



UNC ROSS HALL CHILLER REPLACEMENT

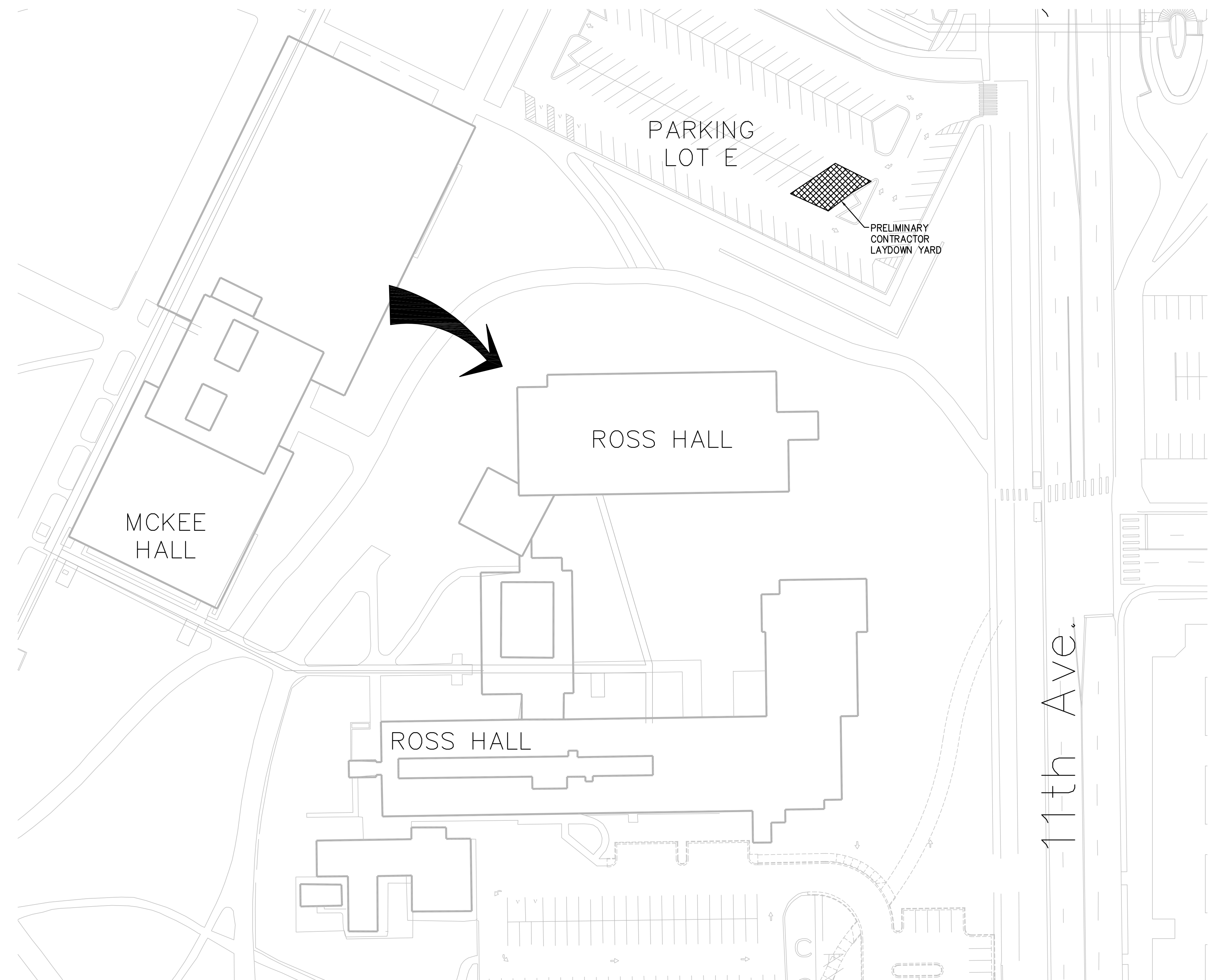
BID SET

PROJECT #2024-041M23

FACILITY PLANNING and CONSTRUCTION
 UNC - PARSON HALL
 501 20TH STREET
 CAMPUS BOX 57
 GREELEY, CO 80639
 (970) 351-2446

DRAWING LIST

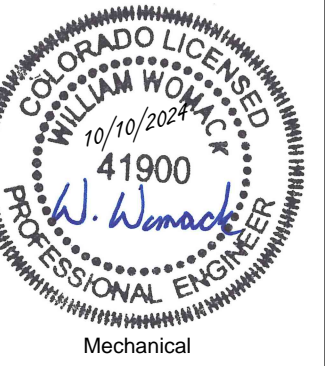
G0.1	COVER SHEET
CO.1	GENERAL LEGEND, NOTES & ABBREVIATIONS
CE1.0	EROSION CONTROL PLAN
C1.0	CIVIL SITE PLAN
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A-200	ELEVATIONS AND SECTIONS
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S100	GENERAL NOTES
S101	GROUND LEVEL PLAN & DETAILS
M1.0	MECHANICAL LEGENDS AND GENERAL NOTES
M1.1	MECHANICAL SCHEDULES AND DETAILS
MD2.0	GROUND LEVEL MECHANICAL DEMO PLAN
M2.0	GROUND LEVEL MECHANICAL PLAN
M2.1	THIRD LEVEL MECHANICAL PLAN - 89 ADDITION
M2.2	PENTHOUSE MECHANICAL PLAN - NORTH ADDITION
M2.3	PENTHOUSE MECHANICAL PLAN - AHU-3
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M3.0	PIPING SCHEMATICS AND CONTROLS
MD3.1	CHILLED WATER DISTRIBUTION DEMO DIAGRAM
M3.1	CHILLED WATER DISTRIBUTION DIAGRAM
E1.0	ELECTRICAL LEGENDS AND NOTES
E1.1	ELECTRICAL SCHEDULES AND DETAILS
E1.2	ELECTRICAL ONE-LINE DIAGRAM
E2.0	GROUND LEVEL POWER PLAN



VICINITY MAP

GENERAL NOTES:

- BEFORE CONSTRUCTION, THE CONTRACTOR TO CONFIRM LAYDOWN YARD LOCATION AND SIZE THE UNC.
- CONTRACTOR PARKING TO BE IN LOT C. WORKERS TO WALK TO ROSS HALL.
- JOB SITE MAY BE CONGESTED DUE TO CONSTRUCTION OF AN ADJACENT BUILDING. CONTRACTOR ENCOURAGED TO MINIMIZE FOOT PRINT OUTSIDE OF ROSS HALL.



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
 PROJECT # 2024-041M23
 1100 22nd Street
 Greeley, CO 80639

DRAWING TITLE

COVER SHEET

REVISIONS:

BID SET

DATE: 10/14/24

DRAWN BY: WOW

CHECKED BY: STC

JOB NO: 2023-375

SHEET NO.

G0.1

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MCKEE HALL

EROSION AND SEDIMENTATION NOTES:
 1. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONTROLS DURING INITIAL, INTERIM, AND FINAL CONDITIONS.
 2. ALL CONTROLS SHALL BE INSTALLED WITHIN THE PROPERTY LINES UNLESS OTHERWISE SPECIFIED. WHEN CONSTRUCTION ACTIVITIES DISTURB ADJACENT AND/OR RIGHT-OF-WAY PROPERTIES, COORDINATION WITH PROPERTY OWNERS IS REQUIRED PRIOR TO CONSTRUCTION.

EROSION CONTROL LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- LIMITS OF WORK
- VEHICLE TRACKING CONTROL
- SEDIMENT CONTROL LOG
- CONCRETE WASHOUT AREA



1" = 1" (IF LINE DOES NOT MEASURE 1 INCH, DRAWING IS NOT TO SCALE)

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
 PROJECT # 2024-041M23
 1100 22nd Street
 Greeley, CO 80639

DRAWING TITLE

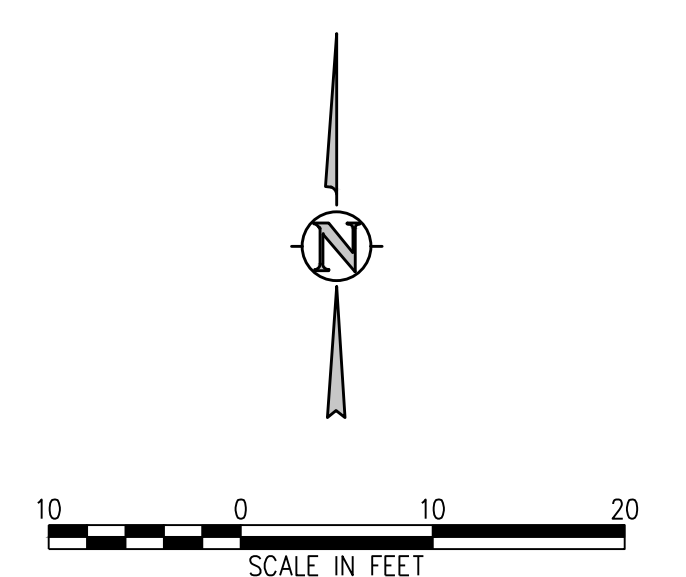
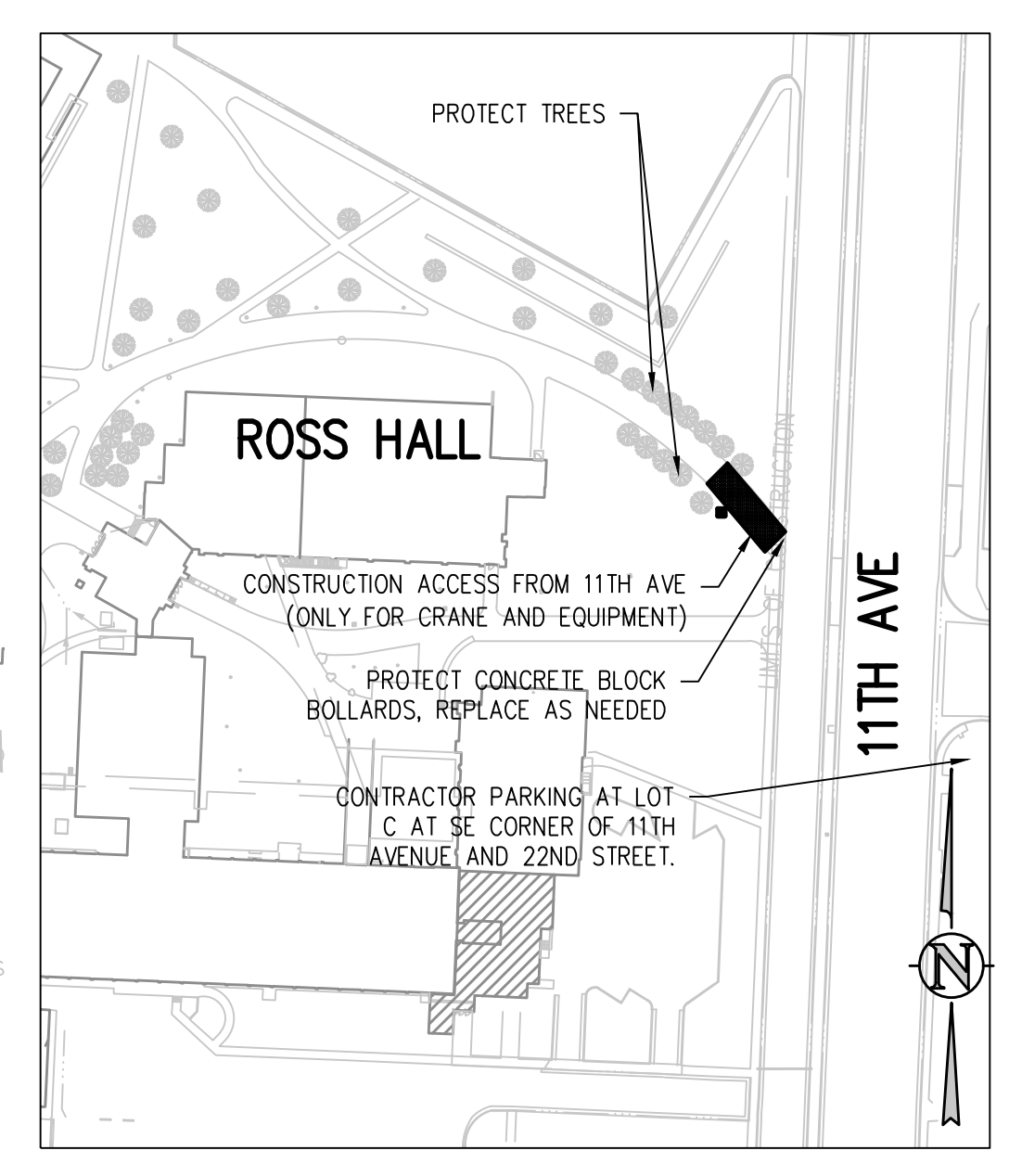
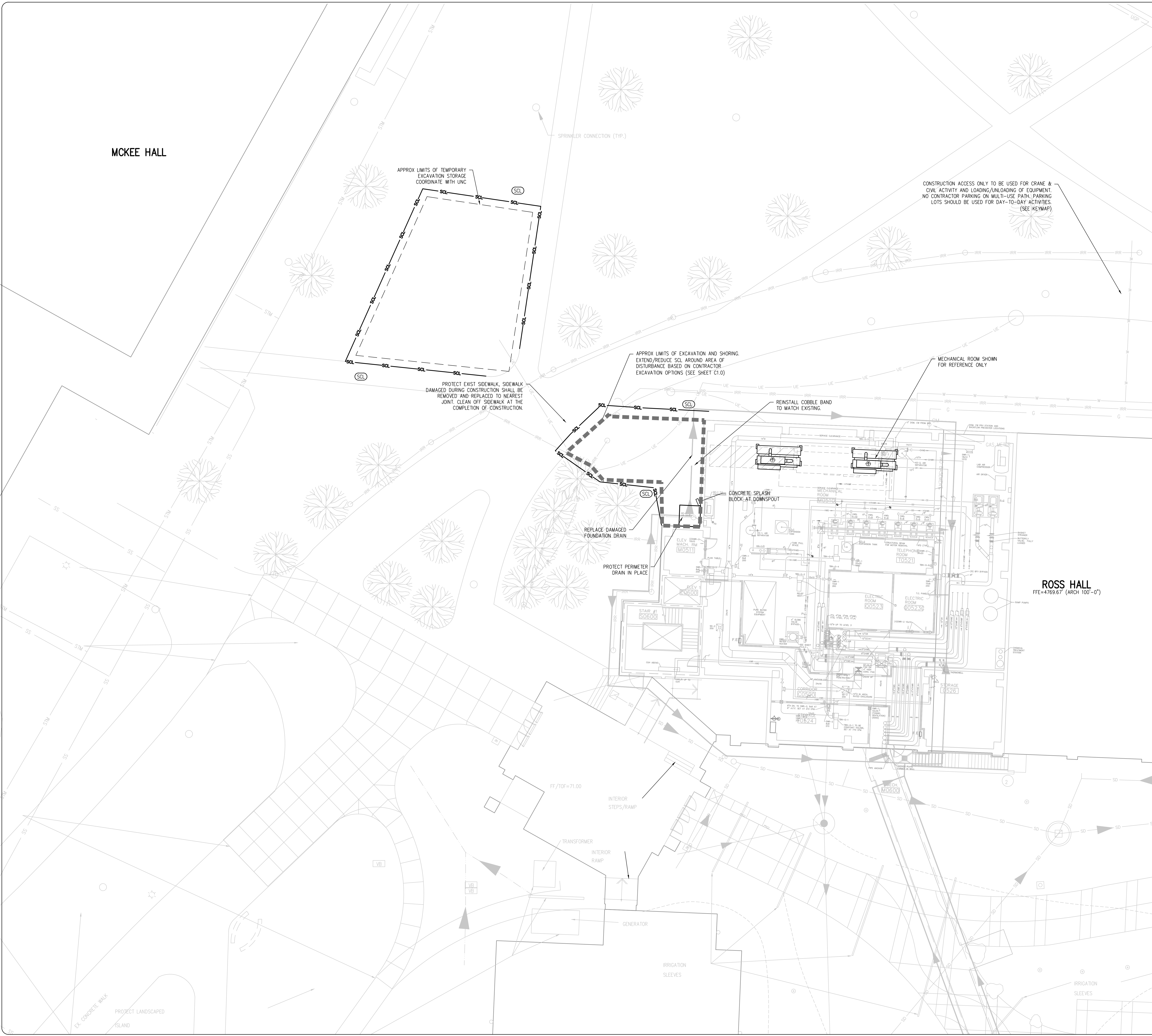
EROSION CONTROL PLAN

REVISIONS:

BID SET
 DATE: 10/14/2024
 DRAWN BY: MGG/EJK
 CHECKED BY: CFG
 JOB NO: 2023-375

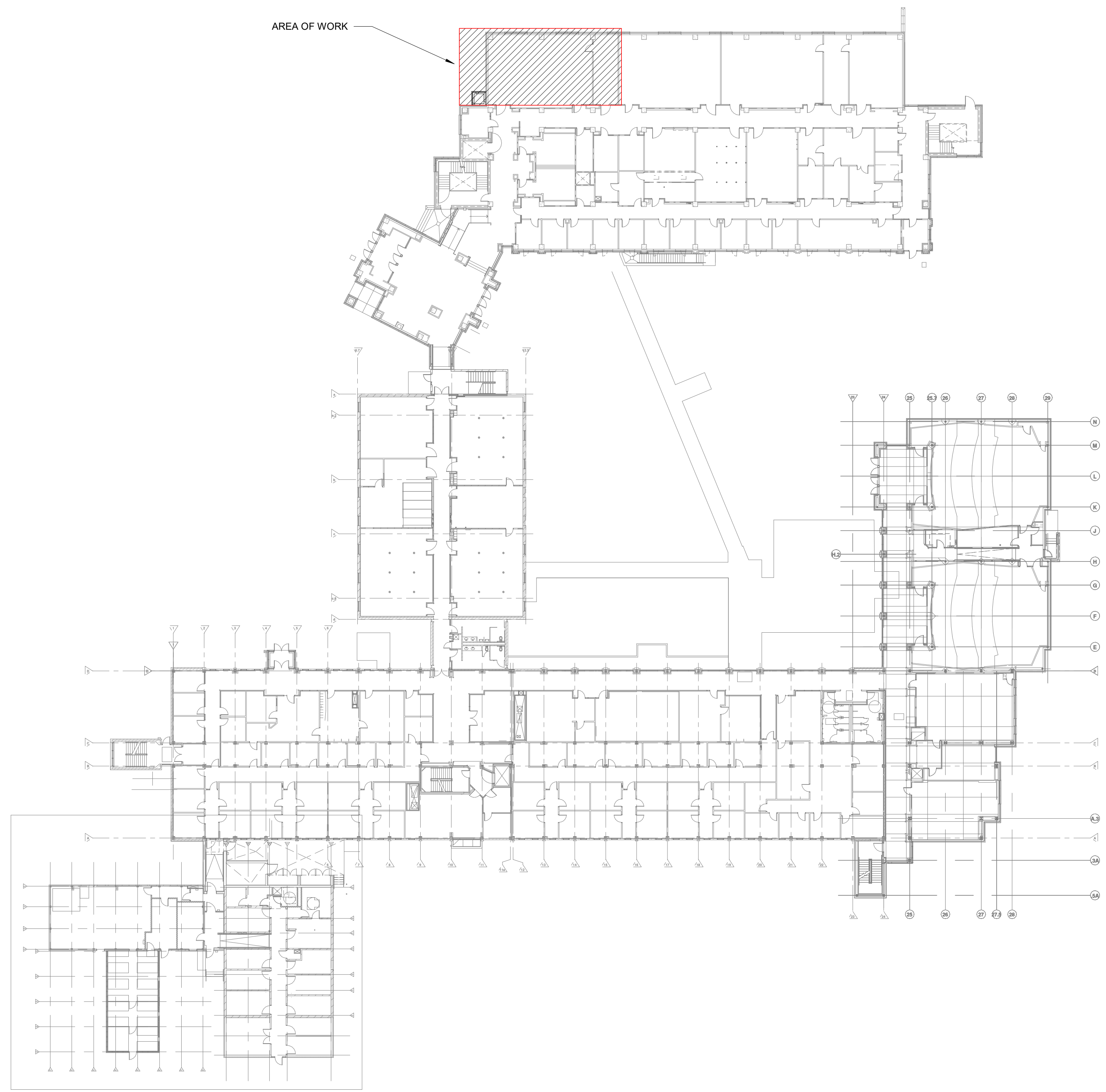
SHEET NO.

CE1.0



X:\2024\4-unc_ross_and_gather_chiller_replacement\Drawings\2024-04-1M23-01-00-01-00-01.dwg, 10/14/2024 - 8:39 AM, CLK

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E1 OVERALL FLOOR PLAN
A-101 1" = 30'-0"

CODE SUMMARY

EXISTING BUILDING: LEVEL 2 ALTERATION
ALTERATION: Any construction or renovation to an existing structure other than a repair or addition. Alterations are classified as Level 1, Level 2 and Level 3.

ALTERATION, LEVEL 2: Alterations include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

WORK AREA: That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the Owner is specifically required by this code.

- GOVERNING CODES:**
- 2021 INTERNATIONAL BUILDING CODE
 - 2021 INTERNATIONAL EXISTING BUILDING CODE
 - 2021 INTERNATIONAL PLUMBING CODE
 - 2021 INTERNATIONAL MECHANICAL CODE
 - 2021 COLORADO FUEL GAS CODE
 - 2021 INTERNATIONAL ENERGY CONSERVATION CODE
 - 2021 INTERNATIONAL FIRE CODE
 - 2023 NATIONAL ELECTRICAL CODE
- ACCESSIBILITY: ANSI A117.1-2017

CONSTRUCTION TYPE: NO CHANGE
NUMBER OF STORIES: NO CHANGE
OCCUPANCY: NO CHANGE

AREA SEPARATIONS: NO CHANGE

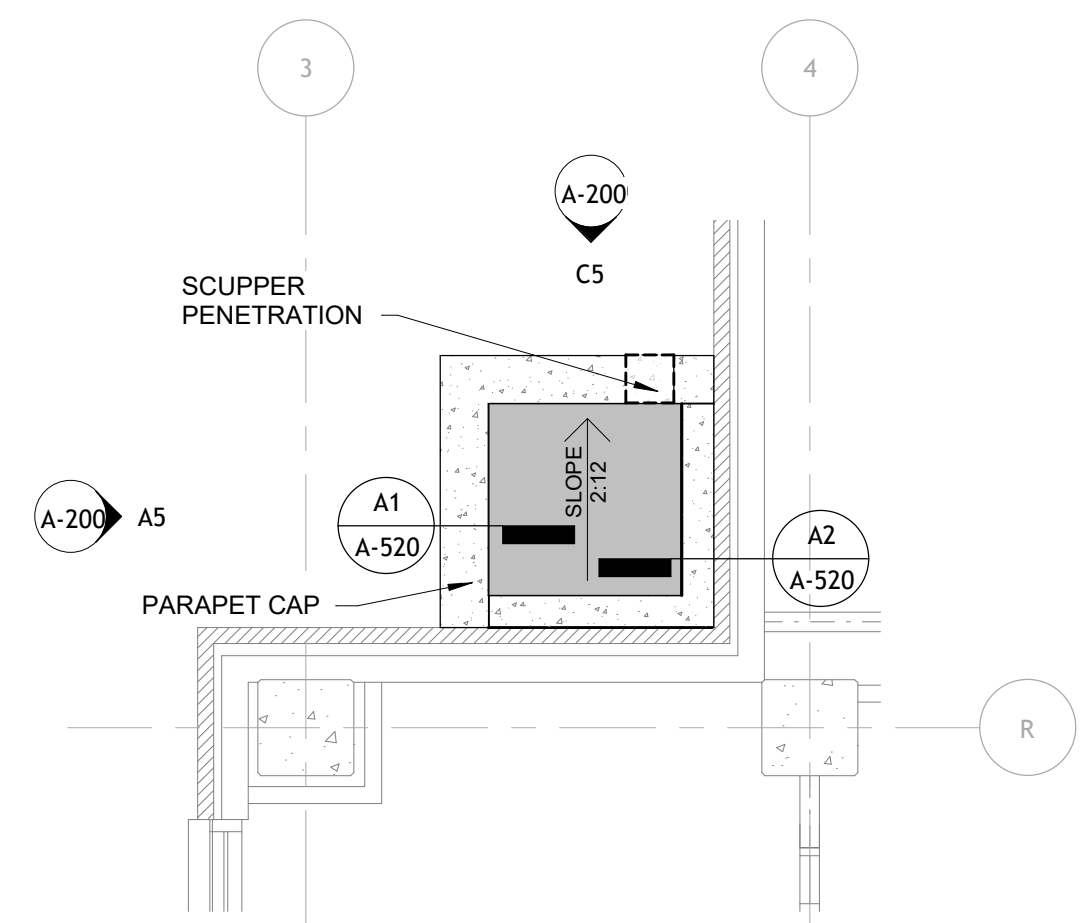
BUILDING AREA: NO CHANGE
(EXTERIOR GROSS)

PLUMBING COUNTS ARE BASED ON BUILDING OCCUPANCY & THERE ARE NO PROPOSED CHANGES TO OCCUPANCY OR PLUMBING COUNTS

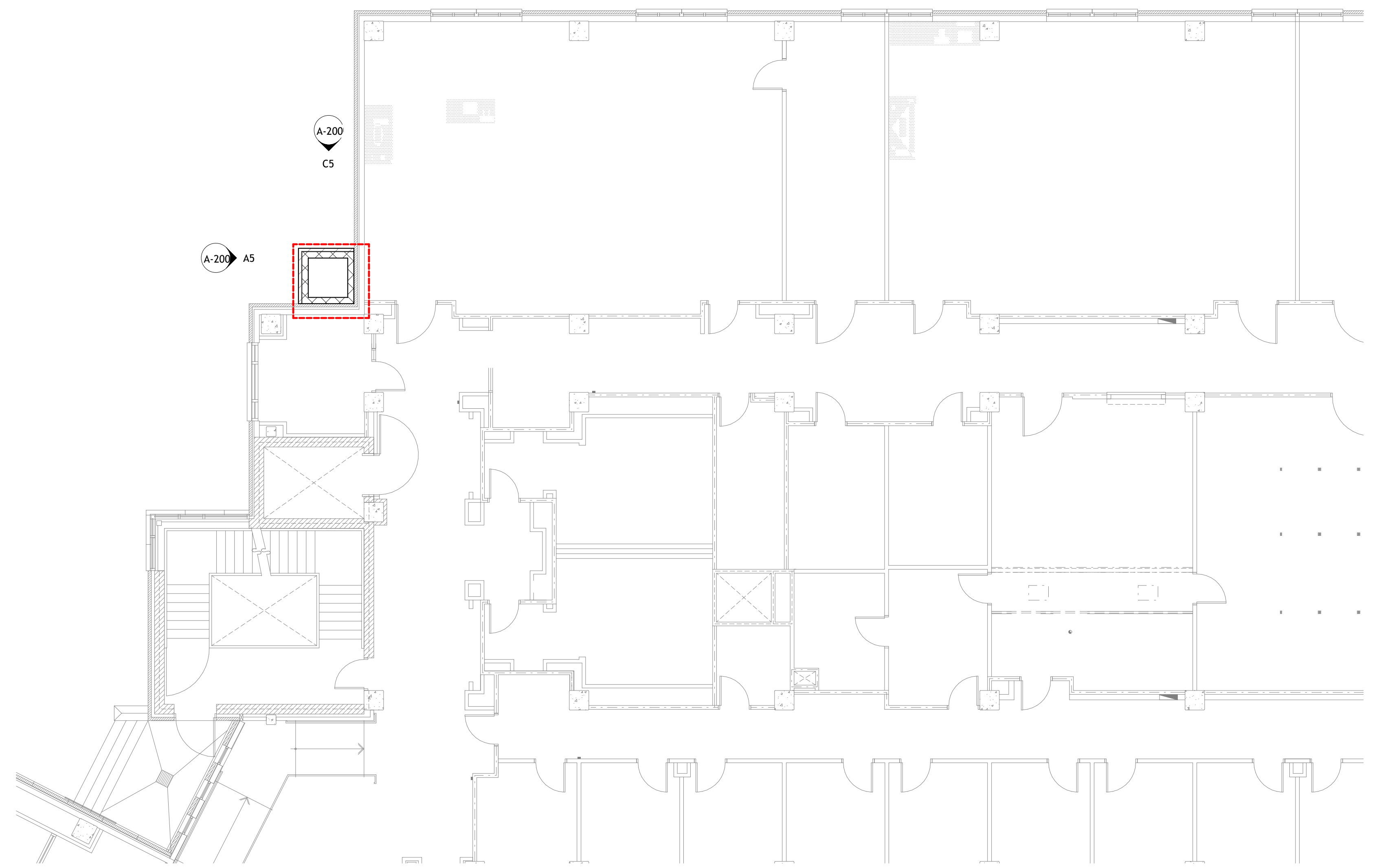
EXISTING STAIRWAYS AND EXITS TO REMAIN

AREA OF WORK LEGEND

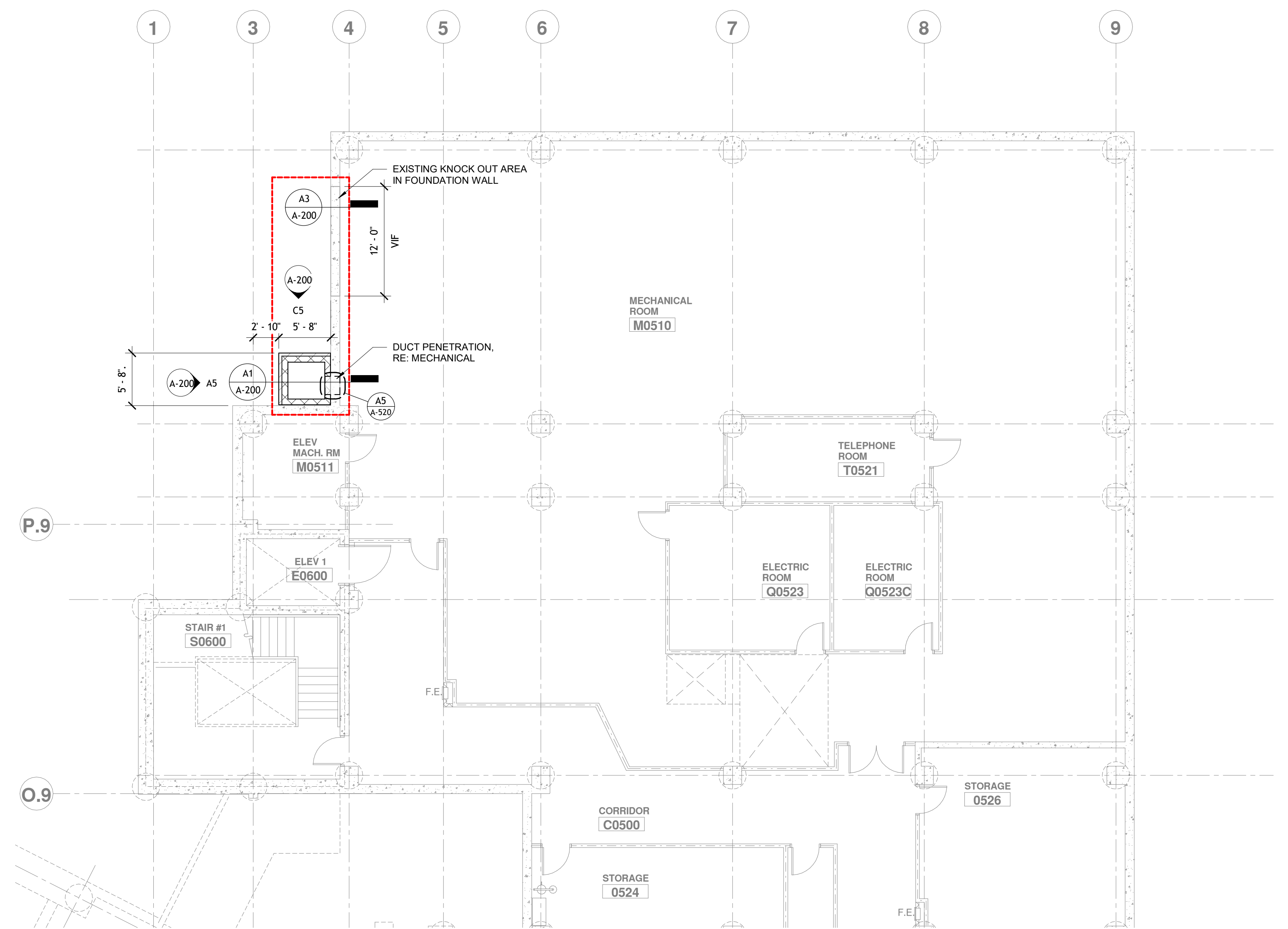
— BOUNDARY LINE FOR AREA OF ARCHITECTURAL SCOPE



A2 ROOF PLAN
A-101 1/4" = 1'-0"



C3 LEVEL 1 FLOOR PLAN
A-101 1/8" = 1'-0"



A3 LEVEL 0 FLOOR PLAN
A-101 1/8" = 1'-0"

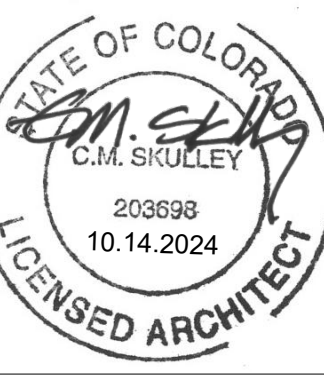


1" = 1'-0"
IF LINE DOES NOT MEASURE 1 INCH, DRAWING IS NOT TO SCALE.

