312 Plum Street, Suite 700
Cincinnati, OH 45202
(513) 381-2112

May 18, 2022

ADDENDUM 1

TO THE DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS FOR:

EARLY CHILDHOOD ESSER

FOR

Winton Woods City Schools
825 Waycross Road, Suite A,
Cincinnati, OH 45240

Comm. No. 2021091.01

TO ALL BIDDERS:

This Addendum supplements, amends and takes precedence over the original Drawings and Specifications, and shall be taken into account when preparing proposals, and shall become part of the Contract Documents. Receipt of this Addendum must be entered on the bidder's Bid Form. Bidder is cautioned to read the entire addendum and to check that all pages of the Addendum have been included in the Bidder's copy of the Addendum.

QUESTIONS & ANSWERS

QUESTION 1 *Will all of the windows need brick and lintel work? Some of the windows show brick work and lintel keynote tags, and others do not.*

A. Many windows are replacing existing windows. In those instances, no brick work or lintel work is necessary, just window replacement. Where drawings call for new opening and new window, brick work and new lintels are necessary.

QUESTION 2 *Masonry wall surrounding new electrical room #188D. Specs requested for masonry wall.*

A. Specifications were provided in original set. Please refer to spec book for the Unit Masonry Section. A new specification section for Cast-In-Place Concrete for the foundations for these walls is included with this addendum.

QUESTION 3 *What is the last day to submit RFI for this bid?*

A. RFI must be submitted to amckenzie@shp.com no later than noon on May 26, 2022.

SPECIFICATION ITEM

ITEM 3 – Specification Section 03 30 00 – Cast-In-Place Concrete:

Add Specification Section 03 30 00 – Cast-In-Place Concrete as attached.

ITEM 4 – Specification Section 01 23 00– Alternates:

Revised Specification section that includes alternates for new folding glass walls as attached.

ITEM 5 – Specification Section 00 41 16– Bid Form:

Revised bid form that includes lines for the new alternates for new folding glass walls as attached.

DRAWING ITEMS

ITEM 6 – Drawing Sheet G00.E:

Revision. Shows list of sheets revised in Addendum 1.

ITEM 7 – Drawing Sheet D102.E:

Revision. Remove portion of concrete slab to provide thickened slabs for new CMU wall. Demo for Alternate #2.

ITEM 8 – Drawing Sheet D202.E:

Revision. Portion of wall requiring demolition if Alternate #2 is accepted.

ITEM 9 – Drawing Sheet A010.E:

Revision. New storefront configuration and glass panel wall for Alternates #3&4 if accepted.

ITEM 10 – Drawing Sheet A011.E:

Revision. Access control elements updated at all doors to receive access control.

ITEM 11 – Drawing Sheet A102.E:

A. Revision. Alternate #2 added. Inward folding operable glass partition in room 191 STUDY HALL/CAFETERIA. Includes addition of 2/A102.E Alternate #2 plan.

B. Revision. 188D ELECTRICAL room west wall removed.

C. Revision. Thickened slab CMU wall detail added.

ITEM 12 – Drawing Sheet A103.E:

A. Revision. Alternate #3 added. Inward folding operable glass partition in 1101 LIGHT COURT 2.

B. Revision. Alternate #4 added. Inward folding operable glass partition in 1102 LIGHT ROOM 1.

C. Revision. Alternate #3&4 plan provided.

ITEM 13 – Drawing Sheet A202.E:

A. Revision. 10/A202.E note concerning Alternate #3.

B. Revision. 14/A202.E note concerning Alternate #4.

ITEM 14 – Drawing Sheet M000:

A. Revision. New sheet M500 added to mechanical sheet list.

B. Clarification. Updated general note DD.

ITEM 15 – Drawing Sheet M002:

D. Clarification. Added note to detail 5.

ITEM 16 – Drawing Sheet M004:

D. Revision. Reassigned ventilation zones.

ITEM 17 – Drawing Sheet M010:

A. Clarification. Added keynote to remove an existing unit vent.

B. Revision. Updated key plan to reflect correct north arrow.

ITEM 18 – Drawing Sheet M011:

A. Revision. Updated key plan to reflect correct north arrow.

ITEM 19 – Drawing Sheet M012:

A. Revision. Updated key plan to reflect correct north arrow.

ITEM 20 – Drawing Sheet M100:

A. Clarification: Added airflow arrows to show return airflow into FCUs.

B. Revision. Updated key plan to reflect correct north arrow.

ITEM 21 – Drawing Sheet M102:

A. Revision. Added ductwork for FC-1269.

B. Revision. Updated key plan to reflect correct north arrow.

C. Revision. Added ductwork to EF-13.

ITEM 22 – Drawing Sheet M200:

A. Clarification. Changed keynote to general note to provide french drains for all unit ventilators.

B. Revision. Updated key plan to reflect correct north arrow.

ITEM 23 – Drawing Sheet M201:

A. Clarification. Changed keynote to general note to provide french drains for all unit ventilators.

B. Revision. Updated key plan to reflect correct north arrow.

ITEM 24 – Drawing Sheet M202:

A. Clarification. Changed keynote to general note to provide french drains for all unit ventilators.

B. Revision. Updated key plan to reflect correct north arrow.

ITEM 25 – Drawing Sheet M300:

A. Clarification. Added dimensions from roof edge for EF-18.

B. Revision. Shifted CU-1D to be 10’ from roof edge.

ITEM 26 – Drawing Sheet M400:

A. Clarification. Updated drawing to be clearer.

ITEM 27 – Drawing Sheet M500:

A. Revision. New sheet to show mechanical room sections.

ITEM 28 – Drawing Sheet M600:

A. Clarification. Updated control schematic name.

B. Revision. Updated freeze stat location.

ITEM 29 – Drawing Sheet E000:

Revision. Added legend for VRF motor controller junction box.

ITEM 30 – Drawing Sheet E010:

E. Revision. Removed existing door hardware controls and power supply.

F. Revision. Added existing electrical equipment to be demolished.

ITEM 31 – Drawing Sheet E013:

E. Revision. Added existing electrical equipment to be demolished.

F. Clarification. Removed duplicate existing exhaust fan.

ITEM 32 – Drawing Sheet E200:

A. Revision. Added new door hardware per changes on E010.

B. Clarification. Updated keynote EP4 to clarify door hardware replacement and reconnection to existing access control system.

C. Clarification. Added keynote EP5 to clarify new door hardware integration and reconnection to existing access control system.

ITEM 33 – Drawing Sheet E201:

A. Clarification. Updated keynote EP4 to clarify door hardware replacement and reconnection to existing access control system.

B. Revision. Added VRF Motor controller junction boxes.

C. Revision. Added GFI receptacle to electrical room.

ITEM 34 – Drawing Sheet E202:

Clarification. Added keynote EP5 to clarify new door hardware integration and reconnection to existing access control system.

ITEM 35 – Drawing Sheet E400:

A. Revision. Updated panel schedules to reflect VRF motor controllers and GFI receptacle addition per changes on E201.

B. Revision. Changed breaker size on Condensing Unit 1D to match manufacture's MOCP.

End of Addendum 1 items – See attached.

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
1. Footings.
2. Slabs-on-grade.
3. Vapor retarders and vapor barriers for under-slab applications.

B. Applicable requirements of this section apply to concrete work of ALL Trades including slab-on-grade cutting and patching requirements of MEPT contracts.

C. Related Sections:
1. Section 31 20 00 “Earth Moving” for drainage fill under slabs-on-grade.
2. Section 32 13 13 "Concrete Paving" for concrete pavement and walks.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete subcontractor.
2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, methods for achieving specified floor and slab flatness and levelness floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement, prepared according to ACI 315, “Details and Detailing of Concrete Reinforcement.” Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, manufacturer, and testing agency.

B. Material Certificates: For each of the following, signed by manufacturers:
1. Cementitious materials.

C. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

D. Copy of ACI 301 “Specifications for Structural Concrete” for reference on site by contractor, Owners Agent, Architect, Engineer and inspectors.

E. Minutes of preinstallation conference.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
1. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.9 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Provide reference copies on site and comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301-10, "Specification for Structural Concrete", Sections 1 thru 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
3. ACI 304, "Guide for Measuring, Mixing, Transporting and Placing Concrete."
4. ACI 318, "Building Code Requirements for Structural Concrete."

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
a. Exposed-to-view concrete surfaces: Medium-density overlay Class 1 or better; mill-release agent treated and edge sealed.
b. Other locations: B-B (Concrete Form) Class 1 or better; mill oiled and edge sealed for surfaces to receive waterproofing.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. High-Profile Formed Finished Concrete: High-density overlay, Class 1 or better, form-facing panels that will provide continuous, true, repetitive, and highly smooth concrete surfaces, with concealed cone snap ties, cast rustication joints, uniformly spaced in patterns as indicated on the drawings, rubbed smooth, for a highly finished, exposed concrete surface.

D. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

G. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive waterproofing.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Plain-Steel Wire: ASTM A 1064, as drawn.

C. Plain-Steel Welded Wire Reinforcement: ASTM A 1064, plain, fabricated from as-drawn steel wire into flat sheets.
1. Size unless otherwise indicated: WWF 6 by 6 W2.9 by W2.9.
2. Size at metal pan stair platforms: WWF 6 by 6 W1.4 by W1.4.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
1. Portland Cement: ASTM C 150, Type I.
a. Fly Ash: ASTM C 618, Class F or C.

C. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
1. Maximum Coarse-Aggregate Size: 3/4-inch nominal. At stair pan slabs, use maximum aggregate size of No. 8.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

F. Water: ASTM C 94 and potable.

2.6 CONTROLLED DENSITY FILL

A. Backfilling material where required or allowed by other Specification Sections, proportioned per yard as follows:
1. 50 lbs Portland Cement.
2. 250 lbs. Fly Ash.
3. 2910 lbs. Fine Aggregate.
4. 500 lbs. Water producing 7-9 inch slump.
5. 0% Entrained Air.

2.7 WATERSTOPS

A. Flexible Rubber Waterstops: CE CRD-C 513, for embedding in concrete to prevent passage of fluids through joints. Factory-fabricate corners, intersections, and directional changes.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Greenstreak Group, Inc.
b. Progress Unlimited, Inc.
c. Williams Products, Inc.
2. Profile: Ribbed with center bulb.

3. Dimensions: 6 inches by 3/8 inch thick; nontapered.

B. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
1. Products:
   a. Carlisle Coatings & Waterproofing, Inc.; MiraSTOP.
   b. CETCO; Volclay Waterstop-RX.
   c. Concrete Sealants Inc.; Conseal CS-231.
   d. Henry Company, Sealants Division; Hydro-Flex.
   e. JP Specialties, Inc.; Earth Shield Type 20.
   f. Sika Greenstreak Group, Inc.; Sika Swellstop Waterstop.
2. Application: between footing and cast in place concrete walls and cast in place concrete walls abutting other construction where slab elevation differs between one side of wall and the other (such as elevator pits, raised platforms, and similar applications).

2.8 VAPOR RETARDERS AND VAPOR BARRIERS

A. Sheet Vapor Retarder: Minimum 15 mil thickness, ASTM E 1745, Class A, except with maximum perm rating of 0.01 after in-service condition testing per ASTM E154 Sections 8, 11, 12, and 13. Include manufacturer's recommended adhesive or pressure-sensitive tape. Plastic vapor retarder is required under all interior slabs-on-grade.
1. Products:
   a. Insulation Solutions,Inc.; Viper VaporCheck II, 15 mils.
   b. Interplast Group; Barrier-Bac VB-350 (16 mil).
   c. Meadows, W. R., Inc.; Perminator 15 mil.
   d. Raven Industries; Vaporblock VB15.
   e. Reef Industries, Inc.; Vapor Guard.
   f. Stego Industries, LLC; Stego Wrap, 15 mils.

B. Bituminous Vapor Barrier: ASTM E1993, 110-mil-thick, semiflexible, 5 or 7-ply sheet membrane consisting of reinforced core and carrier sheet with fortified asphalt layers, protective weathercoating, and removable plastic release liner. Furnish manufacturer's accessories including bonding asphalt, pointing mastics, and self-adhering joint tape. Bituminous vapor barrier is required under slabs to receive wood floors.
1. Water-Vapor Permeance: 0.00 grains/h x sq. ft. x inches Hg; ASTM E 154.
2. Tensile Strength: 140 lbf/in.; ASTM E 154.
3. Puncture Resistance: 90 lbf; ASTM E 154.
4. Product: Subject to compliance with requirements provide one of the following:
   a. Meadows, W. R., Inc.; “Premoulded Membrane Vapor Seal”.
   b. Right Pointe “Vapor Barrier – 5 Ply”.

2.9 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of lithium silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
1. Use treatments with a VOC content of 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use Locations: All cured interior concrete slabs to be exposed as a finish.
3. Products: Subject to compliance with requirements, provide one of the following:
   a. Dayton Superior; Pentra-Hard Densifier.
   b. Euclid Chemical Company; UltraSil Li+.
   c. Laticrete International; L&M LiON Hard.
   d. Nox-Crete Products Group; Duro-Nox LS.
   e. Prosoco; Consolideck LS.
   f. US SPEC, Division of US Mix Products Company; Permalith.

2.10 CURING MATERIALS

A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

2.11 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
1. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
a. Architectural Sealants: 250 g/L.
b. Sealant Primers for Porous Substrates: 775 g/L.

C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
1. Types I and II, non-load bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.12 REPAIR MATERIALS

A. Repair Underlayment allowed where repaired concrete will be covered by a finish material: Cement-based, epoxy polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8–inch maximum size or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

B. Repair Overlayment for use where concrete surface will remain exposed to view without a concealing finish: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8-inch maximum size or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.13 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301and ACI 318.
1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash: When used, fly ash-to-total cementitious ratio shall be 15% minimum. When used in interior slabs, fly ash-to-total cementitious ratio shall be 25% maximum.

C. Limit water-soluble, chloride-ion content in hardened concrete to the limit in Table 4.2.2.6 of ACI 301.

D. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing; high-range water-reducing; or plasticizing admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete and concrete with a water-cementitious materials ratio below 0.50.

E. Slump Limits:
1. Proportion and design mixes to result in concrete slump at point of placement as follows:
   a. Ramps, slabs, and sloping surfaces: Not more than 3 inches.
   b. Reinforced foundation systems: Not less than 1 inch and not more than 3 inches.
   c. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site verified 2-to-3-inch slump concrete.
   d. Other concrete: Not more than 4 inches.
2. Slump at point of placement must comply with specified requirements. Concrete arriving at point of delivery not able to attain point-of-placement requirements may be adjusted one time on site only as follows:
   a. Concrete delivery equipment must be designed and intended to provide capability of thorough mixing of the concrete.
   b. Controlled addition of superplasticizers.
      1) After plasticizing or water reducing admixtures are added to the concrete at the site to achieve flowable concrete, do not add water to the concrete.
3. Measure and document slump (and air content of air entrained concrete) prior to the addition of admixtures and again after the addition of admixtures.
4. Do not use concrete that is outside the allowable limits.

2.14 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Concrete Schedule:

ITEM OR STRUCTURE	FINISH	COMPRESSIVE STRENGTH & OTHER REQUIREMENTS
1. Suspended slabs and concrete not otherwise indicated	RfFm-Fn SmFm-Fn, if exposed	3500 P.S.I. at 28 days Normal Weight Concrete: Minimum Cementitious Content: ACI minimum requirements
2. Trench footings, footings	Cast against earth excavations	3000 P.S.I. at 28 days Max W/C Ratio = 0.50
3. Foundation and retaining walls exposed to exterior	RfFm-Fn, SmFm-Fn if exposed	4500 P.S.I. at 28 days 4.5%-7.0% air entrainment Max W/C Ratio = 0.45 Mid-Range Water Reducer Required
4. Metal stair pan fill		3500 P.S.I. at 28 days #8 Aggregate (maximum)
5. Lean concrete fill at soft soils or over excavations		1500 P.S.I. at 28 days
6. Controlled density fill		50-100 P.S.I. at 28 days Unconfined compressive strength per ASTM D4832
7. Exposed interior floor slabs and interior slabs scheduled to receive carpet, resilient, thin film, and wood flooring finishes	Tr-Fn1 Tr-Fn2 Tr-Fn3 Tr-Fn4	4000 P.S.I. at 28 days Max W/C Ratio = 0.45 Mid-Range Water Reducer Required

2.15 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.16 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
   1. Delete the references for allowing additional water to be added to the batch for material with insufficient slump.
   2. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 SLAB ON GRADE PREPARATIONS

A. Verify drainage course thickness and conditions before placing vapor retarders and vapor barriers.
   1. Verify correct drainage gravel is installed and is complete and tested before concreting.
   2. If necessary, remove sub-base as required to install full 6 inches of drainage fill beneath all slabs including in particular those areas to have a recessed concrete slab.
      a. Provide thicker drainage gravel course if indicated.
   3. Remove and replace drainage gravel that has been contaminated by unsuitable soils and materials.
   4. Restore surface to proper uniform grade compacted per requirements.
   5. Verify locations and provide sharply trimmed recesses for thickened slabs.

B. Verify precise locations and provision by the appropriate trade of all slab-penetrating pipes, conduits, in-slab boxes, and the like.

C. REQUEST DIMENSIONED FLOOR OUTLET PLAN AT LEAST ONE FULL WEEK IN ADVANCE OF SCHEDULED FLOOR SLAB POUR.
   1. Locate in-slab electrical and data-technology boxes from NEW **dimensioned plans furnished by the Architect <u>during construction</u>**; do not rely on dimensioned or scaled locations shown in the bid documents. Final locations may have changed due to Owner request or furnishing changes. Actual locations based on actual furnishings, and materials to be provided are necessary.
   2. Same obligation applies for conduits to be stubbed up into casework. Precise access points are usually required and the accessible portion may differ from what it appears in plan; consult with architect / interior designer before proceeding.
   3. Any corrective measures necessary to adjust for the Contractor’s failure to coordinate and verify floor slab penetration locations and in-floor devices, require the Architect’s direct review and acceptance and shall be performed at the Contractor’s sole expense; including compensation to the Architect for the time required to evaluate alternatives and accept a solution.
      a. Architect’s standard hourly rates apply and shall be paid direct to the Architect prior to submission of contractor’s next partial payment request.

D. Locate and prepare for floor drains as indicated in ‘Slab Finishing’ article below.

3.2 PROTECTION

A. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from exposed concrete surface. Prevention is therefore essential.

B. Comply with the following requirements wherever concrete is indicated to remain exposed or is to have a thin-coat finish such as painting or stain, or is to be polished:
   1. Diaper all hydraulic powered equipment to avoid staining of the concrete.
   2. Permit no trade to park vehicles on the inside slab. If necessary to bring vehicles inside to complete their scope of work, require placement of drop cloths under vehicles at all times.
   3. Allow no pipe cutting machine to be used on the inside floor slab.
   4. Do not allow steel including steel pipe to be placed or stored on interior slab (to avoid rust staining).
   5. Do not allow acids and acidic detergents to come in contact with the slab.

6. As part of preconstruction meeting or project progress meeting inform all trades of these requirements and that these slabs must be protected at all times.

3.3 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class C, 1/2 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Earth Forms where allowed: Provide hand-trimmed straight lines excavations with sides vertical and true. Hand clean bottoms just before pouring to provide sharp corners and excavations free of loose earth and foreign materials.
1. Provide wood forms for portions of foundations exposed above finish grade.
2. Provide accurately located blockouts for roof drain leaders and other penetrating items.

J. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

K. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

L. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

M. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.4 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.5 REMOVING AND REUSING FORMS

A. General: Formwork for walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
   1. Leave formwork for structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
   2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.6 VAPOR RETARDER AND VAPOR BARRIER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
   1. Lap joints 6 inches and seal with manufacturer's recommended tape.
   2. Turn vapor retarder membrane up face of intervening walls to form a bond break. Maintain in place until slab is poured and set, then trim flush with top of slab.

B. Bituminous Vapor Barriers: Place, protect, and repair bituminous vapor barriers according to manufacturer's written instructions.

3.7 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
   1. Do not cut or puncture vapor retarder or vapor barrier. Repair damage and reseal vapor retarder/barrier before placing concrete.

B. Clean reinforcement of loose rust, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

F. Reinforce all interior slabs in compliance with requirements indicated on structural drawings.

G. Lap reinforcing steel in compliance with requirements indicated on structural drawings.

H. At slab and wall opening corners and reentrant corners, provide (1) #5 bar in each face parallel to each edge extending a minimum of 2’-0” past edge of opening.

3.8 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
   1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
   2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
   3. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
   4. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
   1. Grooved Joints for exterior walks and pavements, coordinate with Section 32 13 13 “Concrete Paving”.
   2. Sawed Joints for Interior Slabs: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
      a. Unless otherwise noted on plans, space contraction joints at 10’-0” maximum spacing in both directions.
         1) For rooms scheduled to have exposed concrete floor finish, obtain joint pattern and layout from Architect at least 7-days in advance of pouring such slab. Seal exposed joints with semi-rigid joint filler.
   3. Locate control (contraction) joints as shown on the Drawings. In the absence of information on Drawings, locate at openings, walls, columns, grid lines, and inside corners.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
   1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
   2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants are indicated.
   3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together. Install full thickness of slab; allow no holes or gaps in or below filler strips that permit impervious, solid contact between slab edges.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate one-half of dowel length, or provide dowel caps, to prevent concrete bonding to one side of joint.

3.9 WATERSTOP INSTALLATION

A. Flexible Waterstops: Install in concrete wall construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.10 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
   1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
   2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
   3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
   1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   2. Maintain reinforcement in position on chairs during concrete placement.
   3. Screed slab surfaces with a straightedge and strike off to correct elevations.
   4. Slope surfaces uniformly to drains where required.
   5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
   6. Produce elevated slabs on metal deck with top surfaces flat and level in compliance with requirements regardless of any supporting metal deck, structural steel, or joist deflection. Include any additional concrete thickness necessary due to any such deflection; maintain slab thickness indicated in the documents as the minimum thickness.

3.11 FINISHING FORMED SURFACES

A. Rough-Formed Finish (RfFm-Fn): As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
   1. Apply to concrete surfaces not exposed to view.

B. Smooth-Formed Finish (SmFm-Fn): As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
   1. Apply to concrete surfaces exposed to view or to be covered with a coating or covering material applied directly to concrete, such as paint, special coating or waterproofing.

C. High-Profile Formed Finish(HpFm-Fn): As-cast concrete texture imparted by high density plywood form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams, and cast-in-place rustications joints and snap-tie cones. Immediately after stripping formwork, rub entire wall surface to provide highly smooth, uniform surface, with no visible butt joints in the field. Repair and patch all cast in place defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

   1. Apply to high-profile concrete surfaces exposed to view or to be covered with a coating or covering material applied directly to concrete, such as paint or special coating.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.12 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float and trowel finishes shall be completed using **combination blades**. Finish blades are not acceptable.

C. Floor Drains:
1. Verify elevations of floor drain rough-in work in advance of concreting operations and initiate any corrections necessary.
2. Unless otherwise indicated, ensure that floor drains are placed ¾-inch below finish floor line. Uniformly slope slab surfaces to drains including drains. Start slope to drains 3- to 5-feet away from drain in all directions.
3. For rooms and spaces with floor drains take extra precautions to ensure against ponding water in any location. Test surfaces before floor finishes are applied and grind as necessary to provide complete drainage throughout the room or space.
4. Unless otherwise instructed **do NOT slope kitchen floors** to floor drains or floor sinks; maintain drain rim flush with or only very slightly below plane of finish floor in kitchens. Reconfirm exact drain locations with Kitchen Equipment drawings / contractor before placing and finishing concrete slabs.

D. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
1. Apply a float finish to monolithic slab surfaces that are to receive trowel finish.

E. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
1. Finish surfaces to the following tolerances, according to ASTM E 1155 for a randomly trafficked floor surface:
a. Trowel Finish 1 (Tr-Fn1):
1) Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20.
2) Minimum local values of flatness, F(F) 17; and of levelness, F(L) 14.
3) Apply trowel finish to monolithic slab surfaces that are scheduled to receive carpet flooring and where slabs remain exposed to view.
b. Trowel Finish 2 (Tr-Fn2):
1) Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25.
2) Minimum local values of flatness, F(F) 24; and of levelness, F(L) 17.
3) Apply trowel finish to monolithic slab surfaces that are scheduled to receive thin-set tile flooring, resilient flooring, and other thin-film flooring types.
a) At thin-set tile floors, maximum permissible variation shall be ¼ inch in 10 feet from required plane. After surface is steel troweled, apply a fine broom finish.
c. Trowel Finish 3 (Tr-Fn3): Spaces with wood flooring:
1) The slab shall be troweled to a true level and finished smooth and straight to a tolerance of 1/8 inch in any 10 foot radius. High spots shall be ground level and low spots filled with approved leveling compound to full approval of wood flooring contractor.
d. Trowel Finish 4 (Tr-Fn4): Elevated floor slabs:
1) Specified overall values of flatness, F(F) 25.

F. Trowel and Fine-Broom Finish (TrFbrm-Fn): Apply a first trowel finish to surfaces indicated and to surfaces where ceramic tile is to be installed by thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

3.13 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Leveling fill: Use repair materials suited to the exposure conditions indicated in Part 2 – Products. Install per manufacturers recommendations including slab preparations, primers and bonding agents as appropriate to the substrate conditions. Provide a smooth and level surface feathered into slab to remain.

C. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

D. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
1. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

E. Steel Pan Stairs: Provide welded wire reinforcement and concrete fill for steel pan stair treads, platforms, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.14 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 AND 318 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by the following method:
1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

E. Moisture Mitigation: Contractor shall be responsible for means and methods necessary to meet the concrete moisture testing requirements per the Division 9 specifications. This shall include, but is not limited to, mechanical grinding, shot-blasting, commercial dehumidification, fluid applied membrane, etc. Coordinate and comply with all flooring manufacturer’s recommendations and requirements.

3.15 LIQUID FLOOR TREATMENT APPLICATION

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than seven days old.
3. Apply liquid with a low pressure sprayer at sufficient rate to uniformly wet the surface of the concrete without producing puddles. Allow treated surfaces to dry. Remove any dried powder residue. Apply a second coat in a similar manner.

3.16 JOINT FILLING

A. At concrete floor slabs to remain exposed as a finish, prepare, clean, and install joint filler according to manufacturer's written instructions.
1. Defer joint filling until concrete has aged at least six month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.17 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
   1. Comply with floor-drain slope and anti-ponding requirements specified above in floor finishing article. Slabs that cannot be made free of ponding water in rooms containing floor drains will be considered defective.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. **Correct low and high areas which fail to achieve the specified minimum local values of flatness and levelness**. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
   1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
   2. After concrete has cured at least 14 days, correct high areas by grinding.
   3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
   4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
   5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
   6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inchclearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
   7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.18 FIELD QUALITY CONTROL

A. "Special Inspections" Testing and Inspecting: Owner will engage a special inspector to perform field tests and inspections defined as Special Inspections" in the Ohio Building Code and prepare test reports indicated for special inspections on the structural drawings and in the plans-review application.

B. Testing and Inspecting other than listed as special inspections: Contractor shall engage a qualified testing and inspecting agency to perform following tests and inspections and to submit reports.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
   1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
      a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
   2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
   3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
   4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
   5. Compression Test Specimens: ASTM C 31/C 31M.
      a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
   6. Compressive-Strength Tests: ASTM C 39; test one laboratory-cured specimen at 7 days, test two specimens at 28 days, and retain one specimen in reserve for later testing if required.
      a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
   7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
   8. Test results shall be reported in writing to Architect, Structural Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
   9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
   10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.
   11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
   12. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

3.19 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00

SECTION 01 23 00 – ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
   2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.3 CLARIFICATIONS

A. Extent of work for each alternate is indicated on the drawings and/or in the associated technical specification sections; in case of any uncertainty request clarification from Architect before bidding, in time for addendum preparation.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other Work of the Contract.

D. Schedule: A Part 3 “Schedule of Alternates” Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate materials and their installation for each alternate with related materials and installation under other subcontracts to ensure each item is completely integrated and interfaced with related work of same and other contracts and all costs for such integration are included in the alternate Work amount.

3.2 SCHEDULE OF ALTERNATES

A. Alternate No.1: Each bidder is requested to state the addition in cost to provide triple-pane glazing with integral blinds in lieu of double-pane glazing in in all Aluminum Windows.

B. Alternate No. 2: Each bidder is requested to state the addition in cost to provide the new folding glass wall in the Cafeteria as indicated in the drawings.

C. Alternate No. 3: Each bidder is requested to state the addition in cost to provide the new folding glass wall in Light Court 2 as indicated in the drawings.

D. Alternate No. 4: Each bidder is requested to state the addition in cost to provide the new folding glass wall in Light Court 1 as indicated in the drawings.

END OF SECTION 01 23 00

DOCUMENT 00 41 16 - BID FORM

EARLY CHILDHOOD ESSER

For

Winton Woods City Schools

SUBMITTED BY: _____
(CONTRACTOR FIRM NAME)

SUBMITTED NO LATER THAN

2:00 p.m. - Local Time
June 1, 2022

AT THE OFFICE OF:

Steve Denny, Executive Director of Business Affairs

Winton Woods City School District

Board of Education
825 Waycross Rd, Suite A
Cincinnati, Ohio 45240

DOCUMENTS PREPARED BY:

SHP

312 Plum Street, Suite 700

Cincinnati, Ohio 45202

Bid Form continues on next page

PART A - GENERAL NOTES

The attention of the bidder is called to Notice to Bidders / Instructions to Bidders / Supplementary Instructions to Bidders / Standard Form of Agreement Between Owner and Contractor / General Conditions / Supplementary General Conditions for specific items relating to the execution of the Bid Form. In submitting this bid, the bidder represents that they have carefully reviewed and understands these documents and agrees to the conditions of these documents. Non-compliance with any of the provisions of these documents may constitute sufficient cause for rejection of a bid.

Execute duplicate Bid Form in original for each bid submitted.

Attach Bid Security to first Bid Form.

Attach the following forms to the first Bid Form:

- Bidder's Qualifications
- Non-Collusion Affidavit

Do Not alter the wording of the Bid Form.

Bidders may attach typewritten sheet(s) providing any additional information, voluntary substitutions, or voluntary alternates for the Owner's consideration but the bid amounts contained herein must be based on the bid documents, not such voluntary substitutions or voluntary alternates.

Submit completed Bid Form along with all other required information in a sealed envelope plainly identified as to items being bid and name of bidder. See Instructions to Bidders.

The Owner reserves the right to award separate contracts for each individual item bid or to award combination bids if provided for in this form.

It is understood and agreed that each the Project will achieve **Substantial Completion by November 18, 2022** and **Final Completion by December 18, 2022**, per definition of AIA General Conditions. See Section 00 73 01 "Supplementary General Conditions" Article 8 – Time, including liquidated damages information.

PART B - RECEIPT OF ADDENDA

The following addenda have been received and taken into account in preparation of this bid:

Addenda No.: _____ Addenda No.: _____

Addenda No.: _____ Addenda No.: _____

Bid Form continues on next page

PART C - PROPOSAL

We, the undersigned bidder have fully examined the Contract Documents entitled: **"Early Childhood ESSER"** for **Winton Woods City Schools**, dated **March 31, 2022**, as prepared by SHP, and do hereby propose to perform all Work for the applicable Contract, in accordance with the Contract Documents, for the amounts as follows:

BASE BID

This Base Bid Amount shall include the following Allowances:

Allowance No. 1: Floor Tile Abatement Allowance: $10,000.

