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11-10-23

Gymnasium Storage Addition & Improvements

Bethany Town Hall

Town of Bethany

Paula Cofrancesco, First Selectwoman
Town of Bethany, 40 Peck Road, Bethany, CT 06524

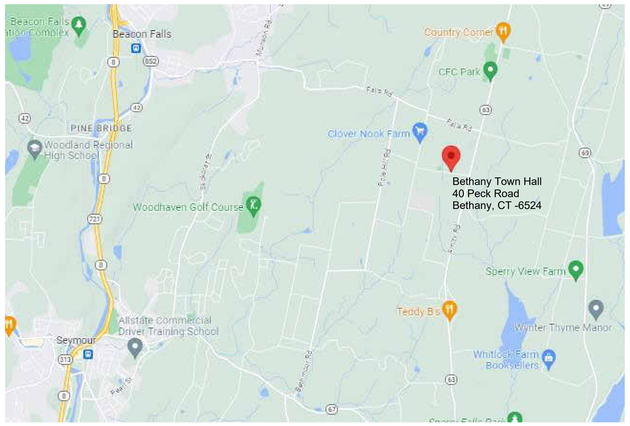
Don Shea, Director of Public Works
Town of Bethany, 755 Amity Road, Bethany, CT 06524

Prepared By

O'Riordan Migani Architects LLC
Architecture, Planning & Urban Design, 22 Bank Street, Seymour, CT 06483 P(203) 888-7667

Innovative Engineering Services
MEPFS + Structural Engineering, 33 North Plains Industrial Road, Wallingford, CT 06492 P(203) 467-4370

Location Map



11-10-23

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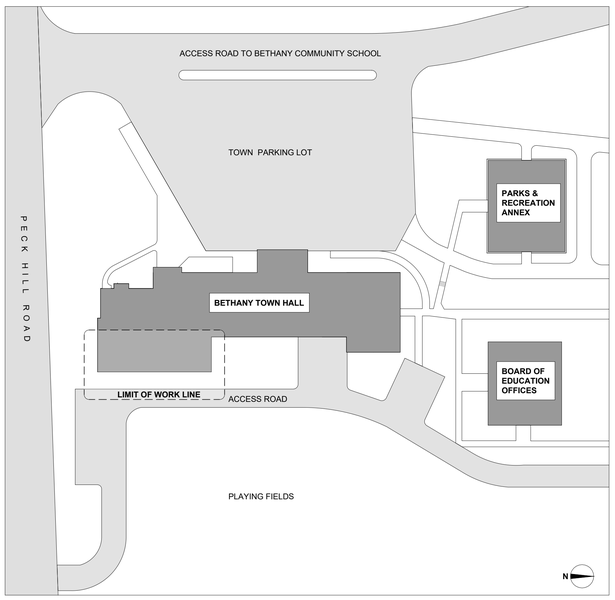
Reference Site Plan *(Scale: 1"=50')*



GENERAL NOTES:

A. THIS PROJECT ENTAILS AN ADDITION AND RELATED IMPROVEMENTS TO THE GYMNASIUM IN THE BETHANY TOWN HALL LOCATED AT 40 PECK ROAD, BETHANY, CONNECTICUT 06424.

B. THE OWNER REPRESENTATIVE AND CONSTRUCTION MANAGER FOR THE PROJECT IS DON SHEA, FACILITIES/PUBLIC WORKS MANAGER, TOWN OF BETHANY, PUBLIC WORKS TOWN GARAGE, 755 AMITY ROAD, BETHANY, CONNECTICUT 06524. P475 235-6966. *dshea@bethany-ct.com*

C. THE CONSULTING ARCHITECT FOR THE PROJECT IS O'RIORDAN MIGANI ARCHITECTS LLC, 22 BANK STREET, SEYMOUR, CONNECTICUT 06483. THE PROJECT ARCHITECT IS JOSEPH MIGANI, AIA, C203 668 7985 *jcm@omarchitects.com*.

D. THE DELIVERY PROFILE OF THIS PROJECT IS AS FOLLOWS:
   a. THE ARCHITECT WILL PRODUCE A TECHNICAL SPECIFICATION OF THE WORK FOR PROCUREMENT.
   b. THE CONSTRUCTION MANAGER/OWNER WILL COMPETITIVELY BUY OUT THE PROJECT FROM QUALIFIED TRADE SUBCONTRACTORS REQUIRED TO IMPLEMENT THE WORK.
   C. THE ARCHITECT WILL PROVIDE ONGOING SUPPORT TO THE CONSTRUCTION MANAGER/OWNER IN THE FORM OF BID REVIEW, SHOP DRAWING REVIEW AND FIELD VISITS AS REQUIRED TO FACILITATE AND COMPLETE IMPLEMENTATION OF THE WORK.

E. BASE CONTRACT SCOPE OF WORK
   a. REMOVAL OF EXISTING EXTERIOR WOOD RAMP AND CONCRETE RAMP ON EAST ELEVATION OF GYMNASIUM.
   b. REMOVAL OF EXISTING EXTERIOR CONCRETE RAMP ON EAST ELEVATION OF GYMNASIUM.
   c. REMOVAL OF THE EXISTING DUMPSTER ENCLOSURE INCLUDING CONCRETE PAD AND EXTERIOR FENCING.
   d. REMOVAL OF EXISTING ASPHALT DRIVEWAY AS REQUIRED FOR CONSTRUCTION OF ADDITION.
   e. CONSTRUCTION OF A NEW STORAGE ROOM ADDITION.
   f. DEMOLITION OF EXISTING HVAC SYSTEM IN GYMNASIUM.
   g. INSTALLATION OF A NEW HVAC SYSTEM IN GYMNASIUM.
   h. INSTALLATION OF ALUMINUM ROOF TOP HVAC SCREEN.
   i. NEW MECHANICAL, ELECTRICAL, PLUMBING & FIRE SAFETY SYSTEMS IN THE GYMNASIUM RELATED TO THE STORAGE ROOM ADDITION.
   J. NEW INTERIOR FINISHES IN THE RENOVATED GYMNASIUM SPACE AND NEW STORAGE ROOM ADDITION AS INDICATED IN THE DRAWINGS.

F. ADD ALTERNATE SCOPE OF WORK
   1. INSTALLATION OF NEW CONCRETE LANDINGS AND STAIR WITH STEEL PIPE RAILINGS ON SOUTH SIDE OF NEW GYM STORAGE ROOM ADDITION.
   2. INSTALLATION OF NEW CONCRETE LANDINGS, STAIR AND RAMP WITH STEEL PIPE RAILINGS ON NORTH SIDE OF NEW GYM STORAGE ADDITION.
   3. CONSTRUCTION OF A NEW DUMPSTER ENCLOSURE AS INDICATED IN THE DRAWINGS.

OMA 23251

PROJECT: Gymnasium Storage Addition & Improvements
Bethany Town Hall
40 Peck Road, Bethany, CT 06424

DIV. 1 GENERAL REQUIREMENTS

OWNER REPRESENTATIVE

The owner representative and construction manager for the project is Don Shea, Facilities/Public Works Manager, Town of Bethany, Public Works, Town Garage, 755 Amity Road, Bethany, Connecticut 06524.
P475 238-6966, email: *dshea@bethany-ct.com*

PROJECT DELIVERY METHOD

The delivery profile of this project is as follows:

1. The Architect will produce technical specifications and drawings of the work for procurement.
2. The Owner will serve as the Construction Manager who will competitively buy out the project from qualified trade subcontractors required to implement the work.
3. The Architect will provide ongoing support to the Construction Manager/Owner in the form of bid review, shop drawing review and field visits as required to facilitate and complete implementation of the work.

BASE CONTRACT SCOPE OF WORK

The base contract Scope of Work shall consist of the following:

1. Removal of existing exterior wood ramp and concrete ramp on East Elevation of Gymnasium.
2. Removal of existing exterior concrete ramp on East Elevation of Gymnasium.
3. Removal of the existing dumpster enclosure including concrete pad and exterior fencing.
4. Removal of existing asphalt driveway as required for construction of addition.
5. Construction of a new storage room addition.
6. Demolition of existing HVAC system in gymnasium.
7. Installation of a new HVAC system in gymnasium.
8. Installation of aluminum roof top HVAC screen.
9. New mechanical, electrical, plumbing & fire safety systems in the gymnasium related to the storage room addition.
10. New interior finishes in the renovated gymnasium space and new storage room addition as indicated in the drawings.

ADD ALTERNATE SCOPE OF WORK

Add Alternate Scope of Work items shall consist of the following:

1. Installation of new concrete landings and stair with steel pipe railings on South side of new Gym Storage Room Addition.
2. Installation of new concrete landings, stair and ramp with steel pipe railings on North side of new Gym Storage Addition.
3. Construction of a new dumpster enclosure as indicated in the drawings.

OVERTIME

There are no requirements for overtime. Contractor shall schedule his forces and work so as to not interfere with the daily occupancy and operations of the College. Coordinate construction operations with the Agency Representative.

SPECIAL PROJECT PROCEDURES

Contractor shall perform the work required of this project in such a way so as not to interfere with the regular and on-going programs, services, and other functions of the College. Therefore, the construction schedule must be coordinated with the College schedule of programs and services, which may require work to be done on weekends and holidays and at other times when classes are not in session.

PRECONSTRUCTION CONFERENCE

The Architect will organize a Pre-construction Conference and notify the parties concerned.

SHOP DRAWINGS

a) Details shall be large scale or full size.
b) The Contractor shall review the Shop Drawings, stamp with his approval and submit them with reasonable promptness and in orderly sequence so as to cause no delay in his work or in the work of any subcontractor. Shop Drawings shall be identified for item, material and project number. The Contractor shall inform the Architect, in writing, of any deviation in the Shop Drawings from the requirements of the Contract Documents.
c) The Architect will review and comment on Shop Drawings with reasonable promptness so as to cause no delay but only for conformance with the design concept of the project and with the information given in the Contract documents.
d) The Architect's review of Shop Drawings does not relieve the Contractor of responsibility for deviations from the requirements of the Contract Documents.

Submittal Schedule: Provide submittals for the following materials, products or systems:

Concrete	Product Data
Asphalt	Product Data
Insulated CMU	Product Data
Exterior Brick & Mortar	Product Data (match existing)
Flashings	Product Data
Structural Wood Framing	Product Data
Structural Plywood Sheathing	Product Data
Exterior Trim (PVC):	Product Data
EPDM Roofing & Accessories	Product Data
HVAC Roof Screen	Product Data & Shop Drawings
Rain Gutter & Leader	Product Data
Hollow Metal Frames:	Product Data & Shop Drawings
Exterior Aluminum Doors	Product Data & Shop Drawings (Add Alternate)
Painted Steel Pipe Handrails	Product Data & Shop Drawings (Add Alternate)
Dumpster Enclosure & Pad	Product Data & Shop Drawings
Interior Wood Doors:	Product Data & Shop Drawings
Door Hardware:	Schedule, Product Data
Paint:	Product Data, Drawdowns

QUALITY CONTROL

a) Comply with manufacturers' instructions and specifications for storage and use of their products.
b) Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from the Engineer before proceeding.
c) When specified, require manufacturer to provide qualified personnel to observe field conditions; installation; quality of workmanship; to test, adjust and balance equipment, as applicable.
d) Where required by the Specifications, submit certificates to the Engineer, executed by a responsible officer of the manufacturer, warranting that product meets or exceeds specified requirements.
e) When required by the Specifications, submit manufacturer's data sheets, including instructions and recommendations.

BARRIERS AND ENCLOSURES

a) Provide barriers to prevent public entry into construction areas and to protect existing facilities from damage by construction operations.
b) Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, materials dumping, chemically injurious materials, puddling or running water.
c) Provide temporary, insulated, weather tight closures at openings to the exterior to provide acceptable working conditions and protection for materials, and to prevent entry of unauthorized persons.
d) Barriers and enclosures shall be in conformance with code requirements. Do not block egress from occupied buildings unless necessary to further the work of the Contract. In this case, secure the Agency's approval of an alternate egress plan.

PROTECTION

Protect buildings, equipment, furnishings, grounds and plantings from damage. Any damage shall be repaired or otherwise made good at no expense to the State.
Provide protective coverings and barricades to prevent damage or physical injury. The Contractor shall be held responsible for, and must make good at his own expense, any water or other type of damage due to improper coverings. Protect the public and building personnel from injury.
Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
Provide protective coverings for walls, projections, jambs, sills and soffits of openings. Prohibit traffic and storage on waterproofed and roofed surfaces and on lawn and landscaped areas.

TEMPORARY CONTROLS

Consult with the Owner to determine any specific requirements for:

a) Dust Control (construction and demolition).
b) Noise Control.
c) Fume Control.

FIELD OFFICES AND SHEDS

a) The Owner will furnish a room for the contractor's use during construction if required. The contractor will be responsible for providing field office if required. The location shall be coordinated with the Owner.
b) Storage sheds for tools, materials and equipment shall be weather tight with heat, lighting and ventilation for products requiring controlled conditions.
c) Clean and repair damage caused by use of temporary facilities. Restore existing facilities used during construction to specify or to original condition.

INSPECTIONS AND TESTS

a) All material and workmanship is subject to inspection, examination and test by the Owner, Architect or Engineer at any time during manufacture and/or construction and at any place where manufacture and/or construction is done. Laboratory tests, if required, shall be paid for by the Owner except when the test shows the work to be defective. The original failed test, and all other retesting related to it shall be made at the Contractor's expense. A minimum of 48 hours notice of the time of tests to be made at the site shall be given to all interested parties.
b) Without additional charge, the Contractor shall promptly furnish facilities, labor and materials necessary to make tests. Tests shall be as directed or referenced in the specifications.
c) If before final acceptance of the work, the Engineer considers it necessary to advisable to examine any portion of work, the Contractor shall furnish facilities, labor and materials for the examination. If the work is found to be defective or if any work has been covered without the approval or consent of the Engineer or Owner (whether or not it is found to be defective), the Contractor shall be liable for testing costs and the costs of correction, including labor, material, services of consultants, additional supervision and administrative costs.

PREVAILING WAGE RATES

Prevailing wage rates do not apply to this Project.

OWNER'S RIGHT TO WITHHOLD PAYMENTS

a) The Owner may withhold a portion of any payment due the Contractor as may, in the judgment of the Owner, be necessary.
b) To assure payment of just claims then due to any persons supplying labor or materials for the work.
c) To protect the Owner from loss due to defective work not remedied.
d) To protect the Owner from loss due to injury to persons or damage to the work or property of other contractors, subcontractors or others caused by the act or neglect of the Contractor of any of his subcontractors.
e) The Owner retains the right to apply any amount he deems proper to satisfy claims or to secure such protection. The application of such moneys shall be deemed payments to the account of the contractor.

DIV. 2 EXISTING CONDITIONS

DEMOLITION

Remove and dispose of items and materials indicated. Do not use cutting torches for demolition work. Comply with all applicable regulations regarding disposal of construction debris. Provide dumpsters demolition and construction debris. Remove debris from work area daily. Do not use the Owner's trash receptacles and dumpsters.

Exterior - Remove existing exterior wood and concrete stairs, landings and ramps. Remove existing dumpster enclosure and slab.

Interior – Remove and salvage gym wall pads as required for performance of the work. Modify and reinstall same as required to accommodate new entry doors (2x) to new Gym Storage Room.

CUTTING, PATCHING & REPAIR

Protect existing materials, devices, fixtures, and equipment indicated to remain. Repair or replace any damaged items or surfaces to "as new" condition. Where new work adjoins existing, paint or refinish so that there is no visible difference between new and existing.

Saw cut and remove existing asphalt paving in driveway as required to accommodate performance of the work and as indicated on the drawings.

DIV. 3 CONCRETE

NEW FOUNDATION WALL, FOOTINGS & FLOOR SLAB (Base Contract)
NEW CONCRETE STOOP, LANDINGS, STAIRS AND RAMPS (Add Alternate)

Install new foundation walls and footings and floor slab with as indicated on the drawings. Use 4,500 PSI concrete minimum. Provide plant mix documentation and slump tests with report from testing laboratory retained by the Contractor.

DIV. 4 MASONRY

NEW CMU & BRICK EXTERIOR WALL

Install new 8" x 16" x 8" CMU With air cavity and exterior brick veneer to match existing. Install with lateral steel Dur-O-Wall masonry reinforcement and anchors 16" O.C. (V) typical. Pin new CMU to existing masonry exterior gym wall with 12" long #5 steel reinforcing bar 16" O.C.(V) typical. Source product from single supplier. Use cementitious mortar color matched to existing building. Stain brick, if necessary, to match existing brick on exterior Gym wall. Provide thru-wall flashing at base of wall cavity with plastic weeps 24" O.C.(H). All CMU to have rigid insulation inserts in cores.

DIV. 5 METALS – NOT USED

DIV. 6 WOOD & PLASTICS

ROUGH CARPENTRY

Framing: PROVIDE 2x12 Douglas Fir structural grade framing joists with not less more than 8% moisture content. Install on pressured treated sill plate at top of wall location. Use Simson joist hangers at 2x12 double wall support ledger thru bolted to existing masonry gym wall.

DIV. 8 DOORS & WINDOWS

DOOR FRAMES, NON-RATED

Interior Standard Steel Door Frame
Location: New Storage Room (2x)
Size: 6'-4" x 7'-0"
Head/Jambs: 2-inches wide face
Material: Uncoated steel sheet, minimum thickness of 0.053 inch (16 gage)
Construction: Welded
Finish: Shop primed and field painted

Aluminum Exterior Door Frame (2x)
Location: Replaces existing aluminum from Gymnasium to Exterior
Size: 5'-4" x 7'-4" masonry opening
Head/Jambs/Mullion: 2-inches wide
Material: Naturally finished mill aluminum, minimum thickness to match existing but not less than 1mm.
Construction: Knocked down
Finish: Natural finished aluminum to match existing

DOORS

Door #1 & #2: Storage Room to Gymnasium
Description: New double leaf wood door in new hollow metal frame.
Type: Solid-core, five-ply flush wood veneer-faced door for transparent finish. To match existing.
Standard: AWI Quality Certification
Size: 3'-0" x 7'-0" x 1-3/4"
Perf. Grade: Standard
Faces: Single-plywood veneer not less than 1/50 inch thick.
Species: Match existing in building.
Veneer: Book match between veneer leaves, balance match assembly of leaves on door faces.
Edges: Same species as faces for exposed vertical edges, Architectural Woodwork Standards edge Type A..
Core: Glued wood stave or WDMA I.S 10 structural composite lumber.
Construction: Five plies, hot-pressed bonded, with vertical and horizontal edging bonded to core, and with entire unit abrasive planed before veneering.
Finish: Factory finish, clear conversion varnish, semi-gloss. Match finish on adjacent wood veneer doors in Gymnasium.
Vision Panel: None.

Door #3: Gymnasium to Exterior (south side of addition)
Description: New exterior weather stripped aluminum door . with fixed sidelight
Operation: Single Leaf
Size: 3'-0" x 7'-0" x 1-3/4"
Glazing: .34U laminated tempered glazing in gasketed aluminum frame.

Door #4: Gymnasium to Exterior (north side of addition)
Description: New exterior weather stripped aluminum door . with fixed sidelight
Operation: Double unequal leaf.
Size: 3'-0" x 7'-0" x 1-3/4" full leaf
3.-0" x 7'-0" x 1-3/4" short leaf
Glazing: .34U laminated tempered glazing in gasketed aluminum frame.

DOOR HARDWARE (submit shop drawing with manufacturer cut sheets)

Set #1: Gymnasium to Storage Room Doors
6 Hinges: Ives-Allegion 5BB1 full mortise, ball bearing, 4.5x4.5 inches, NRP
2 Lockset: Arrow MLX Series Cylindrical Lockset, Sierra Lever, MLX 87 classroom function, finish US26D / 626, Grade 2, 10 year warranty. Locking mechanism shall be operated from exterior of room (Gymnasium side). Master key to building standard as directed by Owner. Provide top and bottom surface mounted throw bolt on fixed leaf.
2 Kickplate: Ives-Allegion brass plate 0.050" thick, 9"x34", with countersunk mounting holes, 4 beveled edges, finish US26D / 626 (Satin Chrome)
2 Stop: Ives-Allegion FS13 Dome Stop, with R14 Dome Stop Rise where needed to accommodate thresholds or floor level changes, finish US26D / 626 (Satin Chrome)
6 Silencers Ives-Allegion SR64 door silencer, color gray

Set #3: Gymnasium to Exterior Aluminum Storefront Door & Frame (single leaf with sidelight)
1 Assembly: Commercial manufactured unit with integral panic bar hardware, hinges, silencers, weatherstripping, door saddle and closer. Master key to building.

Set #4: Gymnasium to Exterior Aluminum Storefront Doors & Frame (double unequal leaf)
1 Assembly: Commercial manufactured unit with integral panic bar hardware, hinges, silencers, weatherstripping, door saddle and closer. Fixed leaf to have concealed top and bottom throw bolts. Master key to building.

DIV. 9 FINISHES

GYPSUM BOARD

Type: Interior, ASTM C1396, with moisture- and mold-resistant core and paper surfaces
Thickness: 5/8"
Long Edges: Tapered
Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
Manufacturers: American Gypsum
CertainTeed Corporation
Georgia-Pacific Gypsum LLC
National Gypsum Company
USG Corporation
Interior Trim: Cornerbead, J-Bead, and L-Bead fabricated from galvanized or aluminum-coated steel sheet or rolled zinc
Joint Tape: Paper
Joint Compound: Drying-type, all-purpose compound applied in three coats
Finish Level: 4 at panel surfaces that will be exposed to view
Flooring: Clear seal finish concrete.

PAINT

Manufacturers: Benjamin Moore & Co.
PPG Paints
Sherwin Williams Company
Colors: As selected by Architect from Benjamin Moore & Co,'s full range.

Hollow Metal: & Steel Lintels: Steel door and window frames, new and existing.
Prime Coat: New metal to be factory primed. Existing metal also requires primer.
Intermediate Coat: Interior latex matching topcoat.
Topcoat: Interior latex, gloss (MPI Gloss Level 6).
Topcoat Product: Benjamin Moore, Ultra Spec HP D.T.M. Acrylic Enamel.

Gypsum Board: & CMU: Prime Coat: Latex primer sealer, interior.
Prime Coat Product: Benjamin Moore Fresh Start Multi-Purpose Latex Primer.
Intermediate Coat: Interior latex matching topcoat.
Topcoat: Interior latex, semi-gloss (MPI Gloss Level 5).

