work by other trades.
2. The Operation and Maintenance Manual CD shall be self-contained, and include all necessary software required to access the project record drawings and data sheets. A logically organized table of contents shall provide dynamic links to view and print all

project record drawings and product data sheets. Viewer software shall provide the ability to display, zoom, and search all documents. The CD-ROM(s) shall contain adequate space for future system updates.

B. On-line Documentation: After completion of all the tests and adjustments listed above, install the following information on the FMS:

1. "AS-BUILT" drawing files
2. Detailed catalog data on all installed system components with address and phone number of factory repair service.

C. Ownership of Proprietary Material:

1. The Owner shall agree to the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software. All project developed software and documentation shall become the property of the owner. These include, but are not limited to:
 - a. Project graphic Images
 - b. Record Drawings
 - c. Project network database
 - d. Project – specific application programming code
 - e. All documentation
2. The Owner shall be the named license holder of all software associated with any and all incremental work on this project. In addition, the Owner shall receive ownership of all job specific configuration documentation, data files, and application-level software developed for this project. This shall include all custom, job specific software code and documentation for all configuration and programming that is generated for this project and/or configured for use with the NAC, FMCS Server(s), and any related LAN/ WAN / Intranet and Internet connected routers and devices. Any and all required IDs and passwords for access to any component or software program shall be provided to the Owner. The Owner shall determine which organizations to be named in the SI organization ID ("orgid") of all software licenses. Owner shall be free to direct the modification of the "orgid" in any software license, regardless of supplier.

1.07 WARRANTY:

A. Standard Material and Labor Warranty:

1. Provide a one-year labor and material warranty on the FMS.
2. If within twelve (12) months from the date of substantial completion of the FMS, upon written notice, it is found to be defective in operation, workmanship or materials, it shall be replaced, repaired or adjusted.
3. Warranty work shall be done during normal business hours.

4. Maintain an on-site record of all work done, all items removed from site, all items returned to site, all new replacement items installed and all remedial programming and database entry work undertaken including software revisions installed. Maintain a record of all re-calibrations required as a result of Warranty service.

PART 2 – PRODUCTS

2.01 NETWORK CONTROLLERS/SERVERS:

- A. The Network System shall be a fully user-programmable, supervisory controller or server. System shall monitor the network of distributed application-specific controllers, provide global strategy and direction, and communicate on a peer-to-peer basis with other controllers.
- B. User Interface – Each system shall have the ability to deliver a web based user interface as previously described. All computers connected physically or virtually to the automation network shall have access to the web based User Interface. Systems without such capability at this level shall provide an approved user interface via the combination of operator interfaces and Web servers for comparable operation.
- C. The controllers or servers shall be designed, packaged, installed, programmed and commissioned in consideration of their specific service and prevailing operating conditions. They shall be proven standard product of their original manufacturer and not a custom product for this Project.
- D. Processors shall be microprocessor-Based with a minimum word size of 32 bits. They shall be multi-tasking, multi-user, and real-time digital control processors. Standard operating systems shall be employed. Provide sufficient size and capability to fully meet the requirements of this Specification.
- E. Memory – Provide sufficient memory to support its own operating system, databases, and control programs, and to provide supervisory control for all control level devices.
- F. Hardware Real Time Clock – Provide an integrated, hardware-Based, real-time clock.
- G. Communications Ports – Provide at least (1) USB ports and (1) URS-232 serial data communication port for operation of operator I/O devices, such as industry-standard computers, modems, and portable operator's terminals. System to allow temporary use of portable devices without interrupting the normal operation of permanently connected modems.
- H. Diagnostics – system shall continuously perform self-diagnostics, communication diagnosis, and diagnosis of all panel components. Provide both local and remote annunciation of any detected component failures, low battery conditions, or repeated failures to establish communication.

- I. Power Failure – In the event of the loss of normal power, The Network Controller shall continue to operate for a user adjustable period of up to 10 minutes after which there shall be an orderly shutdown of all programs to prevent the loss of database or operating system software. Flash memory shall be incorporated for all critical controller configuration data.
- J. Certification – All controllers shall be listed by Underwriters Laboratories (UL).

2.02 HVAC CONTROLLERS:

- A. HVAC Controllers shall provide both standalone and networked direct digital control of HVAC systems.
- B. Controller shall be configured and provided for each VAV and Multi-Zone air handling unit, Lighting Zone control, etc.
- C. Controller shall be able to retain program, control algorithms, and set-point information for at least 72 hours in the event of a power failure, and shall return to normal operation upon restoration of power.
- D. Controller shall report its communication status to the FMS. The FMS shall provide a system advisory upon communication failure and restoration.
- E. For each primary HVAC system, provide means of indication of system performance and set-points at, or adjacent to the HVAC Controller.
- F. For each primary HVAC system, provide a means to adjust set-points and start/stop equipment at, or adjacent to the HVAC Controller.
- G. Controller shall provide a means to prevent unauthorized personnel from accessing set-point adjustments and equipment control functions.
- H. Controller shall provide the ability to download and upload configuration data, both locally at the Controller and via the FMS communications network.

2.03 APPLICATION SOFTWARE:

- A. HVAC Application Software
 - 1. Event Messaging: Provide for the automatic execution of user-defined messages on the occurrence of each predefined FMS real-time event including equipment/point status change, approaching limit or alarm, time of day and the like.
 - 2. Optimum Start/Stop: Provide software to start equipment on a sliding schedule based upon indoor and outdoor conditions, to determine the minimum time of HVAC system operation needed to satisfy the space environmental requirements. The program shall also determine the earliest possible time to stop the mechanical systems. The optimum start/stop program shall operate in conjunction with, and be coordinated with, the scheduled start/stop and night setback programs.

3. Auto Alarm Lockout: Provide for scheduled and automatic lockout of alarm annunciation from equipment during non-normal operating conditions including shutdown, emergency power operation, fire alarm and the like.
4. Demand Limiting: Provide software to limit excess utility charges caused by uncontrolled demand. Provide the ability to prioritize the demand limiting actions based on FMS system parameters.
5. System Restart: Upon restoration of the AC power to an HVAC Node, automatically restart all equipment and restore all loads to the state as required by the FMS. Provide appropriate time delays to prevent demand surges or overload trips.
6. Heavy Equipment Delays: The system shall provide protection against excessive demand situations during start-up periods by automatically introducing time delays between successive start commands to heavy electrical loads.
7. Runtime Totalization: Automatically sample, calculate and store runtime hours for binary input and output points as listed in the point schedule of this specification.
8. Analog/Pulse Totalization: Sample, calculate and store consumption totals on a daily, weekly, or monthly basis for user-selected analog and binary pulse input-type points.

2.04 AIRFLOW MEASURING STATIONS:

- A. Airflow and temperature measuring stations to consist of multi-point sensor probe and a single microprocessor-based transmitter as manufactured Ebtron, Kurz or Sierra. Each sensor probe assembly will contain one or more independently wired sensor housings. Multiple sensor housings shall be equally weighted and averaged by the transmitter prior to output. Pitot tubes and arrays and vortex shedding flow meters are not acceptable. The measuring device shall be UL listed as an entire assembly.
 1. The manufacturer's authorized representative shall review and approve placement and operating airflow rates for each measurement location indicated on the plans. A written report shall be submitted if any measurement locations do not meet the manufacturer's placement requirement.
- B. Sensor Probe Assemblies:
 1. Sensor housing shall be manufactured of a U.L. listed engineered thermoplastic and shall utilize two hermetically sealed, bead-in-glass thermistor probes to determine airflow rate and ambient temperature.
 2. The operating temperature range for the sensor probe assembly shall be -20° F to 160° F. The operating humidity range for the sensor probe assembly shall be 0-99% RH (non-condensing).
 3. Calibrate temperature sensor at a minimum of 3 temperatures to an accuracy of +/-0.15° F over the entire operating temperature range and at a minimum of 16 airflow rates to an accuracy of +/-2% of reading over the entire operating airflow range. Calibrate to standards that are traceable to the National Institute of Standards and Technology (NIST).
 4. Sensor probe assembly shall have an integral, U.L. listed, plenum rated cable and terminal plug for connection to a remotely mounted transmitter. Terminal plug interconnecting pins shall be gold plated. Sensor assembly shall not require matching to the transmitter in the field.
- C. Duct and Plenum Sensor Probe Assemblies:

1. Sensor housings shall be mounted in an extruded, gold anodized, 6063 aluminum tube probe assembly. The operating airflow range shall be 0 to 5,000 FPM unless otherwise indicated on the plans. Probe assembly mounting brackets shall be constructed of 304 stainless steel. Probe assemblies shall be mounted using one of the following options:
 - a. Insertion mounted through the side or top of the duct.
 - b. Internally mounted inside the duct or plenum.
 - c. Standoff mounted inside the plenum.
2. The number of sensor housings provided for each location shall be as follows:

Area (sq. ft)	Sensors
Less than 1 SF	2 Sensors
1 to 3.9 SF	4 Sensors
4 to 7.9 SF	6 Sensors
8 to 11.9 SF	8 Sensors
12 to 15.9 SF	12 Sensors
More than 12 SF	16 Sensors

D. Fan Inlet Sensor Probe Assemblies:

1. Sensor housings shall be mounted on 304 stainless steel blocks. Mounting rods shall be field adjustable to fit the fan inlet and constructed of nickel plated steel. Mounting feet shall be constructed of 304 stainless steel. The operating airflow range shall be 0 to 10,000 FPM unless otherwise indicated on the plans.

E. Transmitters

1. The transmitter shall have an LCD display capable of displaying airflow and temperature. Airflow shall be field configurable to be displayed as a velocity or a volumetric rate. The transmitter shall be capable of displaying the individual airflow and temperature readings of each sensor on the LCD display.
2. The transmitter shall operate on 24 VAC. The transmitter shall not require an isolated power source.
3. The operating temperature range for the transmitter shall be -20° F to 120° F. The transmitter shall be protected from weather and water.
4. Transmitter to have direct integration to DDC system. Utilize temperature output from device for monitoring and controlling as specified.

2.05 ROOM PRESSURIZATION MONITORING SYSTEMS:

- A. Room pressurization control system shall consist of a microprocessor based controller, corridor display monitor, ceiling mounted pressure sensors, and remote nurse station multi-room monitoring and alarm panel as manufactured by Critical Room Control, Inc. series CRC-RM/MRM.
- B. System shall be capable of measuring the differential pressure between two individual spaces. Each monitor is capable of both visual and audible alarms. Each monitor will use direct pressure measurement utilizing industrial quality differential pressure transducer technology.
- C. Microprocessor based controller shall be capable of stand-alone operation. Controller shall have (4) analog input, (4) analog output, (4) digital input and (4) digital output. Controller shall provide integration to BACnet, or Modbus through RS-485 communication. The controller to be programmable to allow the end user custom images, messages and icons. Controller setup shall be programmed through a configuration menu on display screen and will store all settings in non volatile memory, Controller to be capable to incorporate custom JPEG's or BMP's for display.
- D. Display Screens will be full color TFT touch screen interface, 240 X 160 resolution, 256 color, and sunlight viewable, recessed wall mounted. Touch screen shall be capable of displaying room conditions in full color (i.e.: Red screen for alarm). Display shall be fully programmable with custom graphics, messages, colors and fonts.
- E. The pressure sensor and power supply shall be mounted above ceiling or in remote. The pressure sensor will continuously monitor and or control bi-directional room pressurization using direct pressure sensing referenced to the adjacent space. Wall / ceiling mounted assembly fittings and stainless steel cover plate for the isolation room, ante room and negative pressure room shall be provided with the controller as a complete unit
- F. Multi-room monitoring and alarm panel shall be capable of consolidating alarm indications and selected output points for up to four (4) room panels. The CRC-MRM shall be located at or near nurse's station in either wall mount or desk top mount.
- G. System will continually display room differential pressure. System settings shall be accessed via programmable and password protected touch screen. Supply voltage shall be 24 volt ac/dc.
- H. The contractor shall install all panels, sensors, control wiring, etc. Complete as required per the manufacturers recommendations and requirements.
- I. The contractor shall have an authorized representative of the equipment supplier start-up, test, verify the system installation and train owner in the systems proper operation.
- J. The supplier and contractor shall provide all materials, components, controls, wiring etc. as required to control and monitor the negative pressure in the isolation rooms, ante rooms and negative pressure rooms complete as required.

2.06 DAMPERS:

- A. All dampers intended for automatic control, unless part of a factory made unit, shall be furnished by this contractor.
 - 1. All dampers, unless otherwise specified, shall be "low-leakage" dampers and shall be designed for tight shut-off such that for a 1500 fpm damper leakage does not exceed 1% at 6" wg. Silent-closing replaceable butyl and neoprene seals shall be provided on blades on all four (4) sides of the frame. Louver linkage to be concealed in frame channel outside for the air stream. Bearings to be nylon bushings and to be oil-impregnated sintered iron. Rigid blade construction of not lighter than double #22 gauge and 6" maximum blade width; frames to have welded corners and be diagonally braced.
 - 2. Whenever practicable, damper size shall be based on 1000 to 1500 fpm air velocity.

2.07 DAMPER OPERATORS:

- A. Damper operators shall be furnished for dampers furnished by this contractor. Damper operators shall be electronic type with high torque motors.
 - 1. Provide pilots or positive positioning relays where required to obtain specified performance.
 - 2. Operator area shall be of sufficient size to provide true modulating action and proper sequences specified.

2.08 THERMOSTATS & ROOM SENSORS:

- A. Room Thermostats (adjustable): Thermostats shall be 1,000 ohm thin-film nickel elements with temperature adjustment, integral network terminal jack, and override pushbutton.
- B. Room Temperature Sensors (non adjustable): Sensors shall be 1,000 ohm thin-film nickel elements with integral network terminal jack, and override pushbutton.
- C. Room Temperature Sensors with cover plate (non adjustable): Sensors shall be 1,000 ohm thin-film nickel elements attached sensor attached to a stainless steel plate flush to the wall.
- D. Room Thermostats and Sensors shall provide the following minimum performance requirements:
 - 1. Accuracy: +0.5°F.
 - 2. Operating Range: 32 to 131°F.
 - 3. Setpoint Adjustment Range: 40 to 90°F.
 - 4. Setpoint Modes: Occupied Heating & Cooling, Unoccupied Heating & Cooling.
 - 5. Calibration Adjustments: None required.
 - 6. Installation: Up to 100' from controller.

- E. Outdoor and Immersion Thermostat: Outdoor and immersion thermostats shall be remote bulb type. Bulb capillary and thermostatic element shall be liquid filled for minimum thermometric lag. Remote bulb, when located outdoors, shall be properly shielded to sense true outdoor temperature. Thermostat covers shall be locking type to prevent tampering. Under certain conditions, rigid elements will be allowed.

2.09 FIELD DEVICES:

A. Input Devices

1. Low Air Differential Pressure Switch

- a. Rating: NEMA 1
- b. Mounting: Duct Insertion
- c. Range: 0.05" to 5.0" WC, complete with field adjustable setpoint.
- d. Protection: Overpressure to 1 PSIG
- e. Output: Form C Contact, minimum 50VA
- f. Special: Automatic reset, provide complete installation kit including static pressure tips, tubing, fittings, and air filters.

2. High Air Differential Pressure Switch

- a. Rating: NEMA 1
- b. Mounting: Duct Insertion
- c. Range: 1" to 10" WC, complete with field adjustable setpoint.
- d. Protection: Overpressure to 1 PSIG
- e. Output: 2 Form C Contacts, minimum 360VA
- f. Special: Manual reset, provide complete installation kit including static pressure tips, tubing, fittings, and air filters.

3. Humidity Transmitter w/ Temperature Sensor - Wall & Duct Mount

- a. Materials: All-Polymer element, and Plastic Enclosure
- b. Rating: 95-5 V Flammability Rated, UL, Class 2
- c. Mounting: Wall, Duct
- d. Range: 0-100% RH
 - 1) Accuracy: +-2% and +-3%
- e. Power Req.: 14 to 30 VDC or 20 to 30 VAC at 50/60 Hz, Class 2
- f. Output:

- 1) 0-10 VDC or 0-5 VDC User Selectable or 4 to 20Ma
 - 2) Nickel 1000 ohms at 70 degrees F
 - 3) Silicon 1035 ohms at 77 degrees F
 - 4) Platinum is 1000 ohms at 32 degrees F
- g. Special: Provide NIST Certificate
4. Current Switch
 - a. Materials: Encased copper
 - b. Rating: 600vAC
 - c. Mounting: Split Core
 - d. Range: 1.5amps to 50 amps
 - e. Action: Trip point adjustment
 - f. Output: SPST, N.O.
 - g. Special: Status LED
5. Current Transducer
 - a. Mounting: Field Mounted
 - b. Range: 60 Hz nominal
 - c. Accuracy: +/- 2% full scale
 - d. Protection: 250 A max current
 - e. Output: 4-20mA
6. Static Pressure Transducer
 - a. Rating: NEMA 1
 - b. Mounting: Duct Insertion, Pipe Insertion
 - c. Range: 0-25 in. water column unidirectional, 0- +/- 5 in. water column bi-directional.
 - d. Accuracy: +/- 1% full scale
 - e. Protection: 10 PSIG
 - f. Output: 4-20 mA, 0-5 VDC, 0-10 VDC
7. Carbon Dioxide Transmitter
 - a. Materials: ABS Plastic, Silicon Sensor
 - b. Rating: UL and CE
 - c. Mounting: Wall, Duct
 - d. Range: 0 - 2000 ppm

- e. Accuracy: At 68 degrees F ± 30 ppm CO₂ + 2% of reading, non-linearity 1% of Full Scale
- f. Calibration: Every 5 Years
- g. Output: 0 to 20mA, 4 to 20mA, or 0 to 10 VDC Jumper Selectable
- h. Special, Single-beam, Dual-wavelength

8. Temperature Sensors

- a. Materials: Nickel element in a copper tube.
- b. Mounting: Duct/Pipe, Room
- c. Range: -50 degrees F to 250 degrees F, 55 degrees F to 85 degrees F
- d. Accuracy: 0.1%
- e. Output: Resistive 1000ohms at 70 degrees F
- f. Special: Duct Element Holder, Brass Well Assembly, Room Mounting Bracket and Cover

9. Differential Pressure Transducer

- a. Rating: NEMA 1
- b. Mounting: Duct Insertion, Pipe Insertion
- c. Range: 0-25 in. water column unidirectional, 0- $\pm$ 5 in. water column bi-directional
- d. Accuracy: $\pm$ 1% full scale
- e. Protection: 10 PSIG
- f. Output: 4-20 mA, 0-5 VDC, 0-10 VDC

10. Carbon Dioxide Sensors

- a. Materials: Molded plastic enclosure
- b. Rating: 0 to 5000ppm
- c. Mounting: Duct or Wall
- d. Range: 0 to 2000ppm / 0-5000 User selectable
- e. Accuracy: $\pm$ 50ppm
- f. Output: 0-10vDC, 4-20mA

11. Thermostat - Line Voltage

- a. Materials: Cold Rolled Steel, Beige Thermoplastic, Sensing Element-Liquid
- b. Contact Rating:
 - 1) 6 Ampere Running/36 Amps. Locked Rotor at 120 VAC
 - 2) 3.5 Amps. Running/21 Amps Locked Rotor at 208 VAC
 - 3) 3.0 Amps. Running/8 Amps Locked Rotor at 240 VAC

- c. Fan and System Switch Rating:
 - 1) 12 Amps. Running/34.8 Amps. Locked Rotor at 120 VAC
 - 2) 6.9 Amps. Running/19.1 Amp. Locked Rotor at 208 VAC
 - 3) 6.0 Amps. Running/17.4 Amps. Locked Rotor at 240 VAC
- d. Mounting: Wall
- e. Range: 40 to 90 °F
- f. Accuracy: +-2°F
- g. Differential: Mechanical: Approx. 0.7°F

B. Output Devices

1. Control Relays

- a. Materials: Gold Flash
- b. Rating: 10 amps at 120-277vAC
- c. Mounting: Standard Electrical Box
- d. Protection: NEMA 1 Housing
- e. Output: SPDT, DPDT
- f. Special: Provide LED for position indication. Provide with HOA switch, except when used in Smoke Control applications.

C. Controlled Devices

1. Electric Damper Actuators

- a. Rating: NEMA 2 Enclosure
- b. Mounting: Direct mount
- c. Stroke: 90 seconds end-to-end full stroke, 15 seconds return to normal for spring return
- d. Protection: Electronic stall protection
- e. Control Input: 0-10 VDC or 0-20 mADC
- f. Power: Nominal 24 VAC
- g. Torque: Coordinate with unit manufacturer for maximum torque
- h. Duty cycle: rated for 65,000 cycles
- i. Special: Output position feedback, manual override, field selectable rotational / spring return direction, field
- j. Adjustable zero and span.

2. Actuator - Non-Spring Return

- a. Mounting: Direct Mount

- b. Direction of Action: Field-selectable direct/reverse
 - c. Control Inputs:
 - 1) Floating: 20 to 30 VAC at 50/60 Hz
 - 2) On/Off: 20 to 30 VAC at 50/60 Hz
 - 3) Proportional: Field-selectable 0(2) to 10 VDC or 0(4) to 20 mA
 - d. Power: 20 to 30 VAC at 50/60 Hz
 - e. Stall Protection: Magnetic Clutch or Electronic
 - f. Audible Noise Rating: 30 dBA to 45 dBA
 - g. Operating Temperature w/ Cover: -4 to 125 °F (-20 to 52 °C)
 - h. Enclosure Rating: NEMA 2
 - i. Manual Override: Manual Gear Release
 - j. Rotation Time:
 - 1) Fixed: 60, 90, 120, 205 seconds
 - 2) Field-Adjustable: 1, 1.5, 2, 5.5, or 11 minutes
 - k. Rotation Range: Field-adjustable 30 to 90 °F
 - l. Life Rating:
 - 1) Full Stroke Cycles: 60,000 to 100,000
 - 2) Reposition Cycles: 2,500,000
 - m. Position Feedback:
 - n. Floating: 10k ohm
 - o. Proportional: 0(2) to 10 VDC
 - p. Auxiliary Switches: 2 SPDT, 24 VAC
3. Damper Actuator - Spring Return
- a. Mounting: Direct Mount
 - b. Direction of Action: Field-selectable
 - c. Control Inputs:
 - 1) Floating: 20 to 30 VAC at 50/60 Hz or 24 VDC
 - 2) On/Off: 20 to 30 VAC at 50/60 Hz or 24 VDC
 - 3) Proportional: Field-selectable 0(2) to 10 VDC, 6 to 9 VDC or 0(4) to 20 mA
 - d. Power: 20 to 30 VAC at 50/60 Hz or 24 VDC

- e. Stall Protection: Electronic Stall Detection
- f. Operating Temperature: -4 to 122 °F
- g. Enclosure: NEMA 2
- h. Rotation Time: 70 to 130 seconds

PART 3 - PERFORMANCE / EXECUTION

3.01 INSTALLATION PRACTICES:

A. FMS Wiring:

1. Provide all conduit, wiring, accessories and wiring connections required for the installation of the Facility Management System, unless specifically shown on the Electrical Drawings under Division 26 or 27 Electrical. All wiring shall comply with the requirements of applicable portions of Division 26, 27 and all local and national electric codes, unless specified otherwise in this section.
2. All FMS wiring materials and installation methods shall comply with FMS manufacturer recommendations. Design all cable, conduit, cable trays, and trunking requirements for the FMS.
3. Class 2 Wiring:
 - a. All Class 2 (24VAC or less) wiring shall be installed in conduit unless otherwise specified.
 - b. Conduit is not required for Class 2 wiring in concealed accessible locations. Class 2 wiring not installed in conduit shall be supported every 5' from the building structure utilizing metal hangers designed for this application. Wiring shall be installed parallel to the building structural lines. All wiring shall be installed in accordance with local code requirements.
4. Class 2 signal wiring and 24VAC power can be run in the same conduit. Power wiring 120VAC and greater cannot share the same conduit with Class 2 signal wiring.
5. Perform circuit tests using qualified personnel only. Provide necessary instruments and equipment to demonstrate that:
 - a. All circuits are continuous and free from short circuits and grounds.
 - b. All circuits are free from unspecified grounds; that resistance to ground of all circuits is no less than 50 megaohms.
 - c. All circuits are free from induced voltages.
6. Provide complete testing for all cables used under this Contract. Provide all equipment, tools, and personnel as necessary to conduct these tests.
7. Provide for complete grounding of all signal and communications cables, panels and equipment so as to ensure system integrity of operation. Ground cabling and conduit at the panel terminations. Avoid grounding loops.

B. FMS Raceway

1. All wiring shall be installed in conduit except as noted elsewhere in this specification. Minimum control wiring conduit size 1/2".
2. All conduits shall be installed level, plumb, at right angles to the building lines and shall follow the contours of the surface to which they are attached.
3. Flexible Metal Conduit shall be used for vibration isolation and shall be limited to 3 feet in length when terminating to vibrating equipment. Flexible Metal Conduit may be used within partition walls. Flexible Metal Conduit shall be UL listed.

C. Penetrations

1. Provide fire stopping for all penetrations used by dedicated FMS conduits and raceways. All other project fire stopping to be by other trade.
2. All openings in fire proofed or fire stopped components shall be closed by using approved fire resistive sealant.
3. All wiring passing through penetrations, including walls, shall be in conduit or enclosed raceway.
4. Penetrations of floor slabs shall be by core drilling. All penetrations shall be plumb, true, and square.
5. No penetrations in structural elements shall be made before receipt of written approval.

D. FMS Identification Standards

1. Controller Identification. All controllers shall be identified by a permanent label fastened to the outside of the enclosure. Labels shall be suitable for the controller location.
2. Cable shall be labeled at a minimum of every 18" with the FMS System manufacturer's name and the type of signal carried within the cable (i.e.: Analog Input, Analog Output, Binary Input, Binary Output, 24 VAC.).
3. Each of the cable types specified in Item A shall be of a different color coding for easy identification and troubleshooting. Recommended color coding:

a.	Analog Input Cable	Yellow
b.	Analog Output Cable	Tan
c.	Binary Input Cable	Orange
d.	Binary Output Cable	Violet
e.	24 VAC Cable	Gray
f.	General Purpose Cable	Natural
g.	Tier 1 Comm Cable	Purple
h.	Other Tier Comm Cable	Blue
4. Raceway Identification. All the covers to junction and pull boxes of the FMS raceways shall be painted with the appropriate color.
5. Wire Identification. All low and line voltage FMS wiring shall be identified by a number, as referenced to the associated shop drawing and as-built drawing, at each end of the conductor or cable. Identification number shall be permanently secured to the conductor or cable and shall be typed.

E. FMS Controller Installation

1. The FMS panels and cabinets shall be located as indicated at an elevation of not less than 2 feet from the bottom edge of the panel to the finished floor. Each cabinet shall be anchored per the manufacturer's recommendations.
2. Be responsible for coordinating panel locations.

F. Input Devices

1. All Input devices shall be installed per the manufacturer recommendation.
2. Locate components of the FMS in accessible local control panels wherever possible.

G. FMS Line Voltage Power Source

1. 120-volt AC circuits used for the Facility Management System shall be taken from panel boards and circuit breakers provided by Division 26.
2. Circuits used for the FMS shall be dedicated to the FMS and shall not be used for any other purposes.
3. DDC terminal unit controllers may use 120-volt AC power from motor power circuits.

H. HVAC Input Devices – General

1. All Input devices shall be installed per the manufacturer recommendation.
2. Locate components of the FMS in accessible local control panels wherever possible.
3. Install all in-line devices such as temperature wells, pressure taps, duct smoke detectors, airflow stations, etc.
4. Input Flow measuring Devices shall be installed in strict with ASME Guidelines affecting non-standard approach conditions.
5. Outside Air Sensors
 - a. Sensors shall be mounted on the North wall to minimize solar radiant heat impact or located in a continuous intake flow adequate to monitor outside air conditions accurately.
 - b. Sensors shall be installed with a rain proof, perforated cover.
6. Building Differential Air Pressure Applications (-1" to +1" w.c.):
 - a. Transmitters exterior sensing tip shall be installed with a shielded static air probe to reduce pressure fluctuations caused by wind.
 - b. The interior tip shall be inconspicuous.
7. Air Flow Measuring Station:
 - a. Where the stations are installed in insulated ducts, the airflow passage of the station shall be the same size as the inside airflow dimension of the duct.
 - b. Station flanges shall be two inch to three inch to facilitate matching connecting ductwork.

8. Duct Temperature Sensors:

- a. Duct mount sensors shall mount in an electrical box through a hole in the duct and be positioned so as to be easily accessible for repair or replacement.
- b. The sensors shall be insertion type and constructed as a complete assembly including lock nut and mounting plate.
- c. For ductwork greater in any dimension than 48 inches or where air temperature stratification exists such as a mixed air plenum, utilize an averaging sensor.
- d. The sensor shall be mounted to suitable supports using factory approved element holders.

9. Space Sensors:

- a. Shall be mounted per ADA requirements.
- b. Provide lockable tamper-proof covers in public areas and/or where indicated on the plans

10. Low Temperature Limit Switches:

- a. Install on the discharge side of the first water coil in the air stream.
- b. Mount element horizontally across duct in a serpentine pattern insuring each square foot of coil is protected by 1 foot of sensor.
- c. For large duct areas where the sensing element does not provide full coverage of the air stream, provide additional switches as required to provide full protection of the air stream.

11. Air Differential Pressure Status Switches:

- a. Install with static pressure tips, tubing, fittings, and air filter.

I. HVAC Output Devices

- 1. All output devices shall be installed per the manufacturers recommendation. The mechanical contractor shall install all in-line devices such as control valves, dampers, etc.
- 2. Actuators: All control actuators shall be sized capable of closing against the maximum system shut-off pressure. The actuator shall modulate in a smooth fashion through the entire stroke. When any pneumatic actuator is sequenced with another device, pilot positioners shall be installed to allow for proper sequencing.
- 3. Control Dampers: Shall be opposed blade for modulating control of airflow. Parallel blade dampers shall be installed for two position applications.
- 4. Control Valves: Shall be sized for proper flow control with equal percentage valve plugs. The maximum pressure drop for water applications shall be 5 PSI. The maximum pressure drop for steam applications shall be 7 PSI.
- 5. Electronic Signal Isolation Transducers: Whenever an analog output signal from the Facility Management System is to be connected to an external control system as an input (such as a chiller control panel), or is to receive as an input a signal from a

remote system, provide a signal isolation transducer. Signal isolation transducer shall provide ground plane isolation between systems. Signals shall provide optical isolation between systems

3.02 START-UP PROCEDURE:

- A. Fully start-up, test and adjust all aspects of the Facility Management System work.
- B. Provide all necessary specialist labor, materials and tools to demonstrate that the FMS is operating in compliance with the contract. Prepare a list of noted deficiencies and submit report.
 - 1. Promptly rectify all listed deficiencies and that demonstrate this has been completed.
 - 2. Retest the deficiencies in conjunction with other trade contractors.
- C. Acceptance Check Sheet
 - 1. Prepare a check sheet that includes all points for all functions of the FMS.
 - 2. Submit the check sheet for approval one month prior to testing.
 - 3. Complete the check sheet for all items and functions of the FMS and initial each entry with time/date as record of having fully calibrated and tested the FMS. Submit for review.
 - 4. Coordinate start-up, testing and troubleshooting with other trades as required to put system into proper operation. Assist the test and balancing contractor in verifying proper system operation and to rectify system-operating deficiencies.
 - 5. Verify through visual inspection (not at operator interface) that all control valves, dampers and sequences are operating properly and submit report.

3.03 FMS SPECIFIC REQUIREMENTS:

- A. FMS Reports
 - 1. Custom reports shall be able to be set up for the building. Examples: alarm reports, run time summaries, etc.
- B. Graphic Displays
 - 1. Provide a color graphic system flow diagram display for each system with all points as indicated on the point list. Provide Historical Data Viewer functionality.
 - 2. Provide a color graphic display for each section in the facility. Indicate each HVAC zone, color-coded to indicate zone values and status. Provide Historical Data Viewer functionality.
 - 3. User shall access the various system schematics and floor plans via a graphical penetration scheme and/or menu selection.
 - 4. User shall penetrate from floor plan to associated HVAC system graphic.

C. Actuation / Control Type

1. Primary Equipment

- a. Controls shall be provided by equipment manufacturer as specified herein
- b. All damper and valve actuation shall be electric.

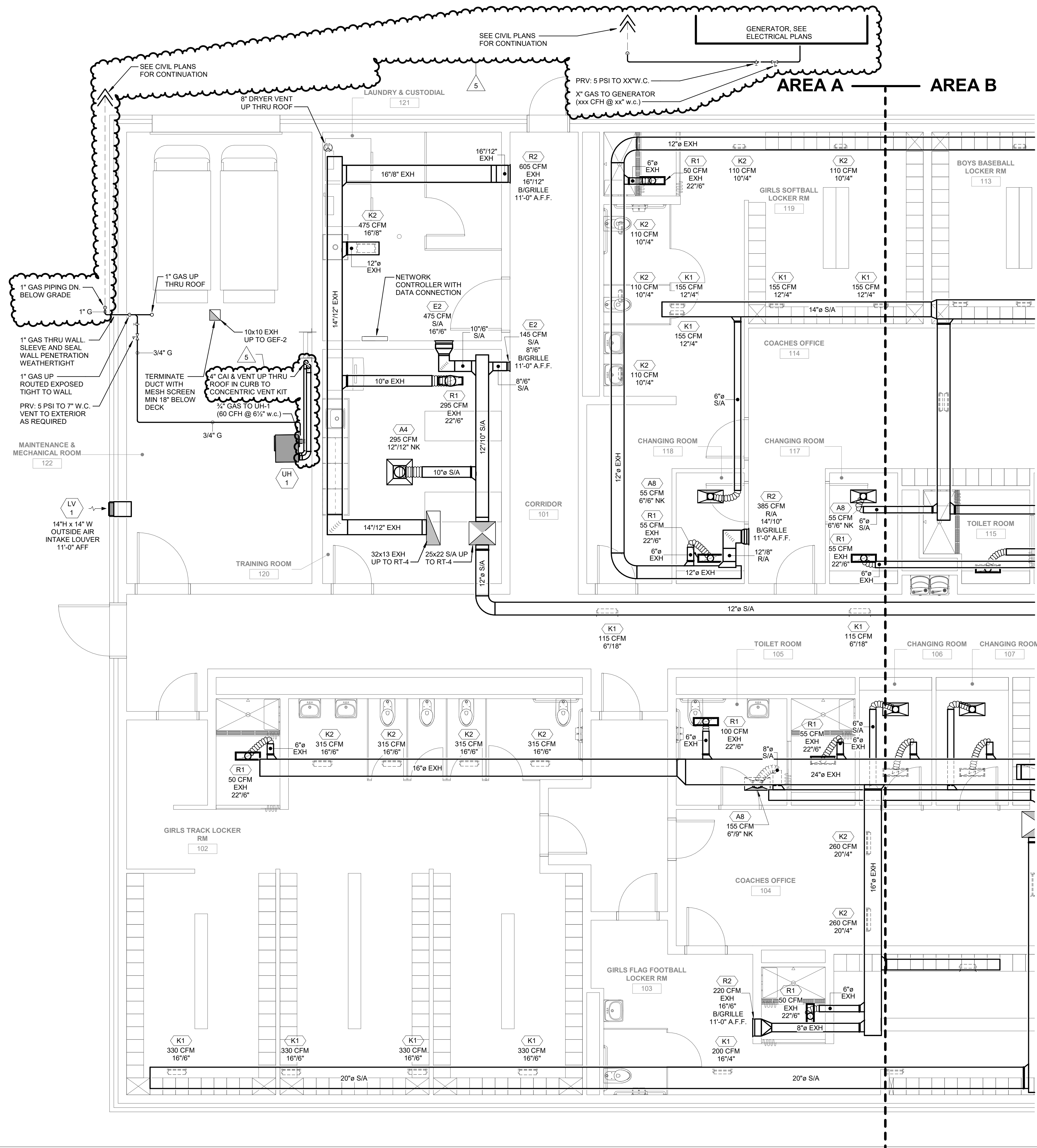
2. Air Handling Equipment

- a. All air handlers shall be controlled with DDC controllers
- b. All damper and valve actuation shall be electric.

3. Terminal Equipment

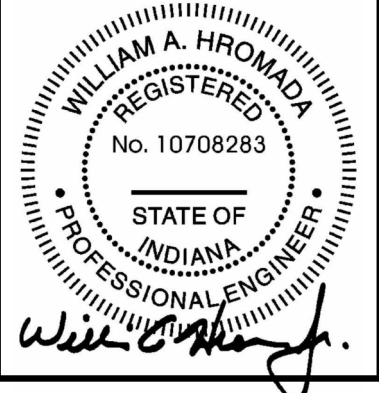
- a. Miscellaneous heating equipment (Cabinet heaters, unit heaters, radiant panels, etc.) shall have electrically actuated valves with DDC or electric/electronic control. See the Sequences of Operation and the Point List for further details.