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words: _____

ALTERNATES

Alternate No. 1: Integral Blinds in Aluminum Windows

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words: _____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 2: Cafeteria Folding Glass Wall

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words: _____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 3: Light Court 2 Folding Glass Wall

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words: _____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 4: Light Court 1 Folding Glass Wall

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words: _____

Add to _____ Deduct from _____ Contract Time (calendar days).

UNIT PRICES

Unit-Price No. 1: Asbestos containing floor tile abatement

ALL LABOR AND MATERIALS, for the sum of: $ _____ Per Square Foot

Sum in words: _____ Per Square Foot

Bid Form continues on next page

PART D – BIDDER'S CERTIFICATION

The bidder hereby acknowledges that the following representations in this bid are material and not mere recitals:

1. Bidder has read and understands the Contract Documents and agrees to comply with all requirements of the Contract Documents, regardless of whether the bidder has actual knowledge of the requirements and regardless of any statement or omission made by the bidder which might indicate a contrary intention.
2. Bidder represents that the bid is based upon the Standards specified by the Contract Documents.
3. Bidder has visited the Project site, become familiar with local conditions and has correlated personal observations about the requirements of the Contract Documents. The bidder has no outstanding questions regarding the interpretation of the Contract Documents.
4. Bidder understands domestic steel use requirements as specified in Ohio Revised Code Section 153.011 apply to this project.

5. Bidder understands that the award of separate contracts for the Project will require phased, sequential, coordinated and interrelated operations which may involve interference, disruption, hindrance or delay in the progress of the bidder's Work.
6. Bidder will enter into and execute the agreement with the Owner, if a contract is awarded on the basis of this bid, and if the bidder does not execute an agreement for any reason, other than as authorized by law, the bidder and the bidder's Surety are liable to the Owner as provided in the Ohio Revised Code and as applicable to the Owner.
7. Bidder certifies that the upon the award of a contract, it will make a good faith effort to ensure that all of its employees, while working on the site of the Project, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.
8. Bidder agrees to furnish any information requested by the Owner to evaluate the responsibility of the bidder.
9. It is understood and agreed that the work embodied in this contract shall be substantially completed per definition of the AIA General Conditions by the milestone dates indicated in the Contract Documents.
10. Costs, per day as shown in the Table of Liquidated Damages (Section 00 73 01 – Supplementary General Conditions) will be accumulated and assessed to all prime contractors (unless specifically released in writing by the Architect or an extension of time is approved by the Architect) after this date until Substantial Completion and Final Completion are achieved, as determined by the Architect.

Bid Form continues on next page

PART E - SIGNATURE PAGE & INFORMATION ABOUT BIDDER

Legal Name of Business _____.

Name of President _____.

Name(s) of Owner (If not Corporation)

_____.

_____.

_____.

Main Office Address _____.

_____.

Company Tax identification Number: _____.

Company Website (if available): _____.

Main Office Telephone Number _____.

Main Office Fax Number _____.

Main Office Contact Person _____.

Main Contact Person E-mail Address _____.

Authorized Signature _____.

Printed name and Title _____.

Date of Signature: _____ .

Attach other documents required

END OF DOCUMENT 00 41 16

MODEL

EARLY CHILDOOD RENOVATION

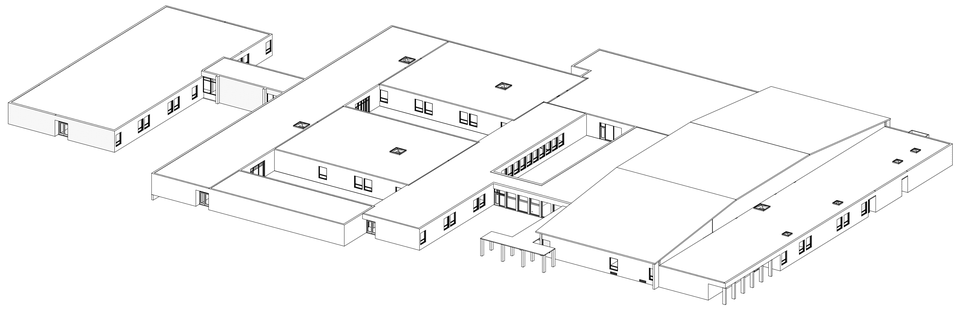
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

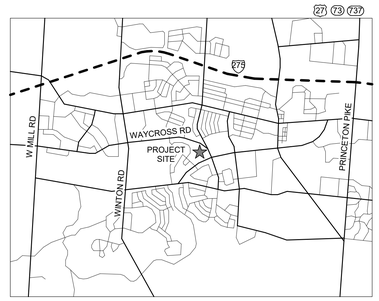
SHP

SHP - ARCHITECT
312 Plum Street, Suite 700, Cincinnati, OH 45202
PHONE: (513) 381-2112 FAX: (513) 381-5121

GOP LIMITED - STRUCTURAL ENGINEER
644 Linn Street, Suite 936, Cincinnati, OH 45203-1738
PHONE: (513) 621-7073 FAX: (513) 621-0434

SHP - PME ENGINEER
312 Plum Street, Suite 700, Cincinnati, OH 45202
PHONE: (513) 381-2112 FAX: (513) 381-5121





VICINITY MAP
NTS

SHEET INDEX

GENERAL - ESSER
G000.E TITLE SHEET
G001.E CODE DATA SHEETS

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D102.E FIRST FLOOR DEMO PLAN - AREA B
D103.E FIRST FLOOR DEMO PLAN - AREA C
D201.E DEMO EXTERIOR ELEVATIONS
D202.E DEMO EXTERIOR ELEVATIONS
D401.E FIRST FLOOR DEMO REFLECTED CEILING PLAN - AREA A
D402.E FIRST FLOOR DEMO REFLECTED CEILING PLAN - AREA B
D403.E FIRST FLOOR DEMO REFLECTED CEILING PLAN - AREA C

ARCHITECTURAL - ESSER
A010.E OPENING TYPES AND STOREFRONT
A011.E ACCESS CONTROL
A031.E E-FRAME DETAILS, HEAD, JAMB, AND SILL DETAILS
A051.E OVERALL FIRST FLOOR PLAN
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A102.E FIRST FLOOR PLAN - AREA B
A103.E FIRST FLOOR PLAN - AREA C
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A202.E EXTERIOR ELEVATIONS

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M001 MECHANICAL SCHEDULES
M002 MECHANICAL DETAILS
M003 MECHANICAL DETAILS
M004 VENTILATION SCHEDULES
M010 MECHANICAL DEMOLITION PLAN AREA A
M011 MECHANICAL DEMOLITION PLAN AREA B
M012 MECHANICAL DEMOLITION PLAN AREA C
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M100 FIRST FLOOR DUCTWORK PLAN AREA A
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E200 FIRST FLOOR POWER PLAN AREA A
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E400 PANEL SCHEDULES
E401 PANEL SCHEDULES
E500 ELECTRICAL DETAILS
E600 ELECTRICAL SINGLE LINE DIAGRAM
E700 ELECTRICAL SITE PLAN

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EMMA K. PEVOAR 211843
REGISTERED ARCHITECT
EMMA K. PEVOAR, Lic# 211843
Expiration Date 12/31/2023

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1086 North 4th Street, Ste 111 Columbus, Ohio 43201 614.223.2124
223 Fairfield Avenue, Ste 100 Bellevue, Kentucky 41073 859.360.1234

WINTON WOODS CITY SCHOOLS
EARLY CHILDOOD RENOVATION
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

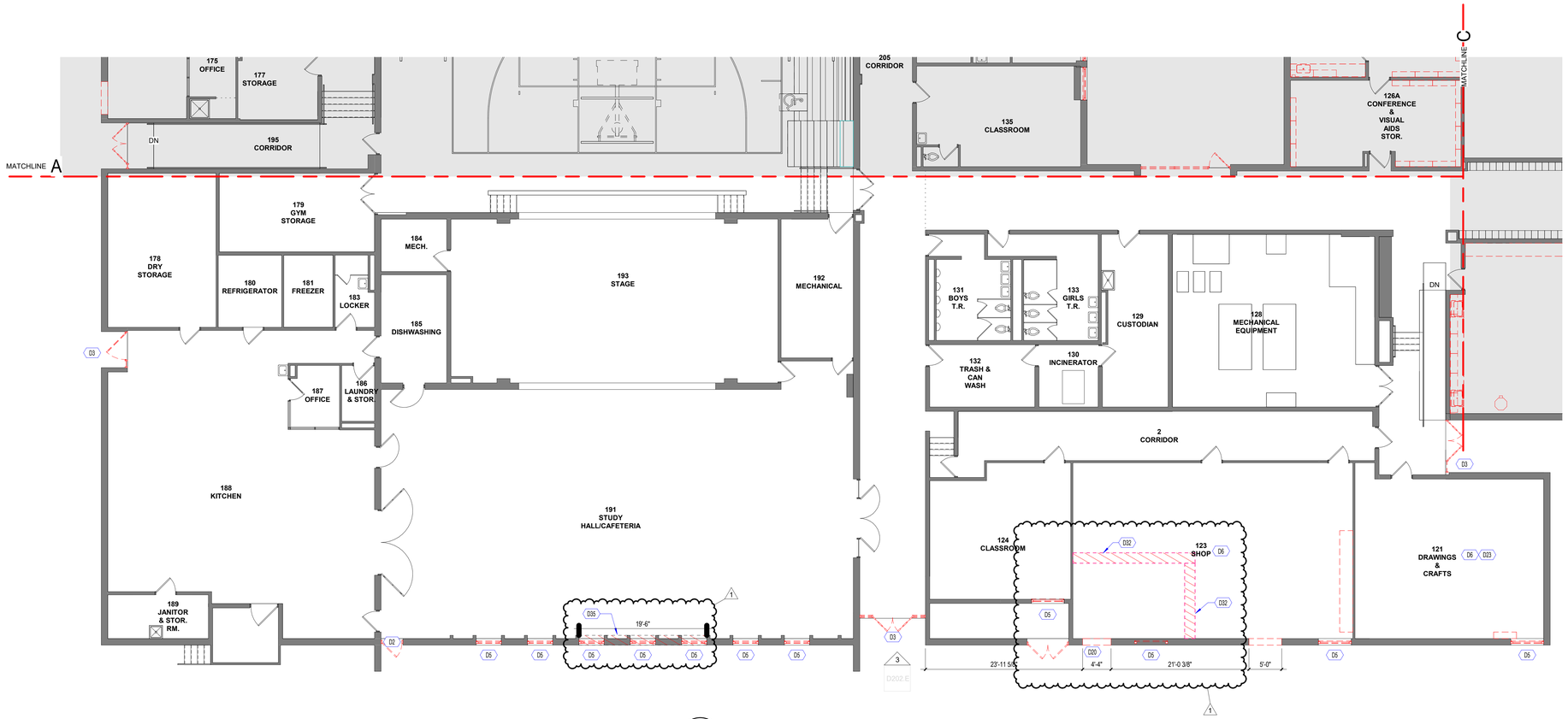
TITLE SHEET

COMM NO. 2021091.02

G000.E

"0-1" REFERENCE LINE"

5/19/2022 8:52:01 AM C:\Users\epevoar\Documents_LFile22\2021091.02 Winton Woods Early Childhood Reno_epevoar.rvt



1 D102.E FIRST FLOOR DEMO PLAN - AREA B
1/8" = 1'-0"

DEMOLITION PLAN LEGEND

- NO WORK THIS AREA
- EXISTING WALL/PARTITION TO REMAIN
- REMOVE EXISTING WALL/PARTITION
- EXISTING DOOR AND FRAME TO REMAIN
- REMOVE EXISTING DOOR (REMOVE EXISTING FRAME ONLY WHERE NOTED)

GENERAL NOTES - DEMOLITION PLAN - ESSER

A. REPAIR EXISTING SURFACES WHERE DEMOLITION HAS OCCURED FOR NEW CONSTRUCTION. CONTRACTOR SHALL PATCH/REPAIR WALL, FLOOR AND CEILING SURFACES AFFECTED BY DEMOLITION WORK. ALL REPAIRS SHALL MATCH EXISTING ADJACENT SURFACES IN MATERIAL, FINISH, TEXTURE, ETC. THIS WORK IS TO BE INCLUDED IN BASE BID AND IS NOT TO BE INCLUDED IN THE QUANTITY ALLOWANCE.*

B. UNLESS DIRECTED BY OWNER, ALL MISCELLANEOUS ITEMS ATTACHED TO FLOORS, WALLS, OR CEILINGS ARE TO BE REMOVED THAT INTERFERE WITH INSTALLATION OR ALIGNMENT OF NEW WORK. THIS INCLUDES BUT NOT LIMITED TO: SHELVES, BRACKETS, POSTERS, PAINTINGS, ART OR OTHER DISPLAYS, PROJECTION SCREENS, AND VISUAL DISPLAY BOARDS.

C. OWNER WILL REMOVE ALL LOOSE FURNITURE/APPLIANCES IN ROOMS PRIOR TO THE COMMENCEMENT OF DEMOLITION.

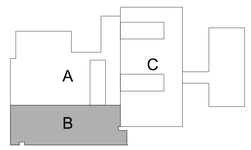
D. AT ALL EXISTING SURFACES SCHEDULED TO RECEIVE A NEW PAINT FINISH REMOVE ANY EXISTING FASTENERS, BRACKETS, ETC. IN WALLS THAT ARE NOT BEING USED AND PATCH TO MATCH EXISTING ADJACENT SURFACES IN MATERIALS, FINISH, TEXTURE, ETC. PATCH CHIPPED PAINT SURFACES ON PLASTER WALLS TO MATCH ADJACENT SURFACE TEXTURE. SAND CHIPPED EDGES ON WOOD AND METAL SURFACES SMOOTH.

E. NOT ALL ROOM MATERIAL/FINISH DEMOLITION INDICATED. WHERE NEW MATERIAL/FINISH IS INDICATED IN ROOM FINISH SCHEDULE, REMOVE EXISTING MATERIALS/FINISH INCLUDING FLOOR AND BASE, ADHESIVES/MASTICS, FLOOR SEALERS AND CURING COMPOUNDS, AND FLOOR PAINT WHETHER OR NOT SHOWN TO BE REMOVED ON DEMOLITION FLOOR PLANS.

F. REFER TO PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL ITEMS TO BE DEMOLISHED.

KEY NOTES - DEMOLITION PLANS

D2	REMOVE EXISTING DOOR, FRAME, AND ASSOCIATED HARDWARE. TYP.
D3	REMOVE EXISTING STOREFRONT
D5	REMOVE EXISTING WINDOW
D6	REMOVE EXISTING UNIT VENTILATOR AND CASEWORK IN ROOM
D20	REMOVE EXISTING PORTION OF WALL TO ALLOW FOR NEW WINDOW. PROVIDE LINTEL AS NECESSARY FOR WINDOW.
D23	REMOVE EXISTING WALL MOUNTED TELEVISION, ASSOCIATED HARDWARE AND WIRING
D32	REMOVE EXISTING PORTION OF CONCRETE SLAB TO PROVIDE THICKENED SLAB FOR NEW CMU WALL. COORDINATE WITH PLANS FOR LOCATION OF NEW WALL.
D35	IF ALTERNATE #2 IS ACCEPTED, REMOVE WINDOWS, PORTION OF WALL, AFFECTED COLUMNS, AND WALL MOUNTED FOLDABLE TABLES FOR THIS PORTION OF THE BUILDING TO ALLOW FOR NEW FOLDING GLASS PANEL SYSTEM.



KEY PLAN
NTS

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825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR DEMO PLAN - AREA B

COMM NO. 2021091.02

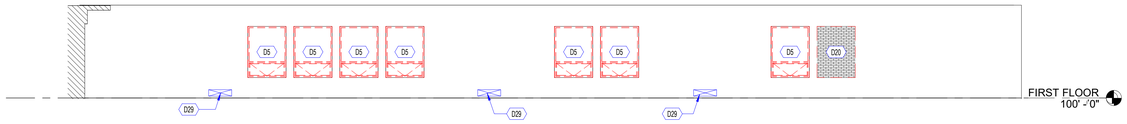
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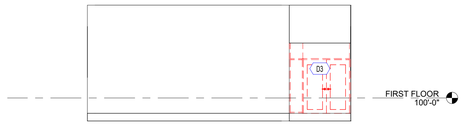
"1" REFERENCE LINE

KEY NOTES - DEMOLITION PLANS

D2	REMOVE EXISTING DOOR, FRAME, AND ASSOCIATED HARDWARE. TYP.
D3	REMOVE EXISTING STOREFRONT
D5	REMOVE EXISTING WINDOW
D20	REMOVE EXISTING PORTION OF WALL TO ALLOW FOR NEW WINDOW. PROVIDE LINTEL AS NECESSARY FOR WINDOW.
D26	REMOVE EXISTING PORTION OF WALL AS NECESSARY TO ALLOW FOR NEW UNIT VENTILATOR INTAKE. REFER TO MECHANICAL DRAWINGS FOR FURTHER INFORMATION.
D27	REMOVE EXISTING WINDOW AND PORTION OF WALL TO ALLOW FOR NEW DOOR. PROVIDE LINTEL AS REQUIRED FOR NEW DOOR.
D29	EXISTING CANOPY TO REMAIN
D35	IF ALTERNATE #2 IS ACCEPTED, REMOVE WINDOWS, PORTION OF WALL, AFFECTED COLUMNS, AND WALL MOUNTED FOLDABLE TABLES FOR THIS PORTION OF THE BUILDING TO ALLOW FOR NEW FOLDING GLASS PANEL SYSTEM.



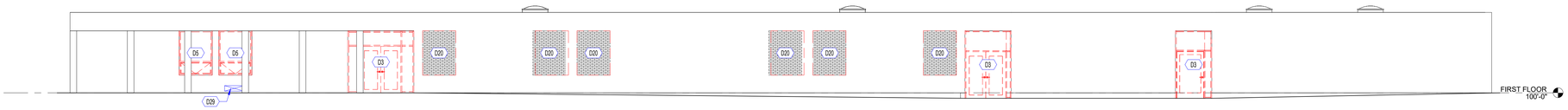
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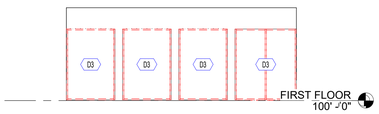
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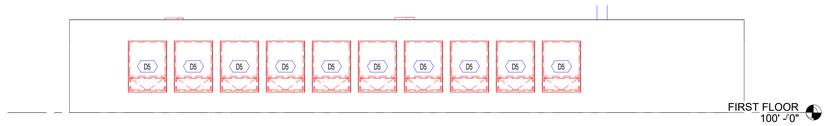
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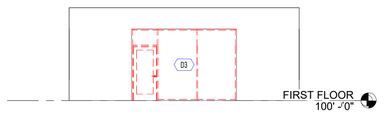
4 D202.E WEST ELEVATION C
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5 D202.E SOUTH ELEVATION - LIGHT COURT 3
1/8" = 1'-0"



6 D202.E WEST ELEVATION - LIGHT COURT 3
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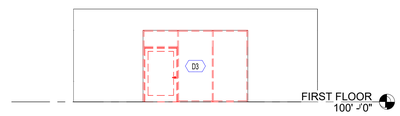
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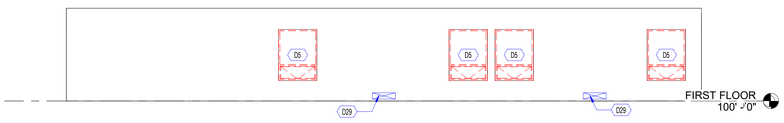
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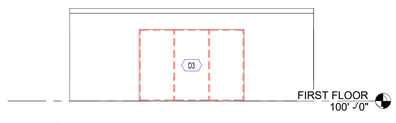
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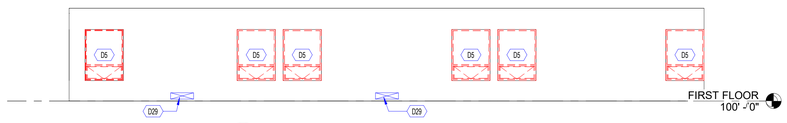
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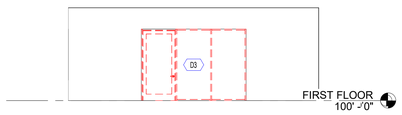
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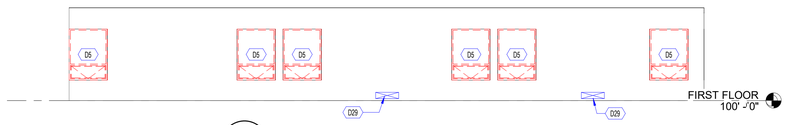
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1/8" = 1'-0"



13 D202.E SOUTH ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



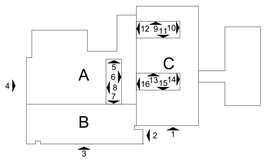
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1/8" = 1'-0"



15 D202.E NORTH ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



16 D202.E EAST ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



KEY PLAN
NTS

"0.1" REFERENCE LINE"

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REGISTERED ARCHITECT
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WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

DEMO EXTERIOR ELEVATIONS

COMM NO. 2021091.02

D202.E

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5/19/2022 8:51:57 AM

DOOR AND FRAME SCHEDULE ESSER

#	DOOR # OF LEAFS	DOOR WIDTH	DOOR HEIGHT	DOOR THK	DOOR TYPE	DOOR MATL	DOOR FINISH	DOOR GLASS	FRAME DEPTH	FRAME TYPE	FRAME E-FRAME	FRAME MATL	FRAME FINISH	FRAME HEAD	FRAME JAMB	FRAME SILL	SIDELITE WIDTH	RATING (MINUTES)	ACCESS CONTROL	HDWR SET	NOTES	DOOR #
				2 87/256"																		
156	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S18	-	AL	PF	-	-	-			-	04		156
188	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S9	-	AL	PF	-	-	-			●	02		188
188C	2	3'-0"	7'-0"	1 3/4"	F	HM	PT	-	5 3/4"	3	-	HM	PT-1	-	-	-			-	05		188C
188D	1	4'-0"	7'-0"	1 3/4"	F	HM	PT	-	5 3/4"	2	-	HM	PT-1	H-4	J-4	-			-	06		188D
191	1	3'-0"	7'-0"	1 3/4"	F	HM	PT	-	5 3/4"	2	-	HM	PT-1	-	-	-			-	06		191
195	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S10	-	AL	PF	-	-	-			●	01		195
197	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S24	-	AL	PF	-	-	-			●	01		197
198A	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S11	-	AL	PF	-	-	-			●	01		198A
199A	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S23	-	AL	PF	-	-	-			-	04		199A
199B	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S14	-	AL	PF	-	-	-			-	04		199B
199C	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S17	-	AL	PF	H-2	J-2	S-2			-	03		199C
199D	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S7	-	AL	PF	-	-	-			-	04		199D
201A	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S2	-	AL	PF	-	-	-			-	03		201A
201B	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S6	-	AL	PF	-	-	-			-	04		201B
201D	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S3	-	AL	PF	-	-	-			-	03		201D
201E	1	2'-11"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S8	-	AL	PF	-	-	-			-	04		201E
203A	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S15	-	AL	PF	-	-	-			-	04		203A
203B	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S16	-	AL	PF	-	-	-			-	03		203B
203C	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S19	-	AL	PF	-	-	-			-	04		203C
205	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S22	-	AL	PF	-	-	-			-	03		205
207A	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S4	-	AL	PF	-	-	-			●	01		207A
207B	1	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S20	-	AL	PF	-	-	-			●	02		207B
207C	2	3'-0"	7'-0"	1 3/4"	FG	ALUM	PF	IG-1	4 1/2"	S5	-	AL	PF	-	-	-			●	01		207C

GENERAL NOTES - LINTELS

SEE LINTEL SCHEDULE SHEET FOR LINTEL SHAPE CONFIGURATIONS

HOT-DIP GALVANIZE ALL EXTERIOR WALL LINTELS AFTER FABRICATION (ALL BRICK ANGLES AND BEAMS WITH PLATES)

GROUT SOLID UNDER ALL LINTEL BEARINGS. GROUT TO EXTEND FULL LENGTH OF BEARING & A MINIMUM OF (3) COURSES (24") VERTICALLY BELOW EACH BEARING POINT.

FIELD PAINT ALL EXPOSED LINTELS. COLOR AS SELECTED BY ARCHITECT

PROVIDE CONTINUOUS PAINTABLE SEALANT BEAD BETWEEN EDGE OF STEEL AND SUPPORTED MASONRY

L-1 2L'S 5 X 3 1/2 X 3/8 AND L5 X 3 1/2 X 3/8 8" BRG

L-2 2L'S 4 X 3 1/2 X 5/16 AND L4 X 3 1/2" X 5/16 6" BRG

REVIEWED BY:
DOUG CRAWFORD
GOP LIMITED
APRIL 14, 2022

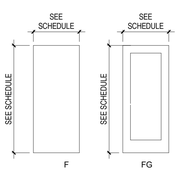
OPENING SCHEDULE ABBREVIATIONS

AL	ALUMINUM
HM	HOLLOW METAL
PF	PREFINISHED
PT	PAINT
SS	STAINLESS STEEL
STL	STEEL
WD	WOOD

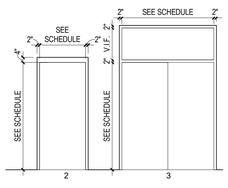
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STATE OF OHIO
EMMA K. PEVOAR
211843
REGISTERED ARCHITECT
EMMA K. PEVOAR, Lic# 211843
Expiration Date 12/31/2023

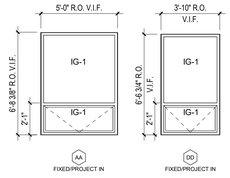
SHP
223 Fairfield Avenue, Ste 100
Bellevue, Kentucky 41073
859.360.1234
1086 North 4th Street, Ste 111
Columbus, Ohio 43201
614.423.2124
312 Plum Street, Ste 700
Cincinnati, Ohio 45202
513.381.2112



DOOR TYPES



FRAME TYPES



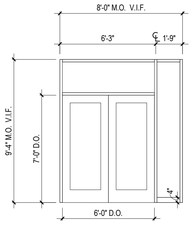
WINDOW TYPES

LOUVER SCHEDULE

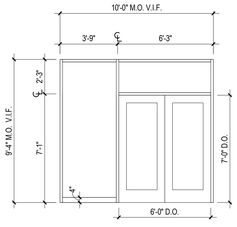
TYPE	WIDTH	HEIGHT	COMMENTS
L13	4'-0"	1'-0"	
L14	3'-0"	1'-0"	



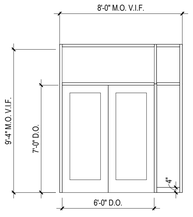
LOUVER TYPES



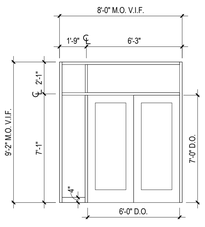
S1
FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



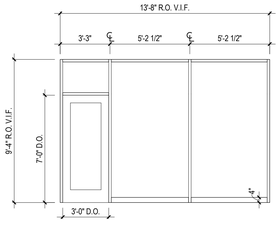
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2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



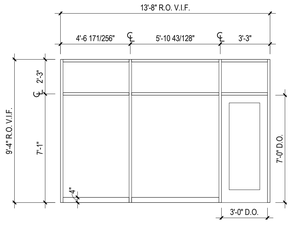
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GLAZING TYPE UNO:
IG-1



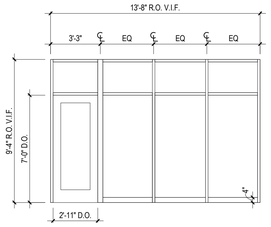
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



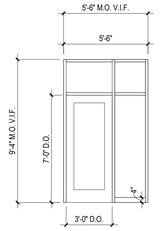
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



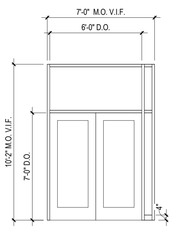
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



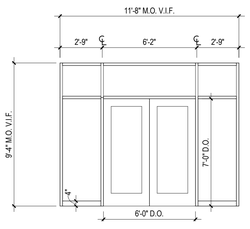
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



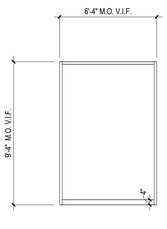
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FRAMING MEMBERS:
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GLAZING TYPE UNO:
IG-1



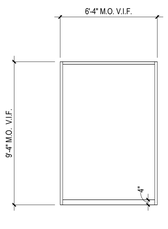
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FRAMING MEMBERS:
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GLAZING TYPE UNO:
IG-1



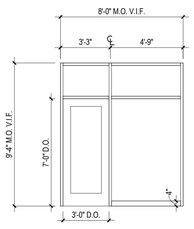
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



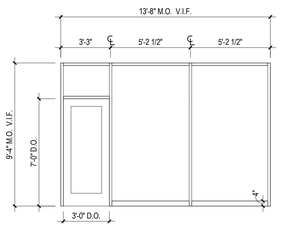
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GLAZING TYPE UNO:
IG-1



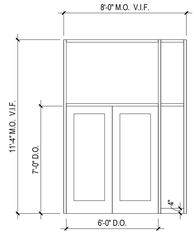
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FRAMING MEMBERS:
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GLAZING TYPE UNO:
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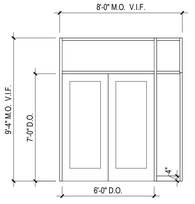
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GLAZING TYPE UNO:
IG-1



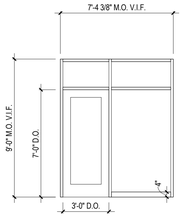
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GLAZING TYPE UNO:
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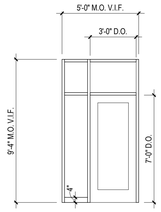
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GLAZING TYPE UNO:
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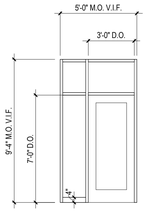
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FRAMING MEMBERS:
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GLAZING TYPE UNO:
IG-1



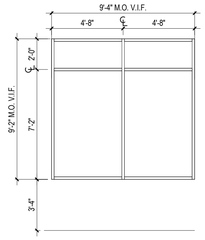
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



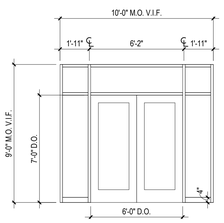
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GLAZING TYPE UNO:
IG-1



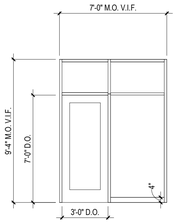
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FRAMING MEMBERS:
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GLAZING TYPE UNO:
IG-1



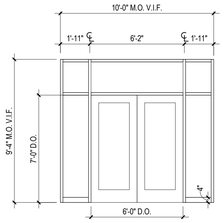
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FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



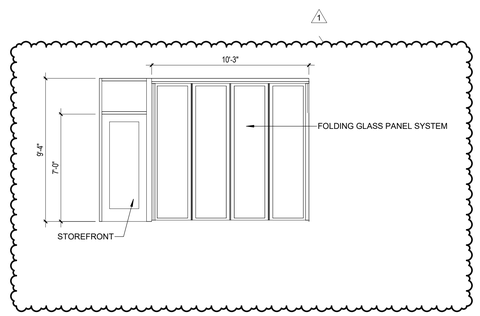
S21
FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



S22
FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



S23
FRAMING MEMBERS:
2" x 4 1/2"
GLAZING TYPE UNO:
IG-1



STOREFRONT TYPES

0'-1" REFERENCE LINE

WINTON WOODS CITY SCHOOLS
EARLY CHILDHOOD RENOVATION
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

OPENING TYPES AND STOREFRONT

COMM NO. 2021091.02

A010.E

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GENERAL NOTES - ACCESS CONTROL

A. INFORMATION SHOWN ON ACCESS CONTROL PLANS INTENDED TO DESCRIBE AND COORDINATE OPERATION OF BUILDING ACCESS - REFER TO HARDWARE SCHEDULE FOR COMPLETE HARDWARE SET CONTENTS (INCLUDING QUANTITIES) AT EACH OPENING.