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE
FLOOR PLANS & CODE SUMMARY



REVISIONS:

CONSTRUCTION DOCUMENTS

DATE: 10/14/2024
DRAWN BY:
CHECKED BY:
JOB NO: 2023-287

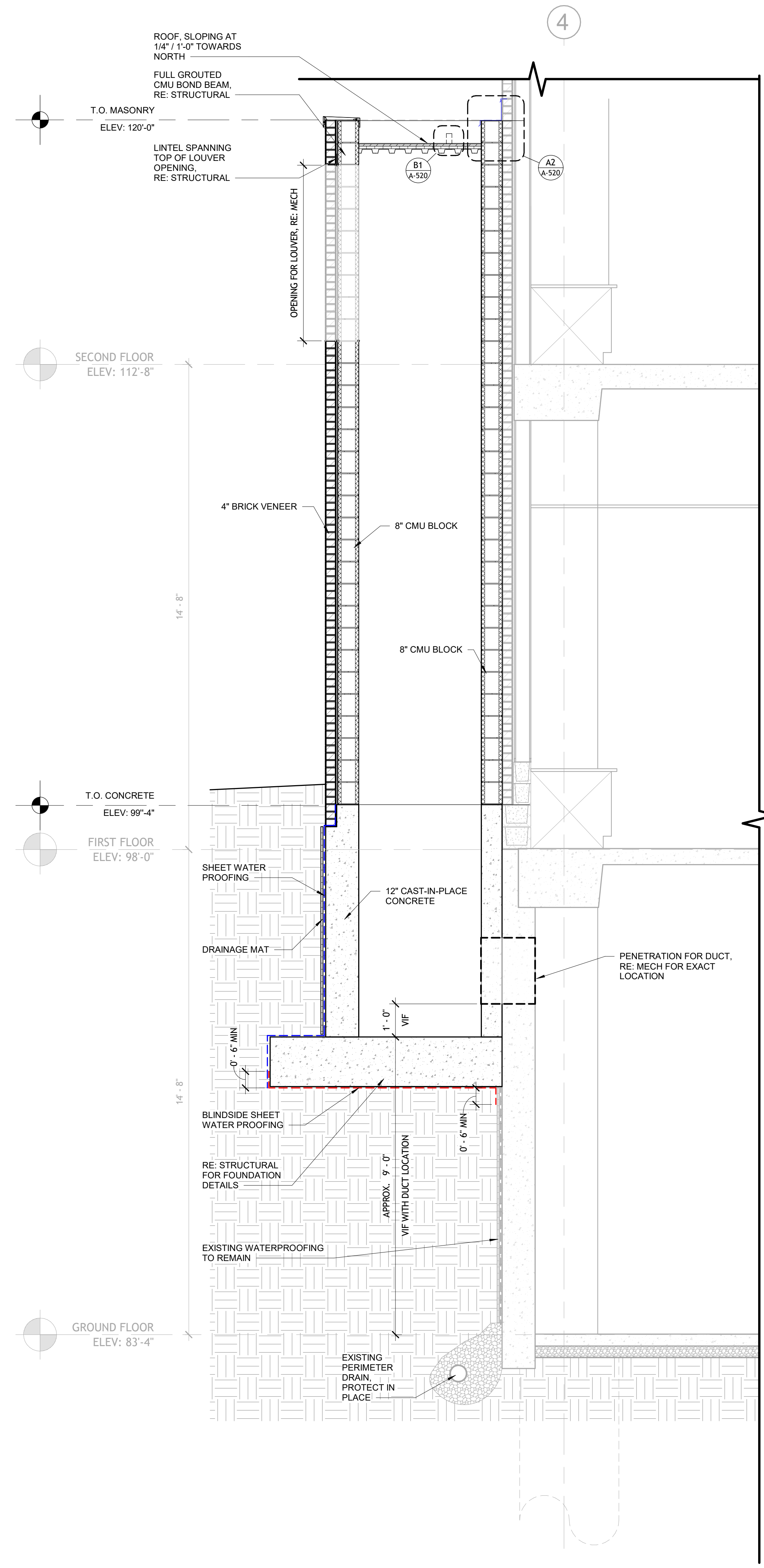
SHEET NO.

A-101

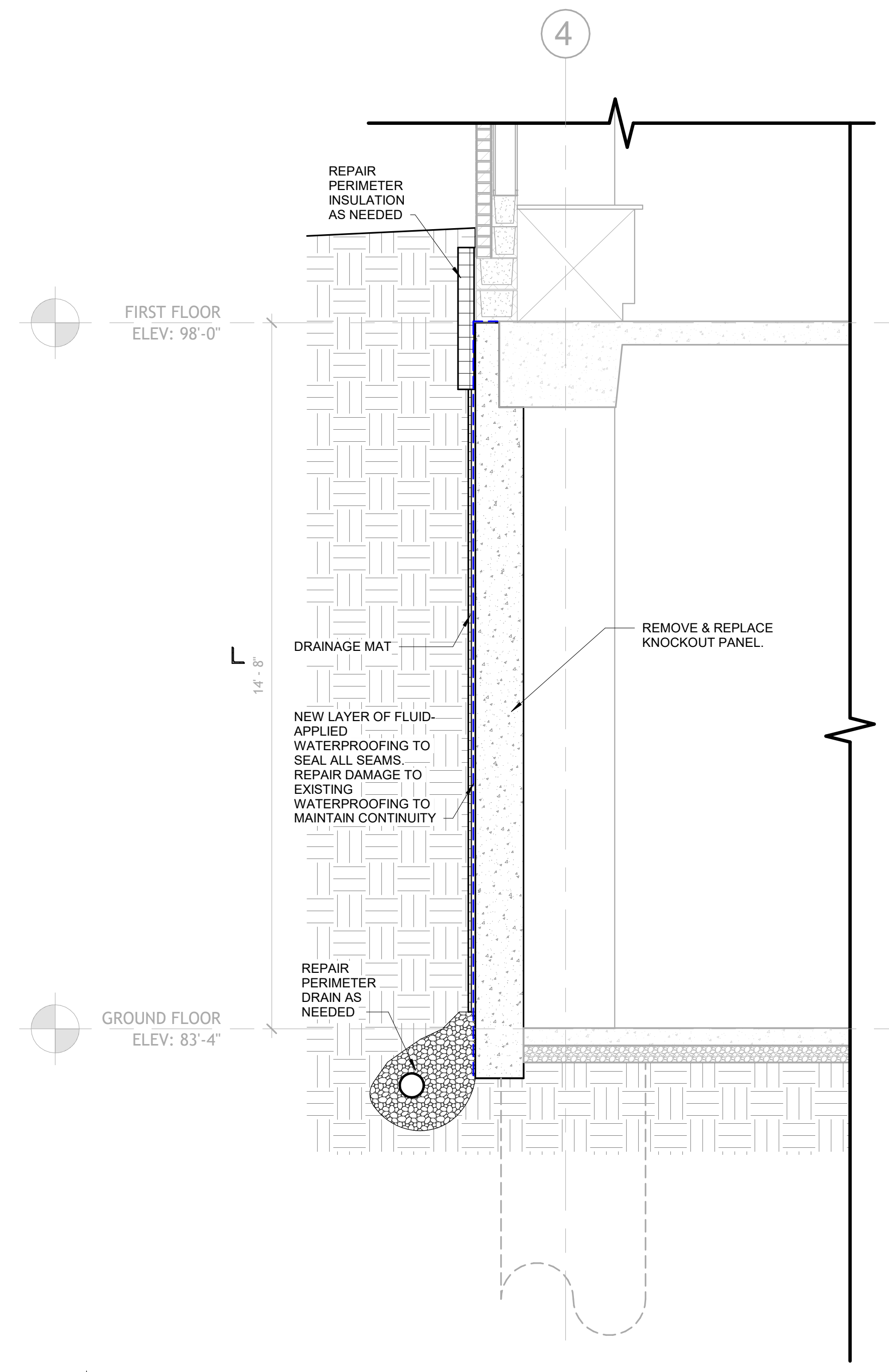
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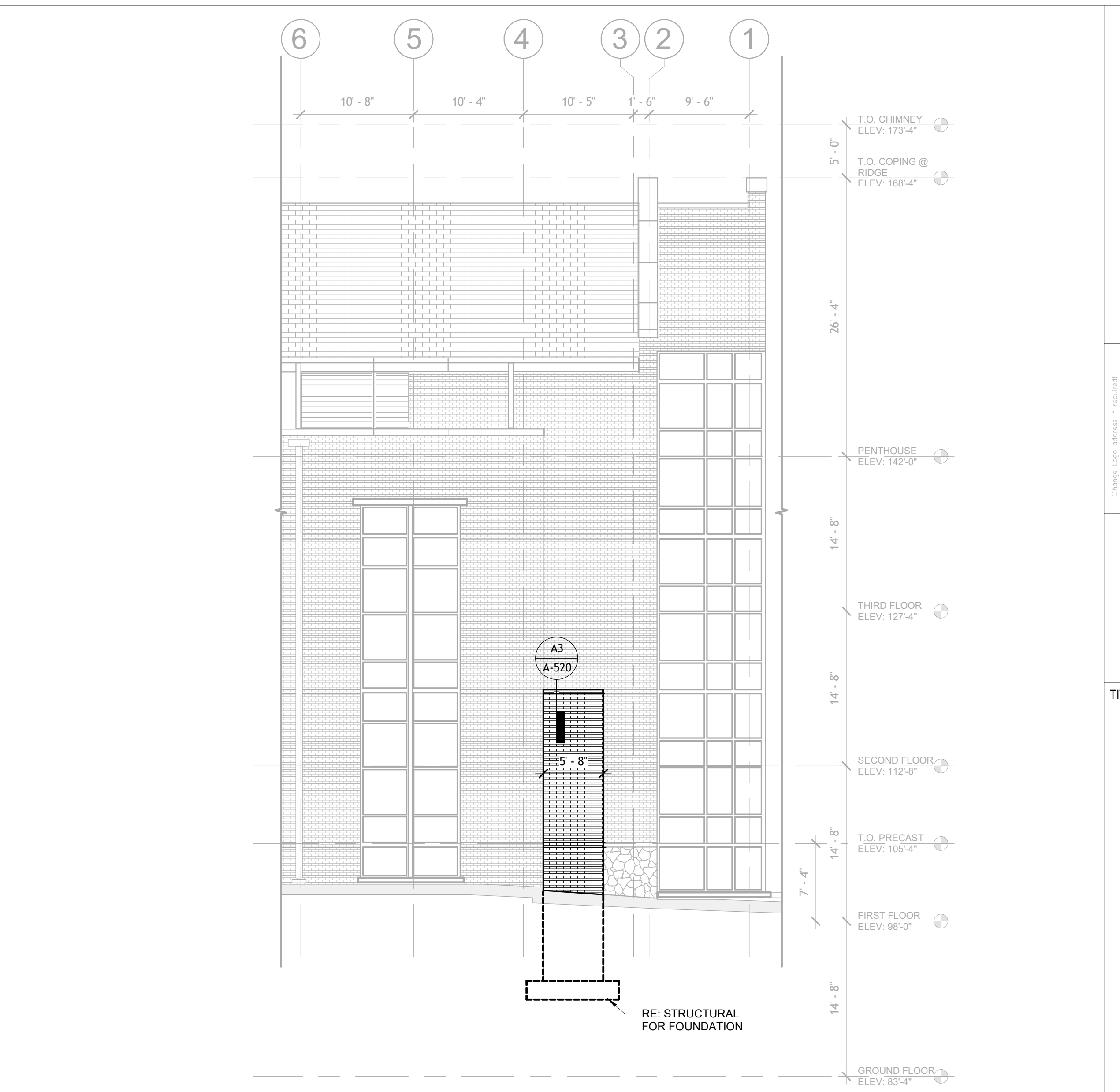
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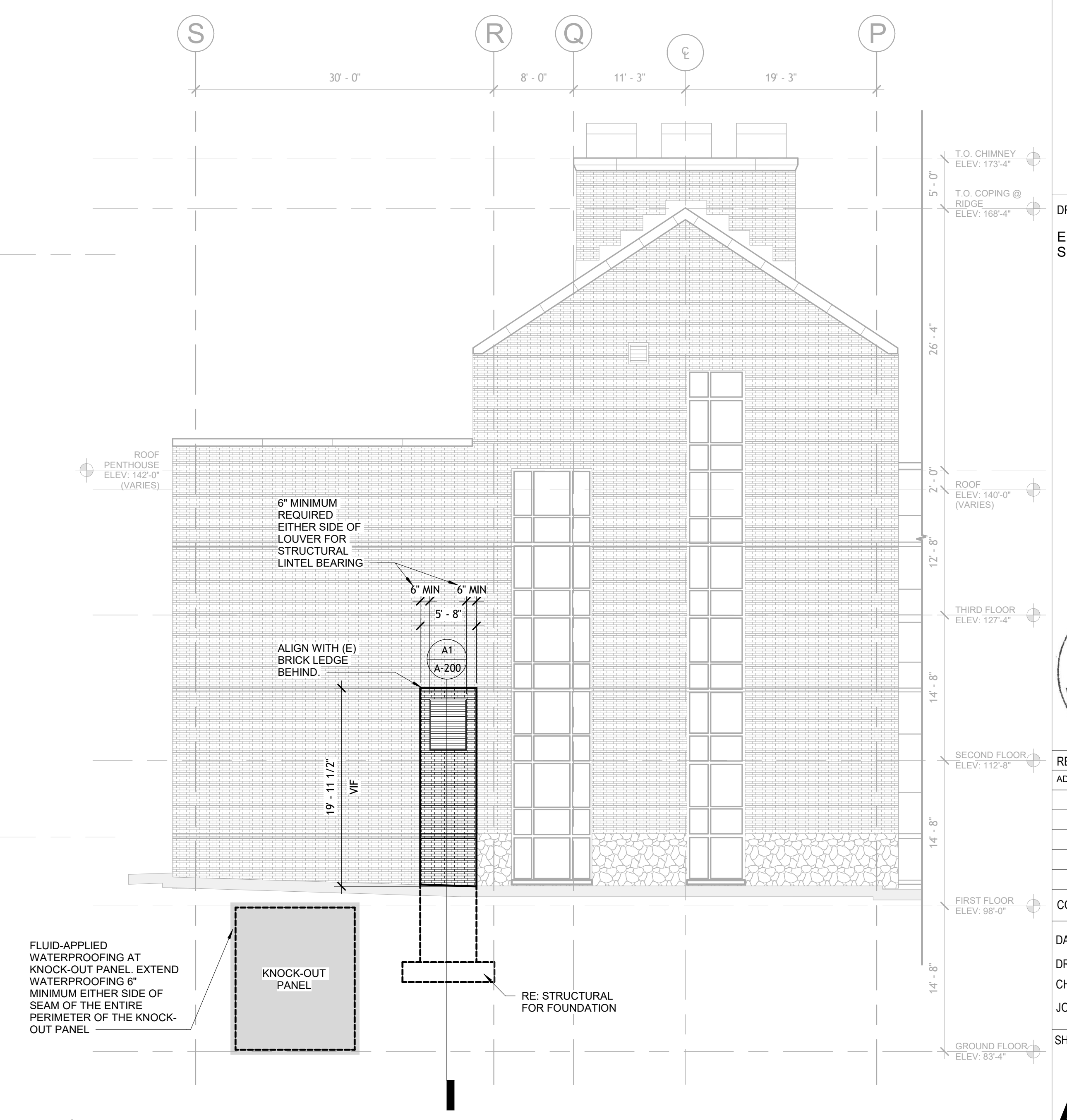
A1 WALL SECTION, TYPICAL
A-101 | A-200 | 1/2" = 1'-0"



A3 SECTION @ KNOCK OUT WALL
A-101 | A-200 | 1/2" = 1'-0"



C5 NORTH ELEVATION
A-101 | A-200 | 1/8" = 1'-0"



A5 WEST ELEVATION
A-101 | A-200 | 1/8" = 1'-0"

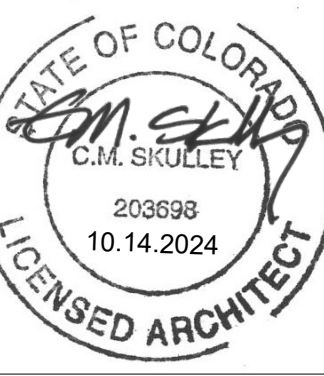


1"
IF LINE DOES NOT MEASURE 1"
INCH, DIMENSION IS NOT 10"
SCALE

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE
ELEVATIONS & SECTIONS



REVISIONS:
ADDENDUM 2 08/15/2024

CONSTRUCTION DOCUMENTS
DATE: 10/14/2024
DRAWN BY:
CHECKED BY:
JOB NO: 2023-287

SHEET NO.