END OF SECTION



MECHANICAL HVAC FLOOR PLAN
LOCKER ROOM FACILITY

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



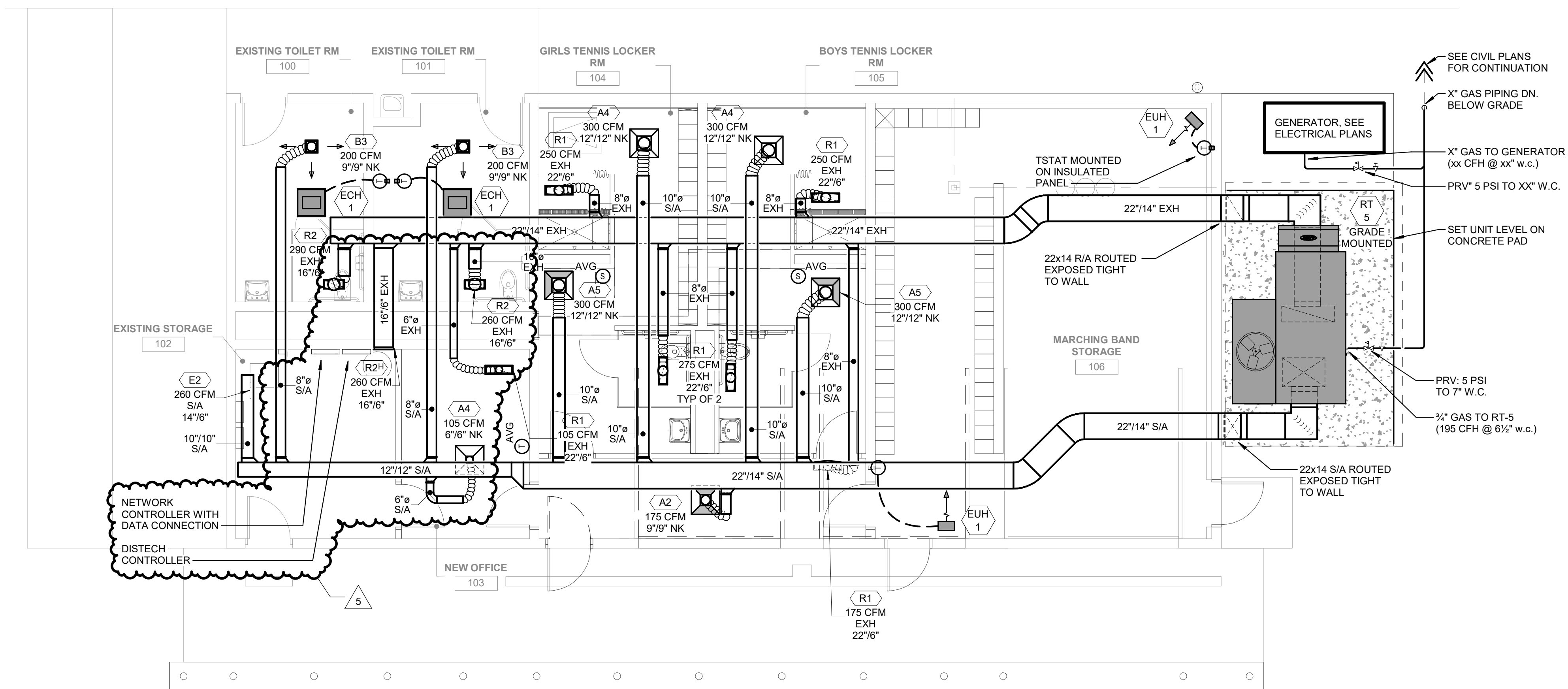
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10/02/2026
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THE EXISTING RESTROOM FACILITY AT
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MERRILLVILLE, IN 46410

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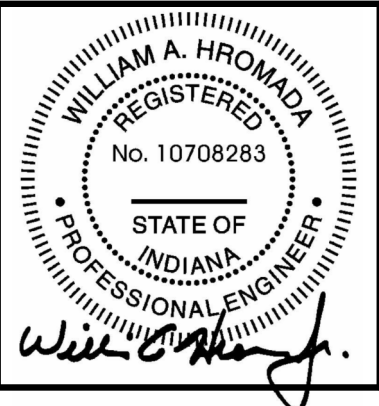
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MECHANICAL HVAC FLOOR PLAN
TENNIS & MARCHING FACILITY SCALE: 3/16" = 1'-0"





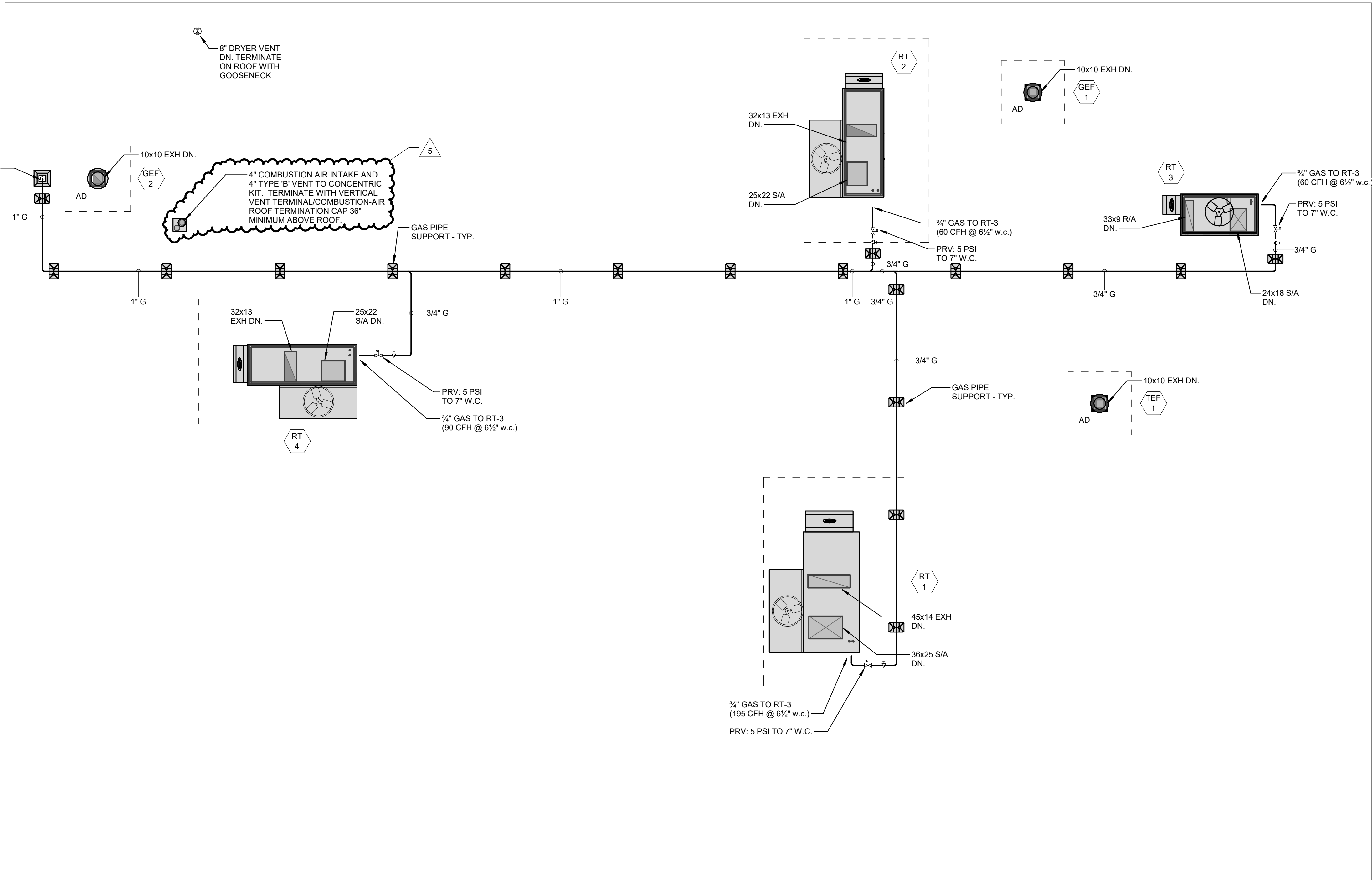
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MECHANICAL HVAC ROOF PLAN
LOCKER ROOM FACILITY
SCALE: 3/16" = 1'-0"

MECHANICAL EQUIPMENT SCHEDULE																																																	
TAG	MANUFACTURER	MODEL	DESCRIPTION	EFFICIENCY	FAN MOTOR DATA										EXHAUST FANS					DX COOLING EQUIPMENT/COIL DATA										GAS FIRED HEATING EQUIPMENT DATA					ELECTRICAL DATA												UNITS CONTROLLED BY	EQUIPMENT WEIGHT	REMARKS
					CFM	MIN. OAI CFM	ESP	BHP	HP	RPM	CFM	ESP	BHP	HP	RPM	MBH	SHC	EDB	EWB	LDB	LWB	CAT	STAGES	MBH (IN)	MBH (OUT)	EAT	LAT	STAGES	LOAD					DISCONNECT SWITCH:		STARTER:													
																													HP	MCA	FMA	MOP	VOLT	PHASE	VZ	M.C.	E.C.	M.C.	E.C.										
RT-1	AAON	RNA-009-B	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	16.56 IEER	2140	2140	1	1.56	2	2098	2140	0.5	0.88	2	1306	162.3	94.8	79.7	65.7	54.2	51.8	95	MOD	195	158	49.8	119.4	MOD	27	25	30	480	3	60	X		X			FMS	2935	NOTE 1							
RT-2	AAON	RNA-007-A	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	14.8 IEER	1630	1630	1	1.23	2	1818	1630	0.5	0.59	1	1449	121.8	70.9	79.9	65.9	55	52.2	95	MOD	90	72.9	48.7	90.9	MOD	15	18	30	480	3	60	X		X			FMS	1895	NOTE 1							
RT-3	AAON	RQA-005-A	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (SZVAV)	13.4 SEER2	1300	325	1	1.12	2	1620	1300	0.5				56.4	38.7	79	65.6	52.9	51.2	95	MOD	60	48.6	52.5	87.8	MOD	15	13	20	480	3	60	X		X			FMS	1125	NOTE 2							
RT-4	AAON	RNA-006-A	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	14.8 IEER	1370	1370	1	1.07	2	1759	1370	0.5	0.41	1	1296	106	61.5	79.3	65.4	53.6	51.1	95	MOD	90	72.9	51.2	101.4	MOD	19	17	25	480	3	60	X		X			FMS	1880	NOTE 1							
RT-5	AAON	RNA-011-B	GRADE MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	18.33 IEER	2920	2920	1	2.28	3	1812	2920	0.25	0.93	2	1174	204	123.9	81.8	67.1	55.9	54	95	MOD	195	158	40.5	91.6	MOD	91	85	110	240	3	60	X		X			FMS	3010	NOTE 1							
UH-1	REZNOR	UDXC-45	SUSPENDED GAS FIRED UNIT HEATER		630		0.1																	45	26.1	40	95	1	5		2.4		120	1	60	X		X			WALL MTD TSTAT	65	NOTE 3						
GEF-1	GREENHECK	G-070-E	ROOF MOUNTED GENERAL EXHAUST FAN - 112 KITCHENETTE								135	0.35	0.02	1/15	1451															1.6	1.3	15	120	1	60		X	X			WALL SWITCH	36	NOTE 4						
GEF-2	GREENHECK	G-080-E	ROOF MOUNTED GENERAL EXHAUST FAN - 122 MAINTENANCE & MECHANICAL ROOM								300	0.3	0.04	1/10	1437															1.6	1.3	15	120	1	60		X	X			CO SENSOR	40	NOTE 4						
TEF-1	GREENHECK	G-070-E	ROOF MOUNTED TOILET EXHAUST FAN								140	0.35	0.02	1/15	1457															1.6	1.3	15	120	1	60		X	X			WALL SWITCH	36	NOTE 4						

- NOTE 1:
PROVIDE WITH:

 - DX COOLING CAPACITIES INDICATED BASED ON A TOTAL EQUIVALENT COOLING FROM A COMBINATION OF DX SECTION & ERV COOLING
 - INTEGRATED ECONOMIZER WITH DIFFERENTIAL ENTHALPY SENSORS
 - FEEDBACK SIGNAL w/ IECC 2015 COMPLIANT LOW LEAK ECONOMIZER DAMPER.
 - DIGITAL SCROLL (LEAD ONLY) OR VARIABLE SPEED COMPRESSORS
 - S/A & POW EXH DIRECT DRIVE FANS W/VFD, NON-FUSED DISCONNECT SWITCH
 - SHORT CIRCUIT RATING XX K
 - BACnet INTEGRATION CARD
 - PHASE & BROWN-OUT PROTECTION
 - HINGED ACCESS DOORS
 - VIBRATION ISOLATION CURB w/ HUSHCORE
 - DECK DS-53 ACOUSTICAL TREATMENT.
 - POWERED EXHAUST FAN W/BLDG PRESSURIZATION CONTROL.
 - MODULATING HOT GAS REHEAT AND DEHUMIDIFICATION CONTROLS
 - ENERGY RECOVERY WHEEL w/DEFROST & ECONOMIZER BYPASS - SEE HEAT RECOVERY SCHEDULE
 - SCHEDULE
 - FLUE DEFLECTOR
 - METAL MESH OUTSIDE AIR INTAKE HOOD FILTER
 - CONDENSER FAN w/VFD w/HEAD PRESSURE CONTROL & SITE GLASS
 - HAIL CONDENSER COIL GUARD PROTECTION
 - FILTERS: ERV(OAI) - 2" 30%, ERV(EXH) - 2" 30%, EVAPORATOR - 4" MERV 13

SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- NOTE 2:
PROVIDE WITH:

 - INTEGRATED ECONOMIZER WITH DIFFERENTIAL ENTHALPY SENSORS
 - FEEDBACK SIGNAL w/ IECC 2015 COMPLIANT LOW LEAK ECONOMIZER DAMPER.
 - DIGITAL SCROLL (LEAD ONLY) OR VARIABLE SPEED COMPRESSORS
 - S/A & POW EXH DIRECT DRIVE FANS W/VFD, NON-FUSED DISCONNECT SWITCH
 - SHORT CIRCUIT RATING XX K
 - BACnet INTEGRATION CARD
 - PHASE & BROWN-OUT PROTECTION
 - HINGED ACCESS DOORS
 - VIBRATION ISOLATION CURB w/ HUSHCORE
 - DECK DS-53 ACOUSTICAL TREATMENT.
 - MODULATING GAS w/HIGH TURNDOWN (10:1 MIN
 - FLUE DEFLECTOR
 - METAL MESH OUTSIDE AIR INTAKE HOOD FILTER
 - CONDENSER FAN w/VFD FOR HEAD PRESSURE CONTROL
 - SITE GLASS
 - SINGLE ZONE VAV HEATING & COOLING
 - HAIL CONDENSER COIL GUARD PROTECTION
 - SUPPLY FAN MINIMUM SPEED: 30%
 - COOLING-50% VENTILATION-70% HEATING
 - FILTERS: 4" MERV 13 & 2" MERV 8

SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- NOTE 3:
PROVIDE WITH:

 - VIBRATION ISOLATION HANGERS
 - CONCENTRIC VENT KIT.

SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

NOTE 4:
PROVIDE WITH:

 - DISCONNECT SWITCH
 - ECM MOTOR WITH POTENTIOMETER
 - SPEED CONTROLLER
 - MOTORIZED DAMPER
 - BIRD SCREEN

SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

HEAT RECOVERY SCHEDULE																												
UNIT TAG	ERV		MIXED SUPPLY AIR				RETURN AIR				EXHAUST AIR				OUTSIDE AIR				HEAT RECOVERY DISCHARGE					REMARKS				
	COOLING MBH	HEATING MBH	SUMMER		WINTER		SUMMER		WINTER		SUMMER		WINTER		SUMMER		WINTER		SUMMER		WINTER							
			CFM	DB	WB	DB	WB	CFM	DB	WB	DB	WB	CFM	DB	WB	DB	WB	CFM	DB	WB	DB	WB						
RT-1	73.3	169.2	2140	79.7	65.7	49.8	40.9	0	75	62	70	53	2210	90.2	71.9	9.3	9.3	2210	95	75	-10	-11	2140	79.7	65.7	49.8	40.9	
RT-2	54.5	126.2	1630	79.9	65.9	48.7	40.1	0	75	62	70	53	1665	89.9	71.7	10.5	10.4	1665	95	75	-10	-11	1630	79.9	65.9	48.7	40.1	
RT-4	47.7	109.6	1370	79.3	65.4	51.2	41.9	0	75	62	70	53	1400	90.5	72.1	8.1	8	1400	95	75	-10	-11	1370	79.3	65.4	51.2	41.9	
RT-5	85.3	197.6	2920	81.8	67.1	40.5	34.7	0	75	62	70	53	2915	88	70.6	17.5	17.5	2915	95	75	-10	-11	2920	81.8	67.1	40.5	34.7	

MECHANICAL EQUIPMENT SCHEDULE - ELECTRIC HEAT																												
TAG	MANUFACTURER	MODEL	DESCRIPTION	FAN DATA		ELECTRIC HEATING EQUIP./COIL DATA					ELECTRICAL DATA												UNITS CONTROLLED BY	EQUIPMENT WEIGHT	REMARKS			
				S/A CFM	MBH	KW	EAT	LAT	STEPS	LOAD				VOLT	PHASE	HZ	DISCONNECT SWITCH:		STARTER:									
										HP	MCA	FLA	MOCPP				M.C.	E.C.	TYPE	M.C.	PROV. BY:							
																					E.C.							
ECH-1	QMARK	CDF-542	RECESSED CEILING MOUNTED CABINET HEATER	300	13.7	4				1				16.7		240	1	60	X				X			WALL MTD TSTAT	30	NOTE 1.
EUH-1	QMARK	MUH047225	SUSPENDED ELECTRIC UNIT HEATER	350	17	5				2				18		240	1	60	X				X			WALL MTD TSTAT	30	NOTE 2.
NOTE 1: PROVIDE WITH: • INTEGRAL TSTAT • DISCONNECT SWITCH SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.				NOTE 2: PROVIDE WITH: • WALL MTD TSTAT • DISCONNECT SWITCH SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.																								

GAS CONNECTION SCHEDULE					
TAG	QUANTITY	DESCRIPTION	LOCATION	CAPACITY PER UNIT	TOTAL CAPACITY
	1	GRADE MOUNTED GENERATOR	GRADE	0	0
RT-1	1	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	ROOF	195	195
RT-2	1	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	ROOF	90	90
RT-3	1	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (SZVAV)	ROOF	60	60
RT-4	1	ROOF MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	ROOF	90	90
UH-1	1	SUSPENDED GAS FIRED UNIT HEATER	122 - MAINTENANCE & MECHANICAL ROOM	45	45
TOTAL @ 5 PSI:					480

GAS CONNECTION SCHEDULE - EXISTING BUILDING					
TAG	QUANTITY	DESCRIPTION	LOCATION	CAPACITY PER UNIT	TOTAL CAPACITY
	1	GRADE MOUNTED GENERATOR	GRADE	0	0
RT-5	1	GRADE MOUNTED DX COOLING/GAS FIRED ROOFTOP UNIT (DOAS w/ ERV)	GRADE	195	195
TOTAL @ 5 PSI:					195

GRILLE, REGISTER, & DIFFUSER SCHEDULE						
TAG	MANUFACTURER	MODEL	DESCRIPTION	AIR PATTERN	MOUNTING	SIZE
A2	NAILOR	6500	SUPPLY CEILING DIFFUSER	2-WAY	2' x 2' LAY-IN PANEL	SEE PLANS
A4	NAILOR	6500	SUPPLY CEILING DIFFUSER	4-WAY	2' x 2' LAY-IN PANEL	SEE PLANS
A5	NAILOR	6500	SUPPLY CEILING DIFFUSER	2-WAY CORNER	2' x 2' LAY-IN PANEL	SEE PLANS
A8	NAILOR	6500	SUPPLY CEILING DIFFUSER	3-WAY	2' x 1' LAY-IN PANEL	SEE PLANS
B3	NAILOR	6500	SUPPLY CEILING DIFFUSER	3-WAY	SURFACE-MOUNTED	SEE PLANS
E2	NAILOR	61DH	SUPPLY REGISTER	DOUBLE DEFLECTION	SURFACE-MOUNTED	SEE PLANS
K1	NAILOR	61DHC	SUPPLY REGISTER	DOUBLE DEFLECTION	DUCT-MOUNTED	SEE PLANS
K2	NAILOR	61DHC	SUPPLY REGISTER	DOUBLE DEFLECTION	DUCT-MOUNTED	SEE PLANS
R1	NAILOR	6145H	RETURN/EXHAUST REGISTER	LOUVERED GRILLE	LAY-IN PANEL	SEE PLANS
R2	NAILOR	6145H	RETURN/EXHAUST REGISTER	LOUVERED GRILLE	SURFACE-MOUNTED	SEE PLANS



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MERRILLVILLE HIGH SCHOOL
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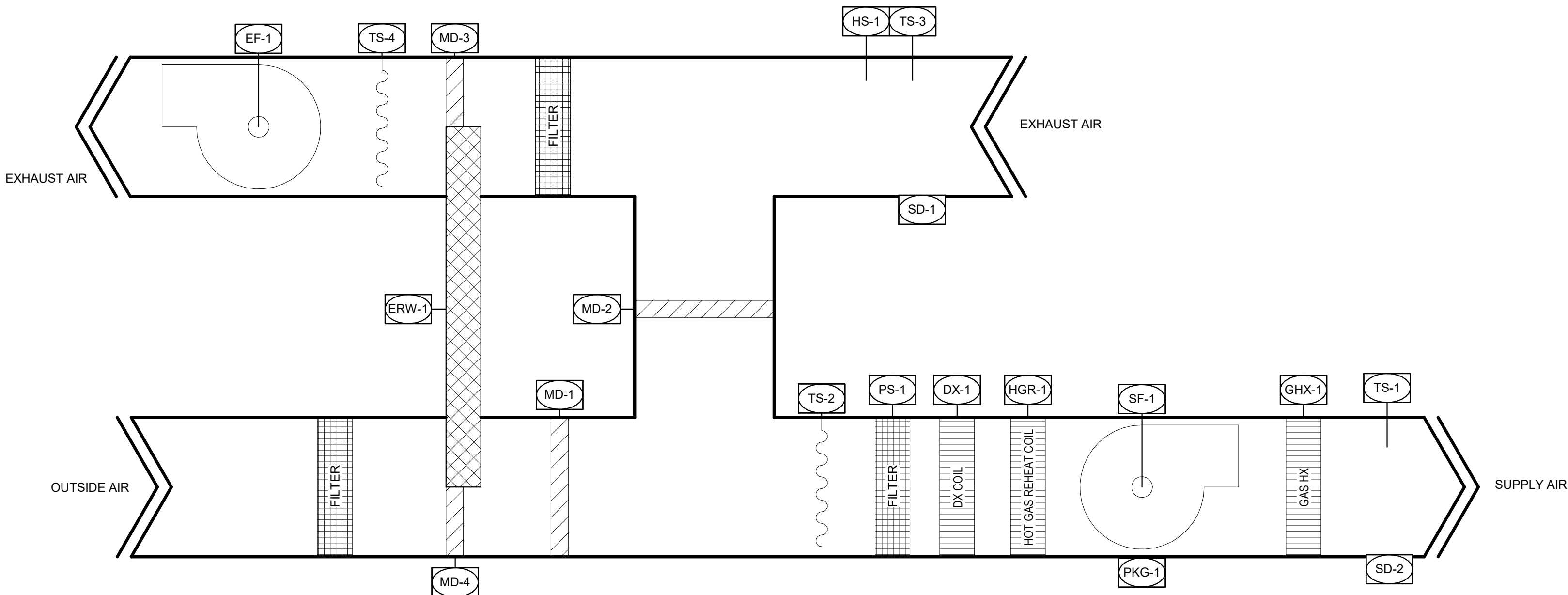
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PACKAGED CONSTANT VOLUME DEDICATED OUTDOOR AIR UNIT CONTROLS



CONTROL SEQUENCE:

A. GENERAL / ALARMS / SAFETIES:

- THE ROOFTOP UNIT CONTAINS A SELF-CONTAINED, FACTORY FURNISHED CONTROL SYSTEM WITH LON OR BACNET INTERFACE AS PROVIDED BY ROOFTOP UNIT MANUFACTURER. THE SYSTEM SHALL BE INDEXED FROM THE OCCUPIED TO THE UNOCCUPIED MODES OF OPERATION FROM THE FMS AND SHALL BE OPERATED BASED ON INPUT FROM THE FMS.
 - PROVIDE INTERFACE TO UNITS LON OR BACNET INTERFACE AND INSTALL NECESSARY FIELD DEVICES TO PROPERLY CONTROL AND MONITOR EACH ROOFTOP UNIT. COORDINATE INSTALLATION AND OTHER REQUIREMENTS WITH THE ROOFTOP UNIT MANUFACTURER.
 - INSTALL AND WIRE COMPONENTS SHIPPED LOOSE WITH THE ROOFTOP UNIT. COORDINATE ALL REQUIREMENTS WITH THE ROOFTOP UNIT MANUFACTURER.
- PARALLEL AVAILABLE ROOFTOP UNIT ALARMS AND PROVIDE ALARM TO THE FMS.
- PROVIDE DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTER BANK THAT MONITORS THE PRESSURE IN THE FILTER SECTION AND PROVIDES A DIRTY FILTER INDICATION WHEN THE PRESSURE SWITCH IS CLOSED.

B. SUPPLY AIR TEMPERATURE RESET CONTROL:

- RESET SCHEDULE SHALL BE DETERMINED BY THE BMS AND SHALL BE ADJUSTABLE.
- INITIAL SCHEDULE TO BE LINEAR TEMPERATURE RESET FROM 60°F SUPPLY AIR TEMPERATURE SET POINT AT 80°F OUTSIDE AIR TEMPERATURE TO 70°F SUPPLY AIR TEMPERATURE SETPOINT AT 30°F OUTSIDE AIR TEMPERATURE.

C. OCCUPIED MODE:

- WHEN TIME SCHEDULE INDICATES OCCUPIED MODE, ENABLE UNIT OPERATION.
- SET DISCHARGE TEMPERATURE ACCORDING TO SUPPLY AIR TEMPERATURE RESET SCHEDULE.
- SUPPLY FAN AND EXHAUST FAN SHALL START AND RUN CONTINUOUSLY.
- THE OUTSIDE AIR DAMPER SHALL BE FULLY OPEN, AND RETURN AIR DAMPER FULLY CLOSED.
- WHEN MIXED AIR TEMPERATURE FALLS BELOW SUPPLY AIR TEMPERATURE SETPOINT, MODULATE GAS HEATING TO MAINTAIN UNIT SUPPLY TEMPERATURE SETPOINT. DISABLE MECHANICAL COOLING.
- WHEN MIXED AIR TEMPERATURE RISES ABOVE THE SUPPLY AIR TEMPERATURE SETPOINT, ENABLE MECHANICAL COOLING. MODULATE THE MECHANICAL COOLING TO MAINTAIN UNIT SUPPLY TEMPERATURE SETPOINT.
- DEHUMIDIFICATION MODE IS ENABLED WHEN THE OUTDOOR AIR DEWPOINT RISES ABOVE THE OUTDOOR AIR DEWPOINT SETPOINT (56°F - ADJ.) AND IS TERMINATED WHEN THE OUTDOOR AIR DEWPOINT FALLS 3° BELOW SETPOINT. DURING DEHUMIDIFICATION MODE, COOLING IS CONTROLLED TO THE DEHUMIDIFICATION TEMPERATURE SETPOINT, AND HOT GAS REHEAT CONTROLS TO THE SUPPLY AIR TEMPERATURE SETPOINT.

D. UNOCCUPIED MODE:

- UNIT SHALL BE OFF.

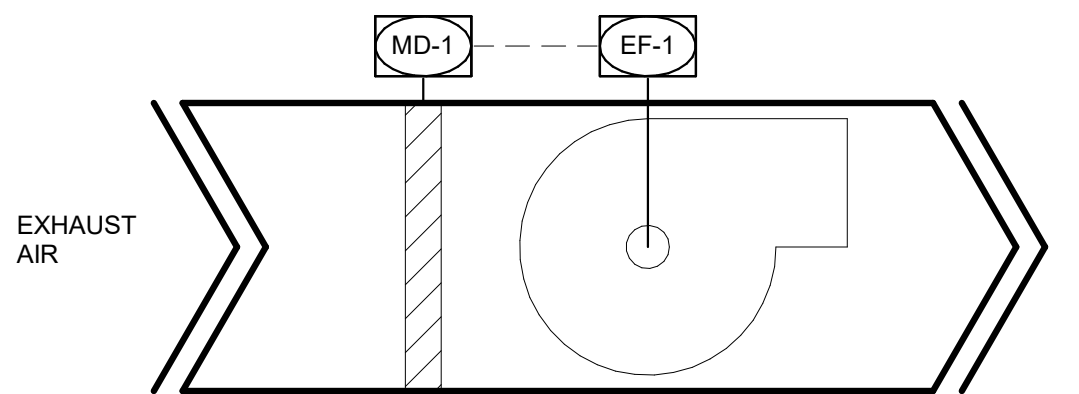
E. ENERGY RECOVERY WHEEL OPERATION:

- ENERGY RECOVERY WHEEL SHALL BE ENABLED DURING THE OCCUPIED MODE IN THE FOLLOWING CONDITIONS. WHEN ENERGY RECOVERY IS DISABLED, THE BYPASS DAMPERS SHALL BE OPEN.
 - COOLING MODE: THE OUTDOOR AIR TEMPERATURE IS GREATER THAN THE RETURN AIR TEMPERATURE ENTERING THE WHEEL.
 - HEATING MODE: THE OUTDOOR AIR TEMPERATURE IS BELOW THE SUPPLY AIR TEMPERATURE SETPOINT.
- IN HEATING MODE, IF THE MIXED AIR TEMPERATURE RISES ABOVE THE SUPPLY AIR TEMPERATURE SETPOINT, MODULATE THE EXHAUST BYPASS DAMPER TO MAINTAIN THE MIXED AIR TEMPERATURE SETPOINT.
- WHEEL FROST PROTECTION: WHEN A FROST CONDITION IS ENCOUNTERED THE UNIT CONTROLLER SHALL STOP THE WHEEL. WHEN IN THE FROST CONTROL MODE, THE WHEEL SHALL BE JOGGED PERIODICALLY AND NOT BE ALLOWED TO STAY IN THE STATIONARY POSITION. FOLLOW MANUFACTURERS RECOMMEND FROST CONTROL SETPOINTS.

CONTROL POINTS - CONSTANT VOLUME DOAS

DEVICE TAG	DESCRIPTION	OUTPUTS				INPUTS			ALARMS				GRAPHIC	TREND	REMARKS
		DO	DO TYPE	AO	AO TYPE	DI	DI TYPE	AI	DIGITAL		ANALOG				
									GENERAL	CRITICAL	HIGH LIMIT	LOW LIMIT			
DX-1	DX COOLING SYSTEM, VARIABLE CAPACITY	X	ENABLE/DISABLE	X	SETPOINT ADJ.	X	STATUS		X				X	X	
EF-1	EXHAUST FAN VFD	X	START/STOP	X	CONTROL	X	STATUS		X				X	X	
ERW-1	ENERGY RECOVERY WHEEL MOTOR	X	START/STOP			X	STATUS		X				X	X	
GHX-1	MODULATING GAS FIRED HEAT EXCHANGER	X	ENABLE/DISABLE	X	CONTROL								X	X	
HGR-1	MODULATING HOT GAS REHEAT	X	ENABLE/DISABLE	X	CONTROL								X	X	
HS-1	HUMIDITY SENSOR							X					X	X	
MD-1	MODULATING CONTROL DAMPER			X	CONTROL								X	X	
MD-2	MODULATING CONTROL DAMPER			X	CONTROL								X	X	
MD-3	BYPASS DAMPER			X	CONTROL								X	X	
MD-4	BYPASS DAMPER			X	CONTROL								X	X	
PKG-1	FACTORY INSTALLED CONTROLLER	X	ENABLE/DISABLE	X	SETPOINT ADJ.	X	STATUS		X				X	X	INTEGRATE ALL AVAILABLE BACNET POINTS
PS-1	DIRTY FILTER SWITCH					X	DIRTY FILTER		X				X	X	
SD-1	SMOKE DETECTOR					X	HARD WIRED SAFETY			X			X	X	
SD-2	SMOKE DETECTOR					X	HARD WIRED SAFETY			X			X	X	
SF-1	SUPPLY FAN VFD	X	START/STOP	X	CONTROL	X	STATUS		X				X	X	
TS-1	TEMPERATURE SENSOR							X					X	X	
TS-2	TEMPERATURE SENSOR							X					X	X	
TS-3	TEMPERATURE SENSOR							X					X	X	
TS-4	TEMPERATURE SENSOR							X					X	X	

EXHAUST FAN CONTROLS



CONTROL SEQUENCE:

- A. REFER TO THE EQUIPMENT SCHEDULE ON THE CONTRACT DOCUMENTS TO DETERMINE WHICH OF THE FOLLOWING CONTROLS SHOULD BE PROVIDED FOR THE EXHAUST FANS.
- FACILITY MANAGEMENT SYSTEM CONTROL: THE FMS SHALL CONTROL THE EXHAUST FANS "ON/OFF". INTERLOCK THE EXHAUST FANS WITH THE RESPECTIVE AIR-HANDLING SYSTEM'S OCCUPIED/UNOCCUPIED SCHEDULE.
 - WALL SWITCH CONTROL: EXHAUST FANS TO BE CONTROLLED LOCALLY BY WALL SWITCH OR HOOD MOUNTED CONTROLS - SEE ELECTRICAL DRAWINGS. MONITOR STATUS FOR BUILDING PRESSURIZATION CONTROL. SEE AIR HANDLING UNIT CONTROL SEQUENCE.

CONTROL POINTS - EXHAUST FANS

DEVICE TAG	DESCRIPTION	OUTPUTS			INPUTS			ALARMS				GRAPHIC	TREND	REMARKS	
		DO	DO TYPE	AO	AO TYPE	DI	DI TYPE	AI	DIGITAL		ANALOG				
									GENERAL	CRITICAL	HIGH LIMIT				LOW LIMIT
EF-1	EXHAUST FAN EC MOTOR	X	START/STOP			X	STATUS		X				X	X	
MD-1	MOTORIZED BACKDRAFT DAMPER	X	OPEN/CLOSE												INTERLOCKED WITH FAN

MISC. CONTROL SEQUENCES

B. MISCELLANEOUS MONITORING AND ALARMS:

- DOMESTIC BOOSTER PUMP SYSTEM: MONITOR THE SYSTEM PRESSURE, STATUS AND ALARM FOR THE DOMESTIC HOT WATER BOOSTER PUMP SYSTEM.
- EMERGENCY GENERATOR: MONITOR THE STATUS AND GENERAL ALARM FOR THE EMERGENCY GENERATOR.
- FREEZER/REFRIGERATOR: MONITOR THE TEMPERATURES WITHIN THE NEW FREEZER AND REFRIGERATOR. PROVIDE TEMPERATURE ELEMENT BULBS WITH PROTECTIVE COVERS INSIDE EACH FREEZER AND REFRIGERATOR. PROVIDE A HIGH TEMPERATURE ALARM FOR EACH UNIT.
- ELECTRICAL POWER MONITORING: MONITOR ALARMS FROM THE ELECTRICAL POWER METERS FOR PHASE LOSS AND PHASE REVERSAL. PROVIDE STATUS AND ALARM POINTS ON THE FANS.
- UTILITY METERING: MONITOR UTILITY CONSUMPTION FROM NATURAL GAS, ELECTRICAL AND WATER METERING EQUIPMENT. PROVIDE APPROPRIATE METERING DEVICES COLLECT PULSE CONSUMPTION DATA FOR REPORTING AND USAGE ON THE FMS SYSTEM. PROVIDE MONITOR POINTS ON THE FMS.
- INTERCOMMASTER CLOCK SYSTEM: PROVIDE AN INTERFACE TO THE INTERCOMMASTER CLOCK SYSTEM TO PROVIDE AUTOMATIC TIME CORRECTION FOR THE FMS.

C. LIGHTING CONTROL:

- PROVIDE COMPLETE FMS INTERFACE TO PROGRAMMABLE LIGHTING CONTROL PANELS. COORDINATE QUANTITY AND LOCATION. COMPLETELY PROGRAM LIGHTING CONTROLS TO THE TIME SCHEDULE AS ESTABLISHED BY THE OWNER'S REPRESENTATIVE.
- SEE ELECTRICAL DRAWINGS FOR NUMBER AND LOCATIONS OF PANELS AND NUMBER OF RELAY POINTS.
- SEE ELECTRICAL DRAWINGS FOR NUMBER AND LOCATIONS OF PANELS AND NUMBER OF RELAY POINTS.