B. COORDINATE FINAL KNOX BOX QUANTITY AND LOCATION WITH LOCAL JURISDICTION PRIOR TO INSTALLATION.

C. ALL KNOX BOXES TO BE RECESSED IN EXTERIOR WALL AT COORDINATED LOCATIONS. KNOX BOX TO BE INSTALLED AT 40" ABOVE FINISHED PAVEMENT.

ACCESS CONTROL LEGEND

AO	AUTO OPERATOR
AOA	AUTOMATIC OPERATOR ACTUATOR
CR	CREDENTIAL READER
DPS	DOOR POSITION SWITCH
EFR	E-FRAME
EL	ELECTRIC LOCK/UNLOCK
ELR	ELECTRIC LATCH RETRACTION
EPT	ELECTRIC POWER TRANSFER
ES	ELECTRIC STRIKE
FHO	FIRE ALARM HOLD OPEN
ICPR	INTERCOM STATION W/ PROXIMITY CARD READER
KB	KNOX BOX
KP	KEYPAD
LBM	LATCH BOLT MONITOR
MHO	MAGNETIC HOLD OPEN
PK	DUAL KEYPAD & PROXIMITY CARD READER
PS	POWER SUPPLY
RX	REQUEST TO EXIT



1 A011.E FIRST FLOOR ACCESS CONTROL - ESSER
1/16" = 1'-0"

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STATE OF OHIO
EMMA K. PEVOAR 2118434
REGISTERED ARCHITECT

EMMA K. PEVOAR, Lic# 2118434
Expiration Date 12/31/2023

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223 Fairfield Avenue, Ste 100 | Bellevue, Kentucky 41073 | 859.360.1234
1086 North 4th Street, Ste 111 | Columbus, Ohio 43201 | 614.423.2124
312 Plum Street, Ste 700 | Cincinnati, Ohio 45202 | 513.381.2112

WINTON WOODS CITY SCHOOLS
EARLY CHILDHOOD RENOVATION
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

ACCESS CONTROL

COMM NO. 2021091.02

A011.E

0"x1" REFERENCE LINE

5/19/2022 8:51:46 AM C:\Users\epevoar\Documents_LFile22\2021091.02 Winton Woods Early Childhood Reno_epevoar.rvt

GENERAL NOTES - FLOOR PLAN

A. ALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF STUD, OR FACE OF EXISTING FINISH UNLESS NOTED OTHERWISE.

B. ALL PARTITIONS TYPE M1 UNLESS NOTED OTHERWISE.

KEY NOTES - FLOOR PLANS

A1 LINTEL L-1. 2L'S 5 X 3 1/2 X 3/8 AND L5 X 3 1/2 X 3/8 WITH 8" BRG. SEE SHEET A010.E AND EXTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

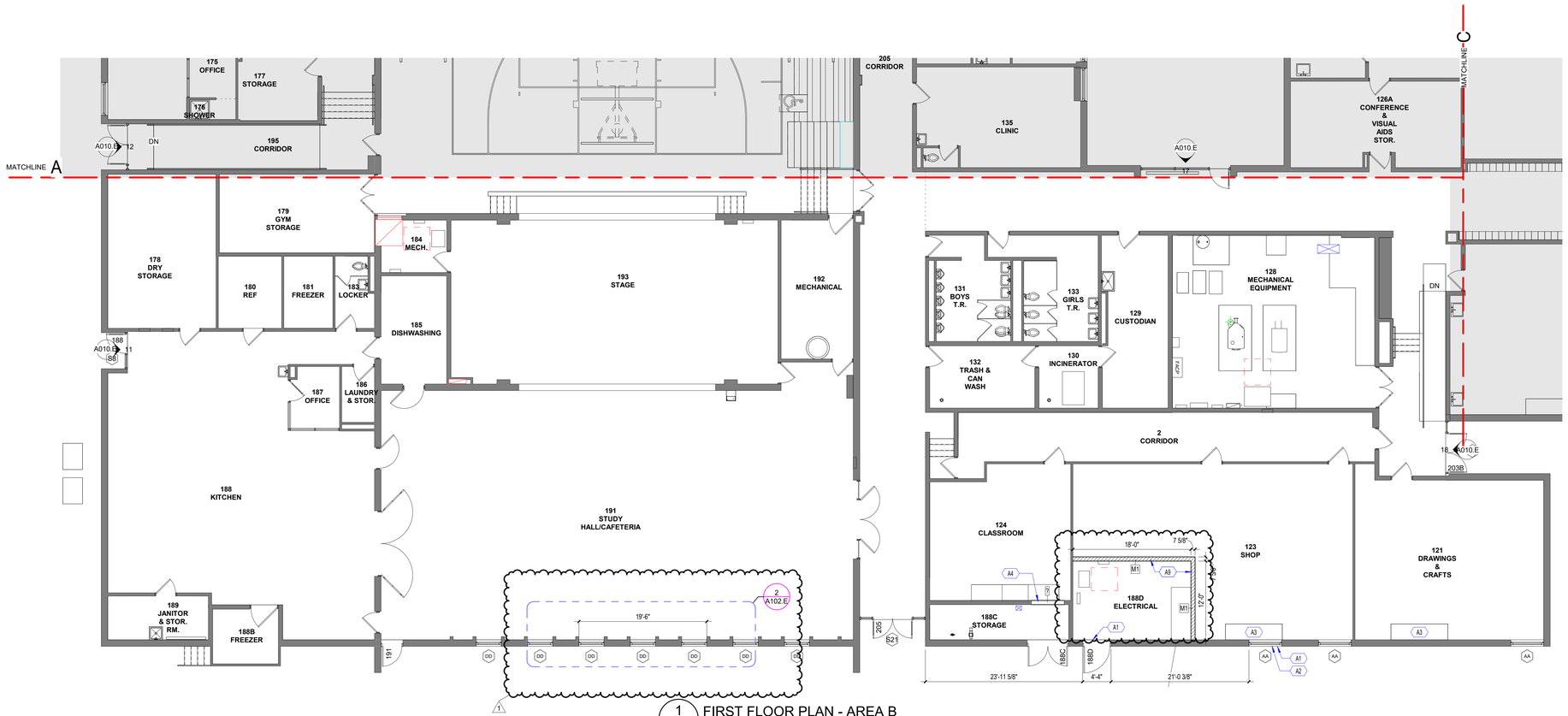
A2 LINTEL L-2. 2L'S 4 X 3 1/2 X 5/16 AND L4 X 3 1/2" X 5/16 WITH 6" BRG. SEE SHEET A010.E AND EXTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

A3 UNIT VENTILATOR. SEE MECHANICAL DRAWINGS FOR FURTHER DETAILS

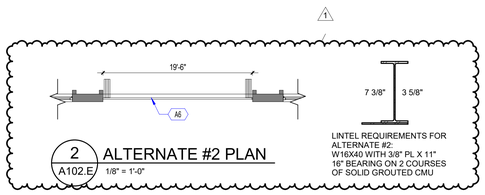
A4 INFILL BORROWED LIGHT. INFILL MATERIALS TO MATCH EXISTING ADJACENT IN THICKNESS, COLOR, AND TEXTURE

A6 ALTERNATE #2 - INWARD FOLDING GLASS PANEL SYSTEM. BASIS OF DESIGN - NANAWALL SL60

A9 CUT SLAB AND PLACE THICKENED SLAB UNDER WALL - SEE DETAIL 3/A102.E

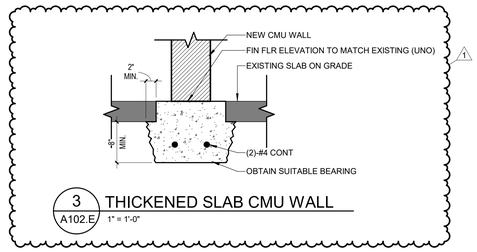


1 A102.E FIRST FLOOR PLAN - AREA B
1/8" = 1'-0"

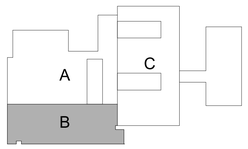


2 A102.E ALTERNATE #2 PLAN
1/8" = 1'-0"

LINTEL REQUIREMENTS FOR ALTERNATE #2:
W16X40 WITH 3/8" PL X 11"
16" BEARING ON 2 COURSES OF SOLID GROUTED CMU



3 A102.E THICKENED SLAB CMU WALL
1" = 1'-0"



KEY PLAN
NTS

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EMMA K. PEVOAR, Lic# 2118434
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WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OH 45240

ISSUANCES

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1	05-18-22	ADDENDUM 1

FIRST FLOOR PLAN - AREA B

COMM NO. 2021091.02

A102.E

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0"-1" REFERENCE LINE



GENERAL NOTES - FLOOR PLAN

A. ALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF STUD, OR FACE OF EXISTING FINISH UNLESS NOTED OTHERWISE.

B. ALL PARTITIONS TYPE M1 UNLESS NOTED OTHERWISE.

KEY NOTES - FLOOR PLANS

A1 LINTEL L-1, 2L'S 5 X 3 1/2 X 3/8 AND L5 X 3 1/2 X 3/8 WITH 8" BRG. SEE SHEET A010.E AND EXTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

A2 LINTEL L-2, 2L'S 4 X 3 1/2 X 5/16 AND L4 X 3 1/2" X 5/16 WITH 6" BRG. SEE SHEET A010.E AND EXTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

A3 UNIT VENTILATOR. SEE MECHANICAL DRAWINGS FOR FURTHER DETAILS

A5 EXISTING LINTEL TO REMAIN. CHECK FOR DETERIORATION AND SUPPORT AS NEEDED. PROTECT IN PLACE.

A7 ALTERNATE #3 - INWARD FOLDING GLASS PANEL SYSTEM. BASIS OF DESIGN - NANAWALL SL60

A8 ALTERNATE #4 - INWARD FOLDING GLASS PANEL SYSTEM. BASIS OF DESIGN - NANAWALL SL60

2 A103.E ALTERNATE #3&4 PLAN
1/8" = 1'-0"

1 A103.E FIRST FLOOR PLAN - AREA C
1/8" = 1'-0"

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1	05-18-22	ADDENDUM 1

FIRST FLOOR PLAN - AREA C

COMM NO. 2021091.02

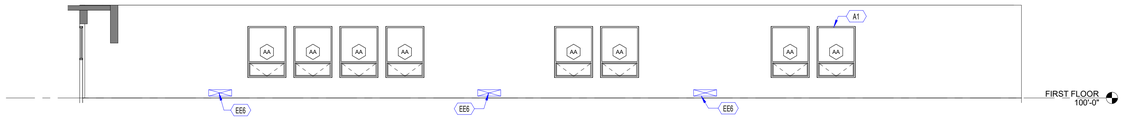
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"0-1" REFERENCE LINE

KEY NOTES - EXTERIOR ELEVATIONS

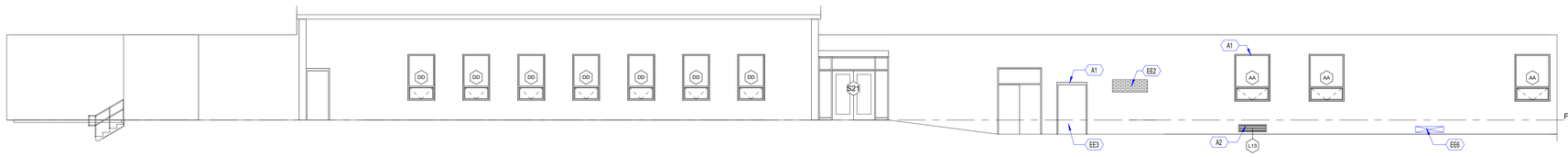
EE2	INFILL OPENING IN WALL TO MATCH EXISTING ADJACENT MATERIALS
EE3	NEW HOLLOW METAL DOOR
EE5	EXISTING CURTAIN WALL
EE8	TWO COURSES OF CMU GROUTED SOLID AT BEATING, 16" LONG



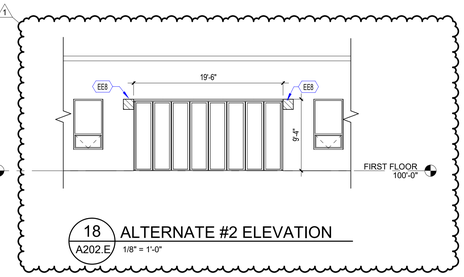
1 A202.E SOUTH ELEVATION C - ESSER
1/8" = 1'-0"



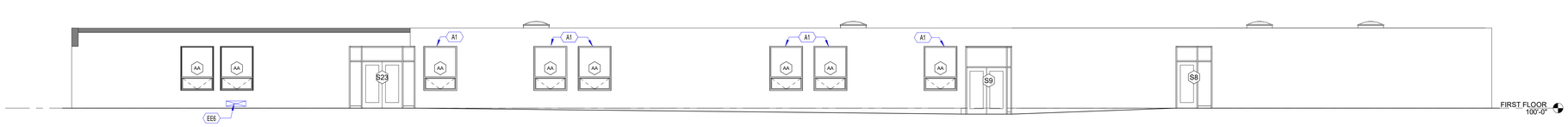
2 A202.E EAST ELEVATION D - ESSER
1/8" = 1'-0"



3 A202.E SOUTH ELEVATION D - ESSER
1/8" = 1'-0"



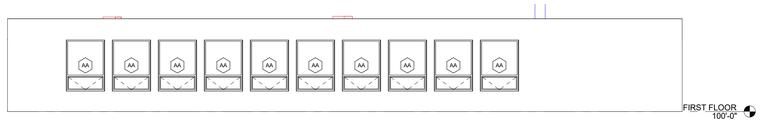
18 A202.E ALTERNATE #2 ELEVATION
1/8" = 1'-0"



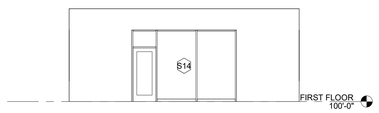
4 A202.E WEST ELEVATION C - ESSER
1/8" = 1'-0"



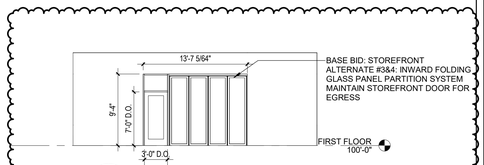
5 A202.E SOUTH ELEVATION - LIGHT COURT 3
1/8" = 1'-0"



6 A202.E WEST ELEVATION - LIGHT COURT 3
1/8" = 1'-0"



7 A202.E NORTH ELEVATION - LIGHT COURT 3
1/8" = 1'-0"



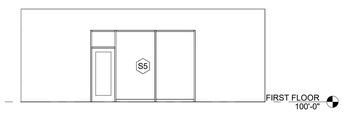
17 A202.E ALTERNATES #3&4 ELEVATION
1/8" = 1'-0"



8 A202.E EAST ELEVATION - LIGHT COURT 3
1/8" = 1'-0"



9 A202.E SOUTH ELEVATION - LIGHT COURT 2
1/8" = 1'-0"



10 A202.E WEST ELEVATION - LIGHT COURT 2
1/8" = 1'-0"



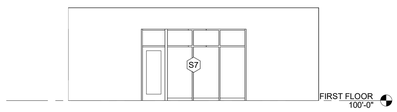
11 A202.E NORTH ELEVATION - LIGHT COURT 2
1/8" = 1'-0"



12 A202.E EAST ELEVATION - LIGHT COURT 2
1/8" = 1'-0"



13 A202.E SOUTH ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



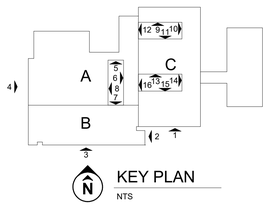
14 A202.E WEST ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



15 A202.E NORTH ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



16 A202.E EAST ELEVATION - LIGHT COURT 1
1/8" = 1'-0"



KEY PLAN
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0'-1" REFERENCE LINE

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EXTERIOR ELEVATIONS

COMM NO. 2021091.02

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23-AIR HANDLING UNIT SCHEDULE																
			SUPPLY FAN											FILTER		
									ELECTRICAL CHARACTERISTICS							
									FAN TOTAL							
MARK	MANUFACTURER	MODEL	FAN QUANTITY	AIRFLOW	FAN TYPE	TOTAL STATIC PRESSURE	EXTERNAL STATIC PRESSURE	RPM	BHP	MCA	MOCP	VOLTAGE	Ø	TYPE	FILTER DEPTH	NOTES
AHU-1A	CARRIER	39MN 08W	2	3500 CFM	ECM DIRECT DRIVE PLENUM	2.33 in-wg	1.0 in-wg	1856	1.9	10.8 A	15.0 A	480 V	3	MERV 13	0' - 2"	1
AHU-1B	CARRIER	39MN 08W	2	3500 CFM	ECM DIRECT DRIVE PLENUM	2.33 in-wg	1.0 in-wg	1856	1.9	10.8 A	15.0 A	480 V	3	MERV 13	0' - 2"	1
AHU-1C	CARRIER	39MN 08W	2	3500 CFM	ECM DIRECT DRIVE PLENUM	2.33 in-wg	1.0 in-wg	1856	1.9	10.8 A	15.0 A	480 V	3	MERV 13	0' - 2"	1
AHU-1D	CARRIER	39MN 08W	2	3500 CFM	ECM DIRECT DRIVE PLENUM	2.33 in-wg	1.0 in-wg	1856	1.9	10.8 A	15.0 A	480 V	3	MERV 13	0' - 2"	1
AHU-2A	CARRIER	39MN 03W	2	1500 CFM	ECM DIRECT DRIVE PLENUM	2.78 in-wg	1.0 in-wg	2264	1.7	4.8 A	15.0 A	480 V	3	MERV 13	0' - 2"	1
AHU-2B	CARRIER	39MN 03W	2	1500 CFM	ECM DIRECT DRIVE PLENUM	2.78 in-wg	1.0 in-wg	2264	1.7	4.8 A	15.0 A	480 V	3	MERV 13	0' - 2"	1

NOTES:
1. DISCHARGE DUCT(S) MUST BE GASKETED AND SCREWED DIRECTLY TO THE DISCHARGE PANEL OF THE UNIT.

23-AIR HANDLING UNIT COOLING COIL / HEATING COIL CHARACTERISTICS																			
	DX COIL								HEATING COIL										
	COOLING CAPACITY (MBH)		DRY BULB TEMPERATURE		WET BULB TEMPERATURE					DRY BULB TEMPERATURE		FLUID TEMPERATURE							
MARK	TOTAL	SENSIBLE	ENTERING AIR	LEAVING AIR	ENTERING AIR	LEAVING AIR	FACE AREA	AIR PRESSURE DROP (IN W.G.)	TOTAL HEATING CAPACITY	ENTERING AIR	LEAVING AIR	ENTERING	LEAVING	FACE AREA	FLUID TYPE	FLOW RATE	AIR PRESSURE DROP (IN W.G.)	FLUID PRESSURE DROP(FT)	NOTES
AHU-1A	114	86	80 °F	57 °F	67 °F	57 °F	8 SF	0.77	147,370 Btu/h	55 °F	93 °F	140 °F	120 °F	8 SF	WATER	15 GPM	0.21	2.30	1
AHU-1B	114	86	80 °F	57 °F	67 °F	57 °F	8 SF	0.77	147,370 Btu/h	55 °F	93 °F	140 °F	120 °F	8 SF	WATER	15 GPM	0.21	2.30	1
AHU-1C	114	86	80 °F	57 °F	67 °F	57 °F	8 SF	0.77	147,370 Btu/h	55 °F	93 °F	140 °F	120 °F	8 SF	WATER	15 GPM	0.21	2.30	1
AHU-1D	114	86	80 °F	57 °F	67 °F	57 °F	8 SF	0.77	147,370 Btu/h	55 °F	93 °F	140 °F	120 °F	8 SF	WATER	15 GPM	0.21	2.30	1
AHU-2A	71	52	80 °F	56 °F	67 °F	55 °F	6 SF	0.68	92,190 Btu/h	55 °F	95 °F	140 °F	120 °F	6 SF	WATER	9 GPM	0.12	1.00	1
AHU-2B	71	52	80 °F	56 °F	67 °F	55 °F	6 SF	0.68	92,190 Btu/h	55 °F	95 °F	140 °F	120 °F	6 SF	WATER	9 GPM	0.12	1.00	1

23-VARIABLE REFRIGERANT HEAT RECOVERY UNITS													
				ELECTRICAL CHARACTERISTICS									
MARK	MANUFACTURER	MODEL	MODULES	MCA	MOCP	Ø	VOLTAGE	TOTAL COOLING CAPACITY	COOLING DESIGN AMBIENT TEMPERATURE	TOTAL HEATING CAPACITY	HEATING DESIGN AMBIENT TEMPERATURE	UNIT WEIGHT	NOTES
HRCU-1	CARRIER	MMY-AP3126S6FT6P-UL	168 + 144	29.7 + 23.4	35 +30	3	460	312,000.0 Btu/h	95 °F	351,000.0 Btu/h	0 °F	1,676 lb	
HRCU-2	CARRIER	MMY-AP2646FT9P-UL	144 + 120	52.1 + 45.4	60 + 50	3	460	264,000.0 Btu/h	95 °F	297,000.0 Btu/h	0 °F	1,522 lb	
HRCU-3	CARRIER	MMY-AP2886FT9P-UL	144 + 144	52.1 + 45.4	60 + 60	3	460	288,000.0 Btu/h	95 °F	324,000.0 Btu/h	0 °F	1,676 lb	
HRCU-4	CARRIER	MMY-A4086FT9P-UL	144 + 144 + 120	52.1 + 52.1 + 45.4	60 + 60 + 50	3	460	408,000.0 Btu/h	95 °F	459,000.0 Btu/h	0 °F	2,360 lb	
HRCU-5	CARRIER	MMY-MAP0726FT6P-UL	72	11.8	15	3	460	72,000.0 Btu/h	95 °F	81,000.0 Btu/h	0 °F	574 lb	
HRCU-6	CARRIER	MMY-MAP1446FT9P-UL	144	52.1	60	3	460	144,000.0 Btu/h	95 °F	162,000.0 Btu/h	0 °F	838 lb	
HRCU-7	CARRIER	MMY-AP3126FT9P-UL	168 + 144	66.2 + 52.1	70 + 60	3	460	312,000.0 Btu/h	95 °F	351,000.0 Btu/h	0 °F	1,676 lb	
HRCU-8	CARRIER	MMY-AP2166FT9P-UL	120 + 96	45.4 + 34.2	50 + 40	3	460	216,000.0 Btu/h	95 °F	243,000.0 Btu/h	0 °F	1,368 lb	

23-VARIABLE REFRIGERANT UNIT VENT SCHEDULE												
								ELECTRICAL CHARACTERISTICS				
MARK	SYSTEM NAME	MANUFACTURER	MODEL	UNIT TYPE	NOMINAL COOLING CAPACITY (BTU/HR)	NOMINAL HEATING CAPACITY (BTU/HR)	SUPPLY FAN AIRFLOW	MCA	MOCP	Ø	VOLTAGE	NOTES
FC-1A	HRCU-1	CARRIER	MMU-AP0121YHPUL	1-WAY CASSETTE	12,000	13,500	318 CFM	0.4 A	15 A	1	208	
FC-1B	HRCU-1	CARRIER	MMU-AP0121YHPUL	1-WAY CASSETTE	12,000	13,500	318 CFM	0.4 A	15 A	1	208	
FC-1C	HRCU-1	CARRIER	MMU-AP0121YHPUL	1-WAY CASSETTE	12,000	13,500	318 CFM	0.4 A	15 A	1	208	
FC-212	HRCU-1	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-212A	HRCU-1	CARRIER	MMU-AP0181MH2UL	COMPACT 4-WAY CASSETTE	18,000	20,000	450 CFM	0.7 A	15 A	1	208	
FC-213	HRCU-1	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-213A	HRCU-1	CARRIER	MMU-AP0091MH2UL	COMPACT 4-WAY CASSETTE	9,500	10,500	330 CFM	0.5 A	15 A	1	208	
FC-214	HRCU-1	CARRIER	MMD-AP0304H2UL	4-WAY CASSETTE	30,000	34,000	730 CFM	1.1 A	15 A	1	208	
FC-215	HRCU-1	CARRIER	MMD-AP0304H2UL	4-WAY CASSETTE	30,000	34,000	730 CFM	1.1 A	15 A	1	208	
FC-216	HRCU-1	CARRIER	MMD-AP0304H2UL	4-WAY CASSETTE	30,000	34,000	730 CFM	1.1 A	15 A	1	208	
FC-217	HRCU-1	CARRIER	MMU-AP0121MH2UL	COMPACT 4-WAY CASSETTE	12,000	13,500	318 CFM	0.5 A	15 A	1	208	
FC-217A	HRCU-1	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-217B	HRCU-1	CARRIER	MMU-AP0091MH2UL	COMPACT 4-WAY CASSETTE	9,500	10,500	330 CFM	0.5 A	15 A	1	208	
FC-218	HRCU-1	CARRIER	MMD-AP0304H2UL	4-WAY CASSETTE	30,000	34,000	730 CFM	1.1 A	15 A	1	208	
FC-218B	HRCU-1	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.7 A	15 A	1	208	
FC-219B	HRCU-1	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-220	HRCU-1	CARRIER	MMU-AP0181MH2UL	COMPACT 4-WAY CASSETTE	18,000	20,000	450 CFM	0.7 A	15 A	1	208	
FC-222	HRCU-1	CARRIER	MMU-AP0091MH2UL	COMPACT 4-WAY CASSETTE	9,500	10,500	330 CFM	0.7 A	15 A	1	208	
FC-1221-1	HRCU-1	CARRIER	MMU-AP0181MH2UL	COMPACT 4-WAY CASSETTE	18,000	20,000	450 CFM	0.7 A	15 A	1	208	
FC-1221-2	HRCU-1	CARRIER	MMU-AP0181MH2UL	COMPACT 4-WAY CASSETTE	18,000	20,000	450 CFM	0.5 A	15 A	1	208	
FC-1221A	HRCU-1	CARRIER	MMU-AP0181MH2UL	COMPACT 4-WAY CASSETTE	18,000	20,000	450 CFM	0.5 A	15 A	1	208	
FC-151	HRCU-2	CARRIER	MMU-AP0091MH2UL	COMPACT 4-WAY CASSETTE	9,500	10,500	330 CFM	0.5 A	15 A	1	208	
FC-153	HRCU-2	CARRIER	MMU-AP0091MH2UL	COMPACT 4-WAY CASSETTE	9,500	10,500	330 CFM	0.5 A	15 A	1	208	
FC-1264	HRCU-2	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1265	HRCU-2	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1268	HRCU-2	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1269	HRCU-2	CARRIER	MMD-AP0546BHPUL	HORIZONTAL DUCTED	54,000	60,000	1177 CFM	3.6 A	15 A	1	208	
FC-1271	HRCU-2	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1272	HRCU-2	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1273	HRCU-2	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1274	HRCU-2	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1275	HRCU-2	CARRIER	MMD-AP0366BHPUL	HORIZONTAL DUCTED	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	
FC-1296	HRCU-2	CARRIER	MMD-AP0216BHPUL	FLOOR STANDING	21,000	24,000	706 CFM	2.2 A	15 A	1	208	1, 2
FC-1113	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1118	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1262	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1263	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1266	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1267	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1284	HRCU-3	CARRIER	MMD-AP0366BHPUL	HORIZONTAL DUCTED	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	
FC-1285	HRCU-3	CARRIER	MMD-AP0366BHPUL	HORIZONTAL DUCTED	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	
FC-1289	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1290	HRCU-3	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1294	HRCU-3	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1124	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1125	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1237	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1238	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1239	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1253	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1254	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1255	HRCU-4	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1260	HRCU-4	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1261	HRCU-4	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1281	HRCU-4	CARRIER	MMD-AP0426BHPUL	HORIZONTAL DUCTED	42,000	47,500	1130 CFM	3.4 A	15 A	1	208	
FC-1282	HRCU-4	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1286	HRCU-4	CARRIER	MMD-AP0366BHPUL	HORIZONTAL DUCTED	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	
FC-1287	HRCU-4	CARRIER	MMD-AP0426BHPUL	HORIZONTAL DUCTED	42,000	47,500	1130 CFM	3.4 A	15 A	1	208	
FC-145	HRCU-5	CARRIER	MMU-AP0091MH2UL	COMPACT 4-WAY CASSETTE	9,500	10,500	330 CFM	0.5 A	15 A	1	208	3
FC-205	HRCU-5	CARRIER	MMU-AP0121MH2UL	COMPACT 4-WAY CASSETTE	12,500	13,500	330 CFM	0.5 A	15 A	1	208	
FC-128	HRCU-6	CARRIER	MMU-AP0121MH2UL	COMPACT 4-WAY CASSETTE	12,000	13,500	330 CFM	0.5 A	15 A	1	208	
FC-133	HRCU-6	CARRIER	MMD-AP0426BHPUL	HORIZONTAL DUCTED	42,000	47,500	1130 CFM	3.4 A	15 A	1	208	
FC-1251	HRCU-6	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1256	HRCU-6	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1257	HRCU-6	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1258	HRCU-6	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-197	HRCU-7	CARRIER	MMU-AP0121YHPUL	1-WAY CASSETTE	12,000	13,500	330 CFM	0.4 A	15 A	1	208	
FC-1240	HRCU-7	CARRIER	MMD-AP0426BHPUL	HORIZONTAL DUCTED	42,000	47,500	1130 CFM	3.4 A	15 A	1	208	
FC-1241	HRCU-7	CARRIER	MMD-AP0366BHPUL	HORIZONTAL DUCTED	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	
FC-1242	HRCU-7	CARRIER	MMD-AP0426BHPUL	HORIZONTAL DUCTED	42,000	47,500	1130 CFM	3.4 A	15 A	1	208	
FC-1243	HRCU-7	CARRIER	MMD-AP0366BHPUL	HORIZONTAL DUCTED	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	
FC-1245	HRCU-7	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1246	HRCU-7	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1247	HRCU-7	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-1248	HRCU-7	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-1250	HRCU-7	CARRIER	MMD-AP0366BHPUL	FLOOR STANDING	36,000	40,000	1130 CFM	3.4 A	15 A	1	208	1, 2
FC-178	HRCU-8	CARRIER	MMU-AP0181MH2UL	COMPACT 4-WAY CASSETTE	18,000	20,000	450 CFM	0.5 A	15 A	1	208	
FC-187	HRCU-8	CARRIER	MMU-AP0071MH2UL	COMPACT 4-WAY CASSETTE	7,500	8,500	320 CFM	0.5 A	15 A	1	208	
FC-188A	HRCU-8	CARRIER	MMU-AP0244HPUL	4-WAY CASSETTE	24,000	27,500	670 CFM	1.1 A	15 A	1	208	
FC-188B	HRCU-8	CARRIER	MMU-AP0244HPUL	4-WAY CASSETTE	24,000	27,500	670 CFM	1.1 A	15 A	1	208	
FC-188C	HRCU-8	CARRIER	MMU-AP0244HPUL	4-WAY CASSETTE	24,000	27,500	670 CFM	1.1 A	15 A	1	208	
FC-188D	HRCU-8	CARRIER	MMU-AP0244HPUL	4-WAY CASSETTE	24,000	27,500	670 CFM	1.1 A	15 A	1	208	
FC-193	HRCU-8	CARRIER	MMD-AP0426BHPUL	HORIZONTAL DUCTED	42,000	47,500	1130 CFM	3.4 A	15 A	1	208	
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NOTES:

1. ALL FLOOR MOUNTED UNITS SHALL BE REVOLUTIONAIRE UNIT VENTILATORS MODEL H104 D25 CO CARRIER 21-54K BTU, WITH THE LISTED CARRIER VRF UNITS, THE ASSOCIATED ERV, CABINET, HOT WATER COIL, AND CONTROLS AS REQUIRED BY REVOLUTIONAIRE, OR AN APPROVED EQUAL AS ACCEPTED BY THE ENGINEER. THE OUTDOOR AIR CONNECTION ON THE REAR OF THE UNIT SHALL BE PROVIDED TO FIT THROUGH THE EXISTING WALL OPENING, APPROXIMATELY 47" X 11", WITHOUT MODIFICATION TO THE WALL.
2. DRAIN UNIT VENTILATOR CONDENSATE THROUGH WALL TO FRENCH DRAIN.
3. PURCHASE AND TURNOVER TO OWNER.