A-200

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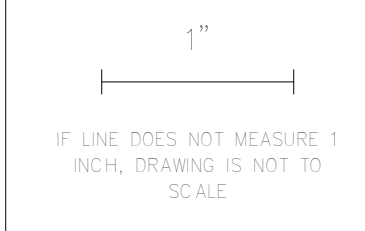
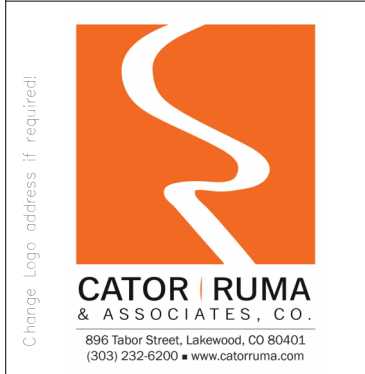
FILENAME: P:\UNC\2023-287 Counter Hall Chiller Replacement\CA\Arch\lib.dwg LAYOUT: Model REVISED: 1/16/2024 02:21 PLOTTED: ----- USER: Bill Lamb

DEMOLITION GENERAL NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE REMOVAL OF HAZARDOUS MATERIALS AS REQUIRED TO COMPLETE THE NEW WORK, AND SHALL COORDINATE THESE ACTIVITIES WITH THE OWNER'S REPRESENTATIVE.
- COORDINATE DEMOLITION AND CONSTRUCTION ACTIVITIES WITH THE OWNER'S REPRESENTATIVE TO MINIMIZE DISRUPTION OF NORMAL DAILY FUNCTIONS WITHIN OCCUPIED AREAS.
- KEEP NOISE DURING DEMOLITION AND CONSTRUCTION TO A MINIMUM WHEN OCCUPIED SPACES ARE IN USE.
- INSTALL TEMPORARY BARRICADES AND PARTITIONS TO PREVENT INJURY TO PERSONS IN AND AROUND DEMOLITION AND CONSTRUCTION AREAS IN ACCORDANCE WITH OSHA REQUIREMENTS. COORDINATE LOCATIONS AND INSTALLATION WITH OWNER'S REPRESENTATIVE.
- INSTALL DUST PARTITIONS IN ACCORDANCE WITH FIRE PROTECTION AND EGRESS REQUIREMENTS AND COORDINATE LOCATIONS AND INSTALLATION WITH THE OWNER'S REPRESENTATIVE.
- UPON REMOVAL OF TEMPORARY PARTITIONS, PATCH DISTURBED EXISTING AREAS TO MATCH EXISTING ADJACENT CONSTRUCTION. IF PAINTING IS REQUIRED, REPAINT ENTIRE WALL TO AVOID MISMATCH OF COLOR. DASHED LINES INDICATE WALLS AND ITEMS TO BE REMOVED.
- THE ITEMS IDENTIFIED TO BE REMOVED REPRESENT THE MAJOR ITEMS ONLY AND IN NO WAY TRY TO IDENTIFY ALL PIECES AND PARTS ASSOCIATED TO BE REMOVED. NOTIFY A/E OF ANY DISCREPANCIES IN FLOOR PLAN LOCATIONS.
- PROTECT EXISTING CONSTRUCTION SHOWN AS REMAINING. USE CAUTION WHEN REMOVING PARTITIONS, CEILINGS, AND OTHER CONSTRUCTION ADJACENT TO COLUMNS, BEAMS, AND OTHER STRUCTURAL ELEMENTS. AVOID DAMAGE TO THE EXISTING STRUCTURE TO REMAIN. REPAIR DAMAGE TO THE EXISTING CONSTRUCTION CAUSED BY WORK UNDER THIS CONTRACT.
- PROTECT EXISTING ITEMS, EQUIPMENT, DOORS, ETC. INDICATED TO REMAIN IN PLACE FROM DIRT AND DAMAGE DURING DEMOLITION AND CONSTRUCTION.
- THE OWNER SHALL RETAIN SALVAGE THAT IS OF VALUE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE. THE OWNER'S REPRESENTATIVE WILL DIRECT THE CONTRACTOR AS TO THE LOCATION OF STORAGE AREA FOR VARIOUS ITEMS.
- REMOVE WALLS INDICATED TO BE DEMOLISHED FROM FLOOR TO STRUCTURE ABOVE AND INCLUDE ALL MECHANICAL, ELECTRICAL, EQUIPMENT, ETC. PREPARE ALL DISTURBED AREAS FOR NEW CONSTRUCTION.
- WHERE PARTIAL DEMOLITION OF A WALL IS REQUIRED, COORDINATE EXTENT AND LOCATION OF REMOVED PORTION WITH NEW CONSTRUCTION PLAN AND FIELD CONDITIONS. NOTIFY A/E OF ANY DISCREPANCIES IN DIMENSIONS.
- AT POINTS OF CONSTRUCTION ACCESS, PROVIDE LABOR AND MATERIALS TO REPAIR ALL DISTURBED ELEMENTS.
- CLOSE OFF AND PATCH OPENINGS AND VOIDS LEFT BY THE REMOVAL OF EXISTING CONSTRUCTION, EQUIPMENT, PIPING, DUCTS, ELECTRICAL DEVICES, ETC. TO MAINTAIN PROPER FIRE RATINGS IN A RATED ASSEMBLY. PREPARE PATCHES TO RECEIVE NEW FINISHES AS REQUIRED TO MATCH EXISTING ADJACENT FINISHES.
- FIRESTOP PENETRATIONS IN FIRE RATED AND SMOKE PARTITIONS. IN NON-FIRE-RATED AND SMOKE PARTITIONS, SEAL PENETRATIONS WITH ACOUSTICAL SEALANT AND FILL WITH SOUND ATTENUATION BLANKETS, UNLESS OTHERWISE NOTED.
- COORDINATE WITH MEP REQUIREMENTS FOR CONDITIONS THAT WILL DISTURB EXISTING CONDITIONS AND WHICH WILL REQUIRE SELECTIVE DEMOLITION, CUTTING AND PATCHING, AND FINISHING OUTSIDE OF THAT SHOWN ON THE DRAWINGS.

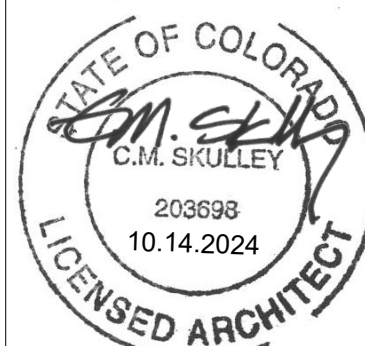
GENERAL PLAN NOTES

- FIELD VERIFY EXISTING OR CURRENT CONSTRUCTION RELATED CONDITIONS PRIOR TO THE START OF NEW CONSTRUCTION.
- IMMEDIATELY NOTIFY ARCHITECT OF DISCREPANCIES FOUND BETWEEN FIELD CONDITIONS AND DRAWINGS.
- DIMENSIONS SHOWN ARE TO FACE OF FINISHED GYPSUM BOARD UNLESS NOTED OTHERWISE.
- EVERY EFFORT HAS BEEN MADE TO IDENTIFY THOSE DIMENSIONS WHICH MAY VARY WITH V.I.F. DIMENSIONS NOT SO NOTED ARE INTENDED TO BE HELD AS INDICATED. FIELD-VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION OF BUILDING COMPONENTS.
- MECHANICAL, ELECTRICAL, AND PLUMBING (M.E.P.) ITEMS AND EQUIPMENT APPEARING ON ARCHITECTURAL DRAWINGS ARE SHOWN FOR CLARITY, AND ARE NOT MEANT TO BE ALL INCLUSIVE; SEE APPROPRIATE M.E.P. SHEETS FOR ADDITIONAL INFORMATION.
- "WALL" AND "PARTITION" ARE USED IN DRAWING SET TO DENOTE EITHER WALLS OR PARTITIONS INTERCHANGEABLY. REFER TO FLOOR PLANS FOR LOCATION OF PARTITIONS AND LIFE SAFETY PLAN FOR FIRE RATINGS.
- TYPICAL DETAILS APPLY TO ALL PARTITION TYPES U.N.O.
- CONSTRUCT ADJACENT WALLS THAT APPEAR TO ALIGN IN PLAN TO ALIGN IN PLAN.
- HOLD NEW FURRED PARTITIONS TIGHT TO EXISTING STRUCTURE UNLESS NOTED OTHERWISE.
- PROVIDE BLOCKING TO SUPPORT WALL-MOUNTED EQUIPMENT, CASEWORK, AND ACCESSORIES. COORDINATE SPECIFIC PLACEMENT OF BLOCKING WITH EQUIPMENT AND ACCESSORIES REQUIREMENTS.
- PROTECT OPENINGS FOR ITEMS RECESSED INTO RATED PARTITIONS (SUCH AS OUTLET BOXES, PANEL BOXES, ETC.) WITH BACK-UP MATERIALS SO AS TO RETAIN THE INTEGRITY OF THE PARTITION RATINGS.
- FIRESTOP PENETRATIONS IN FIRE RATED AND SMOKE PARTITIONS, IN NON-FIRE-RATED AND SMOKE PARTITIONS, SEAL PENETRATIONS WITH AN ACOUSTICAL SEALANT AND FILL WITH SOUND ATTENUATION BLANKETS UNLESS NOTED OTHERWISE.
- REVIEW EXISTING WALLS TO REMAIN THAT ARE FIRE-RATED OR SMOKE-TIGHT, AND NOTIFY THE A/E TEAM OF ANY PENETRATIONS WITHOUT APPROPRIATE CLOSURE ASSEMBLIES OR DUCTS WITHOUT FIRE/SMOKE DAMPERS.
- REPAIR ANY SPRAY-ON FIREPROOFING DAMAGED DURING CONSTRUCTION.
- CONFIRM EACH LOCATION FOR WALL MOUNTED ITEMS INCLUDING, BUT NOT LIMITED TO, EQUIPMENT, ACCESSORIES, OUTLETS, CALL BUTTONS, ETC. WITH THE OWNER PRIOR TO INSTALLATION.
- COORDINATE WITH M&E REQUIREMENTS FOR CONDITIONS THAT WILL DISTURB EXISTING CONDITIONS AND WHICH WILL REQUIRE SELECTIVE DEMOLITION, CUTTING AND PATCHING, AND FINISHING OUTSIDE OF THAT SHOWN ON THE DRAWINGS.



TITLE
UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
 1100 22nd Street
 Greeley, CO 80639

DRAWING TITLE
DETAILS



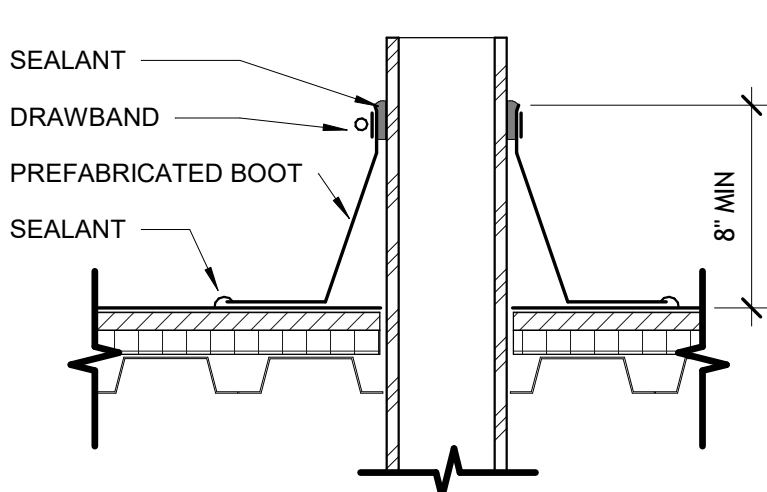
REVISIONS:

NO.	DATE	DESCRIPTION

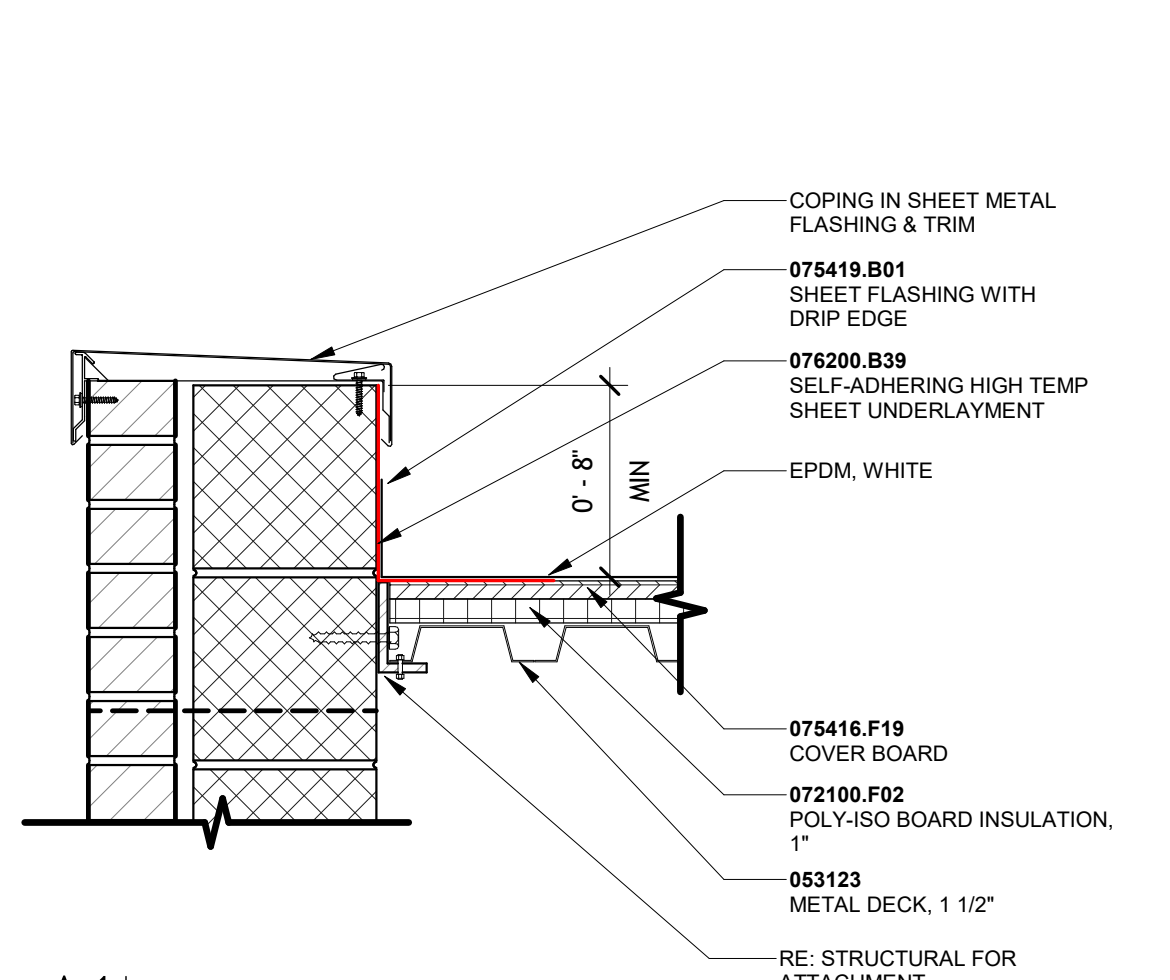
CONSTRUCTION DOCUMENTS

DATE: 10/14/2024
 DRAWN BY:
 CHECKED BY:
 JOB NO: 2023-287
 SHEET NO.