DIV. 10 SPECIALTIES – not used

DIV. 11 APPLIANCE SCHEDULE not used

DIV. 12 FURNISHINGS not used

REFER TO ENGINEERING DRAWINGS FOR DIV. 22 PLUMBING, DIV. 23 HVAC, & DIV. 26 ELECTRICAL

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Drawing Title: **General Notes & Specifications**

Town of Bethany
40 Peck Road, Bethany, CT 06524

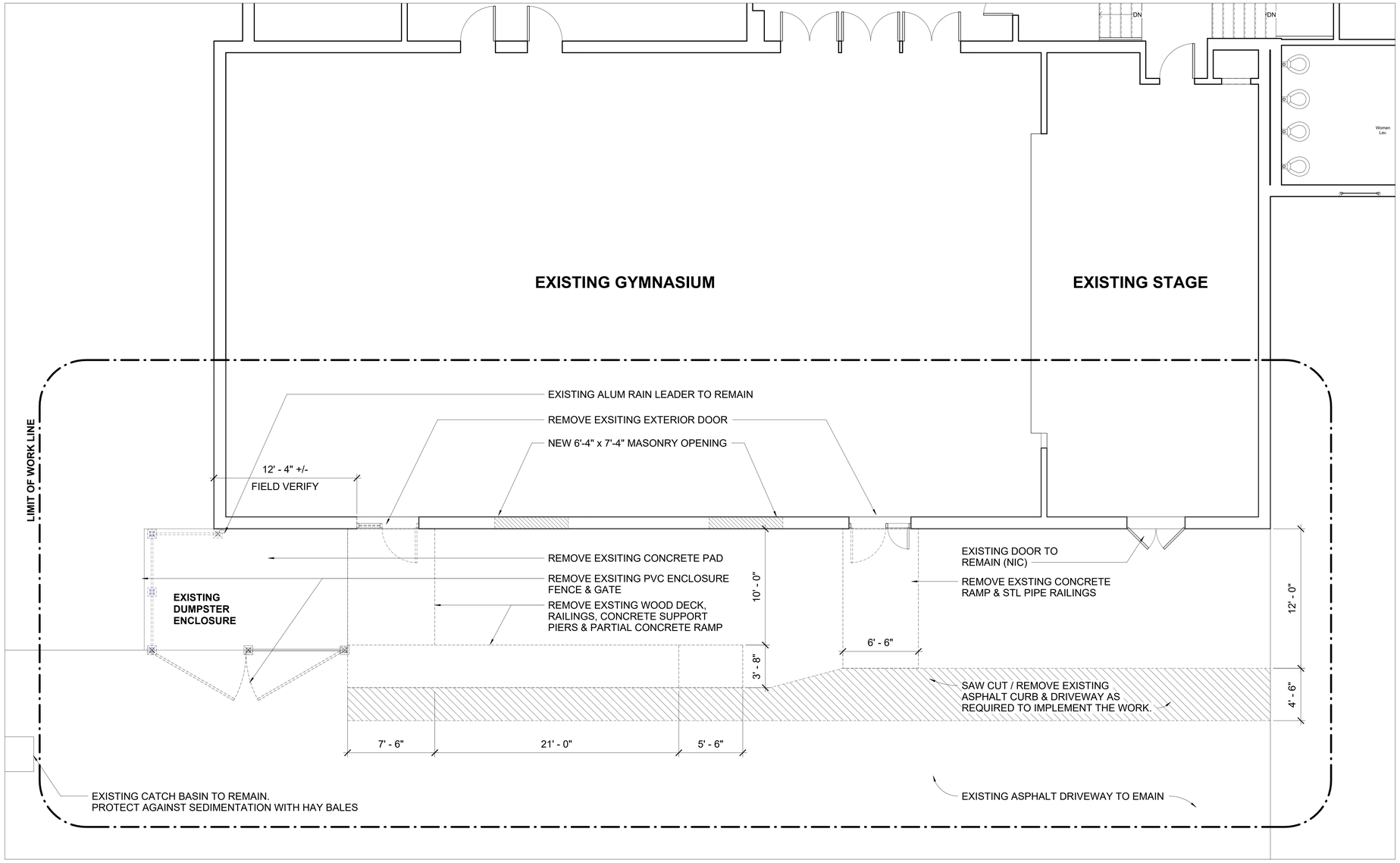
Stamp:

North Arrow:

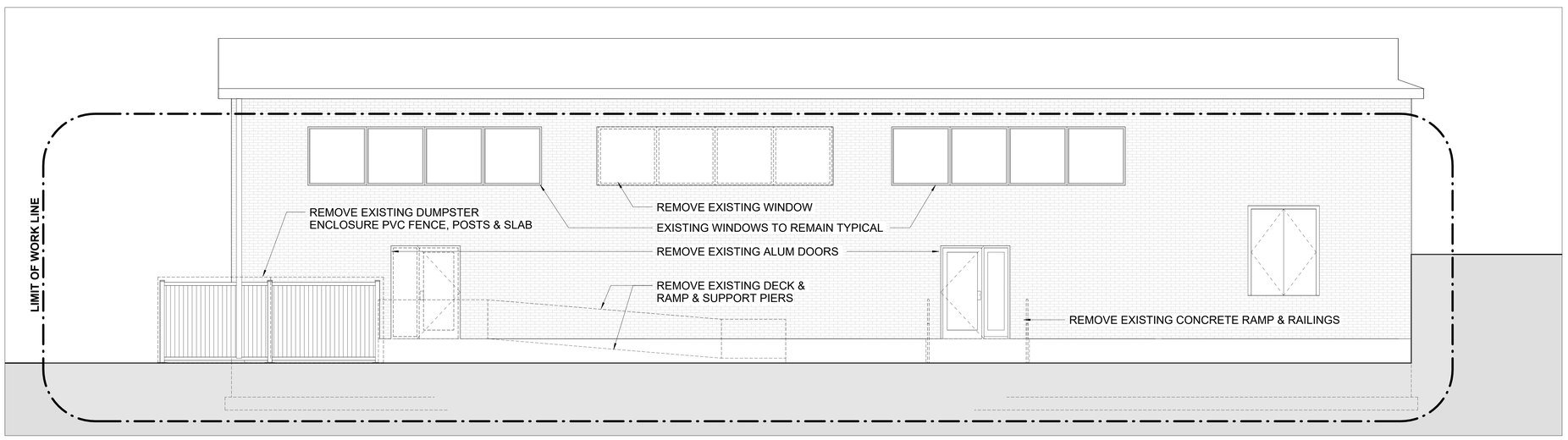
Date: 11-06-23
Revised: ---

Job: OMA 23251
Scale:
Drawn: OMA
Checked: OMA

Drawing Number: **A001**



1 Gym Addition Demolition Plan
1/4" = 1'-0"



2 BTH East Elevation Copy 1
1/4" = 1'-0"

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Drawing Title: **Demolition Plan & Elevation**

Stamp:

Town of Bethany
40 Peck Road, Bethany, CT 06524

North Arrow:

Date: 11-06-23
Revised: ---

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Checked: OMA

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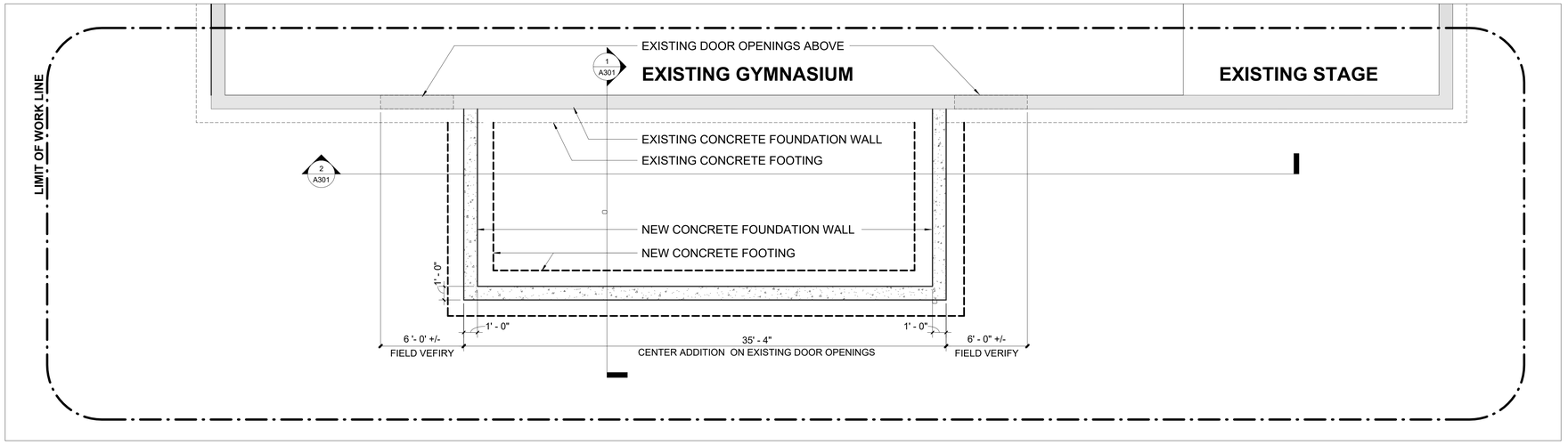
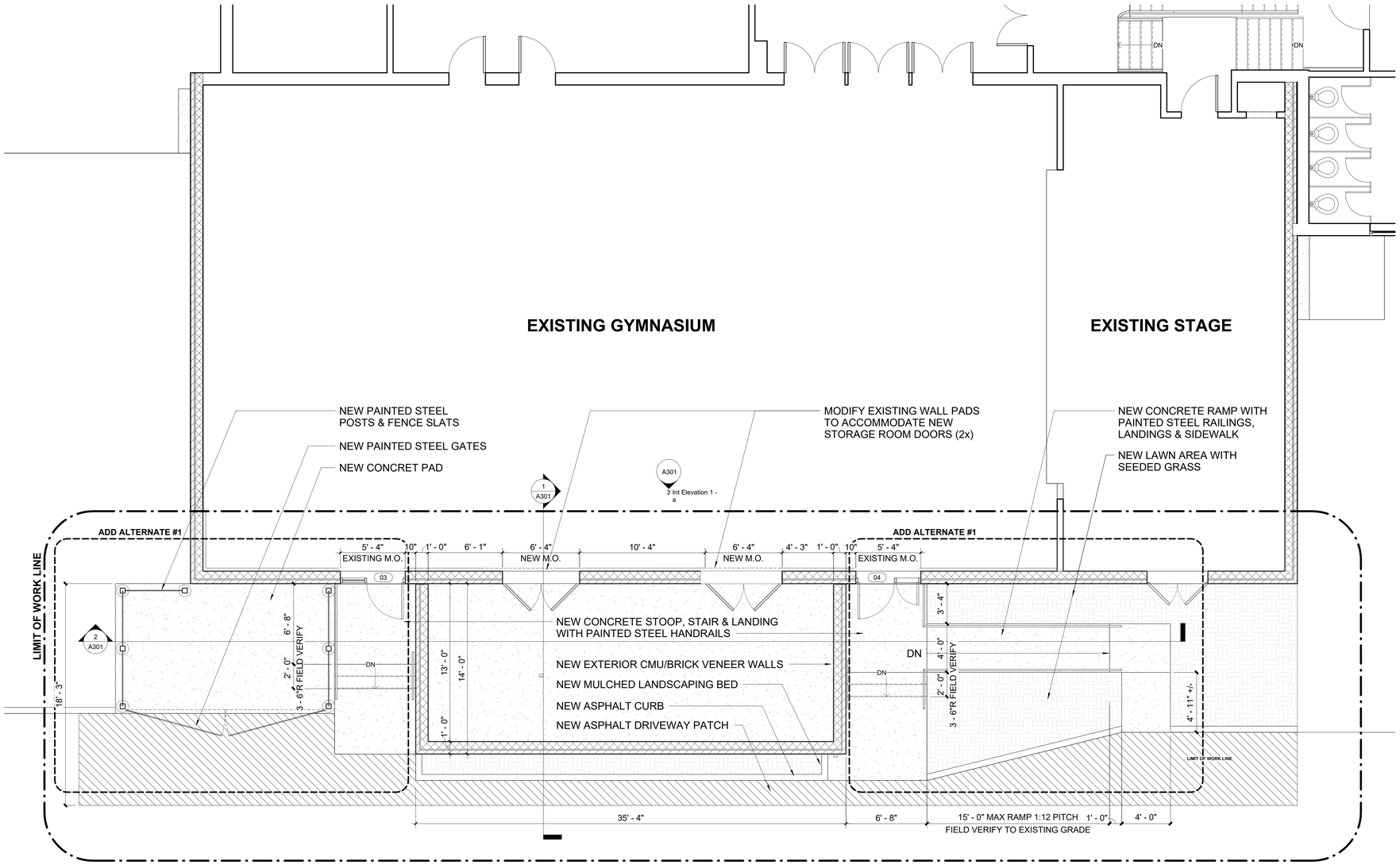


1 Gym Addition Foundation Plan
1/4" = 1'-0"



2 Gym Addition Floor Plan
1/4" = 1'-0"

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Drawing Title:
Gym Addition Foundation & Floor Plan
Town of Bethany
40 Peck Road, Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-06-23
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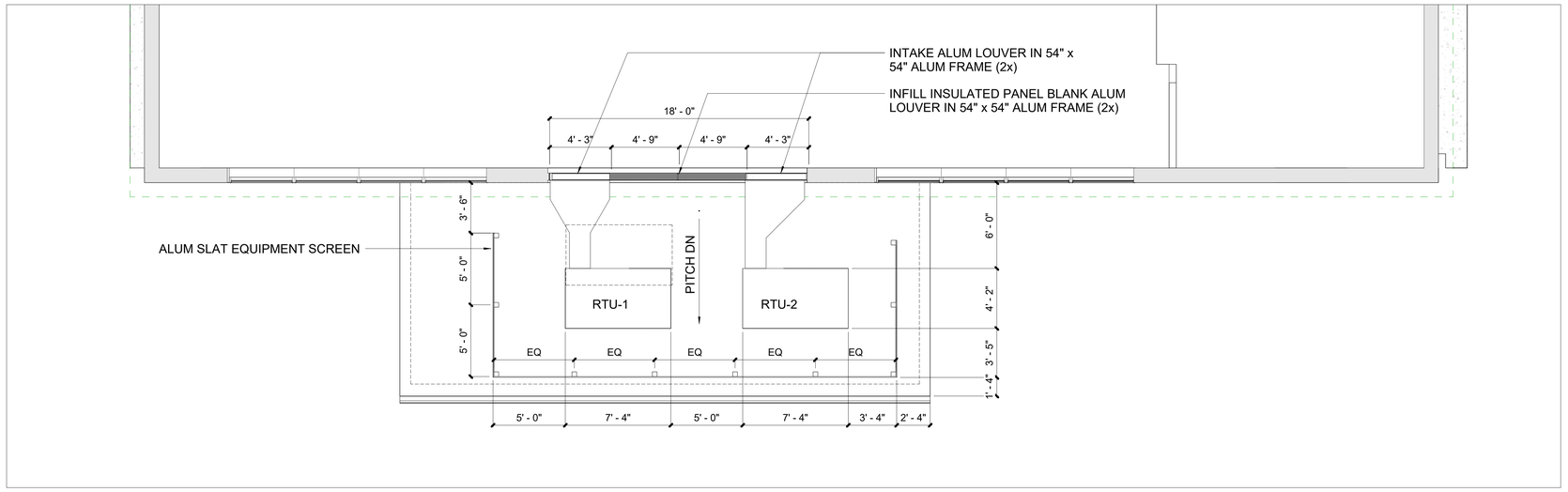
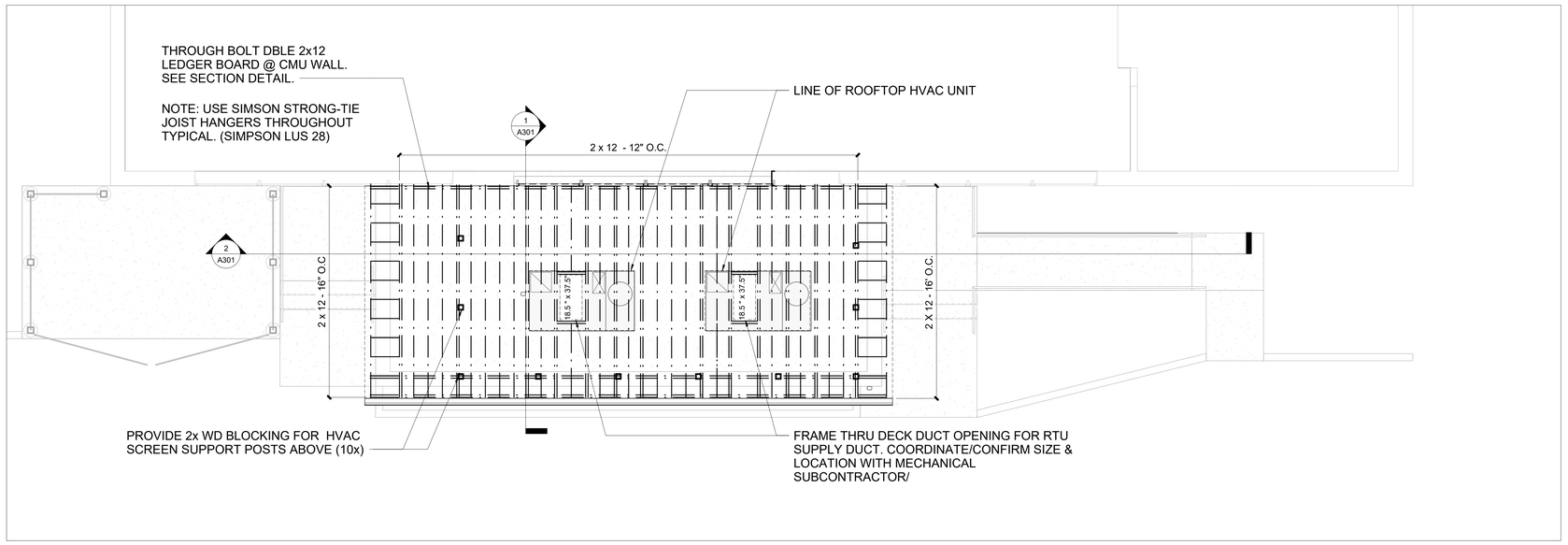
Checked: OMA

Drawing Number:
A101



1 Gym Addition Roof Plan
1/4" = 1'-0"



2 Gym Addition Roof Framing Plan
1/4" = 1'-0"

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Drawing Title:
Gym Addition Roof & Roof Framing Plan

Town of Bethany
40 Peck Road, Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-06-23
Revised: ---

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Scale: 1/4" = 1'-0"
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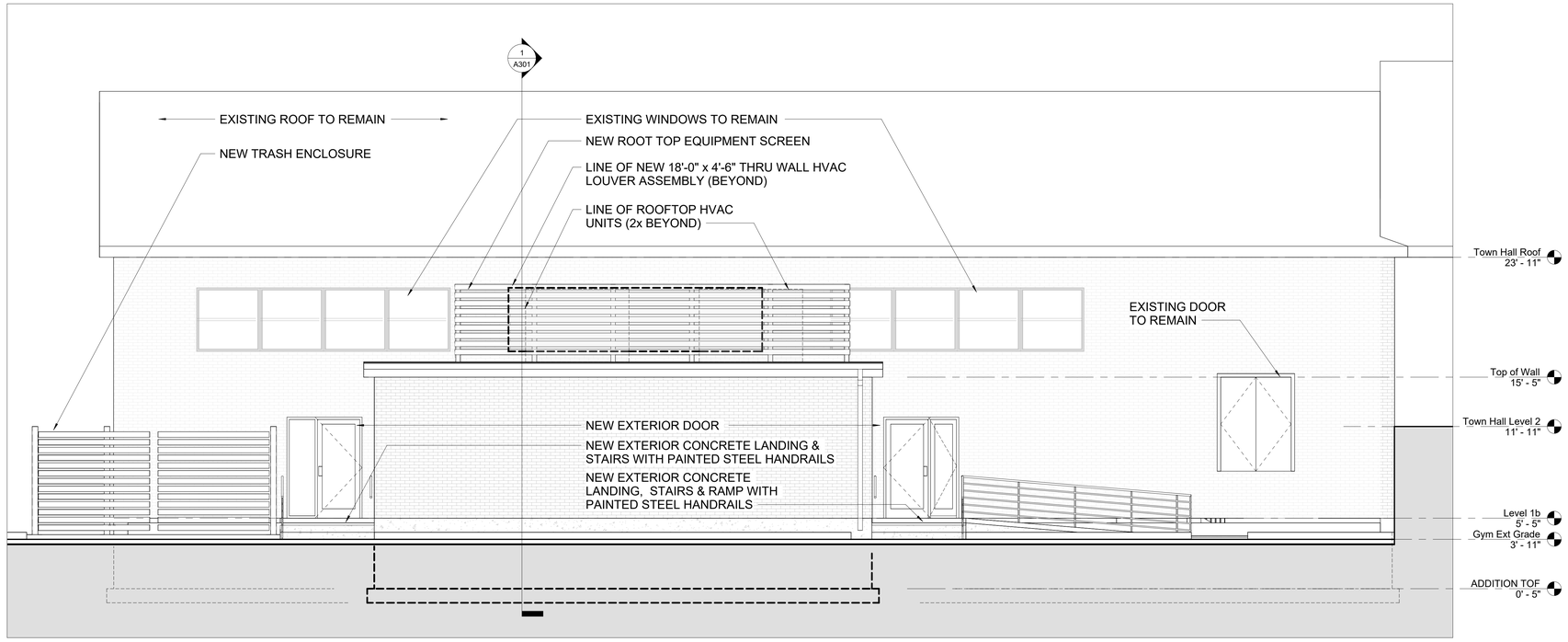
Checked: OMA

Drawing Number:
A102



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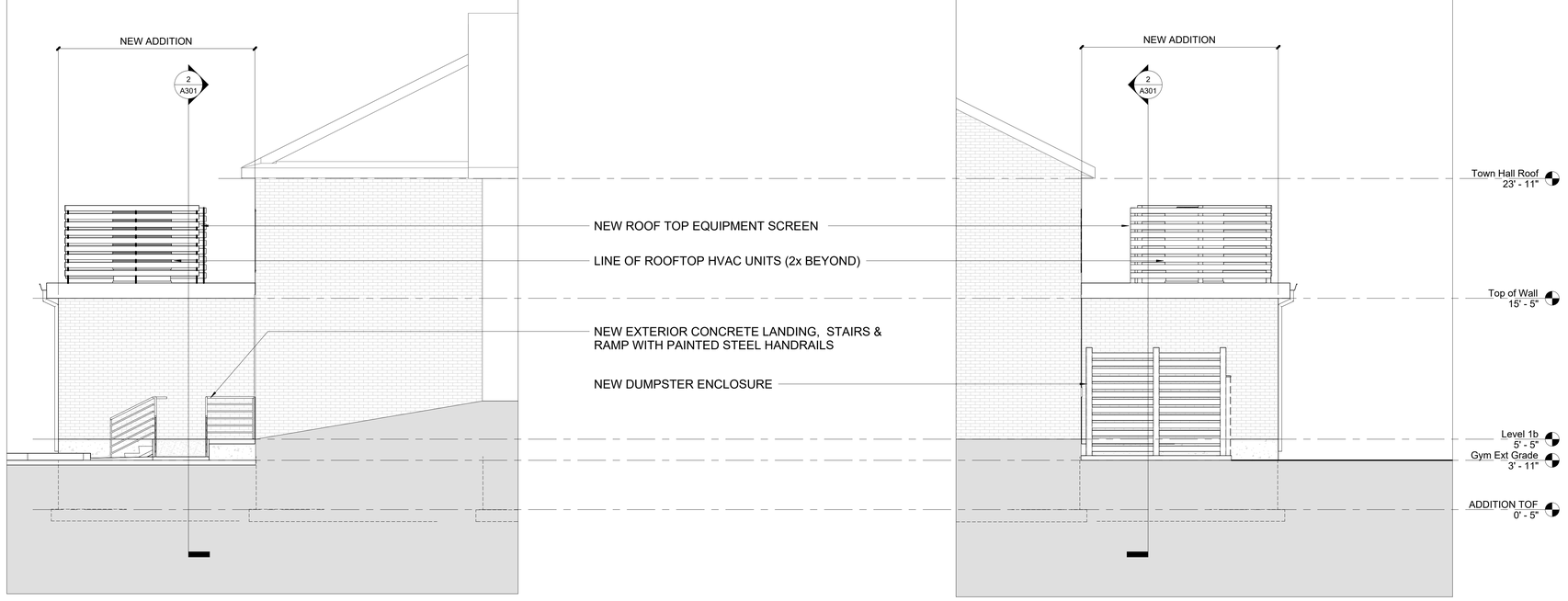
1/4" = 1'-0"



2 BTH North Elevation Copy 1
1/4" = 1'-0"

3 BTH South Elevation Copy 1
1/4" = 1'-0"

Prepared By:
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22 Bank Street, Seymour, CT 06483 P203.888.7867
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Drawing Title:
Gym Addition Exterior Elevations

Town of Bethany
40 Peck Road, Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-06-23
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Scale: 1/4" = 1'-0"
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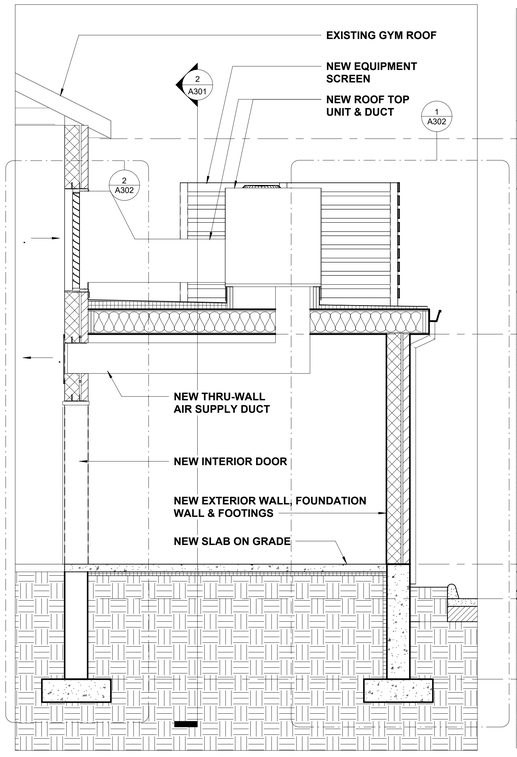
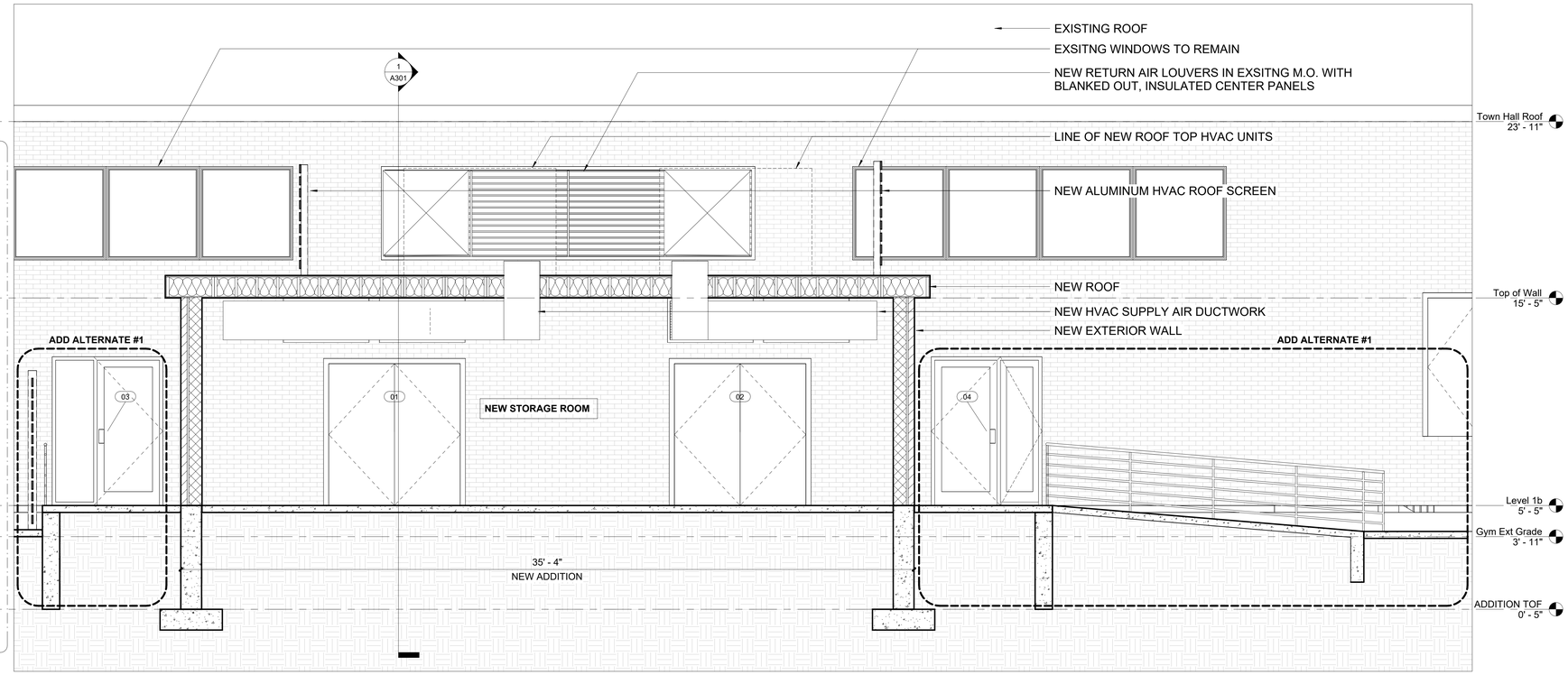
Checked: OMA