23-CONDENSING UNIT SCHEDULE												
							REFRIGERANT	ELECTRICAL CHARACTERISTICS				
MARK	MANUFACTURER	MODEL	SIZE	TOTAL COOLING CAPACITY (MBH)	COMPRESSOR TYPE	EER	TYPE	MCA	MOCP	Ø	VOLTAGE	NOTES
CU-1A	CARRIER	38AUD	10 TONS	111.8	SCROLL	12.4	PURON	19 A	25 A	3	460 V	
CU-1B	CARRIER	38AUD	10 TONS	111.8	SCROLL	12.4	PURON	19 A	25 A	3	460 V	
CU-1C	CARRIER	38AUD	10 TONS	111.8	SCROLL	12.4	PURON	19 A	25 A	3	460 V	
CU-1D	CARRIER	38AUD	10 TONS	111.8	SCROLL	12.4	PURON	19 A	25 A	3	460 V	
CU-2A	CARRIER	38AUD	6 TONS	72.0	SCROLL	13.4	PURON	13 A	20 A	3	460 V	
CU-2B	CARRIER	38AUD	6 TONS	72.0	SCROLL	13.4	PURON	13 A	20 A	3	460 V	

23-VARIABLE REFRIGERANT BRANCH SELECTOR SCHEDULE								
				ELECTRICAL CHARACTERISTICS				
MARK	MANUFACTURER	MODEL	NUMBER OF PORTS	AMPS	MOCP	Ø	VOLTAGE	NOTES
BS-1A	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-1B	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-1C	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-1D	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-2A	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-2B	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-3A	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-3B	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-4A	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-4B	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-4C	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-5A	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-5B	CARRIER	RBM-Y0611F4PUL	4	1.0	15.0	1	208	
BS-6	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-7A	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-7B	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-8A	CARRIER	RBM-Y0611F6PUL	6	1.0	15.0	1	208	
BS-8B	CARRIER	RBM-Y0964FUL	1	1.0	15.0	1	208	

23-EXPANSION TANK SCHEDULE										
MARK	MANUFACTURER	MODEL	SERVICE	TANK TYPE	FLUID TYPE	PRECHARGE PRESSURE	RELIEF VALVE PRESSURE(FT)	REQUIRED TANK VOLUME	REQUIRED ACCEPTANCE VOLUME	NOTES
ET-1	BELL&GOSSETT	B300	HOT WATER	BLADDER	WATER	12.0 psi	65	78.00 gal	28.5 gal	

23-AIR AND DIRT SEPARATOR SCHEDULE							
MARK	MANUFACTURER	MODEL	SERVICE	FLOW RATE (GPM)	PRESSURE DROP@DESIGN	CONNECTION SIZE	NOTES
ADS-1	BELL&GOSSETT	SRS 5F	HOT WATER	310 GPM	0.65 Feet	5"	

23-HVAC GRAVITY VENTILATOR SCHEDULE									
MARK	MANUFACTURER	MODEL	SERVICE	HOOD TYPE	THROAT AREA	MAXIMUM AIRFLOW	MAXIMUM FREE AREA VELOCITY	ROOF CURB HEIGHT	NOTES
GV-1	GREENHECK	GRSI	INTAKE	SPUN ALUMINUM	2.25 SF	2650 CFM	600	1' - 0"	
GV-2	GREENHECK	GRSR	RELIEF	SPUN ALUMINUM	2.25 SF	2650 CFM	600	1' - 0"	
GV-3	GREENHECK	GRSI	INTAKE	SPUN ALUMINUM	0.37 SF	780 CFM	600	1' - 0"	

23-MECHANICAL SHEET LIST

SHEET NUMBER	SHEET NAME
M000	MECHANICAL SCHEDULES AND LEGENDS
M001	MECHANICAL SCHEDULES
M002	MECHANICAL DETAILS
M003	MECHANICAL DETAILS
M004	VENTILATION SCHEDULES
M010	MECHANICAL DEMOLITION PLAN AREA A
M011	MECHANICAL DEMOLITION PLAN AREA B
M012	MECHANICAL DEMOLITION PLAN AREA C
M020	MECHANICAL ROOF DEMOLITION PLAN
M100	FIRST FLOOR DUCTWORK PLAN AREA A
M101	FIRST FLOOR DUCTWORK PLAN AREA B
M102	FIRST FLOOR DUCTWORK PLAN AREA C
M200	FIRST FLOOR PIPING PLAN AREA A
M201	FIRST FLOOR PIPING PLAN AREA B
M202	FIRST FLOOR PIPING PLAN AREA C
M300	MECHANICAL ROOF PLAN
M400	ENLARGED MECHANICAL PLANS
M500	MECHANICAL SECTIONS
M600	CONTROL SCHEMATICS - HVAC 1
M601	CONTROL SCHEMATICS - HVAC
M700	CONTROL SCHEMATICS - PIPING

ABBREVIATIONS

ACU	AIR CONDITIONING UNIT
ACH	AIR CHANGES PER HOUR
AFUE	ANNUAL FUEL EFFICIENCY RATIO
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
B	BOILER
BACNET	COMMUNICATION PROTOCOL FOR BUILDING AUTOMATION NETWORKS
BAS	BUILDING AUTOMATION SYSTEM
BI	BINARY INPUT
BO	BINARY OUTPUT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS / HOUR
CAV	CONSTANT AIR VOLUME
CDD	COOLING DEGREE DAYS
CFC	CHLOROFLUOROCARBON
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
COP	COEFFICIENT OF PERFORMANCE
CV	CONSTANT VOLUME
DA	DISCHARGE AIR
DB	DRY BULB
DH	DUCT HEATER
DP	DIFFERENTIAL PRESSURE
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
ECM	ELECTRONICALLY COMMUTATED MOTOR
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EH	ELECTRIC HEATER
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
FCU	FAN COIL UNIT
FPM	FEET PER MINUTE
GPM	GALLONS PER MINUTE
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HPS	HIGH PRESSURE STEAM
HR	HEAT RECOVERY
HRU	HEAT RECOVERY UNIT
HRV	HEAT RECOVERY VENTILATOR
HVAC	HEATING VENTILATION AND AIR CONDITIONING
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWRT	HOT WATER RETURN TEMPERATURE
HWST	HOT WATER SUPPLY TEMPERATURE
HX	HEAT EXCHANGER
I/O	INPUT OUTPUT
IAQ	INDOOR AIR QUALITY
LAT	LEAVING AIR TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MUA	MAKE-UP AIR UNIT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
PH	PRE-HEAT
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RF	RETURN FAN
RH	REHEAT
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SF	SUPPLY FAN
SP	SET POINT
SP	STATIC PRESSURE
T	THERMOSTAT
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE

GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW DESIGN INTENT. IF CHANGES ARE MADE DUE TO DIFFERING FIELD CONDITIONS, SUGGESTED CHANGES ARE TO BE SUBMITTED TO ARCHITECT FOR APPROVAL PRIOR TO CHANGES BEING MADE.
B. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE-RATED WALLS.
C. REPAIR ANY WORK DAMAGED AS A RESULT OF WORK BY THIS CONTRACT.
D. CONTRACTOR SHALL BE RESPONSIBLE TO SECURE AND PAY FOR FOR ALL MATERIALS, LABOR, LICENSES, PERMITS, INSPECTIONS, FEES, FINAL CLEANUP, AND QUALITY OF WORKMANSHIP AND MATERIALS REQUIRED TO PERFORM WORK DESCRIBED IN CONTRACT.
E. CONTRACTOR SHALL VERIFY AND SATISFY THAT ALL EQUIPMENT FURNISHED WILL PROPERLY FIT IN THE SPACE PROVIDED, THAT IT WILL FUNCTION PROPERLY, AND THAT ALL PARTS OF EQUIPMENT REQUIRING SERVICE ARE READILY ACCESSIBLE IN COMPLIANCE WITH THE MECHANICAL CODE.
F. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CUTTING AND PATCHING OF WALLS, FLOORS, AND ROOFS REQUIRED FOR INSTALLATION OF THE WORK. ALL OPENINGS IN WALLS, FLOORS OR CEILINGS SHALL BE PROPERLY SEALED
G. LOCATE WALL OPENINGS FOR DUCTS, GRILLES, AIR TRANSFER OPENINGS, PIPING, ETC. CENTERED BETWEEN FRAMING MEMBERS WHEN POSSIBLE.
H. FOR ALL ROOF-MOUNTED MECHANICAL EQUIPMENT, THE CONTRACTOR SHALL PROVIDE THE CURB, CUT THE ROOF OPENING, AND PROVIDE ROOFING AND ROOF FLASHING AROUND CURB SO THAT ROOF WARRANTY IS MAINTAINED. ALL ROOF PENETRATIONS SHALL BE COORDINATED WITH ALL TRADES. TOPS OF ROOF CURBS SHALL BE 12" ABOVE TOP LAYER OF ROOF INSULATION OR MEMBRANE AND SUPPORTED ON STRUCTURE UNLESS NOTED OTHERWISE.
I. ALL TRANSFER AIR DUCTS SHALL HAVE INTERIOR DUCT LINING. REFER TO THE SPECIFICATIONS FOR DUCT LINING REQUIREMENTS.
J. ALL DUCT FITTINGS SHALL BE LO-LOSS FITTINGS. ROUND TAPS INTO SQUARE DUCT SHALL BE CONICAL OR BELLMOUTH. SQUARE ELBOWS AND SQUARE OR RECTANGULAR SPLITTERS SHALL USE TURNING VANES. NON-SQUARE ELBOWS SHALL HAVE A MINIMUM RADIUS OF 1.5 TIMES THE RADIUS OF THE DUCT. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIRMENTS.
K. WHEN PENETRATING A NON-FIRE RATED WALL OR FLOOR WITH DUCTWORK OR PIPING, SEAL ANNULAR SPACE BETWEEN WALL/FLOOR AND MECHANICAL MATERIALS WITH NON-COMBUSTIBLE FIBERGLASS INSULATION AND JOINT SEALANTS APPROPRIATE FOR SIZE AND DEPTH AND SOUND ATTENUATION CONSIDERATION. REFER TO ARCHITECTURAL SPECIFICATIONS FOR NON FIRE RATED JOINT SEALANTS.
L. ALL FLOOR MOUNTED MECHANICAL EQUIPMENT SHALL BE INSTALLED ON A CONCRETE EQUIPMENT PAD.
M. BALANCE AIR HANDLING UNIT MINIMUM OUTSIDE AIR TO THE OUTSIDE AIRFLOWS INDICATED ON THE VENTILATION SCHEDULE.
N. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR ACCURACY.
O. ALL WORK SHALL BE PERFORMED AND INSTALLED PER THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL CODES, LAWS, REGULATIONS, INSPECTION AGENCIES, UTILITY COMPANIES AND OTHER AUTHORITIES HAVING JURISDICTION.
P. WHEN INSTALLING LINEAR DIFFUSERS IN BLOCK WALL, PROVIDE AN INSULATED PLENUM AND EXTEND PLENUM BEYOND BLOCK SO THAT THE DUCT CONNECTION TO THE PLENUM CAN BE MADE CLEANLY WITHOUT INTERFERENCE WITH THE BLOCK. WHEN ABOVE A GYPSUM CEILING, PROVIDE HARD DUCT CONNECTION AT AIR DEVICE AND USE SHEETMETAL SCREWS AND DUCT SEALANT. DO NOT USE FLEX OR WIRE TIE AT FINAL AIR DEVICE CONNECTION WHEN ABOVE A HARD CEILING.
Q. OUTDOOR DESIGN CONDITIONS: SUMMER: 91 DB, 73 WB. WINTER: 6 DB.
R. GENERAL ROOM DESIGN CONDITIONS: SUMMER: 75 DB, 30-60% RH. WINTER: 70 DB.
S. THE USE OF FLEXIBLE DUCTWORK SHALL BE LIMITED TO AIR DEVICE CONNECTIONS AND BE A MAXIMUM OF 60" IN LENGTH.
T. ALL 90° ELBOWS SHALL BE SHEET METAL.
U. DUCT RUN-OUTS TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE.
V. PROVIDE VOLUME CONTROL DAMPERS IN RUN-OUT DUCT TO ALL SUPPLY AIR DEVICES.
W. TURNING VANES SHALL BE INSTALLED IN ALL MITERED SUPPLY DUCT TURNS.
X. COORDINATE LOCATIONS OF ALL HVAC EQUIPMENT AND ACCESSORIES WITH OTHER TRADES.
Y. MAINTAIN REQUIRED CLEARANCES FROM EXHAUST AND VENT LOCATIONS TO OUTSIDE AIR INTAKE AND OPERABLE DOORS & WINDOWS.
Z. PROVIDE DUCT LINER PER SPECIFICATIONS FOR ALL SUPPLY DUCT,RETURN AND EXHAUST WITHIN 10' OF CONNECTION TO ALL AIR HANDLING EQUIPMENT INCLUDING ROOFTOP UNITS, FAN COILS, HEAT PUMPS, AIR HANDLERS AND WHERE INDICATED FOR SOUND ATTENUATION ONLY.
AA. MECHANICAL CONTRACTOR TO DEMOLISH AND REMOVE ALL MECHANICAL EQUIPMENT, DUCTWORK, SUPPORTS, CONTROLS, PIPING, ETC. NOT REUSED IN THE FINAL DESIGN.
BB. THERMOSTATS SHALL BE MOUNTED WITH BOTTOM AT 44" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON THERMOSTAT INSTALLATION DETAIL ON ELECTRICAL SHEETS.
CC. ON ONE-FOR-ONE EQUIPMENT REPLACEMENT PROJECTS, CONTRACTOR SHALL VERIFY THAT EQUIPMENT BEING INSTALLED AT EACH LOCATION IS SIMILAR IN SIZE TO EQUIPMENT PREVIOUSLY IN THAT LOCATION.
DD. DUCTS CONNECTING TO INLET AND DISCHARGE OF FCUs SHALL BE SAME SIZE AS BOX CONNECTION. 1
EE. NOTE FOR ALL AIR DEVICES: TERMINATE WITH BRANCH RUNOUTS AS SHOWN. DEFER INSTALLATION OF THE AIR DEVICES AND FLEX OR HARD CONNECTORS UNTIL THEY ARE COORDINATED WITH THE FINAL RENOVATION CEILING PLANS AND INSTALLATION.

SYMBOLS AND ABBREVIATIONS LEGEND

(THERE MAY BE SYMBOLS LISTED IN THIS LEGEND THAT ARE NOT USED IN THIS SET OF DRAWINGS)

PIPING SYMBOLS	DESCRIPTION
HHWS	HEATING HOT WATER SUPPLY PIPING
HHWR	HEATING HOT WATER RETURN PIPING
COND	CONDENSATE DRAIN PIPING
RS/L	REFRIGERANT SUCTION/LIQUID PIPING
	BALL VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	CIRCUIT BALANCING VALVE
	CHECK VALVE
PRV-#	PRESSURE REDUCING VALVE
	3-WAY VALVE
	MOTORIZED CONTROL VALVE
	MOTORIZED 3-WAY CONTROL VALVE
	SOLENOID VALVE
	WYE STRAINER
	PIPE CONTINUATION
POC	POINT OF CONNECTION
POR	POINT OF REMOVAL
X	KEYNOTE NOTE

DUCTWORK SYMBOLS

	LINEAR DIFFUSER / LINEAR EXHAUST / LINEAR RETURN
	SUPPLY DIFFUSER
	RETURN GRILLE
	EXHAUST GRILLE
	VAV BOX (WITH CLEARANCE BOX SHOWN)
	BALANCING DAMPER
BDD	BACKDRAFT DAMPER
	SMOKE DAMPER
	FIRE DAMPER
	MOTORIZED CONTROL DAMPER
	INTERNALLY LINED DUCTWORK
	FLEXIBLE DUCTWORK

CONTROL SYMBOLS

T	THERMOSTAT
CO2	CARBON DIOXIDE SENSOR
H	HUMIDITY SENSOR
TH	COMBINATION THERMOSTAT / HUMIDITY SENSOR

0'-1" REFERENCE LINE

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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

MECHANICAL SCHEDULES AND LEGENDS

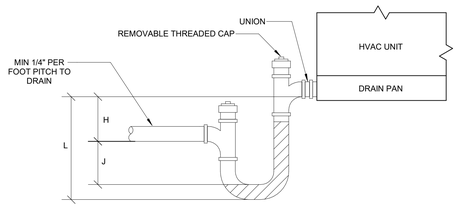
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NOTES:

1. PROVIDE CONDENSATE TRAP FOR ALL COOLING COILS.
2. CONDENSATE PIPE SIZE SHOULD MATCH UNIT CONDENSATE CONNECTION SIZE.

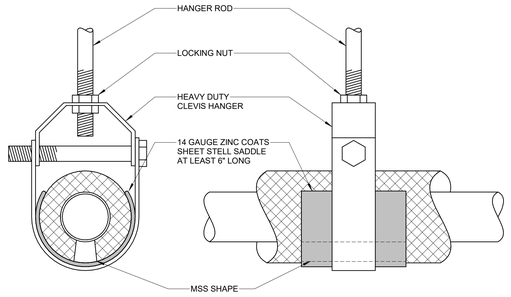
DRAIN PAN TRAPPING FOR SECTION UNDER NEGATIVE PRESSURE

L = H + J + PIPE DIAMETER WHERE:
H = 1 INCH FOR EACH INCH OF NEGATIVE PRESSURE PLUS 1 INCH
J = 1/2 H

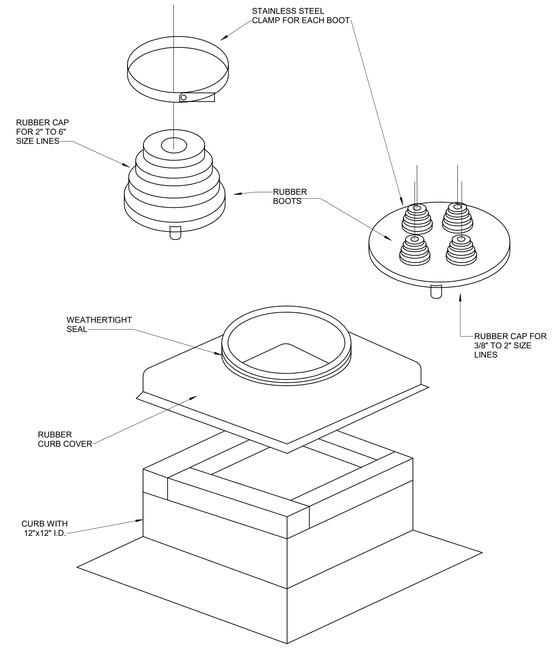
DRAIN PAN TRAPPING FOR SECTION UNDER POSITIVE PRESSURE

L = H + J + PIPE DIAMETER WHERE:
H = 1/2 INCH (MINIMUM)
J = 1/2 INCH PLUS THE UNIT POSITIVE STATIC PRESSURE AT COIL DISCHARGE (LOADED FILTERS)

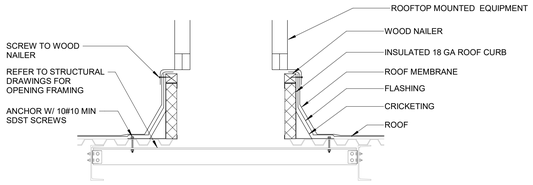
1 M002 CONDENSATE TRAP PIPING



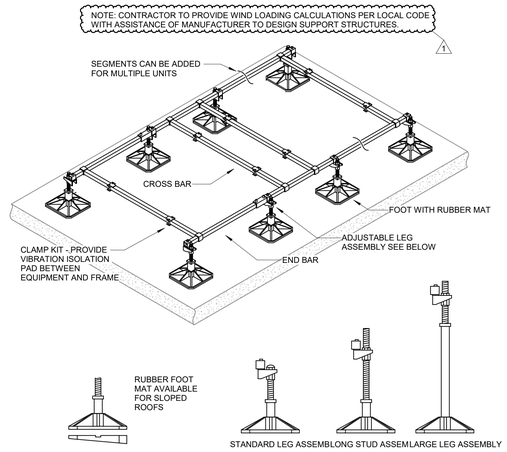
2 M002 PIPE HANGER (6" AND SMALLER)



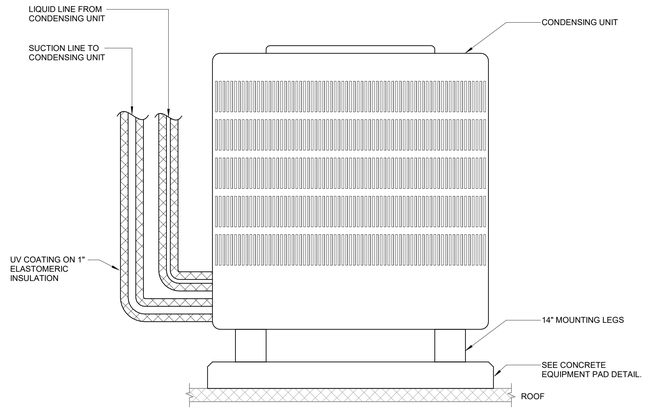
3 M002 REFRIGERANT PIPING PIPE ROOF PENETRATION DETAIL



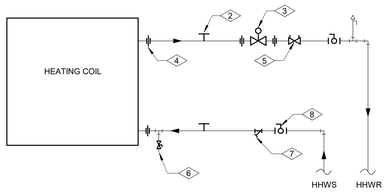
4 M002 ROOF MOUNTED EQUIPMENT DETAIL



5 M002 VRF/VRV CONDENSING UNIT MOUNTING DETAIL



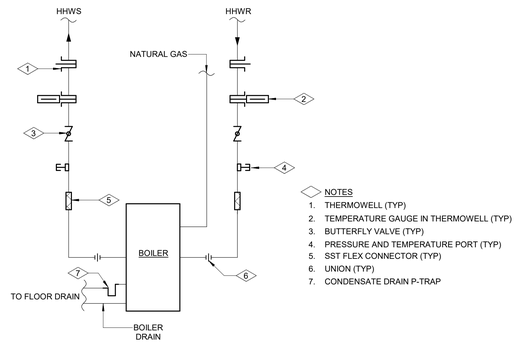
6 M002 CONDENSING UNIT MOUNTING DETAIL



NOTES

1. MANUAL AIR VENT (TYP)
2. P/T PORT (TYP)
3. TWO WAY MODULATING CONTROL VALVE
4. UNION (TYP)
5. CALIBRATED BALANCE VALVE (TYP)
6. DRAIN VALVE W/ HOSE CONNECTION
7. STRAINER W/ 2 P/T PORTS
8. SHUT-OFF VALVE (TYP)

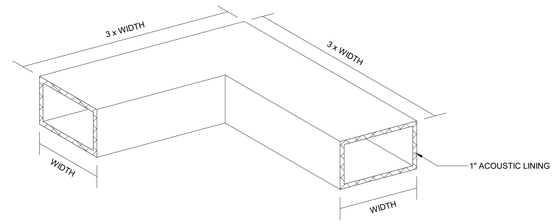
7 M002 HEATING COIL PIPING DETAIL - TERMINAL UNIT



NOTES

1. THERMOWELL (TYP)
2. TEMPERATURE GAUGE IN THERMOWELL (TYP)
3. BUTTERFLY VALVE (TYP)
4. PRESSURE AND TEMPERATURE PORT (TYP)
5. SST FLEX CONNECTOR (TYP)
6. UNION (TYP)
7. CONDENSATE DRAIN P-TRAP

8 M002 TYPICAL BOILER PIPING SCHEMATIC



REFER TO FLOOR PLANS FOR DUCT WIDTH

9 M002 ACOUSTIC LINED TRANSFER DUCT ELBOW

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825 WAYCROSS ROAD, CINCINNATI, OHIO 45240

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825 WAYCROSS ROAD, SUITE A, CINCINNATI, OHIO 45240

ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

MECHANICAL DETAILS

DATE 03-31-22

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23-ASHRAE 62.1 - 2016 - OUTDOOR AIR SCHEDULE - ERV-1

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
207	CORRIDOR	1797 SF	0	0 CFM	0.06 CFM	0 CFM	108 CFM	108 CFM	1	108 CFM	
213	ASSISTANT	484 SF	3	5 CFM	0.06 CFM	15 CFM	29 CFM	44 CFM	1	44 CFM	
213A	HR DIRECTOR OFFICE	200 SF	2	5 CFM	0.06 CFM	10 CFM	12 CFM	22 CFM	1	22 CFM	
214	CONFERENCE	710 SF	36	5 CFM	0.06 CFM	180 CFM	43 CFM	223 CFM	1	223 CFM	
215	CONFERENCE	716 SF	36	5 CFM	0.06 CFM	180 CFM	43 CFM	223 CFM	1	223 CFM	
216	CONFERENCE	717 SF	36	5 CFM	0.06 CFM	180 CFM	43 CFM	223 CFM	1	223 CFM	
217	T&L ASSISTANTS	287 SF	2	5 CFM	0.06 CFM	10 CFM	17 CFM	27 CFM	1	27 CFM	
217A	DIRECTOR OFFICE	199 SF	1	5 CFM	0.06 CFM	5 CFM	12 CFM	17 CFM	1	17 CFM	
217B	DIRECTOR OFFICE	199 SF	1	5 CFM	0.06 CFM	5 CFM	12 CFM	17 CFM	1	17 CFM	
218	CONFERENCE	514 SF	23	5 CFM	0.06 CFM	115 CFM	31 CFM	146 CFM	1	146 CFM	
218B	STORAGE	170 SF	0	5 CFM	0.06 CFM	0 CFM	10 CFM	10 CFM	1	10 CFM	
219	ASSISTANT	128 SF	1	5 CFM	0.06 CFM	5 CFM	8 CFM	13 CFM	1	13 CFM	
219B	EXECUTIVE BUSINESS DIRECTOR OFFICE	200 SF	1	5 CFM	0.06 CFM	5 CFM	12 CFM	17 CFM	1	17 CFM	
220	BREAK ROOM	389 SF	19	5 CFM	0.12 CFM	95 CFM	47 CFM	142 CFM	1	142 CFM	
221	TREASURER OPEN OFFICE	713 SF	5	5 CFM	0.06 CFM	25 CFM	43 CFM	68 CFM	1	68 CFM	
221B	TREASURER OFFICE	206 SF	1	5 CFM	0.06 CFM	5 CFM	12 CFM	17 CFM	1	17 CFM	
222	RECEPTION	193 SF	2	5 CFM	0.06 CFM	10 CFM	12 CFM	22 CFM	1	22 CFM	
223	WAITING	251 SF	0	5 CFM	0.06 CFM	0 CFM	15 CFM	15 CFM	1	15 CFM	
										1353 CFM	

23-ASHRAE 62.1 - 2016 - OUTDOOR AIR SCHEDULE - ERV-2

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
		26 SF	0	5 CFM	0.06 CFM	0 CFM	2 CFM	2 CFM	1	2 CFM	
135	OT/PT	361 SF	5	5 CFM	0.06 CFM	25 CFM	22 CFM	47 CFM	1	47 CFM	
136	BOOK ROOM	70 SF	0	5 CFM	0.06 CFM	0 CFM	4 CFM	4 CFM	1	4 CFM	
137	FILES	60 SF	0	5 CFM	0.06 CFM	0 CFM	4 CFM	4 CFM	1	4 CFM	
137B	STOR.	63 SF	0	5 CFM	0.06 CFM	0 CFM	4 CFM	4 CFM	1	4 CFM	
138	WORK ROOM	174 SF	1	5 CFM	0.06 CFM	5 CFM	10 CFM	15 CFM	1	15 CFM	
138A	CLINIC	94 SF	3	5 CFM	0.06 CFM	15 CFM	6 CFM	21 CFM	1	21 CFM	
138B	PSYC OFFICE	92 SF	1	5 CFM	0.06 CFM	5 CFM	6 CFM	11 CFM	1	11 CFM	
139	VAULT	37 SF	0	5 CFM	0.06 CFM	0 CFM	2 CFM	2 CFM	1	2 CFM	
140	GENERAL OFFICE	428 SF	3	5 CFM	0.06 CFM	15 CFM	26 CFM	41 CFM	1	41 CFM	
141	CONFERENCE ROOM	123 SF	7	5 CFM	0.06 CFM	35 CFM	7 CFM	42 CFM	1	42 CFM	
142	NURSE OFFICE	124 SF	1	5 CFM	0.06 CFM	5 CFM	7 CFM	12 CFM	1	12 CFM	
143	PRINCIPAL	172 SF	1	5 CFM	0.06 CFM	5 CFM	10 CFM	15 CFM	1	15 CFM	
144	WAITING	127 SF	1	5 CFM	0.06 CFM	5 CFM	8 CFM	13 CFM	1	13 CFM	
205	CORRIDOR	1294 SF	0	5 CFM	0.06 CFM	0 CFM	78 CFM	78 CFM	1	78 CFM	
										310 CFM	

23-ASHRAE 62.1 - 2016 - OUTDOOR AIR SCHEDULE - ERV-3

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
170B	RESOURCE	99 SF	17	10.0 CFM	0.12 CFM	170 CFM	12 CFM	182 CFM	1	182 CFM	
171	KINDERGARTEN CLASSROOM	730 SF	19	10.0 CFM	0.12 CFM	190 CFM	88 CFM	278 CFM	1	278 CFM	
172	KINDERGARTEN CLASSROOM	730 SF	19	10.0 CFM	0.12 CFM	190 CFM	88 CFM	278 CFM	1	278 CFM	
173	KINDERGARTEN CLASSROOM	730 SF	19	10.0 CFM	0.12 CFM	190 CFM	88 CFM	278 CFM	1	278 CFM	
188	KITCHEN	1592 SF	15	7.5 CFM	0.12 CFM	113 CFM	191 CFM	303 CFM	1	303 CFM	
										1318 CFM	