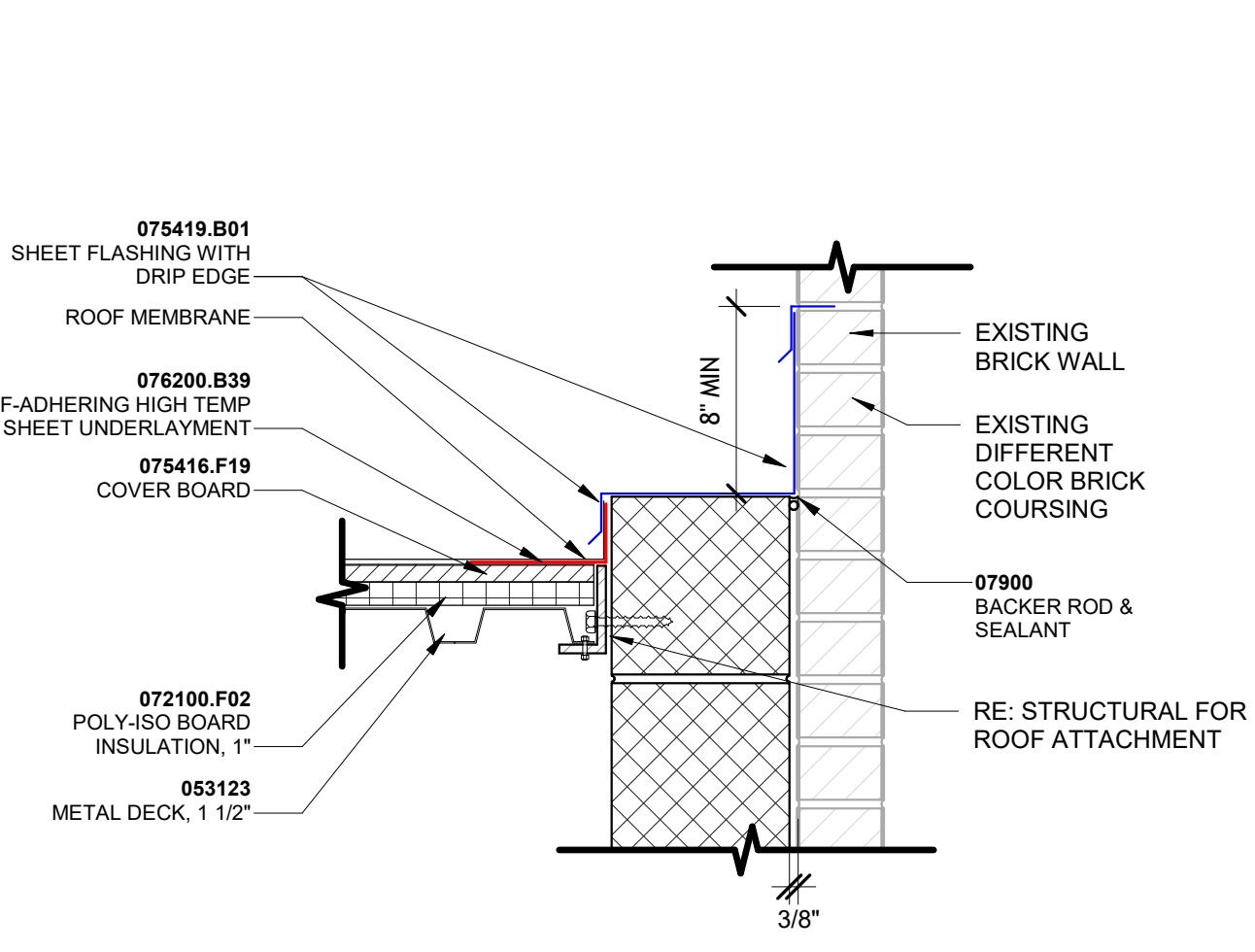
A-520



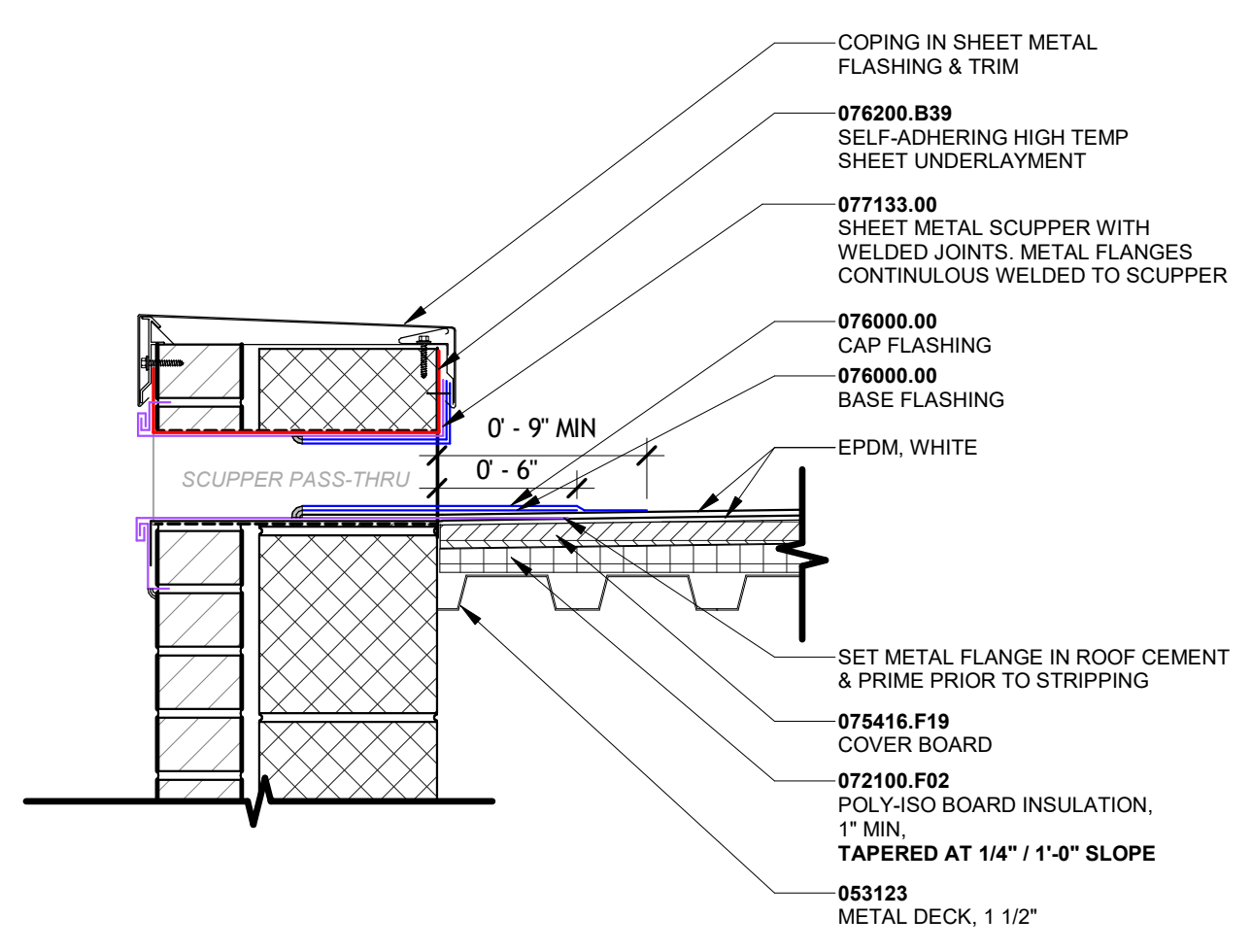
B1 VENT PENETRATION DETAIL
 A-200 | A-520 | 1 1/2" x 1'-0"



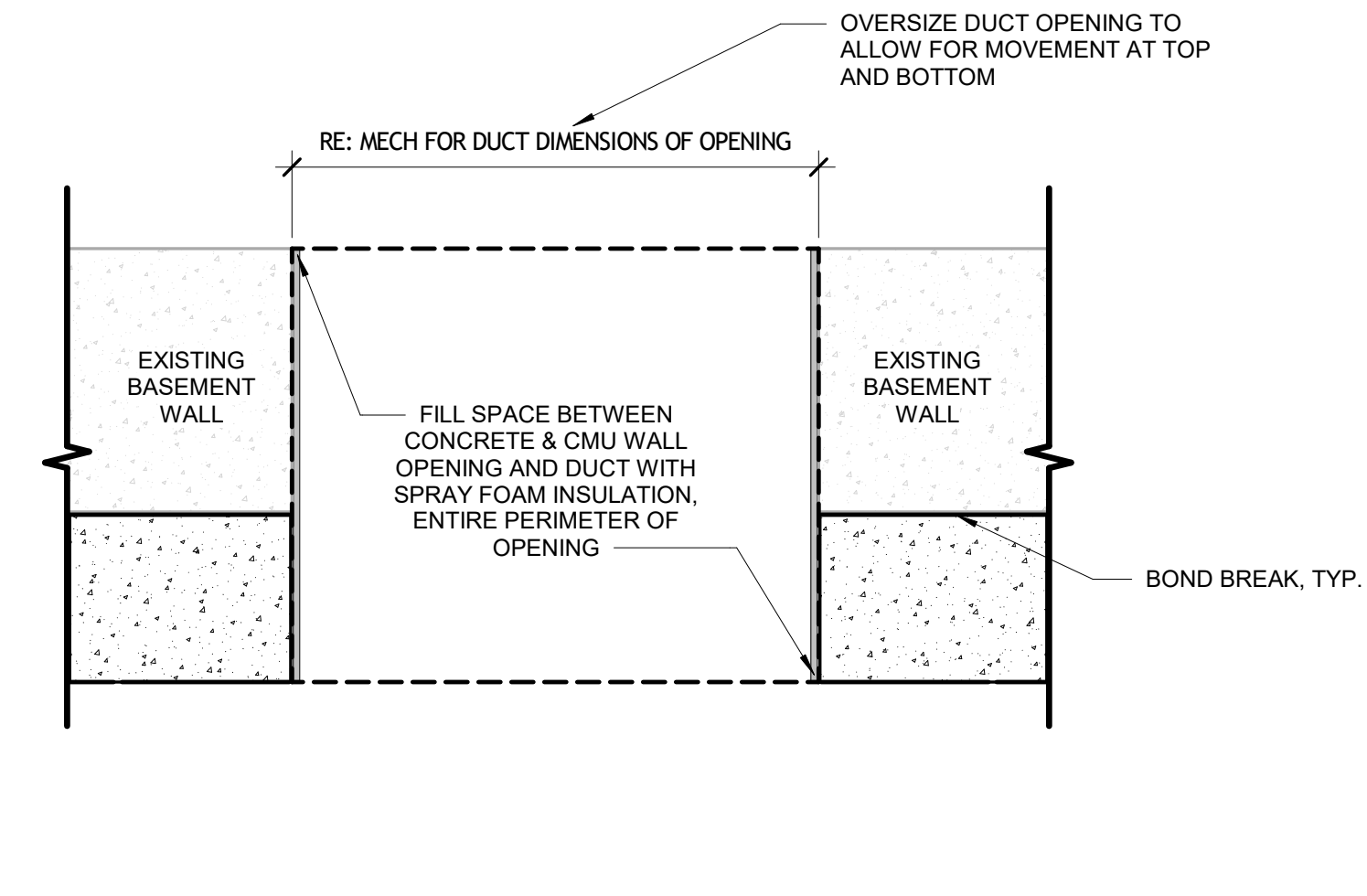
A1 PARAPET DETAIL
 A-101 | A-520 | 1 1/2" x 1'-0"



A2 ROOF DETAIL AT (E) BRICK WALL
 A-101 | A-520 | 1 1/2" x 1'-0"



A3 SCUPPER AT ROOF
 A-200 | A-520 | 1 1/2" x 1'-0"



A5 WALL PENETRATION DETAIL
 A-101 | A-520 | 1 1/2" x 1'-0"

THE STRUCTURAL ENGINEER'S SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING OR FABRICATING MATERIAL. STRUCTURAL ENGINEER AND ARCHITECT SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS AND SUCH RESPONSIBILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING OR FABRICATING MATERIAL. STRUCTURAL ENGINEER AND ARCHITECT SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES.

FILENAME: P:\UNC\2023-287\Gunter Hall Chiller Replacement\Coord\Arch\Sub\04g_LAYOUT1 - Model - REVISED: 1/16/2024 02:21 PLOTTED: USER: Bill Lomb

PROJECT DESCRIPTION

- Project consists of the replacement of mechanical equipment in the basement of an existing structure.
- This description is for general orientation only. The General Contractor is responsible for all scope items described in the drawings and project specifications as well as for all material and labor that can reasonably be inferred there from.

GENERAL APPLICATION

- These drawings must be used in conjunction with the architectural drawings on the project to clearly define all requirements for construction.
- No Contractor should attempt to bid nor construct any portion of this project without consulting the project architectural, mechanical, and electrical documents.
- All things which, in the opinion of the Contractor, appear to be deficiencies, omissions, contradictions, or ambiguities in the drawings shall be brought to the attention of the Structural Engineer. Corrections or written interpretations shall be issued before affected work may proceed.
- The Contractor shall inform the Structural Engineer, clearly and explicitly in writing of any deviation or substitution from requirements of the contract documents. Contractor shall not be relieved of any requirement of the contract documents by virtue of the Structural Engineer's review of shop drawings, project data, etc., unless the Contractor has clearly and explicitly informed the Structural Engineer in writing of any deviations or substitutions at time of submission.

EXISTING CONSTRUCTION

- Information regarding existing structural systems is based on drawings prepared by Martin/Martin dated 05/14/2003 and on site observations on 10/18/2023 by K&A personnel.
- Existing Conditions:
 - The current design is based on the best information available, with the understanding that not all conditions have been observed and unobserved conditions may not be fully understood.
 - All existing information, dimensions, elevations, etc. shall be considered approximate and existing conditions shall be field verified by the Contractor prior to ordering or fabricating material. Structural Engineer and Architect shall be informed in writing of any discrepancies.
 - Remodeling, retrofit, renovation, or rehabilitation of an existing building requires that certain assumptions be made regarding existing conditions. The General Contractor must immediately notify the structural engineer if any existing condition deviates from those indicated in the Contract Documents.
- Demolition and Shoring:
 - The General Contractor is responsible for shoring of existing structure where required during demolition and new construction.
 - The current interior walls and finishes may be significant to the stability of the structure and may be providing inadvertent load paths that are not observable and may impact how demolition impacts the structure.
 - The General Contractor should be prepared to brace and shore framing during demolition.
 - Demolition and reshoring are best accomplished prior to significant snowfall, if possible. If demolition takes place during the significant snowfall season, the Contractor's shoring design should account for this.
- No openings, nor any changes or additions, shall be made in any existing structural elements without written approval of the Structural Engineer. Where the function of an existing element as structural or non-structural is unclear, the determination of its function will be made solely by the Structural Engineer.

QUALITY ASSURANCE AND QUALITY CONTROL

- The Contractor is responsible for assuring quality, including workmanship and materials furnished by subcontractors and suppliers.
- Inspection or testing by the Owner does not relieve the Contractor of the responsibility to perform the work in accordance with the Contract Documents.
- Workmanship: The Contractor is responsible and shall bear the cost of correcting work which does not conform to the specified requirements.
- Correct deficient work by means acceptable to the Architect. The cost of extra work incurred by the Architect to approve corrective work shall be borne by the Contractor.
- The Owner's Testing Agency shall perform testing and special inspections required by the structural documents, building code, and the local authority. The Testing Agency shall comply with ASTM E329 and upon completion of work, the Testing Agency shall furnish a certificate of compliance, signed by the professional engineer overseeing special inspections and testing. The professional engineer must be registered and licensed in the state where the project is located.
- The individual employed by the Testing Agency, responsible for overseeing testing and inspection of soils and foundations shall be a professional engineer practicing the discipline of geotechnical engineering, referred to as the Geotechnical Engineer in the structural portion of the construction documents. The Geotechnical Engineer is responsible for testing and inspections of soils, earthwork, and foundations for conformance to the foundation design and the geotechnical report. See foundation section of the General Notes.
- See special inspections section of the General Notes for required testing and inspection.

SPECIAL INSPECTION

- Special inspection and testing shall be performed as required by the local jurisdiction, the building code, and the construction documents. See quality assurance section of the General Notes.
- Coordinate and schedule inspection and testing prior to the start of work requiring inspection and testing while providing special inspector reasonable notice.
- All deficiencies shall be corrected for acceptance by the Testing Agency.
- Inspections performed by the local jurisdiction do not replace inspection or testing required by the Owner's Testing Agency.
- Special inspection and testing is required for the items shown in the "Special Inspections and Testing" Table.

SPECIFICATIONS

- These General Notes are intended to function as the structural portion of project specifications.

CAST-IN-PLACE CONCRETE

- GENERAL:
- All concrete work shall conform to ACI 318 and ACI 301 and tolerances shall conform to ACI 117 unless noted otherwise. Contractor shall keep a copy of these references on site at all times.
 - Concrete Compressive Strength – See "Concrete Mix Design Requirements" table
 - Materials – See "Concrete Materials Designation" table
 - Unless noted otherwise, the terms reinforcing and reinforcement refer to elements reinforced with deformed reinforcing as defined in ACI 318 and/or reinforcing conforming to deformed reinforcing.

TESTING:

- Tests and inspections shall be performed in compliance with ACI 301 and Chapter 17 of the IBC. See Special Inspections.
- Concrete shall not be placed until reinforcing and embedded items have been inspected by the owner's independent inspection agency and/or the special inspector.
- See "Special Inspections and Testing" Table.

FORMING:

- Unless noted otherwise, all formwork shall conform to Class B finish in accordance with ACI 117 unless noted otherwise by architectural drawings. Refer to architectural drawings for architectural finish concrete.
- All construction joints shown on the drawings shall be incorporated into the structure unless elimination is approved by the Structural Engineer. Additional joints required to facilitate construction shall be located at points of minimum shear and shall be detailed on reinforcing shop drawings for review. Locate vertical joints in girders, beams, grade beams, joists, walls and slabs within the middle third between supports designed and detailed with dowels and keys for transfer of design shear, unless noted otherwise. Reinforcing shall pass continuously through construction joints. Where joints are shown as roughened, mechanically roughen surface to 1/4" amplitude clean and free of laitance.

REINFORCING AND EMBEDDED ITEMS:

- Provide standard hooks on bars terminating at a concrete face unless noted such as at edges of openings, slab edges, expansion joints, ends of beams, and ends of walls.

PLACING AND FINISHING:

- Handling, placing, constructing, and curing shall conform to ACI 301 including placement of concrete in wet weather, cold weather, and hot weather.