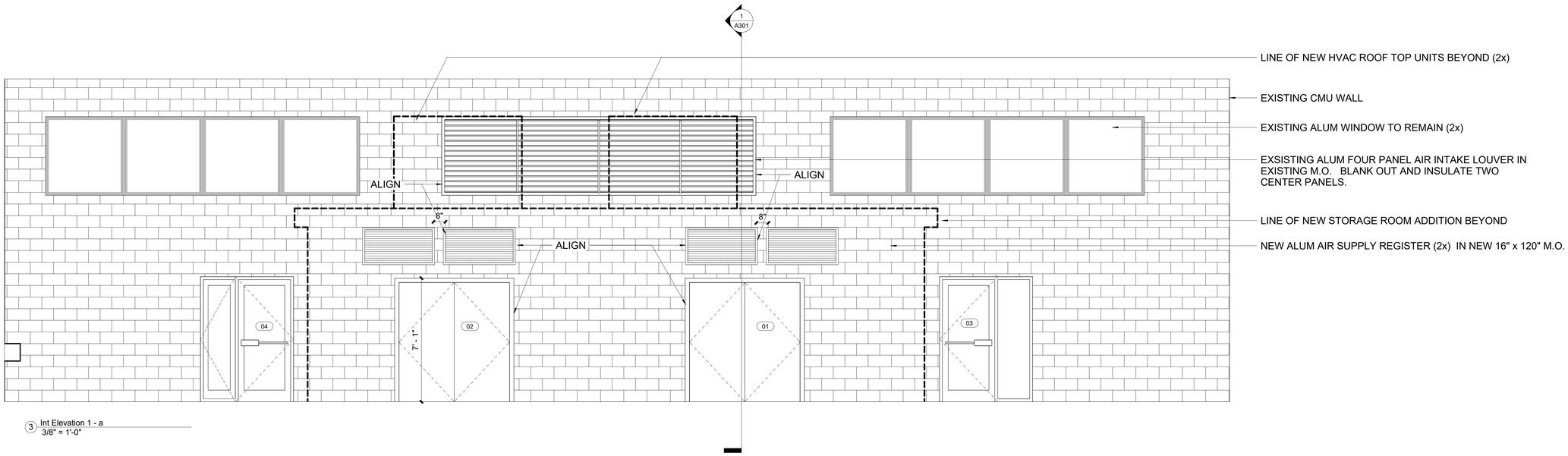
Drawing Number:
A201



1 Section 1
3/8" = 1'-0"



2 Section 2
3/8" = 1'-0"



3 Int Elevation 1 - a
3/8" = 1'-0"

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Sections & Details

Drawing Title:

Town of Bethany
40 Peck Road, Bethany, CT 06524

Stamp:

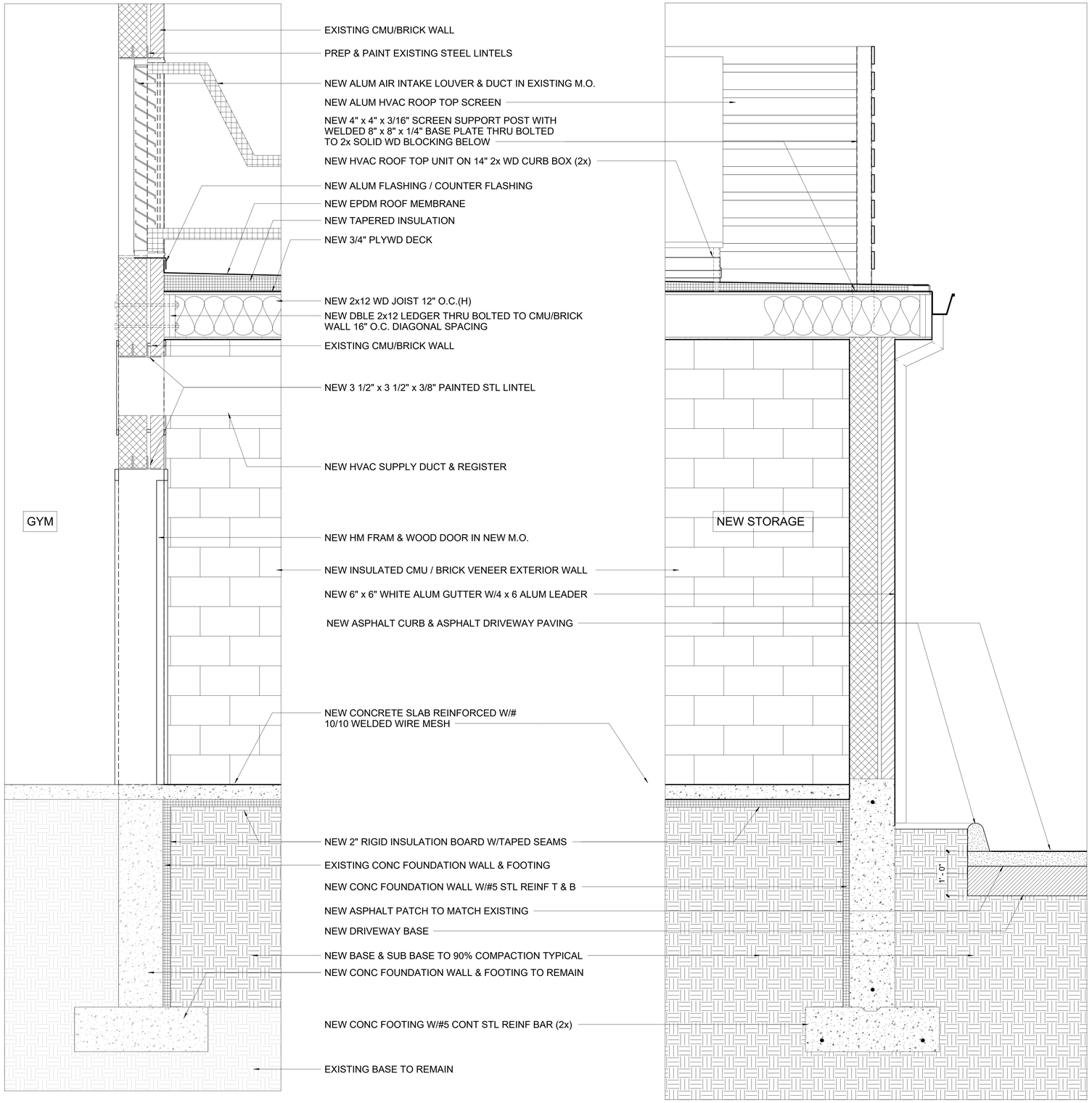
North Arrow:

Date: 11-06-23
Revised: ---

Job: OMA 23251
Scale: 3/8" = 1'-0"
Drawn: OMA
Checked: OMA

Drawing Number:

A301



2 Detail 1
1" = 1'-0"

1 Detail 0
1" = 1'-0"

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Drawing Title:

Building Details

Town of Bethany

40 Peck Road, Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-06-23

Revised: ---

Job: OMA 23251

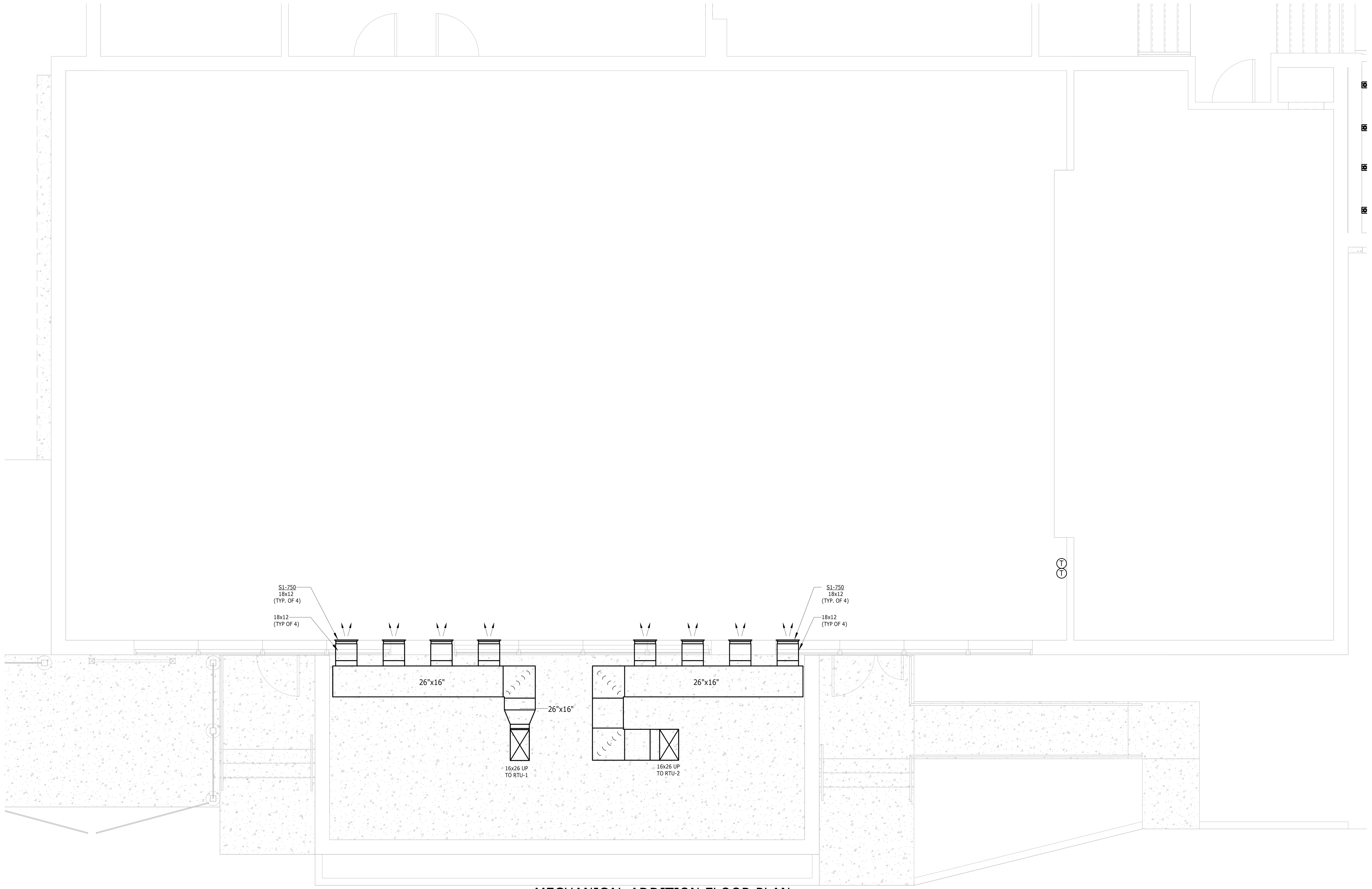
Scale: 1" = 1'-0"

Drawn: OMA

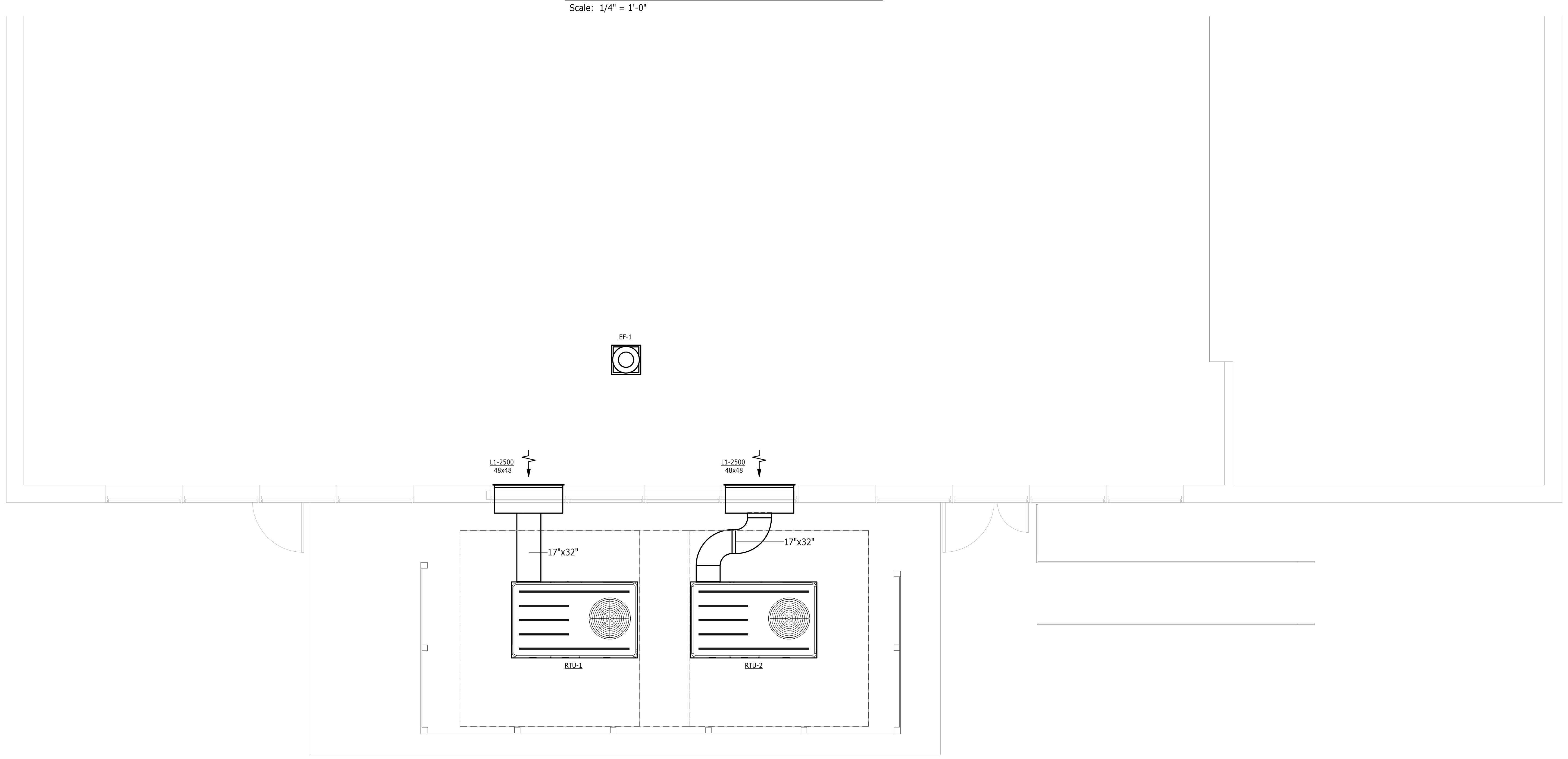
Checked: OMA

Drawing Number:

A302



MECHANICAL ADDITION FLOOR PLAN
Scale: 1/4" = 1'-0"



MECHANICAL ROOF PLAN
Scale: 1/4" = 1'-0"

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Drawing Title:

GYM ADDITION MECHANICAL PLANS

Town of Bethany

Town of Bethany', CT 06524

Stamp:

North Arrow:

Date: 11-3-23

Revised: -

Job: OMA 23251

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

Drawn: IES

Checked: PJP

Drawing Number:

M101

PACKAGED ROOFTOP UNIT SCHEDULE

GENERAL DATA								DX COIL DATA						GAS HEATING					FILTER DATA		ELECTRICAL DATA					NOTES
SYMBOL	MANUFACTURER MODEL NUMBER	AREA SERVED	LOCATION	COOLING (CFM)	HEATING (CFM)	ESP (IN. H_2O)	NOMINAL COOLING (TONS)	TOTAL COOLING (MBH)	SENSIBLE COOLING (MBH)	EAT DB/WB (DEG F)	LAT DB/WB (DEG F)	SUCTION TEMP (DEG F°)	FACE VELOCITY (FPM)	TOTAL HEAT INPUT (MBH)	TOTAL HEAT OUTPUT (MBH)	AFUE %	HEATING SOURCE	GAS PRESSURE (IN. H_2O)	FILTER TYPE	EFFICIENCY	BHP	VOLT	PHASE	MINIMUM CIRCUIT AMPACITY	MOCP	
RTU-1	TRANE DHC092H3RHA	GYM	ADDITION ROOF	3,000	3,000	1.5	7.5	91.9	70.4	80/67	56.39/56.33	45	500	200	162	81%	PROPANE	7"	2" PLEATED MERV 13	30%	1.40	208	3	114 A	125 A	1,2,3,4,5
RTU-2	TRANE DHC092H3RHA	GYM	ADDITION ROOF	3,000	3,000	1.5	7.5	91.9	70.4	80/67	56.39/56.33	45	500	200	162	81%	PROPANE	7"	2" PLEATED MERV 13	30%	1.40	208	3	114 A	125 A	1,2,3,5

NOTES:

1. PROVIDE NEMA 3R DISCONNECT SWITCH.
2. PROVIDE DUCT SMOKE DETECTOR IN SUPPLY AND RETURN AIRSTREAM.
3. PROVIDE PROPANE CONVERSION KIT.
4. PROVIDE 120V CONVENIENCE OUTLET (POWERED BY ELECTRICAL CONTRACTOR).
5. PROVIDE 14" HIGH FACTORY ROOF CURB.

FAN SCHEDULE

SYMBOL	MANUFACTURER MODEL NUMBER	LOCATION	SERVING	TYPE	AIR FLOW CFM	ESP IN. WS.	FAN RPM	DRIVE	CONTROL	BHP (W)	HP (W)	ELECTRICAL V-PH-RPM	SONES (LWA)	NOTES
EF-1	LOREN COOK ACED101C17DEC	GYM ROOF	GYM	ROOF DOWNBLAST	500	0.375"	1300	DIRECT	TIMECLOCK	0.18	1/4	120-1-1725	6.9	1,2

NOTES:

1. PROVIDE FACTORY SLOPED ROOF CURB WITH SELF-ACTING BACKDRAFT DAMPER.
2. PROVIDE DISCONNECT SWITCH.

LOUVER SCHEDULE

SYMBOL	MANUFACTURER MODEL NUMBER	SYSTEM SERVED	AIRFLOW (CFM)	MAXIMUM VELOCITY (FPM)	AIR P.D. (IN. WG)	NOMINAL WIDTH (IN.)	NOMINAL HEIGHT (IN.)	MINIMUM FREE AREA (SQ. FT.)	MAXIMUM WATER PENETRATION (OZ./SQ. FT.)	NOTES
L-1	RUSKIN ELF375DX	EXHAUST	2500	750	0.05"	48"	48"	8.58	0.01 @ 873 FPM	1,2

NOTES:
1. ALUMINUM CONSTRUCTION, WEATHER RESISTANT, DRAINAGE BLADES.
2. COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.

GRILLE, DIFFUSER AND REGISTER SCHEDULE

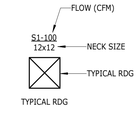
SYMBOL	MANUFACTURER MODEL NUMBER	DUTY	TYPE	BORDER TYPE	CONSTRUCTION			NOTES
					OBD	FRAME	BLADES	
S1	TITUS 300RS-HD	SUPPLY	S.W.	-	STEEL	STEEL	STEEL	-

TYPES:

S.W. - SIDE WALL

NOTES:

1. SQUARE TO ROUND TRANSITION.
2. OPPOSED BLADE DAMPER.
3. DOUBLE DEFLECTION.
4. FACE VELOCITY 600 FPM MAX.
5. 40° DEFLECTION (FIXED).
6. 40° DEFLECTION (FULLY ADJUSTABLE).
7. NC LEVEL NOT TO EXCEED 25.
8. INSULATED PLENUM BOOT.
9. HINGED CORE WITH 1" DISPOSABLE FILTER.



MECHANICAL GENERAL NOTES

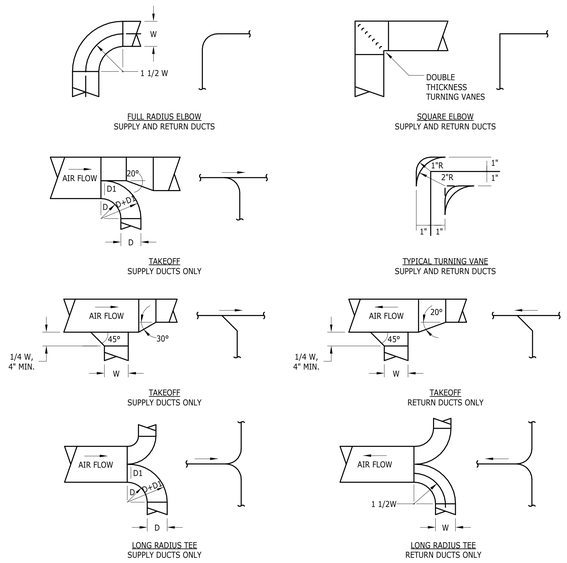
1. THESE GENERAL NOTES ARE APPLICABLE TO ALL MECHANICAL DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. MECHANICAL CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.

ABBREVIATIONS

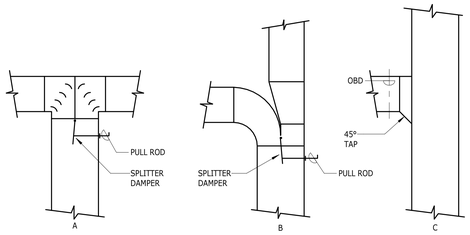
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AMB	AMBIENT
AMP	AMPERE (AMP, AMPS)
BAL	BALANCE
BTU	BRITISH THERMAL UNIT
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CLG	COOLING
CU	CONDENSING UNIT
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
°F	DEGREES FAHRENHEIT
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FPM	FEET PER MINUTE
FT	FEET
FTR	FIN TUBE RADIATION
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H-1	HUMIDIFIER
HWC	HOT WATER COIL
HP	HORSE POWER
HTR	HEATING RETURN (HOT WATER)
HTS	HEATING SUPPLY (HOT WATER)
HTG	HEATING
Hz	FREQUENCY
IN.	INCH
IN. WG	INCHES WATER GAUGE
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LBS/HR	POUNDS PER HOUR
LWT	LEAVING WATER TEMPERATURE
MBH	BTU PER HOUR (THOUSAND)
N.T.S.	NOT TO SCALE
O.A.	OUTSIDE AIR
OED	OPEN END DUCT
P-1	PUMP
PD	PRESSURE DROP
PH	PHASE
PSI	POUNDS PER SQUARE INCH
RDG	REGISTER DIFFUSER GRILLE
RET	RETURN
RH	RELATIVE HUMIDITY
RPM	ROTATIONS PER MINUTE
SP-1	SUMP PUMP
SQ.FT.	SQUARE FEET
SUP	SUPPLY
T&P	TEMPERATURE & PRESSURE RELIEF VALVE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
VD	VOLUME DAMPER
VIF	VERIFY IN FIELD
WB	WET BULB
WP	WORKING PRESSURE
ZC	ZONE CONTROLLER
ZV	ZONE VALVE

MECHANICAL LEGEND

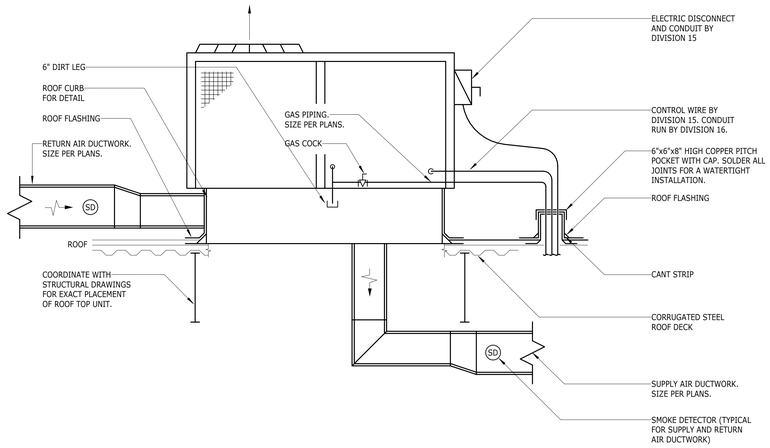
	DIFFUSER/GRILLE - SUPPLY
	GRILLE/REGISTER - RETURN
	GRILLE/REGISTER - EXHAUST
	ROUND DUCT UP
	ROUND DUCT DN
	SIDEWALL GRILLE/REGISTER - SUPPLY/RETURN/EXHAUST
	AIR FLOW DIRECTION INDICATOR - SUPPLY
	AIR FLOW DIRECTION INDICATOR - RETURN
	DUCT RISER - SUPPLY/COMBUSTION AIR
	DUCT DROP - SUPPLY/COMBUSTION AIR
	DUCT RISER - RETURN/EXHAUST
	DUCT DROP - RETURN/EXHAUST
T	THERMOSTAT
	VOLUME DAMPER
	MOTORIZED DAMPER
	REDUCER
HTS	HOT WATER SUPPLY - HEATING
HTR	HOT WATER RETURN - HEATING
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CD	CONDENSATE WASTE
G	GAS (NATURAL OR LPG)
	DIRECTION OF FLOW
	PIPE DOWN
	PIPE DROP
	PIPE RISE
	PLUGGED OR CAPPED PIPE
OR	STRAINER - 'Y' TYPE
	UNION
	BALANCING VALVE
	BALL VALVE
	CHECK VALVE
	GAS VALVE (BALL OR PLUG)
	GAS PRESSURE REGULATOR



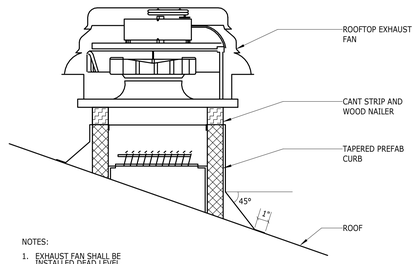
TYPICAL DUCT DETAIL WITH SINGLE LINE REPRESENTATION
SCALE: N.T.S.