23-ASHRAE 62.1 - 2016 - OUTDOOR AIR SCHEDULE - ERV-4

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
		306 SF	0	0 CFM	0.06 CFM	0 CFM	18 CFM	18 CFM	1	18 CFM	
125	FAMILY /ELA	655 SF	17	10 CFM	0.12 CFM	170 CFM	79 CFM	249 CFM	1	249 CFM	
127	KINDERGARTEN CLASSROOM	739 SF	19	10 CFM	0.12 CFM	190 CFM	89 CFM	279 CFM	1	279 CFM	
150	FAMILY / ELA	490 SF	16	10 CFM	0.12 CFM	160 CFM	59 CFM	219 CFM	1	219 CFM	
150C	CORRIDOR	575 SF	0	0 CFM	0.06 CFM	0 CFM	34 CFM	34 CFM	1	34 CFM	
150D	CORRIDOR	919 SF	0	0 CFM	0.06 CFM	0 CFM	55 CFM	55 CFM	1	55 CFM	
201	CORRIDOR	821 SF	0	0 CFM	0.06 CFM	0 CFM	49 CFM	49 CFM	1	49 CFM	
										903 CFM	

1

23-ASHRAE 62.1 - 2016- OUTDOOR AIR SCHEDULE - ERV-5

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
108	FAMILY / ELA	865 SF	20	10 CFM	0.12 CFM	200 CFM	104 CFM	304 CFM	1	304 CFM	
108A	RESOURCE	101 SF	0	5 CFM	0.06 CFM	0 CFM	6 CFM	6 CFM	1	6 CFM	
108B	RESOURCE	102 SF	0	5 CFM	0.06 CFM	0 CFM	6 CFM	6 CFM	1	6 CFM	
										316 CFM	

23-ASHRAE 62.1 - 2016 - OUTDOOR AIR SCHEDULE - ERV-6

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
116	FAMILY / ELA	1072 SF	18	10 CFM	0.12 CFM	180 CFM	129 CFM	309 CFM	1	309 CFM	
116A	RESOURCE	105 SF	0	5 CFM	0.06 CFM	0 CFM	6 CFM	6 CFM	1	6 CFM	
116B	RESOURCE	105 SF	0	5 CFM	0.06 CFM	0 CFM	6 CFM	6 CFM	1	6 CFM	
										321 CFM	

23-ASHRAE 62.1 - 2016 - OUTDOOR AIR SCHEDULE - UNIT VENTS

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
		674 SF	18	10 CFM	0.18 CFM	180 CFM	121 CFM	301 CFM	1	301 CFM	
101	PRESCHOOL CLASSROOM	888 SF	20	10 CFM	0.12 CFM	200 CFM	107 CFM	307 CFM	1	307 CFM	
102	PRESCHOOL CLASSROOM	669 SF	16	10 CFM	0.12 CFM	160 CFM	80 CFM	240 CFM	1	240 CFM	
104	PRESCHOOL CLASSROOM	673 SF	16	10 CFM	0.12 CFM	160 CFM	81 CFM	241 CFM	1	241 CFM	
105	PRESCHOOL CLASSROOM	706 SF	18	10 CFM	0.12 CFM	180 CFM	85 CFM	265 CFM	1	265 CFM	
106	PRESCHOOL CLASSROOM	671 SF	17	10 CFM	0.12 CFM	170 CFM	81 CFM	251 CFM	1	251 CFM	
107	PRESCHOOL CLASSROOM	699 SF	17	10 CFM	0.12 CFM	170 CFM	84 CFM	254 CFM	1	254 CFM	
109	PRESCHOOL CLASSROOM	708 SF	17	10 CFM	0.12 CFM	170 CFM	85 CFM	255 CFM	1	255 CFM	
110A	TEACHER WORKROOM	402 SF	21	10 CFM	0.12 CFM	210 CFM	48 CFM	258 CFM	1	258 CFM	
110B	PRESCHOOL CLASSROOM	714 SF	18	10 CFM	0.12 CFM	180 CFM	86 CFM	266 CFM	1	266 CFM	
111	PRESCHOOL CLASSROOM	649 SF	16	10 CFM	0.12 CFM	160 CFM	78 CFM	238 CFM	1	238 CFM	
112	PRESCHOOL CLASSROOM	845 SF	18	10 CFM	0.12 CFM	180 CFM	101 CFM	281 CFM	1	281 CFM	
114	KINDERGARTEN CLASSROOM	779 SF	18	10 CFM	0.12 CFM	180 CFM	93 CFM	273 CFM	1	273 CFM	
114B	KINDERGARTEN CLASSROOM	690 SF	18	10 CFM	0.12 CFM	180 CFM	83 CFM	263 CFM	1	263 CFM	
115	KINDERGARTEN CLASSROOM	701 SF	18	10 CFM	0.12 CFM	180 CFM	84 CFM	264 CFM	1	264 CFM	
117	KINDERGARTEN CLASSROOM	701 SF	18	10 CFM	0.12 CFM	180 CFM	84 CFM	264 CFM	1	264 CFM	
118	KINDERGARTEN CLASSROOM	701 SF	18	10 CFM	0.12 CFM	180 CFM	84 CFM	264 CFM	1	264 CFM	
119	KINDERGARTEN CLASSROOM	707 SF	18	10 CFM	0.12 CFM	180 CFM	85 CFM	265 CFM	1	265 CFM	
120	KINDERGARTEN CLASSROOM	723 SF	19	10 CFM	0.12 CFM	190 CFM	87 CFM	277 CFM	1	277 CFM	
121	KINDERGARTEN CLASSROOM	721 SF	21	10 CFM	0.12 CFM	210 CFM	87 CFM	297 CFM	1	297 CFM	
123	KINDERGARTEN CLASSROOM	718 SF	22	10 CFM	0.12 CFM	220 CFM	86 CFM	306 CFM	1	306 CFM	
124	MUSIC	1022 SF	17	10 CFM	0.06 CFM	170 CFM	61 CFM	231 CFM	1	231 CFM	
156	CLC	1016 SF	20	10 CFM	0.12 CFM	200 CFM	122 CFM	322 CFM	1	322 CFM	
158	SPECIAL ED CLASSROOM	722 SF	21	10 CFM	0.12 CFM	210 CFM	87 CFM	297 CFM	1	297 CFM	
160	SPECIAL ED CLASSROOM	742 SF	21	10 CFM	0.12 CFM	210 CFM	89 CFM	299 CFM	1	299 CFM	
161	SPECIAL ED CLASSROOM	865 SF	22	10 CFM	0.12 CFM	220 CFM	104 CFM	324 CFM	1	324 CFM	

23-ASHRAE 62.1 - 2016- OUTDOOR AIR SCHEDULE - AHUs

ROOM NUMBER	ROOM NAME	(Az) FLOOR AREA	(Pz) ACTUAL NUMBER OF PEOPLE	(Rp) ASHRAE REQUIRED OA PER PERSON	(Ra) ASHRAE REQUIRED CFM PER SQFT	(Rp) (Pz)	(Ra) (Az)	(Vbz) BREATHING ZONE OUTDOOR AIRFLOW	(Ez) ZONE AIR DISTRIBUTION EFFECTIVENESS	(Voz) ZONE OUTDOOR AIRFLOW	COMMENTS
191	STUDY HALL/CAFETERIA	2784 SF	30	20 CFM	0.06 CFM	600 CFM	167 CFM	767 CFM	1	767 CFM	
193	STAGE	1237 SF	0	5 CFM	0.06 CFM	0 CFM	74 CFM	74 CFM	1	74 CFM	
194	GYMNASIUM	6853 SF	30	20 CFM	0.06 CFM	600 CFM	411 CFM	1011 CFM	1	1011 CFM	
										1852 CFM	

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ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

VENTILATION SCHEDULES

DATE 03-31-22

COMM NO. 2021091.01

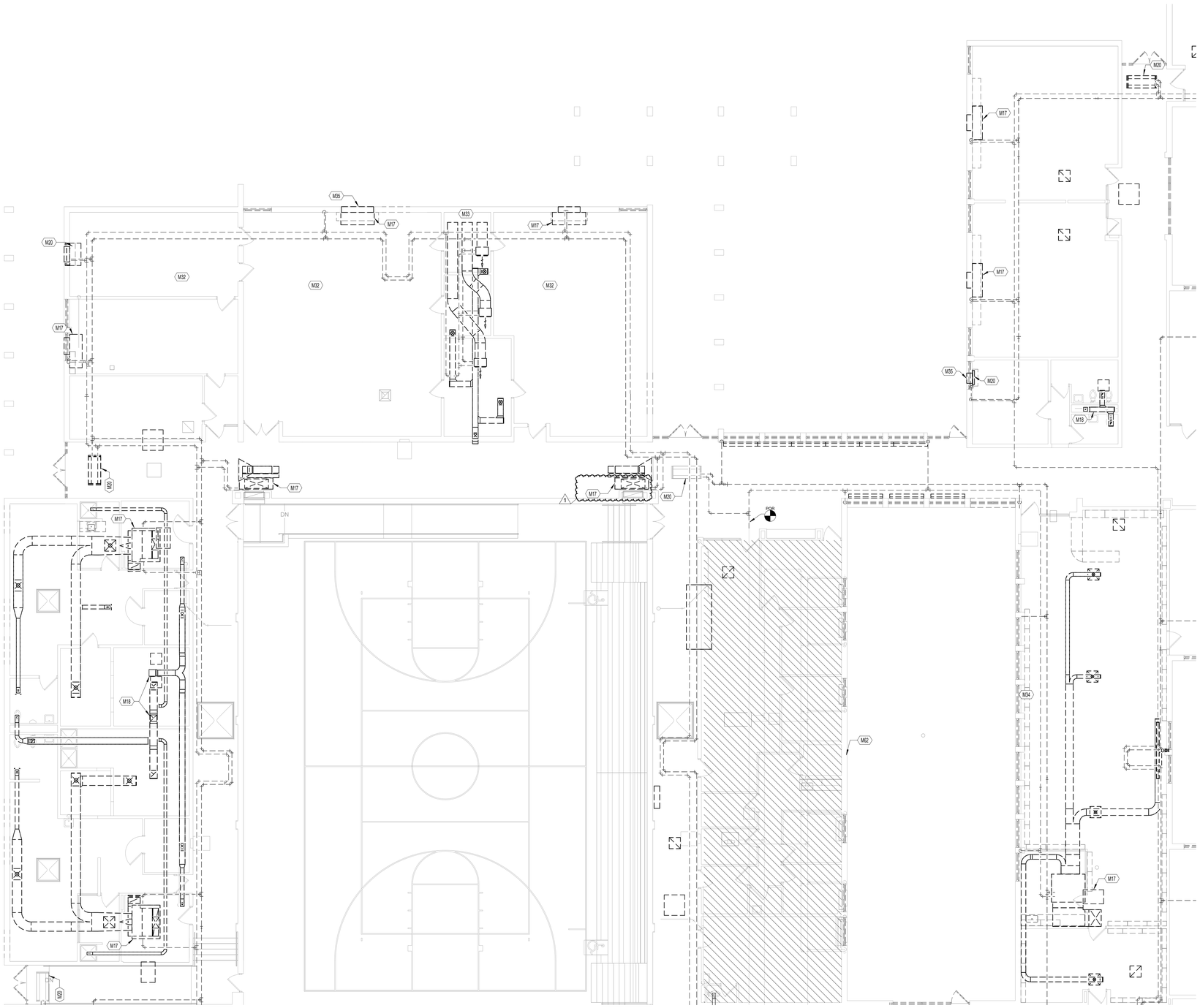
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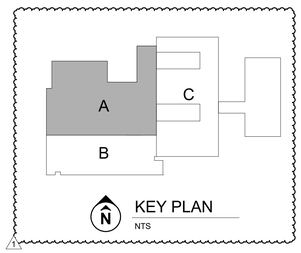
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KEYNOTES

M17	REMOVE EXISTING UNIT VENT.
M18	REMOVE EXISTING DUCTWORK, GRILLES AND ASSOCIATED SUPPORTS.
M20	REMOVE EXISTING CABINET UNIT HEATER.
M32	REMOVE EXISTING DUCTWORK, DIFFUSERS AND SUPPORTS IN THIS AREA.
M33	EXISTING IT CLOSET AIR CONDITIONING SYSTEM IN THIS AREA. PROTECT DURING CONSTRUCTION.
M34	REMOVE EXISTING FIN TUBE HEATER AND ASSOCIATED ITEMS.
M35	SEAL EXISTING OPENING.
M62	EXISTING HVAC TO REMAIN. PROTECT DURING CONSTRUCTION.



1 M010 FIRST FLOOR DEMOLITION PLAN - AREA A
1/8" = 1'-0"



0'-1" REFERENCE LINE

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ISSUANCES		
	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

MECHANICAL DEMOLITION PLAN AREA A

DATE 03-31-22

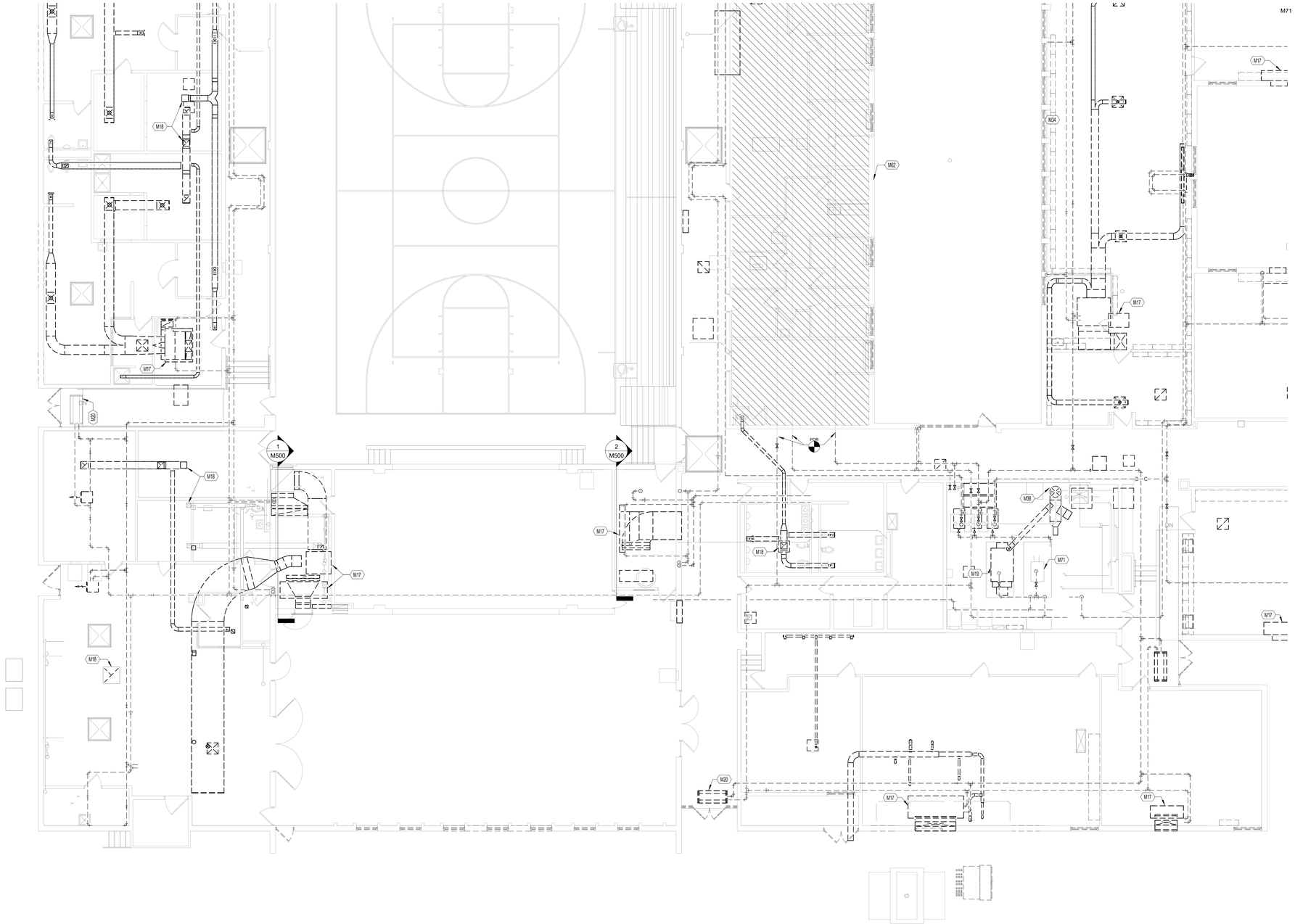
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M010

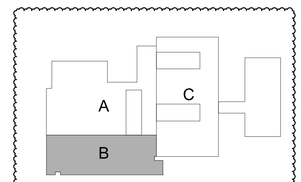
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KEYNOTES

M17	REMOVE EXISTING UNIT VENT.
M18	REMOVE EXISTING DUCTWORK, GRILLES AND ASSOCIATED SUPPORTS.
M19	REMOVE EXISTING BOILER.
M20	REMOVE EXISTING CABINET UNIT HEATER.
M34	REMOVE EXISTING FIN TUBE HEATER AND ASSOCIATED ITEMS.
M38	DEMOLISH BOILER BREECHING. PATCH ROOF IN ACCORDANCE WITH MANITAINING WARRANTY
M62	EXISTING HVAC TO REMAIN. PROTECT DURING CONSTRUCTION.
M71	EXISTING BOILER FLUE TO REMAIN. PROTECT DURING CONSTRUCTION. VERIFY COMBUSTION AIR INTAKE IN FIELD.



1 M011 FIRST FLOOR DEMOLITION PLAN AREA B
1/8" = 1'-0"



1 1/1" REFERENCE LINE

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ISSUANCES		
	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

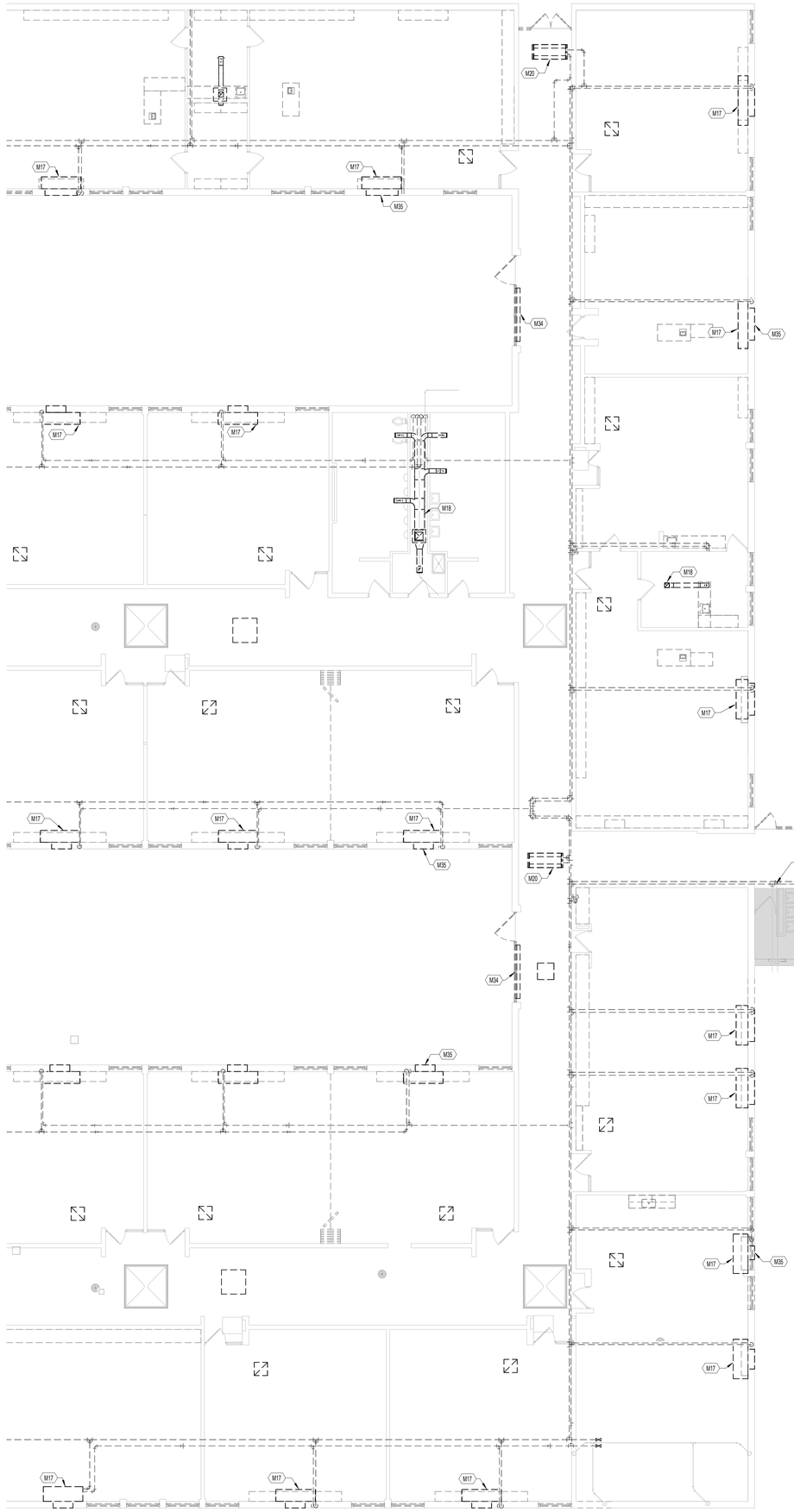
MECHANICAL
DEMOLITION
PLAN AREA B

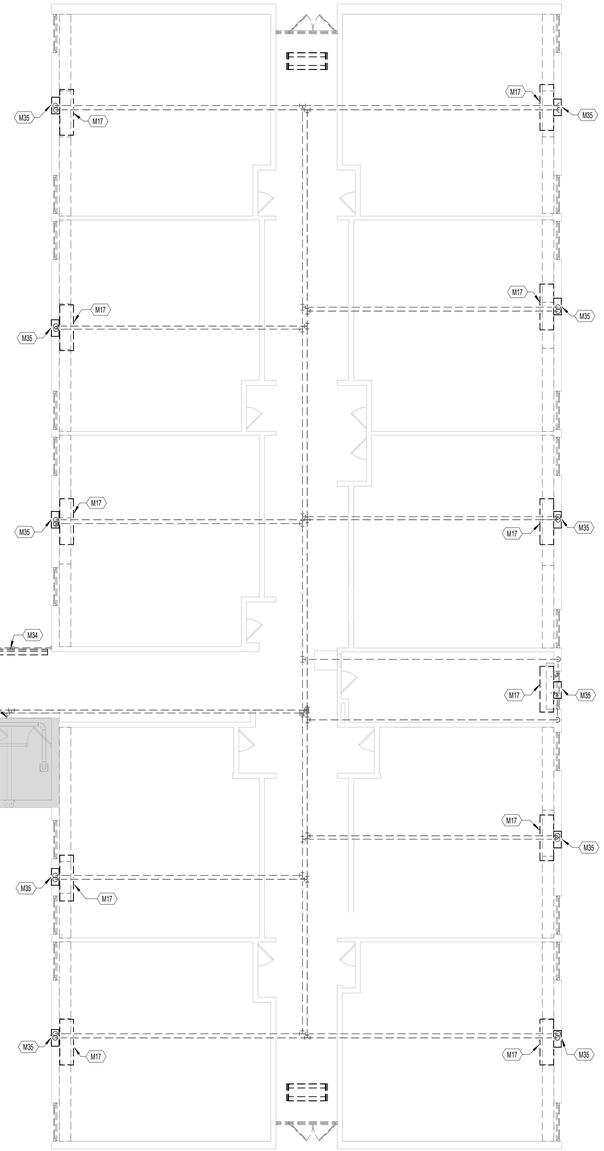
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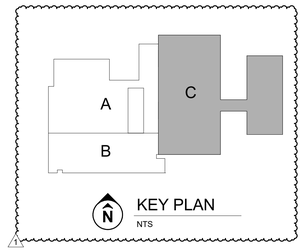




KEYNOTES

M17	REMOVE EXISTING UNIT VENT.
M18	REMOVE EXISTING DUCTWORK, GRILLES AND ASSOCIATED SUPPORTS.
M20	REMOVE EXISTING CABINET UNIT HEATER.
M34	REMOVE EXISTING FIN TUBE HEATER AND ASSOCIATED ITEMS.
M35	SEAL EXISTING OPENING.
M42	EXISTING HYDRONIC HEATING AND EXHAUST SYSTEM TO REMAIN. PROTECT DUCTWORK AND GRILLES DURING CONSTRUCTION. PROTECT HYDRONIC LINES FOR RECONNECTION TO NEW HOT WATER PIPING.

1 M012 FIRST FLOOR DEMOLITION PLAN AREA C
1/8" = 1'-0"



KEY PLAN
NTS

1 "0-1" REFERENCE LINE"

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ISSUANCES

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MECHANICAL DEMOLITION PLAN AREA C

DATE 03-31-22

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M012

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KEYNOTES

M22 SKYLIGHT TO REMAIN. PROTECT DURING CONSTRUCTION.

M23 EXHAUST FAN TO BE DEMOLISHED. CAP EXISTING CURB.

M24 ATMOSPHERIC ROOF VENT TO BE DEMOLISHED. PROTECT EXISTING CURB FOR REUSE.

M25 EXHAUST FAN TO BE DEMOLISHED. PROTECT EXISTING CURB FOR REUSE.

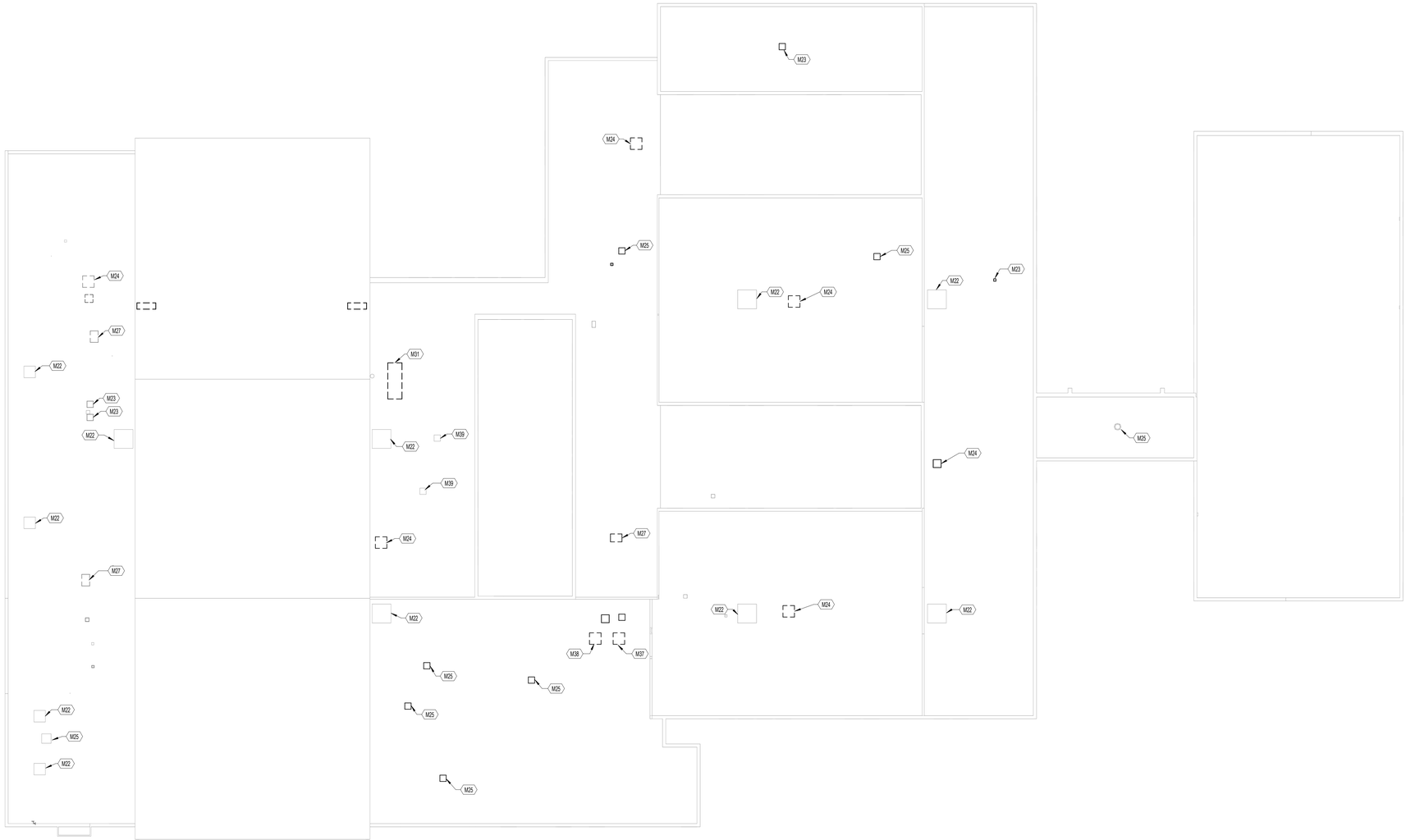
M27 SUPPLY VENT TO BE DEMOLISHED. PROTECT EXISTING CURB FOR REUSE.

M31 ROOFTOP UNIT TO BE DEMOLISHED. CAP EXISTING CURB. REMOVE WIRING BACK TO ASSOCIATED ELECTRICAL PANEL AND CAP.

M37 COMBUSTION AIR VENT TO BE DEMOLISHED. PROTECT EXISTING CURB REUSE.

M38 DEMOLISH BOILER BREECHING. PATCH ROOF IN ACCORDANCE WITH MANITAINING WARRANTY

M39 EXISTING ROOF AIR INLET TO REMAIN. PROTECT DURING CONSTRUCTION.