REINFORCED MASONRY

- GENERAL:
- All masonry work shall conform to TMS 602 unless noted otherwise. Contractor shall keep a copy of these references on site at all times.
 - Masonry Strength – See Masonry Strength Table
 - Materials – See Masonry Materials Table

TESTING:

- Owner will engage a qualified Testing Agency, approved by the Architect and Engineer to perform tests and Special Inspections. Upon completion of work, Testing Agency shall furnish a certificate of compliance, signed by the Professional Engineer responsible for management of the Agency. The Professional Engineer must be registered in the state where the project is located. Tests and inspections shall be performed in compliance with TMS 602 and Chapter 17 of the IBC. Inspections include: proportions of site-prepared mortar, construction of mortar joints, location of reinforcement and connectors, grout space, grade and size of reinforcement, proportions of site-prepared grout, grout placement and curing. Testing includes: Grout strength, mortar strength, and prisms.
- Masonry grout shall not be placed until reinforcing and connectors have been inspected by the owner's independent inspection agency and/or the special inspector.
- See "Special Inspections and Testing" Table.

SUBMITTALS:

- Submittals shall conform to TMS 602. All submittals shall be reviewed by the Contractor prior to Engineers/Architects review and shall bear Contractors review stamp. Contractor is responsible for reviewing submittals for conformance with all contract documents and coordination with all trades.
- Submittals for all masonry shall include: Mix designs for grout and mortar, material certificates for: reinforcing, anchors, ties, and metal accessories, masonry units, mortar materials, and grout materials. Include control joint locations, masonry pour sequencing and life heights per arch and structural drawings
- Reinforcing shop drawings shall include placement drawings 1/8"=1'-0" minimum scale complete with wall elevations. Include special reinforcement required at openings through masonry structure. Include all accessories specified and required to support reinforcement.
- Embed shop drawings shall include placement drawings 1/8"=1'-0" minimum scale locating all embed plates, anchors, and anchor bolts for structural and non-structural components attaching to masonry. Contractor is responsible for coordinating with all trades for determining the need for embeds and locations. Post installed anchors are not allowed unless approved by the structural engineer during the shop submittal process or specified in the structural drawings.

REINFORCING AND EMBEDDED ITEMS:

- Vertical reinforcement shall extend the full height of the wall unless noted otherwise. Provide vertical reinforcement at all wall corners; end of walls; each side of openings and at each side of control and expansion joints.
- Provide bond beams at sill lines, top and bottom edge of openings, top of walls, floor lines, and roof lines. Bond beams shall be continuous unless noted otherwise. See typical bond beam detail.
- Reinforcement shall remain continuous through control joints at floor lines, roof lines, lintels and top and bottom openings, all other horizontal reinforcement shall be terminated at each side of the control joint.
- Provide standard hooks on bars terminating at a masonry face unless noted. i.e.: edges of openings, ends of walls, heads, jambs, control joints, etc.
- Splice bars with contact laps per the reinforcing splice and development length table, unless noted otherwise.
- Vertical reinforcement shall have a minimum clearance of 3/4" from masonry and shall be supported and fastened together to prevent displacement.
- Horizontal joint reinforcing shall be lapped no less than 6" at all splices including corners and tees where no control joint is used.
- Dowels from concrete shall be furnished and placed by the concrete contractor.
- Welding of reinforcing is prohibited, unless noted otherwise and shall conform to ASTM A705.
- Provide embeds (including anchors) for supporting structural and non-structural elements including but not limited to: hand rails, canopies, miscellaneous steel, etc. As required, see deferred submittals.

STRUCTURAL DESIGN CRITERIA			
Building Code:	2021 International Building Code	(Note 1)	
	2021 International Existing Building Code		
Local Jurisdiction:	State of Colorado (City of Greeley for Climatic Data)		
Risk Category:	III		
IBC Alteration Level:	1		
Change of Occupancy:	No		
Wind Loading			
Basic Wind Speed	Vult= 115 MPH	Vasd= 90 MPH	
Exposure Category	C		
G/CpI	+/- 0.85		
Ultimate Wind Design Pressure Components & Cladding, PSF	20ft ²	50ft ²	100ft ²
Interior Wall Zone (Zone 4)	22 /-23	20 /-22	19 /-21
Wall end Zone (Zone 5)	22 /-28	20 /-25	19 /-23
Snow Loading (Notes 2,3)			
Ground Snow Load, Pg	30 psf		
Minimum Flat Roof Snow Load, Pf	23 psf		
Importance Factor, Is	1.1		
Exposure Factor, Ce	1.0		
Thermal Factor, Ct	1.0		
Slope Factor, Cs	1.0		
NOTES:			
1.	The governing building code defines the applicable edition of referenced codes and standards. Where governing building code does not define referenced codes and standards, the latest edition shall be used.		
2.	Ground snow load is according to the City of Greeley Building Department on 3/12/2024.		
3.	All snow loads on the structure for both flat and sloped roofs are calculated in accordance with the 2021 IBC and based on the ground snow load stated above. Roof snow loads consider the following load conditions: snow drifting.		

REINFORCED MASONRY (CONTINUED)

MASONRY ERECTION:

- Unless otherwise noted, lay masonry in running bond.
- Unless noted provide control joints at 25 feet on center.
- Coordinate blockouts, reveals, holes, openings, and built in items with all contract documents and trades.
- Grout lift heights shall follow requirements of TMS 602 Sections 3.5C and 3.5D.
- Grout cells solid at: reinforcing, bond beams, inserts, anchors, elevator guide rails, 24" below and 12" to each side of steel beam bearing points and below grade at exterior walls
- Consolidate grout pours 12" or less in height by mechanical vibration or puddling not more than five minutes after grouting.
- Consolidate grout pours exceeding 12" in height by mechanical vibration not more than five minutes after grouting, and reconsolidate after initial water loss and settlement has occurred.
- Grout in masonry beams shall be vibrated as it is placed. Where full depth grouting is required, the grouting shall extend to the end of the horizontal reinforcement.
- Hot weather construction refer to section 1.8D.
- Cold weather construction refer to section 1.8C.

MASONRY VENEER

- Masonry veneer to be installed according to TMS 602/402. RE: architectural drawings for required finish and assembly.
- Stone veneer to be installed according to TMS 602/402 and IBC Chapter 14. RE: architectural drawings for required finish and assembly.

MASONRY REINFORCING SPLICE LENGTHS		
Bar Size	Splice Length (in.)	
#3	13	
#4	22	
#5	35	
#6	64	
#7	87	
#8	131	

- NOTES:
- Laps in reinforcing bars in reinforced masonry shall have minimum lengths defined above unless noted otherwise on the drawings.
 - All splices to be wired together.
 - Splice and development lengths are the same value for horizontal and vertical bars.
 - F'm must be greater than or equal to 2,000 psi.
 - Clear cover from outside face of block must be greater than 2".

STATEMENT OF SPECIAL INSPECTIONS IBC 2021

- Definitions:
- Special Inspection: Inspection of construction requiring the expertise of an approved special inspector in order to ensure compliance with this code and the approved construction documents.
 - Continuous Special Inspection: Special Inspection by the special inspector who is present continuously when and where the work to be inspected is being performed.
 - Periodic Special Inspection: Special inspection by the special inspector who is intermittently present where the work to be inspected has been or is being performed.
 - Special Inspector: A qualified person employed or retained by an approved agency and approved by the building official as having the competence necessary to inspect a particular type of construction requiring special inspection.

SOILS AND FOUNDATIONS SPECIAL INSPECTIONS			
Inspection Task or Testing	Frequency		Criteria/Remarks
	Continuous	Periodic	
Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X	
Verify excavations are extended to proper depth and have reached proper material.	-	X	
Perform classification and testing of compacted fill materials.	-	X	
During fill placement, verify use of proper materials and procedures in accordance with the provisions of the approved geotechnical report. Verify densities and lift thicknesses during placement and compaction of compacted fill.	X	-	
Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	-	X	

MASONRY SPECIAL INSPECTIONS			
Notes:			
1. Minimum levels of special inspection conform to IBC 1705.4 and TMS 602 1.6			
2. Where R is noted in the Periodic column, the test/inspection is required prior to or during construction			
Special Inspection of Structural Masonry			
Inspection Task or Testing	Frequency		Criteria/Remarks
	Continuous	Periodic	
Prior to construction, verification of compliance of submittals.		R	TMS 602 - 1.5
Prior to construction, verification of f'm		R	TMS 602 - 1.4 B
During construction, verification of Slump flow and Visual Stability Index (VSI) when self-consolidating grout is delivered to the project site		R	TMS 602 -1.5 & 1.6.3
As masonry construction begins, verify that the following are in compliance:			
Proportions of site-prepared mortar	X		TMS 602 - 2.1, 2.6 A, & 2.6C
Grade, type and size of reinforcement, connectors and anchor bolts	X		TMS 602 - 2.4 B, & 2.4 H
Sample panel construction	X		TMS 602 - 1.6 D
Prior to grouting, verify that the following are in compliance:			
Grout space	X		TMS 602 - 3.2 D, & 3.2 F
Placement of reinforcement, connectors, and anchor bolts	X		TMS 602 - 3.2 E & 3.4 TMS 402 6.1, 6.3.1, 6.3.6 & 6.3.7
Proportions of site-prepared grout	X		TMS 602 - 2.6 B & 2.4 G.1.b
Verify compliance of the following during construction:			
Materials and procedures with the approved submittals	X		TMS 602 - 1.5
Placement of masonry units and mortar joint construction	X		TMS 602 - 3.3 B
Size and location of structural members	X		TMS 602 - 3.3 F
Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction	X		TMS 402 - 1.2.1e & 6.2.1 & 6.3.1
Welding of reinforcement	X		TMS 402 - 6.1.6.1.2
Preparation, construction, and protection of masonry during cold weather (temperature below 40 deg F (4.4 deg C) or hot weather (temperature above 90 deg F (32.2 deg C)).	X		TMS 602 - 1.8 C & 1.8 D
Placement of grout is in compliance	X		TMS 602 3.5 & 3.6 C
Observe preparation of grout specimens, mortar specimens, and/or prisms	X		TMS 602 - 1.4 B.2, 1.4 B.3 & 1.4 B.4

CONCRETE SPECIAL INSPECTIONS			
Notes:			
1. Minimum inspections conform to IBC 1705.3			
Special Inspection of Concrete Elements			
Inspection Task or Testing	Frequency		Criteria/Remarks
	Continuous	Periodic	
Inspect Reinforcement and verify placement		X	Inspect rebar size, grade, quantity, spacing, hook length, splice length, cover, support, and surface condition
Inspect anchors and embedded structural plates cast in concrete		X	
Inspect post installed anchors: Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads	X		
Inspect post-installed anchors: All others not included above		X	
Verify use of required design mix		X	
Prior to concrete placement, fabricate specimens for strength test, perform slump and air content tests, and determine the temperature of the concrete	X		
Inspect concrete placement for proper application techniques	X		

CONCRETE MIX DESIGN REQUIREMENTS							
Element	f'c (psi)	Cement Type	Max W/C	Max Agg	Air Content (Note 1,2)	Slump (Note 3)	Exposure Class
Foundation Walls	4000, NW	I/II	0.45	3/4"	-	4"	FO CO SO WO
Interior Slab-on-Grade (SOG) & Isolation Pads	4500, NW	I/II	0.45	3/4"	-	4"	FO CO SO WO

TABLE FOOTNOTES:

- For any concrete exposed to freezing temperatures and moisture, the air content shall be the greater of 5%, minimum required by ACI 318, or of that shown in the table.
- Tolerance on air content as delivered shall be +/- 1.5%.
- Slump tolerances as follows (ACI 117):
Specified Slump not greater than 4" = +/- 1"
Specified Slump more than 4" = +/- 1 1/2"
Where Slump is specified as a range: No Tolerance
See ACI 301 for slump of concrete before addition of plasticizers or high-range water reducing admixtures.
- Unless otherwise approved by structural engineer.

GENERAL CONCRETE MIX NOTES:

- Strength (f'c) is the compressive strength at 28 days unless noted otherwise or compressive strength at the specified age.
- Concrete is normal weight concrete unless noted otherwise. Normal weight concrete (NW) shall have a dry density of 145 ± 5 pcf unless noted otherwise.
- Required minimum average splitting tensile strength = 6.7√(f'c) regardless of concrete density.
- Mix designs shall be in accordance with ACI 301.
- Exposure Class indicates the severity of the anticipated exposure of concrete members for each exposure indicated below according to ACI 318 Table 19.3.1.1/ACI 301:
Freeze Thaw Exposure noted thus: F0,F1,F2,F3
Water-Soluble Sulfate in Soil Exposure noted thus: S0,S1,S2,S3
Permeability Requirements noted thus: W0,W1
Corrosion Protection of Reinforcement noted thus: C0,C1,C2
Refer to ACI 301/ACI 318 for specific requirements based on the exposure category indicated in the mix design table above.
- Corrosion Protection of Reinforcement requirements (C0,C1,C2):
Maximum water-soluble chloride ion (CL-) content in concrete, by % weight of cement:
Reinforced Concrete: C0 = 1.0 C1 = 0.3 C2 = 0.15
- Where concrete is exposed to F3 freeze thaw exposure, restrictions on maximum fly ash and/or other cementitious materials apply. Refer to Table 26.4.2.2(b) in ACI 318 for requirements.

CONCRETE MATERIALS DESIGNATION		
Material	Standard	
Portland Cement	ASTM C150, Type I or Type II	
Fly Ash	ASTM C618, Class C or F	
Aggregate	ASTM C33	
Water	Potable	
Water Reducing Admixture	ASTM C494, Type A or Type D	
High Range Water Reducing Admixture	ASTM C494, Type F or Type G	
Accelerator Admixture	ASTM C494, Type C or Type E	
Air Entraining Admixture	ASTM C260	
Curing Compound	ASTM C309, Type I, Class A	
Reinforcing Bars	ASTM A615-grade 60 (Specified Yield Strength = 60ksi)	

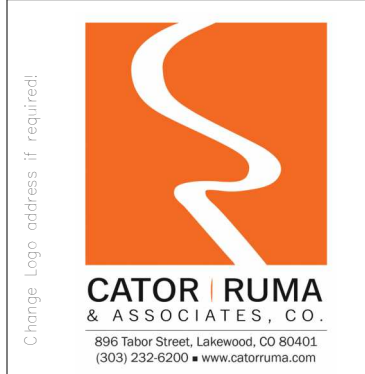
NOTES:

- Type III Portland cement may be used if acceptable to the Architect.

CONCRETE REINFORCING TENSION CONTACT SPLICE LENGTHS FOR CONCRETE COMPRESSION STRENGTH 4000 PSI CASE 1				
Bar Size	Lap Class	Top Bars	Other Bars	
#3	A	19"	14"	
	B	24"	19"	
#4	A	25"	19"	
	B	32"	25"	
#5	A	32"	24"	
	B	40"	31"	
#6	A	37"	29"	
	B	48"	37"	
#7	A	54"	42"	
	B	70"	54"	

NOTES:

- The table above is for concrete compression strength of 4000psi and Case #1 reinforcement.
- The table above is for Case #1 reinforcement with clear spacing greater than 2"db AND cover greater than or equal to db.
- Top bars are horizontal reinforcement placed such that more than 12 inches of fresh concrete is cast below the development length or splice. All tension splices shall be class B splices unless noted otherwise.
- Other bars are reinforcement other than Top bars.