TYPICAL DUCT DETAIL
SCALE: N.T.S.



DOWN FLOW ROOFTOP UNIT DETAIL
SCALE: N.T.S.



NOTES:
1. EXHAUST FAN SHALL BE INSTALLED DEAD LEVEL. PREFAB CURB SHALL BE TAPERED FOR EXACT ROOF PITCH.

ROOFTOP DOWNBLAST EXHAUST FAN DETAIL
SCALE: N.T.S.

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Drawing Title:
GYM ADDITION MECHANICAL NOTES, LEGENDS, AND SCHEDULES
Town of Bethany
Town of Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-3-23
Revised: -

Job: OMA 23251
Scale: N.T.S.
Drawn: IES
Checked: PJP

Drawing Number:
M200

MECHANICAL (HVAC) SPECIFICATIONS

GENERAL

SCOPE

THE GENERAL SCOPE OF THE HVAC WORK IS TO REMOVE EXISTING SYSTEMS, MODIFY THE EXISTING SYSTEMS, AND PROVIDE NEW SYSTEMS AS INDICATED ON THESE DOCUMENTS.

THE WORK TO BE DONE UNDER THIS DIVISION OF THE SPECIFICATIONS INCLUDE THE FURNISHING OF ALL EQUIPMENT, SUPPLIES, LABOR, SUPERVISION AND ALL MATERIALS NOT SPECIFICALLY MENTIONED BUT NECESSARY OR REQUIRED TO PROVIDE COMPLETE AND FULLY OPERATIONAL HVAC SYSTEMS. IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION.

IT IS THE INTENT THAT ALL MECHANICAL WORK AND MATERIALS NECESSARY TO COMPLETE THE ENTIRE PROJECT IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS, WHETHER SPECIFICALLY MENTIONED HERE OR NOT, SHALL BE FURNISHED. ALL WORK AND MATERIALS NECESSARY TO FULFILL THIS INTENT SHALL BE SUPPLIED UNDER THE MECHANICAL SPECIFICATIONS WITHOUT ADDITIONAL COST TO THE OWNER.

DEFINITIONS

'FURNISH' OR 'PROVIDE' - TO FURNISH, ERECT, INSTALL AND CONNECT UP COMPLETE AND READY FOR OPERATION PARTICULAR WORK REFERRED TO, UNLESS SPECIFICALLY INDICATED OR SPECIFIED OTHERWISE.

'WORK' - LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND ALL OTHER ITEMS CUSTOMARILY FURNISHED AND/OR REQUIRED FOR PROPER AND COMPLETE INSTALLATION OF WORK.

'EXPOSED' - NOT INSTALLED UNDERGROUND OR 'CONCEALED' AS DEFINED ABOVE.

'INDICATE' OR 'SHOWN' - AS INDICATED OR SHOWN ON DRAWINGS OR SPECIFIED WITH SPECIFICATIONS.

'PIPING' - PIPE, FITTINGS, FLANGES, VALVES, CONTROLS, HANGERS, TRAPS, DRAINS, INSULATION AND ITEMS CUSTOMARILY OR REQUIRED IN CONNECTION WITH OR RELATING TO SUCH PIPING.

'SUPPLY' - TO PURCHASE, PRODUCE, ACQUIRE AND DELIVER COMPLETE WITH ALL RELATED ITEMS.

'INSTALL' - TO ERECT, MOUNT AND CONNECT UP COMPLETE WITH ALL RELATED ACCESSORIES.

'NOTED' - AS INDICATED ON DRAWINGS AND/OR SPECIFIED.

CODES, RULES, PERMITS AND FEES

THIS CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL STATE AND LOCAL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL STATE AND LOCAL DEPARTMENTS HAVING JURISDICTION; OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK AND DELIVERY OF SAME TO THE OWNER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

THIS CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS), IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WHETHER OR NOT SHOWN ON THE DRAWINGS AND/OR SPECIFIED.

THIS CONTRACTOR SHALL PERFORM AND FILE ALL TESTS IN ACCORDANCE WITH THE CURRENT REGULATIONS OF THE STATE AND LOCAL AUTHORITIES. HE SHALL FURNISH AND INSTALL SIGNS REQUIRED BY THE STATE AND LOCAL AUTHORITIES.

ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE RULES AND RECOMMENDATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, WITH ALL REQUIREMENTS OF LOCAL UTILITIES COMPANIES, WITH THE RECOMMENDATIONS OF THE FIRE INSURANCE RATING ORGANIZATION HAVING JURISDICTION.

CODES, REGULATIONS AND STANDARDS

ALL MECHANICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING APPROVED CODES, REGULATIONS AND STANDARDS:

IBC - INTERNATIONAL BUILDING CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

IMC - INTERNATIONAL MECHANICAL CODE, 2021 EDITION. WITH 2022 CONNECTICUT AMENDMENTS.

IFC - INTERNATIONAL FIRE CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

2022 CONNECTICUT STATE FIRE SAFETY CODE

STATE DEMOLITION CODE

LOCAL BUILDING CODE

NFPA - NATIONAL FIRE PROTECTION CODE

NFPA 70 - NATIONAL ELECTRICAL CODE, 2020 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

NFPA 72 - NATIONAL FIRE ALARM CODE, 2019 EDITION

NFPA 99 - HEALTH CARE FACILITIES CODE, 2021 EDITION

NFPA 101 - LIFE SAFETY CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

IECC - INTERNATIONAL ENERGY CONSERVATION CODE, 2021, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

ICC/ANSI A117.1, 2017, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, AS AMENDED BY THE STATE OF CONNECTICUT 2018 AMENDMENTS.

ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE

ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS

OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

U.L. - UNDERWRITERS LABORATORIES

EPA - ENVIRONMENTAL PROTECTION AGENCY

COMPLY WITH REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION.

INSURANCE

THE MECHANICAL CONTRACTOR SHALL FURNISH STATUTORY COMPENSATION INSURANCE CERTIFICATES FOR PERSONAL AND PROPERTY DAMAGE DISABILITY/LIABILITY AS REQUIRED BY THE OWNER AND/OR AS HEREINBEFORE DESCRIBED.

GUARANTEE AND SERVICE

THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE INSTALLATION. IN ADDITION, THE CONTRACTOR SHALL PROVIDE, FREE OF CHARGE, ONE YEAR'S MAINTENANCE GUARANTEE ON MAINTAINED SERVICE AND ADJUSTMENT OF ALL EQUIPMENT IN THIS CONTRACT.

ALL COMPRESSORS TO HAVE (5) FIVE YEAR EXTENDED WARRANTEES.

DRAWINGS AND INTENT

DRAWINGS ARE INTENDED AS WORKING DRAWINGS FOR GENERAL LAYOUT OF THE VARIOUS HVAC SYSTEMS. HOWEVER, LAYOUT OF EQUIPMENT, ACCESSORIES, SPECIALTIES, DUCTWORK, AND PIPING SYSTEMS ARE DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED, AND DO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, VALVE, FITTINGS, TRAP, ELBOW, TRANSITION, OFFSETS, OR SIMILAR ITEMS REQUIRED FOR A COMPLETE INSTALLATION.

ALL EXISTING CONDITIONS ARE NOT INDICATED ON THE DOCUMENTS AND THOSE SHOWN ARE APPROXIMATIONS. THE CONTRACTOR IS TO VERIFY, IN THE FIELD, ALL EXISTING CONDITIONS.

EXAMINATION OF PREMISES - SPECIAL NOTE: NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO VISIT SITE, OR ANY ALLEGED MISUNDERSTANDING OF MATERIAL TO BE FURNISHED, OR WORK TO BE DONE; IT BEING THAT TENDER OF PROPOSAL INDICATED WITH ITS AGREEMENT TO ITEMS AND CONDITIONS REFERRED TO HEREIN OR INDICATED ON AFOREMENTIONED DRAWINGS.

MEASUREMENTS

ALL MEASUREMENTS TAKEN AT THE BUILDING SHALL TAKE PRECEDENCE OVER SCALE DIMENSIONS. EVERY PART OF THE PLANS SHALL BE FITTED TO THE ACTUAL CONDITIONS AT THE BUILDING. IF IN CONFLICT WITH SCALE DIMENSIONS, CONTACT ARCHITECT FOR CLARIFICATION.

TEMPORARY SERVICES

THE HVAC CONTRACTOR IS TO COORDINATE WITH THE GENERAL CONTRACTOR, PRIOR TO PERFORMING WORK REQUIRING INTERRUPTION OF EXISTING SERVICES, THE CONTRACTOR SHALL SECURE FROM THE OWNER, APPROVAL OF THE PROPOSED OPERATION.

WORK SHALL BE ARRANGED FOR CONTINUOUS PERFORMANCE WHENEVER POSSIBLE. THE MECHANICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES AND/OR CONNECTIONS WHERE REQUIRED AND/OR SCHEDULE AND PERFORM OVERTIME WORK FOR ANY OPERATION WHICH REQUIRED SHUTDOWN OF THE FACILITIES AT NO ADDITIONAL COST TO THE OWNER.

THE AREA OF CONSTRUCTION AND/OR ADJACENT SPACES MAY BE OCCUPIED DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR IS TO TAKE ALL NECESSARY MEASURES AND PROVIDE ALL MATERIALS TO ENSURE A SAFE ENVIRONMENT FOR THE FACILITY'S OCCUPANTS.

CONTINUITY OF EXISTING SYSTEMS

WHEREVER AN EXISTING SYSTEM IS REMOVED, PARTIALLY REMOVED, OR MODIFIED THE REMAINING SYSTEM IS TO FUNCTION FULLY AS BEFORE.

MAINTAIN CONTINUITY OF THE EXISTING AIR SYSTEMS, HYDRONIC SYSTEMS, AND CONTROL SYSTEMS TO THE AREAS NOT AFFECTED BY THIS ALTERATION.

SCAFFOLDING, RIGGING AND HOISTING

UNLESS OTHERWISE SPECIFIED, CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES OF ANY EQUIPMENT AND APPARATUS FURNISHED.

THE CONTRACTOR SHALL REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.

HOUSEKEEPING

THIS CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING STOCK OF MATERIALS AND EQUIPMENT STORED ON PREMISES, AT LOCATIONS DESIGNATED FOR SUCH USE, IN A NEAT AND ORDERLY MANNER.

THIS CONTRACTOR SHALL AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSED BY HIS EMPLOYEES AT WORK. HE SHALL REMOVE HIS RUBBISH AND SURPLUS MATERIALS FROM THE JOB SITE AT THE END OF EACH WORK DAY AND SHALL LEAVE THE PREMISES AND HIS WORK IN A CLEAN AND ORDERLY CONDITION.

ALL MATERIAL SCHEDULED FOR REMOVAL IS TO BE DISPOSED OF IN A MANNER MEETING ALL FEDERAL, STATE, AND LOCAL REGULATIONS.

PROTECTION OF MATERIALS AND EQUIPMENTS

CLOSE PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION.

PROVIDE TEMPORARY CLOSURES ON OPEN ENDED DUCTS DURING CONSTRUCTION PERIOD.

TIGHTLY COVER AND PROTECT FIXTURES AND EQUIPMENT AGAINST DIRT, WATER AND CHEMICAL OR MECHANICAL INJURY.

AT COMPLETION OF ALL WORK, FIXTURES, EXPOSED MATERIALS AND EQUIPMENT SHALL BE THOROUGHLY CLEANED.

WORK NOT INCLUDED

ALL ELECTRICAL WORK
CUTTING AND PATCHING
LINTELS AND STRUCTURAL FRAMING
ALL CONCRETE WORK
ALL PAINTING

THIS CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH THE SIZES AND LOCATIONS OF CHASES AND OPENINGS WHICH OCCUR IN WALLS, PARTITIONS, FLOORS, ROOFS, ETC., REQUIRED FOR THE INSTALLATION OF THE WORK CALLED FOR UNDER THIS CONTRACT. THIS WORK WILL BE DONE BY THE GENERAL CONTRACTOR, EXCEPT CUTTING REQUIRED FOR THE INSTALLATION OF HANGERS.

SHOP DRAWINGS

PRIOR TO DELIVERY TO THE JOB SITE, BUT SUFFICIENTLY IN ADVANCE OF REQUIREMENTS NECESSARY TO ALLOW ENGINEER AMPLE TIME FOR REVIEW, CONTRACTOR SHALL SUBMIT FOR APPROVAL, FIVE (5) COPIES OF EACH SHOP DRAWING.

INDICATE ON EACH SUBMISSION:

1. PROJECT NAME AND LOCATION
2. ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF PRIME CONTRACTOR

ALL DUCTWORK SHOP DRAWINGS AND COORDINATION DRAWINGS SHALL BE SUBMITTED ON 3/8 IN SCALE DRAWINGS AND SHALL INCLUDE LOCATIONS AND SIZES OF EXISTING EQUIPMENT ALONG WITH NEW WORK. DRAWINGS SHALL INDICATE LOCATIONS OF HANGERS, SUPPORTS, EXPANSION JOINTS, GUIDES, ANCHORS AND ANCHOR LOADS.

COORDINATION DRAWINGS SHALL INDICATE ALL MEP EQUIPMENT, DUCTS AND PIPES AND PERTINENT ARCHITECTURAL ITEMS. MOUNTING HEIGHTS SHALL BE NOTED.

SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1. DUCTWORK LAYOUT, SHEET METAL DETAILS/STANDARDS
2. COORDINATION DRAWINGS

SUBMITTALS

PRIOR TO DELIVERY TO THE JOB SITE, BUT SUFFICIENTLY IN ADVANCE OF REQUIREMENTS NECESSARY TO ALLOW ENGINEER AMPLE TIME FOR REVIEW, CONTRACTOR SHALL SUBMIT FOR APPROVAL, FIVE (5) COPIES OF EACH SHOP DRAWING.

INDICATE ON EACH SUBMISSION:

1. PROJECT NAME AND LOCATION
2. ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF PRIME CONTRACTOR

SUBMIT SUBMITTALS ON THE FOLLOWING:

1. PIPING MATERIALS
2. PIPING SPECIALTIES
3. PIPING INSULATIONS
4. DUCT MATERIALS
5. DUCTWORK SPECIALTIES
6. DUCTWORK INSULATORS
7. AIR OUTLETS (RGD)
8. HEATING EQUIPMENT
9. AIR CONDITIONING EQUIPMENT
10. FANS
11. CONTROLS
12. HYDRONIC SYSTEMS BALANCING REPORTS
13. AIR SYSTEMS BALANCING REPORTS

EQUIPMENT DEVIATION

THE PLANS AND/OR SPECIFICATIONS INDICATE THE NAME, MODEL NUMBER OR TYPE OF EQUIPMENT OR MATERIALS SPECIFIED TO SET THE STANDARD OF THE EQUIPMENT FOR THE PROJECT. THE ENGINEER WILL ENTERTAIN THE USE OF OTHER MANUFACTURER'S EQUIPMENT OF LIKE FUNCTIONS AND EQUAL QUALITY. FINAL ACCEPTANCE OF SUBSTITUTES IS AT THE ENGINEER'S DISCRETION. SHOULD THE BIDDER DESIRE TO USE EQUIPMENT OR MATERIALS OR A MANUFACTURER OTHER THAN THOSE SPECIFIED OR SHOWN, HE SHALL ATTACH A RIDER TO THE BID FORM LISTING THE DEDUCTIONS AND/OR ADDITIONS TO HIS BASE BID, TOGETHER WITH THE MANUFACTURE'S NAME AND MODEL NUMBERS OF THE EQUIPMENT OR MATERIALS HE PROPOSED TO FURNISH AS 'SUBSTITUTES'. IF NO SUBSTITUTE INFORMATION IS FURNISHED, IT WILL BE EXPRESSLY UNDERSTOOD THAT ALL EQUIPMENT AND MATERIALS NAMED WILL BE FURNISHED IN FULL ACCORDANCE WITH THE PLANS AND/OR SPECIFICATIONS.

RECORD DRAWINGS

CONTRACTOR SHALL KEEP ACCURATE RECORD OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED PAYING PARTICULAR ATTENTION TO DIMENSIONING OUTSIDE UNDERGROUND UTILITY LINES, THEIR OFFSETS AND VALVES.

AT THE CLOSE-OUT OF THE PROJECT THE CONTRACTOR IS TO DELIVER TO THE OWNER TWO SETS OF "AS-BUILT" DRAWINGS COPIES OF ALL APPROVED SHOP DRAWINGS.

OWNER'S INSTRUCTIONS AND SYSTEM OPERATION

THE CONTRACTOR IS TO INSTRUCT THE OWNER, OR HIS REPRESENTATIVE, ON THE OPERATION AND MAINTENANCE PROCEDURES FOR ALL OF THE INSTALLED SYSTEMS AND EQUIPMENT. IN ADDITION TO THE VERBAL INSTRUCTIONS, THESE INSTRUCTIONS SHALL BE WRITTEN IN LAYMAN'S LANGUAGE AND SHALL BE INSERTED IN VINYL-COVERED THREE-RING LOOSE LEAF BINDER. THIS INFORMATION IN BINDER SHALL BE FIRST SENT TO AND APPROVED BY THE ARCHITECT/ENGINEER BEFORE TURNING OVER TO OWNER.

INSTALLATIONS

SLEEVES

PROVIDE NO. 22 GA. GALVANIZED IRON SLEEVES EXTENDED THROUGH CONSTRUCTION AT ALL PENETRATIONS THROUGH CEILINGS, WALLS AND PARTITIONS.

FOR INSULATED PIPING THE SLEEVE IS TO BE SIZED TO ALLOW INSULATION TO PASS THROUGH SLEEVE, PROVIDE 1/2 INCH SPACE BETWEEN PIPE AND/OR INSULATION AND SLEEVE.

FIRE SEAL ALL SLEEVES IN ACCORDANCE WITH BUILDING CODE AND APPLICABLE SECTIONS OF THE NFPA.

EXPANSION ANCHORS

SUSPEND HANGERS FROM EXPANSION ANCHORS IN SOLID CONCRETE SLABS SIMILAR TO HILTI HDI. PROVIDE HANGER IN PLACE WITH DOUBLE NUTS.

PROVIDE PROTECTION SHIELDS IN INSULATED PIPING. INSTALL HANGERS OVER INSULATION AND SHIELDS.

WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS, PROVIDE ADDITIONAL STEEL FRAMING AS REQUIRED AND REVIEWED.

HANGERS AND SUPPORTING

PIPE HANGING AND SUPPORTING - PIPING SHALL NOT BE SUPPORTED BY OTHER PIPING, BUT SHALL BE SUPPORTED WITH PIPE HANGERS SUITABLE FOR THE SIZE OF PIPE AND PROPER STRENGTH AND QUALITY AT PROPER INTERVALS SO THAT THE PIPING CANNOT BE MOVED ACCIDENTALLY FROM THE INSTALLED POSITION AS FOLLOWS:

PROVIDE CLEVIS HANGERS	AT CENTER OF CENTER SPACING (UNLESS OTHERWISE NOTED)
1/2 INCH PIPE OR TUBING	6 FEET
3/4 INCH OR 1 INCH PIPE OR TUBING	8 FEET
1-1/4 INCH OR LARGER (HORIZONTAL)	10 FEET

DUCT HANGING AND SUPPORTING - DUCTWORK SHALL NOT BE SUPPORTED BY OTHER DUCTWORK OR PIPING, BUT SHALL BE SUPPORTED WITH HANGERS OF TYPE AND AT SPACING AS PER SMACNA STANDARDS.

VIBRATION AND SEISMIC CONTROL

QUIET OPERATION - ALL WORK SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT ANY SOUND OR VIBRATION WHICH IS OBJECTIONABLE IN THE OPINION OF THE ENGINEER. IN CASE OF MOVING MACHINERY, SOUND OR VIBRATION NOTICEABLE OUTSIDE OF ROOM IN WHICH IT IS INSTALLED, OR ANNOYING INSIDE ITS OWN ROOM, WILL BE CONSIDERED OBJECTIONABLE BY THE ENGINEER AND SHALL BE REMEDIED IN APPROVED MANNER BY THE CONTRACTOR AT HIS EXPENSE.

PROVIDE FLEXIBLE PIPE CONNECTIONS AT ALL PIPING CONNECTED TO MOVING EQUIPMENT.

PROVIDE FLEXIBLE DUCT CONNECTIONS AT ALL DUCTWORK CONNECTED TO MOVING EQUIPMENT. FLEXIBLE CONNECTIONS SHALL BE 29 OZ. NEOPRENE COATED FIBERGLASS, 6" WIDE. BURNING PROPERTIES SHALL CONFORM TO NFPA 90A. FASTEN TO DUCTWORK PER MANUFACTURER'S RECOMMENDATIONS. FABRIC SHALL NOT BE STRESSED OTHER THAN BY AIR PRESSURE. ALLOW AT LEAST ONE INCH SLACK TO INSURE THAT NO VIBRATION IS TRANSMITTED.

PROVIDE VIBRATION ISOLATION SPRINGS OR PADS AT MOUNTING AND SUPPORTS FOR ALL EQUIPMENT CAPABLE OF TRANSMITTING VIBRATIONS.

IDENTIFICATION

ALL IDENTIFICATION LABELING IS TO COMPLY WITH ASME A13.1

ALL DUCTWORK IS TO BE LABELED WITH INDICATIONS OF SERVICE, DIRECTION OF FLOW AND ASSOCIATED SYSTEM DESIGNATION.

ALL EQUIPMENT IS TO HAVE PERMANENT LABELS INDICATING EQUIPMENT DESIGNATION.

DUCT INSTALLATION

SIZES AND APPROXIMATE LOCATION OF ALL DUCTS ARE SHOWN ON THE DRAWINGS. CHECK CAREFULLY WITH THE ARCHITECTURAL DRAWINGS, DRAWINGS SHOWING WORK OF OTHER TRADES, AND EXISTING FIELD CONDITIONS TO MAKE SURE THAT THERE WILL BE NO CONFLICT BETWEEN THESE TRADES AND THE DUCTS. DUCTS SHALL BE OFFSET AS REQUIRED TO CLEAR STRUCTURAL MEMBERS AND EXISTING FIELD CONDITIONS; IF NECESSARY, THE DIMENSIONS OF THE DUCT MAY BE ALTERED PROVIDED THE CROSS-SECTIONAL AREA IS IN NO CASE REDUCED.

FIELD QUALITY CONTROL

PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS ACCORDING TO SMACNA'S "HVAC AIR DUCT LEAKAGE TEST MANUAL" AND PREPARE TEST REPORTS:

DISASSEMBLE, REASSEMBLE AND SEAL SEGMENTS OF SYSTEMS TO ACCOMMODATE LEAKAGE TESTING AND FOR COMPLIANCE WITH TEST REQUIREMENTS.

CONDUCT TESTS AT STATIC PRESSURES EQUAL TO MAXIMUM DESIGN PRESSURE OF SYSTEM OR SECTION BEING TESTED. IF PRESSURE CLASSES ARE NOT INDICATED, TEST ENTIRE SYSTEM AT MAXIMUM SYSTEM DESIGN PRESSURE. DO NOT PRESSURIZE SYSTEMS ABOVE MAXIMUM DESIGN OPERATING PRESSURE. GIVE SEVEN DAYS ADVANCE NOTICE FOR TESTING.

MAXIMUM ALLOWABLE LEAKAGE: COMPLY WITH REQUIREMENTS FOR LEAKAGE CLASS 3 FOR ROUND AND FLAT-OVAL DUCTS. LEAKAGE CLASS 12 FOR RECTANGULAR DUCTS IN PRESSURE CLASSES LOWER THAN AND EQUAL TO 2-INCH WG (500 PA) (BOTH POSITIVE AND NEGATIVE PRESSURES), AND LEAKAGE CLASS 6 FOR PRESSURE CLASSES FROM 2- TO 10- WG (500 TO 2500 PA).

REMAKE LEAKING JOINTS AND RETEST UNTIL LEAKAGE IS EQUAL TO OR LESS THAN MAXIMUM ALLOWABLE.

MATERIALS

DISSIMILAR METALS

WHENEVER DISSIMILAR PIPING MATERIALS ARE CONNECTED THE TWO SHALL BE SEPARATED WITH AN 'INSULATION' CONNECTION (DIELECTRIC) FITTING.

PIPING

CONDENSATION DRAIN PIPING

TYPE DWV COPPER TUBING WITH DWV SWEAT FITTINGS OR PVC (EXCEPT IF LOCATED IN A SPACE USED AS AN AIR PLENUM)

REFRIGERANT PIPING

TYPE ACR SERVICE COPPER TUBING MEETING ASTM B280: HARD DRAWN (ANY SIZE) OR SOFT DRAWN (1-5/8" ID OR SMALLER), OR AS PER MANUFACTURER'S RECOMMENDATIONS.

PIPE INSULATION

THE FOLLOWING PIPING SYSTEMS ARE TO BE INSULATED:

STEAM SUPPLY PIPING
STEAM CONDENSATE RETURN PIPING WITHIN 10'-0" OF THE FLOOR
HEATING HOT WATER SUPPLY AND RETURN PIPING
CHILLED WATER SUPPLY AND RETURN PIPING
CONDENSATION DRAIN PIPING
REFRIGERANT SUCTION LINE PIPING

CONDENSATE DRAIN PIPING INSULATION

INSULATE WITH 1/2" THICK HEAVY DENSITY FIBERGLASS 25 ASJ WITH VAPOR BARRIER AND LAP ADHESIVE JACKET. INSULATION ON FITTINGS SHALL BE FIBERGLASS WITH PRE-MOLDED JACKET.