SYMBOL LIST

XX-X

CONTROL DEVICE

FAN

FILTER

COIL

CONTROL DAMPER

AVG TEMP SENSOR

AIRFLOW STATION

CONTROLS GENERAL NOTES

- PROVIDE ALL LABOR, MATERIAL AND SOFTWARE THAT IS REQUIRED TO MEET THE FUNCTIONAL INTENT OF THE SEQUENCE OF OPERATIONS. PROVIDE ALL NECESSARY COMPONENTS AND ACCESSORIES COMPLETE AS REQUIRED. POINT LISTS PROVIDED ARE A GUIDE TO THE REQUIRED CONTROL SYSTEM POINTS BUT THE FINAL POINTS SHALL BE DETERMINED BY SEQUENCE OF OPERATIONS.
- ALL SET POINTS SHALL BE OPERATOR ADJUSTABLE THROUGH THE FMS.
- REFER TO DRAWING FLOOR PLANS AND EQUIPMENT SCHEDULES FOR MECHANICAL EQUIPMENT QUANTITIES AND LOCATIONS. REFER TO EQUIPMENT SCHEDULES FOR HEATING/COOLING SYSTEM STAGES AND QUANTITY OF FANS IN AIR SYSTEMS.
- REFER TO FLOOR PLANS FOR ROOM SENSOR LOCATIONS AND QUANTITIES.
- PROVIDE OUTSIDE AIR TEMPERATURE AND HUMIDITY SENSORS FOR EACH INDIVIDUAL BUILDING. OUTSIDE AIR POINTS MAY BE SHARED ACROSS SYSTEMS AT THE SAME LOCATION.
- ROOM NAMES AND NUMBERS ARE FOR REFERENCE ONLY. FIELD VERIFY AND USE ACTUAL ROOM NAMES/NUMBERS AS REQUIRED FOR BMS GRAPHICS.
- PROVIDE ALL NEW CONTROL DEVICES AS SHOWN IN DIAGRAMS UNLESS NOTED OTHERWISE.
- ALL POINTS REQUIRED BY THE SEQUENCE OF OPERATION AS WELL AS ALL OF THE POINTS' ASSOCIATED VALUES, SHALL BE CONNECTED TO THE FMS AND AVAILABLE TO THE FMS OPERATORS ON ALL OPERATOR WORKSTATIONS AND ALL OPERATOR INTERFACE DEVICES AS PART OF A GRAPHICAL DISPLAY THAT DEPICTS THE MECHANICAL SYSTEM CONTROLLED.
- ALL POINTS FOR A SPECIFIC MECHANICAL SYSTEM SHALL BE CONNECTED TO AND CONTROLLED BY THE SAME DDC CONTROLLER UNLESS OTHERWISE SPECIFIED.
- ALL INITIAL FIELD SETTINGS APPLIED SHALL BE SAVED AS THE DEFAULT VALUES. THESE VALUES SHALL BE DOWNLOADED TO THE CONTROLLER SUCH THAT THEY ARE THE DEFAULT VALUE IF THE CONTROLLER LOSES POWER.
- WHEN THE MOTOR CONTROLLER IS EQUIPPED WITH AN HOA, THE MOTORS SHALL ONLY BE CONTROLLED BY THE FMS WHEN THE HOA SWITCH IS IN THE AUTO POSITION.
- WHERE A FAN AND DAMPER ARE TO BE INTERLOCKED, PROVIDE A HARDWIRE INTERLOCK TO FIRST ENABLE THE DAMPER WHEN THE FAN IS REQUIRED. FAN MOTOR SHALL BE ENABLED ONLY WHEN THE DAMPER END SWITCH INDICATES THE DAMPER IS IN THE FULLY OPEN POSITION.
- ON ANY FAN THAT IS CONTROLLED BY A VARIABLE FREQUENCY DRIVE (VFD), THE SPEED SIGNAL SENT TO THE VFD SHALL BE CONFIGURED ACCORDING TO ASHRAE GUIDELINE 36 SECTION 5.1.13.
- OPTIMIZED START: USING OUTSIDE TEMPERATURE, REPRESENTATIVE ROOM TEMPERATURE(S) COMPARED TO OCCUPIED HEATING AND COOLING SETPOINTS AND TIME SCHEDULE. CALCULATE THE OPTIMAL TIME TO START EACH AIR HANDLING UNIT BEFORE PROGRAMMED OCCUPIED PERIOD (UP TO A MAXIMUM OF 3 HOURS) TO ACHIEVE COMFORT SETTINGS BY SCHEDULED OCCUPANCY START TIME. UNIT TO GO TO UNOCCUPIED MODE USING THE TIME SCHEDULE STOP TIME. REFER TO ASHRAE GUIDELINE 36 SECTION 5.4.6.2
- ZONE SETPOINT REQUIREMENTS: EACH ZONE SHALL HAVE SEPARATE OCCUPIED AND UNOCCUPIED HEATING AND COOLING SETPOINTS. REFER TO ASHRAE GUIDELINE 36 SECTION 5.3.2
- ZONE TEMPERATURE CONTROLS FOR HEATED AND COOLED SPACES SHALL HAVE A MINIMUM 5°F DEAD BAND AND SETPOINT OVERLAP RESTRICTION.

CONTROLS ABBREVIATIONS LIST

AI	ANALOG INPUT
AO	ANALOG OUTPUT
AS	AIRFLOW MEASURING SENSOR
CO	CARBON MONOXIDE SENSOR
CO2	CARBON DIOXIDE SENSOR
CV	CONTROL VALVE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DP	DIFFERENTIAL PRESSURE SENSOR
DX	DIRECT EXPANSION REFRIGERATION SYSTEM
ECM	ELECTRICALLY COMMUTATED MOTOR
EF	EXHAUST FAN
EH	ELECTRIC HEAT ELEMENT
ES	EMERGENCY SWITCH
FM	AIR / WATER FLOW METER
FS	FLOW SWITCH
FZ	LOW LIMIT TEMPERATURE SWITCH
GHX	GAS FIRED HEAT EXCHANGER
HGR	HOT GAS REHEAT
HS	HUMIDITY SENSOR
LS	LEVEL SWITCH
MD	MOTORIZED DAMPER
OS	OCCUPANCY SENSOR
PDS	PRESSURE DIFFERENTIAL SWITCH
PKG	PACKAGED FACTORY CONTROLLER
PS	PRESSURE SWITCH
SD	SMOKE DETECTOR
SF	SUPPLY FAN
SP	STATIC PRESSURE SENSOR
TS	TEMPERATURE SENSOR
VFD	VARIABLE FREQUENCY DRIVE



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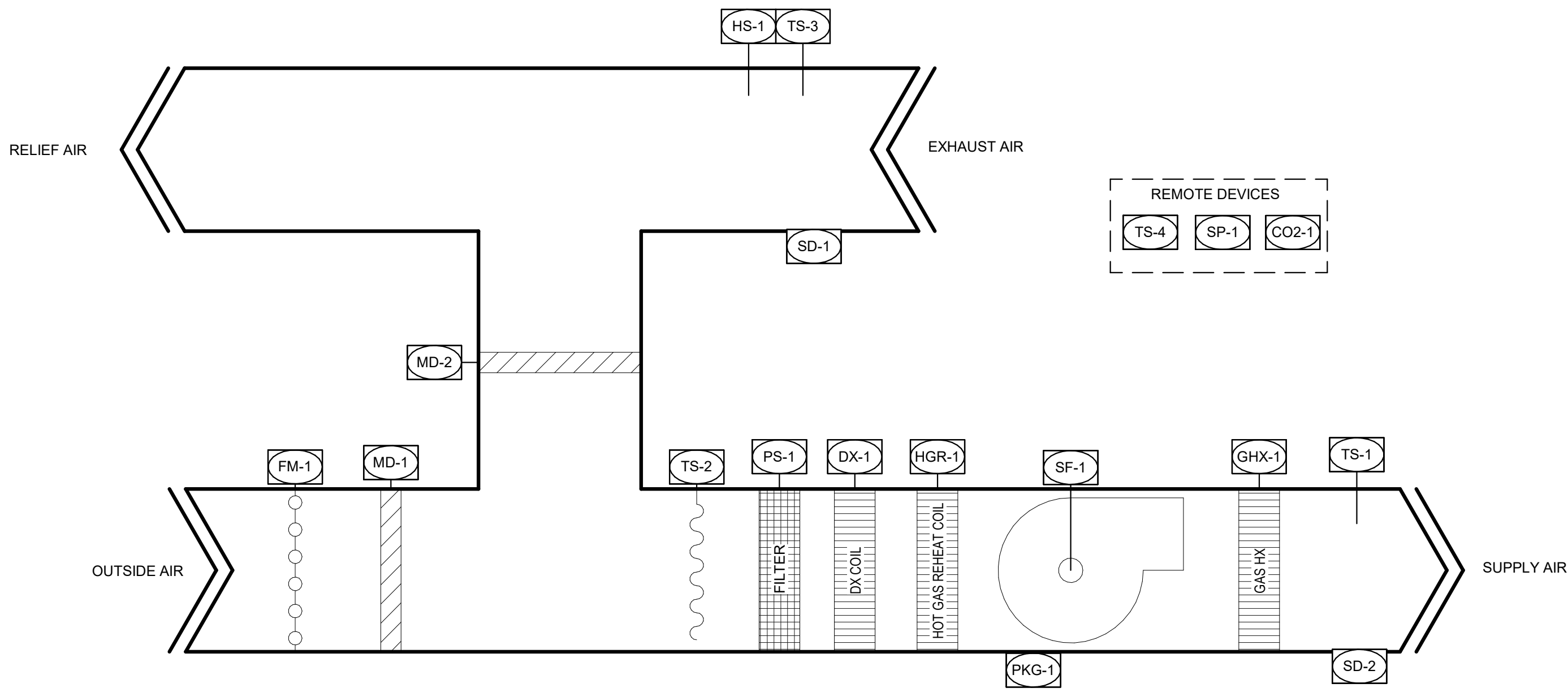
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SINGLE ZONE VAV GAS FIRED ROOFTOP UNIT



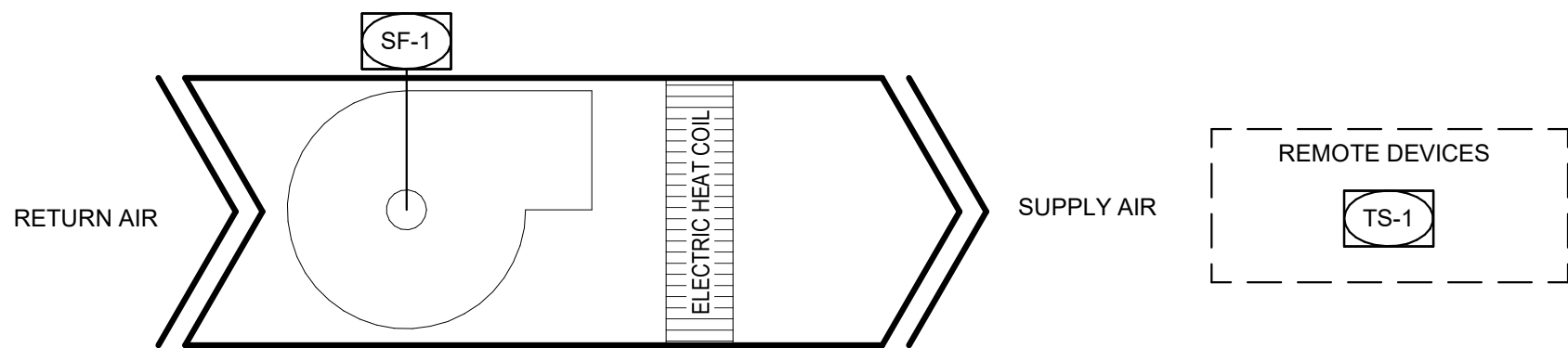
CONTROL SEQUENCE:

- A. GENERAL / ALARMS / SAFETIES:**
- THE ROOFTOP UNITS CONTAIN A SELF-CONTAINED, FACTORY FURNISHED CONTROL SYSTEM WITH LON OR BACNET INTERFACE AS PROVIDED BY ROOFTOP UNIT MANUFACTURER. THE SYSTEM SHALL BE INDEXED FROM THE OCCUPIED TO THE UNOCCUPIED MODES OF OPERATION FROM THE FMS AND SHALL BE OPERATED BASED ON INPUT FROM THE FMS.
 - PROVIDE INTERFACE TO UNITS LON OR BACNET INTERFACE AND INSTALL NECESSARY FIELD DEVICES TO PROPERLY CONTROL AND MONITOR EACH ROOFTOP UNIT. COORDINATE INSTALLATION AND OTHER REQUIREMENTS WITH THE ROOFTOP UNIT MANUFACTURER.
 - INSTALL AND WIRE COMPONENTS SHIPPED LOOSE WITH THE ROOFTOP UNIT. COORDINATE ALL REQUIREMENTS WITH THE ROOFTOP UNIT MANUFACTURER. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING ITEMS:
 - SPACE TEMPERATURE SENSOR
 - PARALLEL AVAILABLE ROOFTOP UNIT ALARMS AND PROVIDE ALARM TO THE FMS.
 - PROVIDE DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTER BANK THAT MONITORS THE PRESSURE IN THE FILTER SECTION AND PROVIDES A DIRTY FILTER INDICATION WHEN THE PRESSURE SWITCH IS CLOSED.
 - THERE SHALL BE SEPARATE ADJUSTABLE ROOM TEMPERATURE HEATING AND COOLING SET-POINTS FOR OCCUPIED AND UNOCCUPIED MODES OF OPERATION.
 - OCCUPIED HEATING SETPOINT: 70°F
 - UNOCCUPIED HEATING SETPOINT: 60°F
 - OCCUPIED COOLING SETPOINT: 75°F
 - UNOCCUPIED COOLING SETPOINT: 80°F
 - SMOKE DAMPERS: DUCT SMOKE/FIRE DAMPERS SHALL STOP THE FAN SYSTEM(S). CLOSE THE DISCHARGE SMOKE DAMPER AND ANNUNCIATE AN ALARM WHEN THE PRESENCE OF SMOKE IS DETECTED IN THE AIR STREAM. THE FAN SYSTEM SHALL BE INTERLOCKED TO SHUT DOWN UPON COMMAND FROM THE BUILDING FIRE ALARM SYSTEM. UPON A RETURN TO NORMAL, THE SMOKE DAMPERS AND THE FAN SYSTEMS SHALL START AFTER AN ADJUSTABLE DELAY TO PROVIDE A STAGGERED START OF ALL BUILDING LOAD.
 - SMOKE DETECTION: DUCT SMOKE DETECTORS SHALL STOP THE FAN SYSTEM(S) AND ANNUNCIATE AN ALARM WHEN THE PRESENCE OF SMOKE IS DETECTED IN THE AIR STREAM. THE FAN SYSTEM SHALL BE INTERLOCKED TO SHUT DOWN UPON COMMAND FROM THE BUILDING FIRE ALARM SYSTEM. UPON A RETURN TO NORMAL, THE FAN SYSTEMS SHALL START AFTER AN ADJUSTABLE DELAY TO PROVIDE A STAGGERED START OF ALL BUILDING LOAD.
- B. ECONOMIZER MODE:**
- ECONOMIZER SHALL BE ENABLED WHENEVER THE OUTSIDE TEMPERATURE IS BELOW 75°F AND ENTHALPY IS LESS THAN 28 BTU/LB.
- C. MORNING WARM-UP / COOL DOWN MODE:**
- IF THE ROOM TEMPERATURE IS BELOW OCCUPIED HEATING SETPOINT, THE UNIT WILL BE IN A MORNING WARM-UP MODE. THE FMS SHALL PROVIDE THE OPTIMIZED START TIME NEEDED TO OPERATE IN THE WARM UP MODE.
 - SET DISCHARGE AIR TEMPERATURE SETPOINT TO 90°F (ADJ.).
 - SUPPLY FAN SHALL START AND RUN CONTINUOUSLY.
 - THE OUTSIDE AIR DAMPER SHALL BE FULLY CLOSED.
 - IF THE REPRESENTATIVE ROOM TEMPERATURES ARE ABOVE OCCUPIED COOLING SETPOINT, THE UNIT WILL BE IN A MORNING COOLDOWN MODE. THE FMS SHALL PROVIDE THE OPTIMIZED START TIME NEEDED TO OPERATE IN THE COOLDOWN MODE.
 - THE DX COOLING SYSTEM SHALL MODULATE / STAGE TO MAINTAIN DISCHARGE AIR TEMPERATURE AT 55°F (ADJ.).
 - SUPPLY FAN SHALL START AND RUN CONTINUOUSLY.
 - THE OUTSIDE AIR DAMPER SHALL BE FULLY CLOSED.
- D. OCCUPIED MODE:**
- WHEN TIME SCHEDULE INDICATES OCCUPIED MODE TERMINATE WARM-UP AND COOLDOWN MODES AND INDEX UNIT INTO OCCUPIED MODE. FMS SHALL PROVIDE OCCUPIED MODE SPACE TEMPERATURE SETPOINTS TO THE UNIT FACTORY CONTROLLER.
 - OUTSIDE AIR DAMPER CONTROL:
 - WHEN SUPPLY FAN IS PROVEN ON, THE OUTSIDE AIR DAMPER SHALL BE MODULATED TO MAINTAIN THE MINIMUM OUTDOOR AIRFLOW RATE AT THE MINIMUM OUTDOOR AIRFLOW SETPOINT AS MEASURED BY THE AIRFLOW MEASURING STATION.
 - MONITOR CO2 SENSOR. IF CO2 LEVEL IS BELOW 700PPM REDUCE OUTSIDE AIRFLOW SETPOINT TO SCHEDULED "LOW" OUTSIDE AIRFLOW. AS CO2 RISES FROM 700PPM TO 900PPM, INCREASE OUTSIDE AIRFLOW SETPOINT TOWARD SCHEDULED "HIGH" OUTSIDE AIRFLOW.
 - IF UNIT IS PROVIDED WITH DEHUMIDIFICATION, FMS SHALL PROVIDE HIGH AND LOW HUMIDITY SETPOINTS. IF THE RETURN AIR HUMIDITY LEVEL RISES ABOVE 60% RH (ADJ.) THE UNIT DEHUMIDIFICATION MODE SHALL BE ENABLED. WHEN THE RETURN AIR HUMIDITY LEVEL DROPS BELOW 50% RH (ADJ.) THE DEHUMIDIFICATION MODE SHALL BE DISABLED.
 - UNIT FACTORY CONTROLS SHALL MODULATE / STAGE HEATING, COOLING, DAMPERS, SUPPLY AND EXHAUST FANS TO MAINTAIN ALL PROVIDED TEMPERATURE, PRESSURE AND AIRFLOW SETPOINTS.
- E. UNOCCUPIED MODE:**
- WHEN TIME SCHEDULE INDICATES UNOCCUPIED MODE, SHUT DOWN UNIT AND CLOSE OUTSIDE AIR DAMPERS.
 - UNOCCUPIED HEATING MODE. IF SPACE TEMPERATURE DROPS BELOW UNOCCUPIED HEATING SETPOINT, ENABLE UNIT AND OPERATE IN MORNING WARMUP MODE. DISABLE UNIT WHEN ALL SPACE REACHES UNOCCUPIED HEATING SETPOINT.
 - UNOCCUPIED COOLING MODE. IF SPACE TEMPERATURE RISES ABOVE UNOCCUPIED COOLING SETPOINT, ENABLE UNIT AND OPERATE IN MORNING COOLDOWN MODE. DISABLE UNIT WHEN SPACE REACHES UNOCCUPIED COOLING SETPOINT.
 - UNOCCUPIED OVERRIDE: IF ROOM SENSOR HAS AN UNOCCUPIED OVERRIDE BUTTON, SET THE UNIT TO OCCUPIED MODE AS OUTLINED ABOVE FOR A PROGRAMMED PERIOD (2 HOURS - ADJ.) WHEN THE BUTTON IS PRESSED.

CONTROL POINTS - SINGLE ZONE VAV GAS FIRED ROOFTOP UNIT (W/ EXH FAN)

DEVICE TAG	DESCRIPTION	OUTPUTS				INPUTS			ALARMS				GRAPHIC	TREND	REMARKS
		DO	DO TYPE	AO	AO TYPE	DI	DI TYPE	AI	DIGITAL GENERAL	CRITICAL	HIGH LIMIT	ANALOG LOW LIMIT			
CO2-1	CARBON DIOXIDE SENSOR							X	X				X	X	
DX-1	DX COOLING SYSTEM	X	ENABLE/DISABLE	X	SETPOINT ADJ.	X	STATUS						X	X	
FM-1	AIRFLOW MEASURING STATION							X					X	X	
GHX-1	MODULATING GAS FIRED HEAT EXCHANGER	X	ENABLE/DISABLE	X	CONTROL								X	X	
HGR-1	MODULATING HOT GAS REHEAT	X	ENABLE/DISABLE	X	CONTROL								X	X	
HS-1	HUMIDITY SENSOR							X					X	X	
MD-1	MODULATING CONTROL DAMPER			X	CONTROL								X	X	
MD-2	MODULATING CONTROL DAMPER			X	CONTROL								X	X	
PKG-1	FACTORY INSTALLED CONTROLLER	X	ENABLE/DISABLE	X	SETPOINT ADJ.	X	STATUS		X				X	X	INTEGRATE ALL AVAILABLE BACNET POINTS
PS-1	DIRTY FILTER SWITCH					X	DIRTY FILTER		X				X	X	
SD-1	SMOKE DETECTOR					X	HARD WIRED SAFETY			X			X	X	
SD-2	SMOKE DETECTOR					X	HARD WIRED SAFETY			X			X	X	
SF-1	SUPPLY FAN VFD	X	START/STOP	X	CONTROL	X	STATUS		X				X	X	
SP-1	BUILDING PRESSURE SENSOR							X			X		X	X	
TS-1	SUPPLY TEMPERATURE SENSOR							X					X	X	
TS-2	MIXED AIR TEMPERATURE SENSOR							X					X	X	
TS-3	RETURN TEMPERATURE SENSOR							X					X	X	
TS-4	SPACE TEMPERATURE SENSOR							X					X	X	

TYPICAL CABINET AND UNIT HEATER CONTROLS



CONTROL SEQUENCE:

- A. OCCUPIED MODE - UNIT HEATING VALVE IS CLOSED, AND UNIT FAN IS OFF. WHEN ROOM TEMPERATURE DROPS BELOW OCCUPIED HEATING SETPOINT (65°F-ADJ.), OPEN UNIT HEATING VALVE AND START UNIT FAN.**
- B. UNOCCUPIED MODE - UNIT HEATING VALVE IS CLOSED, AND UNIT FAN IS OFF. WHEN ROOM TEMPERATURE DROPS BELOW UNOCCUPIED HEATING SETPOINT (60°F-ADJ.), OPEN UNIT HEATING VALVE AND START UNIT FAN.**
- C. IF THE ROOM FALLS MORE THAN 5 DEGREES BELOW SETPOINT FOR LONGER THAN 30 MINUTES SEND LOW PRIORITY ALARM. IF THERE IS A FAULT WITH ZONE SENSOR SEND LOW PRIORITY ALARM.**
- D. REFER TO MECHANICAL EQUIPMENT SCHEDULES AND FLOOR PLANS FOR QUANTITY OF UNITS WITH INTEGRAL OR EXTERNAL THERMOSTATS.**

CONTROL POINTS - UNIT HEATERS

DEVICE TAG	DESCRIPTION	OUTPUTS				INPUTS			ALARMS				GRAPHIC	TREND	REMARKS
		DO	DO TYPE	AO	AO TYPE	DI	DI TYPE	AI	DIGITAL GENERAL	CRITICAL	HIGH LIMIT	ANALOG LOW LIMIT			
SF-1	SUPPLY FAN	X	START/STOP			X	STATUS						X	X	
TS-1	SPACE TEMPERATURE SENSOR							X			X	X	X	X	



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2.1.3



SECTION 07 3113

ASPHALT FIBERGLASS SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Granular surfaced asphalt fiberglass shingle roofing.
- B. Moisture shedding underlayment, eave, valley and ridge protection.
- C. Associated metal flashings.

1.02 SUBMITTALS

- A. Submit under provisions of Division 1.
- B. Product Data: Provide data indicating material characteristics, performance criteria, limitations and color selections.
- C. Manufacturer's Installation Instructions: Indicate preparation required and installation procedures.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.03 REGULATORY REQUIREMENTS

- A. Conform to Federal Specifications SS-S-294 A Type I and SS-S-001534 Class A, Type I.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Refer to special application instructions published by Johns-Manville when temperatures average 25° F or less.

PART 2 PRODUCTS

2.01 MANUFACTURERS – ASPHALT FIBERGLASS SHINGLES

- A. Shingles: CertainTeed
- B. Ice Dam Protection - W.R. Grace.
- C. Substitutions: Under provisions of Division 1

2.02 ASPHALT FIBERGLASS SHINGLES

- A. Asphalt Fiberglass Shingles: CertainTeed Landmark Pro - Lifetime Limited Warranty: ASTM D3462/3018 Type 1, Class A - Self Sealing, UL Rating of A and Wind Resistance Label, two glass fiber mat base, mineral granule surface type; color selected by Architect.

2.03 SHEET MATERIALS

- A. Roll Roofing: Matching shingles mineral surface and all other properties.
- B. Eave/Ice Dam Protection: CertainTeed's Winterguard Granular Waterproofing Shingle Underlayment.
- C. Underlayment: CertainTeed's DiamondDeck high-performance Synthetic Roofing Underlayment.

2.04 ACCESSORIES

- A. Ridge Vent: CertainTeed Rolled Roof Vent – Filtered Rolled Ridge Vent.
- B. Nails: Hot dipped galvanized steel sharp pointed roofing nails - 11 to 12 gauge, with approximately 3/8" diameter head; nails shall penetrate through roof sheathing.

2.05 FLASHING FABRICATION

- A. Form flashings to profiles indicated on Drawings, and to protect roofing materials from physical damage and shed water.
- B. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
- C. Hem exposed edges of flashings minimum 1/2 inch on underside.

2.06 EXTRA MATERIALS

- A. Provide one square of extra stock for each color of singles.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions under provisions of Division 1.
- B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
- C. Verify roof openings are correctly framed prior to installing work of this Section.
- D. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.02 PREPARATION

- A. Broom clean deck surfaces under eave protection, underlayment, and insulation.

3.03 INSTALLATION - UNDERLAYMENT

- A. Place one ply of underlayment over roof deck with ends and edges lapped 2 inches. Stagger end laps of each consecutive layer.

3.04 INSTALLATION – EAVE ICE DAM PROTECTION

- A. Apply rubberized asphalt/polyethylene sheet eave protection in accordance with manufacturer's instructions over the entire roof.

3.05 INSTALLATION – METAL FLASHING

- A. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.
- B. Secure in place with nails at 8 inches oc. Conceal fastenings.
- C. Flash and seal work projecting through or mounted on roofing with plastic cement, weather tight.

3.06 INSTALLATION – ASPHALT SHINGLES

- A. Install shingles in accordance with manufacturer's instructions.
- B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area.
- C. Project first course of shingles 1/4 inch beyond fascia boards.
- D. Extend shingles 1/4 inch beyond face of gable edge fascia boards.
- E. Cap hips and ridges with individual shingles, maintaining 5 inch weather exposure. Place to avoid exposed nails. Install ridge vents as shown on the drawings. Install ridge shingles over ridge vent.
- F. Extend shingles on both slopes across valleys in a weave pattern and fasten. Extend shingles a minimum of 12 inches beyond valley center line to achieve woven valley, concealing the valley protection.
- G. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counter flashings.
- H. Complete installation to provide weather tight service.

3.07 GUARANTEE

- A. All work shall be done in such a manner as to guarantee neat appearance, and weather tightness.
- B. The roof shingles shall have the manufacturer's lifetime limited transferable warranty, 50-year limited transferable warranty against manufacturing defects, 15-year StreakFighter algae-resistance warranty, 10-year SureStart protection, 10 year 130 MPH Wind warranty which requires CertainTeed starter, hip and ridge materials. Warranties will be delivered to the Owner upon completion of the roofing.
- C. The installing Contractor shall guarantee and maintain all roofing for a period of five (5) years after installation in a leak-free condition.

3.08 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Division 1.
- B. Do not permit traffic over finished roof surface.

3.09 CLEAN-UP

- A. Contractor shall remove his debris from the site.

END OF SECTION

SECTION 09 6519

RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Furnish all materials, labor and equipment necessary to install all resilient flooring and vinyl base as called for on the Drawings and herein specified.

1.02 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for flame/fuel/smoke rating requirements in accordance with ASTM E84.

1.03 SUBMITTALS

- A. Provide product data on specified products, describing physical and performance characteristics, sizes, patterns and colors available.
- B. Submit samples under provisions of Division 1.
- C. Submit manufacturer's installation instructions under provisions of Division 1.

1.04 OPERATION AND MAINTENANCE DATA

- A. Submit cleaning and maintenance data under provisions of Division 1.
- B. Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Store materials for three days prior to installation in area of installation to achieve temperature stability.
- B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 48 hours after installation of materials. A minimum temperature of 55 deg. F. shall be maintained thereafter.

1.06 EXTRA STOCK

- A. Supply two unopened cartons of each color of tile used to Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Armstrong World Industries.
- B. Substitutions: Under provisions of Division 1.

2.02 TILE FLOORING MATERIALS

- A. Vinyl Composition Tile: 12 inch x 12 inch size, 1/8 inch thick; marbleized design; Standard Excelon Series, as manufactured by Armstrong. Color: White Out 57518.

2.03 MANUFACTURERS - VINYL BASE

- A. Johnsonite: Color: Charcoal
- B. Substitutions: Under provisions of Division 1.

2.04 BASE

- A. Base: FS SS-W-40, Type 2; Vinyl; 4 inch high; 1/8 inch thick; top set coved. Color by Architect.
- B. Base Accessories: Pre-molded end stops and external corners, of same material, size, and color lot as base.
- C. Subfloor Filler: White premix latex; type recommended by flooring material manufacturer.
- D. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.
- E. Edge Strips: Pre-molded vinyl subject to Architect's approval.
- F. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are smooth and flat with maximum variation of 1/8 inch in 10 ft, and are ready to receive Work.
- B. Verify concrete floors are dry to a maximum moisture content of 7 percent, and exhibit negative alkalinity, carbonization, or dusting.
- C. Beginning of installation means acceptance of existing substrate and site conditions.

3.02 PREPARATION

- A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler.
- B. Apply, trowel, and float filler to leave a smooth, flat, hard surface.
- C. Prohibit traffic from area until filler is cured.
- D. Vacuum clean substrate.
- E. Apply primer to manufacturer's specifications.

3.03 INSTALLATION

- A. Install in accordance with manufacturers' instructions.
- B. Mix tile from container to ensure shade variations are consistent.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Set flooring in place, press with heavy roller to attain full adhesion.
- E. Lay flooring with joints and seams parallel to building lines to produce minimum number of seams.
- F. Install tile to square grid pattern with all joints aligned with pattern grain alternating with adjacent unit to produce basket weave pattern. Allow minimum 1/2 full size tile width at room or area perimeter.
- G. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
- H. Install edge strips at unprotected or exposed edges, and where flooring terminates.
- I. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- J. Install flooring in pan type floor access covers. Maintain floor pattern.
- K. Install flooring under movable partitions without interrupting floor pattern.
- L. Fit joints of base tight and vertical. Install full length pieces from adjoining walls, offsets, or openings.
- M. Miter internal corners of base. At external corners, use pre-molded units. At exposed ends use pre-molded units.
- N. Install base on solid backing. Bond tight to wall and floor surfaces.
- O. Scribe and fit to door frames and other interruptions.
- P. Adhere over entire surface. Fit accurately and securely.

3.04 PROTECTION

- A. Prohibit traffic on floor finish for 48 hours after installation.

3.05 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.

END OF SECTION

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SECTION 09 6723

RESINOUS FLOORING

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 one resinous flooring system, one with epoxy body.

- 1. Application Method: Squeegee, screed, and broadcast flake.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Verification: For each resinous flooring system required, 6 inches (150 mm) square, applied to a rigid backing by Installer for this Project.
- C. Product Schedule: Use resinous flooring designations indicated in Part 2 and room designations indicated on Drawings in product schedule.
- D. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- E. Maintenance Data: For resinous flooring to include in maintenance manuals.
- F. Provide submittals per Division I.

1.04 QUALITY ASSURANCE

- A. No request for substitution shall be considered that would change the generic type of floor system specified (i.e. epoxy based flake broadcast with mortar coat). Equivalent materials of other manufactures may be substituted only on approval of Architect or Engineer. Request for substitution will only be considered only if submitted 10 days prior to bid date. Request will be subject to specification requirements described in this section.
- B. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
 - 1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

2. Contractor shall have completed at least 10 projects of similar size and complexity.
- C. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- D. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
 1. Field Technical Services Representatives shall be employed by the system manufacture to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.
- E. Pre-installation Conference:
 1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
 2. Attendance:
 - a. General Contractor
 - b. Architect/Owner's Representative.
 - c. Manufacturer/Installer's Representative.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.
- C. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.06 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
 1. Maintain material and substrate temperature between 65 and 85 deg F (18 and 30 deg C) during resinous flooring application and for not less than 24 hours after application.

- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.
- D. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring

1.07 WARRANTY

- A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of (1) full years from date of installation, or provide a joint and several warranty signed on a single document by material manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (1) full year from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

PART 2 - PRODUCTS

2.01 RESINOUS FLOORING

- A. Products: Subject to compliance with requirements:
 - 1. SikaFloor; Basis of Design : DecoFlake Resinous Flooring System
- B. System Characteristics:
 - 1. Color and Pattern: Select from manufactures standards
 - 2. Wearing Surface: Standard
 - 3. Integral Cove Base: Refer to detail drawings.
 - 4. System Thickness: 2.5 mm
- C. System Components: Manufacturer's standard components that are compatible with each other and as follows:
 - 1. Primer: Two-part epoxy resin for priming and leveling mortars with the following properties:
 - a. Material Basis: Mitigation Primer
 - b. Resin: Epoxy
 - c. Formulation Description: (2) two component 100 percent solids.
 - d. Application Method: Squeegee and roller.
 - e. Number of Coats: (2) two.
 - 2. Body Coat(s): Material Basis: Pigmented two-part low viscosity, self-priming, epoxy coating binder in color.
 - a. Resin: Epoxy.
 - b. Formulation Description: (3) three component solvent free epoxy.
 - c. Application Method: Notched squeegee.
 - 1) Thickness of Coats: 1/8"
 - 2) Number of Coats: (1) One.

3. Broadcast: Vinyl Decorative Flakes
4. Sealer Coat: Material Basis: Low odor 100% solids epoxy resin coating system primarily designed to high build coatings and decorative quartz & flake application.
 - a. Formulation Description: Decorative flake (1/32", 1/16", or 1/4 size)
 - b. Type: Tweed (chips to be mixed in Mfg. facility)
 - c. Finish: Broadcast to rejection.
 - d. Number of Coats: as recommended by manufacture.

Note: Components listed above are the basis of design intent; all bids will be compared to this standard including resin chemistry, color, wearing surface, thickness, and installation procedures, including number of coats. Contractor shall be required to comply with all the requirements of the Specifications and all of the components required by the Specifications, whether or not such products are specifically listed above.

2.02 ACCESSORY MATERIALS

- A. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated. No Single component or cementitious materials.
- B. Cove Base Radius: For solid radius integral cove base, resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.
- C. Waterproof Membrane: Where directed, type recommended by manufacturer for substrate and primer and body coats indicated.
- D. Moisture Mitigation: Provide moisture mitigating epoxy primer recommended and produced by resinous flooring manufacturer.
- E. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated.

PART 3 - EXECUTION

3.01 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
 1. Mechanically prepare substrates as follows:
 - a. Mechanically prepare with the use of Diamond grinding equipment to provide surface sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring. Or,

- b. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - c. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
- 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.
- 3. Verify that concrete substrates are dry.
 - a. Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 80 percent.
 - b. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. of slab in 24 hours.
 - c. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- 4. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations.

3.02 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
 - a. Apply joint sealant to comply with manufacturer's written recommendations.

- B. Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates
- C. Broadcast: Immediately broadcast quartz silica aggregate into the primer using manufacturer's specially designed spray caster. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
- D. Integral Cove Base: To achieve integral radius, apply cove base mortar mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and top coating of cove base. Round internal and external corners. Refer to detail drawings.
 - 1. Integral radius at $\frac{3}{4}$ ".
- E. Body coat: Mix base material according to manufacturer's recommended procedures. Uniformly spread mixed material over previously primed substrate using manufacturer's installation tool. Roll material with strict adherence to manufacturer's installation procedures and coverage rates.
- F. Broadcast: Immediately broadcast decorative flakes into the body coat. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
- G. First Sealer: Remove excess un-bonded flakes by lightly brushing and vacuuming the floor surface. Mix and apply sealer with strict adherence to manufacturer's installation procedures.
- H. Second sealer: Lightly sand first sealer coat. Mix and apply second sealer coat with strict adherence to manufacturer's installation procedures.

3.03 TERMINATIONS

- A. Chase edges to "lock" the coating system into the concrete substrate along lines of termination.
- B. Penetration Treatment: Lap and seal coating onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.
- C. Trenches: Continue coating system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.
- D. Treat floor drains by chasing the coating to lock in place at point of termination.

3.04 JOINTS AND CRACKS

- A. Treat control joints to bridge potential cracks and to maintain monolithic protection.
- B. Treat cold joints and construction joints to bridge potential cracks and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.
- C. Discontinue floor coating system at vertical and horizontal contraction and expansion joints by installing backer rod and compatible sealant after coating

installation is completed. Provide sealant type recommended by manufacturer for traffic conditions and chemical exposures to be encountered.

3.05 FIELD QUALITY CONTROL

- A. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.
 - 1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
 - 3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

3.06 CLEANING, PROTECTING, AND CURING

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.
- B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- C. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer

END OF SECTION

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SECTION 31 3421

GEOTEXTILE

PART 1 GENERAL

1.01 DESCRIPTION

- A. This work shall consist of furnishing and installing geotextile separation fabric in accordance with these specifications and in reasonable close conformity with the lines, grades and dimensions shown on the plans.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with all requirements.
 - 1. Tecate Mirafi 160N nonwoven geotextile.
 - 2. Substitutions under provisions of Division 1.

PART 3 EXECUTION

3.01 GENERAL

- A. The contractor shall be responsible for obtaining the geotextile materials and associated components that meet all requirements of the Specification.

3.02 BASE COURSE GEOTEXTILE SEPARATION FABRIC

- A. The geotextile separation fabric is a needle punched nonwoven geotextile composed of polypropylene fibers which are formed into a stable network such that the fibers retain their relative position.
- B. The fabric is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.
- C. Mirafi 160N meets AASHTO M288-06 Class 2 for elongation >50%.