1 M020 MECHANICAL ROOF DEMOLITION PLAN
1/16" = 1'-0"

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MECHANICAL ROOF DEMOLITION PLAN

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M020

0'-1" REFERENCE LINE

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KEYNOTES

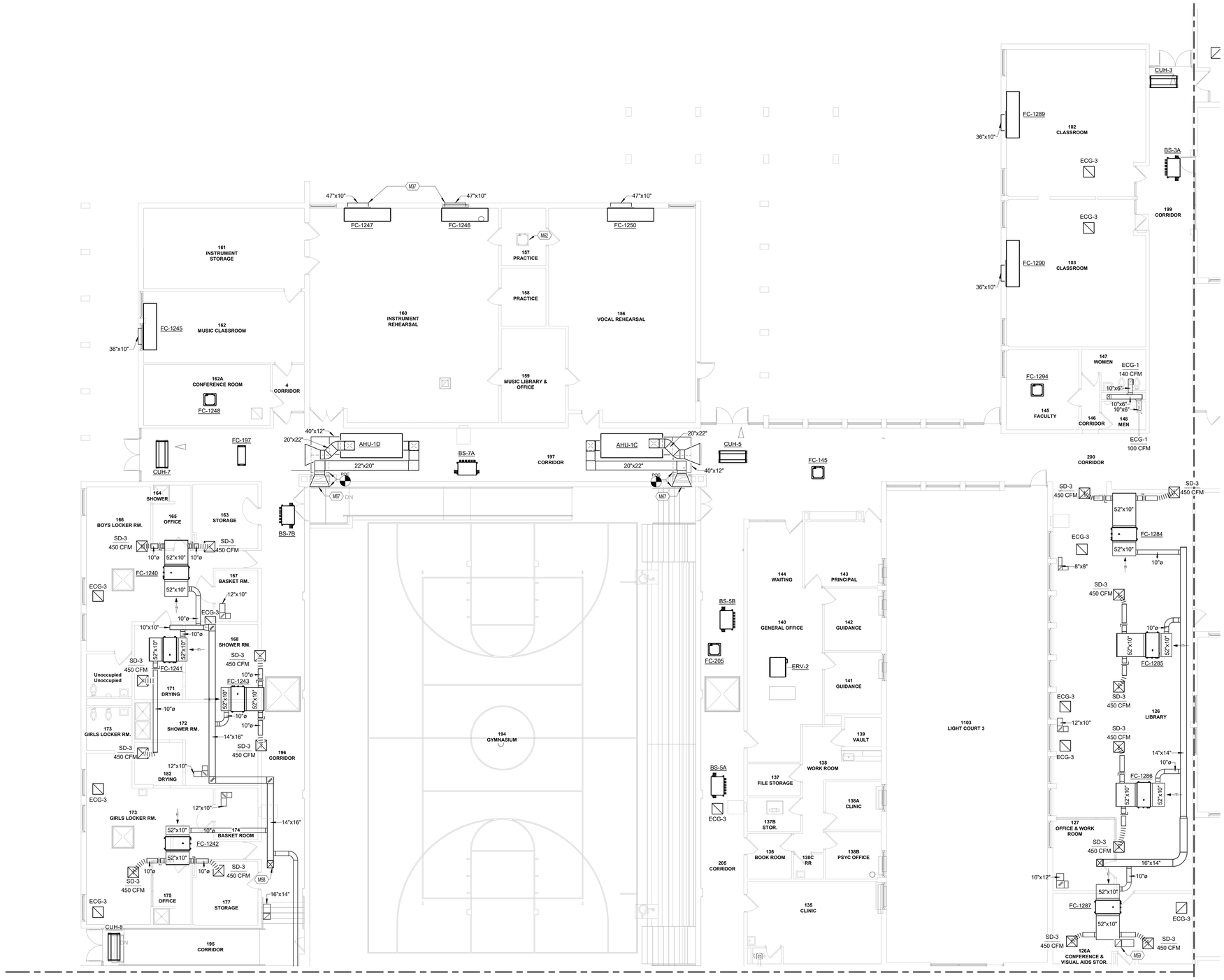
M37 COMBUSTION AIR VENT TO BE DEMOLISHED. PROTECT EXISTING CURB REUSE.

M58 SUPPLY /RETURN DUCT TO ERV-3. COORDINATE SUPPLY DUCT LOCATION WITH EXISTING FRAMED OPENING IN STRUCTURE.

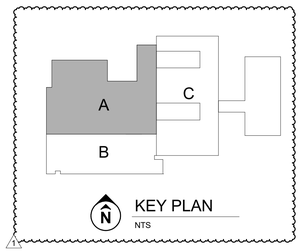
M59 SUPPLY /RETURN DUCT TO ERV-4. COORDINATE RETURN DUCT LOCATION WITH EXISTING FRAMED OPENING IN STRUCTURE.

M62 EXISTING HVAC TO REMAIN. PROTECT DURING CONSTRUCTION.

M67 RE-USE EXISTING SUPPLY GRILLE, BALANCE TO 3500 CFM.



1 M100 FIRST FLOOR DUCTWORK PLAN AREA A
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ISSUANCES

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1	05-18-22	ADDENDUM 1

FIRST FLOOR DUCTWORK PLAN AREA A

DATE 03-31-22

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M100

"0.1" REFERENCE LINE"

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KEYNOTES

M9 UP TO EF-9.

M36 DESIGN OF KITCHEN DOES NOT REQUIRE KITCHEN EXHAUST SYSTEM PER OMC 507.3. EXISTING TYPE 1 HOOD AND EXHAUST SYSTEM TO REMAIN IN PLACE.

M37 COMBUSTION AIR VENT TO BE DEMOLISHED. PROTECT EXISTING CURB REUSE.

M58 SUPPLY /RETURN DUCT TO ERV-3. COORDINATE SUPPLY DUCT LOCATION WITH EXISTING FRAMED OPENING IN STRUCTURE.

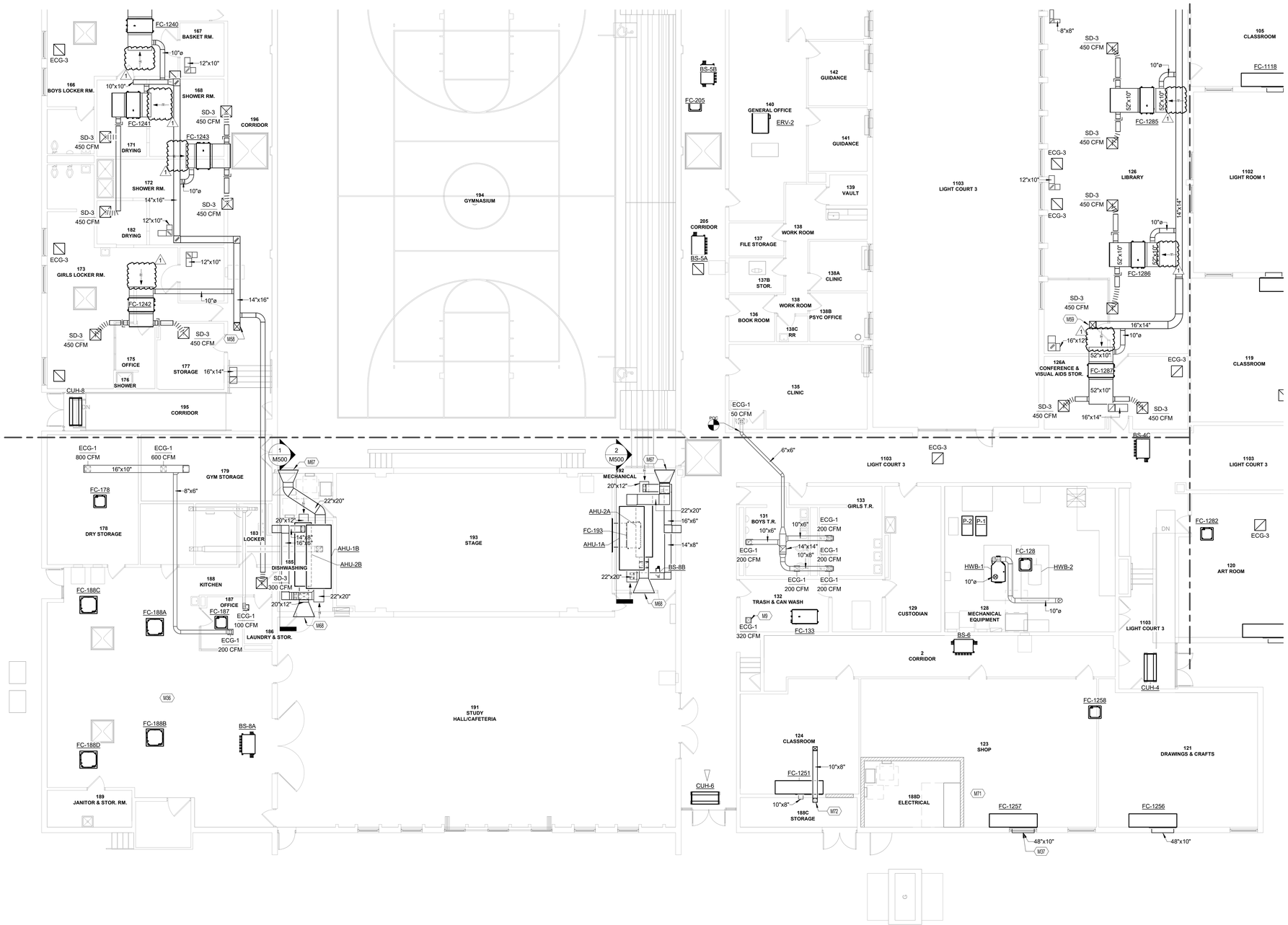
M59 SUPPLY /RETURN DUCT TO ERV-4. COORDINATE RETURN DUCT LOCATION WITH EXISTING FRAMED OPENING IN STRUCTURE.

M67 RE-USE EXISTING SUPPLY GRILLE, BALANCE TO 3500 CFM.

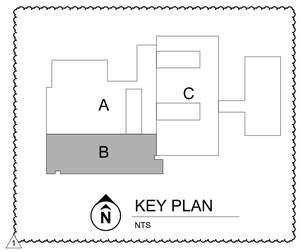
M68 RE-USE EXISTING SUPPLY GRILLE, BALANCE TO 1500 CFM.

M71 EXISTING BOILER FLUE TO REMAIN. PROTECT DURING CONSTRUCTION. VERIFY COMBUSTION AIR INTAKE IN FIELD.

M72 FOR ALL EXISTING CURBS BEING REUSED FOR AIR INLETS AND OUTLETS, PROVIDE A NEW GRAVITY VENT OR INTAKE HOOD PER THE SPECIFICATIONS. BASIS OF DESIGN TO BE GREENHECK GRSI/GRSR SIZE 20, SIZED TO FIT ON EXISTING ROOF CURB OF APPROXIMATELY 30X30". PROVIDE WITH GRAVITY DAMPERS.



1 M101 FIRST FLOOR DUCTWORK PLAN AREA B
1/8" = 1'-0"



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ISSUANCES

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	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

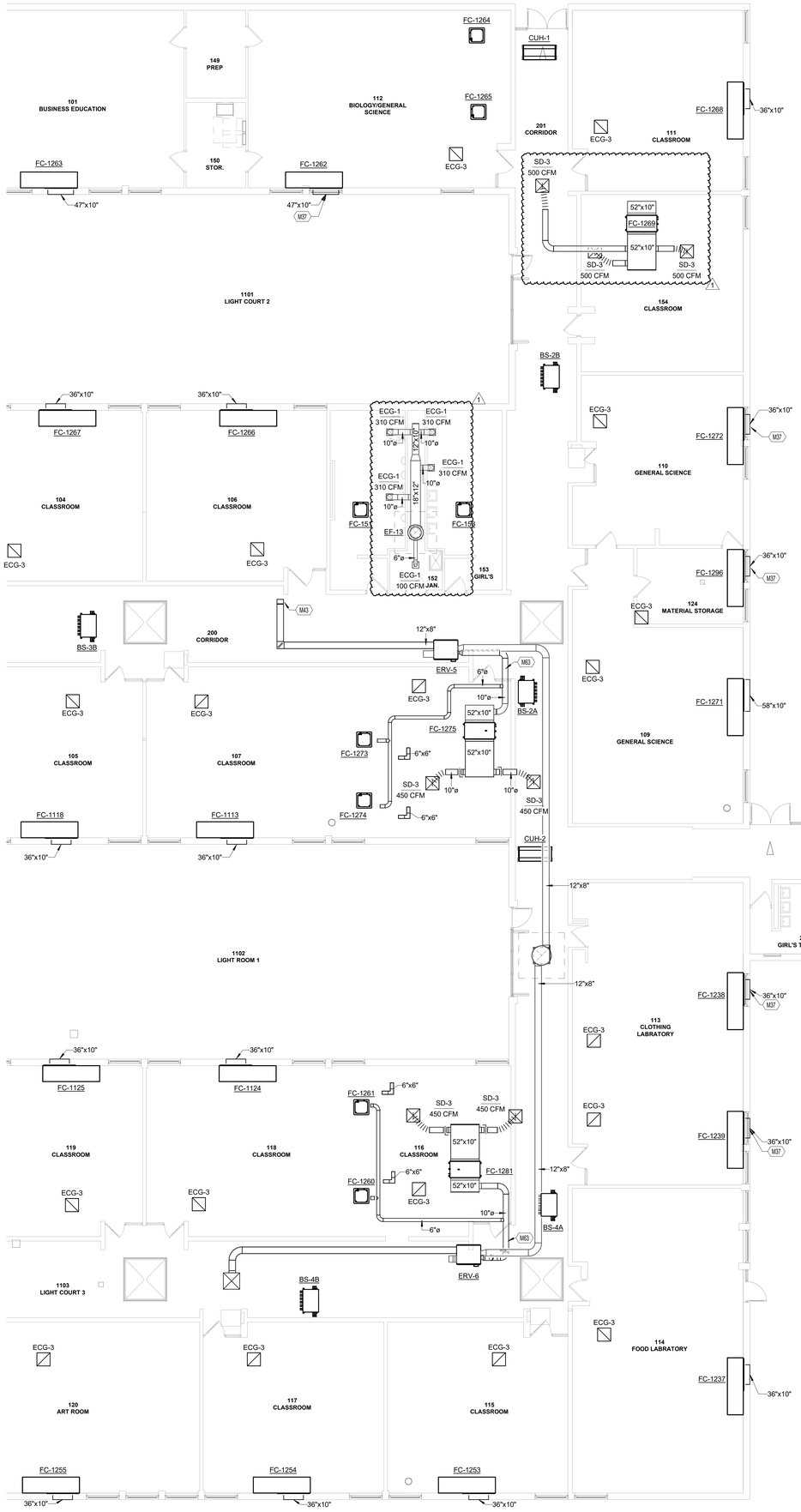
FIRST FLOOR DUCTWORK PLAN AREA B

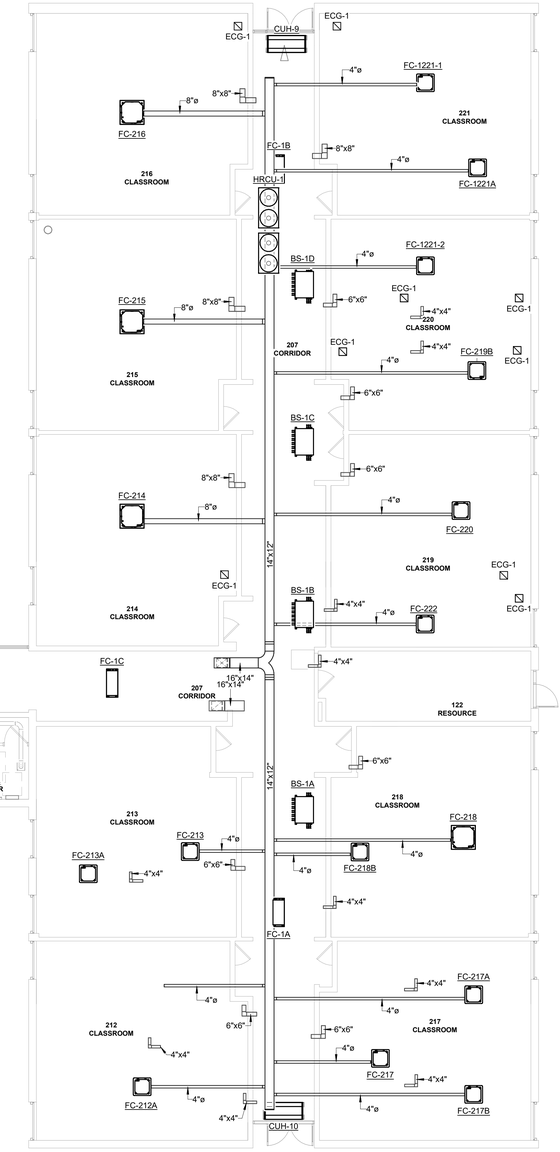
DATE 03-31-22

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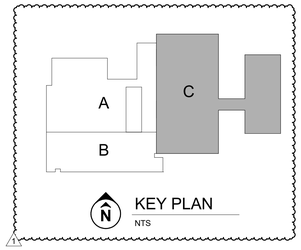
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1 M102 FIRST FLOOR DUCTWORK PLAN AREA C
1/8" = 1'-0"



KEYNOTES

M37 COMBUSTION AIR VENT TO BE DEMOLISHED. PROTECT EXISTING CURB REUSE.

M43 SUPPLY DUCT AND RETURN DUCT THROUGH EXISTING FRAMED OPENING IN STRUCTURE.

M63 DUCT HEATING COIL FOR ERV. REFER ERV SCHEDULE FOR MORE DETAIL.

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ISSUANCES

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1	05-18-22	ADDENDUM 1

FIRST FLOOR DUCTWORK PLAN AREA C

DATE 03-31-22

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M102

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1" REFERENCE LINE

GENERAL NOTES:

A. CONTROLLER ACCESS IS SHOWN AS A HASHED BOX.
B. SUPPLY, RETURN AND CONDENSATE PIPING IS 3/4" UNLESS NOTED OTHERWISE.
C. DO NOT ROUTE PIPING OVER ELECTRICAL EQUIPMENT.
D. CONDENSATE PIPING IS 1" UNLESS NOTED OTHERWISE.
E. PROVIDE FRENCH DRAIN FOR AIR CONDITIONING CONDENSATE PER DETAIL FOR ALL UNIT VENTILATORS IN WALL.

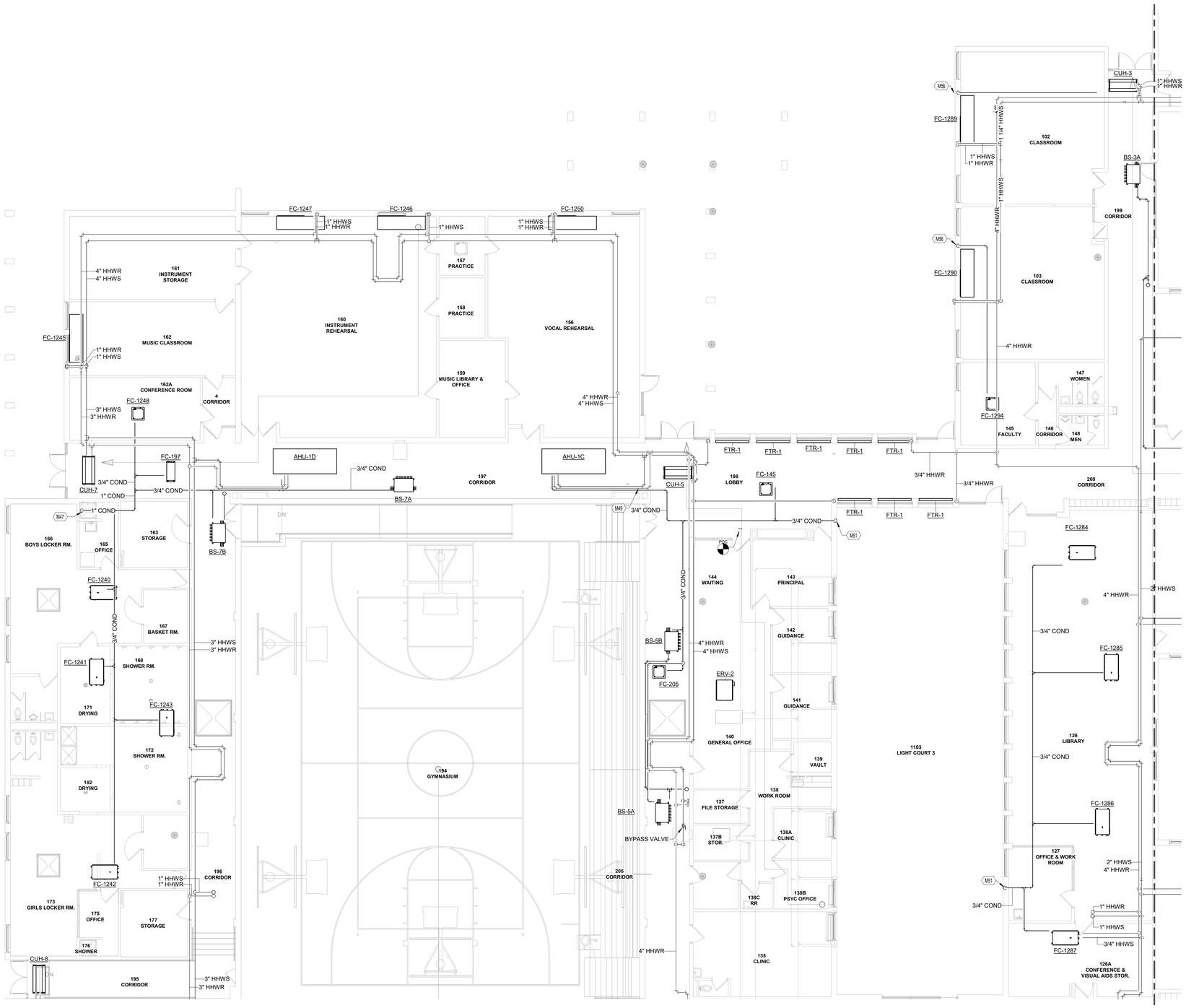
KEYNOTES

M47 1" CONDENSATE DRAIN DOWN TO SHOWER DRAIN.

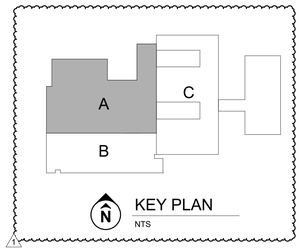
M49 1-1/2" HHWS/HHWR TO AHU.

M51 ROUTE THE CONDENSATION PIPE TO DISCHARGE THROUGH EXTERIOR WITH FRENCH DRAIN.

M56 CONNECT CONDENSATE DRAIN TO CONDENSATE DRAIN OF FAN COIL AND ROUTE THE CONDENSATION PIPE TO DISCHARGE THROUGH EXTERIOR WITH FRENCH DRAIN.



1 M200 FIRST FLOOR MECHANICAL PIPING PLAN AREA A
1/8" = 1'-0"



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ISSUANCES

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	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR
PIPING PLAN
AREA A

DATE 03-31-22

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M200

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GENERAL NOTES:

A. CONTROLLER ACCESS IS SHOWN AS A HASHED BOX.
B. SUPPLY (RETURN AND CONDENSATE) PIPING IS 3/4" UNLESS NOTED OTHERWISE.
C. DO NOT ROUTE PIPING OVER ELECTRICAL EQUIPMENT.
D. CONDENSATE PIPING IS 1" UNLESS NOTED OTHERWISE.
E. PROVIDE FRENCH DRAIN FOR AIR CONDITIONING CONDENSATE PER DETAIL FOR ALL UNIT VENTILATORS IN WALL.

KEYNOTES

M46 SIZE EXPANSION TANKS AND AIR SEPARATOR BASED ON FINAL SYSTEM VOLUME.

M48 1" CONDENSATE DRAIN DOWN TO MOP SINK.

M49 1-1/2" HHWS/HHWR TO AHU.

M50 2" HHWS/HHWR TO AHU.

M51 ROUTE THE CONDENSATION PIPE TO DISCHARGE THROUGH EXTERIOR WITH FRENCH DRAIN.

M52 1-1/2" HHWS/HHWR TO AHU-1A.

M53 2" HHWS/HHWR TO AHU-2A

M54 1" CONDENSATE DRAIN FROM AHU-1A &2A.

M55 1-1/4" CONDENSATE DRAIN DOWN TO MOP SINK.

M56 CONNECT CONDENSATE DRAIN TO CONDENSATE DRAIN OF FAN COIL AND ROUTE THE CONDENSATION PIPE TO DISCHARGE THROUGH EXTERIOR WITH FRENCH DRAIN.

M60 1" HHWS/HHWR TO ERV-3.

M61 1" HHWS/HHWR TO ERV-4.

M64 EXTEND EXISTING HWR&S TO NEW HEADERS.

1 M201 FIRST FLOOR MECHANICAL PIPING PLAN AREA B
1/8" = 1'-0"

KEY PLAN
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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR PIPING PLAN AREA B

DATE 03-31-22
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GENERAL NOTES:

A. CONTROLLER ACCESS IS SHOWN AS A HASHED BOX.
B. SUPPLY, RETURN AND CONDENSATE PIPING IS 3/4" UNLESS NOTED OTHERWISE.
C. DO NOT ROUTE PIPING OVER ELECTRICAL EQUIPMENT.
D. CONDENSATE PIPING IS 1" UNLESS NOTED OTHERWISE.
E. PROVIDE FRENCH DRAIN FOR AIR CONDITIONING CONDENSATE PER DETAIL FOR ALL UNIT VENTILATORS IN WALL.

KEYNOTES

M45 EXISTING EXHAUST DUCT AND HYDRONIC HEATERS IN THIS AREA TO REMAIN. CONNECT HOT WATER SUPPLY AND RETURN LINES TO NEW PIPING IN CORRIDOR. REPLACE EXHAUST FAN ON ROOF PER SCHEDULE.

M48 1" CONDENSATE DRAIN DOWN TO MOP SINK.

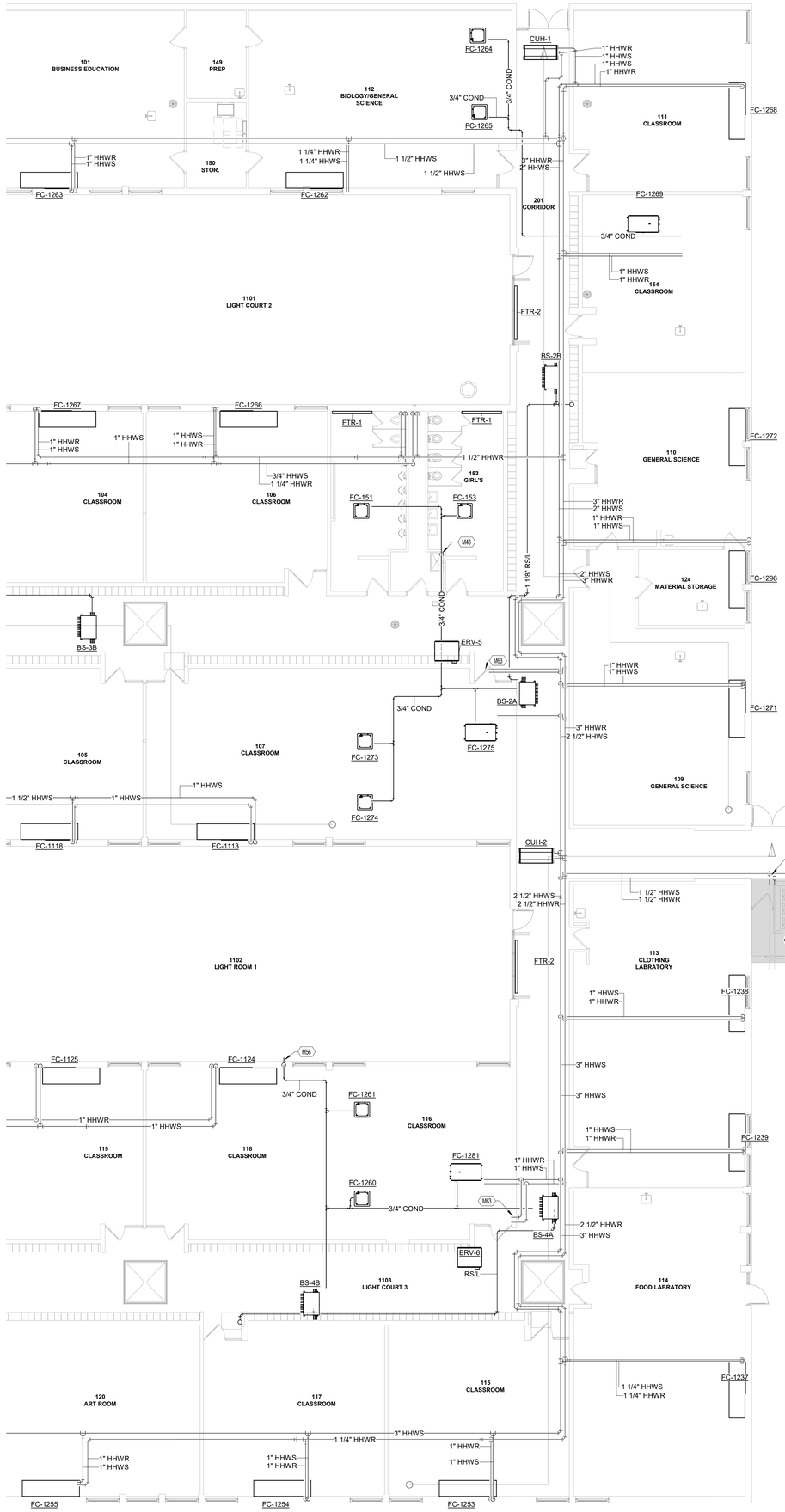
M51 ROUTE THE CONDENSATION PIPE TO DISCHARGE THROUGH EXTERIOR WITH FRENCH DRAIN.

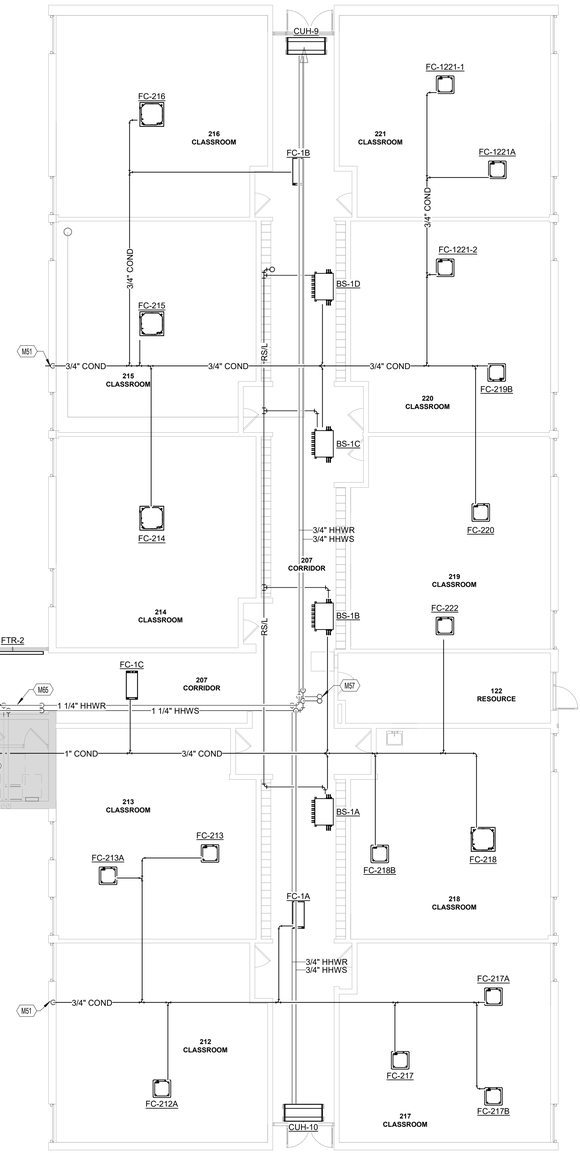
M56 CONNECT CONDENSATE DRAIN TO CONDENSATE DRAIN OF FAN COIL AND ROUTE THE CONDENSATION PIPE TO DISCHARGE THROUGH EXTERIOR WITH FRENCH DRAIN.

M57 1" HHWS/HHWR TO ERV-1.

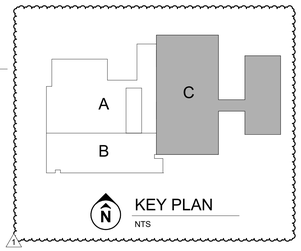
M63 DUCT HEATING COIL FOR ERV. REFER ERV SCHEDULE FOR MORE DETAIL.

M65 DIFFERENTIAL PRESSURE SENSOR FOR HOT WATER SYSTEM.





1 M202 FIRST FLOOR MECHANICAL PIPING PLAN AREA C
1/8" = 1'-0"



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WINTON WOODS CITY SCHOOLS
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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR PIPING PLAN AREA C

DATE 03-31-22

COMM NO. 2021091.01

M202

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1" REFERENCE LINE

KEYNOTES

M1 EF-1 EXISTING TO REMAIN.