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

GENERAL NOTES

REVISIONS:

CONSTRUCTION DOCUMENTS

DATE: 10/14/24
DRAWN BY: NCD
CHECKED BY: AJS
JOB NO: 2023-287

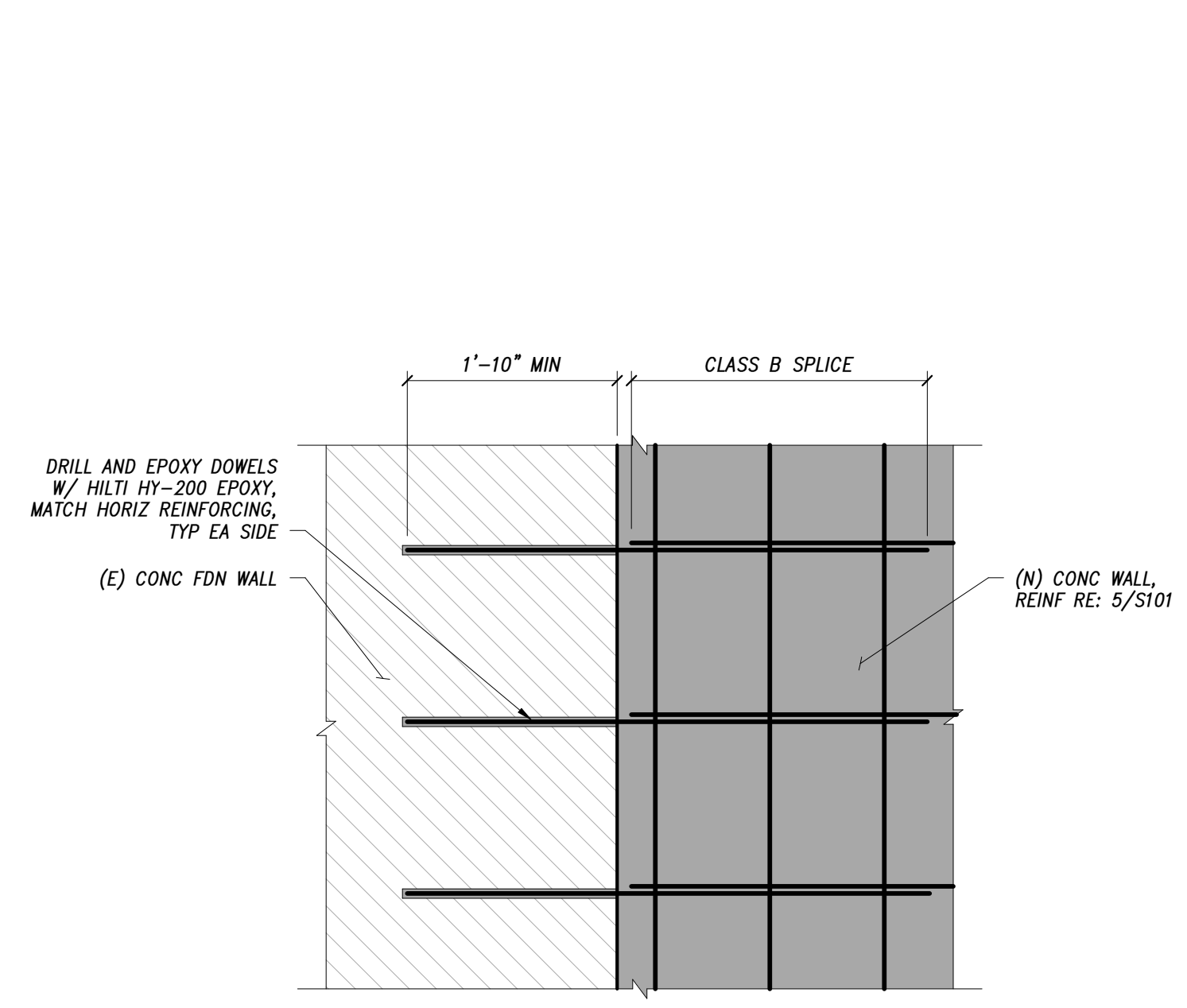
SHEET NO.

S100

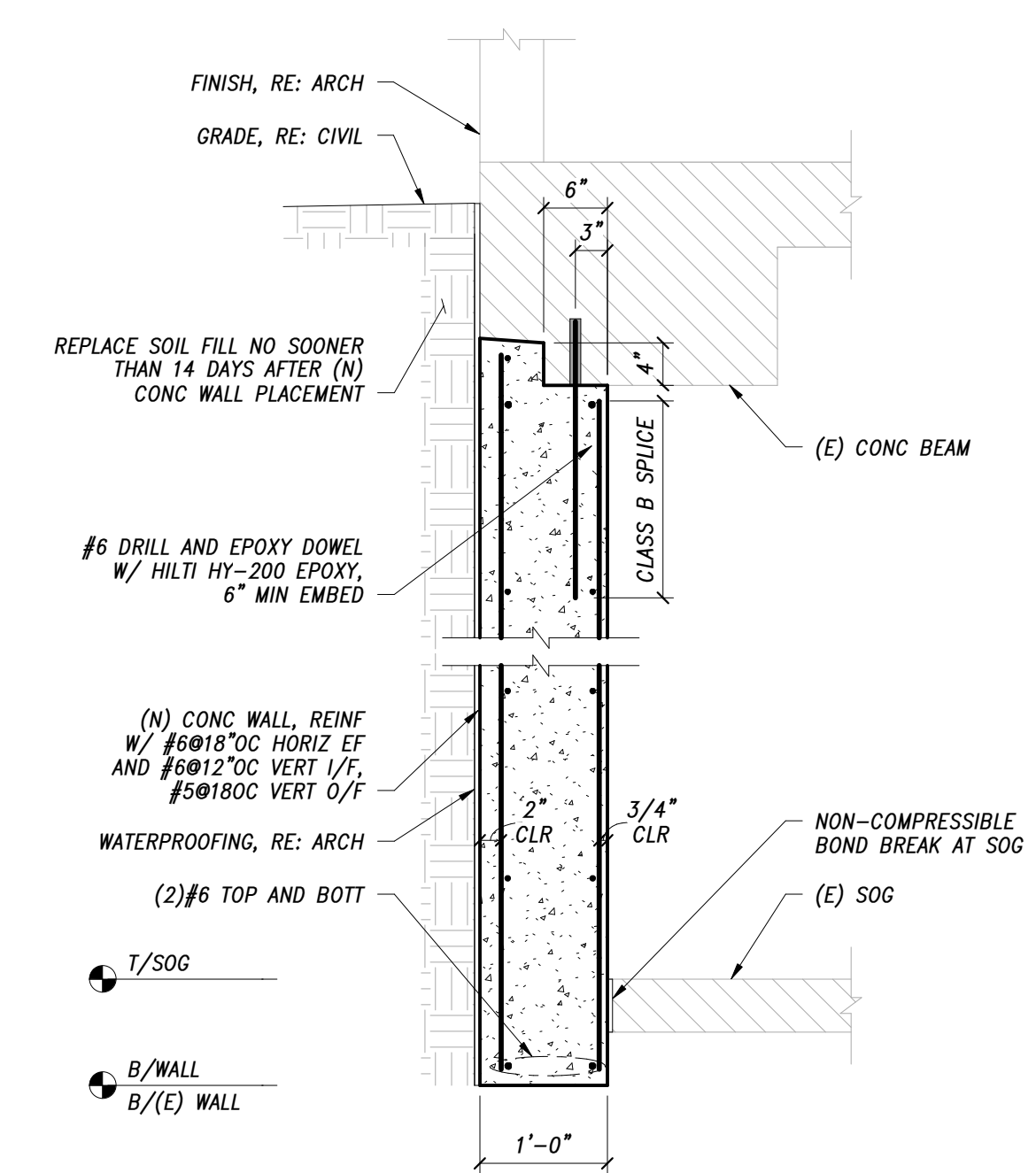
THE STRUCTURAL ENGINEER'S SEAL ON THIS DRAWING INDICATES THAT THE INFORMATION SHOWN AND THE CALCULATIONS PERTAINING TO THAT INFORMATION HAVE BEEN PREPARED BY QUALIFIED PEOPLE UNDER THE DIRECTION OF THE ENGINEER-OF-RECORD. THE SEAL DOES NOT IMPLY RESPONSIBILITY FOR INFORMATION PREPARED BY OTHERS NOR FOR ANY INFORMATION NOT SHOWN ON THIS DRAWING AND SUCH RESPONSIBILITY BE PRELIMINARY IN NATURE AND BE ISSUED FOR INFORMATION ONLY.

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS ON THE PROJECT TO CLEARLY DEFINE ALL OF THE REQUIREMENTS FOR CONSTRUCTION. CONTACT ARCHITECT FOR CLARIFICATION.

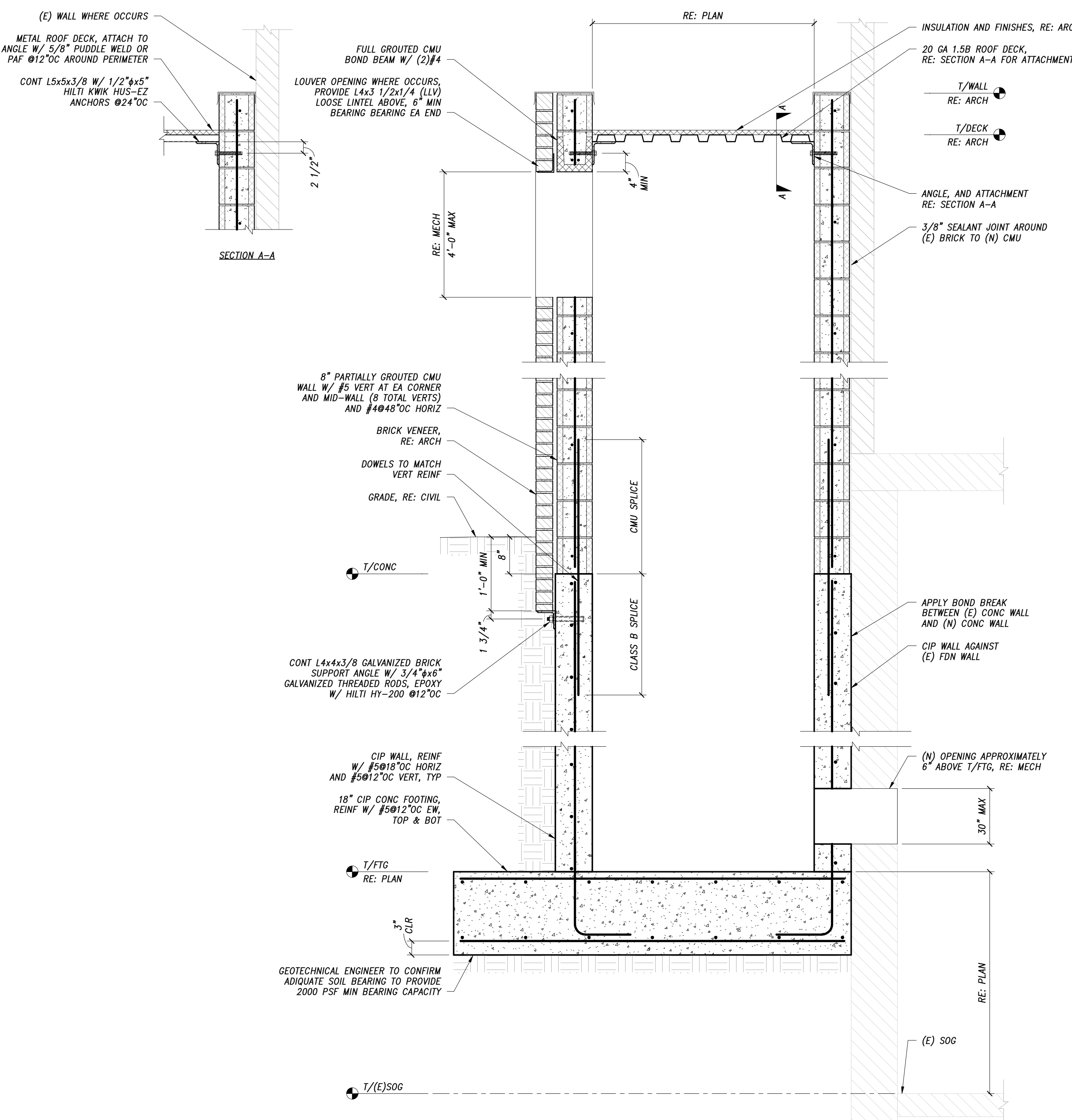
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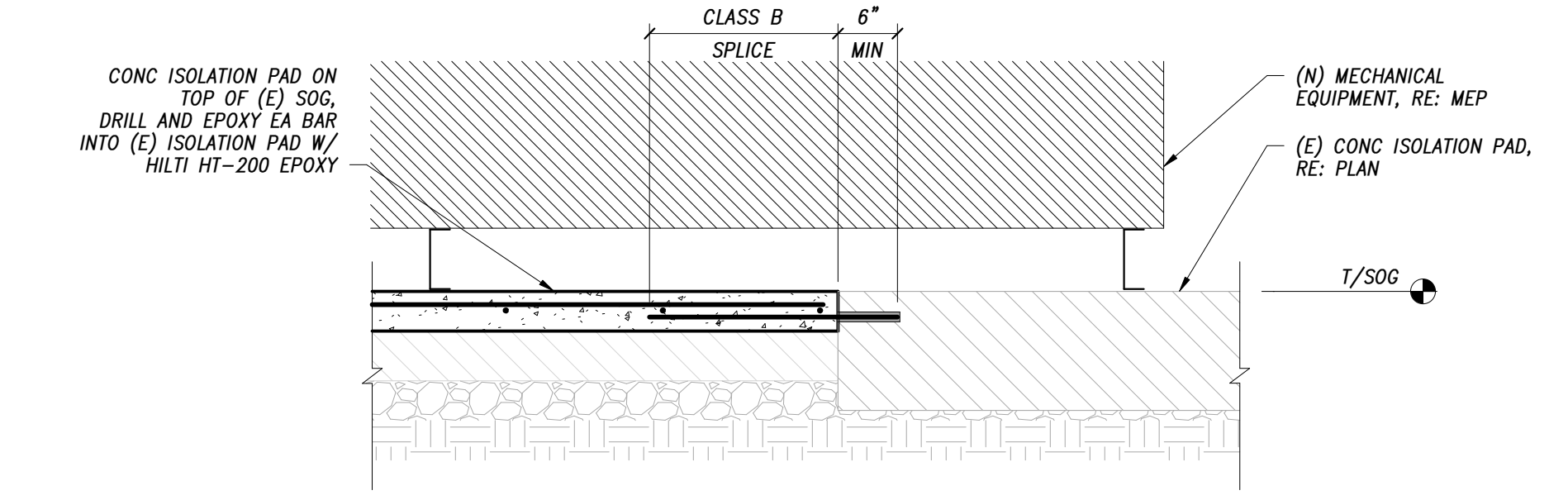
6 KNOCKOUT DETAIL
3/4" = 1'-0"



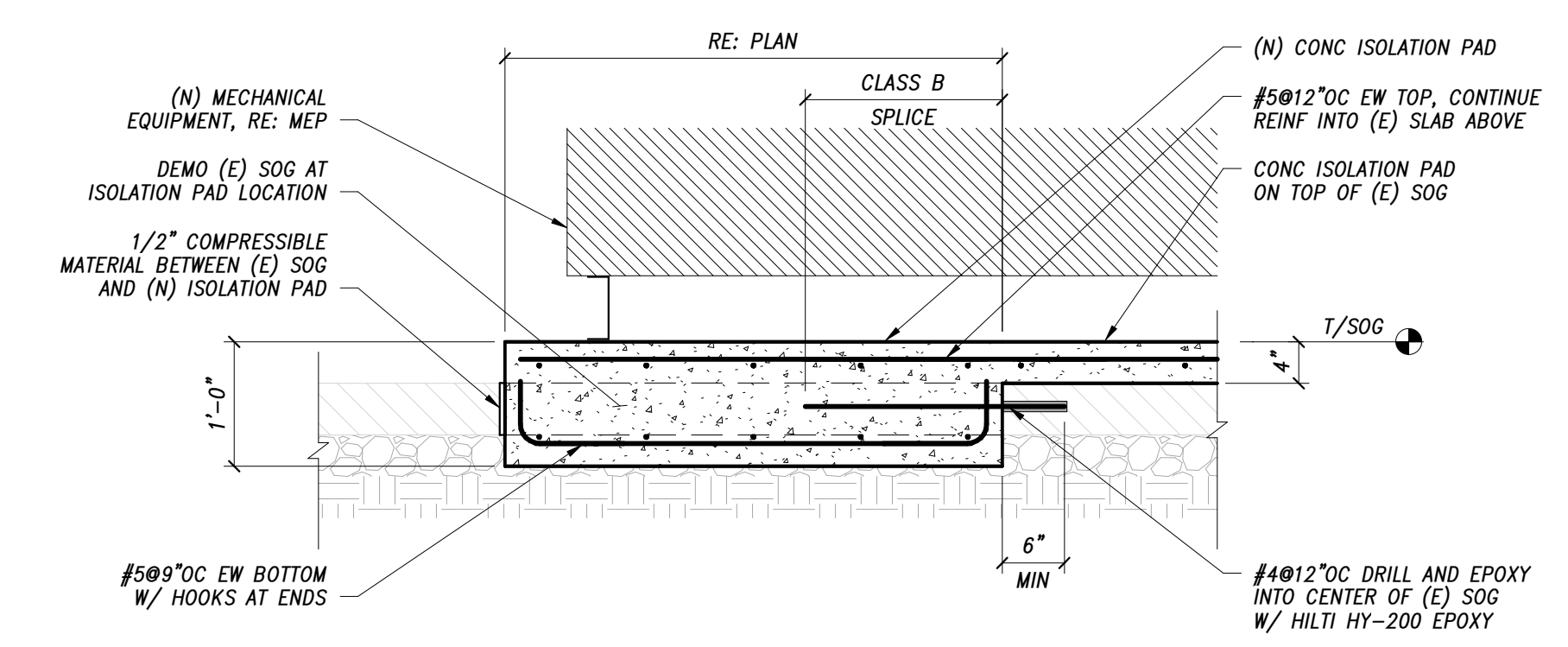
5 KNOCK OUT DETAIL
3/4" = 1'-0"