3.03 INSTALLATION

- A. Install fabric over existing subsoils and under new stone base in asphalt paved areas per the manufacturer's specifications and as shown on the drawings.

END OF SECTION

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SECTION 32 1216

ASPHALT PAVING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Asphalt concrete pavement as shown on the Drawings and specified herein, including the base course.

1.02 QUALITY ASSURANCE

- A. Pavement shall comply with applicable sections of the Indiana Department of Highways Standard Specifications also referred to herein as the State Specifications.
- B. Paving shall comply with all laws, rules and regulations of governmental authorities having jurisdiction over such work.
- C. Sampling, inspection and testing shall be in accordance with the applicable standards of the ASTM or AASHTO.

1.03 TESTING SERVICES

- A. The testing laboratory will be responsible for conducting and interpreting tests, state in each report whether or not the test specimens conform to all requirements of the Contract Documents and specifically note any deviation therefrom.
- B. General requirements and specific test and inspection requirements shall be as specified herein.

1.04 SUBMITTALS

- A. Submit the following:
 - 1. Mix Designs: Furnish mix designs and supporting test data for asphaltic mixtures.

1.05 TEST REPORTS

- A. The following tests shall be performed:
 - 1. Compaction test of subgrade.
 - 2. Compaction test of stone base.
 - 3. Test each 200 tons of hot asphaltic concrete material for determination of composition and quality in accordance with IDOH Standard Specifications.
 - 4. Test surface course and base course of asphalt.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All areas designated to receive stone shall receive Indiana #53 (1-1/2 in. to dust) limestone and/or #2 limestone compacted in place as called for in thicknesses on the drawings.
- B. Composition limits for asphalt paving mixtures shall meet the following state specifications in thicknesses as called for on the drawings.
1. Composition limits for surface course mixture shall comply with Indiana State Specifications Mixture #11 as listed below.

Sieve Size	Percent of Aggregates Passing Sieves
	Mixture
	#11
12.5 mm (1/2 in.)	100
9.5 mm (3/8 in.)	85-98
4.75 mm (No. 4)	62±5
2.36 mm (No. 8)	31-62
1.18 mm (No. 16)	17-50
600 µm (No. 30)	8-37
300 µm (No. 50)	3-25
150 µm (No. 100)	0-14
75 µm (No. 200)	0-4
Percent of Bitumen	5.5-7.0
Percent of Moisture, Max.	0.3

2. Composition limits for binder course mixture shall meet with Indiana State Specifications Mixture #9 as listed below.

Sieve Size	Percent of Aggregates Passing Sieves
	Mixture
	#9
19.0 mm (3/4 in.)	100
12.5 mm (1/2 in.)	70-92
9.5 mm (3/8 in.)	50-75
4.75 mm (No. 4)	40±5
2.36 mm (No. 8)	18-45
1.18 mm (No. 16)	10-36
600 µm (No. 30)	6-26
300 µm (No. 50)	2-18
150 µm (No. 100)	0-11
75 µm (No. 200)	0-4
Percent of Bitumen	4.3-5.4
Percent of Moisture, Max.	0.5

- C. Asphalt Cement: ASTM D 946, Grade 85 - 100.
- D. Asphalt Emulsion: For prime and tack coats, in accordance with State Specifications.

2.02 MIXING ASPHALT CONCRETE

- A. Mix asphalt base course and surface course thoroughly to uniform mixtures in batch or other suitable mixer.
- B. In mixing the materials for the asphalt base and surface courses, the asphalt used shall be at such a temperature that it will be workable. Provide means for determining the temperature of the asphalt at frequent intervals in order to prevent overheating or damage. Agitate asphalt heated in open kettles or tanks continuously to prevent localized heating. Take precaution to avoid danger of fire.
- C. The gradation and composition limits specified herein are the permissible ranges for general use of the Work. Variations to permit the use of locally available graded aggregate commonly used for the type of construction specified will be considered on submission to the Architect of a complete description of the proposed materials.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prepare subgrade for base course. The subgrade shall not vary more than one inch from the respective grades shown on the Drawings. Test subgrade for compaction. Subgrade must be graded to drain without bird baths greater than 1/2" in depth.
- B. Asphaltic mixture shall not be placed when the air temperature in the shade is below 50 degrees F. or if a drop below such temperature or rain within the next 24 hours is indicated.
- C. Thoroughly compact subgrade by means of rolling, tamping or any other methods approved by the Architect or as recommended in the soil boring report to produce stability and to properly compact. Remove all spongy materials and other unsuitable materials and replace with good materials well compacted. No further settlement is to occur after compaction of subgrade.
- D. Subgrade final grading shall be surveyed by the Owner's independent surveyor prior to placement of stone base to verify accordance of Construction Documents.
- E. Subgrade and aggregate base course shall be compacted in accordance with State Specifications and to the densities specified in Section 02200. Upon completion of compaction, the compacted aggregate base shall have a minimum thickness as specified on Drawings, shall be thoroughly compacted, reasonably smooth, and conforming to required lines and grades.

3.02 PLACING STONE AGGREGATE BASE COURSE

- A. Apply the aggregate base course over the prepared subgrade. Each course shall consist of crushed stone, spread uniformly and shall be so handled that there will be no segregation of fine or coarse particles. The crushed stone shall be rolled, lapping each preceding track until the stone does not creep or wave ahead of the roller.
- B. After the crushed stone has been thoroughly rolled and keyed, stone screenings shall be added during the finishing process of dry rolling in such amounts as will completely fill all voids, but not in such amounts as will cake or bridge on the surface of the aggregate and prevent the complete filling of voids. The screenings shall be swept in with hand brooms to properly fill voids.

- C. After the voids have been filled with the screenings, the base course shall be saturated with water and rolling continued with the addition of screening and water as required until all voids are compacted course. All rolling shall be done with a roller weighing 8 to 10 tons. The surface shall be checked with a 10 ft. straightedge. Any variation exceeding 3/4 in. must be corrected by loosening the crushed stone and adding or removing sufficient stone to eliminate the irregularities.
- D. Stone base final grading shall be surveyed by the Owner's independent surveyor prior to placement of stone base to verify accordance with Construction Documents.
- E. Test aggregate base for compaction.
- F. Minimum Thicknesses: Regardless of the consistency of the subgrade the stone base shall have minimum thicknesses as called for on the drawings.

3.03 TACK COAT

- A. Apply a tack coat to the asphalt base or binder course. Apply tack coat at rate of 0.05 to 0.15 gal./sq. yd. Traffic shall not be allowed upon the primed surface at any time during the curing.

3.04 PLACING ASPHALTIC BINDER AND SURFACE COURSE

- A. Spread asphaltic concrete binder and surface course without segregation at the specified rate and to the cross-section shown. The temperature at the time of placement shall be between 225 degrees F. and 325 degrees F. Spread all mixtures by means of a mechanical self-powered paver, except in locations inaccessible to such equipment, in which case use hand methods. When hand methods are used, spread the mixture on the area to be paved, after which it shall be immediately distributed to the proper cross-section.
- B. The paver shall employ mechanical devices such as equalizing runners, straightedge runners, even arms or other compensating devices to ensure placement of the mixture to true grades and to confine the edges of the mixture to true lines without the use of side forms. The paver shall be capable of spreading the mixture in thicknesses varying from 3/4 in. to 3 in. and in widths up to 12 ft. Oil or distillate shall not be used on rolls which are a part of the spreading equipment.
- C. Paint the contract surface of curbs or other fixed structures with a thin, uniform coat of liquid bituminous material just before any bituminous mixture is placed against them.
- D. Where curbs do not exist, slope the edges of the base course to the pavement center at approximately thirty degrees from the vertical and the edges of the top surface approximately two inches (2") outside of the edge of the next succeeding course.
- E. After the mixture has been spread as required, roll the surface longitudinally. Start rolling at the edges and progress toward the center. Roll entire surface two or three times until there is not further compaction and until all roller marks are eliminated. Final roll by one passage of the roller along each edge of the pavement.
- F. Minimum Thicknesses: Regardless of the consistency of the grade of the stone base the binder course and surface course shall have minimum thicknesses as called for on the drawings.

- G. Tolerances of Finished Pavement: Check tolerances of finished pavements with a ten foot (10'-0") straightedge and a crown template. Correct any variations in excess of one-fourth inch (1/4") in ten feet and re-roll. These tolerances refer to uniform sections of pavement between intersections or other items of construction. At required places, pavement should be shaped to provide proper drainage to inlets and for a smooth riding surface. Loose aggregate at the surface shall not be acceptable.

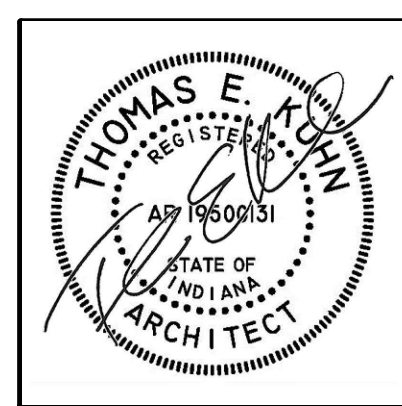
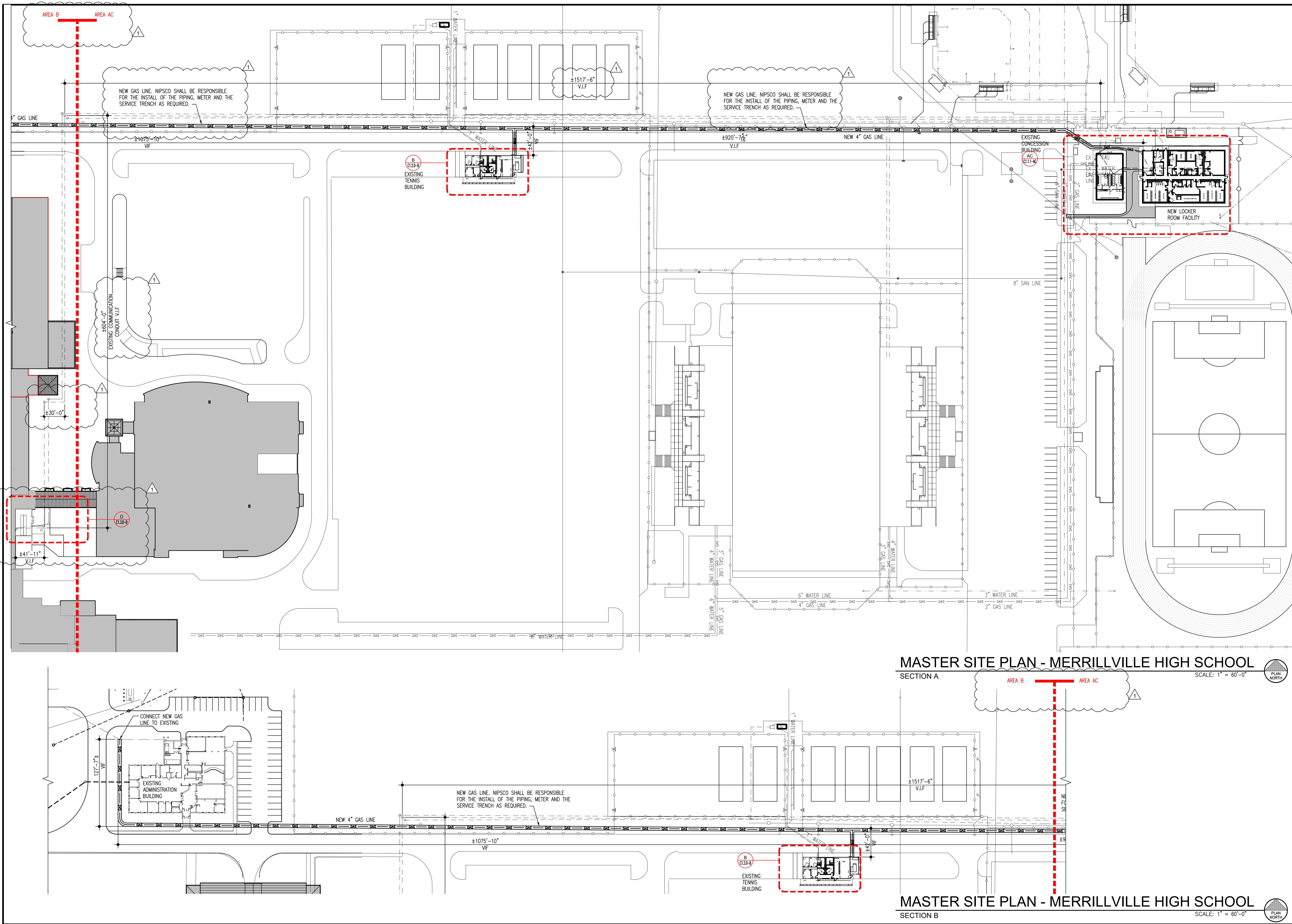
3.05 FIELD QUALITY CONTROL

- A. As directed by the Architect, the Owner will employ and pay for the services of an independent testing laboratory which shall make tests according to State Specifications.
- B. As directed by the Architect, the Owner will employ and pay for the services of an independent surveyor which shall make tests according to State Specifications.

END OF SECTION

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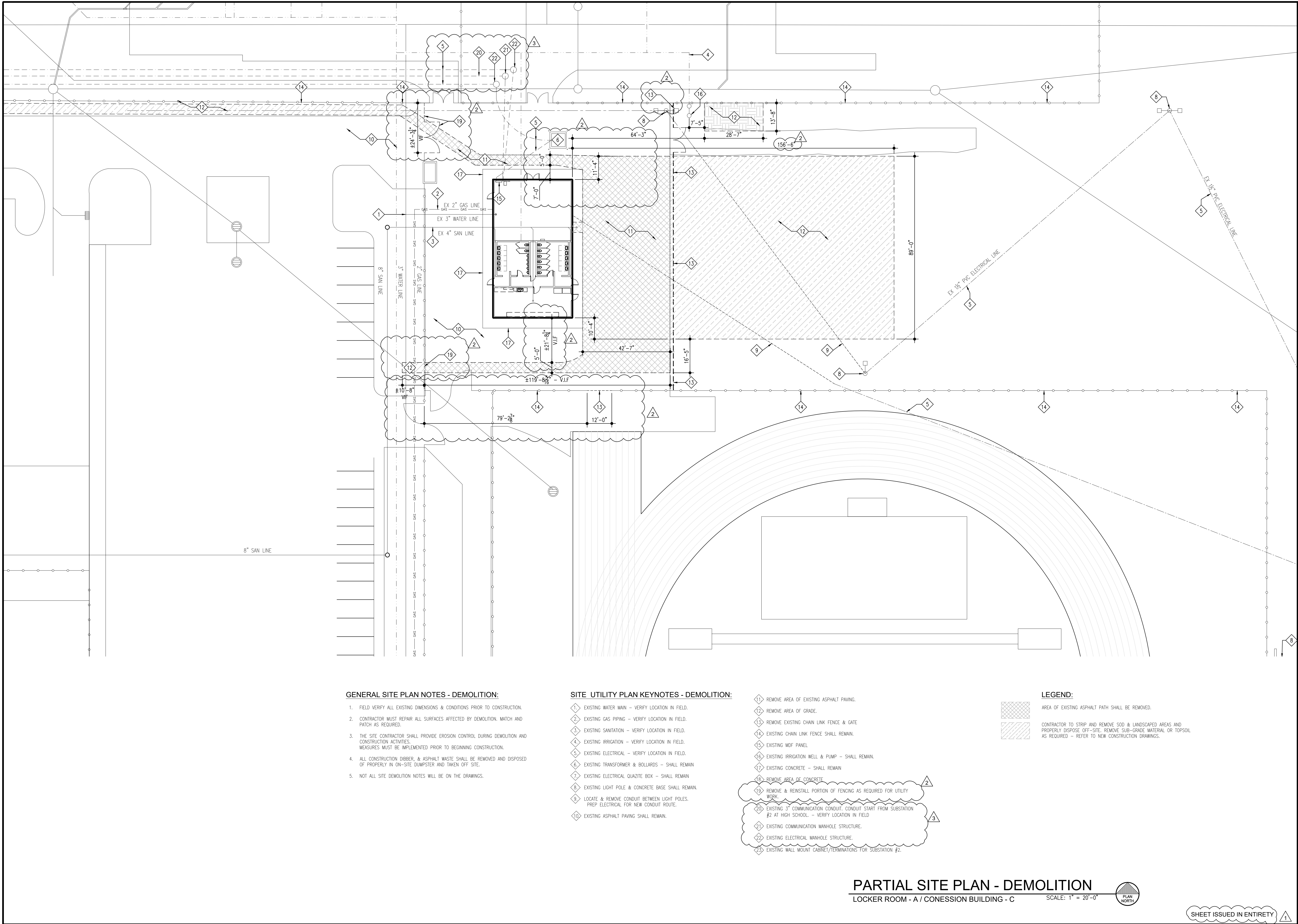
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GENERAL SITE PLAN NOTES - DEMOLITION:

1. FIELD VERIFY ALL EXISTING DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION.
2. CONTRACTOR MUST REPAIR ALL SURFACES AFFECTED BY DEMOLITION, MATCH AND PATCH AS REQUIRED.
3. THE SITE CONTRACTOR SHALL PROVIDE EROSION CONTROL DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. MEASURES MUST BE IMPLEMENTED PRIOR TO BEGINNING CONSTRUCTION.
4. ALL CONSTRUCTION DIBBER, & ASPHALT WASTE SHALL BE REMOVED AND DISPOSED OF PROPERLY IN ON-SITE DUMPSTER AND TAKEN OFF SITE.
5. NOT ALL SITE DEMOLITION NOTES WILL BE ON THE DRAWINGS.

SITE UTILITY PLAN KEYNOTES - DEMOLITION:

1. EXISTING WATER MAIN - VERIFY LOCATION IN FIELD.
2. EXISTING GAS PIPING - VERIFY LOCATION IN FIELD.
3. EXISTING SANITATION - VERIFY LOCATION IN FIELD.
4. EXISTING IRRIGATION - VERIFY LOCATION IN FIELD.
5. EXISTING ELECTRICAL - VERIFY LOCATION IN FIELD.
6. EXISTING TRANSFORMER & BOLLARDS - SHALL REMAIN
7. EXISTING ELECTRICAL QUARTZITE BOX - SHALL REMAIN
8. EXISTING LIGHT POLE & CONCRETE BASE SHALL REMAIN.
9. LOCATE & REMOVE CONDUIT BETWEEN LIGHT POLES. PREP ELECTRICAL FOR NEW CONDUIT ROUTE.
10. EXISTING ASPHALT PAVING SHALL REMAIN.

11. REMOVE AREA OF EXISTING ASPHALT PAVING.
12. REMOVE AREA OF GRADE.
13. REMOVE EXISTING CHAIN LINK FENCE & GATE.
14. EXISTING CHAIN LINK FENCE SHALL REMAIN.
15. EXISTING MDF PANEL.
16. EXISTING IRRIGATION WELL & PUMP - SHALL REMAIN.
17. EXISTING CONCRETE - SHALL REMAIN
18. REMOVE AREA OF CONCRETE

19. REMOVE & REINSTALL PORTION OF FENCING AS REQUIRED FOR UTILITY WORK.
20. EXISTING 3" COMMUNICATION CONDUIT. CONDUIT START FROM SUBSTATION #2 AT HIGH SCHOOL. - VERIFY LOCATION IN FIELD.
21. EXISTING COMMUNICATION MANHOLE STRUCTURE.
22. EXISTING ELECTRICAL MANHOLE STRUCTURE.
23. EXISTING WALL MOUNT CABINET/TERMINATIONS FOR SUBSTATION #2.

LEGEND:

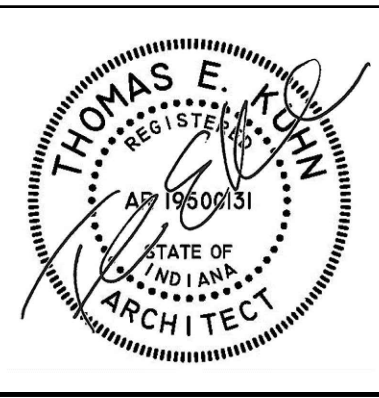
- AREA OF EXISTING ASPHALT PATH SHALL BE REMOVED.
- CONTRACTOR TO STRIP AND REMOVE SOD & LANDSCAPED AREAS AND PROPERLY DISPOSE OFF-SITE. REMOVE SUB-GRADE MATERIAL OR TOPSOIL AS REQUIRED - REFER TO NEW CONSTRUCTION DRAWINGS.

PARTIAL SITE PLAN - DEMOLITION
LOCKER ROOM - A / COESSION BUILDING - C

SCALE: 1" = 20'-0"



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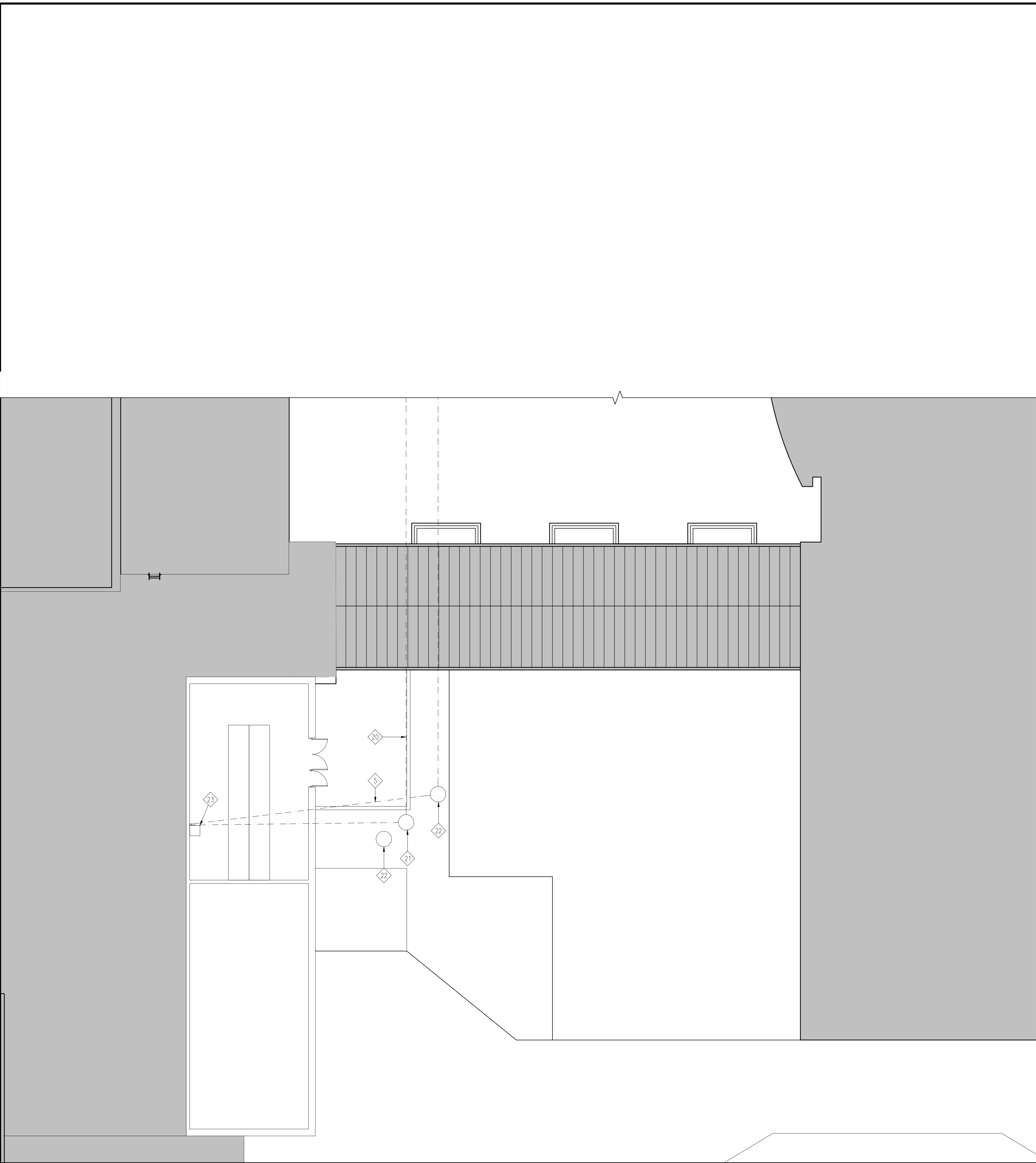
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GENERAL SITE PLAN NOTES - DEMOLITION:

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4. ALL CONSTRUCTION DIBBER, & ASPHALT WASTE SHALL BE REMOVED AND DISPOSED OF PROPERLY IN ON-SITE DUMPSTER AND TAKEN OFF SITE.
5. NOT ALL SITE DEMOLITION NOTES WILL BE ON THE DRAWINGS.

SITE UTILITY PLAN KEYNOTES - DEMOLITION:

- | | |
|--|---|
| 1. EXISTING WATER MAIN - VERIFY LOCATION IN FIELD. | 11. REMOVE AREA OF EXISTING ASPHALT PAVING. |
| 2. EXISTING GAS PIPING - VERIFY LOCATION IN FIELD. | 12. REMOVE AREA OF GRADE. |
| 3. EXISTING SANITATION - VERIFY LOCATION IN FIELD. | 13. REMOVE EXISTING CHAIN LINK FENCE & GATE. |
| 4. EXISTING IRRIGATION - VERIFY LOCATION IN FIELD. | 14. EXISTING CHAIN LINK FENCE SHALL REMAIN. |
| 5. EXISTING ELECTRICAL - VERIFY LOCATION IN FIELD. | 15. EXISTING MDF PANEL. |
| 6. EXISTING TRANSFORMER & BOLLARDS - SHALL REMAIN. | 16. EXISTING IRRIGATION WELL & PUMP - SHALL REMAIN. |
| 7. EXISTING ELECTRICAL QUARTZITE BOX - SHALL REMAIN. | 17. EXISTING CONCRETE - SHALL REMAIN. |
| 8. EXISTING LIGHT POLE & CONCRETE BASE SHALL REMAIN. | 18. REMOVE AREA OF CONCRETE. |
| 9. LOCATE & REMOVE CONDUIT BETWEEN LIGHT POLES. PREP ELECTRICAL FOR NEW CONDUIT ROUTE. | 19. REMOVE & REINSTALL PORTION OF FENCING AS REQUIRED FOR UTILITY WORK. |
| 10. EXISTING ASPHALT PAVING SHALL REMAIN. | 20. EXISTING 3" COMMUNICATION CONDUIT. CONDUIT START FROM SUBSTATION #2 AT HIGH SCHOOL. - VERIFY LOCATION IN FIELD. |
| | 21. EXISTING COMMUNICATION MANHOLE STRUCTURE. |
| | 22. EXISTING ELECTRICAL MANHOLE STRUCTURE. |
| | 23. EXISTING WALL MOUNT CABINET/TERMINATIONS FOR SUBSTATION #2. |

LEGEND:

- | | |
|--|---|
| | AREA OF EXISTING ASPHALT PATH SHALL BE REMOVED. |
| | CONTRACTOR TO STRIP AND REMOVE SO2 & LANDSCAPED AREAS AND PROPERLY DISPOSE OFF-SITE. REMOVE SUB-GRADE MATERIAL OR TOPSOIL AS REQUIRED - REFER TO NEW CONSTRUCTION DRAWINGS. |

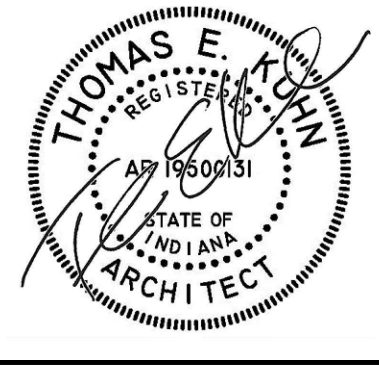
PARTIAL SITE PLAN - DEMOLITION

HIGH SCHOOL - SUBSTATION #2 - D

SCALE: 1" = 10'-0"



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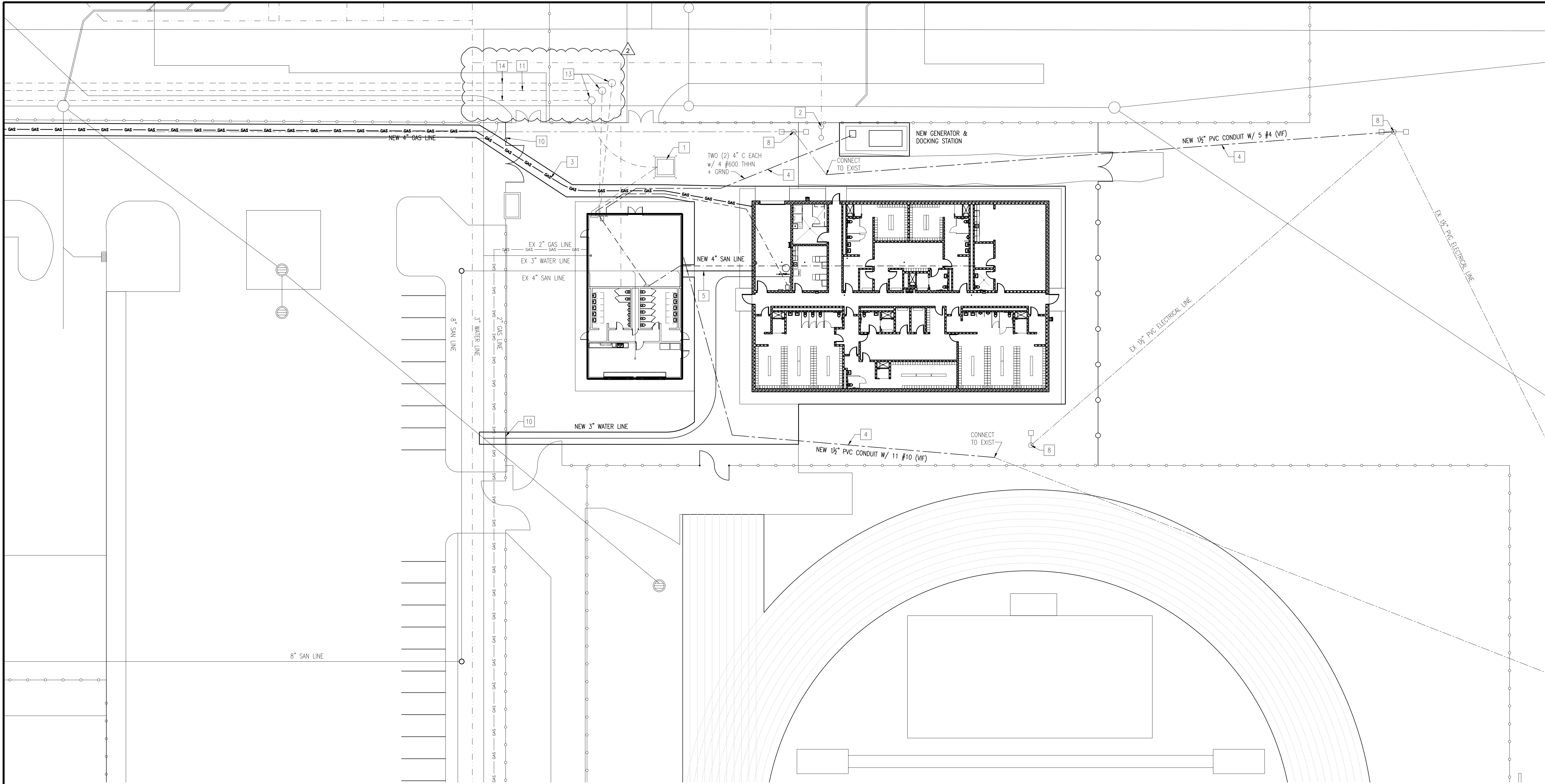
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GENERAL UTILITIES PLAN NOTES:

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4. CAD DRAWINGS WILL BE PROVIDED TO COORDINATE THE FINAL LOCATE OF BUILDINGS WITH THE SURVEYOR.
5. ALL OF THE KEY UTILITIES PLAN NEW CONSTRUCTION NOTES LISTED MAY NOT APPEAR ON EACH INDIVIDUAL NEW CONSTRUCTION PLAN.

KEY UTILITIES PLAN NOTES - NEW CONSTRUCTION

1. EXISTING TRANSFORMER & PAD - SHALL REMAIN
2. EXISTING WELL & PUMP - SHALL REMAIN.
3. NEW GAS LINE - SIZE NOTED ON DRAWING.
- GAS METER TO BE INSTALLED AT BUILDING.
4. NEW ELECTRICAL LINE - SIZE NOTED ON DRAWING.
5. NEW SANITATION LINE, CONNECT NEW TO EXISTING AT EXTERIOR CLEAN-OUT
- SIZE NOTED ON DRAWING.
6. NEW WATER MAIN - SIZE NOTED ON DRAWING. TAP INTO EXISTING.
7. INSTALL NEW WATER MAIN SHUT OFF VALVE & BUFFALO BOX
8. EXISTING LIGHT POLE
9. EXISTING ELECTRICAL MAIN QUAZITE BOX - SHALL REMAIN
10. REINSTALL EXISTING FENCING & GATE AFTER INSTALLING NEW UTILITIES.
11. PROVIDE NEW 12 STRAND SINGLE-MODE FIBER CABLE IN EXIST 3" CONDUIT. NEW FIBERS WILL START FROM NEW WALL MOUNT CABINET IN HIGH SCHOOL SUBSTATION 2, TO THE CONCESSION BUILDING, TERMINATE WITH LC CONNECTORS.
- REFER TO SHEET E1.1.0-C LIGHTING & DATA PLAN FOR MORE INFORMATION.
12. EXISTING WALL MOUNT CABINET AT HIGH SCHOOL SUBSTATION #2.
13. EXISTING ELECTRICAL/COMMUNICATION MANHOLE STRUCTURE.
14. EXISTING ELECTRICAL CONDUIT - SHALL REMAIN
15. PROVIDE NEW WALL MOUNT FIBER CABINET "HUBBELL" FTU45PT AT SUBSTATION #2.

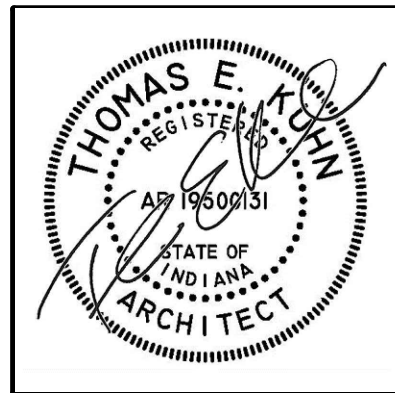
PARTIAL UTILITIES PLAN - NEW CONSTRUCTION

LOCKER ROOM FACILITY & CONCESSION - A&C

SCALE: 1" = 20'-0"



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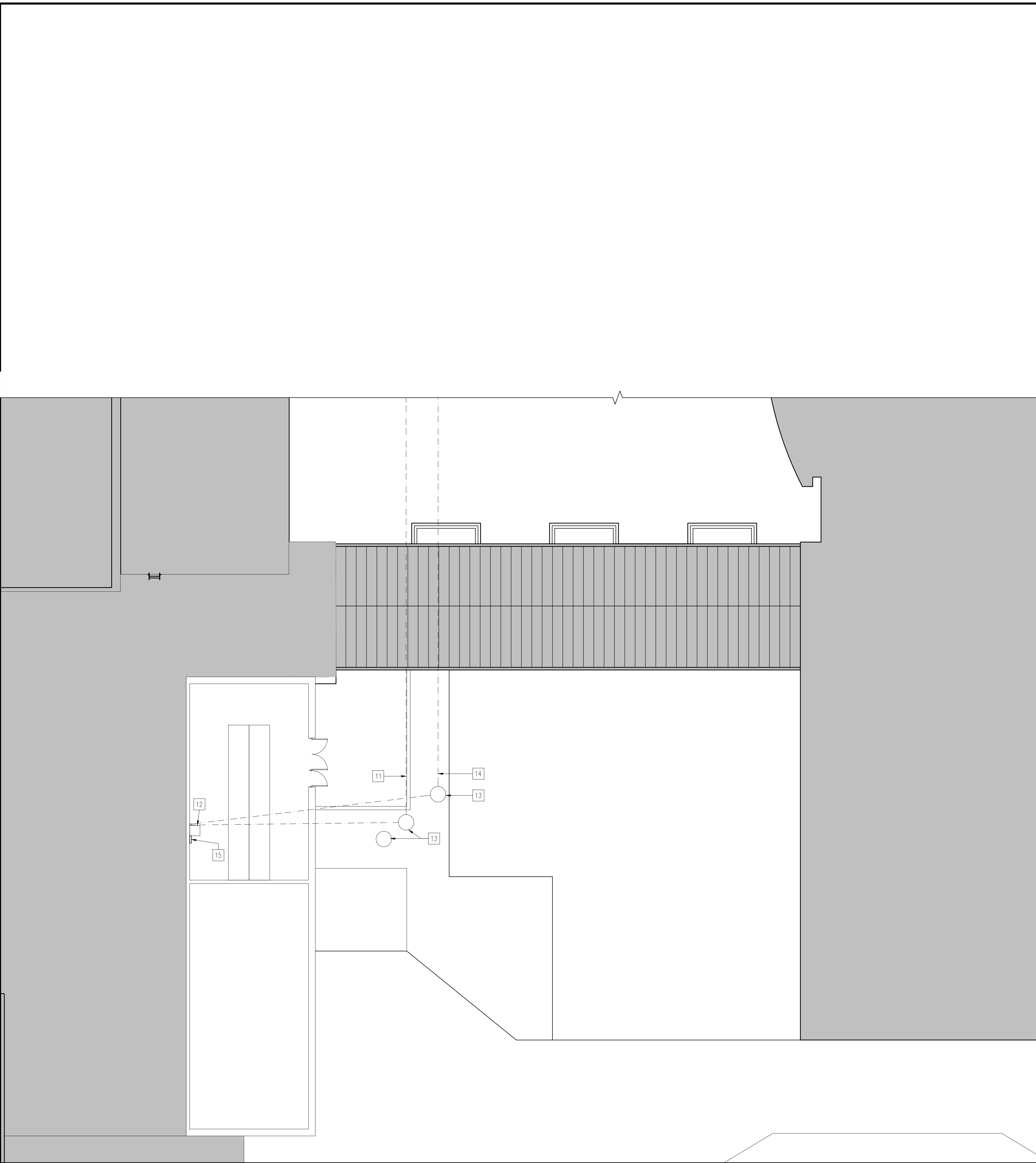
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GENERAL UTILITIES PLAN NOTES:

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KEY UTILITIES PLAN NOTES - NEW CONSTRUCTION

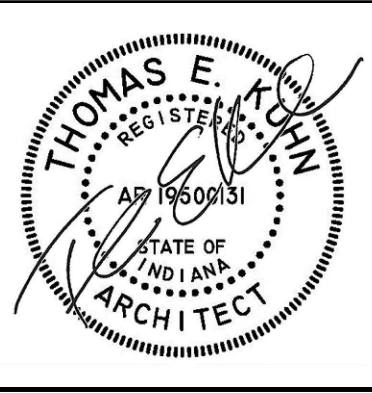
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3. NEW GAS LINE - SIZED NOTED ON DRAWING.
- GAS METER TO BE INSTALLED AT BUILDING.
4. NEW ELECTRICAL LINE - SIZE NOTED ON DRAWING.
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- SIZE NOTED ON DRAWING.
6. NEW WATER MAIN - SIZE NOTED ON DRAWING, TAP INTO EXISTING.
7. INSTALL NEW WATER MAIN SHUT OFF VALVE & BUFFALO BOX
8. EXISTING LIGHT POLE
9. EXISTING ELECTRICAL MAIN QUAZITE BOX - SHALL REMAIN
10. REINSTALL EXISTING FENCING & GATE AFTER INSTALLING NEW UTILITIES.
11. PROVIDE NEW 12 STRAND SINGLE-MODE FIBER CABLE IN EXIST 3" CONDUIT. NEW FIBERS WILL START FROM NEW WALL MOUNT CABINET IN HIGH SCHOOL SUBSTATION 2, TO THE CONCESSION BUILDING, TERMINATE WITH LC CONNECTORS.
- REFER TO SHEET E1.1.0-C LIGHTING & DATA PLAN FOR MORE INFORMATION.
12. EXISTING WALL MOUNT CABINET AT HIGH SCHOOL SUBSTATION #2.
13. EXISTING ELECTRICAL/COMMUNICATION MANHOLE STRUCTURE.
14. EXISTING ELECTRICAL CONDUIT - SHALL REMAIN
15. PROVIDE NEW WALL MOUNT FIBER CABINET "HUBBELL" FTU4SPT AT SUBSTATION #2.