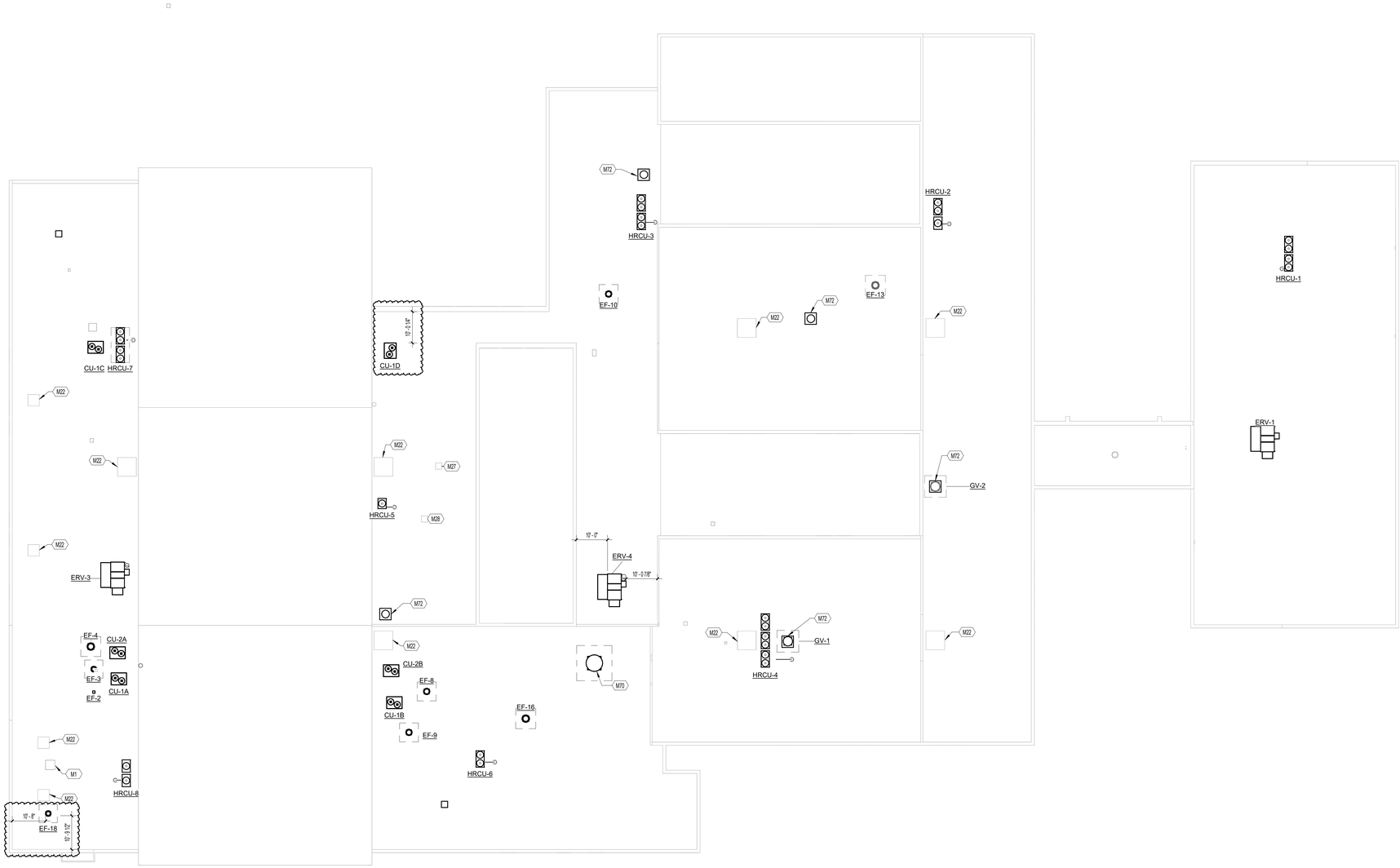
M22 SKYLIGHT TO REMAIN. PROTECT DURING CONSTRUCTION.

M27 SUPPLY VENT TO BE DEMOLISHED. PROTECT EXISTING CURB FOR REUSE.

M28 SUPPLY VENT TO BE DEMOLISHED. CAP EXISTING CURB.

M70 FOR BOILER ROOM AIR INTAKE CURB BEING REUSED, PROVIDE A NEW GRAVITY VENT OR INTAKE HOOD PER THE SPECIFICATIONS. BASIS OF DESIGN TO BE GREENHECK GRSI/GRSR SIZE 20, SIZED TO FIT ON EXISTING ROOF CURB OF APPROXIMATELY 40"X40". 2000 CFM. PROVIDE WITH GRAVITY DAMPERS.

M72 FOR ALL EXISTING CURBS BEING REUSED FOR AIR INLETS AND OUTLETS, PROVIDE A NEW GRAVITY VENT OR INTAKE HOOD PER THE SPECIFICATIONS. BASIS OF DESIGN TO BE GREENHECK GRSI/GRSR SIZE 20, SIZED TO FIT ON EXISTING ROOF CURB OF APPROXIMATELY 30X30". PROVIDE WITH GRAVITY DAMPERS.



1 M300 MECHANICAL ROOF PLAN
1/16" = 1'-0"

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MECHANICAL ROOF PLAN

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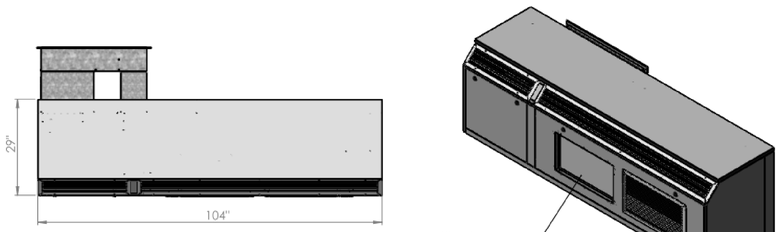
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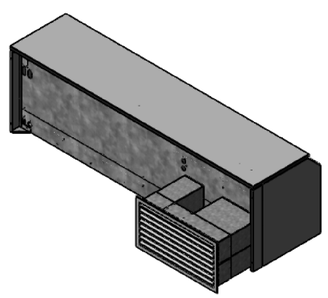
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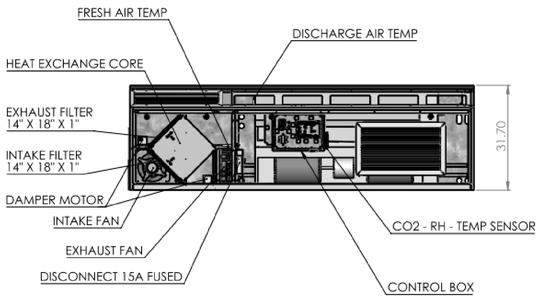
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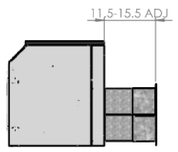
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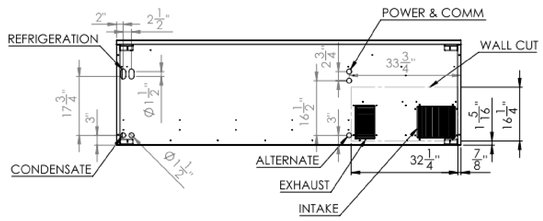
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
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			CHECKED		
			ENG APPR.		
			MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		
		MATERIAL Material <not specified>	COMMENTS:		
NEXT ASSY	USED ON	FINISH			
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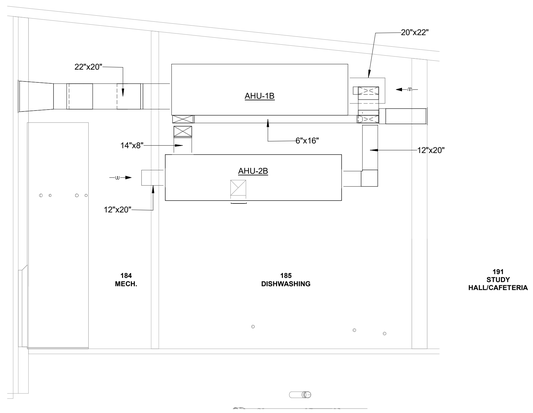
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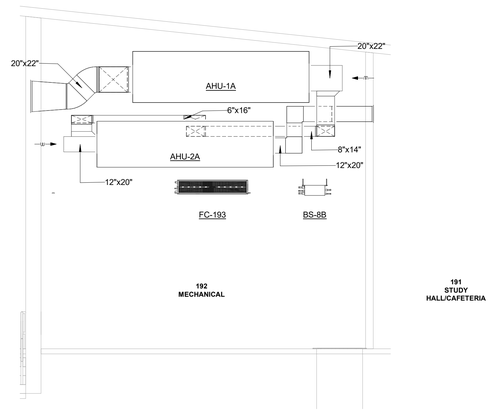
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1 M500 184 MECHANICAL ROOM SECTION
1/4" = 1'-0"



2 M500 192 MECHANICAL ROOM SECTION
1/4" = 1'-0"

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CONTROL SCHEMATIC LEGEND

SYMBOL	DEFINITION
	MOTORIZED 3-WAY VALVE
	MOTORIZED 2-WAY VALVE
T	PIPE TEMPERATURE SENSOR
H PS L	DIFFERENTIAL PRESSURE SENSOR
T	AVERAGING TEMPERATURE SENSOR
T	POINT TEMPERATURE SENSOR
VFD	VARIABLE FREQUENCY DRIVE (VFD)
T	ZONE TEMPERATURE SENSOR
V	ZONE VOC SENSOR
C	ZONE CO2 SENSOR
H	ZONE HUMIDITY SENSOR
AFMS	DUCT-MOUNTED AIRFLOW MONITORING STATION
AFMS RF	FAN-MOUNTED AIRFLOW MONITORING STATION
HC	COIL (HEATING/COOLING)
	DUCT CONTINUATION
SMOKE	DUCT MOUNTED SMOKE DETECTOR
RF	FAN - SUPPLY / RETURN / EXHAUST
H DP	FILTER WITH DIFFERENTIAL PRESSURE SENSOR
FZ	FREEZESTAT
H	HUMIDITY SENSOR
M	MOTORIZED DAMPER - PARALLEL BLADES
M	MOTORIZED DAMPER - OPPOSED BLADES
PS	PLENUM SENSOR

SINGLE ZONE AHU CONTROL SEQUENCE

FOR GYM AND MUSCLE ROOM (DINING) UNITS

CONTROL SEQUENCES ARE FOR EACH UNIT. ALL FOUR UNITS SERVING THE GYM, AND BOTH UNITS SERVING THE MUSCLE ROOM, SHALL BE CONTROLLED BY A COMMON THERMOSTAT AND CARBON DIOXIDE SENSOR IN EACH ROOM.

A. RUN CONDITIONS: THE SUPPLY FAN SHALL RUN ANYTIME THE SPACE IS IN OCCUPIED MODE AS DETERMINED BY THE ADJUSTABLE TIME SCHEDULE, OPTIMAL START, PUSHBUTTON OVERRIDE, OR DURING UNOCCUPIED HEATING/COOLING.

B. ZONE OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

C. MORNING WARM-UP: IF THE SPACE IS IN HEATING MODE DURING OPTIMAL START PERIOD, THE UNIT SHALL GO INTO MORNING WARM-UP AS DIRECTED BY THE ZONE OPTIMAL START. THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE RETURN AIR DAMPER SHALL REMAIN OPEN DURING THIS OPERATION. THE SUPPLY AIR TEMPERATURE SHALL BE SET TO 85 DEG F (ADJ.). THE SUPPLY FAN SHALL RUN AT MAX CFM. ONCE THE ASSOCIATED SPACE TEMPERATURES ARE SATISFIED THE UNIT SHALL GO INTO NORMAL OCCUPIED MODE.

D. MORNING COOL-DOWN: IF THE SPACE IS IN COOLING MODE DURING OPTIMAL START PERIOD, THE UNIT SHALL GO INTO MORNING COOL-DOWN AS DIRECTED BY THE ZONE OPTIMAL START. THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED DURING THIS OPERATION AND THE RETURN AIR DAMPER SHALL REMAIN OPEN UNLESS ECONOMIZER IS ENABLED. THE SUPPLY AIR DRY BULB TEMPERATURE SHALL BE SET TO 53 DEG F (ADJ.). THE SUPPLY FAN SHALL RUN AT MAX CFM. ONCE THE ASSOCIATED SPACE TEMPERATURES ARE SATISFIED THE UNIT SHALL GO INTO NORMAL OCCUPIED MODE.

E. FREEZE PROTECTION: THE FANS SHALL SHUT DOWN AND THE CONTROLLER SHALL GENERATE A FREEZESTAT ALARM UPON DETECTING TEMPERATURE LESS THAN 40 DEG F DIRECTLY UPSTREAM OF THE COOLING COIL. THE HEATING COIL VALVES SHALL OPEN TO 100% (ADJ.), THE OUTDOOR AIR DAMPERS SHALL CLOSE, AND THE RETURN AIR DAMPER SHALL OPEN.

F. SUPPLY FAN: THE SUPPLY FAN SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINTS ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN TO SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A 10 MINUTE (ADJ.) MINIMUM RUNTIME. ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
2. SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
3. SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

G. PRESSURE RELIEF: WHENEVER THE SUPPLY FAN IS RUNNING, THE GRAVITY RELIEF DAMPER SHALL MODULATE TO MAINTAIN POSITIVE BUILDING PRESSURE AT 0.05" W.G. ALARMS SHALL BE PROVIDED AS FOLLOWS.

H. SUPPLY TEMPERATURE CONTROL: THE SUPPLY AIR TEMPERATURE SHALL BE RESET AND CONTROLLED AS INDICATED BELOW.
1. SUPPLY AIR DRY BULB TEMPERATURE SHALL BE 55.0 DEG F (ADJ) IN COOLING MODE.
2. SUPPLY AIR DRY BULB TEMPERATURE SHALL BE 70.0 DEG F (ADJ) IF SPACE TEMPERATURE IS IN DEADBAND AND UNIT IS COMING OUT OF COOLING MODE.
3. SUPPLY AIR DRY BULB TEMPERATURE SHALL BE 75.0 DEG F (ADJ) IF SPACE TEMPERATURE IS IN DEADBAND AND UNIT IS COMING OUT OF HEATING MODE.
4. SUPPLY AIR DRY BULB TEMPERATURE SHALL BE 85.0 DEG F (ADJ) IN HEATING MODE.

I. HEATING/COOLING COIL VALVES: THE COIL VALVES SHALL MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE DRY BULB SETPOINT BASED ON BELOW:
1. THE COOLING SHALL BE ENABLED WHENEVER:
   a. SUPPLY AIR TEMPERATURE IS ABOVE THE SUPPLY AIR DRY BULB TEMPERATURE SETPOINT.
   b. AND THE SUPPLY FAN STATUS IS ON.
2. THE HEATING SHALL BE ENABLED WHENEVER:
   a. SUPPLY AIR TEMPERATURE IS BELOW THE SUPPLY AIR DRY BULB TEMPERATURE SETPOINT.
   b. AND THE SUPPLY FAN STATUS IS ON.

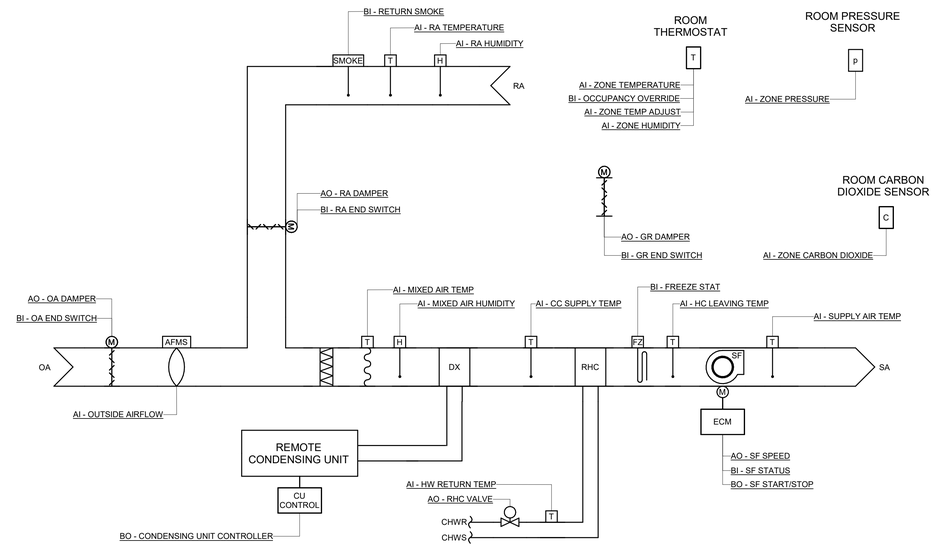
J. DEHUMIDIFICATION MODE CONTROL / COOLING COIL: IF SPACE RELATIVE HUMIDITY REACHES 60%, THE UNIT SHALL GO INTO DEHUMIDIFICATION MODE. THE COOLING COIL DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE RESET TO 52°F (ADJ.) DURING DEHUMIDIFICATION. IF AFTER TEN MINUTES RELATIVE HUMIDITY SETPOINT IS STILL NOT SATISFIED, INCREASE AIR HANDLER SUPPLY FANSPEED 4 HZ EVERY TEN MINUTES UNTIL HUMIDITY SETPOINT IS ACHIEVED. MODULATE HEATING COIL TO MAINTAIN SPACE DRY BULB SETPOINT. IF AIR HANDLER SUPPLY AIRFLOW IS RESET TO CONTROL HUMIDITY, HEATING COIL SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT.

K. OUTDOOR AND RETURN AIR DAMPERS: THE OUTDOOR AND RETURN AIR DAMPERS SHALL OPEN WHEN AIR HANDLING UNIT IS IN OCCUPIED MODE. THE OUTDOOR AND RETURN AIR DAMPERS SHALL MODULATE TO MAINTAIN SPACE CO2 LEVEL BELOW 1000 PPM. GRAVITY RELIEF DAMPER SHALL MODULATE TO MAINTAIN POSITIVE BUILDING PRESSURE AT 0.025" W.G.

L. ECONOMIZER MODE (OCCUPIED OR UNOCCUPIED)
1. IF OUTSIDE AIR TEMPERATURE IS BETWEEN 69 DEG F AND 55 DEG F AND SPACE TEMPERATURE IS ABOVE COOLING SETPOINT, UNIT SHALL BE 100% OUTSIDE AIR.
2. IF OUTSIDE AIR TEMPERATURE IS LESS THAN 55 DEG F AND SPACE TEMPERATURE IS ABOVE COOLING SETPOINT, UNIT SHALL MODULATE OUTDOOR AND RETURN AIR DAMPERS TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. OUTDOOR AIR PERCENTAGE SHALL NOT EXCEED 40% OF TOTAL AIR HANDLER AIRFLOW. WHEN UNIT MODULATES OUTDOOR AIR PERCENTAGE TO MINIMUM, UNIT SHALL COME OUT OF ECONOMIZER MODE.

M. UNOCCUPIED MODE: UNIT SHALL REMAIN OFF IF SPACE IS WITHIN UNOCCUPIED TEMPERATURE SETPOINTS. WHEN SPACE TEMPERATURE FALLS OUTSIDE UNOCCUPIED SPACE TEMPERATURE SETPOINTS.
   a. OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND RETURN DAMPER SHALL BE FULLY OPENED, UNLESS ECONOMIZER MODE IS POSSIBLE.
   b. SUPPLY FAN SHALL START, AND SUPPLY FAN AND PRESSURE RELIEF DAMPER SHALL MODULATE PER SEQUENCE POINTS F AND G.
   c. THE COIL VALVES SHALL MODULATE PER SEQUENCE POINTS H AND I.

N. RETURN AIR SMOKE DETECTOR: THE CONTROLLER SHALL SHUT DOWN THE AIR HANDLING UNIT UPON DETECTION OF SMOKE IN THE RETURN DUCT.



1 M600 AHU CONTROL SCHEMATIC

23-AHU CONTROL POINT SCHEDULE

POINT VALUE AND NAME	SOFTWARE POINTS		
	TREND	ALARM	SHOW ON GRAPHIC
AI - CC SUPPLY TEMP	No	No	No
AI - DISCHARGE AIR TEMP	Yes	No	Yes
AI - ENTERING DX COIL TEMPERATURE	Yes	No	Yes
AI - HC LEAVING TEMP	No	No	No
AI - HW RETURN TEMP	No	No	No
AI - LEAVING DX COIL TEMPERATURE	Yes	No	Yes
AI - MIXED AIR HUMIDITY	No	No	No
AI - MIXED AIR TEMP	No	No	No
AI - OUTSIDE AIRFLOW	No	No	No
AI - RA HUMIDITY	No	No	No
AI - RA TEMPERATURE	No	No	No
AI - SUPPLY AIR TEMP	No	No	No
AI - ZONE CARBON DIOXIDE	No	No	No
AI - ZONE HUMIDITY	No	No	No
AI - ZONE PRESSURE	No	No	No
AI - ZONE TEMP ADJUST	No	No	No
AI - ZONE TEMPERATURE	No	No	No
AO - CONDENSING UNIT CONTROLLER	Yes	No	Yes
AO - OA DAMPER	No	No	Yes
AO - RA DAMPER	No	No	<varies>
AO - RHC VALVE	<varies>	No	<varies>
AO - SF SPEED	No	No	No
BI - FREEZE STAT	No	No	No
BI - OA END SWITCH	No	No	Yes
BI - OCCUPANCY OVERRIDE	No	No	No
BI - RA END SWITCH	No	No	No
BI - RETURN SMOKE	No	No	No
BI - SF STATUS	No	No	No
BO - CONDENSING UNIT CONTROLLER	No	No	No
BO - SF START/STOP	No	No	No

SPACE SETPOINTS

SPACE TYPE	OCCUPIED		UNOCCUPIED		RELATIVE HUMIDITY MAXIMUM		
	HEATING	COOLING	HEATING	COOLING	OCCUPIED	UNOCCUPIED	SUMMER UNOCCUPIED
TECHNOLOGY ROOM	N/A	70	N/A	70	50%	60%	65%
BOILER ROOM	N/A	80	N/A	80	50%	60%	65%
GYMNASIUM	70	75	65	80	50%	60%	65%
ALL OTHER	70	75	65	80	50%	60%	65%

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CONTROL SCHEMATICS - HVAC

DATE 03-31-22

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LIGHTING FIXTURE LEGEND

LIGHTING FIXTURE TAGS

- CAPITAL LETTER WITH NUMBER DENOTES FIXTURE TYPE - REFER TO LIGHT FIXTURE SCHEDULE BELOW.
- SMALL LETTER DENOTES SWITCH LEG/RELAY NUMBER - REFER TO E100 SERIES DRAWINGS FOR TYPICAL ROOM LAYOUTS.

STANDARD LIGHTING FIXTURE SYMBOLS

A10 r	2'x4' RECESSED TROFFER
A20 r	2'x2' RECESSED TROFFER
A20 r	1'x4' RECESSED TROFFER
C10 r	LINEAR PENDANT
D10 r	RECESSED DOWNLIGHT
G10 r	CYLINDRICAL PENDANT

EMERGENCY LIGHTING FIXTURES

- GRAY FILLED IN AREA DENOTES EMERGENCY FIXTURE.
- CONNECT TO EMERGENCY POWER CIRCUIT AHEAD OF SWITCHING.
- NL DENOTES NIGHT LIGHT.

E10 S	DUAL HEAD EMERGENCY FIXTURE
X10	EXIT SIGN - SHADED AREA DENOTES FACE - ARROW DENOTES ARROW DIRECTION
A10 NL	2'x4' RECESSED TROFFER - NIGHT LIGHT

GENERAL NOTES - LIGHTING FIXTURES

A. ALL FIXTURES MARKED 'ED' ARE EXISTING TO BE DEMOLISHED. VERIFY SERVING PANEL AND CIRCUIT NUMBER PRIOR TO DISCONNECTION. REMOVE LIGHTING BRANCH CIRCUITING ABOVE FINISHED CEILING. MAINTAIN HOME RUN CONDUIT FOR CONNECTION TO NEW FIXTURES.

B. REFER TO LIGHTING CONTROL SCHEMATICS AND LIGHTING CIRCUIT SCHEDULES ON E500 SERIES DRAWINGS.

LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	FIXTURE BASIS OF DESIGN	ALTERNATE MANUFACTURERS	FIXTURE DESCRIPTION	LAMP	LIGHT DISTRIBUTION	MINIMUM LUMEN OUTPUT	COLOR TEMPERATURE	DRIVER	VOLTAGE	MAXIMUM WATTAGE	MOUNTING METHOD	TYPE COMMENTS
E10	DUAL-LITE LZ2	BARRON LED-60, LSI EAS, LITHONIA ELM2, SURE-LITES SEL25	EMERGENCY LIGHT, DUAL HEAD, THERMOPLASTIC, WHITE FINISH, INTEGRAL BATTERY PACK	LED	N/A			N/A	277 V	6 VA	CEILING / WALL MOUNTED	
F10	LITHONIA WL4	COLUMBIA MPS4, LSI SDL, METALUX 4SNLED, PHILIPS FSSEZ	INDUSTRIAL LINEAR STRIP, STEEL HOUSING, 4' LONG	LED	STANDARD	4000 lm	4000 K	LED DRIVER	277 V	40 VA	CHAIN MOUNTED	MOUNT AT 7'-6" AFF

DRAFTING SYMBOL LEGEND

SYMBOL	DESCRIPTION
X	DRAWING KEY NOTE ONLY NOTES THAT APPLY APPEAR ON EACH SHEET. KEY NOTE NUMBERS ARE CONSISTENT FROM SHEET TO SHEET, AND THEREFORE MAY NOT APPEAR IN NUMERICAL ORDER.
2 / E501	DETAIL CALLOUT REFER TO DETAIL 2 ON SHEET E501

WIRING DEVICE LEGEND

MOUNTING HEIGHT OF BACKBOX, RELATIVE TO BOTTOM OF BOX. IF OMITTED, DEFAULT MOUNTING HEIGHT IS 16"

XX INDICATES SPECIAL NOTE (IF USED)

XX/44" — *DUPLEX*

DOUBLE-DUPLEX

J INDICATES DEVICE DESIGNATION (IF USED)

J — *JUNCTION BOX*

VCP VRF CONTROL PANEL 1

GFI — *GROUND FAULT PROTECTED*

GFI — *GROUND FAULT PROTECTED, ABOVE COUNTER*

LIGHTING CONTROL SYMBOL LEGEND

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
XX 3 — *LIGHTING SWITCH* *# OF "3" INDICATES NUMBER OF SWITCHES*	XX INDICATES SWITCH TYPE. IF OMITTED, SWITCH IS SINGLE POLE. SWITCH TYPES	

26-ELECTRICAL SHEET LIST

SHEET NUMBER	SHEET NAME
E000	ELECTRICAL LEGENDS
E001	ELECTRICAL LEGENDS
E010	FIRST FLOOR DEMO PLAN AREA A
E011	FIRST FLOOR DEMO PLAN AREA B
E012	FIRST FLOOR DEMO PLAN AREA C
E013	ROOF DEMOLITION PLAN
E200	FIRST FLOOR POWER PLAN AREA A
E201	FIRST FLOOR POWER PLAN AREA B
E202	FIRST FLOOR POWER PLAN AREA C
E203	ROOF POWER PLAN AREA A
E204	ROOF POWER PLAN AREA B
E205	ROOF POWER PLAN AREA C
E400	PANEL SCHEDULES
E401	PANEL SCHEDULES
E500	ELECTRICAL DETAILS
E600	ELECTRICAL SINGLE LINE DIAGRAM
E700	ELECTRICAL SITE PLAN

GENERAL NOTES: - APPLIES TO ALL ELECTRICAL DRAWINGS

A. EC SHALL BE RESPONSIBLE TO INSTALL A SWITCH BOX AND 3/4" CONDUIT TO ABOVE THE CEILING IN EACH ROOM FOR TEMPERATURE CONTROL THERMOSTAT. REFER TO THE MECHANICAL DRAWINGS FOR LOCATIONS OF THESE DEVICES.

B. EC MAY COMBINE MULTIPLE CIRCUITS INTO HOME RUNS. NO MORE THAN 3 CIRCUITS SHALL BE IN EACH HOME RUN CONDUIT, AND THE WIRE MUST BE DERATED IN ACCORDANCE WITH NEC. THESE CIRCUITS SHALL BE REQUIRED TO BE ON SEPARATE PHASES (A,B,C).

C. EC SHALL DERATE WIRE IN LONG RUNS ACCORDING TO THE WIRE SIZING TABLE SHOWN BELOW:

WIRE SIZING CHART

RUN LENGTH		CIRCUIT BREAKER		
120V	277V	20A	30A	40A
000-100'	000-200'	12	10	8
101-150'	201-300'	10	8	6
151-200'	301-450'	8	6	4

D. WHERE ELECTRICAL LOAD ON A CIRCUIT IS OVER 20 AMPERES, EACH CIRCUIT SHALL BE RUN IN A SEPARATE CONDUIT TO THE PANELBOARD.

E. ALL VAV BOXES, EXHAUST FANS, MOTORS, MISC. HVAC EQUIPMENT, APPLIANCES, ETC. INDICATED ON THESE DRAWINGS SHALL HAVE A MOTOR RATED SWITCH LOCATED NEAR THE MOTOR FOR SERVICING. PROVIDE DISCONNECTING MEANS AS REQUIRED BY THE NEC.

F. ALL PANELBOARDS SHALL BE INSTALLED 72" AFF TO THE TOP OF THE PANEL. PROVIDE 10% SPARE CONDUITS (MINIMUM OF 4) TO ABOVE THE CEILING FOR FUTURE.

G. HEIGHT DIMENSIONS SHOWN ON THIS PLAN ARE MEASURED FROM THE BOTTOM OF THE DEVICE. HORIZONTAL DIMENSIONS ARE MEASURED TO THE CENTER OF THE DEVICE OR GROUP OF DEVICES WHICH THE DIMENSION PERTAINS TO.

H. FOR LIGHT FIXTURE MOUNTING DETAILS, SEE LUMINAIRE SCHEDULE, ON SHEET E000.

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EARLY CHILDHOOD ESSER RENOVATIONS
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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

ELECTRICAL LEGENDS

DATE 03-31-22

COMM NO. 2021091.01

E000

0'-1" REFERENCE LINE

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DEMOLITION DRAWING NOTES

A. DRAWING IS BASED ON FIELD OBSERVATIONS AND EXISTING DRAWINGS. NOTIFY CM OF DISCREPANCIES DUE TO ACTUAL FIELD CONDITIONS BEFORE PROCEEDING.

B. FIXTURES, DEVICES, AND EQUIPMENT DENOTED BY BOLD, DASHED LINE TYPE OR LABELLED BY ED GENERALLY INDICATES EQUIPMENT TO BE DEMOLISHED. REFER TO DRAWING NOTES AND KEYNOTES FOR FULL EXTENT OF ASSOCIATED DEMOLITION WORK AND ITEMS TO REMAIN. UNLESS OTHERWISE NOTED, REMOVE WIRING BACK TO ABOVE FINISHED CEILING. MAINTAIN CIRCUITS FOR CONNECTION TO NEW DEVICES. REFER TO E200 SERIES DRAWINGS.

C. PROVIDE BLANK COVERS FOR RECESSED BACKBOXES MADE AVAILABLE THROUGH DEMOLITION, UNLESS NOTED FOR REUSE. REFER TO E200 SERIES DRAWINGS.