VALVES AND SPECIALTIES

BALANCING FITTINGS

PROVIDE "B & G" CIRCUIT SETTER BALANCING FITTINGS ON ALL WATER SYSTEMS WHENEVER REQUIRED FOR BALANCING OF SYSTEMS.

THERMOMETERS

SHALL BE TRERICE UNIVERSAL ANGLE TYPE #L80732, SOLID LIQUID FILLED, 4 ½" DIAL SIZE. FURNISH WITH SEPARABLE SOCKET WITH 2" EXTENSION NECK.

STEAM SPECIALTIES

ALL STEAM TRAPS AND SPECIALTIES TO BE B & G OR SARCO.

DUCTWORK

SHEET METAL DUCTWORK

ALL DUCTWORK SHALL BE CONSTRUCTED OF #1 QUALITY SHEETS OF GALVANIZED STEEL FREE OF CRACKS OR BLEMISHES. WHEN PITTSBURGING OR SNAP LOCKING A JOINT, THE GALVANIZED STEEL SHALL NOT BE CHIPPED OFF. ALL PARTS OF THE SHEET METAL DUCT SYSTEM SHALL BE OF THE GAGE, CONSTRUCTION, HANGING METHOD, AND INSTALLED IN STRICT ACCORDANCE WITH THE CURRENT EDITION OF THE SMACNA STANDARDS, INCLUDING DUCT LEAKAGE REQUIREMENTS.

DUCT INSULATION

SOUND (ACOUSTIC) INSULATION

PROVIDE INTERNAL SOUND INSULATION IN ALL DUCTS WITHIN 10'-0" OF THE DISCHARGE OF AN AIR HANDLING UNIT AND WHERE INDICATED ON THE DRAWINGS. THE DUCTWORK SHALL BE LINED WITH JOHNS MANVILLE PERMACOTE LINACOUSTIC. THICKNESS, UNLESS SPECIFIED OTHERWISE, SHALL BE 1". LINER SHALL BE APPLIED TO DUCT IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SMACNA GUIDELINES, LATEST EDITION WHERE SOUND INSULATION IS INDICATED, DUCTWORK SIZES DENOTED ARE THE INSIDE DIMENSIONS AFTER THE INSULATION HAS BEEN INSTALLED.

THERMAL INSULATION

COVER ALL CONCEALED UNLINED SUPPLY AIR AND OUTSIDE AIR DUCTWORK WITH FIBERGLASS DUCT WRAP HAVING A MIN. R-6, EQUAL TO JOHNS MANVILLE R-SERIES MICROLITE WITH F.R.G. VAPOR BARRIER. ALL SUPPLY DUCTS, LOCATED IN ATTIC SHALL BE INSULATED TO MINIMUM R-8. COVER ALL EXPOSED UNLINED SUPPLY AIR AND OUTSIDE AIR DUCTWORK WITH RIGID FIBERGLASS BOARD INSULATION HAVING MIN. R-6. PROVIDE ALL TAPE, MASTICS, SEALANTS, MOUNTING PINS, AND ETC. TO INSTALL INSULATION AS RECOMMENDED BY THE MANUFACTURER.

THERMAL INSULATION SCHEDULE

INSULATE DUCTS IN COMPLIANCE WITH THE INTERNATIONAL ENERGY CONSERVATION CODE. COMMERCIAL DUCTWORK SHALL BE INSULATED TO R-6 WHEN IN UNCONDITIONED SPACES AND R-8 WHEN LOCATED OUTSIDE THE BUILDING. COMMERCIAL DUCTWORK IN CONDITIONED SPACES DOES NOT REQUIRE INSULATION. RESIDENTIAL DUCTS OUTSIDE THE BUILDING ENVELOPE SHALL BE INSULATED TO A MINIMUM OF R-8. RESIDENTIAL DUCTWORK INSIDE THE BUILDINGS THERMAL ENVELOPE DOES NOT REQUIRE INSULATION. ALL EXTERIOR DUCTS TO BE INSULATED TO A MINIMUM OR R-8.

DUCT SEALING

SEAL ALL DUCTWORK IN COMPLIANCE WITH THE INTERNATIONAL ENERGY CONSERVATION CODE.

COMMERCIAL DUCTS, SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS.

RESIDENTIAL DUCTS, VERIFY DUCT LEAKAGE WITH POST CONSTRUCTION OR ROUGH-IN TEST. RESIDENTIAL DUCT LEAKAGE VERIFICATION NOT REQUIRED IF AIR HANDLER AND ALL DUCTS ARE LOCATED WITHIN "CONDITIONED SPACE."

DUCT ACCESSORIES

VOLUME DAMPERS

SINGLE BLADE OR OPPOSED BLADE MULTI-LOUVER TYPE AS DETAILED IN SMACNA STANDARDS. PROVIDE END BEARING FOR ALL DAMPERS. QUADRANT OR OTHER OPERATOR FOR EXTERNALLY INSULATED DUCT SHALL HAVE STAND-OFF MOUNT SO OPERATION IS CLEAR OF THE INSULATION. PROVIDE VOLUME DAMPER IN DUCTWORK AT ALL RUN-OUT DUCT TO EACH CEILING DIFFUSER, AT ALL BRANCH DUCTS AND WHERE INDICATED.

SMOKE AND/OR FIRE DAMPERS

PROVIDE SMOKE AND/OR FIRE DAMPERS AS REQUIRED, WHETHER INDICATED OR NOT, AT ALL FIRE AND SMOKE RATED PARTITIONS. REVIEW ARCHITECTURAL PLANS FOR DESIGNATIONS. FIRE DAMPERS SHALL BE RUSKIN IBD 2, VERTICAL OR HORIZONTAL, STYLE B OR STYLE C FOR ROUND DUCTS, OR EQUAL. EACH SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH NFPA 90A LATEST EDITION AND BEAR U.L. LABEL AND SHALL CONFORM TO BULLETIN #UL-555. INSTALL IN ALL RATED WALLS AND CEILINGS AS REQUIRED AND/OR INDICATED ON DRAWINGS.

DUCT ACCESS DOORS

PROVIDE ACCESS DOORS, SIZED AND LOCATED FOR MAINTENANCE WORK, UPSTREAM WHERE POSSIBLE, FOR EACH DUCT MOUNTED SMOKE DETECTOR AND EACH FIRE DAMPER OR DEVICE WITHIN THE DUCT THAT REQUIRES SERVICE OR INSPECTION. ACCESS SECTIONS IN INSULATED DUCTS SHALL BE DOUBLE-WALL, INSULATED. REFER TO SMACNA STANDARDS. PROVIDE LOCK TYPE 2 (DOOR LATCH, NOT SASH LOCK).

CONTROLS

GENERAL

PROVIDE ALL TEMPERATURE, OPERATION AND SAFETY CONTROLS, LOW VOLTAGE CONTROL WIRING, HARDWARE, SOFTWARE, AND ACCESSORIES NECESSARY TO ACHIEVE A FULLY OPERATIONAL HVAC CONTROL SYSTEM. POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

PROVIDE A PROGRAMMABLE THERMOSTAT(S) IN COMPLIANCE WITH THE INTERNATIONAL ENERGY CONSERVATION CODE INCLUDING SETBACK (55°F HEAT, 85° COOL) DEADBAND (5°F COMMERCIAL) AND TIMECLOCK (7 DAY COMMERCIAL)

TESTING AND BALANCING

GENERAL

COMPLETELY TEST AND BALANCE HOT AND CHILLED WATER SYSTEMS AND ALL SUPPLY, RETURN AND EXHAUST AIR SYSTEMS AND PROVE THE CAPACITIES OF THE SYSTEM AND THE SYSTEM COMPONENTS. SUBMIT RESULTS TO ENGINEER FOR APPROVAL

AIR SYSTEMS BALANCING

PROCURE THE SERVICES OF A CERTIFIED BALANCING CO. TO PERFORM THE TESTING AND BALANCING OF THE AIR SYSTEMS.

COMPLETELY TEST AND BALANCE ALL SUPPLY, RETURN AND EXHAUST AIR SYSTEMS AND PROVE THE CAPACITIES OF THE SYSTEM AND THE SYSTEM COMPONENTS. BALANCE THE GRILLES, REGISTERS, DIFFUSERS AND EQUIPMENT TO OBTAIN THE RESULTS INDICATED ON THE DWGS. SUBMIT A BALANCING REPORT INDICATING THE RESULTS TO ENGINEER FOR APPROVAL.

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Drawing Title:
GYM ADDITION MECHANICAL SPECIFICATIONS
Town of Bethany
Town of Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-3-23
Revised: -

Job: OMA 23251
Scale: N.T.S.
Drawn: IES
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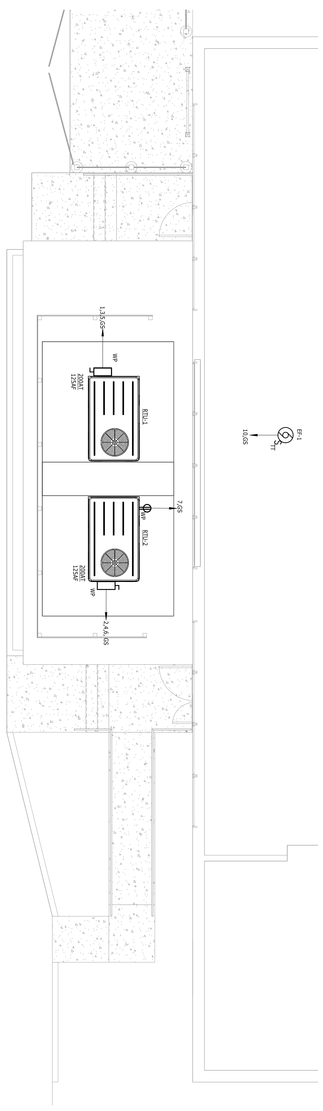
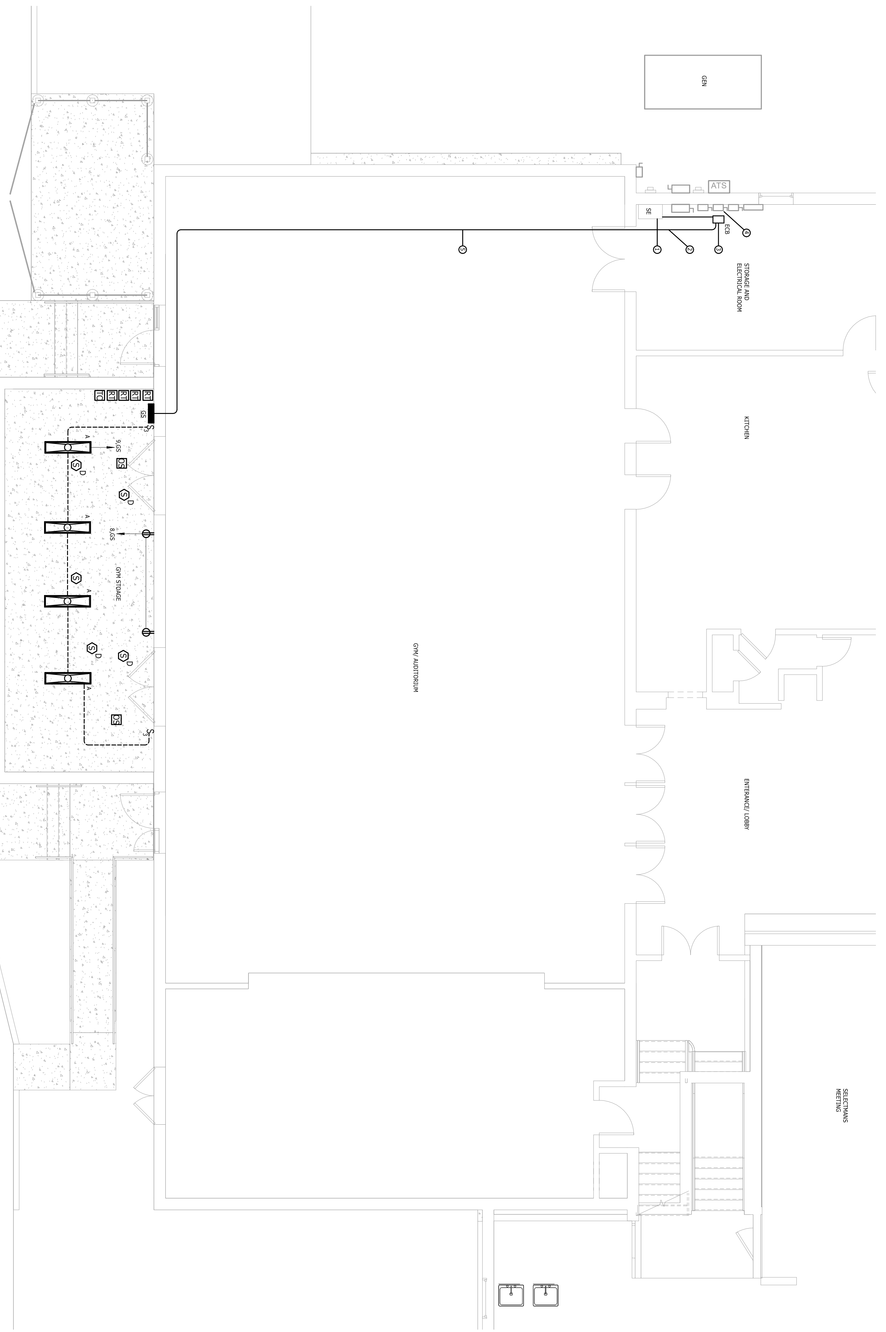
M201



ELECTRICAL ROOF PLAN

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



ELECTRICAL ADDITION FLOOR PLAN

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

DRAWING NOTES

1. EXISTING 208Y/ 120V, 3 PHASE, 4 WIRE 400A SERVICE ENTRANCE CABINET.
2. 3 1/2" C, 4# 350 KCMIL, 1#4G.
3. NEW 3P 300A ENCLOSED C.B.
4. EXISTING ABANDED METER SOCKET ENCLOSURE. JUNCTION BOX, CONDUIT & WIRING TO BE POWERED.
5. 3 1/2"C, 4#350 KCMIL, #4G. ROUTE IN ATTIC SPACE, EXACT ROUTING TO BE FIELD VERIFIED.

Drawing Number: E101

Job: OMA 23251

Scale: As indicated

Drawn: IES

Checked: PJP

Date: 11-3-23

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North Arrow:

Stamp:

Drawing Title:

GYM ADDITION ELECTRICAL PLANS

Town of Bethany

Town of Bethany, CT 06524

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PANEL (GS)

RATING: 208Y/120V 3 PHASE, 4W
MAIN BUS: ☒ CU ☐ AL 400A MAIN BUS
MAIN DEVICE: 400A MLO
INTERRUPTING RATING:

LOCATION: GYM STORAGE
MOUNTING: ☐ FLUSH ☒ SURFACE
TRIM: ☐ SINGLE DOOR ☒ DOOR-IN-DOOR

CKT. NO.	CKT. BKR. TRIP AMPS	CKT. BKR. POLES	DESCRIPTION	WIRE & CONDUIT	KVA	A	B	C	KVA	WIRE & CONDUIT	DESCRIPTION	CKT. BKR. POLES	CKT. BKR. TRIP AMPS	CKT. NO.
1	125	3	RTU-1	2" C, 4#1 #6G	13.7	27.4			13.7	2" C, 4#1 #6G	RTU-2	3	125	2
3	-	-		-	13.7		27.4		13.7	-	-	-	-	4
5	-	-		-	13.7			27.4	13.7	-	-	-	-	6
7	20	1	RECEPTACLE (ROOF)	3/4" C, 2#12, #12G	0.2	0.6			0.4	3/4" C, 2#12, #12G	RECEPTACLE (STORAGE)	1	20	8
9	20	1	LIGHTING (STORAGE)	3/4" C, 2#12, #12G	0.2		0.4		0.2	3/4" C, 2#12, #12G	EF-1 (ROOF)	1	20	10
11	20	1	SPARE	-	0.0			0.0	0.0	-	SPARE	1	20	12
13	20	1	SPARE	-	0.0	0.0			0.0	-	SPARE	1	20	14
15	20	1	SPARE	-	0.0		0.0		0.0	-	SPARE	1	20	16
17	20	1	SPARE	-	0.0			0.0	0.0	-	SPACE	1	-	18
19	-	1	SPACE	-	0.0	0.0			0.0	-	SPACE	1	-	20
21	-	1	SPACE	-	0.0		0.0		0.0	-	SPACE	1	-	22
23	-	1	SPACE	-	0.0			0.0	0.0	-	SPACE	1	-	24
				TOTALS PER PHASE		28.0	27.8	27.4						
				GRAND TOTAL	83.2									

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
S_3	THREE WAY TOGGLE SWITCH
S_{TT}	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
	DUPLEX RECEPTACLE (TAMPER RESISTANT)
	EXISTING PANELBOARD/LOAD CENTER
	208Y/120V PANEL
	REVENU METER
	CONDUIT AND WIRE
	CONDUIT AND WIRE, SWITCHED
	HOMERUN TO PANELBOARD, NUMBER/LETTERS INDICATE CIRCUIT AND PANELBOARD TERMINATION UNLESS OTHERWISE NOTED
M	MOTOR
OS	OCCUPANCY SENSOR
TC	TIME CLOCK SWITCH
S	FIRE ALARM SMOKE DETECTOR
S^D	FIRE ALARM DUCT SMOKE DETECTOR
RT	FIRE ALARM REMOTE TEST SWITCH

LIGHT FIXTURE SCHEDULE

LIGHTING FIXTURE TYPE A

MANUFACTURER ..... LITHONIA LIGHTING
CATALOG NO. BLWP4-48L-ADSM-120-EZ1-LP835
FIXTURE DESCRIPTION ..... LOW PROFILE LED WRAPAROUND
VOLTAGE 120
LAMP & DESIGNATION ..... 40 WATT, 5137 LUMENS, 3500K
DRIVER ..... ELECTRONIC
MOUNTING ..... SURFACE
HOUSING ..... ALUMINUM
LENS/LOUVER ..... VOLUMETRIC
REMARKS ..... -

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK REQUIRED FOR A COMPLETE, FULLY OPERABLE INSTALLATION. ALL WORK TO BE DONE IN ACCORDANCE WITH THE LATEST APPROVED ISSUE OF THE NFPA 70, NATIONAL ELECTRIC CODE (NEC) AND APPLICABLE LOCAL CODES.
2. THIS IS AN EXISTING BUILDING, WITH AN EXISTING SERVICE. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID TO ASCERTAIN FIELD CONDITIONS AS THEY EXIST AND JUDGE THEIR EFFECT ON THE WORK TO BE DONE. NO ALLOWANCE WILL BE MADE FOR FAILURE TO VISIT THE JOB SITE AND MAKE THIS DETERMINATION.
3. THE DRAWINGS SHOW THE GENERAL LAYOUT AND SOME OF THE DETAIL, BUT THEY DO NOT SHOW EVERY FITTING, BEND, ... ETC. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SUCH MATERIALS TO MAKE A COMPLETE INSTALLATION.
4. DO NOT SCALE DRAWINGS; ACTUAL FIELD MEASUREMENTS AND DIMENSIONS TAKE PRECEDENCE IN ALL CASES.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT, AIA DOCUMENT 201, LATEST EDITION.
6. ELECTRICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND OR REQUIREMENTS FOR PROPER OPERATION AND MAINTENANCE.
7. ELECTRICAL CONTRACTOR SHALL GIVE OWNER 10 DAYS ADVANCE NOTICE OF SHUTDOWNS. SHUTDOWNS TO BE KEPT TO A MINIMUM. AT NO TIME SHALL THE BUILDING/SPACE BE LEFT WITHOUT COMMERCIAL POWER IN FULL OPERATING ORDER.
8. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING OF ALL PHASES OF THE WORK AND TO DEMONSTRATE TO OWNER THAT THE EQUIPMENT IS IN FULL OPERATING ORDER.
9. ELECTRICAL CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED TO THEIR ORIGINAL CONDITION. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, PATCHING, PAINTING, CLEAN-UP, ELECTRICAL DEBRIS REMOVAL AND GENERAL COORDINATION OF THE WORK EFFORT AS REQUIRED FOR THE INSTALLATION OF THE ELECTRICAL ITEMS OF WORK.
10. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL IN COMPLETE WORKING ORDER.
11. THE SCOPE OF WORK IS AS SHOWN ON THE PLANS AND DETAILED IN THE SPECIFICATIONS.
12. ALL THE WIRE SIZES ARE BASED ON COPPER, ALUMINUM IS NOT TO BE USED.
13. ALL WIRING METHODS ARE TO BE IN ACCORDANCE WITH THE CURRENT ISSUE OF THE NATIONAL ELECTRICAL CODE, AND APPLICABLE LOCAL CODES. ALL WIRING IS TO BE IN CONDUIT, UNLESS SPECIFICALLY NOTED OTHERWISE. ALL WIRING IS TO BE CONCEALED.
14. PROVIDE INDEPENDENT SEISMIC SUPPORT OF ALL ELECTRICAL EQUIPMENT PER IBC CODE.
15. ELECTRICAL CONTRACTOR SHALL SECURE ALL PERMITS AND PAY FOR ALL REQUIRED FEES, INCLUDING ALL UTILITY FEES.
16. ELECTRICAL CONTRACTOR SHALL WARRANT AND GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.
17. ELECTRICAL CONTRACTOR SHALL PROVIDE PROOF OF LIABILITY AND PROPERTY INSURANCE TO THE OWNER, ALL DEDUCTIBLES SHALL BE PAID FOR BY THE ELECTRICAL CONTRACTOR IN THE EVENT OF A CLAIM.
18. PERSONNEL SAFETY IS OF PRIME IMPORTANCE. NO HAZARDOUS CONDITION MUST BE ALLOWED. EVERY CARE MUST BE TAKEN TO PROTECT CONSTRUCTION AND OTHER PERSONNEL. CLEANUP IS TO BE DONE ON A DAILY BASIS. ELECTRICAL CONTRACTOR TO REMOVE AND DISPOSE OF REFUSE FROM SITE.
19. ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL FOR ALL LIGHTING FIXTURES, PANELS, SWITCHES, RECEPTACLES, ... ETC.
20. ELECTRICAL CONTRACTOR TO VERIFY LIGHTING FIXTURE MOUNTING REQUIREMENTS FOR VARIOUS CEILING TYPES AND ORDER APPROPRIATE HARDWARE.
21. REMOVAL OF EXISTING ELECTRICAL EQUIPMENT, PANELS, SWITCHES, RECEPTACLES, CONDUIT, WIRE TIME CLOCKS, EMERGENCY LIGHTING UNITS, FIXTURES... ETC... ARE A PART OF THE SCOPE OF WORK. ALL UNUSED ELECTRICALS SHALL BE REMOVED AS MUCH AS POSSIBLE. THE ELECTRICAL PLANS DO NOT SHOW ALL OF THE ELECTRICAL REMOVAL WORK. PROVIDE TEMPORARY EXTENSION OF SYSTEMS THAT ARE TO BE REPLACED SO THAT CRITICAL SYSTEMS MAY BE KEPT IN PARTIAL OPERATION DURING THE CONSTRUCTION EFFORT.
22. COORDINATE EXACT PLACEMENT OF EQUIPMENT WITH ARCHITECTURAL AND MECHANICAL PLANS, MAKE FIELD ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS, VERIFY WITH OWNER.
23. ASBESTOS, 'TRANSITE' OR UNKNOWN MATERIAL ENCOUNTERED DURING THE CONSTRUCTION SUSPECTED TO BE ASBESTOS SHALL BE BROUGHT TO THE ATTENTION OF OWNER FOR DISPOSITION. STOP ALL WORK AND CONTACT OWNER IMMEDIATELY IN THIS EVENT.
24. ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECTURAL AND MECHANICAL CONTRACTOR FOR ITEMS SUPPLIED BY THE MECHANICAL/OTHER DIVISIONS BUT INSTALLED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO REVIEW ALL THE PLANS FOR THE PROJECT FOR ELECTRICAL WORK.
25. ELECTRICAL CONTRACTOR TO VERIFY ALL EQUIPMENT POWER NEEDS WITH THE ACTUAL SHOP DRAWINGS FOR THE EQUIPMENT TO BE USED, PRIOR TO STARTING ANY ELECTRICAL WORK.
26. ALL ELECTRICAL PENETRATIONS TO BE FIREPROOFED TO MAINTAIN INTEGRITY OF FIRE WALLS/FLOORS/CEILINGS.
27. PROVIDE LAMICOID NAMEPLATES FOR ALL ELECTRICAL DISTRIBUTION AND DISCONNECT EQUIPMENT.
28. THE DISPOSAL OF ALL UNUSED EXISTING ELECTRICAL EQUIPMENT REMOVED IS A PART OF THE SCOPE OF WORK. THE ELECTRICAL CONTRACTOR SHALL DISPOSE OF ALL SUCH EQUIPMENT, INCLUDING HAZARDOUS PCB CONTAINING BALLASTS, IN A MANNER CONSISTENT WITH STATE OF CT. DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS, CURRENT ISSUE.
29. SHARED NEUTRALS ARE NOT TO BE USED. PROVIDE SEPARATE NEUTRALS FOR ALL CIRCUITS.
30. PRIOR TO SUBMISSION OF BIDS GIVE WRITTEN NOTICE TO ARCHITECT AND ENGINEER OF ANY MATERIAL OR APPARATUS THAT IS INADEQUATE, UNSUITABLE FOR THE USE, IN VIOLATION OF LAWS, ORDINANCES, RULES, CODES OR ANY REGULATIONS OF AUTHORITIES HAVING JURISDICTION OR ANY NECESSARY ITEMS OF WORK THAT HAS BEEN OMITTED. CONTRACTOR AFFIRMS THAT ABSENT SUCH NOTICE, ALL SYSTEMS WILL FUNCTION SATISFACTORILY WITHOUT ADDITIONAL EXTRA COMPENSATION.
31. ALL PART NUMBERS ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THEY ARE NOT TO BE CONSIDERED THE COMPLETE SPECIFICATION OF THE PRODUCT. THE PART NUMBER AND DESCRIPTION WILL BE THE COMPLETE SPECIFICATION. IN THE EVENT OF A DISCREPANCY BETWEEN THE TWO, THE MORE STRINGENT, MORE COSTLY FEATURE/PERFORMANCE WILL BE REQUIRED.
32. FOR ALL ROOFTOP OR GRADE LEVEL HVAC EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL SUPPLY A GFCI WP, 20A RECEPTACLE FOR EQUIPMENT SERVICING. ALL DISCONNECT SWITCHES ARE TO BE HEAVY DUTY, FUSED, WEATHER PROOF (WP) DEVICES.
33. ALL WIRING IN AIR PLENUM CEILINGS SHALL BE TEFLON COATED AND RATED FOR USE WITHIN THE PLENUM.
34. NO LOW VOLTAGE WIRING SHALL BE PERMITTED IN THE SAME RACEWAY AS POWER WIRING.
35. PROVIDE DRAG LINES IN ALL EMPTY RACEWAYS.
36. CIRCUIT NUMBERS ARE INDICATED FOR INTENT ONLY. THE ELECTRICAL CONTRACTOR SHALL ADJUST ACCORDINGLY IN THE FIELD, TO BALANCE CIRCUITS EVENLY ON ALL PHASES.
37. REFER TO ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES AND OUTLETS.
38. FOR ALL WALL/CEILING BOXES FOR DATA COMMUNICATIONS PROVIDE 3/4"C EMPTY CONDUITS TO HUNG CEILING OR OTHER ACCESSIBLE SPACE. INSTALL A DRAG WIRE.
39. PROVIDE UPDATED DIRECTORY OF EACH AND EVERY EXISTING PANELBOARD/LOAD CENTER AFFECTED BY THIS ALTERATION.
40. MINIMUM CONDUCTOR SIZE FOR A FULLY LOADED 20A CIRCUIT, UNLESS OTHERWISE NOTED, SHALL BE #12 FOR ALL BRANCH CIRCUIT RUNS UP TO THE FIRST OUTLET; OVER 60 FEET, #10; OVER 105 FEET, #8; INCREASE CONDUIT SIZE TO SUIT.
41. ELECTRICAL CONTRACTOR TO VERIFY LOADS, SETTINGS, OVERCURRENT PROTECTION... ETC TO INSURE COMPATIBILITY OF EQUIPMENT.
42. DISCONNECT SWITCHES AND CIRCUIT BREAKER USED AS SWITCHES SHALL BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODES AND THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE "NEC" SECTION 404.8. ALL DISCONNECT SWITCHES AND CIRCUIT BREAKERS SHALL BE LOCATED SO THAT THEY MAY BE OPERATED FROM A READILY ACCESSIBLE PLACE. THEY SHALL BE INSTALLED SUCH THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE SWITCH OR CIRCUIT BREAKER, WHEN IN ITS HIGHEST POSITION, IS NOT MORE THAN 6'-7" ABOVE THE FLOOR OR WORKING PLATFORM
43. ALL DISCONNECT SWITCHES AND CIRCUIT BREAKER SHALL BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODES AND THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE "NEC" SECTION 110.26 TABLE 110.26(A)(1).
44. ALL NEW FIRE ALARM DEVICES SHALL MATCH THE EXISTING BUILDING STANDARD MANUFACTURER. THE FIRE ALARM SYSTEM'S SOFTWARE AND DISPLAY SHALL BE UPGRADED AS REQUIRED WITH NEW ROOM NAMES AND FLOOR PLAN LAYOUT. THE FIRE ALARM SYSTEM SHALL BE TESTED UPON COMPLETION OF ALL NEW AND/OR RELOCATED FIRE ALARM DEVICES ACCORDING TO [NFPA72 14.4.1.2.1.4] WHEN CHANGES ARE MADE TO SITE SPECIFIC SOFTWARE, THE FOLLOWING SHALL APPLY:
    (1) ALL FUNCTIONS KNOWN TO BE AFFECTED BY THE CHANGE, OR IDENTIFIED BY A MEANS THAT INDICATES CHANGES, SHALL BE 100 PERCENT TESTED.
    (2) IN ADDITION, 10 PERCENT OF INITIATING DEVICES THAT ARE NOT DIRECTLY AFFECTED BY THE CHANGE, UP TO A MAXIMUM OF 50 DEVICES, ALSO SHALL BE TESTED AND CORRECT SYSTEM OPERATION SHALL BE VERIFIED.
    (3) A REVISED RECORD OF COMPLETION IN ACCORDANCE WITH 10.18.2.1 SHALL BE PREPARED TO REFLECT THESE CHANGES.
45. IN ADDITION TO THE REQUIREMENTS SHOWN FOR LOW VOLTAGE EQUIPMENT AND RACEWAYS, THE ELECTRICIAN SHALL CARRY AN ALLOWANCE FOR FINAL COORDINATION AND INSTALLATION OF ALL RACEWAYS AND SLEEVES REQUIRED TO FACILITATE THE LOW VOLTAGE CONSULTANT WORK.