PARTIAL SITE PLAN - NEW CONSTRUCTION
HIGH SCHOOL - SUBSTATION #2 - D

SCALE: 1" = 10'-0"



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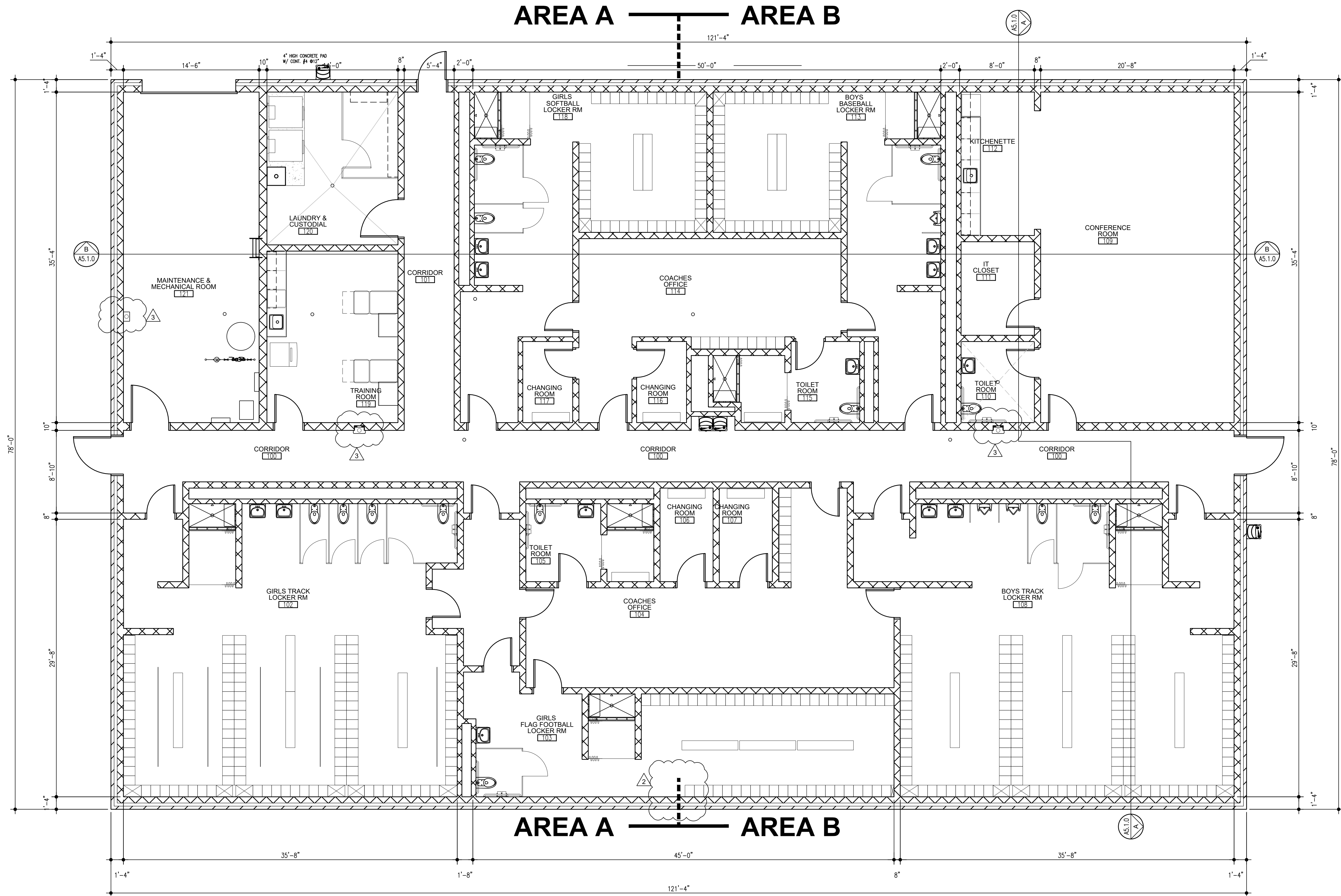
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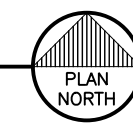
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FLOOR PLAN

SCALE: 3/16" = 1'-0"



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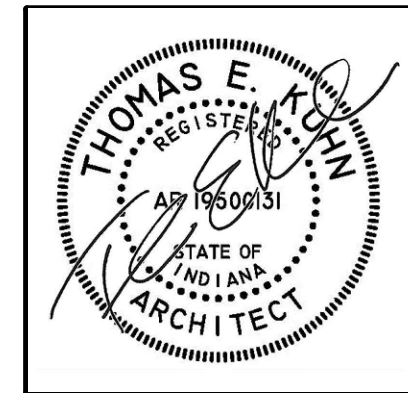
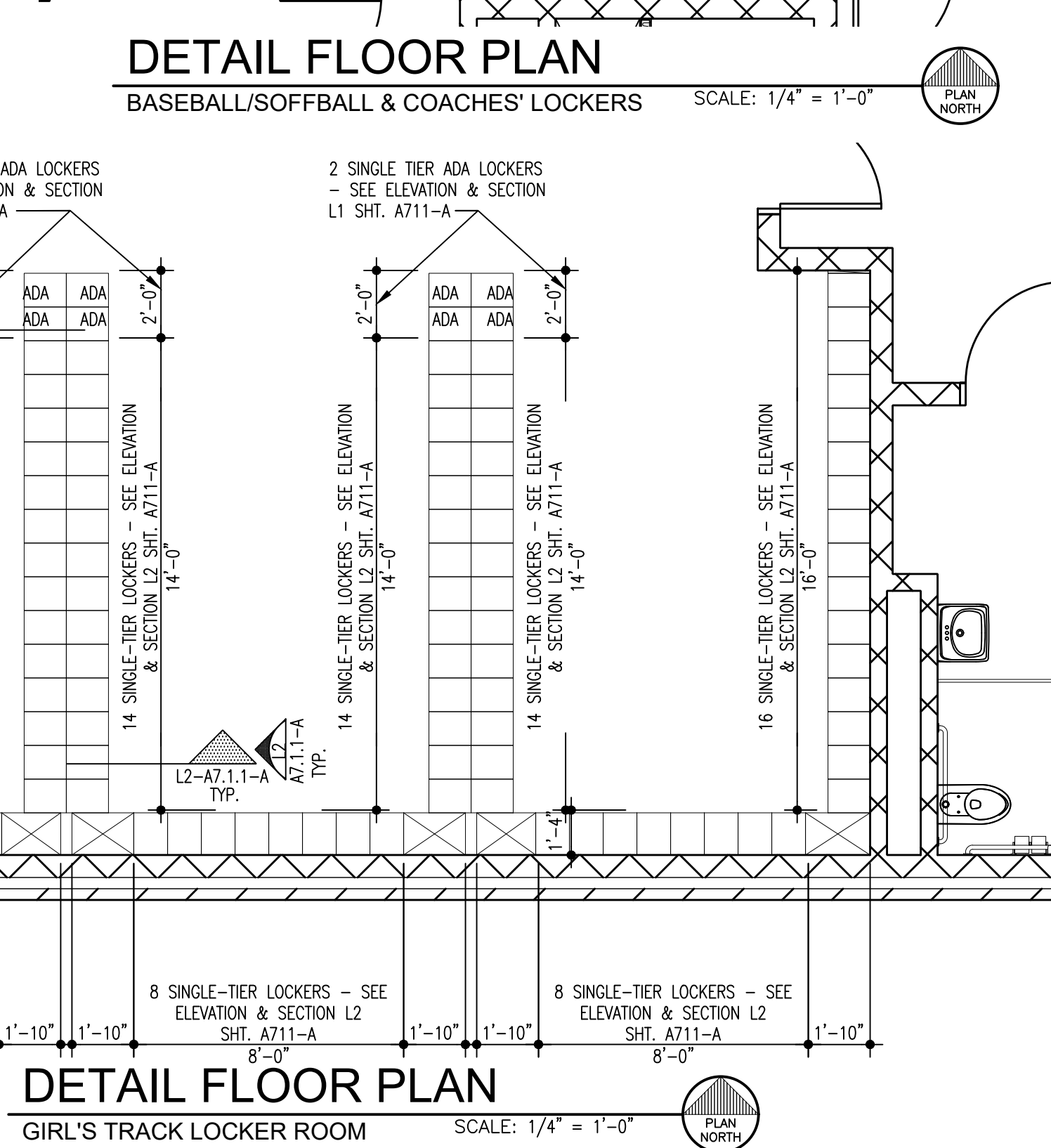
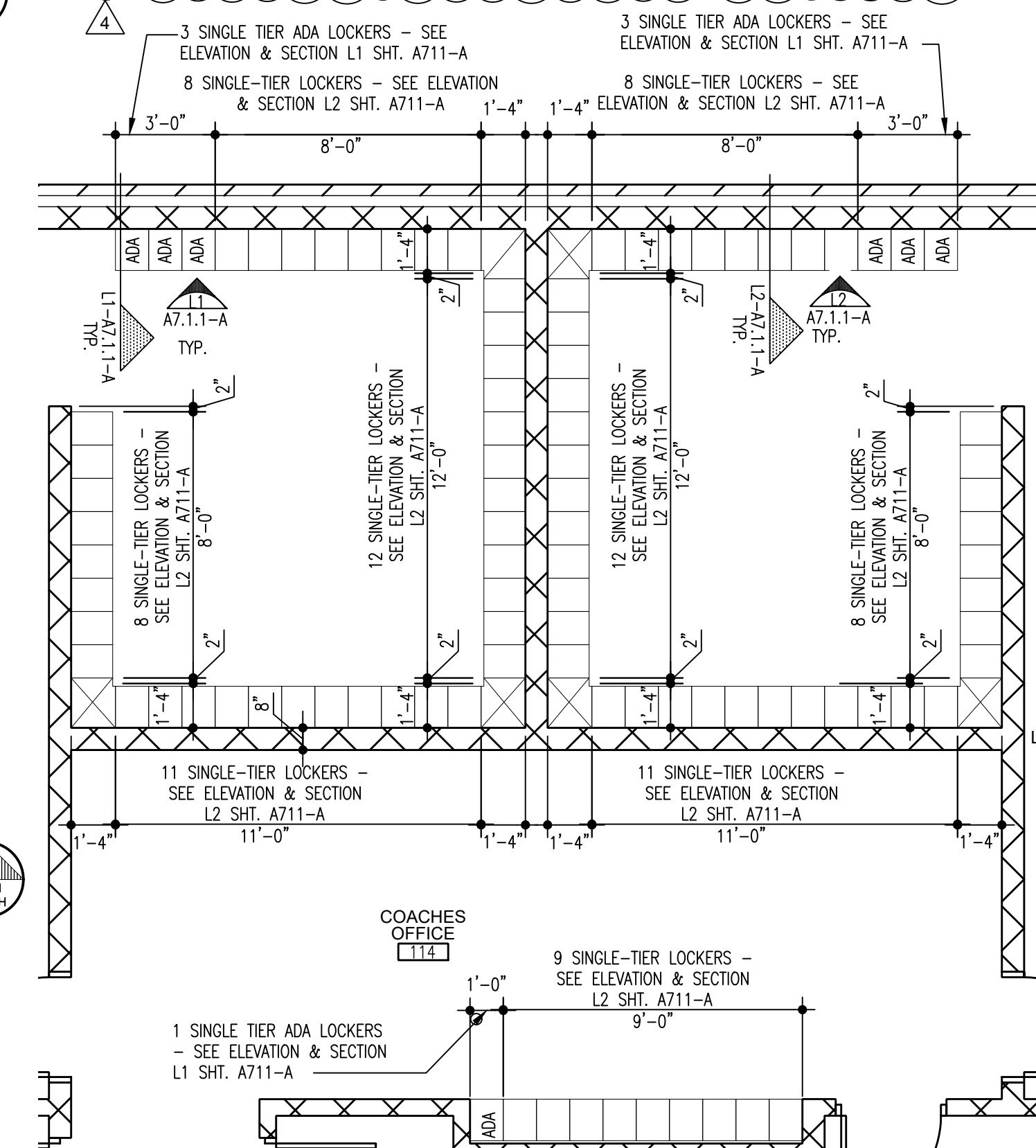
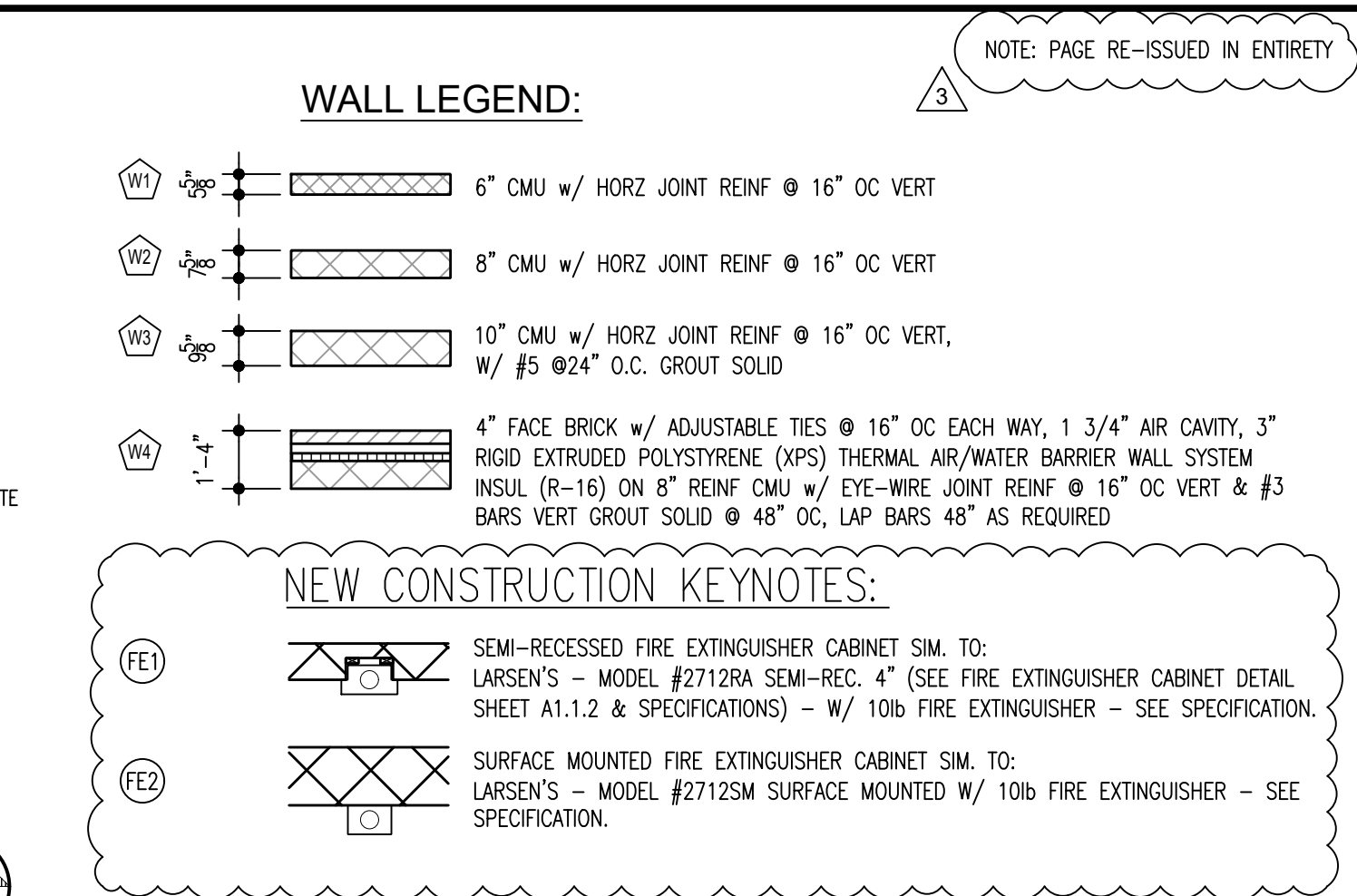
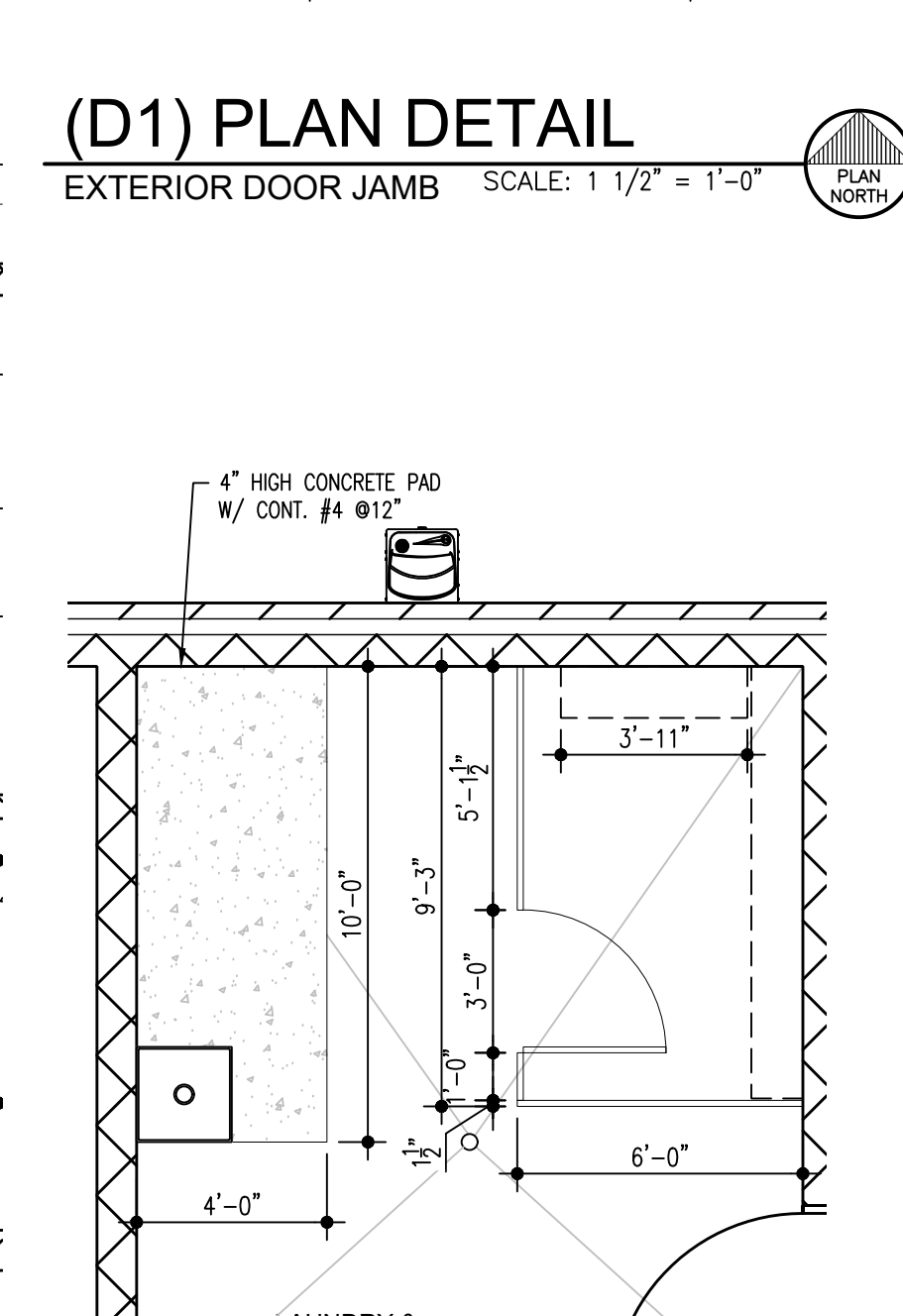
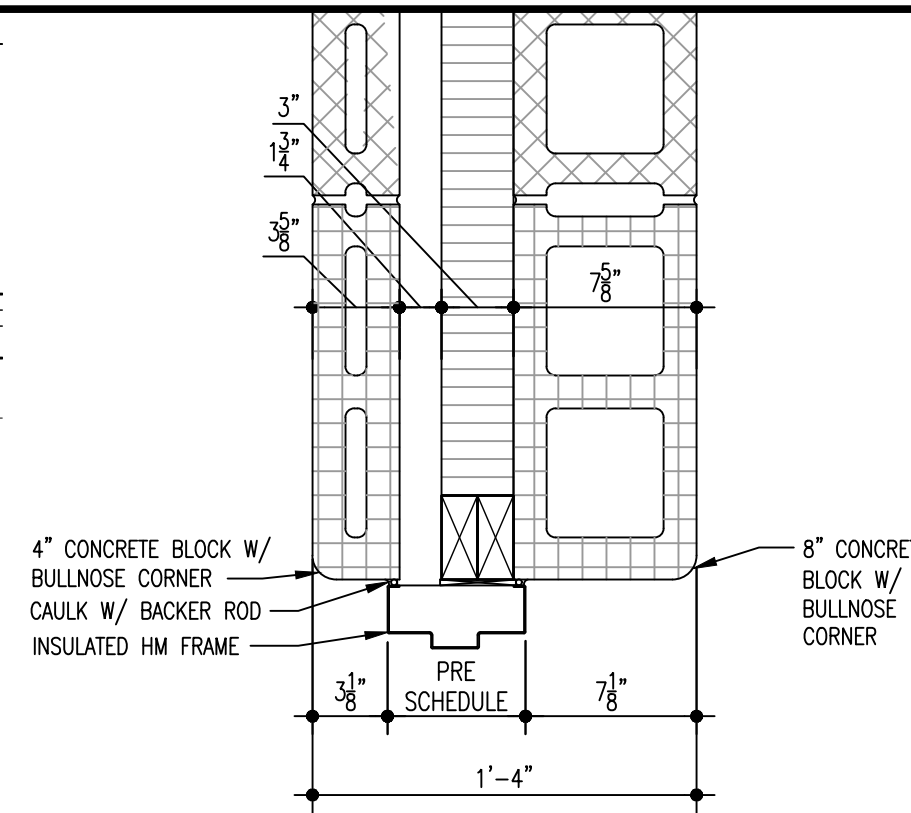
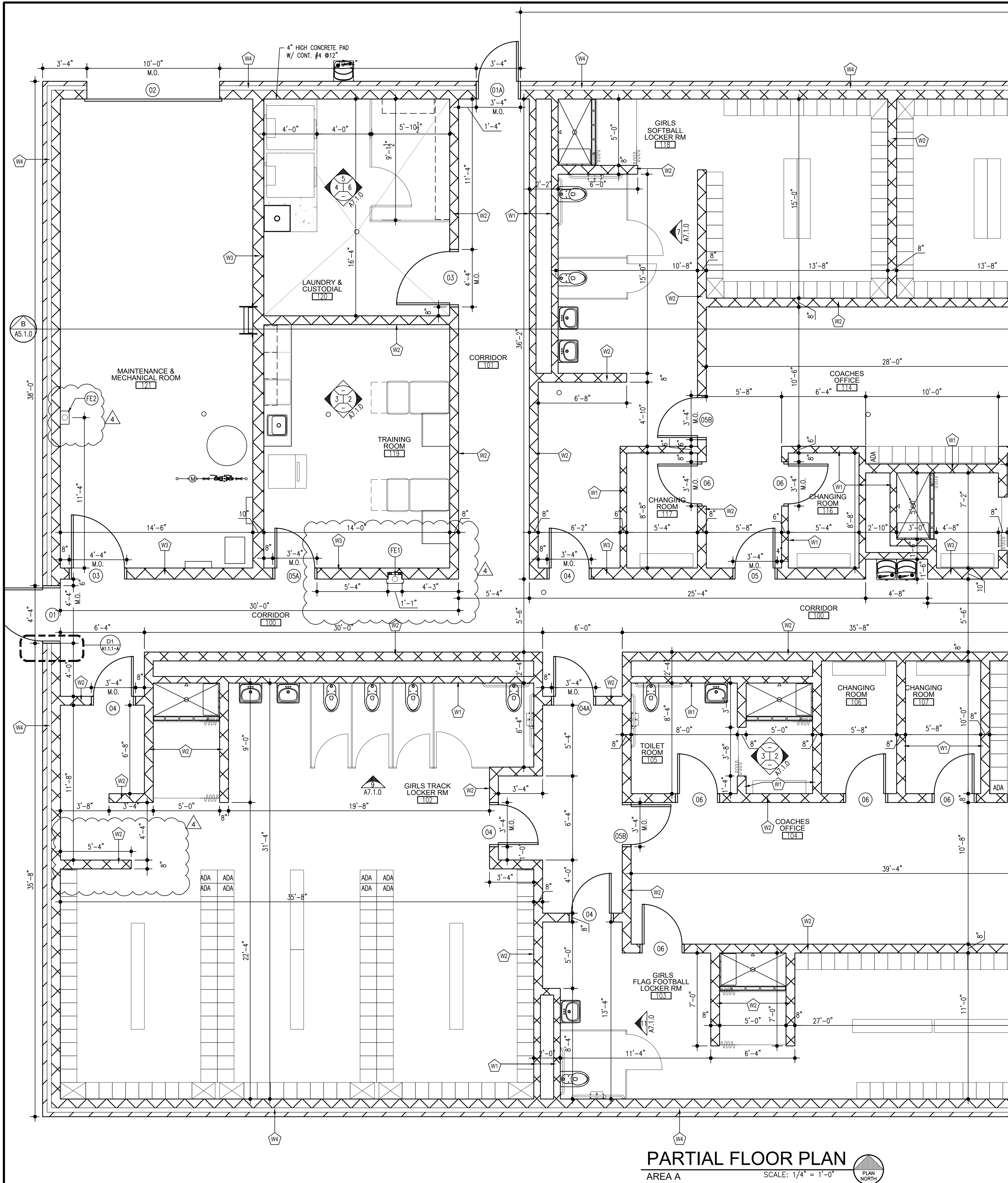
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10-07-2026
10-09-2026
10-14-2026 RE-ISSUE
10-16-2026 ADD #5

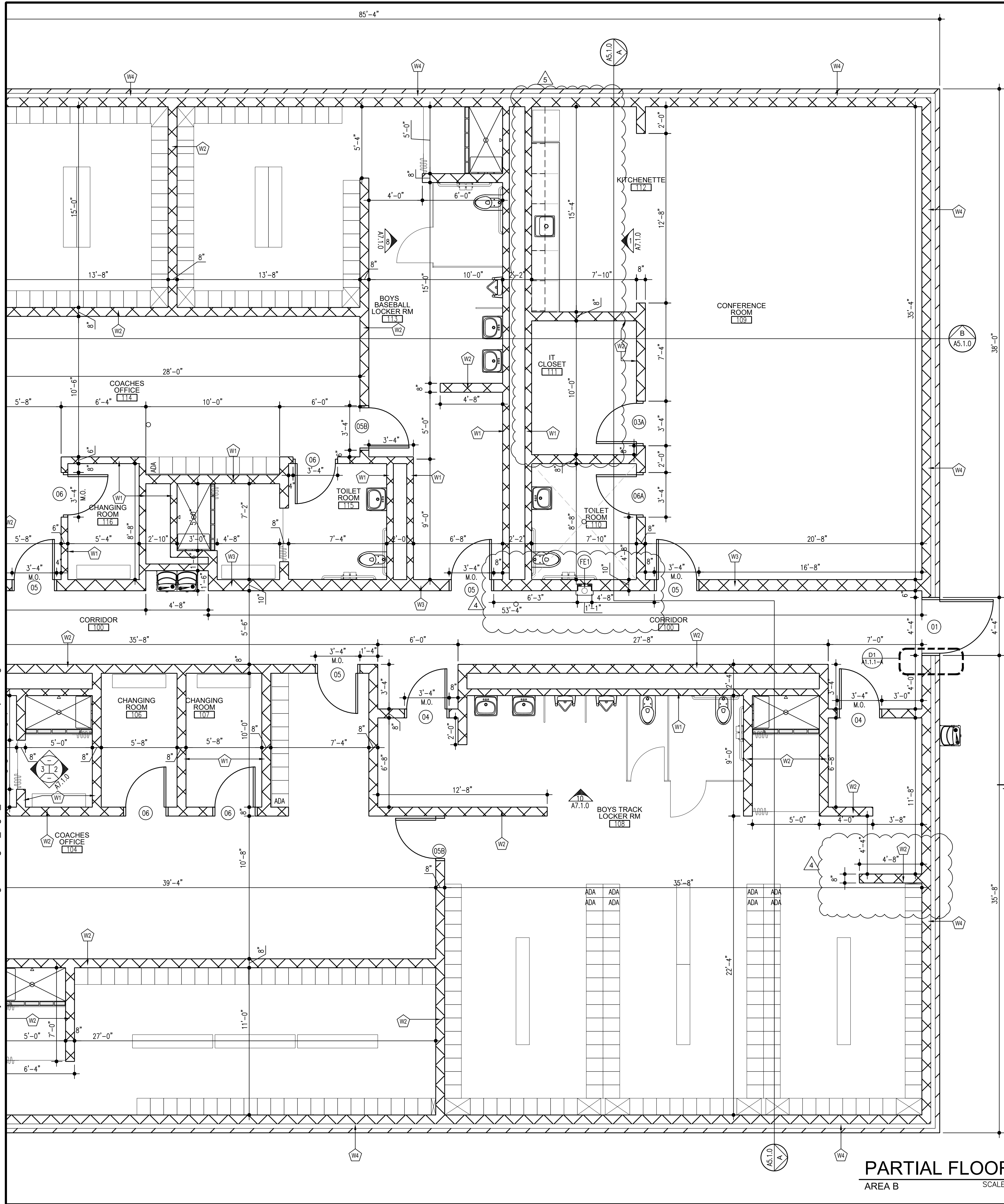
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PARTIAL FLOOR PLAN
AREA B

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

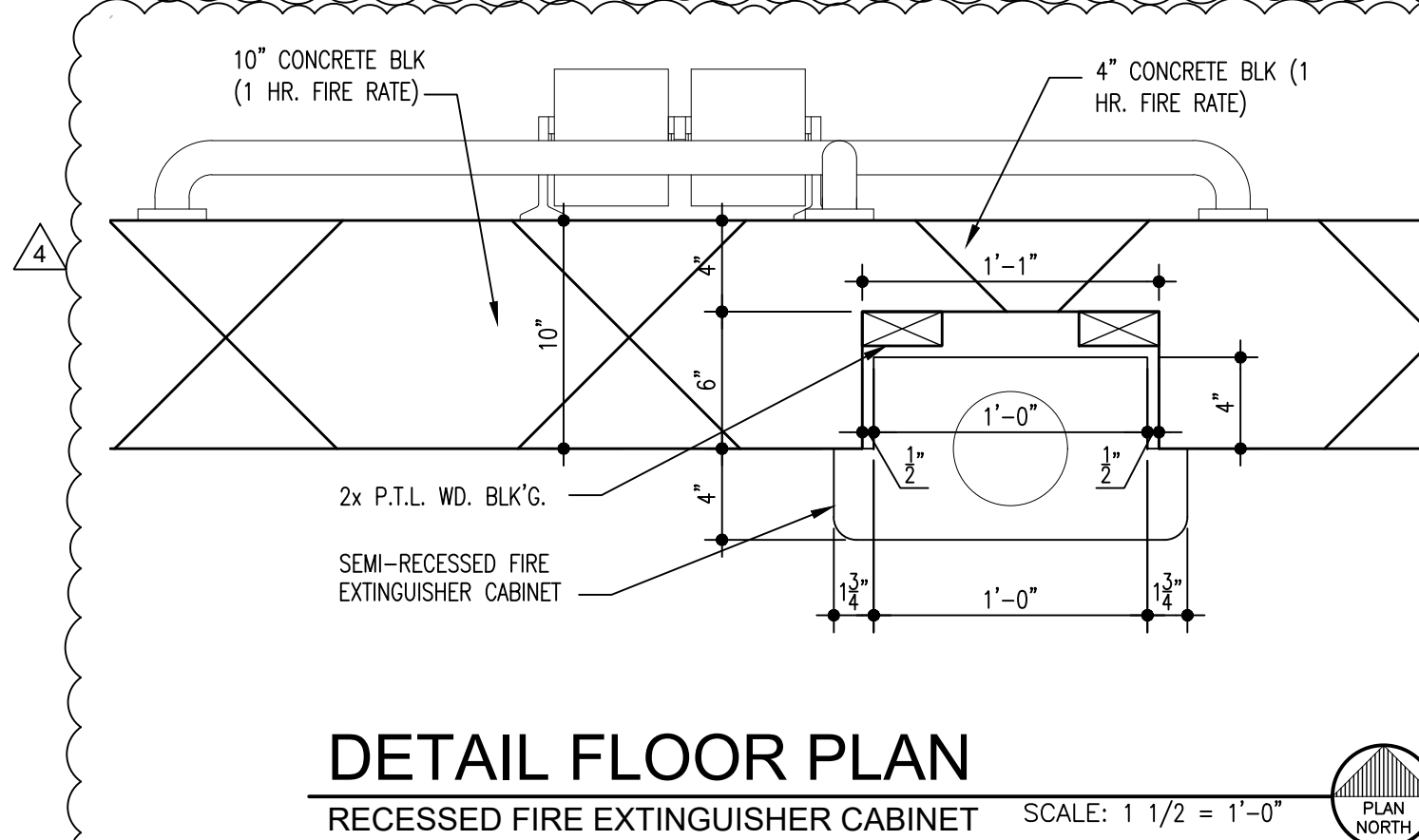


WALL LEGEND:

- W1 6" CMU w/ HORZ JOINT REINF @ 16" OC VERT
- W2 8" CMU w/ HORZ JOINT REINF @ 16" OC VERT
- W3 10" CMU w/ HORZ JOINT REINF @ 16" OC VERT, W/ #5 @24" O.C. GROUT SOLID
- W4 4" FACE BRICK w/ ADJUSTABLE TIES @ 16" OC EACH WAY, 1 3/4" AIR CAVITY, 3" RIGID EXTRUDED POLYSTYRENE (XPS) THERMAL AIR/WATER BARRIER WALL SYSTEM INSUL (R-16) ON 8" REINF CMU w/ EYE-WIRE JOINT REINF @ 16" OC VERT & #3 BARS VERT GROUT SOLID @ 48" OC, LAP BARS 48" AS REQUIRED

NEW CONSTRUCTION KEYNOTES:

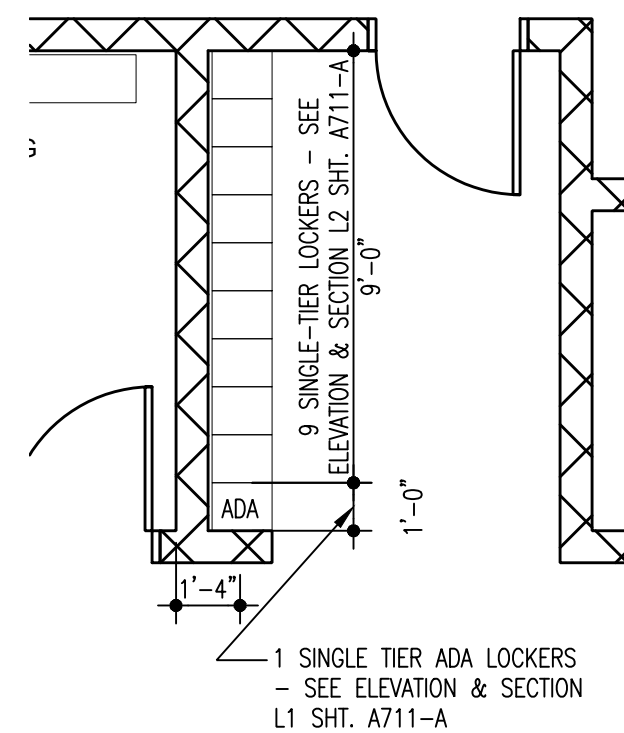
- FE1 SEMI-RECESSED FIRE EXTINGUISHER CABINET SIM. TO: LARSEN'S - MODEL #2712RA SEMI-REC. 4" (SEE FIRE EXTINGUISHER CABINET DETAIL SHEET A1.1.2 & SPECIFICATIONS) - W/ 10lb FIRE EXTINGUISHER - SEE SPECIFICATION.
- FE2 SURFACE MOUNTED FIRE EXTINGUISHER CABINET SIM. TO: LARSEN'S - MODEL #2712SM SURFACE MOUNTED W/ 10lb FIRE EXTINGUISHER - SEE SPECIFICATION.