D. REFER TO SPECIFICATION SECTION 017419 FOR CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL REQUIREMENTS.

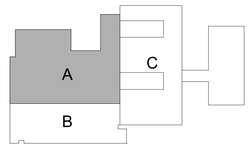
KEYNOTES

ED3 DISCONNECT EXISTING HVAC EQUIPMENT. REMOVE WIRING BACK TO SERVING PANEL OR LAST ACTIVE DEVICE. IF EQUIPMENT IS ON DEDICATED CIRCUIT - MARK CIRCUIT AS SPARE.

ED4 DISCONNECT AND REMOVE EXISTING DOOR HARDWARE. MAINTAIN CONNECTION AND WIRING FOR NEW DOOR HARDWARE. REFER TO E200 SERIES.



1 E010 FIRST FLOOR DEMO PLAN AREA A
1/8" = 1'-0"



KEY PLAN
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0'-1" REFERENCE LINE

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ISSUANCES

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1	05-18-22	ADDENDUM 1

FIRST FLOOR DEMO PLAN AREA A

DATE 03-31-22

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E010

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DEMOLITION DRAWING NOTES

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B. FIXTURES, DEVICES, AND EQUIPMENT DENOTED BY BOLD, DASHED LINE TYPE OR LABELLED BY ED GENERALLY INDICATES EQUIPMENT TO BE DEMOLISHED. REFER TO DRAWING NOTES AND KEYNOTES FOR FULL EXTENT OF ASSOCIATED DEMOLITION WORK AND ITEMS TO REMAIN. UNLESS OTHERWISE NOTED, REMOVE WIRING BACK TO ABOVE FINISHED CEILING. MAINTAIN CIRCUITS FOR CONNECTION TO NEW DEVICES. REFER TO E200 SERIES DRAWINGS.

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KEYNOTES

ED3 DISCONNECT EXISTING HVAC EQUIPMENT. REMOVE WIRING BACK TO SERVING PANEL OR LAST ACTIVE DEVICE. IF EQUIPMENT IS ON DEDICATED CIRCUIT - MARK CIRCUIT AS SPARE.



1 E013 ROOF DEMOLITION PLAN
1/16" = 1'-0"

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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

ROOF DEMOLITION PLAN

DATE 03-31-22

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E013

0'-1" REFERENCE LINE

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GENERAL POWER NOTES:

A. REFER TO E600 SERIES SHEETS FOR PANEL AND CIRCUIT NUMBERS FOR MECHANICAL AND PLUMBING EQUIPMENT.

B. REFER TO E600 SERIES SHEETS FOR STARTER AND DISCONNECT REQUIREMENTS FOR MECHANICAL AND PLUMBING EQUIPMENT.

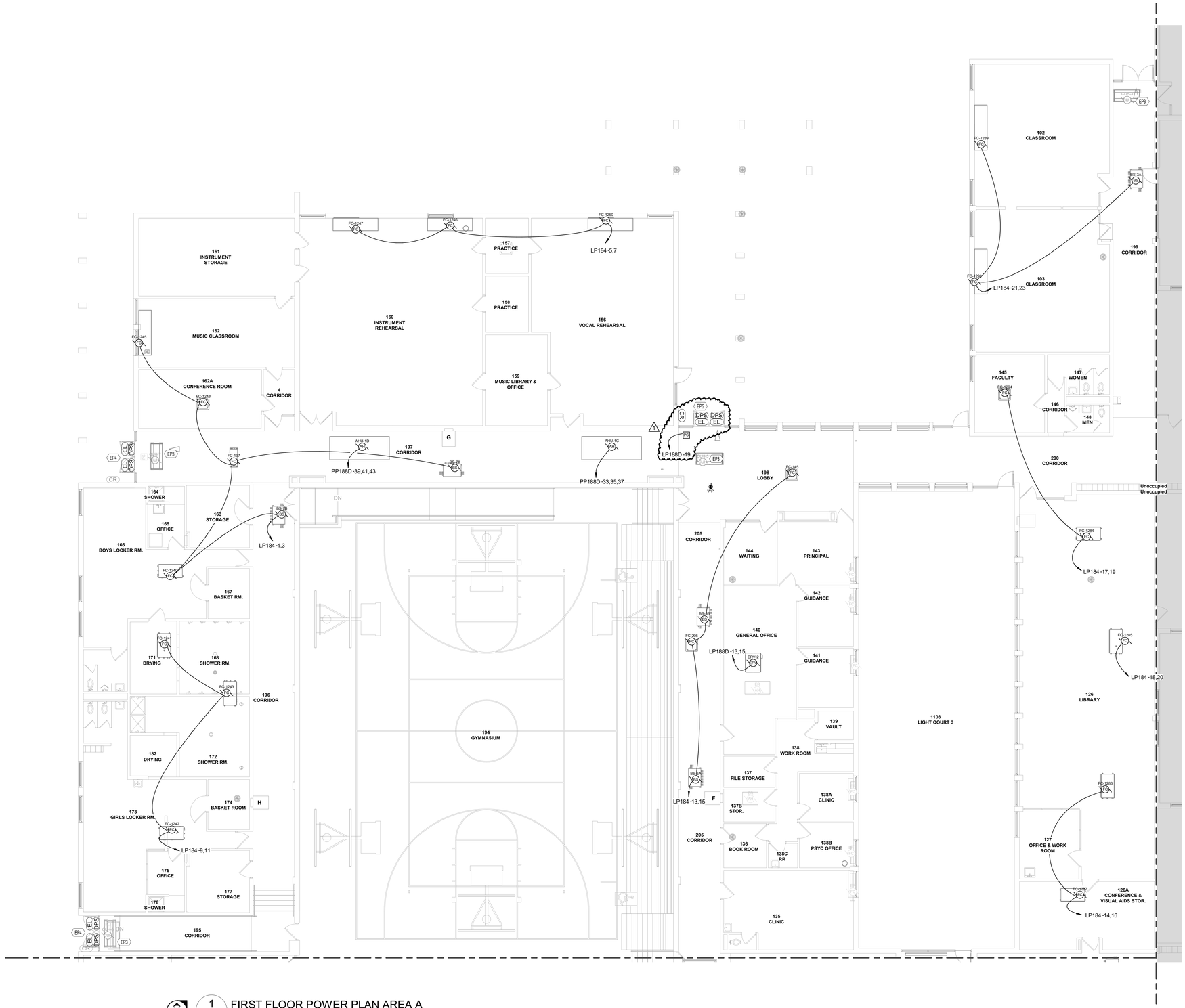
C. EC SHALL BE RESPONSIBLE TO INSTALL A SWITCH BOX AND 3/4" CONDUIT TO ABOVE THE ACCESSIBLE CEILING IN EACH ROOM FOR TEMPERATURE CONTROL THERMOSTAT. DEVICES SHOWN ON ELECTRICAL DRAWINGS ARE FOR REFERENCE ONLY. REFER TO THE M SERIES DRAWINGS FOR THERMOSTAT LOCATIONS.

KEYNOTES

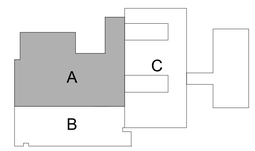
EP3 WIRE TO EXISTING CIRCUIT MADE AVAILABLE BY DEMOLITION.

EP4 RECONNECT NEW DOOR HARDWARE TO EXISTING CARD READER, DOOR LOCK, DOOR POSITION SWITCH, AND POWER SUPPLY MADE AVAILABLE FROM DEMOLITION. CONNECT TO EXISITNG ACCESS CONTROL SYSTEM. VERIFY EXACT REQUIREMENTS WITH OWNER.

EP5 CONNECT NEW DOOR HARDWARE TO EXISITNG ACCESS CONTROL SYSTEM. VERIFY EXACT REQUIREMENTS WITH OWNER.



1 E200 FIRST FLOOR POWER PLAN AREA A
1/8" = 1'-0"



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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR POWER PLAN AREA A

DATE 03-31-22

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E200

"0.1" REFERENCE LINE"

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GENERAL POWER NOTES:

A. REFER TO E600 SERIES SHEETS FOR PANEL AND CIRCUIT NUMBERS FOR MECHANICAL AND PLUMBING EQUIPMENT.

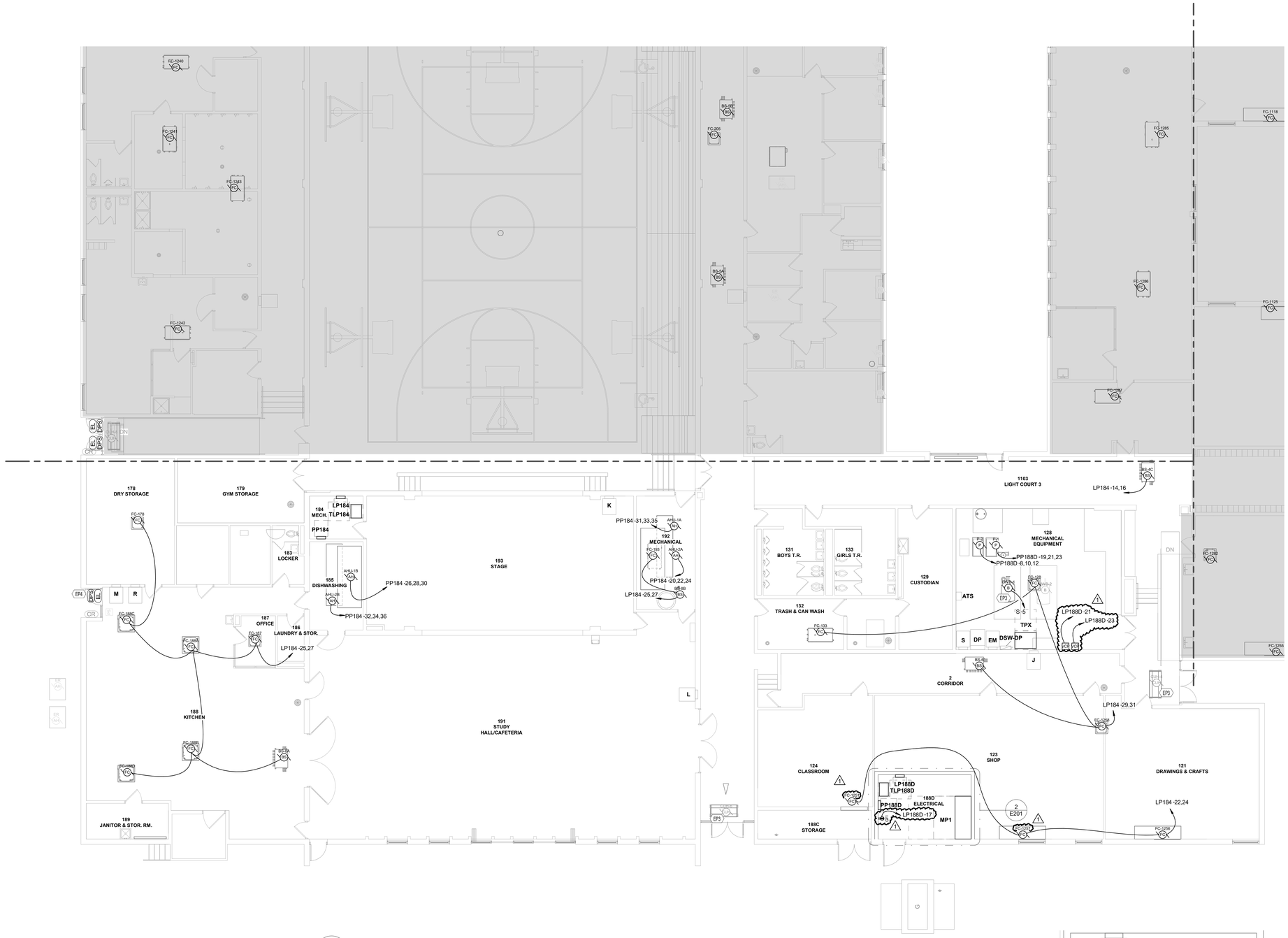
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C. EC SHALL BE RESPONSIBLE TO INSTALL A SWITCH BOX AND 3/4" CONDUIT TO ABOVE THE ACCESSIBLE CEILING IN EACH ROOM FOR TEMPERATURE CONTROL THERMOSTAT. DEVICES SHOWN ON ELECTRICAL DRAWINGS ARE FOR REFERENCE ONLY. REFER TO THE M SERIES DRAWINGS FOR THERMOSTAT LOCATIONS.

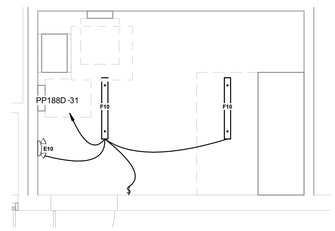
KEYNOTES

EP3 WIRE TO EXISTING CIRCUIT MADE AVAILABLE BY DEMOLITION.

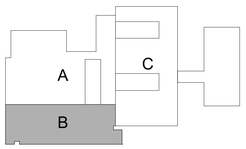
EP4 RECONNECT NEW DOOR HARDWARE TO EXISTING CARD READER, DOOR LOCK, DOOR POSITION SWITCH, AND POWER SUPPLY MADE AVAILABLE FROM DEMOLITION. CONNECT TO EXISITNG ACCESS CONTROL SYSTEM. VERIFY EXACT REQUIREMENTS WITH OWNER.



1 E201 FIRST FLOOR POWER PLAN AREA B
1/8" = 1'-0"



2 E201 ELECTRICAL ROOM LIGHTING PLAN
1/4" = 1'-0"



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UT

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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR POWER PLAN AREA B

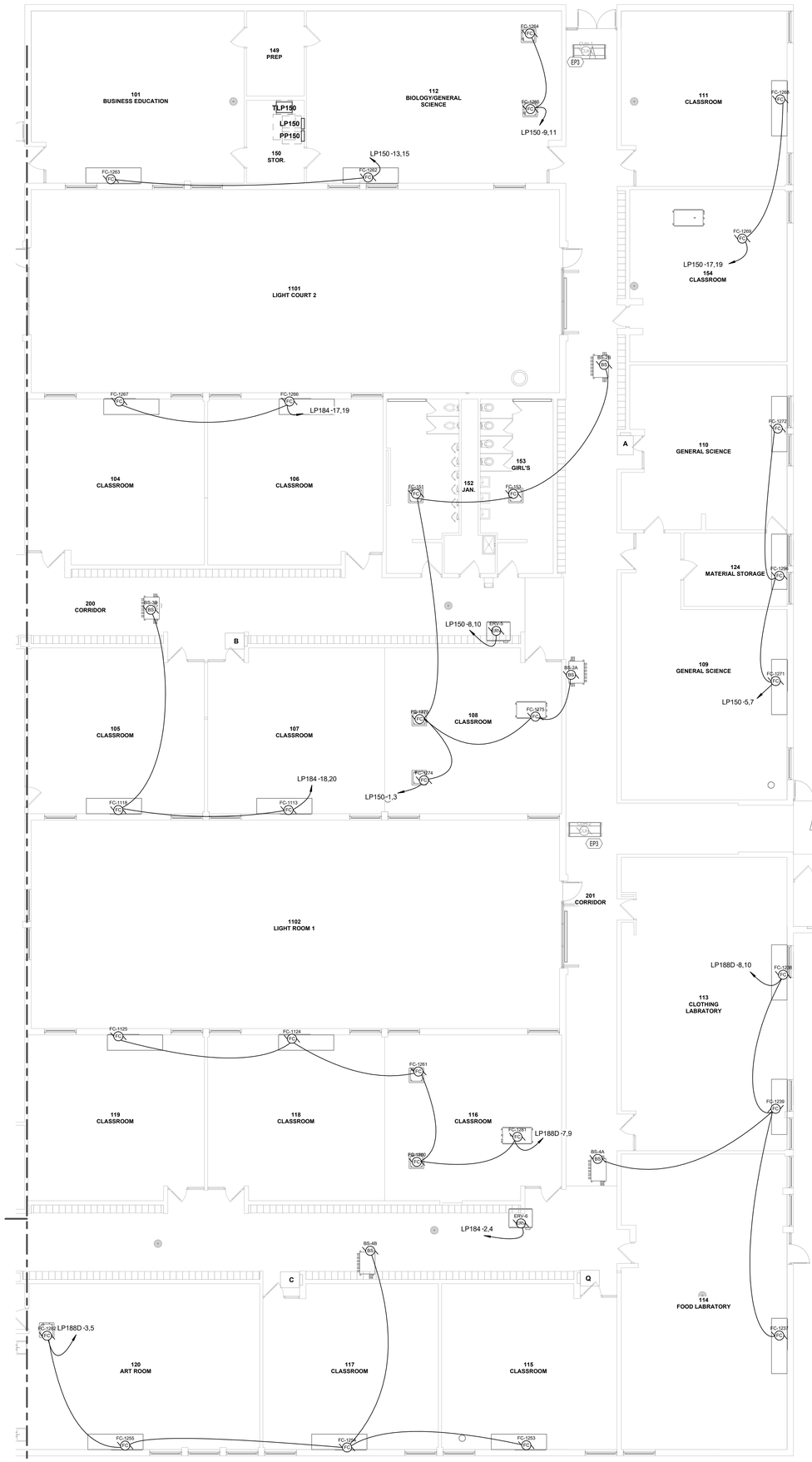
DATE 03-31-22

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E201

"0.1" REFERENCE LINE"

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GENERAL POWER NOTES:

A. REFER TO E600 SERIES SHEETS FOR PANEL AND CIRCUIT NUMBERS FOR MECHANICAL AND PLUMBING EQUIPMENT.

B. REFER TO E600 SERIES SHEETS FOR STARTER AND DISCONNECT REQUIREMENTS FOR MECHANICAL AND PLUMBING EQUIPMENT.

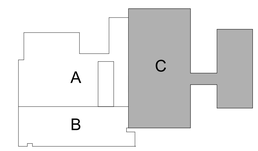
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KEYNOTES

EP3 WIRE TO EXISTING CIRCUIT MADE AVAILABLE BY DEMOLITION.

EP5 CONNECT NEW DOOR HARDWARE TO EXISITNG ACCESS CONTROL SYSTEM. VERIFY EXACT REQUIREMENTS WITH OWNER.

1 E202 FIRST FLOOR POWER PLAN AREA C
1/8" = 1'-0"



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ISSUANCES

	11-05-21	DESIGN DEVELOPMENT
	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

FIRST FLOOR POWER PLAN AREA C

DATE 03-31-22

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E202

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0'-1" REFERENCE LINE

Switchboard: MP1

Location: Space 155 | **Volts:** 480Y/277 V | **A.I.C. Rating:** 65,000 A
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: | **Wires:** 4 | **Mains Rating:** 1600.0 A
Enclosure: | **MCB Rating:** 1600.0 A

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	PP184	3	400.0 A	400.0 A	292756 VA	
2	PP128	3	600.0 A	600.0 A	220885 VA	
3	TPX	3	600.0 A	450.0 A	180999 VA	
4	PP150	3	400.0 A	400.0 A	166156 VA	
5	PP211	3	400.0 A	400.0 A	54554 VA	
6	Spare	3	400.0 A	400.0 A	0 VA	
7	Spare	3	400.0 A	400.0 A	0 VA	
8	Spare	3	400.0 A	400.0 A	0 VA	
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
				Total Conn. Load:	915350 VA	
				Total Amps:	1101.0 A	

Legend:

Panel Totals	
Total Conn. Load:	915350 VA
Total Est. Demand:	915350 VA
Total Conn. Current:	1101.0 A
Total Est. Demand Current:	1101.0 A

Notes:
TVSS
OWNER METER

Panelboard: LP188D

Location: Space 155 | **Volts:** 208Y/120 V | **A.I.C. Rating:** 10,000 A
Supply From: TLP188D | **Phases:** 3 | **Mains Type:** MCB
Mounting: Wall Mounted | **Wires:** 4 | **Panel & MCB Rating** 150.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	M - EF-9		15	1	667	2327					3	25		M - ERV-4	2
3	M - HRCU-4 FCs		15	2			1217	2327			--	--	--	--	4
5	--	--	--	--					1217	2327	--	--	--	--	6
7	M - HRCU-4 FCs		15	2	1165	1165					2	15		M - HRCU-4 FCs	8
9	--	--	--	--			1165	1165			--	--	--	--	10
11	M - EF-8		15	1					667	1176	1	20		M - EF-16	12
13	M - ERV-2		15	2	593										14
15	--	--	--	--			593								16
17	R - 188D		20	1					180						18
19	DOOR POWER SUPPLY		20	1	180										20
21	M - 128 - VRF CONTROL PANEL /1		20	1			600								22
23	M - 128 - VRF CONTROL PANEL		20	1					600						24
25															26
27															28
29															30
31															32
33															34
35															36
37	Spare		20	1	0	0					1	20		Spare	38
39	Spare		20	1			0	0			1	20		Spare	40
41	Spare		20	1					0	0	1	20		Spare	42
				Total Load:	6096 VA		7066 VA		6167 VA						
				Total Amps:	50.8 A		59.0 A		51.5 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	19329 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	19329 VA
	Total Conn. Current:	53.7 A
	Total Est. Demand Current:	53.7 A

Notes:

Panelboard: LP150

Location: Space 15 | **Volts:** 208Y/120 V | **A.I.C. Rating:** 10,000 A
Supply From: TLP150 | **Phases:** 3 | **Mains Type:** MCB
Mounting: Wall Mounted | **Wires:** 4 | **Panel & MCB Rating** 150.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	M - HRCU-2 FCs		15	2	894	1176					1	20		M - EF-4	2
3	--	--	--	--			894	667			1	15		M - EF-10	4
5	M - HRCU-2 FCs		15	2					884	667	1	15		M - EF-13	6
7	--	--	--	--	884	593					2	15		M - ERV-5	8
9	M - HRCU-2 FCs		15	2			104	593			--	--	--	--	10
11	--	--	--	--					104						12
13	M - HRCU-3 FCs		15	2	707										14
15	--	--	--	--			707								16
17	M - HRCU-2 FCs		15	2					780						18
19	--	--	--	--	780										20
21	R - ROOFTOP RECEP		20	1			540								22
23															24
25															26
27															28
29															30
31															32
33															34
35															36
37	Spare		20	1	0	0					1	20		Spare	38
39	Spare		20	1			0	0			1	20		Spare	40
41	Spare		20	1					0	0	1	20		Spare	42
				Total Load:	5034 VA		3505 VA		2435 VA						
				Total Amps:	43.3 A		30.6 A		20.3 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	10975 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	10975 VA
	Total Conn. Current:	30.5 A
	Total Est. Demand Current:	30.5 A

Notes:

Panelboard: PP184

Location: Space 143 | **Volts:** 480Y/277 V | **A.I.C. Rating:** 18,000 A
Supply From: MP1 | **Phases:** 3 | **Mains Type:** MLO
Mounting: Wall Mounted | **Wires:** 4 | **Panel Rating** 400.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	TLP184		125	3	10499	5040					3	25		M - CU-1A	2
3	--	--	--	--			10368	5040			--	--	--	--	4
5	--	--	--	--					9659	5040	--	--	--	--	6
7	M - CU-1C		25	3	5040	5040					3	25		M - CU-1B	8
9	--	--	--	--			5040	5040			--	--	--	--	10
11	--	--	--	--					5040	5040	--	--	--	--	12
13	M - CU-1D	/1	25	3	5040	3598					3	20		M - CU-2B	14
15	--	--	--	--			5040	3598			--	--	--	--	16
17	--	--	--	--					5040	3598	--	--	--	--	18
19	M - HRCU-7		70	3	17581	1273					3	15		M - AHU-2A	20
21	--	--	--	--			17581	1273			--	--	--	--	22
23	--	--	--	--					17581	1273	--	--	--	--	24
25	M - HRCU-7		60	3	13837	2865					3	15		M - AHU-1B	26
27	--	--	--	--			13837	2865			--	--	--	--	28
29	--	--	--	--					13837	2865	--	--	--	--	30
31	M - AHU-1A		15	3	2865	1273					3	15		M - AHU-2B	32
33	--	--	--	--			2865	1273			--	--	--	--	34
35	--	--	--	--					2865	1273	--	--	--	--	36
37	Spare		20	3	0	0					3	20		Spare	38
39	--	--	--	--			0	0			--	--	--	--	40
41	--	--	--	--					0	0	--	--	--	--	42
				Total Load:	73953 VA		73821 VA		73112 VA						
				Total Amps:	267.4 A		266.9 A		263.9 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	220885 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	220885 VA
	Total Conn. Current:	265.7 A
	Total Est. Demand Current:	265.7 A

Notes:

Panelboard: LP184

Location: Space 143 | **Volts:** 208Y/120 V | **A.I.C. Rating:** 10,000 A
Supply From: TLP184 | **Phases:** 3 | **Mains Type:** MCB
Mounting: Wall Mounted | **Wires:** 4 | **Panel & MCB Rating** 225.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	M - HRCU-7 FCs		15	2	1009	593					2	15		M - ERV-6	2
3	--	--	--	--			1009	593			--	--	--	--	4
5	M - HRCU-7 FCs		15	2					1061	2327	3	25		M - ERV-3	6
7	--	--	--	--	1061	2327					--	--	--	--	8
9	M - HRCU-7 FCs		15	2			1061	2327			--	--	--	--	10
11	--	--	--	--					1061	197	1	15		M - EF-2, EF-3	12
13	M - HRCU-5 FCs		15	2	312	811					2	15		M - HRCU-4 FCs	14
15	--	--	--	--			312	811			--	--	--	--	16
17	M - HRCU-3 FCs		15	2					1113	1165	2	15		M - HRCU-3 FCs	18
19	--	--	--	--	1113	1165					--	--	--	--	20
21	M - HRCU-3 FCs		15	2			811	1061			2	15		M - HRCU-6 FCs	22
23	--	--	--	--					811	1061	--	--	--	--	24
25	M - HRCU-8 FCs		15	2	1123	123					1	15		M - EF-18	26
27	--	--	--	--			1123	1260			1	20		R - ROOFTOP RECEP	28
29	M - HRCU-6 FCs		15	2					863						30
31	--	--	--	--	863										32
33															34
35															36
37	Spare		20	1	0	0					1	20		Spare	38
39	Spare		20	1			0	0			1	20		Spare	40
41	Spare		20	1					0	0	1	20		Spare	42
				Total Load:	10499 VA		10368 VA		9659 VA						
				Total Amps:	88.4 A		87.3 A		80.5 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	30526 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	30526 VA
	Total Conn. Current:	84.7 A
	Total Est. Demand Current:	84.7 A

Notes:

Panelboard: S

Location: Space 31 | **Volts:** 208Y/120 V | **A.I.C. Rating:** EXISTING
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Wall Mounted | **Wires:** 4 | **Panel Rating** 100.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	E - LIGHTS MECH ROOM		20	1	1200	900					1	20		E - EF-16	2
3	E - LIGHTS MECH ROOM		20	1			600	1000			1	20		E - HW CIRC PUMPS	4
5	M - HWB-1		25	1					1920	1920	1	25		E - HWB-2	6
7															8
9															10
11															12
13															14
15															16
17															18
19						--					3	--		Space	20
21	E - RECEPTACLES		20	1			1000	--			--	--	--	--	22
23	Space		--	1					--	--	--	--	--	--	24
				Total Load:	2100 VA		2600 VA		3840 VA						
				Total Amps:	17.5 A		22.3 A		32.6 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	8540 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	8540 VA
	Total Conn. Current:	23.7 A
	Total Est. Demand Current:	23.7 A

Notes:
EXISTING PANEL

Panelboard: PP188D

Location: Space 155 | **Volts:** 480Y/277 V | **A.I.C. Rating:** 18,000 A
Supply From: MP1 | **Phases:** 3 | **Mains Type:** MLO
Mounting: Wall Mounted | **Wires:** 4 | **Panel Rating** 600.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	M - HRCU-8		50	3	12043	12043					3	50		M - HRCU-4	2
3	--	--	--	--			12043	12043			--	--	--	--	4
5	--	--	--	--					12043	12043	--	--	--	--	6
7	M - HRCU-8		40	3	9072	2016					3	15		M - P-2	8
9	--	--	--	--			9072	2016			--	--	--	--	10
11	--	--	--	--					9072	2016	--	--	--	--	12
13	M - CU-2A		20	3	3598	13820					3	60		M - HRCU-4	14
15	--	--	--	--			3598	13820			--	--	--	--	16
17	--	--	--	--					3598	13820	--	--	--	--	18
19	M - P-1		15	3	2016	6096					3	70		TLP188D	20
21	--	--	--	--			2016	7066			--	--	--	--	22
23	--	--	--	--					2016	6167	--	--	--	--	24
25	M - HRCU-4		60	3	13820	13820					3	60		M - HRCU-6	26
27	--	--	--	--			13820	13820			--	--	--	--	28
29	--	--	--	--					13820	13820	--	--	--	--	30
31	L - ELECTRICAL ROOM		20	1	86	3134					3	15		M - HRCU-5	32
33	M - AHU-1C		15	3			2865	3134			--	--	--	--	34
35	--	--	--	--					2865	3134	--	--	--	--	36
37	--	--	--	--	2865										38
39	M - AHU-1D		15	3			2865								40
41	--	--	--	--					2865						42
43	--	--	--	--	2865										44
45															46
47															48
49															50
51															52
53															54
55	Spare		20	1	0	0					1	20		Spare	56
57	Spare		20	1			0	0			1	20		Spare	58
59	Spare		20	1					0	0	1	20		Spare	60
				Total Load:	97296 VA		98180 VA		97280 VA						
				Total Amps:	351.3 A		354.4 A		351.2 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	292756 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	292756 VA
	Total Conn. Current:	352.1 A
	Total Est. Demand Current:	352.1 A

Notes:

Panelboard: PP150

Location: Space 15 | **Volts:** 480Y/277 V | **A.I.C. Rating:** 18,000 A
Supply From: MP1 | **Phases:** 3 | **Mains Type:** MLO
Mounting: Wall Mounted | **Wires:** 4 | **Panel Rating** 400.0 A
Enclosure:

CKT	Circuit Description	Device Notes	Trip	Poles	A		B		C		Poles	Trip	Device Notes	Circuit Description	CKT
1	TLP150		70	3	5034	13820					3	60		M - HRCU-3	2
3	--	--	--	--			3505	13820			--	--	--	--	4
5	--	--	--	--					2435	13820	--	--	--	--	6
7	M - HRCU-2		60	3	13820	12043					3	60		M - HRCU-3	8
9	--	--	--	--			13820	12043			--	--	--	--	10
11	--	--	--	--					13820	12043	--	--	--	--	12
13	M - HRCU-2		50	3	12043										14
15	--	--	--	--			12043								16
17	--	--	--	--					12043						18
19															20
21															22
23															24
25															26
27															28
29															30
31															32
33															34
35															36
37	Spare		20	1	0	0					1	20		Spare	38
39	Spare		20	1			0	0			1	20		Spare	40
41	Spare		20	1					0	0	1	20		Spare	42
				Total Load:	56761 VA		55232 VA		54162 VA						
				Total Amps:	205.5 A		200.0 A		195.5 A						

L = LIGHTS	Panel Totals	
R = RECEPTACLES		
M = MECHANICAL EQUIPMENT	**Total Conn. Load:**	166156 VA
P = PLUMBING EQUIPMENT	**Total Est. Demand:**	166156 VA
	Total Conn. Current:	199.9 A
	Total Est. Demand Current:	199.9 A

Notes:

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WINTON WOODS CITY SCHOOLS
825 WAYCROSS ROAD, SUITE A, CINCINNATI, OHIO 45240

ISSUANCES

	03-31-22	BID / PERMIT
1	05-18-22	ADDENDUM 1

PANEL SCHEDULES

DATE 03-31-22

COMM NO. 2021091.01

E400

0.1" REFERENCE LINE

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