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ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL PROVISIONS FOR ELECTRICAL WORK

REFERENCES

THIS SECTION COVERS THE GENERAL REQUIREMENTS FOR ELECTRICAL WORK; EXAMINE ALL CONTRACT DRAWINGS AND ALL OTHER SECTIONS OF THE SPECIFICATIONS FOR ADDITIONAL WORK RELATED TO THE WORK OF THIS DIVISION.

DEFINITIONS

'PROVIDE' - TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION OF PARTICULAR WORK REFERRED TO UNLESS, SPECIFICALLY OTHERWISE NOTED.

'INSTALL' - TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

'WORK' - LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

'WIRING' - RACEWAY, FITTINGS, WIRE, BOXES, MOUNTING HARDWARE AND RELATED ITEMS.

'CONCEALED' - EMBEDDED IN MASONRY OR OTHER CONSTRUCTION CAVITY, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS.

'SIMILAR' OR 'EQUAL' - EQUAL MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

'CONTRACTOR' - THE ELECTRICAL CONTRACTOR.

'NOTED' - AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

SCOPE

THIS WORK SHALL CONSIST OF THE FURNISHINGS OF ALL LABOR, MATERIALS AND SERVICES REQUIRED COMPLETE, READY FOR CORRECT OPERATION FOR ALL ELECTRICAL WORK CALL FOR BY THE ACCOMPANYING DRAWINGS AND SPECIFICATIONS. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, STATE AND LOCAL CODES.

THE DATA INDICATED IN THESE DRAWINGS AND SPECIFICATIONS ARE AS EXACT AS COULD BE SECURED. BUT THEIR ABSOLUTE ACCURACY IS NOT GUARANTEED. DO NOT SCALE DRAWINGS. EXACT LOCATIONS, DISTANCES, LEVELS AND OTHER CONDITIONS WILL BE GOVERNED BY THE BUILDING. USE THE DRAWINGS AND SPECIFICATIONS FOR GUIDANCE AND SECURE THE ENGINEER'S APPROVAL OF CHANGES IN LOCATIONS. CIRCUITS, WHERE SHOWN ON AN ELECTRICAL DRAWINGS, ARE SO INDICATED PRIMARILY FOR THE PURPOSE OF INDICATING THE GENERAL CIRCUIT PLAN AND DO NOT NECESSARILY INDICATE THE EXACT LOCATION OF ROUTING OF THE RACEWAYS UNLESS SPECIFICALLY INDICATED. CIRCUITS SHALL BE RUN IN SUIT CONDITIONS CONSIDERING STRUCTURAL FEATURES, OTHER TRADES, CONSTRUCTION METHODS AND GOOD INSTALLATION PRACTICE.

BEFORE SUBMITTING A BID, THE CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS UNDER WHICH THE WORK AND WORK OF OTHER TRADES WILL BE INSTALLED. THIS CONTRACT INCLUDES ALL NECESSARY OFFSETS, TRANSITIONS, MODIFICATIONS AND RELOCATION REQUIRED TO INSTALL ALL NEW EQUIPMENT IN NEW OR EXISTING SPACES. CONTRACTOR SHALL INCLUDE ANY MODIFICATIONS REQUIRED IN EXISTING ELECTRICAL EQUIPMENT FOR INSTALLATION OF NEW ELECTRICAL EQUIPMENT AND NEW EQUIPMENT OF OTHER TRADES. (LIGHTING FIXTURES, DEVICES, CONDUIT WIRING, ETC.) ALL NEW AND EXISTING EQUIPMENT AND SYSTEMS SHALL BE FULLY OPERATIONAL UNDER THIS CONTRACT BEFORE THE PROJECT IS CONSIDERED COMPLETE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS THAT ARE MADE, ANY OMISSIONS OR ERRORS MADE AS A RESULT OF FAILURE TO VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS OF ALL TRADES.

CODES, REGULATIONS AND STANDARDS

ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING APPROVED CODES,REGULATIONS AND STANDARDS:

IBC - INTERNATIONAL BUILDING CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

IFC - INTERNATIONAL FIRE CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

2022 CONNECTICUT STATE FIRE SAFETY CODE

STATE DEMOLITION CODE

LOCAL BUILDING CODE

NFPA - NATIONAL FIRE PROTECTION CODE

NFPA 70 - NATIONAL ELECTRICAL CODE, 2020 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

NFPA 72 - NATIONAL FIRE ALARM CODE, 2019 EDITION

NFPA 99 - HEALTH CARE FACILITIES CODE, 2021 EDITION

NFPA 101 - LIFE SAFETY CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

IECC - INTERNATIONAL ENERGY CONSERVATION CODE, 2021, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

ICC/ANSI A117.1, 2017, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, AS AMENDED BY THE STATE OF CONNECTICUT 2018 AMENDMENTS.

ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE

ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS

OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

U.L. - UNDERWRITERS LABORATORIES

EPA - ENVIRONMENTAL PROTECTION AGENCY

IEEE - INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

PERMITS, FEES AND INSPECTIONS

THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, PAY FOR ALL GOVERNMENT, STATE SALES TAXES AND APPLICABLE FEES. THE CONTRACTOR SHALL FILE ALL DRAWINGS, COMPLETE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS FROM THE PROPER AUTHORITY OR AGENCY HAVING JURISDICTION. OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION COVERING WORK. THE CONTRACTOR SHALL SEE THAT ALL REQUIRED INSPECTIONS AND TESTS ARE MADE AND SHALL COOPERATE TO MAKE THESE TESTS AS THOROUGH AND AS READILY MADE AS POSSIBLE.

MATERIALS AND WORKMANSHIP

ALL MATERIALS AND APPARATUS REQUIRED FOR THE WORK, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE NEW AND OF FIRST-CLASS QUALITY. IT SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED, FINISHED IN EVERY DETAIL AND SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO THE BUILDING SPACES. WHERE NO SPECIFIC KIND OR QUALITY MATERIAL IS GIVEN, A FIRST-CLASS STANDARD ARTICLE AS ACCEPTED BY THE ENGINEER SHALL BE FURNISHED.

ALL EQUIPMENT AND MATERIALS SHALL BE SPECIFICATION GRADE AND BEAR THE UNDERWRITER'S LABEL. NO SUBSTITUTE OR ALTERNATE EQUIPMENT, MATERIAL, ETC. WILL BE CONSIDERED FOR THIS PROJECT.

ALL WORK SHALL BE OF A QUALITY CONSISTENT WITH GOOD TRADE PRACTICE AND SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER. THE ENGINEER/OWNER RESERVES THE RIGHT TO REJECT ANY WORK WHICH, IN HIS OPINION, HAS BEEN INSTALLED IN A SUBSTANDARD, DANGEROUS OR IN A UNSERVICEABLE MANNER. THE CONTRACTOR SHALL REPLACE REJECTED WORK IN A SATISFACTORY MANNER AT NO EXTRA COST TO THE OWNER.

GUARANTEES

ALL WORKMANSHIP AND MATERIALS SHALL BE FULLY GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE ENTIRE INSTALLATION COVERED BY THIS CONTRACT. SHOULD ANY DEFECTS OCCUR DURING THE GUARANTEED PERIOD, THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ALL DEFECTIVE EQUIPMENT, MATERIAL AND/OR WORK AT NO EXTRA CHARGE TO THE OWNER.

RECORD DRAWINGS

MAINTAIN, AT THE JOB SITE, A SET OF ELECTRICAL DRAWINGS INDICATING ALL CHANGES IN LOCATION AND CIRCUITING OF THE EQUIPMENT, PANELS, DEVICES, ETC. FROM THE ORIGINAL LAYOUT. CLEARLY MARK IN RED ALL CHANGES ON THE DRAWINGS. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL TURN OVER THE RECORD DRAWINGS TO THE ENGINEER/OWNER.

COORDINATION

ALL WORK SHALL BE COORDINATED AND CARRIED OUT IN CONJUNCTION WITH ALL TRADES AND FULL COORDINATION DRAWINGS SHALL BE CREATED IN ORDER THAT ALL WORK MAY PROCEED WITH A MINIMUM OF DELAY AND INTERFERENCE.

SHOP DRAWINGS

SUBMIT ELECTRONIC PDF FORMAT OR EIGHT (8) COPIES FOR REVIEW, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIAL SPECIFIED. THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMISSION TO THE ENGINEER FOR REVIEW. NO MATERIAL OR EQUIPMENT MAY BE DELIVERED TO THE JOB SITE OR INSTALLED UNTIL CONTRACTOR HAS IN THEIR POSSESSION, APPROVED SHOP DRAWINGS FOR THE PARTICULAR MATERIAL OR EQUIPMENT. SHOP DRAWINGS SHALL BE SPECIFIC WITH ITEMS SUBMITTED FOR APPROVAL CLEARLY IDENTIFIED.

THE FOLLOWING IS A LIST OF ELECTRICAL ITEMS THAT MUST BE SUBMITTED FOR REVIEW:

a. PANELBOARDS
b. SAFETY/DISCONNECT SWITCHES
c. CIRCUIT BREAKERS
d. LIGHTING
e. FUSES
f. CONDUIT, WIRE AND CABLE
g. FIRE ALARM EQUIPMENT
h. DEVICES (RECEPTACLES, TOGGLE SWITCHES, ETC.)

OPERATING INSTRUCTIONS

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, FOUR (4) COMPLETE BOUND SETS OF TYPEWRITTEN OR BLUEPRINTED INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT INCLUDED IN THIS DIVISION. MANUFACTURER'S ADVERTISING LITERATURE OR CATALOGS WILL NOT BE ACCEPTABLE FOR OPERATING AND MAINTENANCE INSTRUCTIONS.

THE CONTRACTOR, IN THE ABOVE-MENTIONED INSTRUCTIONS, SHALL INCLUDE THE MAINTENANCE SCHEDULE FOR THE PRINCIPAL ITEMS OF EQUIPMENT FURNISHED UNDER THIS DIVISION.

AN AUTHORIZED MANUFACTURER'S REPRESENTATIVE SHALL ATTEST IN WRITING THAT HIS EQUIPMENT HAS BEEN PROPERLY INSTALLED PRIOR TO STARTUP. THESE LETTERS WILL BE BOUND INTO OPERATING AND MAINTENANCE BOOKS.

EQUIPMENT PROTECTION

PROPERLY AND COMPLETELY PROTECT AGAINST ALL DAMAGE, ALL APPARATUS, EQUIPMENT, ETC., INCLUDED IN THIS CONTRACT. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO FURNISHED APPARATUS, EQUIPMENT, ETC., UNTIL FINAL ACCEPTANCE.

PROPERTY PROTECTION

THE CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY AND/OR REQUIRED TO PROTECT OWNER'S PROPERTY WITHIN THE WORKING AREAS FROM DUST, DEBRIS AND OTHER MATTER GENERATED BY THE WORK. NO WORK SHALL COMMENCE IN AREAS WHERE PROTECTION IS REQUIRED UNTIL APPROVAL HAS BEEN GIVEN TO THE CONTRACTOR BY THE OWNER.

MANUFACTURER'S INSTRUCTION

INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS FOR PROPER OPERATION AND MAINTENANCE.

EQUIPMENT PAINTING AND CLEANING

THOROUGHLY CLEAN ALL ELECTRICAL EQUIPMENT DEVICES AND ENCLOSURES UPON COMPLETION OF ALL WORK. REPAINT ANY EQUIPMENT WHOSE FINISH IS DAMAGED OR RUSTED. MATCH MANUFACTURER'S ORIGINAL FINISH.

DEMOLITION/REMOVAL AND RECONNECTION

BEFORE SUBMITTING A BID, THE CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS UNDER WHICH HIS WORK WILL BE INSTALLED.

ALL EXISTING ACTIVE CIRCUITS WHICH FEED EQUIPMENT OR DEVICES THAT ARE TO REMAIN, SHALL BE MAINTAINED IN SERVICE AND SHALL BE PERMANENTLY REFED.

ALL ITEMS BEING REMOVED SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE UNLESS OTHERWISE INDICATED. EQUIPMENT AND DEVICES THE OWNER DOES NOT WISH TO RETAIN SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

ALL MATERIAL CHOSEN TO BE RETAINED BY THE OWNER SHALL BE DELIVERED BY THE CONTRACTOR TO SUCH POINT AS DESIGNATED BY THE OWNER.

MATERIAL TO BE REUSED SHALL BE CAREFULLY REMOVED AND STORED AND SHALL BE REINSTALLED IN AS-FOUND CONDITION EXCEPT AS OTHERWISE INDICATED ON THE PLANS. DAMAGE OR LOSS OF MATERIAL TO BE REUSED SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REPAIRED OR REPLACED WITH THE EQUIVALENT MATERIAL ACCEPTABLE BY THE OWNER.

DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL WORK IN CONTRACT AREA AS INDICATED ON DRAWINGS.

ALL WIRING AND CABLING SHALL BE REMOVED BACK TO ORIGINATION PANEL, UNLESS OTHERWISE INDICTED.

CONTRACTOR SHALL KEEP PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL AND RUBBISH, AND AT COMPLETION OF WORK DAY, SHALL REMOVE ALL RUBBISH AND IMPLEMENTS TO A DESIGNATED LOCATION, IF AVAILABLE, LEAVING WORK AREAS BROOM CLEAN. UNUSED OUTLET BOXES AND PLASTER RINGS SHALL BE PROVIDED WITH BLANK COVER PLATES AND MATCH DEVICE PLATES WITHIN THE ROOM.

PENETRATION SEALANT

ALL PENETRATIONS SHALL BE SEALED WITH 3M INTUMESCENT FIRE BARRIER PENETRATION SEALANT, APPLIED PER MANUFACTURER'S AND U.L. GUIDELINES.

CUTTING, PATCHING, REPAIRING AND PAINTING

THE GENERAL CONTRACTOR SHALL PERFORM ALL CUTTING, PATCHING, REPAIRING AND PAINTING FOR ALL ELECTRICAL ITEMS AND EQUIPMENT CALLED FOR UNDER THIS CONTRACT.

FIRE STOPS AND SEALS

PENETRATIONS THROUGH FIRE-RATED WALLS, CEILING OR FLOORS IN WHICH CABLES OR CONDUITS PASS SHALL BE FILLED SOLIDLY BY U.L. APPROVED FIRE-STOP MATERIALS, CLASSIFIED FOR AN HOUR RATING EQUAL TO THE FIRE RATING OF THE WALL, CEILING OR FLOOR. PROVIDE TO 3M BRAND FIRE BARRIER CP25WB CAULK OR APPROVED EQUIVALENT.

SEALING BUSHINGS SHALL BE USED ON CONDUIT AND CABLE ENDS TO EFFECTIVELY PREVENT THE INTRUSION OF WATER, A DAMP OR CORROSIVE ATMOSPHERE, DRAFT OR DUST.

ACCESS PANELS

THE CONTRACTOR SHALL FURNISH AND INSTALL ACCESS PANELS AND DOORS AS REQUIRED FOR ACCESS TO INACCESSIBLE PULLBOXES, JUNCTION BOXES AND OTHER SPECIALTIES.

THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF ACCESS PANELS AND DOORS WITH THE GENERAL CONTRACTOR AND OTHER TRADES. FINAL LOCATIONS SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.

PART 2 - PRODUCTS

DESCRIPTION

ALL MATERIALS AND EQUIPMENT PROVIDED UNDER THIS SECTION SHALL BE NEW, FIRST GRADE, BEST OF THEIR RESPECTIVE KINDS AND IN NO WAY SHALL THEY BE LESS THAN THE QUALITY AND INTENT SET FOURTH UNDER THIS SECTION. THEY SHALL MEET THE REQUIREMENTS OF ALL STANDARDS SET UP TO GOVERN THE MANUFACTURER OF ELECTRICAL MATERIALS AND COMPLY WITH ALL APPLICABLE CODES AND STANDARDS.

WIRE

CONDUCTORS SHALL BE U.L. LISTED, 600 VOLTS, 90 DEG. C., SINGLE CONDUCTOR TYPE THWN/THHN. 98% CONDUCTIVITY, ANNEALED UNCOATED COPPER WITH PVC INSULATION COVERED WITH NYLON SHEATH JACKET. TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF UNDERWRITERS LABORATORIES STANDARD 83. WIRE SHALL BE IDENTIFIED BY SURFACE MARKING INDICATING MANUFACTURER'S IDENTIFICATION CONDUCTOR SIZE AND METAL, VOLTAGE RATING, U.L. SYMBOL AND TYPE DESIGNATION. CONDUCTORS SHALL BE STRANDED. MINIMUM SIZE SHALL BE #12 AWG UNLESS OTHERWISE INDICATED. MANUFACTURED BY ROME CABLE, TRIANGLE WIRE & CABLE, GENERAL CABLE OR ESSEX WIRE & CABLE.

RIGID GALVANIZED STEEL CONDUIT (RGS)

RIGID STEEL CONDUIT SHALL BE FULL WEIGHT, HEAVY WALL STEEL PIPE WITH GALVANIZED PROTECTIVE COATING. MANUFACTURED BY TRIANGLE WIRE AND CABLE, ALLIED TUBE AND CONDUIT, REPUBLIC OR STEELDUCT. CONDUIT FITTINGS SHALL BE MALLEABLE IRON, CADMIUM PLATED WITH FULL THREADED HUBS.

ELECTRIC METALLIC TUBING (EMT)

ELECTRICAL METALLIC TUBING SHALL BE GALVANIZED THIN WALL STEEL CONDUIT. MANUFACTURED BY TRIANGLE WIRE AND CABLE, ALLIED TUBE AND CONDUIT, REPUBLIC OR STEELDUCT. THE CONNECTORS AND COUPLINGS SHALL BE HEAVY DUTY, STEEL-ZINC PLATED, SET SCREW TYPE.

FLEXIBLE METALLIC CONDUIT (FMC)

FLEXIBLE METALLIC CONDUIT SHALL BE OF HEAVY GALVANIZED SHEET METAL STRIP IN INTERLOCKED CONSTRUCTION. MANUFACTURED BY TRIANGLE WIRE AND CABLE, AMERICAN FLEXIBLE CONDUIT OR ELECTRIC-FLEX. THE CONNECTORS SHALL BE SQUEEZE TYPE MALLEABLE IRON, CADMIUM PLATED.

LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC)

LIQUID-TIGHT FLEXIBLE CONDUIT SHALL BE CONSTRUCTED OF HEAVY GALVANIZED SHEET METAL STRIP, SPIRALLY-WOUND INTERLOCK CONSTRUCTION WITH AN EXTRUDED POLYVINYL GRAY JACKET. CONDUIT SHALL BE U.L. LABELED AND CONFORMED TO THE APPLICATION AND ENVIRONMENT IN WHICH IT WILL BE USED. ALL CONNECTIONS, COUPLINGS AND FITTINGS SHALL BE OF HIGH QUALITY STEEL-ZINC RATED TYPE SPECIFICALLY DESIGNED FOR THIS PURPOSE. MANUFACTURED BY O/Z GEDNEY OR ELECTRI-FLEX.

METAL CLAD CABLE (MC)

METAL CLAD CABLE SHALL BE INTERLOCKING GALVANIZED STEEL ARMOR CONSTRUCTION. COLOR CODED THERMOPLASTIC/NYLON INSULATION THHN, 90 DEGREE C., 600 VOLTS, COPPER CONDUCTORS AND INTERNAL INSULATED EQUIPMENT COPPER GROUND CONDUCTOR. MARKER TAPE AND CABLE TAPE OVER MINIMUM SIZE #12 AWG UNLESS OTHERWISE INDICATED. MANUFACTURED BY AMERICAN FLEXIBLE CONDUIT, TRIANGLE WIRE AND CABLE, GENERAL CABLE OR STANDARD CABLE.

FITTINGS

CONDUIT BODIES FOR RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE MALLEABLE IRON-ZINC PLATED WITH TAPERED HUBS AND GASKETED ALUMINUM COVER.

CONDUIT BODIES FOR ELECTRICAL METALLIC TUBING (EMT) SHALL BE CAST ALUMINUM-ALUMINUM ENAMEL FINISH WITH SET SCREW HUBS AND ALUMINUM COVER.

INSULATION BUSHINGS SHALL BE HIGH IMPACT THERMOPLASTIC PHENOLIC WITH 150 DEG. C. UL TEMPERATURE RATING.

INSULATED GROUNDING BUSHINGS SHALL BE MALLEABLE IRON ZINC PLATED WITH MOLDED ON PHENOLIC INSULATION AND LAY-IN GROUNDING LUG.

CONDUIT LOCKNUTS SHALL BE HEAVY NUT STOCK STEEL-ZINC PLATED.