DETAIL FLOOR PLAN

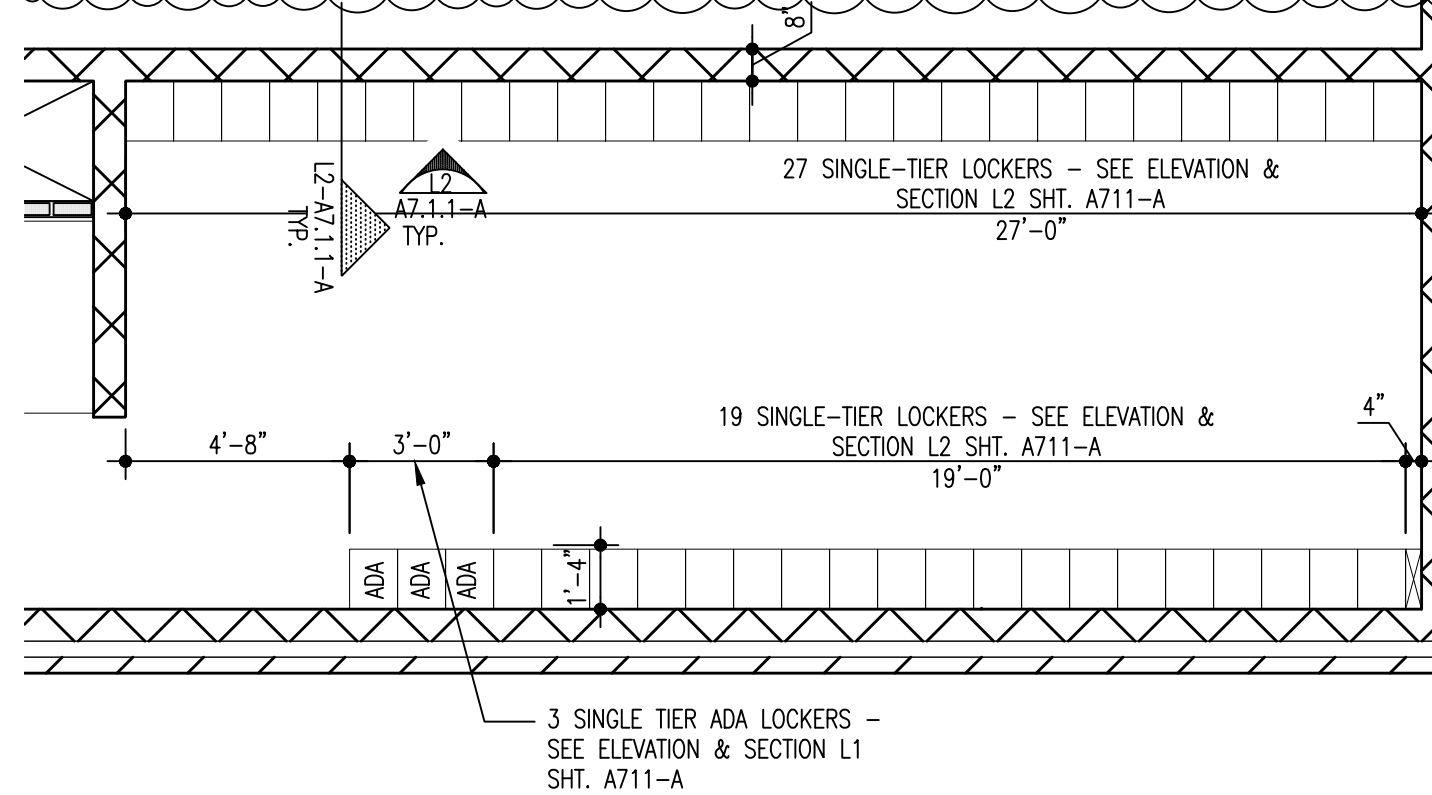
RECESSED FIRE EXTINGUISHER CABINET

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



DETAIL FLOOR PLAN

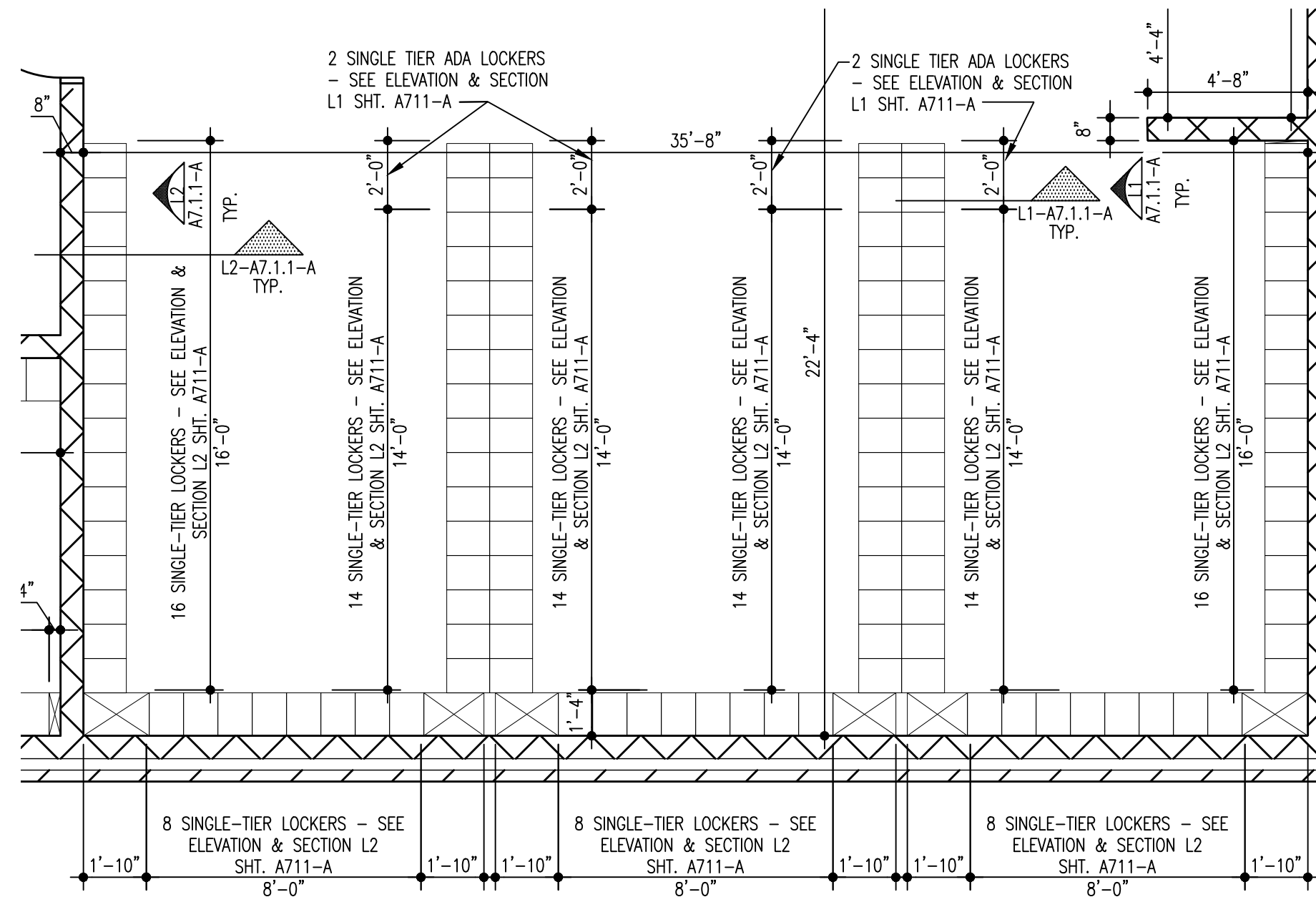
TRACK COACHES' OFFICE



DETAIL FLOOR PLAN

GIRL'S FLAG FOOTBALL LOCKER ROOM

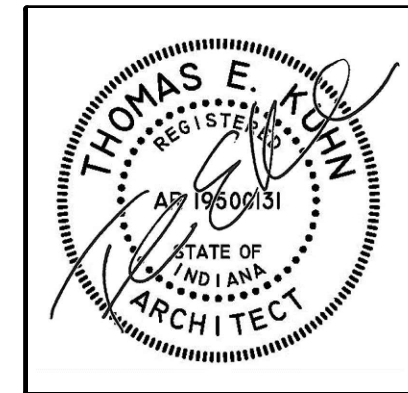
SCALE: 1/4" = 1'-0"



DETAIL FLOOR PLAN

BOY'S TRACK LOCKER ROOM

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



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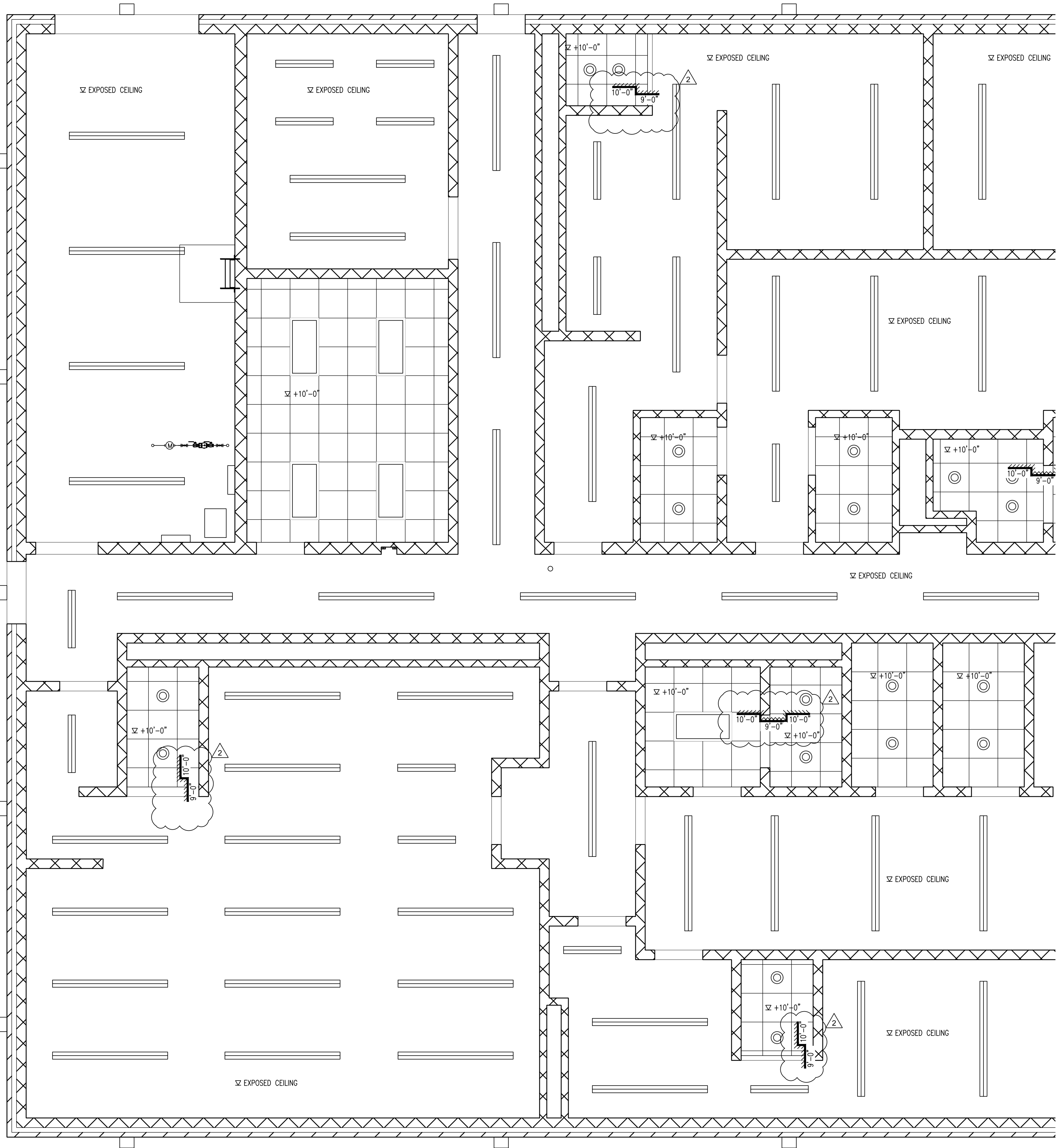
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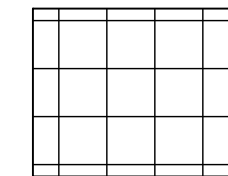
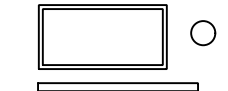
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- REFLECTED CEILING PLAN GENERAL NOTES:**
1. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO INSTALLATION.
 2. COORDINATE WORK WITH ALL OTHER DRAWINGS.
 3. CONTRACTOR SHALL REVIEW AND COORDINATE WITH ELECTRICAL LIGHTING PLANS, AND MECHANICAL DUCTWORK PLANS. ALL OMISSIONS AND/OR INCONSISTENCIES SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY.

REFLECTED CEILING PLAN LEGEND

-  SUSPENDED ACOUSTICAL TILE CEILING; ARMSTRONG 2x2 SQUARE WATER RESISTANT TILES W/ ALUMINUM LAY-IN 1 5/8" GRID
- $\nabla + \#'-\#"$ CEILING HEIGHT
-  LIGHT FIXTURE - REFER TO ELECTRICAL LIGHTING PLAN.
-  SUPPLY REGISTER - REFER TO MECHANICAL PLAN.
-  RETURN REGISTER - REFER TO MECHANICAL PLAN
-  EXHAUST FAN GRILLE - REFER TO MECHANICAL PLAN

PARTIAL CEILING PLAN
AREA A

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



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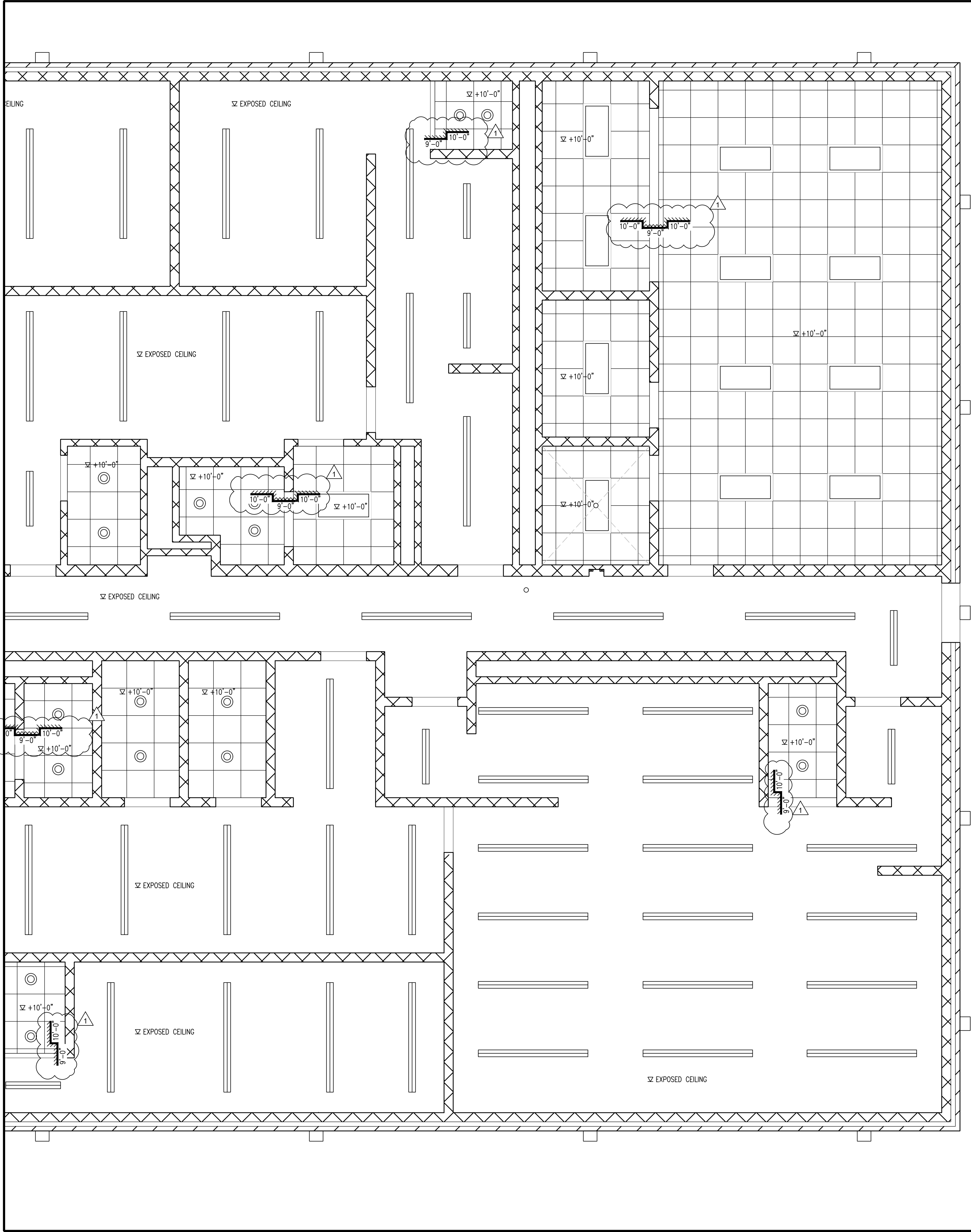
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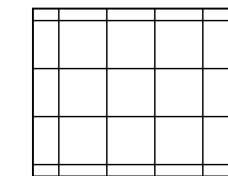
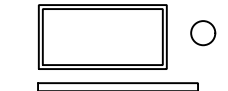
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REFLECTED CEILING PLAN LEGEND

-  SUSPENDED ACOUSTICAL TILE CEILING; ARMSTRONG 2x2 SQUARE WATER RESISTANT TILES W/ ALUMINUM LAY-IN 1/4" GRID
- $\nabla +8'-8"$ CEILING HEIGHT
-  LIGHT FIXTURE - REFER TO ELECTRICAL LIGHTING PLAN.
-  SUPPLY REGISTER - REFER TO MECHANICAL PLAN.
-  RETURN REGISTER - REFER TO MECHANICAL PLAN
-  EXHAUST FAN GRILLE - REFER TO MECHANICAL PLAN

PARTIAL CEILING PLAN
AREA B

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



DATE
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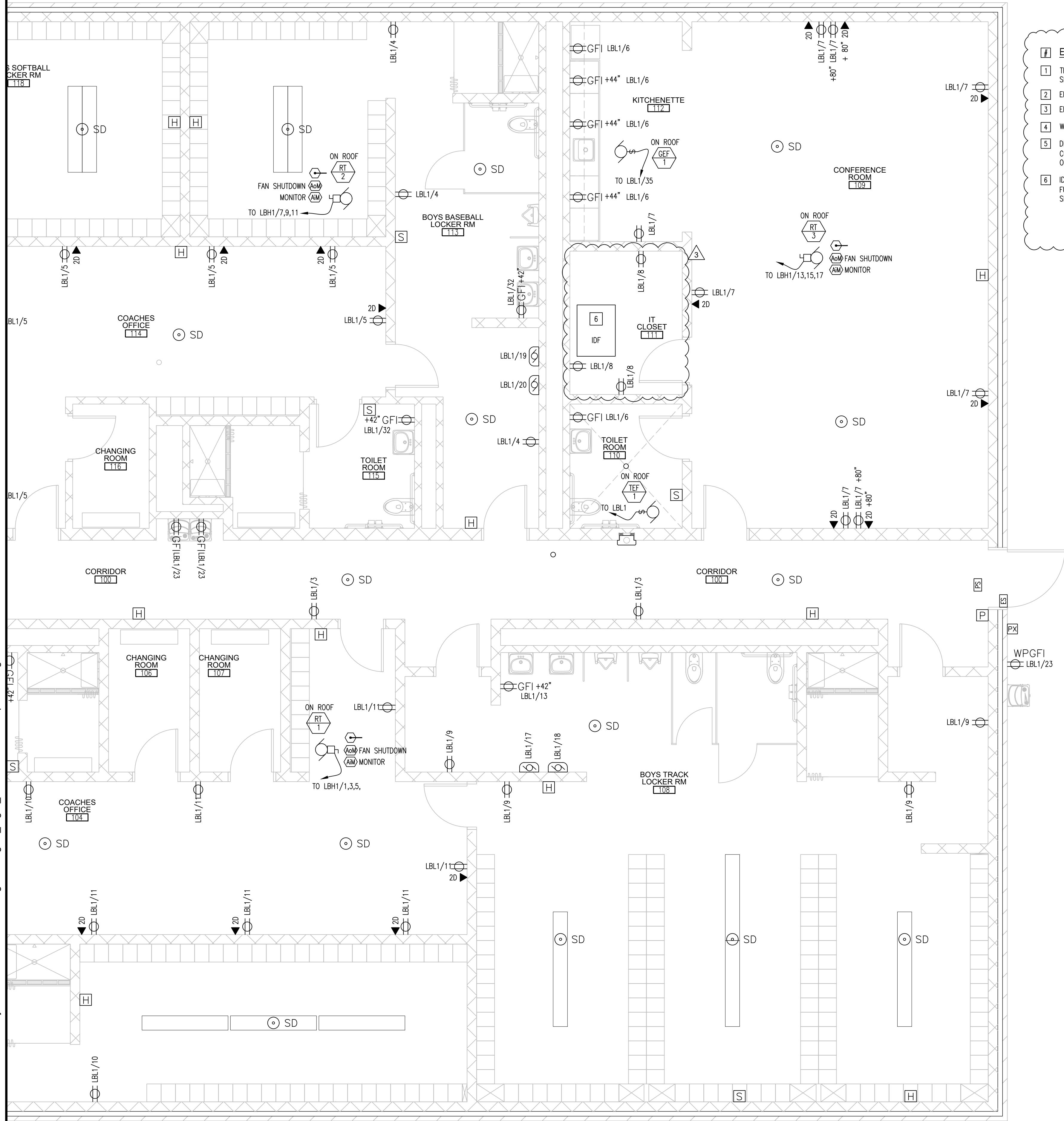
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ELECTRICAL POWER PLAN NEW KEYED NOTES

- 1 TRANSFORMER - 45KVA, 3 PHASE, 480V DELTA PRIMARY, 208Y/120V SECONDARY
 - 2 ELECTRICAL PANEL (LBH1) - 200A, 277/480V, 3PH, 4 WIRE, 24CCT
 - 3 ELECTRICAL PANEL (LBL1) - 125A, 120/208V, 3PH, 4 WIRE, 42CCT
 - 4 WATER HEATER - VERIFY ROUGH-IN w/ EQUIPMENT MANUF'R
 - 5 DIGITAL TIME CONTROL - 'TORK' 24 HOUR FORMAT, AUTO LEAP YEAR COMPENSATION, BATTERY BACK-UP, 7 DAY / 32 SET POINT OPERATION, SPDT CONTACTS & PHOTOCELL.
 - 6 IDF - PROVIDE 'HUBBELL' HCC482440WH, 48U x 24" x 40" HCC FULL SIZE DATA CABINET, WHITE & 'HUBBELL' FCRTU3SPK, 1U FCR-X SERIES FIBER RACK MOUNT ENCLOSURE.
- PROVIDE THREE(3) SINGLE-MODE FIBER CABLES IN CONDUIT BACK TO WALL MOUNT FIBER CABINET LOCATED IN CONCESSION BUILDING, TERMINATE WITH LC CONNECTORS.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SPECIFICATION
	DUPLEX RECEPTACLE	INSTALL RECEPTACLE @ +16" A.F.F. - UNO
	GFI RECEPTACLE	INSTALL GFI @ +16" A.F.F. - UNO
	WATER PROOF GFI RECEPTACLE	EXTERIOR RECEPTACLES SHALL BE ON SEPARATE CIRCUIT. INSTALL WATER PROOF GFI @ +16" A.F.F.- UNO
	DATA RECEPTACLE	PROVIDE J-BOX @ +16" A.F.F. (UNO) & 3/4" CONDUIT UP TO 12'-0" A.F.F
	JUNCTION BOX	
	SURFACE MOUNTED HAND DRYER	XLERATOReco HAND DRYER; MODEL: XL-W-ECO-BN-110/120. PROVIDE A JUNCTION BOX & 20 AMP CIRCUIT - REFER TO INTERIOR ELEVATIONS FOR LOCATION
	FIRE ALARM PULL STATION	INSTALL PULL STATION @ +44" A.F.F. - UNO
	FIRE ALARM STROBE	INSTALL STROBE @ +84" A.F.F. - UNO
	FIRE ALARM HORN & STROBE	INSTALL HORN @ +84" A.F.F. - UNO
	SMOKE DETECTOR	CEILING MOUNTED
	HEAT DETECTOR	CEILING MOUNTED
	DUCT SMOKE DETECTOR	
	ADDRESSABLE OUTPUT MODULE	FAN RELAY
	ADDRESSABLE INPUT MODULE	
	FIRE ALARM MINIPLEX TRANSPONDER	CONNECT TO 120V CIRCUIT
	FIRE ALARM ANNUNCIATOR PANEL	CONNECT TO 120V CIRCUIT
	PROX READER	PROVIDE J-BOX W/ 3/4" C UP TO 12'-0" A.F.F. - PROVIDE ONE CAT 6 WIRE TO IDF. PROX READER INSTALLED BY OWNER
	ELECTRIC DOOR STRIKE	PROVIDED BY HARDWARE SUPPLIER. CONNECT TO POWER SUPPLY AND DOOR RELEASE CONTROLS
	ELECTRIC STRIKE POWER SUPPLY	PROVIDED BY HARDWARE SUPPLIER. CONNECT TO 120V CIRCUIT
NOTES:		

POWER PANEL LBH1

VOLTAGE: 277/480V FEEDER: 2 1/2" C w/ (4) #4/0 THHN										TYPE: SQUARE D MAIN: 200 AMP 24 CCT MOUNT: SURFACE MOUNTED									
CIRCUIT USE	CCT. BRKR.		LOAD WATTS			CCT. NO.	LOAD WATTS			CCT. BRKR.		CIRCUIT USE							
	POLE	TRIP	A	B	C		A	B	C	POLE	TRIP								
RT-1	3	30	6250			1	2	9770			3	80	TRANSFORMER						
				6250		3	4		9890										
					6250	5	6			7780									
RT-2	3	30	5400			7	8												
				5400		9	10												
					5400	11	12												
RT-3	3	20	4000			13	14												
				4000		15	16												
					4000	17	18												
RT-4	3	30	5400			19	20												
				5400		21	22												
					5400	23	24												
TOTAL WATTS PER PHASE:			21050	21050	21050		9770	9890	7780	:TOTAL WATTS PER PHASE									
		TOTAL WATTS:		90,590								:TOTAL WATTS							
		90,590W / 480V / 1.73 = 109.09 AMPS																	

PARTIAL POWER PLAN

AREA B

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



DATE
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10-12-2026 - ADD3
10-14-2026 - ADD4
10-16-2026 - ADD5

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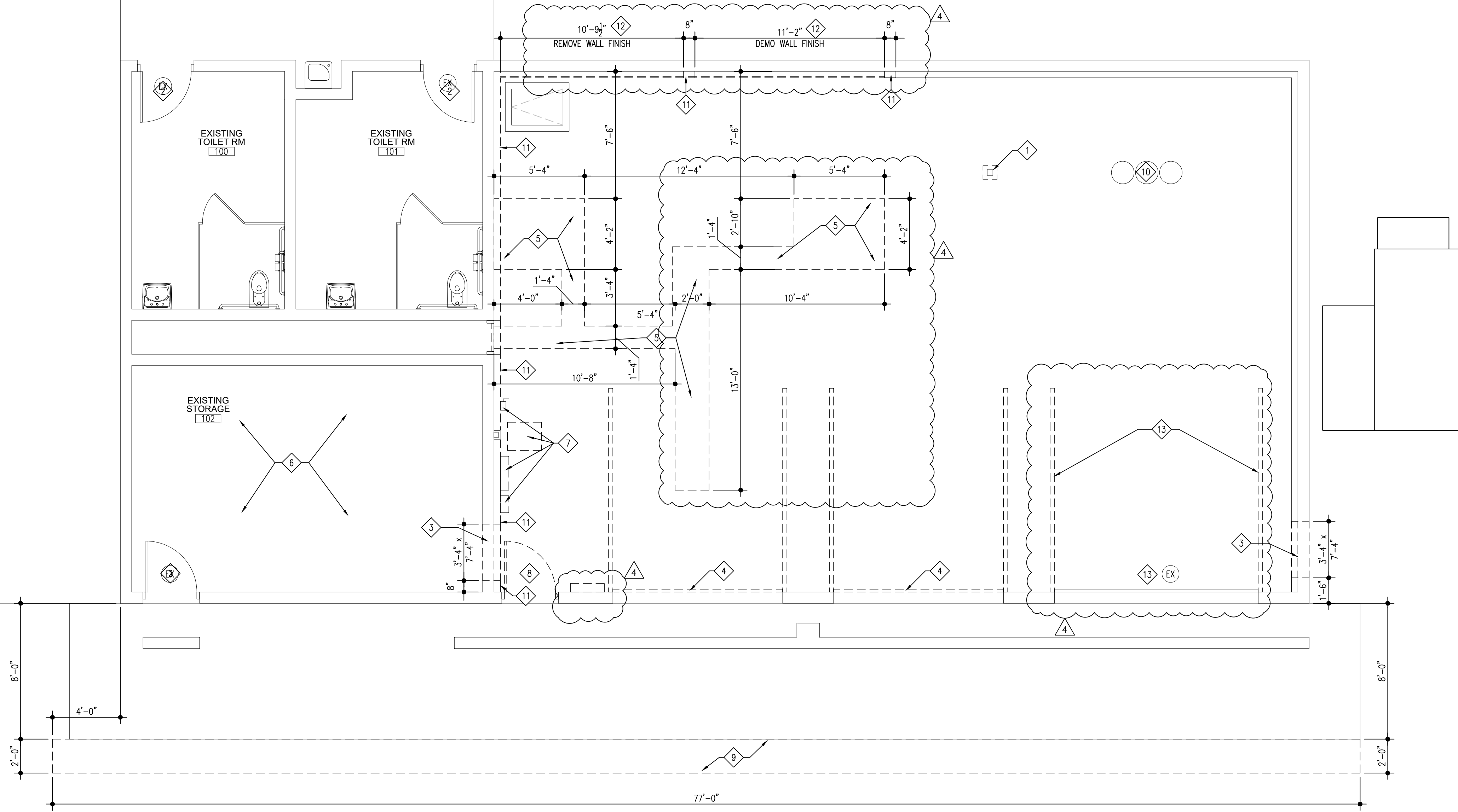
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FLOOR PLAN

DEMOLITION - TENNIS COURT FACILITY

SCALE: 3/16" = 1'-0"

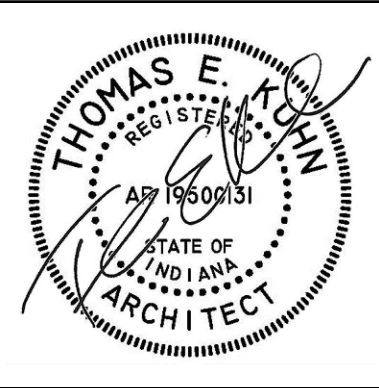


DEMOLITION GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. DO NOT SCALE THE DRAWINGS.
3. CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WORK FROM DAMAGE DURING CONSTRUCTION.
4. VERIFY ANY ELECTRICAL/MECHANICAL/PLUMBING REMOVAL PRIOR TO DEMOLITION.

DEMOLITION KEYED NOTES:

1. EXISTING STEEL COLUMN SHALL REMAIN.
2. EXISTING DOOR SHALL REMAIN.
3. REMOVE PORTION OF WALL FOR NEW OPENING. SIZE NOTED ON DRAWING.
4. REMOVE EXISTING OVERHEAD DOOR COMPLETELY.
5. REMOVE AREA OF CONCRETE FLOOR FOR NEW PLUMBING LINES. MATCH & PATCH FLOOR AS REQUIRED.
6. REMOVE EXISTING FLOOR FINISH COMPLETELY.
7. REMOVE EXISTING ELECTRICAL EQUIPMENT - REFER TO ELECTRICAL PLAN.
8. REMOVE EXISTING DOOR, FRAME AND HARDWARE.
9. REMOVE EXISTING ASPHALT AS REQUIRED TO INSTALL BALLARD - SEE DETAIL SHEET A1.1.0-B.
10. EXISTING 3-BAY CATCH BASIN.
11. REMOVE EXISTING PLYWOOD FURRING COMPLETELY.
12. REMOVE EXISTING PLYWOOD FINISH FROM OFF WALL. FURRING AND INSULATION SHALL REMAIN.
13. EXISTING OVERHEAD DOOR & TRACK SHALL REMAIN.