OFFSET NIPPLES SHALL BE MALLEABLE IRON ZINC PLATED WITH RIGID CONDUIT THREADING AND 3/4" OFFSET.

CONNECTORS AND COUPLINGS FOR ELECTRICAL METALLIC TUBING (EMT) SHALL BE HEAVY STEEL-ZINC PLATED WITH PRE-SET/PRE-SHAKED SET SCREWS.

CONDUIT STRAPS SHALL BE SNAP-TYPE, DOUBLE RIBBED STEEL-ZINC PLATED.

METAL CLAD CABLE AND FLEXIBLE METALLIC CONDUIT CONNECTORS SHALL BE MALLEABLE IRON-ZINC PLATED, MALE HUB THREADS WITH LOCKNUT.

CONDUIT FITTINGS SHALL BE MANUFACTURED BY O/Z GEDNEY, CROUSE-HINDS OR APPLETON.

SUPPORT FITTINGS

SUPPORT CHANNEL SHALL BE ROLL-FORMED #12 GAUGE STEEL, SOLID BASE OR BOLT HOLE BASE - HOT DIP GALVANIZED FINISH. COMPLETE WITH ANGLE FITTINGS, SPRING NUTS, CONDUIT SUPPORTS, 3/8" OR 1/2" THREADED RODS (SIZE REQUIRED FOR LOAD), ETC.

CABLE TIES

CABLE TIES SHALL BE FABRICATED OF ONE-PIECE HALLAR WITH NO METAL PARTS. MANUFACTURED BY BURNDY, T&B, PANDUIT OR BLACKBURN.

FUSES

FUSES SHALL NOT BE INSTALLED UNTIL EQUIPMENT IS READY TO BE ENERGIZED. THIS MEASURE PREVENTS FUSE DAMAGE DURING SHIPMENT OF THE EQUIPMENT FROM THE MANUFACTURER TO THE JOB SITE.

ALL FUSES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. FUSES SHALL BE OF THE SAME MANUFACTURER, COPPER BUSSMAN, FERRAZ SHAWMUT OR LITTLEFUSE. FUSE TYPES DESCRIBE BELOW SHALL BE U.L. LISTED DUAL ELEMENT TIME DELAY TYPE.

CIRCUIT 0 TO 600 AMPERE SHALL BE PROTECTED BY DUAL ELEMENT, TIME DELAY, CURRENT LIMITING FUSES WITH AN INTERRUPTING RATING OF 200,000 A.I.C. U.L. LISTED CLASS 'RK1'.

MOTOR CIRCUITS SHALL BE PROTECTED BY DUAL ELEMENT, TIME DELAY, CURRENT LIMITING FUSES WITH AN INTERRUPTING RATING OF 200,000 A.I.C. U.L. LISTED CLASS 'RK1'.

FUSES SHALL HAVE VOLTAGE RATING BASED ON DISTRIBUTION REQUIREMENT SYSTEMS.

OUTLET BOXES

OUTLET BOXES SHALL BE GALVANIZED STEEL, FLUSH OR SURFACE MOUNTED AND OF PROPER TYPE AND SIZE AS REQUIRED FOR THE PARTICULAR APPLICATION. SIZE AND TYPE DICTATED BY THE NUMBER OF DEVICES, NUMBER OF CONDUCTORS AND WIRING METHOD UTILIZED. BOXES SHALL BE ADEQUATE SIZE FOR THE INSTALLATION OF CONDUCTORS WITHOUT EXCESSIVE BENDING OR CRIMPING OF THE CONDUCTORS AND DAMAGING OF CONDUCTOR INSULATION. MANUFACTURED BY STEEL CITY OR RACO.

OUTLET BOXES SHALL BE SECURED FIRMLY IN PLACE TO THE BUILDING STRUCTURE AND SET TRUE AND SQUARE. PROVIDE SUITABLE MEANS TO SUPPORT OUTLET BOX TO TAKE THE WEIGHT OF THE LIGHTING FIXTURE OR DEVICE. OUTLET BOXED OR BOX EXTENSION RINGS SHALL BE SET FLUSH TO THE FINISHED WALL OR CEILING. BOXES MUST BE ATTACHED THAT THEY WILL NOT 'ROCK', 'SHIFT' OR 'MOVE IN AND OUT' WHEN DEVICES ARE USED. IN NO CASE SHALL BOXES BE INSTALLED BACK-TO-BACK IN A COMMON WALL DIVIDING TWO SPACES.

WHERE MORE THAN ONE OUTLET IS SHOWN OR SPECIFIED TO BE THE SAME ELEVATION OR ONE ABOVE THE OTHER, ALIGN THEM EXACTLY ON CENTER LINES HORIZONTALLY OR VERTICALLY.

PANELBOARDS

PANELBOARDS SHALL BE THE COMBINATION THERMAL/MAGNETIC CIRCUIT BREAKER TYPE, 3 PHASE, 4 WIRE WITH THE NUMBER OF BRANCH CIRCUITS AS INDICATED ON THE SCHEDULES. PROVIDE WITH FULLY RATED HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVE PHASE AND GROUND BUS. LUGS SIZED TO ACCOMMODATE WIRE QUALITY AND SIZES. PANELS SHALL BE U.L. LISTED. DOOR-IN-DOOR DESIGN. BOXES SHALL BE CORROSION RESISTANT, ZINC FINISH GALVANIZED. FRONTS SHALL BE REINFORCED STEEL POWDER FINISH PAINTED LIGHT GRAY (ANSI-61) AND SHALL BE EQUIPPED WITH CONCEALED HINGES AND CONCEALED TRIM ADJUSTING SCREWS. DIRECTORY CARD HOLDERS SHALL BE CORROSION-PROOF VALOX WITH RETRACTABLE LATCH, KEYED ALIKE. PHASE BUS SHALL BE SEQUENCED AND FULLY INSULATED RATINGS SHALL BE DISPLAYED ON THE DEAD FRONT SHIELD AND TOTALLY VISIBLE WITH THE DOOR OPEN. REFER TO SCHEDULES FOR OTHER REQUIREMENTS.

CIRCUIT BREAKERS

BRANCH CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, (PLUG-IN) (BOLT-IN) THERMAL MAGNETIC TYPE WITH VISIBLE CURRENT RATING AND TRIP POSITION. MANUFACTURED BY ABB, SIEMENS, SQUARE 'D' OR CUTLER HAMMER. REFER TO SCHEDULES FOR AIC RATING.

FOR CIRCUIT BREAKER SIZES 100 AMPS AND LARGER PROVIDE THE FOLLOWING:
ELECTRONIC TRIP CIRCUIT BREAKERS WITH RMS SENSING; FIELD-REPLACEABLE RATING PLUG OR FIELD-REPLICABLE ELECTRONIC TRIP; AND THE FOLLOWING FIELD-ADJUSTABLE SETTINGS:

1. INSTANTANEOUS TRIP
2. LONG AND SHORT TIME PICKUP LEVELS
3. LONG AND SHORT TIME ADJUSTMENTS

ALL MULTI-POLE BREAKERS SHALL BE EQUIPPED WITH HANDLE TIES FOR MULTI-POLE USE.

PHASE SEQUENCE AND BALANCING

MAINTAIN CORRECT PHASE SEQUENCE OF ALL FEEDERS AND CIRCUITS WITH PHASE IDENTIFICATION THROUGHOUT THE ENTIRE SYSTEM. BALANCING ALL FEEDERS AND CIRCUITS TO WITHIN 10 PERCENT.

SAFETY/DISCONNECT SWITCHES

DISCONNECT/SAFETY SWITCHES SHALL BE MOTOR RATED, METAL ENCLOSED, INTERLOCKING, FUSIBLE OR NONFUSED AS INDICATED. HEAVY DUTY TYPE, WITH APPROPRIATE VOLTAGE RATINGS, QUICK-MAKE, QUICK-BREAK MECHANISMS, SOLID NEUTRAL AND U.L. LISTED. SWITCHES SHALL HAVE PROPER TYPE METAL ENCLOSURES; STANDARD, WEATHERPROOF, DUSTPROOF, ETC., TO SUIT THEIR SPECIFIC LOCATIONS. MANUFACTURED BY ABB, SIEMENS, SQUARE 'D', OR CUTLER HAMMER.

JUNCTION BOXES, PULLBOXES AND WIREWAYS

JUNCTION BOXES, PULLBOXES AND WIREWAYS SHALL BE OF PROPER TYPE AND SIZES AS REQUIRED. CODE GAUGE, GALVANIZED STEEL WITH KNOCKOUTS AND FLANGES TO RECEIVE THE COVERS. COVERS SHALL BE FLAT, OF THE SAME MATERIAL AS THE BOX AND FASTENED TO THE BOX WITH MACHINE SCREWS. MANUFACTURED BY HOFFMAN, SQUARE 'D', OR LEE PRODUCTS.

BACKBOARDS

BACKBOARDS SHALL BE FIRE RETARDENT, HICKSON CO. (DRI-CON) 3/4 INCH TYPE AS PLYWOOD OF SUFFICIENT SIZE FOR MOUNTING OF SPECIFIED EQUIPMENT. PAINT ALL SIDES WITH TWO (2) COATS OF FIRE-RETARDENT GRAY ENAMEL PAINT.

WIRING DEVICES

ALL DEVICES SHALL BE COMMERCIAL SPECIFICATION GRADE, U.L. LISTED, SELF-GROUNDING, GROUND LUG, SIDE/BACK WIRED. COLOR SHALL BE SELECTED BY ARCHITECT OR OWNER UNLESS OTHERWISE INDICATED. MANUFACTURED BY HUBBELL, LEVITON, OR PASS & SEYMOUR.

DEVICES COLOR SHALL BE SELECTED BY ARCHITECT OR OWNER UNLESS OTHERWISE INDICATED FOR NORMAL POWER CIRCUITS AND RED FOR EMERGENCY POWER CIRCUITS.

RECEPTACLES THAT HAVE A POWER FEED THRU (FEED IN - FEED OUT) ARRANGEMENT SHALL BE PIGTAILED. FEED THRU FEATURE ON DUPLEX RECEPTACLES USE IS NOT ACCEPTABLE.

SWITCHES: 20A 120/277V	HUBBELL	LEVITON	PASS & SEYMOUR
RECEPTACLES: 20A 125V	HUBBELL	LEVITON	PASS & SEYMOUR
DUPLEX RECEPTACLE	BR20	5362	CRB5362
DUPLEX RECEPTACLE - GFCI	GF20 AL	7899	2095
DUPLEX RECEPTACLE - IG	IG20CR	5362IG	IG5362
DUPLEX RECEPTACLE - TP	CR20	TBR20	TR20
DUPLEX RECEPTACLE (HG)	HBL8300H	8300H	8300H
DUPLEX RECEPTACLE (HG GFCI)	GFR8300HLA	7899-HG	2095HG
DUPLEX RECEPTACLE (HG) RED	HBL8300HR	8300HR	8300HRED
DUPLEX RECEPTACLE (HG) IG	IG8300	8300-IG	IG8300
DUPLEX RECEPTACLE (HG) TR	HBL8300SGA	8300-SG	TR63H

WALL PLATES FOR SWITCHES AND RECEPTACLES SHALL BE SMOOTH THERMOPLASTIC OR NYLON IN FURNISHED AREAS. COLOR TO MATCH DEVICES. MANUFACTURED BY HUBBELL OR LEVITON.

WALL PLATES FOR SWITCHES AND RECEPTACLES SHALL BE STAMPED STEEL FOR FURNISHED AREAS. MANUFACTURED BY HUBBELL.

WALL PLATES FOR SWITCHES AND RECEPTACLES SHALL HAVE PANELBOARD AND CIRCUIT DESIGNATION ENGRAVED AT TOP OF PLATE.

RECEPTACLES LOCATED IN WET LOCATIONS SHALL BE INSTALLED WITH AN OUTLET ENCLOSURE CLEARLY MARKED 'SUITABLE FOR WET LOCATIONS WHILE IN USE'. THERE MUST BE A GASKET BETWEEN THE COVER AND THE BASE TO ASSURE A PROPER SEAL. THE ENCLOSURE MUST EMPLOY STAINLESS STEEL MOUNTING HARDWARE AND BE CONSTRUCTED OF IMPACT RESISTANT POLYCARBONATE. THE OUTLET ENCLOSURE SHALL BE U.L. LISTED. MANUFACTURED BY HUBBELL, OR APPROVED EQUAL.

OCCUPANCY SENSORS

OCCUPANCY SENSOR SWITCHES SHALL BE RATED FOR 120/277 VOLT AND BE CAPABLE OF SWITCHING ZERO TO 600 WAns OF ELECTRONIC BALLAST LOADS WITH TIME DELAY SETIINGS FROM 30 SECONDS TO 20 MINUTES. SENSOR SWITCHING RELAY SHALL BE TV-5 RATED OR HIGHER. MANUFACTURED BY SENSOR SWITCH, INC., WATT-STOPPER OR HUBBELL. COLOR SELECTED BY ARCHITECT.

	HUBBELL	SENSOR SWITCH, INC.	WATT-STOPPER
CEILING MOUNTED SENSOR	ADT1000C	CMPDT10	DT-300

LIGHTING FIXTURES

FURNISH AND INSTALL ALL LIGHTING FIXTURES AS SPECIFIED ON THE SCHEDULES, COMPLETE WITH ALL ACCESSORIES AND MOUNTING HARDWARE. THE FIXTURES SHOWN ARE MARKED AS TYPE A.

CLEAN AND REMOVE ALL PAINT, STICKERS, DIRT, SMUDGES AND FINGERPRINTS FROM LIGHTING FIXTURES AFTER FINAL BUILDING CLEAN-UP.

POWER AND CONTROL WIRING

FURNISH AND INSTALL ALL POWER WIRING, CONTROL WIRING (120VAC), CONDUIT AND FITTINGS FOR ALL PLUMBING, HEATING AND VENTILATING AND AIR CONDITIONING EQUIPMENT AND FINAL CONNECTIONS. MANUAL MOTOR STARTERS SHALL BE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. EVERY MOTOR SHALL BE PROVIDED WITH RUNNING OVERLOAD PROTECTION. UPON COMPLETION OF WORK, CHECK OUT EACH ITEM. ITEMS TO BE CHECKED ARE VOLTAGE, ROTATION AND OVERLOAD PROTECTION.

PART 3 - EXECUTION

INSTALLATION

ALL WORK, MATERIALS AND MANNER OF INSTALLING SAME SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.

ALL CONDUIT AND WIRING SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.

WIRING IN UNFINISHED AREAS SHALL BE INSTALLED EXPOSED USING EMT OR RGS CONDUIT.

WIRING IN FINISHED AREAS SHALL BE INSTALLED IN WIREMOLD RACEWAY.

RACEWAYS

RACEWAYS, ENCLOSURES AND BOXES SHALL BE MECHANICALLY JOINED TO FORM A CONTINUOUS ELECTRICAL PATH.

THE CONTRACTOR SHALL PROVIDE APPROVED TYPE PULL BOXES AS REQUIRED.

MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.

FURNISH NYLON PULL STRINGS IN ALL EMPTY CONDUIT RUNS.

FURNISH LOCKNUTS AND BUSHINGS FOR ALL CONDUIT TERMINATIONS IN ALL OUTLET BOXES, PANELS, PULL BOXES, CONDUIT STUBS, ETC.

RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE USED FOR WIRING IN THE FOLLOWING LOCATIONS:

1. EXPOSED TO MOISTURE AND MECHANICAL DAMAGE
2. EXTERIOR INSTALLATIONS

ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED FOR CONCEALED AND EXPOSED WIRING IN DRY LOCATIONS AS FOLLOWS:

1. INTERIOR PANEL FEEDERS
2. EXPOSED TO MOISTURE WITH WATER PROOF COMPRESSION FITTINGS
3. INTERIOR LIGHTING, RECEPTACLE AND POWER BRANCH CIRCUIT WIRING

EXTERIOR FEEDERS SHALL BE INSTALLED IN RGS CONDUIT.

ALL CONDUIT SHALL BE INSTALLED IN PARALLEL AND PERPENDICULAR TO THE BUILDING LINES.

ALL CONDUIT SHALL BE SUPPORTED USING CADMIUM PLATED CONDUIT STRAPS AND HANGERS.

SEPARATE CONDUIT SYSTEMS SHALL BE INSTALLED FOR NORMAL AND EMERGENCY POWER.

WIRING

PROVIDE WIRING TO ALL OUTLETS, EQUIPMENT, APPARATUS AND OTHER SPECIALTIES UNDER THIS DIVISION THAT WHICH FURNISHED OR PROVIDED UNDER OTHER DIVISIONS OR BY THE OWNER.

THE TERM 'WIRING' SHALL BE CONSIDERED TO BE COMPRISED OF THE CONDUIT, CONDUCTORS, CONNECTIONS, ETC.

ALL WIRING ON DRAWINGS IS SIZED FOR TYPE THWN/THHN COPPER CONDUCTORS.

MINIMUM SIZE WIRE SHALL BE #12 UNLESS OTHERWISE INDICATED. ALL WIRING SHALL BE COLOR CODED.

EXERCISE CAUTION IN PULLING CONDUCTORS INTO RACEWAYS SO AS NOT TO DAMAGE THE INSULATION. CABLE PULLING LUBRICANT SHALL BE USED TO ASSIST IN PULLING.

CONDUCTOR WITHIN PANELBOARDS, JUNCTION BOXES, TROUGHS AND OTHER EQUIPMENT WHERE CONCENTRATIONS OF CONDUCTORS ARE ENCLOSED, SHALL BE NEATLY ARRANGED AND TIED WITH CABLE TIES.

CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS THAT THE TOTAL LOAD IS DISTRIBUTED AS NEATLY AS POSSIBLE, EQUALLY BETWEEN EACH LINE AND NEUTRAL. 10% WILL BE CONSIDERED A REASONABLE AND ALLOWABLE UNBALANCE.

BRANCH CIRCUIT WIRING FOR SWITCHES, RECEPTACLES, DEVICES AND LIGHTING IN DRYWALL CONSTRUCTION AND ACCESSIBLE HUNG CEILING SPACE, HOME-RUN CIRCUIT SHALL BE INSTALLED WITHIN EMT RACEWAY, BRANCH WIRING WITHIN PARTITIONS SHALL BE IN METAL SHEATHED 'MC' TYPE CABLE. CABLE SHALL BE SUPPORTED FROM STRUCTURE 4" O.C. WITH APPROVED CABLE SUPPORTS. PROVIDE APPROPRIATE GROMMETS FOR HORIZONTAL RUNS IN METAL STUD PARTITIONS. CABLE SHALL NOT LAY ON CEILING STRUCTURE OR TILES. PROVIDE ANTI-SHORT BUSHINGS (RED HEAD) UNDER ARMOR JACKET AT TERMINATIONS.

COMMON NEUTRAL FOR MULTIPLE BRANCH CIRCUITS IS NOT ACCEPTABLE. PROVIDE SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT.

WIRING IN OUTLET BOXES, JUNCTION BOXES, CABINET PANELBOARDS OR EQUIPMENT SHALL HAVE A MINIMUM OF EIGHT (8") INCHES LENGTH LEADS FOR CONNECTING WIRING DEVICES TO MAKE UP CIRCUIT SPLICES.

PROVIDE FLEXIBLE METAL CONDUIT FOR DRY TYPE TRANSFORMER CONNECTIONS. LENGTH OF FLEXIBLE METAL CONDUIT DO NOT EXCEED THREE FEET (3').

INSTALL COPPER GREEN INSULATED GROUNDING CONDUCTOR IN ALL CONDUITS AND RACEWAYS.

SPLICING

SPLICING SHALL BE DONE WITH INSULATED OR NON-INSULATED CONNECTORS OF APPROPRIATE TYPES AND CURRENT-CARRYING CAPACITY. NON-INSUALTED CONNECTORS SHALL BE WRAPPED WITH INSULATING TAPE TO THE THICKNESS OF THE INSULATION OF THE CONDUCTORS BEING SPLICED. ELECTRICAL TAPE SHALL BE 3M OR SUPER 88 SCOTCH VINYL FLAME-RETARDANT , COLD AND WEATHER RESISTANT.

SPLICES FOR CONDUCTORS, SIZES #10 AWG OR SMALLER SHALL BE MADE WITH U.L. LISTED SPRING-TYPE CONNECTORS OR APPROPRIATE CURRENT CARRYING CAPACITY.

SPLICES, TAPS AND TERMINALS FOR CONDUCTORS #8 AWG OR LARGER SHALL BE MADE WITH U.L. LISTED BOLTED PRESSURE CONNECTORS OF BRONZE OR COPPER CONSTRUCTION, OF APPROPRIATE CURRENT CARRYING CAPACITY. EQUAL TO O/Z GEDENY, BURNDY OR BLACKBURN.

CONDUCTOR IDENTIFICATION

CONDUCTORS #8 AWG AND SMALLER SHALL HAVE A COLOR-CODED INSULATION.

CONDUCTORS #6 AWG AND LARGER SHALL BE IDENTIFIED WITH TAPES APPLIED NEAR THE ENDS OF THE CONDUCTORS.

FEEDERS AND BRANCH CIRCUIT CONDUCTORS SHALL BE IDENTIFIED FOR PHASE ROTATION.

	208/120V/3PH
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

ALL FEEDERS, MAINS AND BRANCH CIRCUIT CONDUCTORS SHALL BE TAGGED AT BOTH ENDS WITH WIRE MARKERS IN ALL PANELS, MOTOR CONTROLS, JUNCTION BOXES, OUTLET BOXES AND DEVICE BOXES.

IDENTIFICATION

FURNISH AND INSTALL NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT, IDENTIFYING ITEMS BY NAME, FUNCTION AND/OR CONTROL.

IDENTIFYING NAMEPLATES SHALL BE LAMINATED, PLASTIC TYPE, CONSISTING OF TWO BLACK PLASTIC SHEETS WITH ONE WHITE PLASTIC SHEET BONDED TO AND BETWEEN THE TWO OUTER BLACK SHEETS AND HAVING THE LETTERS ENGRAVED IN ONE BLACK TO THE DEPTH OF THE WHITE PLASTIC. FASTEN NAMEPLATES TO EQUIPMENT WITH SUITABLE ADHESIVES OR STAINLESS STEEL SCREWS.

ALL PANELS SHALL HAVE TYPEWRITTEN CIRCUIT DIRECTORIES IDENTIFYING ALL BRANCH CIRCUITS. PROVIDE ADDITIONAL COPY OF COMPLETE UPDATED PANEL DIRECTORY TO FACILITY ENGINEERING.

USE PLASTIC-COATED WIRE MARKERS OF THE SELF-ADHESIVE. WRAPAROUND TYPE WITH PERMANENT FACTORY-PRINTED NUMBER, LETTERS AND SYMBOLS.

WIRE MARKERS SHALL BE SECURELY ATTACHED AT BOTH ENDS, IDENTIFYING PANEL AND CIRCUIT BREAKER NUMBERS.

ALL CONDUCTORS SHALL BE PERMANENTLY TAGGED AT TIME OF INSTALLATION. LABELS SHALL BE EQUAL TO T&B, PANDUIT OR IDEAL.

GROUNDING

ALL ELECTRICAL WORK SHALL BE GROUNDED AND BONDED IN FULL CONFORMANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE AND LOCAL REQUIREMENTS.

ALL ELECTRICAL EQUIPMENT, TRANSFORMERS, PANELBOARD ENCLOSURES, MOTOR FRAMES, SAFETY SWITCHES, METAL ENCLOSURES, ELECTRICAL DEVICE CLOSURES AND ALL OTHER EQUIPMENT SHALL BE MADE TO FORM A CONTINUOUS CONDUCTING, GROUND PATH OF LOW IMPEDANCE FOR GROUND FAULT CIRCUITS AND OPERATION OF THE CIRCUIT PROTECTIVE DEVICES WITHIN EACH CIRCUIT.

PROVIDE GROUNDING CONDUCTOR IN ALL RACEWAYS.

GROUND CONNECTIONS WITH THE GROUNDING CONDUCTORS SHALL BE MADE AT EACH OUTLET BOX, LIGHTING FIXTURE, MOTOR AND OTHER EQUIPMENT COMPONENTS BY MEANS OF A POSITIVELY SECURED GROUNDING CLAMP, SCREW OR CLIP. CONNECTIONS TO GROUNDING RODS, OTHER GROUNDING ELECTRODE CONDUCTORS SHALL BE MADE WITH CADWELL TYPE, EXOTHEMIC WELD PROCESS UNLESS OTHERWISE NOTED. CONNECTIONS TO PIPES SHALL BE MADE WITH APPROVED BRONZE OR BRASS CLAMPS.

BONDING SHALL BE PROVIDED TO ASSURE ELECTRICAL CONTINUITY AND THE CAPACITY TO SAFELY CONDUCT ANY FAULT CURRENT LIKELY TO BE IMPOSED.

ALL DEVICES (SWITCHES, RECEPTACLES, ETC.), SHALL BE GROUNDED TO CONDUIT SYSTEM WITH SIX (6") INCH SOLID COPPER #12 AWG INSULATED WIRE (GREEN) CONNECTED TO GROUND SCREW IN DEVICE AND FASTENED TO BACKBOX WITH 10-32x3/8" SLOTTED HEXAGON HEAD WASHER FACE GROUND WITH GREEN DYE FINISH.

SEISMIC RESTRAINT

SEISMIC LATERAL RESTRAINTS DESIGNED TO RESIST HORIZONTAL MOVEMENT IN ANY DIRECTIONS SHALL BE INSTALLED IN ALL SUSPENDED CONDUITS 2-1/2 INCHES IN DIAMETER OR GREATER. QUANTITY AND LOCATION OF THE LATERAL RESTRAINTS SHALL BE BASED ON THE CONDUIT SYSTEM LAYOUT AND IN GENERAL, SHALL BE INSTALLED AT CONDUIT BENDS, JUNCTION BOXES AND APPROXIMATELY EVERY 20 FEET ALONG CONDUIT RUNS. SEISMIC LATERAL RESTRAINTS ARE NOT REQUIRED FOR ANY PIPING SUSPENDED BY INDIVIDUAL HANGERS 12 INCHES OR LESS IN LENGTH FROM TOP OF PIPING TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.