DATE	
10-02-2026	
10-07-2026 - ADD#1	1
10-09-2026 - ADD#2	2
10-12-2026 - ADD #3	3
10-12-2026 - ADD #5	4

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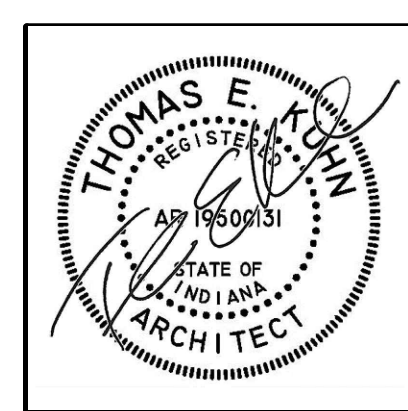
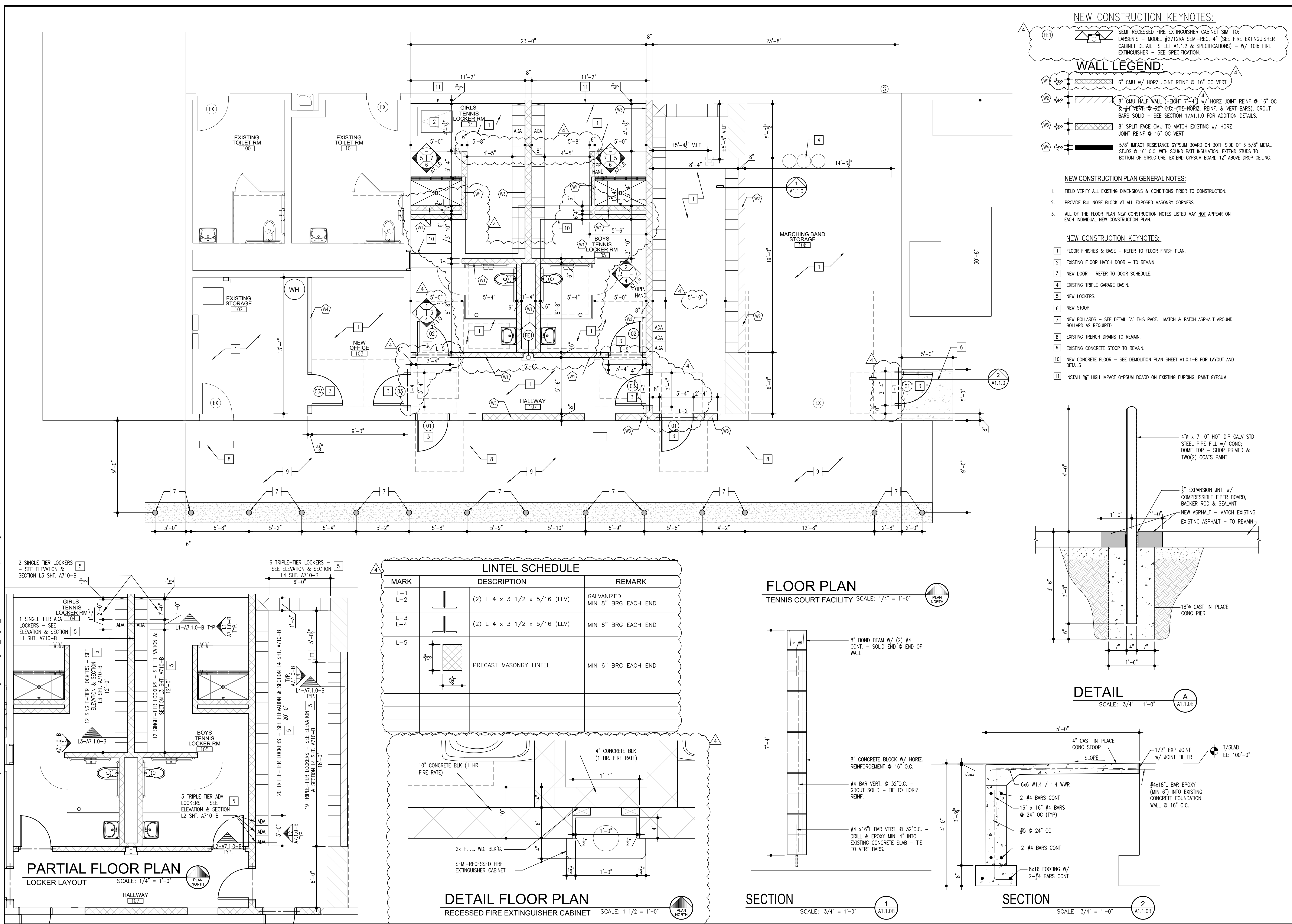
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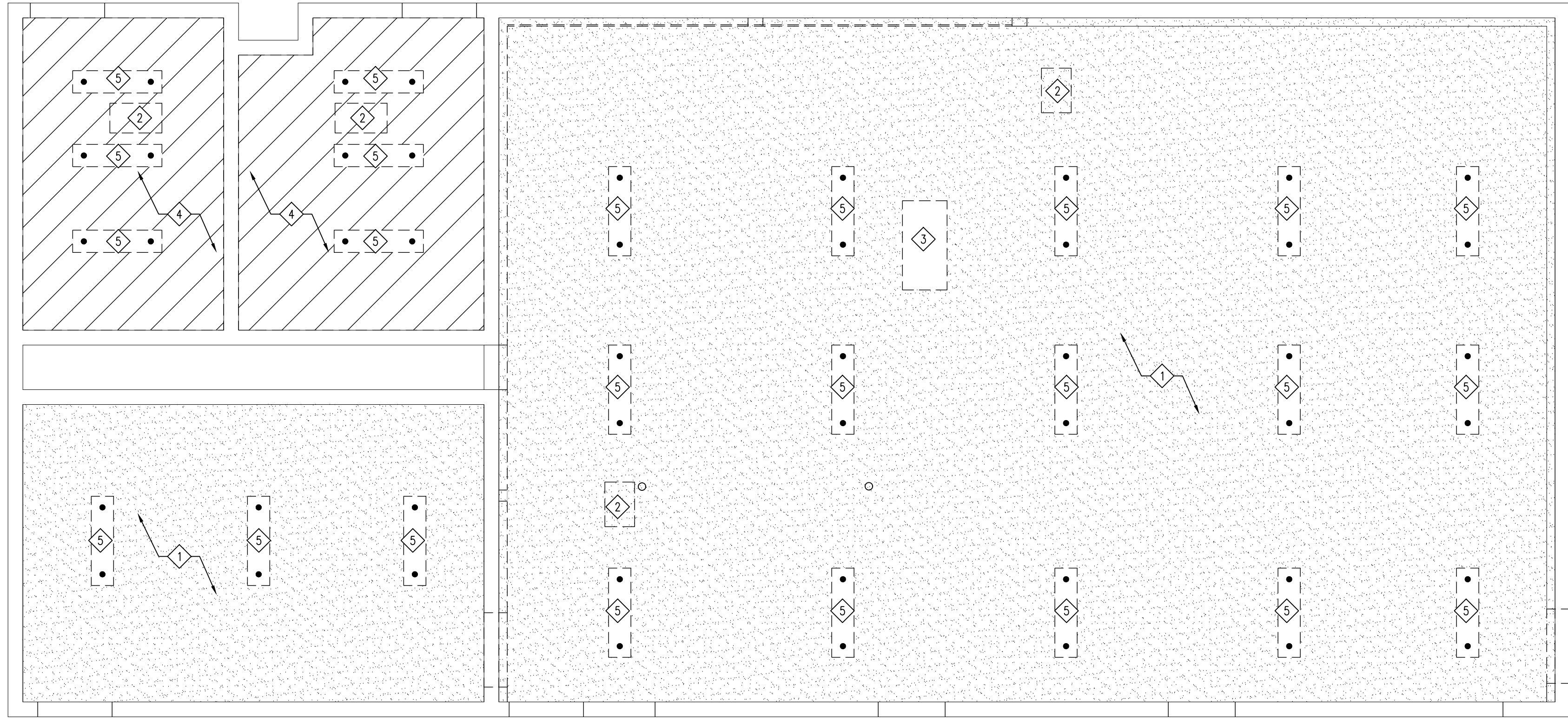
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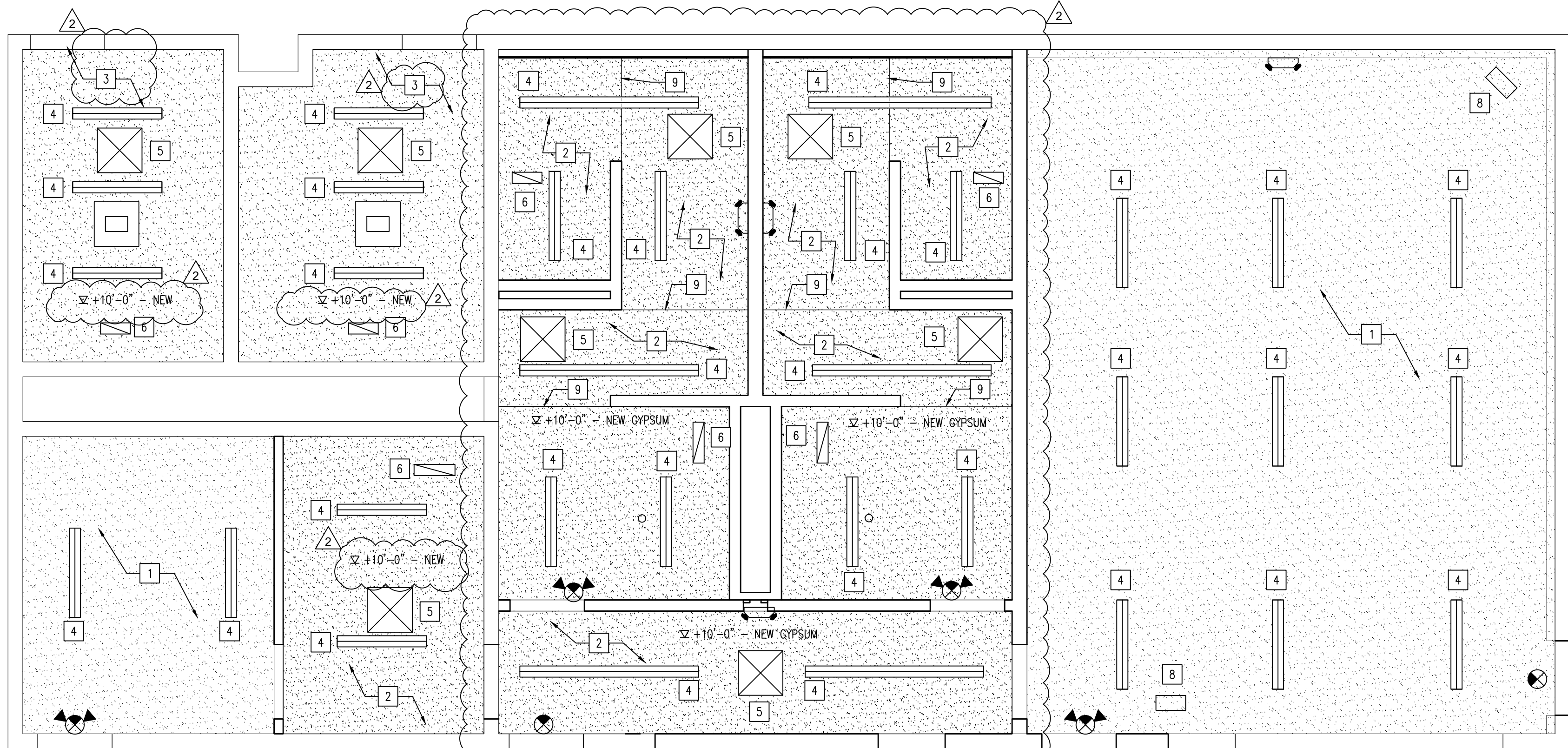
REFLECTIVE CEILING PLAN
DEMOLITION

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



KEYED REFLECTIVE CEILING PLAN DEMOLITION NOTES:

- 1 EXISTING CEILING SHALL REMAIN.
- 2 REMOVE EXISTING ELECTRICAL UNIT HEATER COMPLETELY.
- 3 REMOVE EXISTING EXHAUST FAN COMPLETELY. PATCH IN OPENING OF EXHAUST FAN & PAINT TO MATCH EXISTING.
- 4 REMOVE EXISTING CEILING COMPLETELY.
- 5 REMOVE EXISTING LIGHT FIXTURE



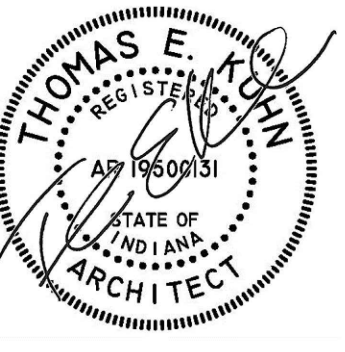
REFLECTIVE CEILING PLAN
NEW CONSTRUCTION

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



KEYED REFLECTIVE CEILING PLAN NEW CONSTRUCTION NOTES:

- 1 EXISTING CEILING SHALL REMAIN & SHALL BE PAINTED WHITE.
- 2 INSTALL NEW 5/8" MOISTURE RESISTANT GYPSUM BOARD CEILING ON SUSPENSION SYSTEM FRAMING FOR GYPSUM BOARD ASSEMBLIES. SUSPEND NEW CEILING FROM EXISTING CEILING @ 10' AFF. PAINT CEILING - WHITE
- 3 INSTALL NEW 5/8" MOISTURE RESISTANT GYPSUM BOARD CEILING ON SUSPENSION SYSTEM FRAMING FOR GYPSUM BOARD ASSEMBLIES. SUSPEND NEW CEILING FROM EXISTING STRUCTURE @ 10' AFF. PAINT CEILING - WHITE
- 4 NEW LINEAR LED LIGHT FIXTURES.
- 5 NEW MECHANICAL SUPPLY REGISTER.
- 6 NEW MECHANICAL RETURN REGISTER
- 7 NEW RECESSED CEILING MOUNTED UNIT HEATER.
- 8 NEW SUSPENDED UNIT HEATER
- 9 EXPANSION JOINT



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10-15-2026 - ADD#5

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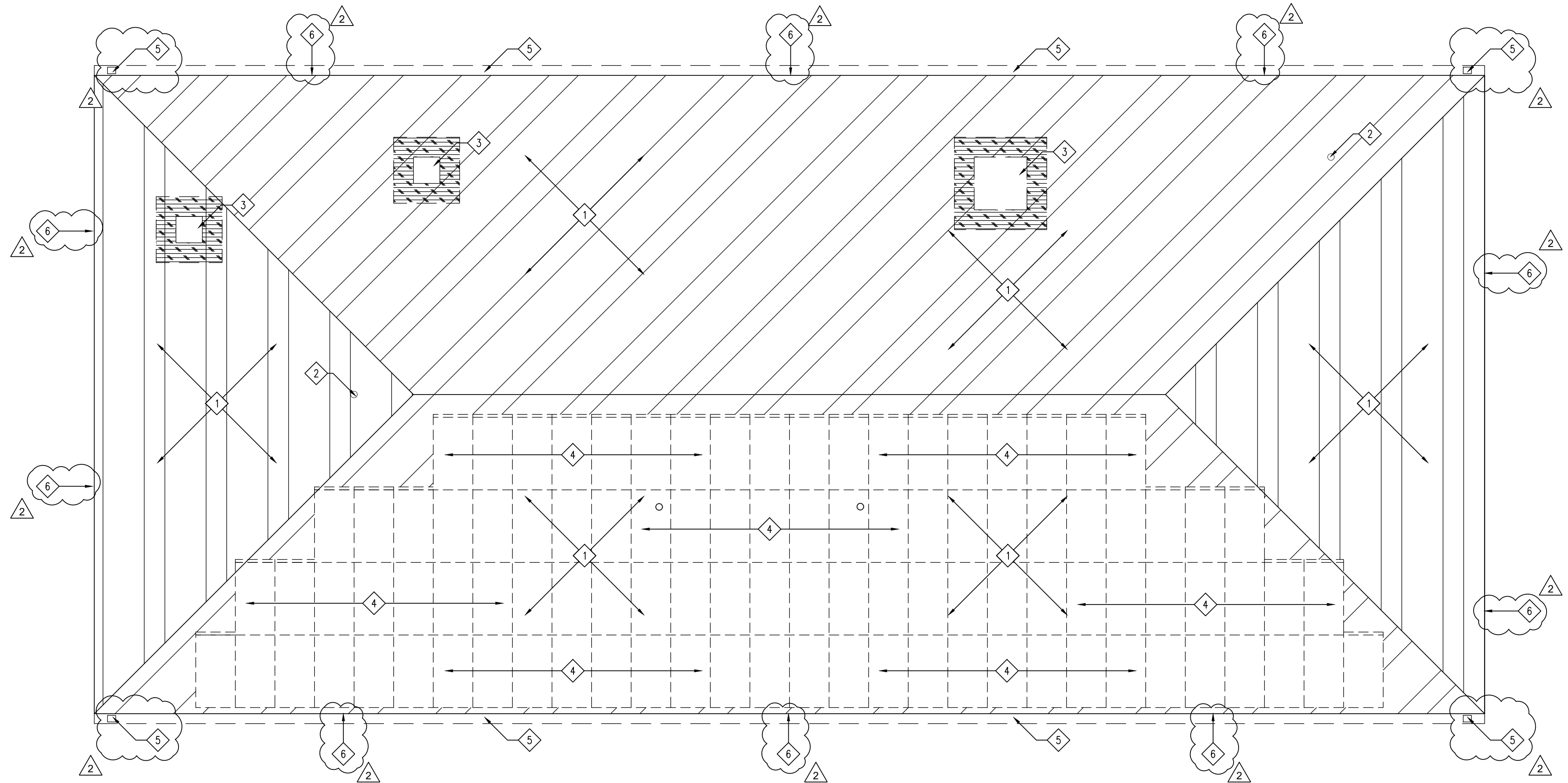
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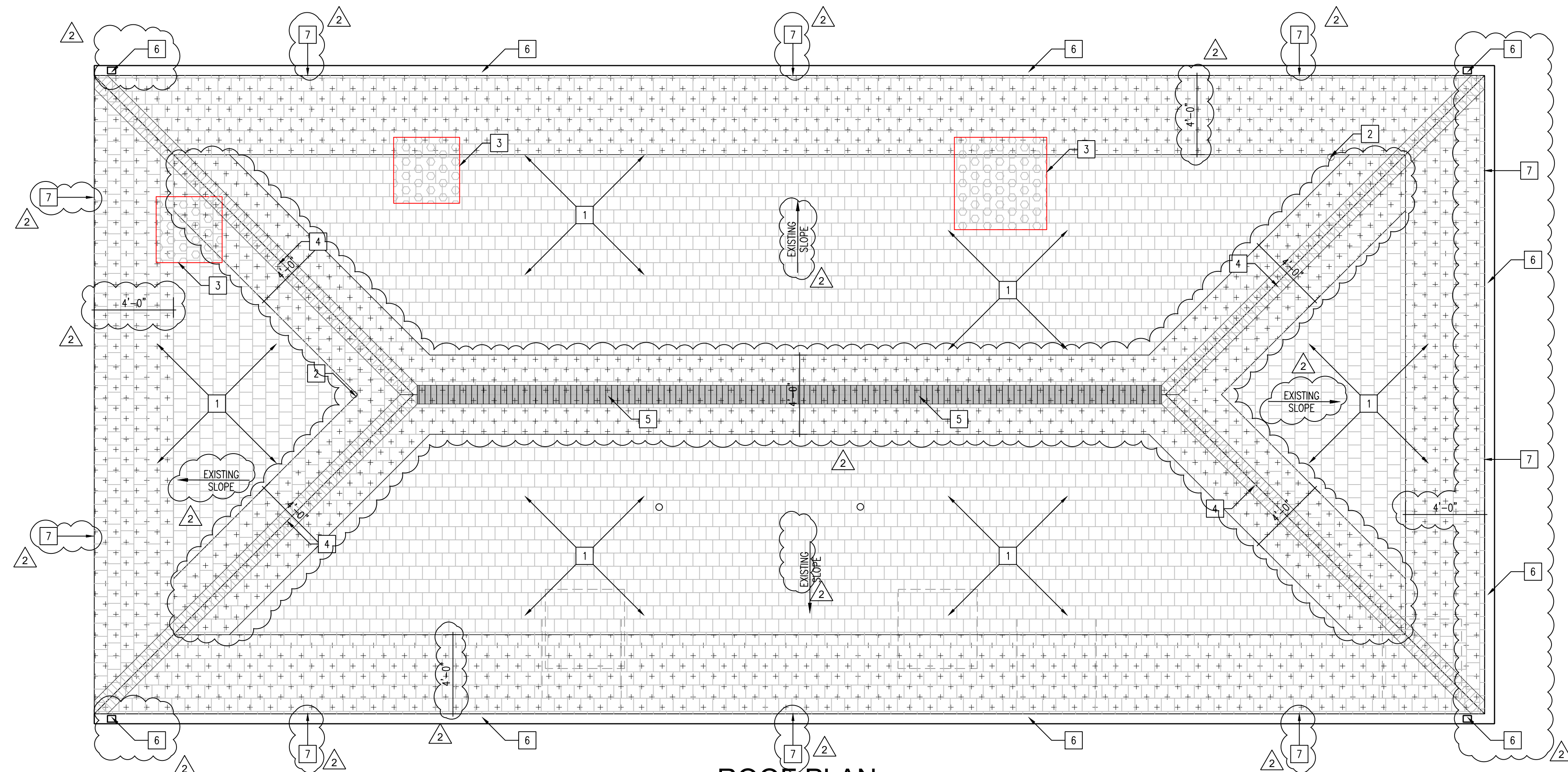
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ROOF PLAN
DEMOLITION
SCALE: 1/4" = 1'-0"
PLAN NORTH

- DEMO ROOF LEGEND**
- ASPHALT FIBERGLASS SHINGLE TO BE REMOVED COMPLETELY.
 - REMOVE AREA OF PLYWOOD DECKING COMPLETELY

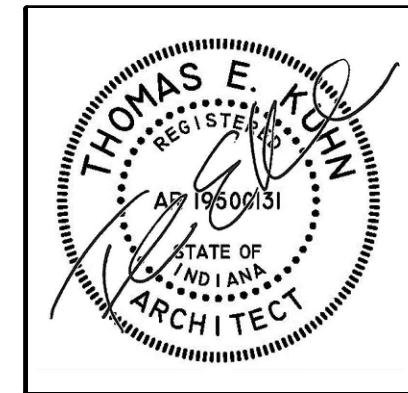
- KEYED ROOFING DEMOLITION NOTES:**
- REMOVE EXISTING ROOF MATERIAL DOWN TO SHEATHING AND DRIP EDGE
 - EXISTING VENTS - SHALL REMAIN
 - REMOVE EXISTING MECHANICAL EXHAUST AND SURROUNDING DAMAGED PLYWOOD ROOF DECKING.
 - REMOVE EXISTING SOLAR PANELS COMPLETELY.
 - REMOVE EXISTING GUTTERS AND DOWNSPOUTS
 - REMOVE EXISTING METAL WRAPPED FASCIA BOARDS



ROOF PLAN
NEW CONSTRUCTION
SCALE: 1/4" = 1'-0"
PLAN NORTH

- NEW ROOF LEGEND**
- ASPHALT FIBERGLASS SHINGLE
 - ICE DAM PROTECTION (OVERLAPPING EACH ROW 6" MIN.)
 - RIDGE VENT
 - RIDGE CAP SHINGLES

- KEYED ROOFING NEW CONSTRUCTION NOTES:**
- INSTALL NEW ASPHALT FIBERGLASS SINGLES, UNDERLAYMENT, & ICE DAM PROTECTION ON EXISTING ROOF SHEATHING. INSTALL NEW METAL DRIP EDGE
 - EXISTING VENTS. PROVIDE NEW FLASHING.
 - PROVIDE NEW PLYWOOD SHEATHING IN AREA MATCHING EXISTING THICKNESS
 - INSTALL NEW RIDGE CAP SHINGLES
 - INSTALL NEW SHINGLE RIDGE VENT
 - INSTALL NEW PRE-FINISHED METAL GUTTERS AND DOWNSPOUTS, CONNECT TO EXISTING STORM WATER PIPES AS REQUIRED
 - INSTALL NEW PRE-FINISHED METAL WRAPPED FASCIA BOARDS - MATCH EXISTING, VERIFY COLOR WITH OWNER



DATE
10-02-2026
10-07-2026 - ADD#1
10-16-2026 - ADD#5

NEW LOCKER ROOM FACILITY & RENOVATIONS TO
THE EXISTING CONCESSION & TENNIS FACILITY AT
MERRILLVILLE HIGH SCHOOL
276 E. 68TH PLACE
MERRILLVILLE, IN 46410

CSK ARCHITECTS, P.C.

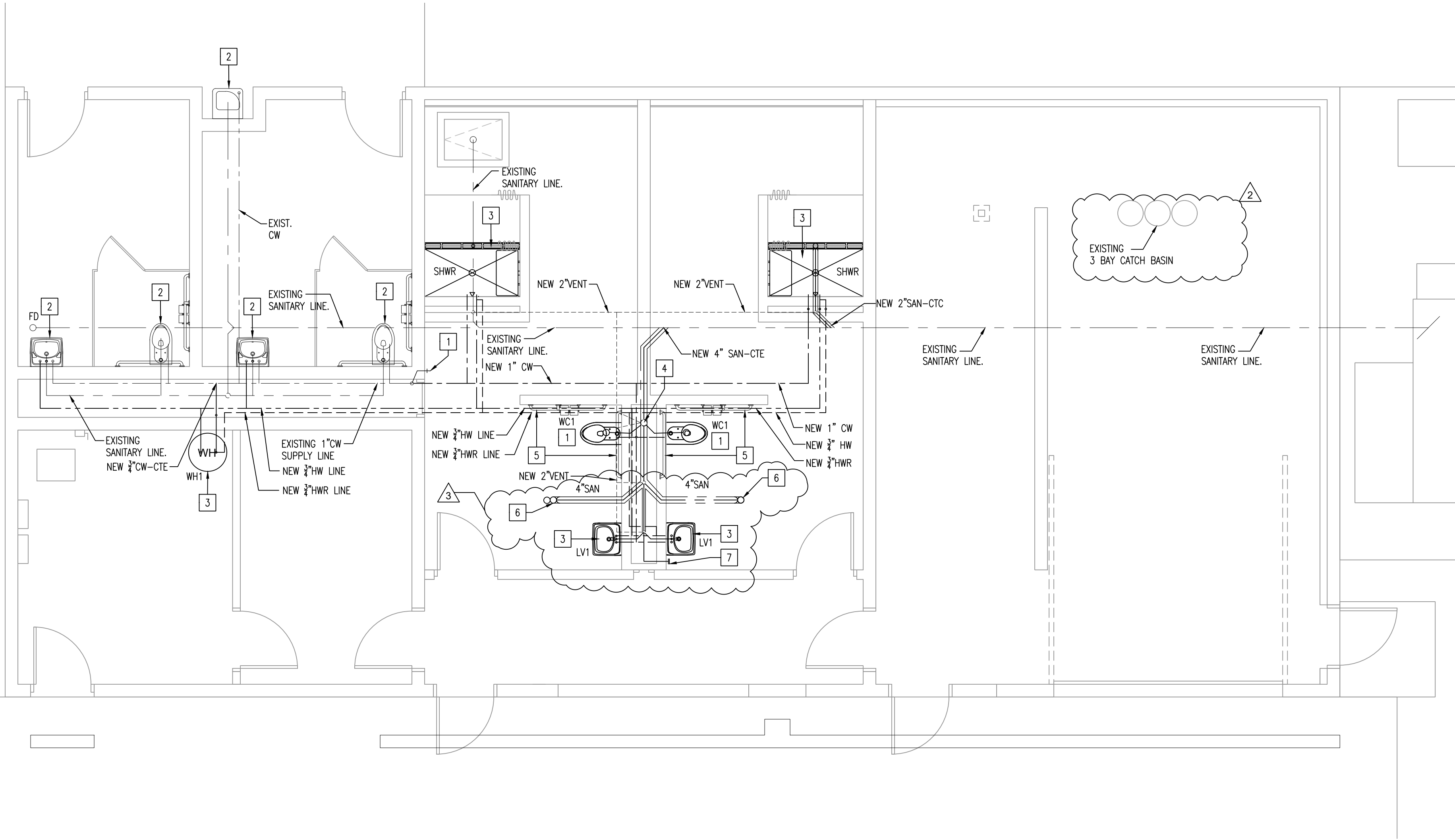
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PLUMBING PLAN

NEW CONSTRUCTION

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



PLUMBING PLAN GENERAL NOTES:

1. FIELD VERIFY ALL DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION.
2. ALL WORK, NEW PIPING SIZE AND MATERIAL SHALL BE IN FULL ACCORDANCE WITH THE PLUMBING CODE.
3. ALL PLUMBING FIXTURE VENTS TO TERMINATE A MINIMUM OF 12 INCHES FROM ANY VERTICAL SURFACE AND 10'-00" FROM OR 3'-00" ABOVE ANY MECHANICAL EQUIPMENT OUTSIDE AIR INTAKE.
4. EXTEND AND FLASH ALL PLUMBING VENTS AS REQUIRED.
5. FIRE CAULK AT ALL PIPE OPENINGS THRU FLOORS, WALLS AND ROOFS.
6. INSULATE COLD WATER LINES AT UNCONDITIONED SPACE.
7. PROVIDE PVC P-TRAPS FOR DRAIN LINES OF ALL NEW SINKS.
8. PIPING LAYOUT IS SCHEMATIC ONLY, EXACT ROUTING AND INSTALLATION OF PIPES TO BE COORDINATED WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER CONTRACTORS. NO WATER OR DRAIN LINES ARE PERMITTED TO BE INSTALLED OVER OR UNDER ELECTRICAL PANEL.

PLUMBING PLAN KEYNOTES:

1. REMOVE EXISTING HOSE BIB AND ASSOCIATED WATER LINES AS REQUIRED. CAP AND SEAL FOR A COMPLETE WATER TIGHT.
2. EXISTING PLUMBING FIXTURE SHALL REMAIN.
3. NEW PLUMBING FIXTURE CONNECT VIA NEW WATER SUPPLY LINES AND AND SANITARY SYSTEM. REFER TO PLUMBING FIXTURE SCHEDULE THIS SHEET.
4. NEW 4" DIA. PVC VENT THRU ROOF (VTR) - PROVIDE ROOF FLASHING AS REQUIRED.
5. NEW ADA GRAB BARS - REFER TO INTERIOR ELEVATIONS
6. NEW FLOOR DRAIN-REFER TO SPECIFICATION.
7. NEW WALL CLEANOUT- REFER TO SPECIFICATION.

PLUMBING PIPE LEGEND

COLD WATER SUPPLY PIPING	CW
HOT WATER SUPPLY PIPING	HW
HOT WATER RETURN PIPING	HWR
SANITARY SEWER PIPING	SAN
UNDER FLOOR SANITARY SEWER PIPING	SAN
PVC VENT PIPING	VENT
CTC	CONNECT TO EXISTING

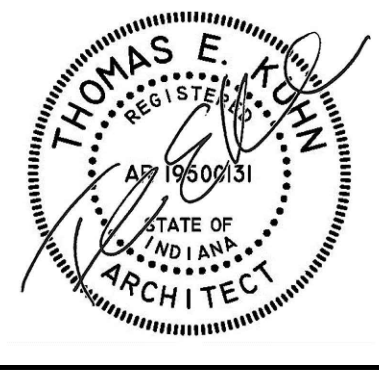
PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	SPECIFICATION	PROVIDE THE FOLLOWING SIZE BRANCH TO THE DISTRIBUTION MAIN (UNLESS OTHERWISE SPECIFIED)				
			CW	HW	DRAIN	VENT	REMARKS
WC1	WALL HUNG WATER CLOSET	AMERICAN STANDARD 'AFWALL' #3351, WALL MOUNTED ELONGATED, WHITE VITREOUS CHINA WITH EVERCLEAN, TOILET 1.6 GPF. PROVIDE BOLT CAPS. ZURN FLUSH VALVE MODEL: ZER6003-AV-TM-HET-1.2B; PROVIDE LITHIUM BATTERY. BEMIS 'OLSONITE' #955SCT, WHITE, ELONGATED, OPEN FRONT, S.S. EXTERNAL CHECK HINGE. ZURN Z1200 SERIES, ADJUSTABLE CLOSET CARRIER.	1"	--	4"	2"	
UR1	URINAL	AMERICAN STANDARD 'WASHBROOK FLOWISE' #6590, WALL MOUNTED, WHITE VITREOUS CHINA WITH EVERCLEAN, URINAL 1.0 GPF. ZURN FLUSH VALVE MODEL: ZER6003AV-TM-Q.1Z5; PROVIDE LITHIUM BATTERY. ZURN Z1221, ADJUSTABLE URINAL CARRIER.	3/4"	--	2"	2"	
LAV1	WALL HUNG LAVATORY	AMERICAN STANDARD #0355.012 WHITE "LUCERNE" WALL-HUNG LAVATORY. SLOAN FAUCET MODE: EAF350-ISM-0.5; PROVIDE 8" COVER PLATE MODEL ETF-510-A. BRASSCRAFT #KTSOR19X-C 1/2" COMP x 3/8" COMP CHROME 1/4 TURN ANGLE STOPS w/ LOOSE KEY. CAST BRASS 'P' TRAP WITH CLEAN OUT. ZURN #Z1231 CONCEALED ARM CARRIER.	1/2"	1/2"	2"	1 1/2"	TRUEBRO 'LAV GUARDZ' ADA-COMPLIANT UNDERSINK PIPE PROTECTION, ANTIMICROBIAL RESILIENT MOLDED VINYL.
SHWR	SHOWER	AMERICAN STANDARD 1662.211 FLOWISE COMMERCIAL SHOWER SYSTEM KIT WITH PRESSURE-BALANCING VALVE, 1.5 GPM, HAND SHOWER, METAL HOSES, CAST BRASS VALVE BODY, ADA-COMPLIANT, POLISHED CHROME. PROVIDE 'ZURN' ZS880 60IN STAINLESS STEEL LINEAR SHOWER DRAIN.	1/2"	1/2"	2"	1 1/2"	
WH1	WATER HEATER	AO SMITH CONSERVATION 75-GAL POWER DIRECT VENT WATER-HEATER; MODEL: AO-BTE-80 310. 76,000 BTU, PVC POWER VENT W/EXPANSION TANK, THERMOSTATIC MIXING VALVE, 28"ø x 2" DRAIN PAN, 3/4" IN LINE CIRCULATING PUMP - BELL & GOSSETT; SERIES 4-60 ECM. (SIZE BY MANUFACTURER FOR APPLICATION) & AQUASTAT AS REQUIRED.					PROVIDE THERMAL EXPANSION TANK PER THE SPECIFICATION.

NOTES:

1. ALL NEW PLUMBING EQUIPMENT SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE.
2. PROVIDE TEMPERING MIXING VALVE AT EACH LAVATORY & SINK.
3. FOR EACH BRANCH FROM THE MAIN PIPING PROVIDE VALVE AND TAG.
4. PROVIDE AIR CHAMBERS AT ALL NEW PLUMBING FIXTURES.
5. ALL VENTS TO EXTEND 12" ABOVE THE ROOF LINE AND SHALL BE PROVIDED WITH REGULAR ROOF TERMINATION TO RECEIVE FLASHING AS REQUIRED.
6. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL PLANS FOR ADDITIONAL INFORMATION.