END OF ELECTRICAL SPECIFICATIONS

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Drawing Title:
GYM ADDITION ELECTRICAL SPECIFICATIONS
Town of Bethany
Town of Bethany', CT 06524

Stamp:

North Arrow:

Date: 11-3-23
Revised: -

Job: OMA 23251
Scale: 12" = 1'-0"
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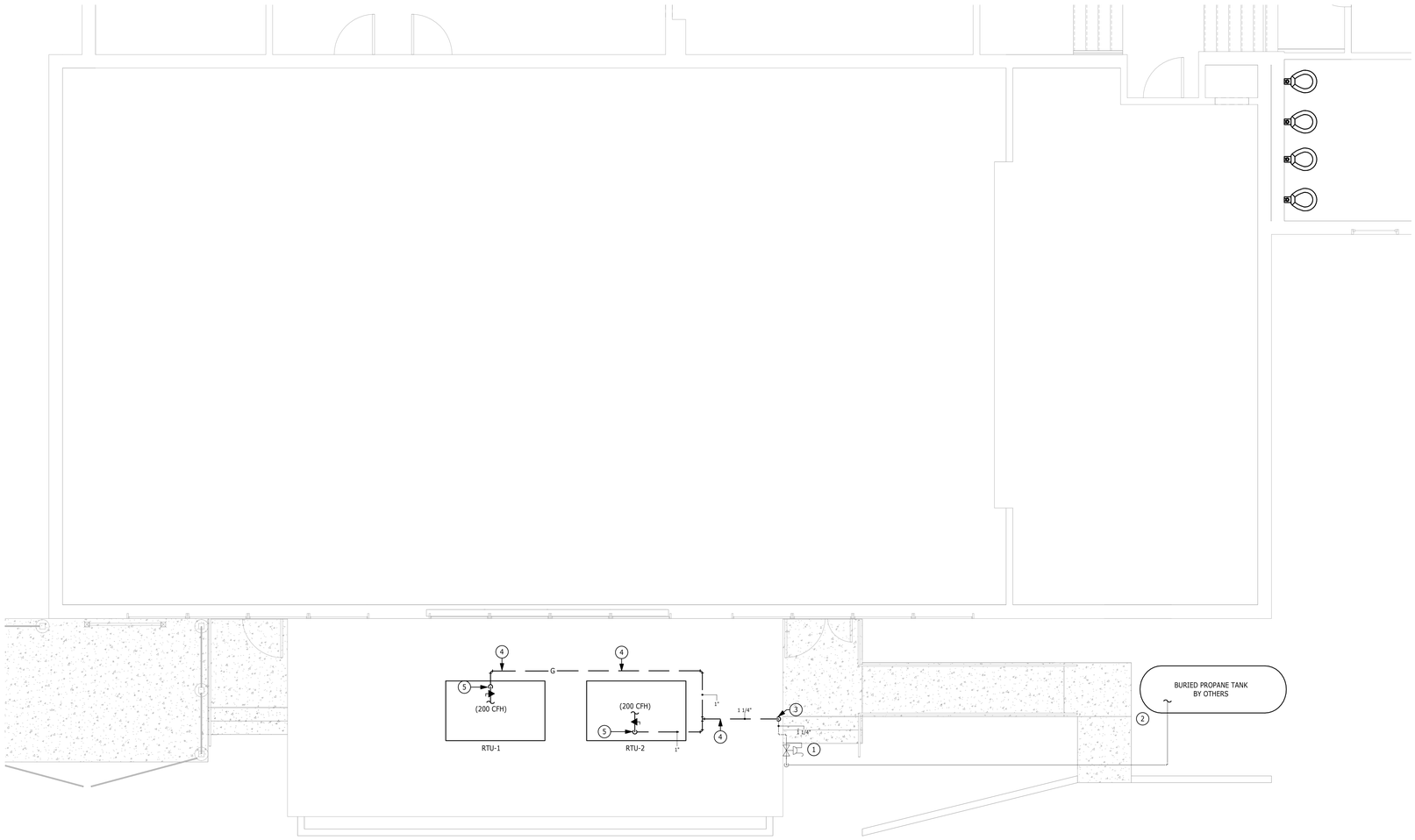

PLUMBING ADDITION FLOOR PLAN

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

PLUMBING DRAWING NOTES

1. PROPANE PRESSURE REDUCING VALVE MOUNTED ABOVE GRADE ON EXTERIOR WALL BY PROPANE VENDOR COMPANY. PROPANE REQUIRED SHALL BE 400 CFH @ 45" - 14" W.C.
2. APPOROXIMATE LOCATION OF PROPANE UNDERGROUND PIPING, AND TANK BY PROPANE VENDOR COMPANY.
3. 1-1/4" PROPANE UP WITHIN EXTERIOR WALL.
4. PROVIDE PROPANE GAS PIPING BELOW ROOF IN SPACE BELOW.
5. PROVIDE 1" PROPANE GAS PIPING FROM SPACE BELOW UP INSIDE OF RTU. COORDINATE FINAL CONNECTIONS WITH HVAC CONTRACTOR.

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Drawing Title: **GYM ADDITION PLUMBING PLANS**

Town of Bethany

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PLUMBING SPECIFICATIONS

TECHNICAL REQUIREMENTS

THESE SPECIFICATIONS CALL OUT CERTAIN DUTIES OF THE CONTRACTOR AND HIS SUBCONTRACTOR. THEY ARE NOT INTENDED AS SUBCONTRACT DOCUMENTS, NOR ARE THEY INTENDED AS A MATERIAL LIST OF ITEMS REQUIRED BY THE CONTRACT.

PROVIDE ALL ITEMS AND WORK CALLED FOR IN THIS DIVISION OF THE SPECIFICATIONS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THIS INCLUDES ALL INCIDENTALS, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, SUPERVISION LABOR, CONSUMABLE ITEMS, FEES, LICENSES, ETC., NECESSARY TO PROVIDE COMPLETE SYSTEMS. PERFORM START UP AND CHECK OUT EACH ITEM AND SYSTEM TO PROVIDE FULLY OPERABLE SYSTEMS.

INTENT OF DRAWINGS

DO NOT SCALE DRAWINGS. CHECK EXISTING SPACE CONDITIONS AT THE JOB SITE.

CODES AND STANDARDS

INTERNATIONAL BUILDING CODE IBC, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

INTERNATIONAL PLUMBING CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

NFPA 101, LIFE SAFETY CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

NFPA 54: NATIONAL FUEL GAS CODE, 2021 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

NFPA 70: NATIONAL ELECTRICAL CODE, 2020 EDITION, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

CONNECTICUT DEPARTMENT OF PUBLIC HEALTH CODE.

OCCUPATIONAL SAFETY AND HEALTH STANDARDS.

DEPARTMENT OF ENVIRONMENTAL PROTECTION.

INTERNATIONAL ENERGY CONSERVATION CODE, 2021, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

STATE DEMOLITION CODE.

LOCAL BUILDING CODE.

ICC/ANSI A117.1, 2017, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, AS AMENDED BY THE STATE OF CONNECTICUT 2022 AMENDMENTS.

COMPLY WITH ALL APPLICABLE GOVERNMENTAL REGULATIONS. COMPLY WITH ALL FEDERAL, STATE, CITY, INSURANCE UNDERWRITERS AND OTHER APPLICABLE CODES AND ORDINANCES. IF ANY CONFLICT ARISES BETWEEN THESE SPECIFICATIONS, CODES AND ORDINANCES, IMMEDIATELY NOTIFY THE ENGINEER. DO NOT DEVIATE FROM THE SPECIFICATIONS NOR INSTALL ANY WORK WHICH MAY BE IN CONFLICT WITH CODES AND ORDINANCES UNTIL THE CONFLICT IS RESOLVED AND THE SOLUTION APPROVED BY THE ENGINEER.

SUBMITTALS

PRODUCT DATA: SUBMIT MANUFACTURER'S TECHNICAL PRODUCT DATA, INCLUDING RATED CAPACITIES OF SELECTED MODEL CLEARLY INDICATED, FURNISHED SPECIALTIES AND ACCESSORIES; AND INSTALLATION INSTRUCTIONS.

SHOP DRAWINGS: SUBMIT MANUFACTURER'S ASSEMBLY TYPE SHOP DRAWINGS INDICATING DIMENSIONS, ROUGHING-IN REQUIREMENTS, REQUIRED CLEARANCES, AND METHODS OF ASSEMBLY OF COMPONENTS AND ANCHORAGES.

PROVIDE SHOP DRAWING SUBMITTALS OF ALL PLUMBING MATERIALS.

CERTAIN TERMS SUCH AS "SHALL, PROVIDE, INSTALL, COMPLETE, START-UP" ARE NOT USED IN SOME PARTS OF THESE SPECIFICATIONS. THIS DOES NOT INDICATE ITEMS SHALL BE LESS THAN COMPLETELY INSTALLED OR THAT SYSTEMS SHALL BE LESS THAN COMPLETE.

PERMITS AND FEES

SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS AND APPROVALS.

ADJUSTMENTS

UPON COMPLETION OF WORK, PERFORM THE FOLLOWING ADJUSTMENT PROCEDURES:

ADJUST SYSTEMS COMPONENTS FOR PROPER PERFORMANCE.
OPEN AND CLOSE VALVES, SET IN PROPER OPERATING POSITION.

ACCESSIBILITY

PLACE VALVES, UNIONS, DRAINS, AND ITEMS REQUIRING MAINTENANCE, ADJUSTMENT, OR REPAIR, IN ACCESSIBLE LOCATIONS. COORDINATE ACCESS PANELS WITH ARCHITECT.

REFERENCE PUBLICATIONS

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) AND AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) PUBLICATIONS ARE REFERRED TO HEREIN, BECAUSE THESE PUBLICATIONS ARE REVISED FREQUENTLY, DATES FOLLOWING PUBLICATION NUMBERS HAVE BEEN OMITTED. REFER TO LATEST EDITION.

COORDINATION OF WORK

TRANSMIT TO OTHER TRADES ALL INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR INSTALLATION.

WHEREVER WORK INTERCONNECTS WITH WORK OF OTHER TRADES, COORDINATE WITH OTHER TRADES TO INSURE THAT ALL TRADES HAVE THE INFORMATION NECESSARY SO THEY MAY PROPERLY INSTALL ALL THE NECESSARY CONNECTIONS AND EQUIPMENT. IDENTIFY ALL WORK ITEMS (VALVES, DRAINS, ETC.) IN AN APPROVED MANNER IN ORDER THAT THE CEILING SUBCONTRACTOR WILL KNOW WHERE TO INSTALL ACCESS DOORS AND PANELS.

CONSULT WITH OTHER TRADES REGARDING EQUIPMENT SO, WHEREVER POSSIBLE, MOTORS AND CONTROL ARE OF THE SAME MANUFACTURER.

FURNISH AND SET ALL SLEEVES FOR PASSAGE OF PIPES AND CONDUITS THROUGH STRUCTURAL MASONRY AND CONCRETE WALL AND FLOORS, AND ELSEWHERE AS WILL BE REQUIRED FOR THE PROTECTION OF EACH PIPE PASSING THROUGH BUILDING SURFACES.

PROVIDE REQUIRED SUPPORTS AND HANGERS FOR PIPING, FIXTURES AND EQUIPMENT, SO LOADING WILL NOT EXCEED ALLOWABLE LOADINGS OF STRUCTURE.

CONFORM THE PLUMBING WORK TO THE REQUIREMENTS HEREIN. PROVIDE OFFSETS, FITTINGS, DRAINS, AND ACCESSORIES WHICH MAY BE REQUIRED. INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK, AND ARRANGE THE WORK ACCORDINGLY. PROVIDE SUCH PIPING, FITTINGS, VALVES AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.

PIPING IDENTIFICATION

CONSPICUOUSLY IDENTIFY NEW PIPING WITH SELF-ADHERING VINYL PLASTIC COLOR BANDS AND PIPE MARKERS IMPRINTED WITH LEGEND, BASED ON ANSO A13.1 "SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS".

APPLY LEGENDS TO FEED AND CROSS MAIN PIPING ADJACENT TO CHANGES IN DIRECTION WHERE PIPES PASS THROUGH WALLS OR FLOORS, AT INTERVALS NOT EXCEEDING 40 FEET IN STRAIGHT PIPING RUNS, AND ADJACENT TO CROSS MAIN CONNECTIONS WITH FEED MAIN.

MINIMUM LETTER SIZE:

1/2" FOR PIPING 3/4" TO 1-1/4" OD
3/4" FOR PIPING 1-1/2" TO 2" OD
1-1/4" FOR PIPING 2-1/2" TO 6" OD

MINIMUM COLOR BAND WIDTH:

8" FOR PIPING 3/4" TO 2" OD
12" FOR PIPING 2-1/2" TO 6" OD

OPERATING INSTRUCTIONS

INSTRUCT OWNER'S OPERATING PERSONNEL ON PROPER CARE, MAINTENANCE AND OPERATING PROCEDURES.

MAINTENANCE MANUAL

INCLUDE FOLLOWING IN MANUALS:

MANUFACTURER'S DESCRIPTIVE DATA
OPERATION AND MAINTENANCE INSTRUCTIONS
REPLACEMENT PART LISTS
MANUFACTURER'S WARRANTY & SERVICE CERTIFICATES
INSTRUCTIONS FOR PERIODIC CLEANING AND MAINTENANCE
PROCEDURES FOR SYSTEMS START-UP AND SHUT-DOWN
VALVE LOCATION AND TAG NUMBER CHARTS

CLEANING

CLEAN PIPING PRIOR TO PAINTING.

UPON COMPLETION OF WORK, PERFORM THE FOLLOWING CLEANING PROCEDURES:

REMOVE PROTECTIVE COVERS AFTER PAINTING
CLEAN PIPING AND EQUIPMENT
REMOVE SURPLUS MATERIALS AND RUBBISH
RESTORE DAMAGED SURFACE FINISHES

ADJUSTMENTS

UPON COMPLETION OF WORK, PERFORM THE FOLLOWING ADJUSTMENT PROCEDURES:

ADJUST SYSTEMS COMPONENTS FOR PROPER PERFORMANCE
OPEN AND CLOSE VALVES, SET IN PROPER OPERATING POSITION
SEAL CONTROL VALVES OPEN

GUARANTEE

SUPPLY TWO COPIES OF A WARRANTY COUNTERSIGNED AND GUARANTEED BY CONTRACTOR, STATING THAT IMPERFECT SYSTEM OPERAITON AND ALL DEFECTS IN LABOR AND MATERIALS WILL BE REPAIRED WITHOUT COST TO OWNER FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION, AND STATING THAT ALL PLUMBING EQUIPMENT HAS BEEN FULLY SERVICED AND LEFT IN PROPER OPERATING CONDITION.

ALSO GUARANTEE THAT SERVICING WILL BE PROVIDED WITHOUT COST DURING GUARANTEE PERIOD.

PIPE SLEEVE INSTALLATION

PROVIDE FOR PIPING PASSING THROUGH WALLS, PARTITIONS AND SLAB, SLEEVES SIZED AT LEAST 1 INCH LARGER THAN OD OF PIPE.

SLEEVES ARE REQUIRED FOR PIPING PASSING THROUGH FIRE-RATED WALLS CONSTRUCTED OF METAL STUDS AND GYPSUM WALLBOARD.

TERMINATE SLEEVES THROUGH WALLS, PARTITIONS AND CEILINGS FLUSH WITH FINISHED SURFACES: THROUGH SLABS 1/2" ABOVE FLOOR FINISH IN HABITABLE SPACES AND 2" ABOVE ROUGH FINISH IN PIPE SPACES AND OTHER UNFINISHED AREAS.

SET SLEEVES IN PLACE BEFORE PLACING CONCRETE, OR SECURELY FASTEN AND GROUT IN PLACE WITH CONCRETE. EXERCISE CARE IN LOCATING AND SETTING OF SLEEVES TO ASSURE ACCURATE ALIGNMENT. IN ABSENCE OF SLEEVES, USE CORE DRILLED HOLES AND PROVIDE CURBS TO PREVENT PASSAGE OF WATER.

FILL VOID SPACES BETWEEN PIPING AND PIPE SLEEVES WITH PENETRATION SEAL, OR APPROVED ELASTROMERIC CAULKING MATERIALS.

ESCUTCHEON INSTALLATION

PROVIDE ESCUTCHEONS ON PIPE PROTRUSIONS AT WALLS, PARTITIONS, CEILING AND FLOORS. ESCUTCHEONS SHALL FIT SNUGLY AROUND PIPING AND COVER SURFACE OPENING.

FIRE STOPPING

FILL VOID SPACE BETWEEN PIPING AND PIPING SLEEVES WITH DOW CORNING 3 - 6548 RTV SILICONE FOAM, OR WITH FIBROUS GLASS SEALED WITH FIRE TESTED AND APPROVED ELASTOMERIC CAULKING MATERIALS.

INSTALLATION - GENERAL

PREPARATION: CUT PIPE AND TUBING ENDS SQUARE, REMOVE BURRS AND REAM TO ORIGINAL BORE. CLEAN JOINT SURFACES PRIOR TO ASSEMBLY. WIPE OFF EXCESS JOINING COMPOUNDS AND FLUX RESIDUE.

SCREWED: USE AMERICAN STANDARD TAPER PIPE THREADS CUT SHARP AND TRUE AND SUITABLE FOR NORMAL ENGAGEMENT. SCREW THREADED ITEMS UP CLOSE TO SHOULDERS WITH NOT MORE THAN THREE INCOMPLETE THREADS EXPOSED. DO NOT USE LAMP WICK, CORD, WOOL OR OTHER "WICKING" MATERIALS. REPAIR LEAKS WITH NEW MATERIALS, DO NOT PEEN OR CAULK. "TEFLON" PIPE JOINT TAPE OR JOINT COMPOUNDS COMPOSED OF RED LEAD AND GRAPHITE GROUND IN LINSEED OIL WILL BE PERMITTED, APPLIED TO MALE THREADS ONLY.

MECHANICAL COUPLINGS: USE MANUFACTURER'S MATERIALS AND METHODS.

PIPE HANGER AND SUPPORT INSTALLATION

REFER TO MSS-SP-58; STANDARD FOR PIPE HANGERS AND SUPPORTS.

SUPPORT, ANCHOR AND GUIDE PIPING SYSTEMS TO WITHSTAND STATIC AND DYNAMIC LOAD CONDITIONS, TO ALLOW FOR EXPANSION AND CONTRACTION; TO PREVENT VIBRATION AND SWAYING; TO MAINTAIN ALIGNMENT AND MINIMIZE VERTICAL DEFLECTION.

DO NOT SUPPORT PIPING FROM OTHER PIPING OR DUCTWORK. DO NOT USE WIRE, TAPE, METAL BAND, OR OTHER MAKE-SHIFT DEVICES AS MEANS OF SUPPORT OR ATTACHMENT.

TESTING

GENERAL: TEST PLUMBING SYSTEMS TO SATISFACTION OF BUILDING OFFICIAL. DO NOT CLOSE IN, CONCEAL, OR COVER UP ANY WORK UNTIL IT HAS BEEN TESTED, INSPECTED, AND APPROVED BY ENGINEER AND LOCAL OFFICIALS.

FLUSH PIPING, PRIOR TO TESTING, TO REMOVE FOREIGN MATERIAL WHICH MAY HAVE ENTERED DURING COURSE OF INSTALLATION. CLEAN FILTERS AND STRAINERS AFTER FLUSHING.

PLUMBING MATERIALS

NATURAL GAS PIPING 2" & UNDER SHALL BE SCHEDULE 40 BLACK PIPE, ASTM A53 WITH THREADED BLACK MALLEABLE - IRON FITTINGS ASME B16.3 150# CLASS STANDARD PATTERN.

VALVES

GAS VALVE - 2" AND SMALLER: BRONZE PLUG VALVE, TWO-PIECE FULL PORT BRONZE BALL VALVE WITH BRONZE TRIM OR 1-PIECE FULL PORT BRONZE BALL VALVE WITH BRONZE TRIM. APOLLO, MILWAUKEE, OR EQUAL.

PIPE HANGER MATERIAL STANDARDS

BOLTING - ASTM A307, GRADE A
CAST IRON - ASTM A48, GRADE 30
FORGOINGS - AST, A521, GRADE CA
MALLEABLE IRON - ASTM A47, ASTM A197
STEEL - ASTM A36, ASTM A569, ASTM A570
STEEL PIPE - ASTM A53, ASTM A120
STEEL ROD - ASTM A36, ASTM A575

PIPE HANGER COMPONENTS

COMPONENTS: DESIGNED WITH MINIMUM SAFETY FACTOR OF 5; OF ALL METAL CONSTRUCTION; ASSEMBLED WITH CORROSION RESISTANT SQUARE HEAD MACHINE BOLTS AND SQUARE OR HEX HEAD NUTS, STEEL WASHERS; IN SUCH A MANNER AS TO PREVENT SELF-DISENGAGEMENT.

PIPE ATTACHMENTS: CAPABLE OF VERTICAL ADJUSTMENT UNDER LOAD, SHAPED TO OD IF PIPING, SIZED ALLOW CONTINUOUS INSULATION.

SURFACE FINISH - GENERALLY: CORROSION RESISTANT PAINT COATING.

SURFACE FINISH - UNINSULATED COPPER AND BRASS PIPING; COPPER-PLATED OR PLASTIC COATED.

SURFACE FINISH - CHROME PLATED PIPING: CHROME PLATED.

ESCUTCHEONS

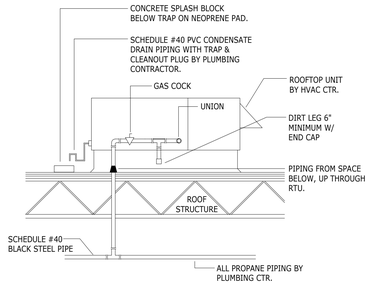
PAINTED SURFACES: PRIME COATED SHEET METAL

ACOUSTICAL SURFACES: FACTORY PAINTED TO MATCH SURFACE SHEET STEEL

PREFINISHED SURFACES: CHROME-PLATED CAST BRASS

PIPE SLEEVES, SEALS AND ADAPTERS

INTERIOR PARTITIONS: #20 GAUGE GALVANIZED STEEL, LOCK SEAM JOINT



DETAIL OF HVAC ROOFTOP PLUMBING CONNECTIONS
N.T.S.

PLUMBING PIPING LEGEND

G	GAS (PROPANE GAS)
	PIPE DOWN
	PIPE DROP
	PIPE RISE
	PIPE ANCHOR

PLUMBING SYMBOL LEGEND

	GAS VALVE (BALL OR PLUG)
	GAS PRESSURE REGULATOR
1	PLUMBING WORK ITEM NOTE

ABBREVIATIONS

CFH	CUBIC FEET PER HOUR
CON	CONDENSATE
G	PROPANE GAS
GPR	PROPANE GAS REGULATOR VALVE
NIC	NOT IN CONTRACT
RTU	ROOF TOP UNIT

PIPING AND MATERIALS SCHEDULE

PIPIMG SYSTEM	SIZE	PIPING MATERIALS	JOINTS	FITTINGS	NOTES
ABOVE GROUND PORPANE GAS PIPING	1/4" - 2"	SCHEDULE 40 BLACK STEEL PIPE, ASTM A53	THREADED	BLACK MALLEABLE-IRON THREADED FITTINGS ASME B16.3 150# CLASS STANDARD PATTERN	ALL PIPING MATERIALS TO BE IN ACCORDANCE WITH N.F.P.A. 54

PLUMBING GENERAL NOTES

1. THESE GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. PLUMBING CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.
4. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL SERVICES TO HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO: GAS SUPPLY PIPING, CONDENSATE PIPING, COLD WATER SUPPLY PIPING, DRAINS, AND CONNECTIONS TO AIR HANDLING UNITS, FAN COIL UNITS, UNIT HEATERS, BOILERS, CHILLERS, ETC. ALSO, DEVICES REQUIRED INCLUDE BACKFLOW PREVENTERS, REGULATORS, UNIONS, TRAPS, AND SHUT-OFF VALVES REQUIRED FOR THIS EQUIPMENT. REFER TO HVAC DRAWINGS FOR ADDITIONAL INFORMATION AND COORDINATION.
5. THE PLUMBING CONTRACTOR SHALL PROVIDE PIPE EXPANSION JOINTS ON PIPING PASSING THRU ALL BUILDING EXPANSION JOINT LOCATIONS AS REQUIRED PER BUILDING CODES WHETHER OR NOT SHOWN ON DRAWINGS. REVIEW ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT BUILDING EXPANSION JOINT LOCATIONS AND EXPANSION DIMENSIONS.
6. THE PLUMBING CONTRACTOR SHALL INSTALL ALL PIPING EQUIPMENT AND ACCESSORIES IN ACCORDANCE WITH THE LATEST STATE BUILDING CODE AND LOCAL AUTHORITIES HAVING JURISDICTION. COORDINATION BETWEEN TRADES IS REQUIRED TO INSURE COMPLIANCE WITH THE GOVERNING CODES.
7. ALL PIPING, EQUIPMENT OR ACCESSORIES INSTALLED IN PLENUM RATED CEILINGS SHALL BE LISTED AND APPROVED FOR SUCH INSTALLATION.

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Drawing Title:
PLUMBING DETAILS, LEGENDS, NOTES & SPECIFICATIONS
Town of Bethany
Town of Bethany, CT 06524

Stamp:

North Arrow:

Date: 11-3-23
Revised: Approver

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Drawn: IES
Checked: PJP

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