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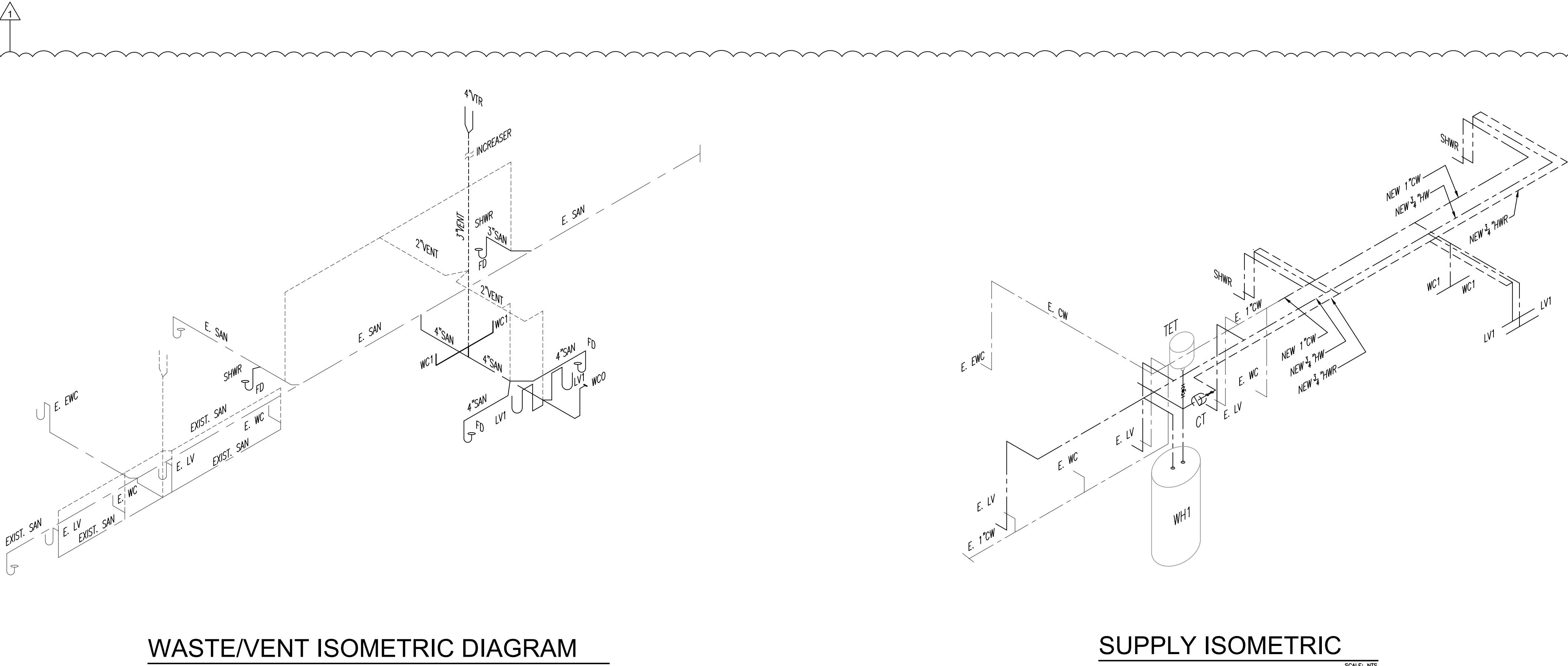
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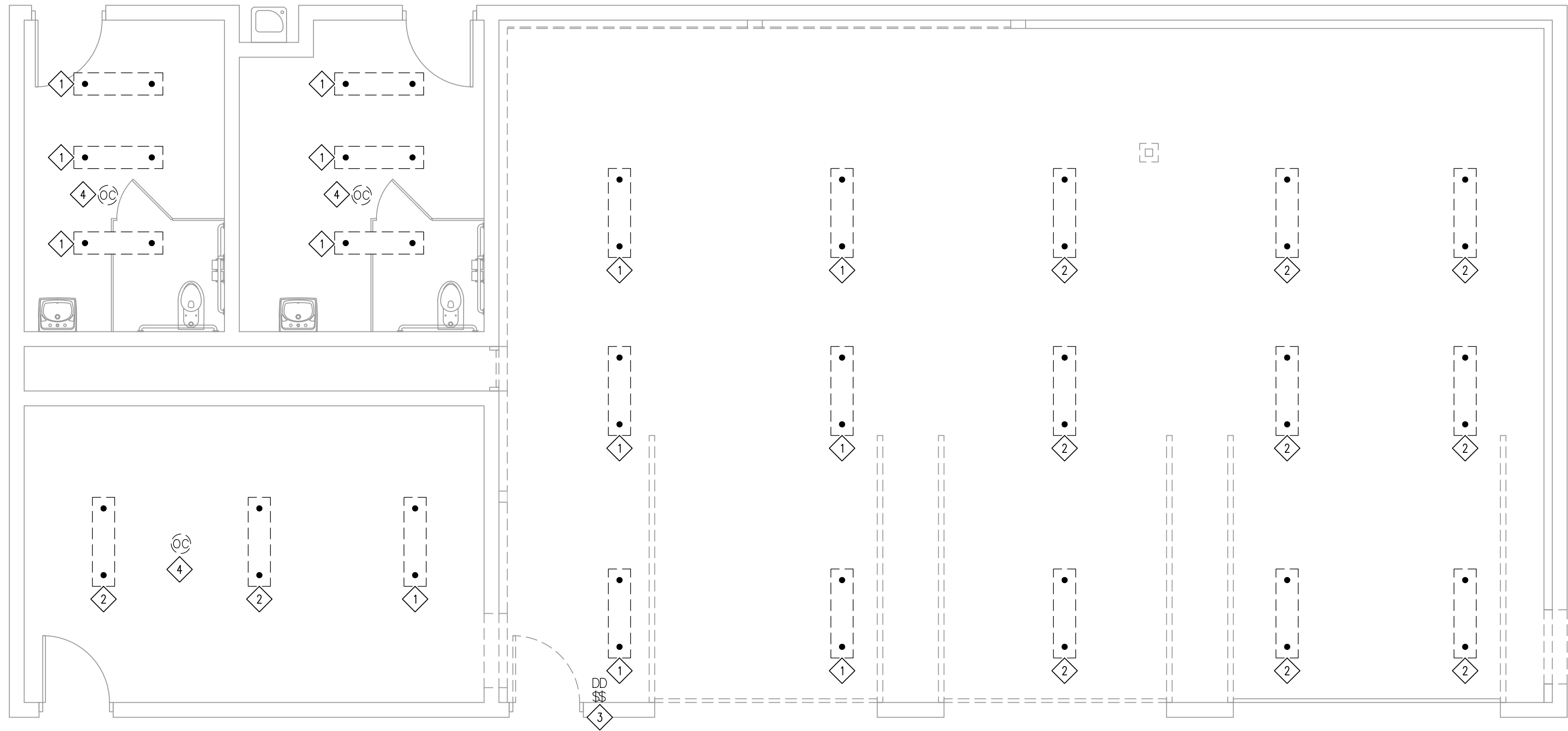
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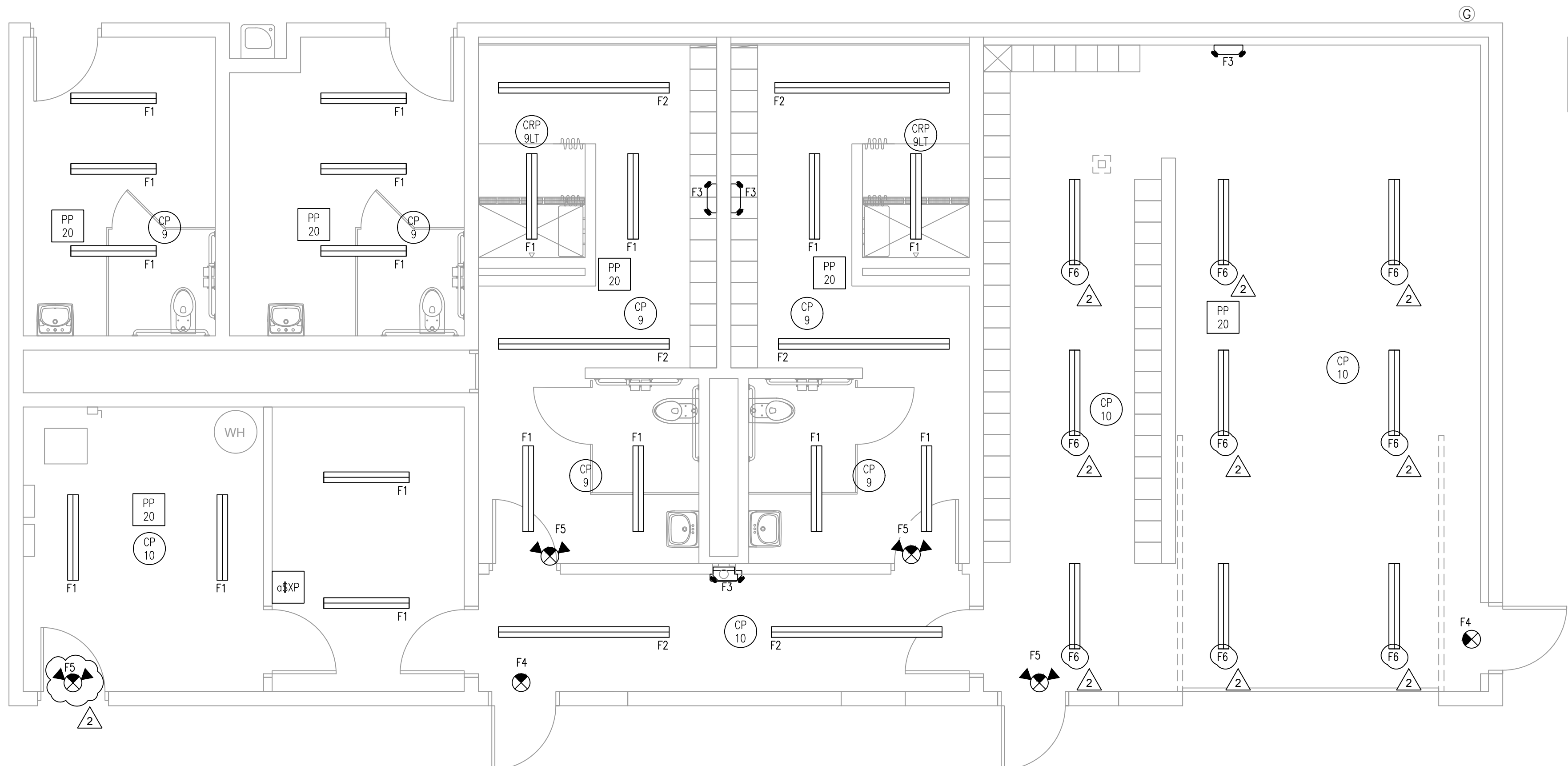
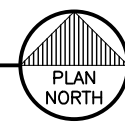
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LIGHTING PLAN
DEMOLITION

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



LIGHTING PLAN
NEW CONSTRUCTION

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



GENERAL LIGHTING PLAN DEMOLITION NOTES

1. FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION.

KEYED LIGHTING PLAN DEMOLITION NOTES:

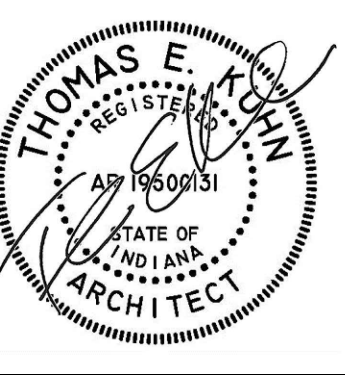
- 1 REMOVE EXISTING LIGHT FIXTURES. REMOVE WIRING COMPLETELY BACK TO ELECTRICAL PANEL. PROVIDE CONDUIT & WIRING TO NEW CEILING HEIGHT.
- 2 REMOVE EXISTING LIGHT FIXTURE.
- 3 REMOVE EXISTING SWITCH & WIRING COMPLETELY & PROVIDE A COVER PLATE.
- 4 REMOVE EXISTING EXISTING OCCUPANCY SENSOR.

LIGHT FIXTURE SCHEDULE

FIXTURE	DESCRIPTION
F1	LITHONIA, 4" LINEAR LUMINAIRE : CLX-L48-4000LM-SEF-SBLMB-FDL-MVOLT-35K ; SURFACE MOUNTED TO CEILING. 28W PER FIX.
F2	LITHONIA, 8" LINEAR LUMINAIRE : CLX-L96-4000LM-SEF-SBLMB-FDL-MVOLT-35K ; SURFACE MOUNTED TO CEILING. 50W P28 FIX.
F3	LITHONIA, SURFACE MOUNTED LED EMERGENCY LIGHT - ELM4L: LED, WITH 90 MINUTE BATTERY BACKUP.
F4	LITHONIA EXIT SIGN: LQM-S-W-R-EL-N-M6; RED LED EXIT LIGHT W/90 MINUTE BATTERY CEILING MOUNTED WITH DIRECTIONAL ARROWS AS INDICATED ON DRAWING
F5	LITHONIA EMERGENCY LIGHT & EXIT LIGHT COMBO: LHQM-LED-R-M6; RED LED EXIT LIGHT W/90 MINUTE BATTERY
F6	LITHONIA, 4" LINEAR LUMINAIRE : CLX-L48-9000LM-SEF-SBLMB-FDL-MVOLT-35K ; HUNG FROM CEILING AT EXISTING HIEGHT. 28W PER FIX.

LIGHTING CONTROLS LEGEND

- WSA PWT XX
LINE POWERED, WALL SWITCH SENSOR,
PASSIVE DUAL TECHNOLOGY
- CP 10
CMR PDT 10 WH
LOW VOLTAGE CEILING MOUNT SENSOR, PASSIVE DUAL
TECHNOLOGY, LARGE MOTION / EXTENDED RANGE 360° LENS
- CP 9
CMR PDT 9 WH
LOW VOLTAGE CEILING MOUNT SENSOR, PASSIVE DUAL
TECHNOLOGY, SMALL MOTION RANGE 360° LENS
- CRP 9LT
CMR PDT 9 LT WH
CEILING MOUNT SENSOR, PASSIVE DUAL TECHNOLOGY, SMALL
MOTION RANGE 360° LENS,
LOW TEMP / HIGH HUMIDITY
- PP 20
SENSOR SWITCH
POWER PACK (120/277 VAC) TO CLASS 2 15
VDC



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10-02-2026
10-12-2026 - ADD#3
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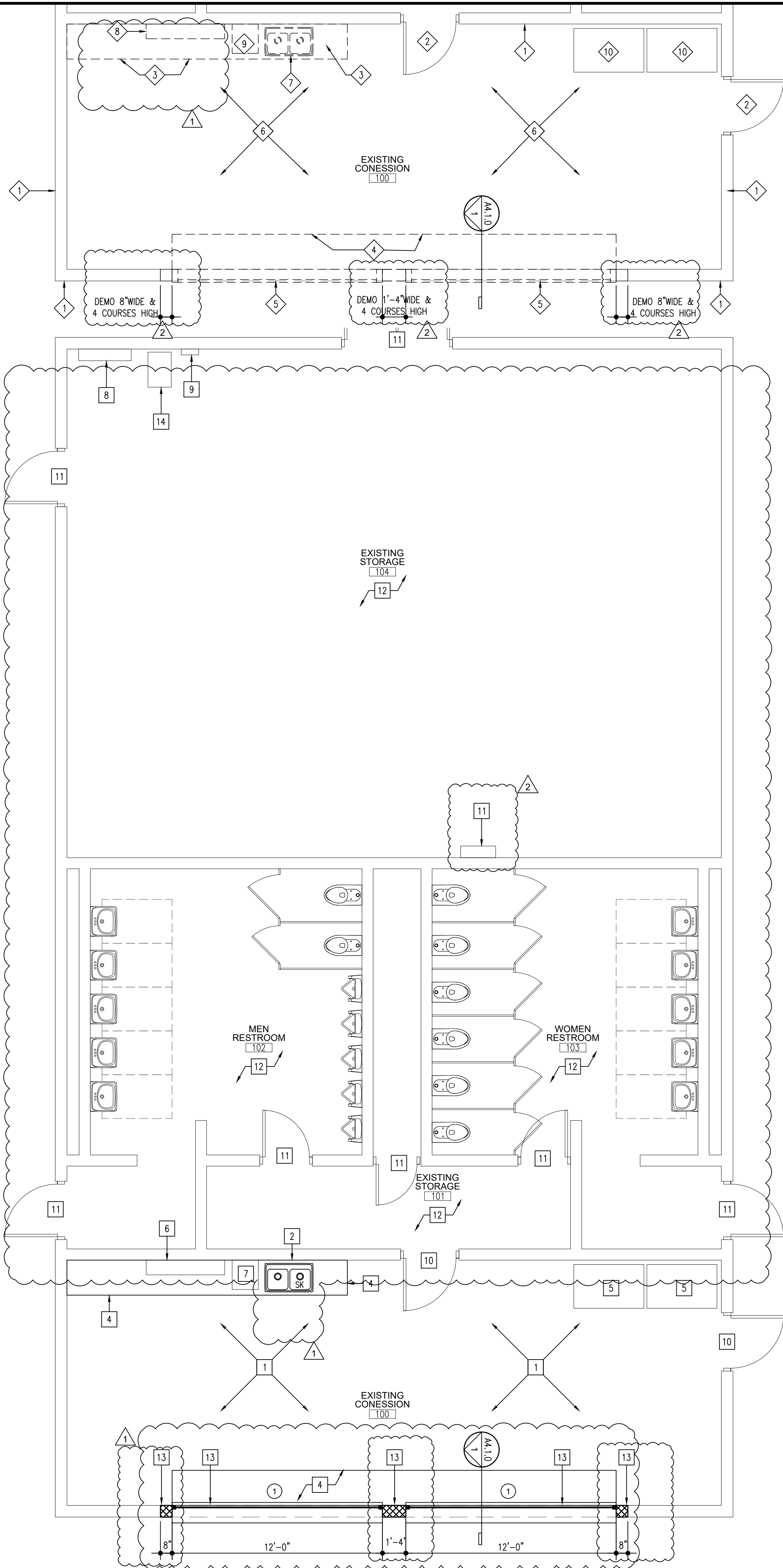
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PARTIAL FLOOR PLAN

DEMOLITION

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



DEMOLITION GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. DO NOT SCALE THE DRAWINGS.
3. CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WORK FROM DAMAGE DURING CONSTRUCTION.
4. VERIFY ANY ELECTRICAL/MECHANICAL/PLUMBING REMOVAL PRIOR TO DEMOLITION.

DEMOLITION KEYED NOTES:

- 1 EXISTING WALL TO REMAIN (TYP)
- 2 EXISTING DOOR SHALL REMAIN
- 3 REMOVE EXISTING COUNTER TOP & SUPPORT BRACKETS COMPLETELY.
- 4 REMOVE EXISTING COUNTER TOP & CASEWORK BELOW COMPLETELY.
- 5 REMOVE EXISTING CEILING DOORS & STRUCTURAL ANGLES COMPLETELY.
- PATCH MASONRY WALL AS REQUIRED.
- 6 REMOVE EXISTING FLOOR FINISH COMPLETELY - PREP TO RECEIVE NEW FINISH.
- 7 REMOVE EXISTING SINK, PLUMBING LINES TO REMAIN
- 8 REMOVE EXISTING MENU BOARD
- 9 SALVAGE EXISTING SODA MACHINE
- 10 SALVAGE EXISTING REFRIGERATOR
- 11 EXISTING WALL MOUNTED DATA CABINET SHALL REMAIN
- 12 REMOVE PORTION OF EXISTING CMU BLOCK TO MATCH HEIGHT ON NEW HALF WALL.
SHORE EXISTING WALL AS REQUIRED.

NEW CONSTRUCTION PLAN GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION.
2. PROVIDE BULLNOSE BLOCK AT ALL EXPOSED MASONRY CORNERS.
3. ALL OF THE FLOOR PLAN NEW CONSTRUCTION NOTES LISTED MAY NOT APPEAR ON EACH INDIVIDUAL NEW CONSTRUCTION PLAN.

NEW CONSTRUCTION KEYNOTES:

- 1 FLOOR FINISHES & BASE - REFER TO FLOOR FINISH PLAN.
- 2 NEW SINK - SEE SINK SCHEDULE BELOW FOR ADDITIONAL INFORMATION.
- 3 EXISTING FLOOR DRAIN - PROVIDE LEVELER AS REQUIRED.
- 4 NEW STAINLESS STEEL COUNTER TOP.
- 5 EXISTING REFRIGERATOR - RELOCATE TO EXISTING POSITION.
- 6 INSTALL MENU BOARD - PROVIDED BY OWNER / INSTALLED BY CONTRACTOR.
- 7 REINSTALL SODA MACHINE - REFER TO PLUMBING FOR
- 8 EXISTING MAIN DISTRIBUTION PANEL
- 9 EXISTING BUILDING POWER PANEL
- 10 EXISTING DOOR & FRAME SHALL REMAIN - PAINT CONCESSION SIDE OF DOOR & FRAME.
- 11 EXISTING DOOR SHALL REMAIN
- 12 EXISTING ROOM FINISHES SHALL REMAIN.
- 13 NEW HALF WALL BELOW COUNTER - SEE EXTERIOR ELEVATIONS
- 14 EXISTING STEP DOWN TRANSFORMER SHALL REMAIN

SINK SCHEDULE

SK	EQUAL DOUBLE BOWL DROP-IN ADA SINK	ELKAY #LRAD00331965, LUSTERSTONE CLASSIC STAINLESS STEEL, ADA-DECK MOUNTED MANUAL FAUCET WITH 4" CENTERS, CHICAGO FAUCET #895-317ARCP; CHROMED BRASS SUPPLIES & STOPS, STRAINER BASKET AND TAILPIECE, CAST BRASS 7" TRAP W/ CO.	CONNECT TO EXISTING WATER & SEWER LINES: 1. WATER LINES AT SHUT-OFFS. 2. SEWER LINE AFTER PENETRATION THRU WALL.
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PARTIAL FLOOR PLAN

NEW CONSTRUCTION

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



ROOM FINISH SCHEDULE

ROOM MNO	ROOM NAME	FLOOR	BASE	WALLS								CEILING			NOTES	ROOM NO
				NORTH		SOUTH		WEST		EAST						
				MT'L	FIN	MT'L	FIN	MT'L	FIN	MT'L	FIN	MT'L	FIN	MT'L		
100	EXISTING CONCESSION	VCT/PNT3	EB	EX	PNT1	EX/CMU	PNT1	EX	PNT1	EX	PNT1	GYP	PNT2	EX	#1	100
101	EXISTING STORAGE	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	---	EX		101
102	MEN RESTROOM	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	---	EX		102
103	WOMEN RESTROOM	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	---	EX		103
104	EXISTING STORAGE	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	EX	---	EX		104

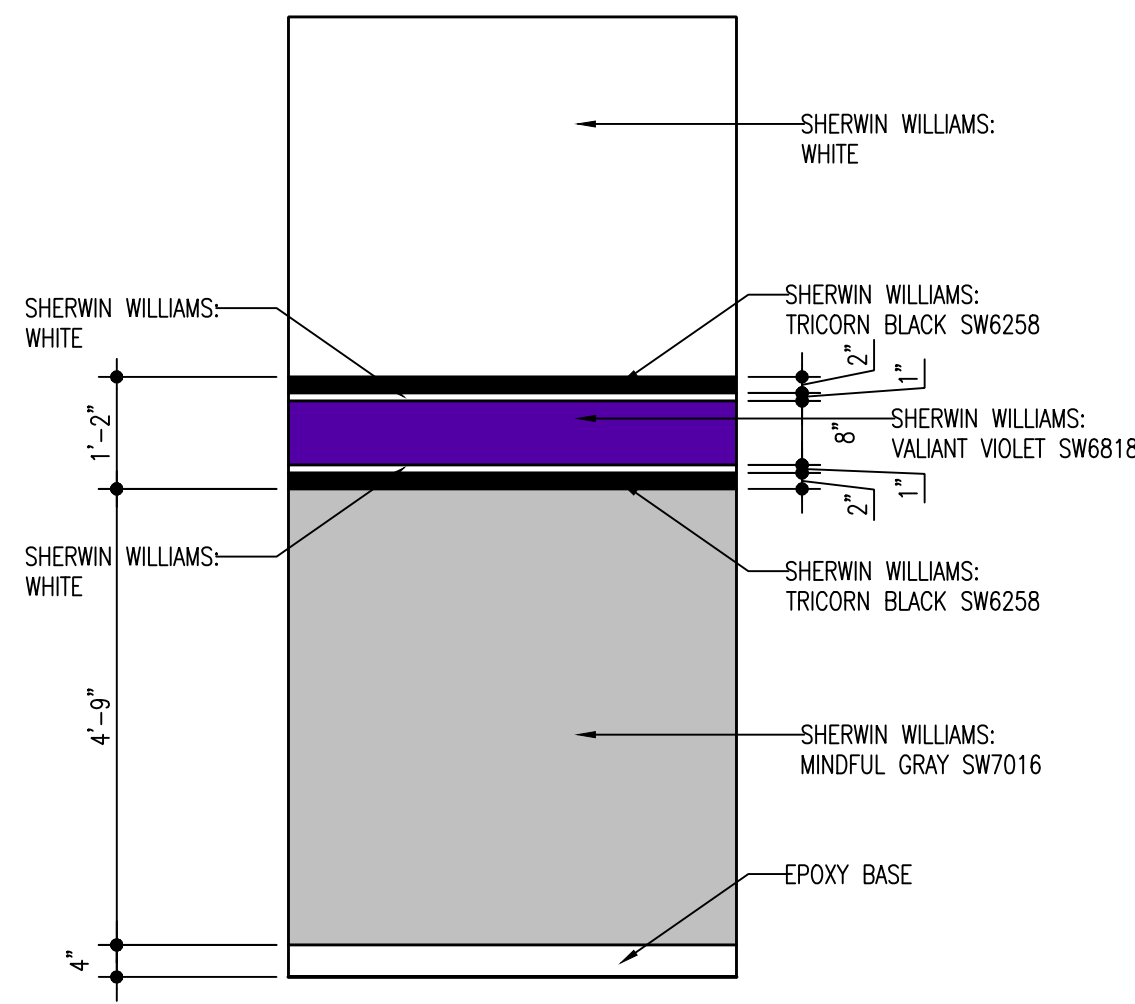
FINISH MATERIAL LEGEND

	DESCRIPTION
CMU	CONCRETE MASONRY UNIT
CONC	OMITTED
EB	4" PAINTED EPOXY WALL BASE
EX	EXISTING FLOORING TO REMAIN
PNT1	WALL PAINT: EPOXY PAINT - MINDFUL GRAY
PNT2	CEILING PAINT: WHITE
PNT3	PAINTED EPOXY FLOOR
VCT	VINYL COMPOSITE TILE
SAT	WASHABLE SUSPENDED ACOUSTICAL TILE CEILING

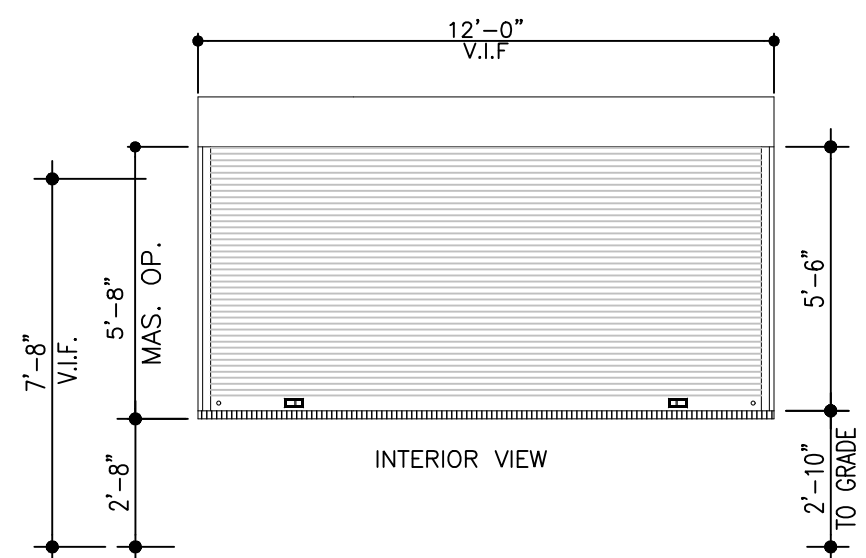
ROOM FINISH SCHEDULE NOTES

#1: REFER TO PAINT DETAIL PLAN ON SHEET A7.1.1

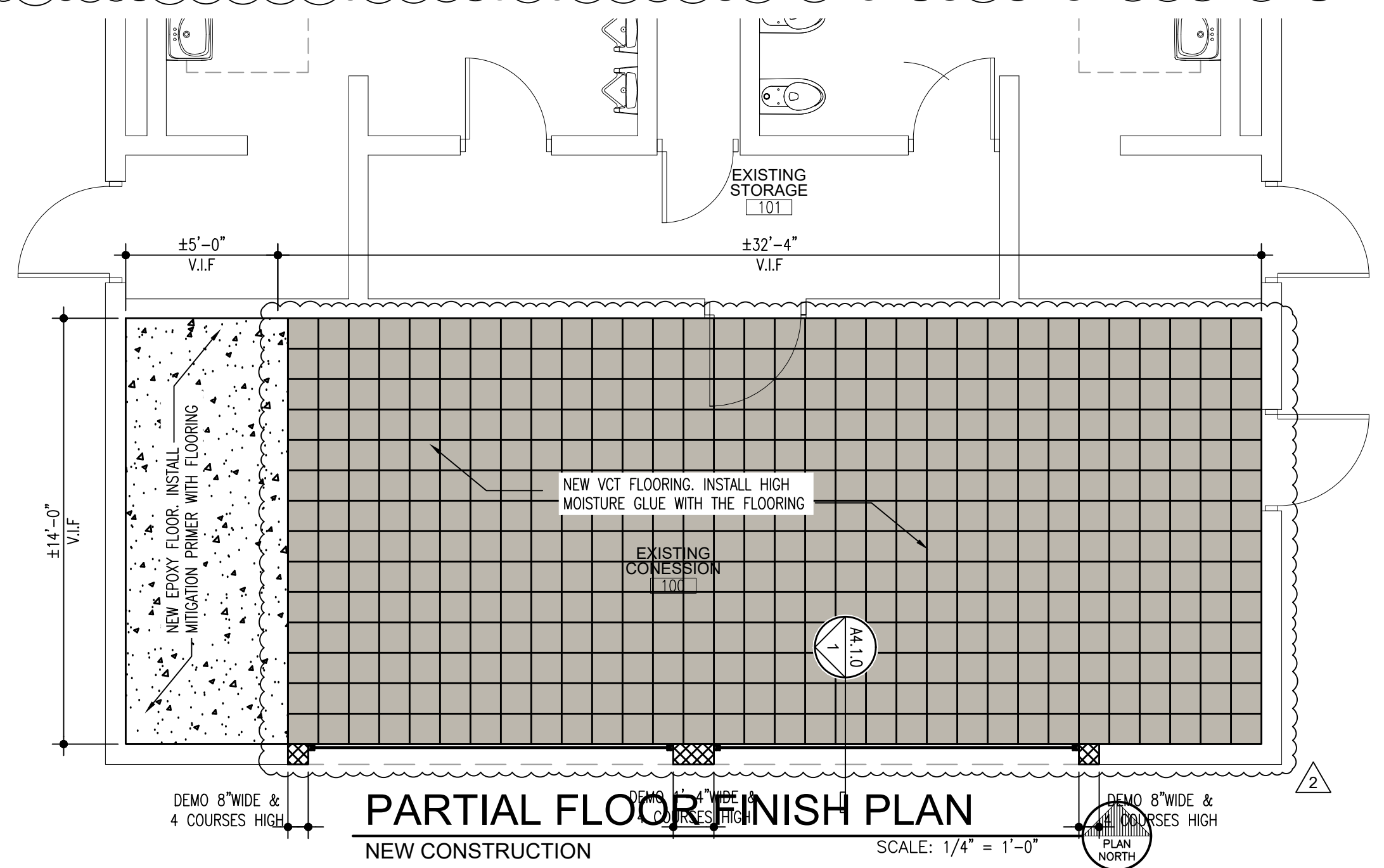
#2: OMITTED



WALL PAINT DETAIL



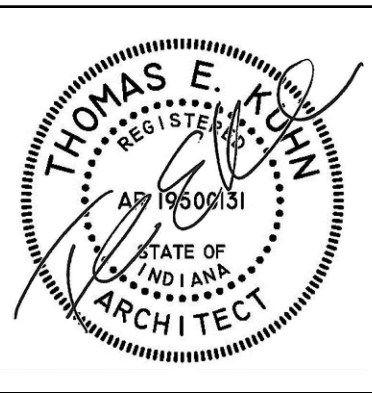
CONCESSION
12'-0" x 5'-6" (MASONRY OPENING)
OVERHEAD "DOOR" CORPORATION MODEL 657
- BETWEEN WALL MOUNTING
- MANUAL OPERATION
- STAINLESS STEEL
- SLOT PROFILE TYPE: F-158
- COUNTERTOP - 300 SERIES
14 GA. STAINLESS STEEL WITH #4 FINISH BY
COUNTERTOP SUPPLIER



PARTIAL FLOOR FINISH PLAN

NEW CONSTRUCTION

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



DATE
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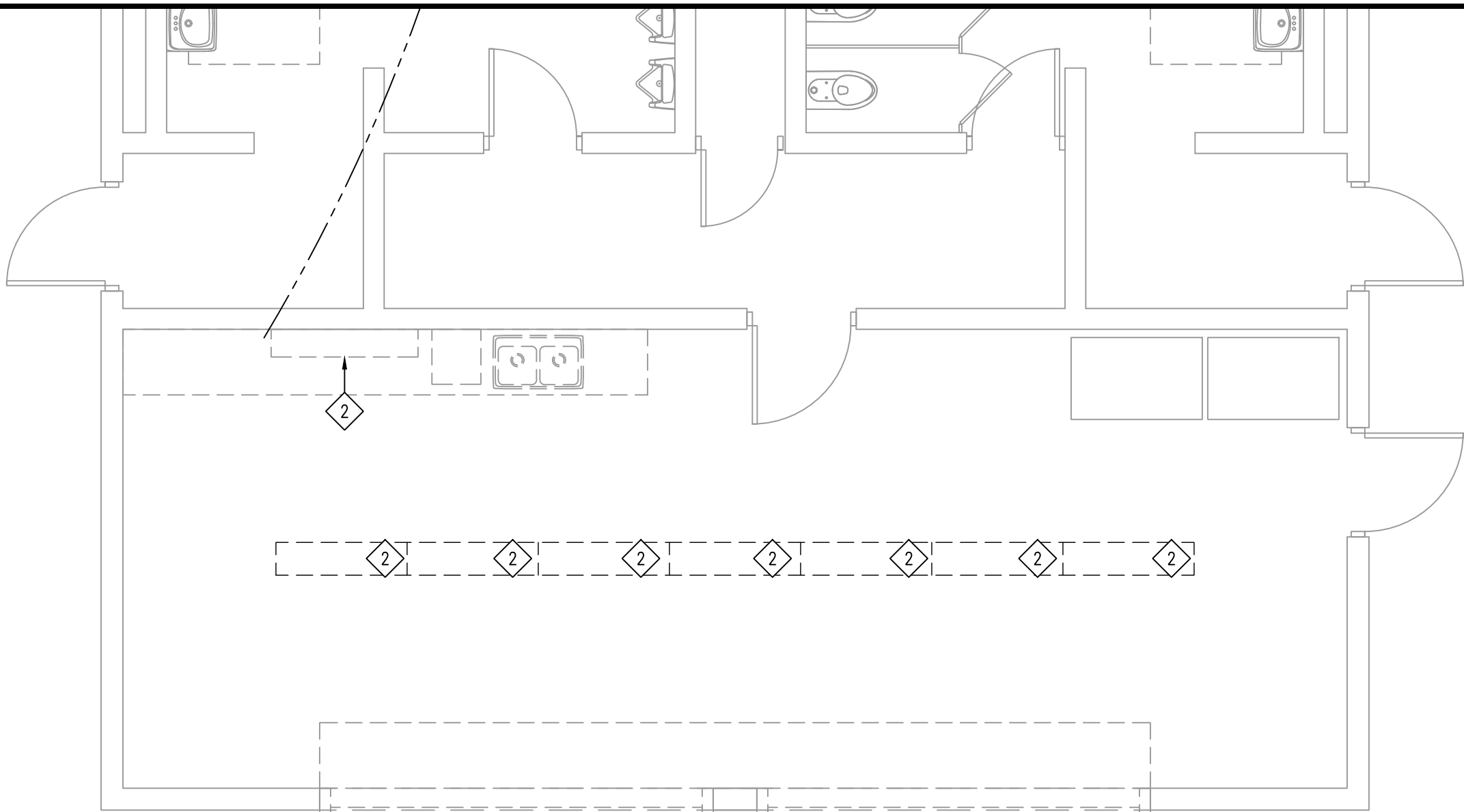
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PARTIAL LIGHTING PLAN

DEMOLITION

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



DEMOLITION GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. DO NOT SCALE THE DRAWINGS.
3. CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WORK FROM DAMAGE DURING CONSTRUCTION.
4. VERIFY ANY ELECTRICAL/MECHANICAL/PLUMBING REMOVAL PRIOR TO DEMOLITION.

DEMOLITION KEYED NOTES:

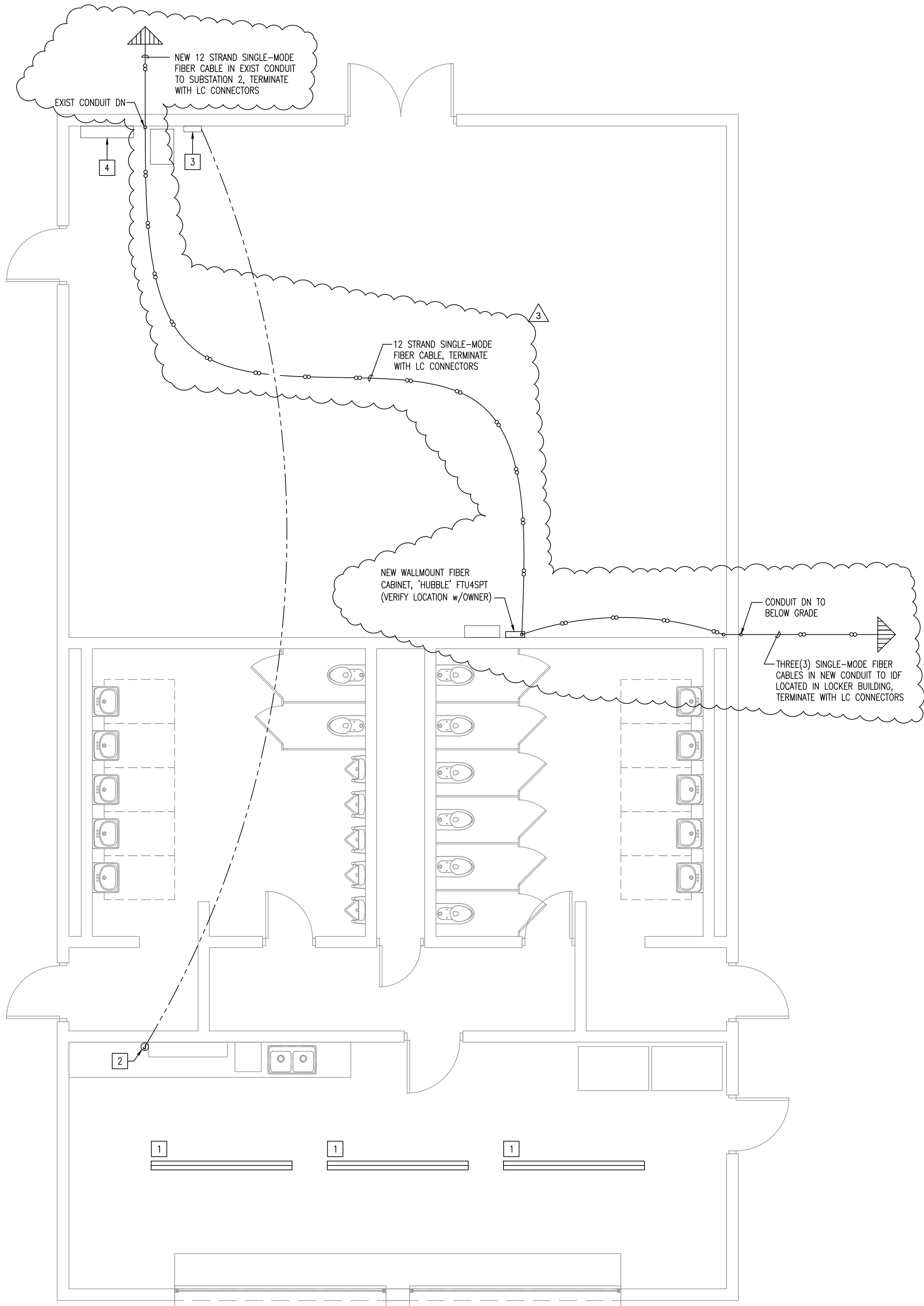
- 1 REMOVE EXISTING LIGHT FIXTURE, PREP JUNCTION BOX & WIRING AS REQUIRED FOR NEW ROOM LAYOUT.
- 2 REMOVE EXISTING MENU BOARD & RETURN TO OWNER.

NEW CONSTRUCTION PLAN GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION.

NEW CONSTRUCTION KEYNOTES:

- 1 INSTALL NEW LITHONIA, 8" LINEAR LUMINAIRE: CLX-L96-4000LM-SEF-SBLMB-FDL-MVOLT-35K; MOUNT TO GYPSUM CEILING.
- 2 MENU SIGN PROVIDED BY OWNER. CONTRACTOR SHALL FURNISH & INSTALL SURFACE MOUNTED JUNCTION BOX @ 8" A.F.F. INSTALL SURFACE MOUNTED CONDUIT UP TO CEILING BACK TO EXISTING PANEL.
- 3 EXISTING BUILDING PANEL (CBLD1)
- 4 EXISTING 800AMP MDP (CBHD1)



PARTIAL LIGHTING / DATA PLAN

NEW CONSTRUCTION

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



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