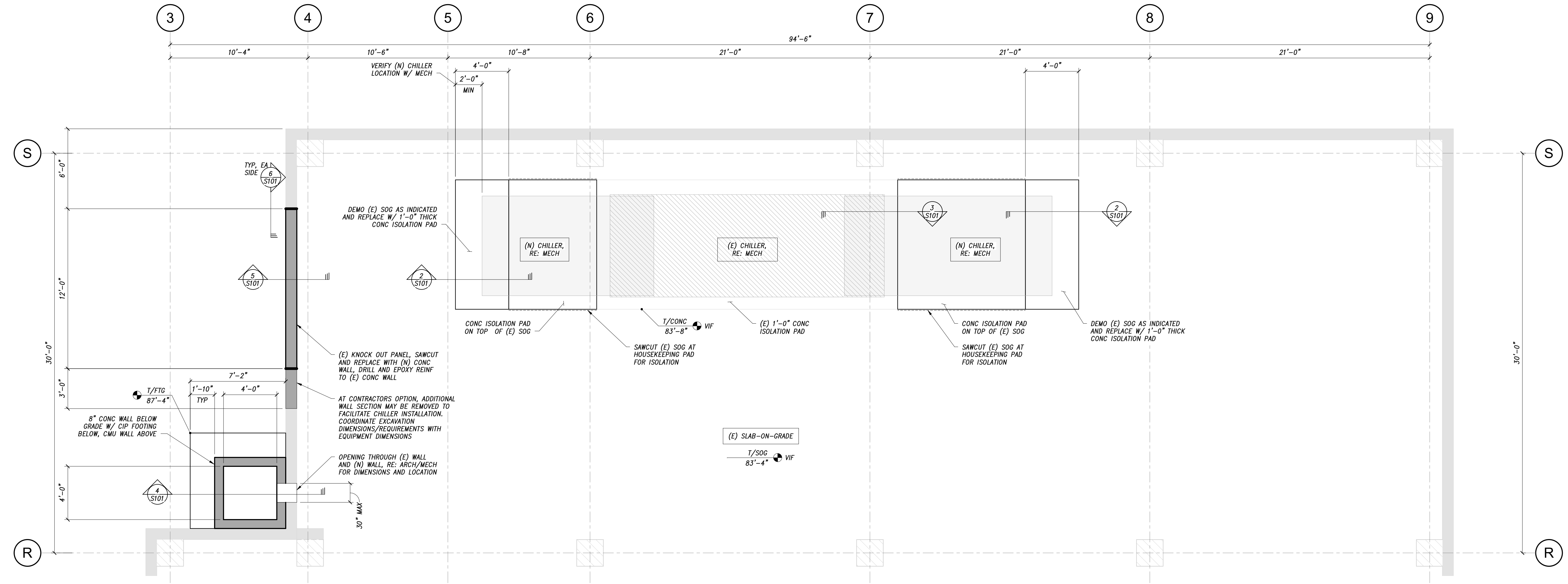
4 BUMP OUT DETAIL
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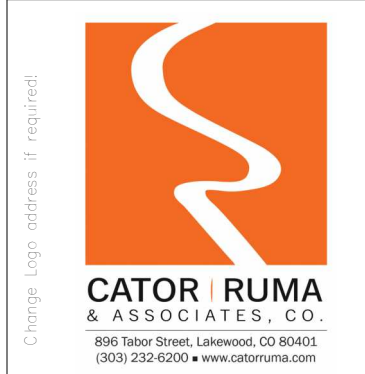
3 ISOLATION PAD DETAIL
3/4" = 1'-0"



2 ISOLATION PAD DETAIL
3/4" = 1'-0"



1 GROUND LEVEL PLAN
1/4" = 1'-0"



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

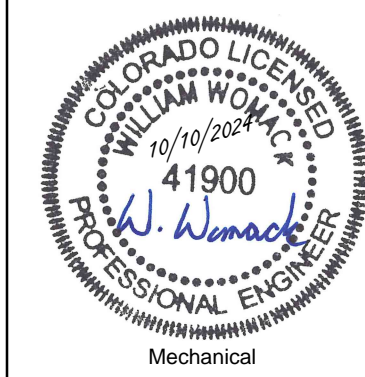
GROUND LEVEL PLAN & DETAILS

REVISIONS:

CONSTRUCTION DOCUMENTS
DATE: 10/14/24
DRAWN BY: NCD
CHECKED BY: AJS
JOB NO: 2023-287

SHEET NO.

S101



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

MECHANICAL LEGENDS
AND GENERAL NOTES

REVISIONS:

BID SET

DATE: 10/14/24

DRAWN BY: WOW

CHECKED BY: STC

JOB NO: 2023-375

SHEET NO.

M1.0

UNLESS NOTED OTHERWISE ALL SCHEDULED DATA IS LISTED AT ELEVATION 4800 FT

HVAC LEGEND (Not all symbols listed below are used on these drawings)			
ABBR.	SYMBOL	DESCRIPTION	DESCRIPTION
HWS	---HWS---	HOT WATER SUPPLY PIPING	SUPPLY DUCT UP / DOWN
HWR	---HWR---	HOT WATER RETURN PIPING	RETURN DUCT UP / DOWN
HTWS	---HTWS---	HIGH TEMPERATURE HEATING WATER SUPPLY PIPING	EXHAUST DUCT UP / DOWN
HTWR	---HTWR---	HIGH TEMPERATURE HEATING WATER RETURN PIPING	ROUND DUCT UP / ROUND DUCT DOWN
CHWS	---CHWS---	CHILLED WATER SUPPLY PIPING	FLAT OVAL DUCTWORK
CHWR	---CHWR---	CHILLED WATER RETURN PIPING	FLEXIBLE DUCT CONNECTION
D	---D---	COOLING COIL DRAIN PAN PIPING	BACKDRAFT DAMPER
CWS	---CWS---	CONDENSER WATER SUPPLY PIPING	TEMP. CONTROL DAMPER--OPPOSED BLADE
CWR	---CWR---	CONDENSER WATER RETURN PIPING	TEMP. CONTROL DAMPER--PARALLEL BLADE
GHWS	---GHWS---	GLYCOL HEATING WATER SUPPLY PIPING	MVD
GHWR	---GHWR---	GLYCOL HEATING WATER RETURN PIPING	DUCT MOTORIZED DAMPER
PCWS	---PCWS---	PROCESS CHILLED WATER SUPPLY PIPING	CONICAL FITTING WITH MVD
PCWR	---PCWR---	PROCESS CHILLED WATER RETURN PIPING	SPIN-IN FITTING WITH MVD
LPS	---LPS---	LOW PRESSURE STEAM SUPPLY PIPING (0 - 15#)	FD
LPC	---LPC---	LOW PRESSURE CONDENSATE RETURN PIPING	FSD
MPS	---MPS---	MEDIUM PRESSURE STEAM SUPPLY PIPING (16# - 60#)	SD
MPC	---MPC---	MEDIUM PRESSURE CONDENSATE RETURN PIPING	DUCT SMOKE DETECTOR
HPS	---HPS---	HIGH PRESSURE STEAM SUPPLY PIPING (61# - 125#)	DA0
HPC	---HPC---	HIGH PRESSURE CONDENSATE RETURN PIPING	TURNING VANES IN DUCT ELBOW
PC	---PC---	PUMPED CONDENSATE PIPING	
BBD	---BBD---	BOILER BLOWDOWN PIPING	EP
BF	---BF---	BOILER FEED WATER PIPING	PE
RL	---RL---	REFRIGERANT LIQUID PIPING	Ⓢ
RS	---RS---	REFRIGERANT SUCTION PIPING	Ⓢ
RHG	---RHG---	REFRIGERANT HOT GAS PIPING	Ⓢ
TT	ⓈTT	THERMOSTATIC STEAM TRAP	Ⓢ
F&T	ⓈF&T	FLOAT AND THERMOSTATIC STEAM TRAP	Ⓢ
IBT	ⓈIBT	INVERTED BUCKET STEAM TRAP	Ⓢ
TCV	ⓈTCV	(2 OR 3-WAY) TEMPERATURE CONTROL VALVE	Ⓢ
AV	---AV---	VENTURI METER	Ⓢ
BV	---BV---	CALIBRATED BALANCING VALVE	---U---
AFV	---AFV---	AUTO FLOW VALVE	---U---
RSV	---RSV---	REFRIGERANT SERVICE VALVE	RISE
DPS	---DPS---	DIFFERENTIAL PRESSURE SWITCH	DROP
FS	---FS---	FLOW SWITCH	A.L.
EJ	---EJ---	EXPANSION JOINT	TCOAD
BJ	---BJ---	BALL JOINT EXPANSION COMPENSATOR	TCRAD
SA	---SA---	SUPPLY AIR	TCOAE
RA	---RA---	RETURN AIR	SP IN WC
EA	---EA---	EXHAUST AIR	EOOM
OA	---OA---	OUTSIDE AIR	SCOR
RV	---RV---	REFRIGERANT VENT PIPING	SD
			RG
			RG
			EG

GENERAL LEGEND (Not all symbols listed below are used on these drawings)			
ABBR.	SYMBOL	DESCRIPTION	DESCRIPTION
	SECTION DESIGNATION		
	SECTION CUT ON THIS SHEET		
	VIEW REFERENCE DESIGNATION		
	VIEW REFERENCE ON THIS SHEET		
	EQUIPMENT UNIT IDENTIFICATION		
	EQUIPMENT UNIT NUMBER (UNIT SERVED - FLOOR - SEQUENCE #)		
	DIFFUSER IDENTIFICATION		
	DIFFUSER NECK DIAMETER		
	DIFFUSER CFM		
	MANUAL VOLUME DAMPER		
	LINEAR DIFFUSER IDENTIFICATION		
	LINEAR DIFFUSER NECK DIAMETER		
	LINEAR DIFFUSER LENGTH		
	LINEAR DIFFUSER CFM		
	FINNED TUBE RADIATOR ACTIVE ELEMENT LENGTH		
	EQUIPMENT UNIT IDENTIFICATION		
	EQUIPMENT UNIT NUMBER		
	RADIATOR ENCLOSURE LENGTH (OR W=IN-WALL-TO-WALL)		
	KEYNOTE REFERENCE		
	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE		
	TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR#)		
	POINT OF CONNECTION, NEW TO EXISTING		
	POINT OF DISCONNECTION, DEMO		
	DIRECTION OF FLOW IN PIPE		
	DUCTWORK, PIPING AND EQUIPMENT TO BE REMOVED		
(E)		EXISTING	
(N)		NEW	
(R)		RELOCATED	C.A.P.
(F)		FUTURE	
DIA	φ	DIAMETER	
WAD		WALL ACCESS DOOR	
NC		NOT IN CONTRACT	
AFF		ABOVE FINISHED FLOOR	
GC		GENERAL CONTRACTOR	
MC		MECHANICAL CONTRACTOR	
EC		ELECTRICAL CONTRACTOR	
UNO		UNLESS NOTED OTHERWISE	
C		COMMON	
NC		NORMALLY CLOSED	
NO		NORMALLY OPENED	

DOUBLE/SINGLE LINE DUCT LEGEND (Not all symbols listed below are used on these drawings)					
SINGLE LINE	DOUBLE LINE	SINGLE LINE	DOUBLE LINE	SINGLE LINE	DOUBLE LINE
45° TEE (ROUND)	90° TEE (RECTANGULAR)	CONICAL TEE	MANUAL VOLUME DAMPER	REDUCER	45° ELBOW
45° TEE (RECTANGULAR)	90° TEE (ROUND)	DUCT SPLIT	GRID RUNOUT		

GENERAL NOTES:

- WORK INCLUDED IN THE CONTRACT IS DENOTED IN BOLD. EXISTING CONDITIONS TO REMAIN ARE DENOTED LIGHTLY.
- A DETAILED METHOD OF PROCEDURE IS REQUIRED WHEN A CONSTRUCTION ACTIVITY AFFECTS THE SAFETY OF THE OCCUPANTS, OWNER'S EQUIPMENT OR VALUABLE CONTENTS OF ANY SYSTEM WHICH SUPPORTS THESE SYSTEMS, OR ESSENTIALLY AFFECTS THE BUILDING MANAGEMENT, OPERATIONS OR SECURITY.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES FOR RESOLUTION.
- COORDINATE WORK WITH ALL TRADES.
- CONTRACTOR IS RESPONSIBLE FOR SECURING AND WEATHERPROOFING ANY ROOF OPENING NOT COMPLETED DURING WORKING HOURS.
- COORDINATE ALL DUCTWORK AND PIPING WITH EQUIPMENT, STRUCTURE, ETC.
- CONTRACTOR SHALL NOT SHUT DOWN / TAKE OUT OF SERVICE ANY SYSTEMS WITHOUT FIRST COORDINATING WITH OWNER AND PREPARING M.O.P.

PROJECT NOTES:

- THIS PROJECT IS TO REPLACE THE CHILLER AT ROSS HALL. THE EXISTING TRANE CHILLER IS AN ABSORPTION MACHINE UTILIZING THE CAMPUS HIGH TEMPERATURE HOT WATER SYSTEM. THE NEW CHILLERS TO BE VARIABLE SPEED SOREW CHILLERS.
- PROVIDE A PRELIMINARY TEST AND BALANCE REPORT TO ESTABLISH THE CURRENT PERFORMANCE OF THE CHILLED WATER AND CONDENSER WATER SYSTEMS. THIS INCLUDES PUMP PERFORMANCE, ALONG WITH FLOWS AND PRESSURE DROPS THROUGH THE CHILLER, COOLING TOWERS, AND AIR HANDLERS. THE PRELIMINARY TAB REPORT TO BE COMPLETED BEFORE THE CHILLER SUBMITTAL.
- ADD ALTERNATE #1: CONVERT THE CHILLED WATER SYSTEM IN ROSS HALL TO A VARIABLE FLOW SYSTEM. THIS IS WORK AT THE AIR HANDLERS AND INCLUDES REPLACING 3-WAY VALVES WITH PRESSURE INDEPENDENT 2-WAY VALVES AND REMOVING COIL PUMPS.
- ADD ALTERNATE #2: REBUILD THE COOLING TOWERS.
- ADD ALTERNATE #3: REPLACE THE EXISTING CONDENSER WATER PUMPS P-1 AND P-2 WITH NEW PUMPS.
- CHEMICALLY CLEAN THE EXISTING CONDENSER WATER PIPING TO REMOVE THE SCALE BUILDUP. REFER TO SPEC SECTION 232000 ON CLEANING OF OLD RUSTY HYDRONIC SYSTEMS FOR MORE INFORMATION.
- CONSTRUCTION TO TAKE PLACE OVER THE WINTER TIME. SEE WORK SEQUENCE IN SPEC SECTION 01000 FOR MORE INFORMATION. THE CONTRACTOR TO COORDINATE THE EXACT SCHEDULE WITH THE OWNER. BE SURE TO ACCOUNT FOR LONG LEAD ITEMS.
- THE EXISTING ABSORPTION CHILLER TO BE REMOVED. THE CONTRACTOR HAS SALVAGE RIGHTS TO THAT CHILLER. ANY FINANCIAL BENEFIT TO BE USED TO OFFSET THE COST OF THE NEW CONSTRUCTION.
- THE INHIBITORS IN THE LITHIUM BROMIDE MAY BE TOXIC. THE CONTRACTOR TO REMOVE AND PLACE THE LITHIUM BROMIDE FROM THE ABSORPTION CHILLER IN 15 OR 30 GAL DRUMS. TURN THE DRUMS OVER TO UNC FOR DISPOSAL. DISPOSE OF ALL OTHER FLUIDS PER EPA REQUIREMENTS.
- SHUTTING DOWN THE HIGH TEMPERATURE HOT WATER SYSTEM TO THE BUILDING TO BE LIMITED DURATION DURING OFF HOURS, AND DURING WARM WEATHER. THE CONTRACTOR TO COORDINATE SCHEDULE WITH UNC. THE HWTH SYSTEM SUPPLIES THE BUILDING HEATING HOT WATER AND DOMESTIC HOT WATER. SEE SPEC SECTION 01000 FOR MORE INFORMATION.
- UNC TO TAKE OUT OF SERVICE THE HIGH TEMPERATURE HOT WATER SYSTEM. IT IS PART OF A LOG OUT TAG OUT PROCEDURE.

DEMOLITION GENERAL NOTES:

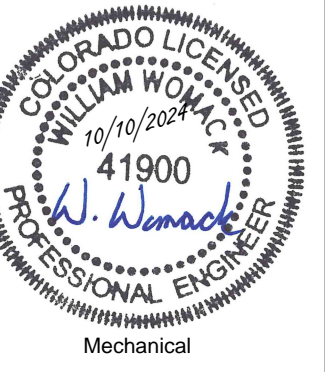
- EXISTING ITEMS TO REMAIN ARE DENOTED LIGHTLY UNLESS OTHERWISE NOTED. ALL ITEMS SHOWN DARK AND DASHED SHALL BE REMOVED UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL NOT SHUT-OUT OR PUT-OUT OF SERVICE ANY SYSTEMS OR SERVICE WITHOUT FIRST COORDINATING WITH THE OWNER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND UNDERSTAND THE EXTENT OF THE REMODEL WORK REQUIRED PRIOR TO BID. NO EXTRAS WILL BE ALLOWED FOR WORK REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY THE CONTRACT DOCUMENT.
- CONTRACTOR SHALL DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION TO FACILITATE ALL WORK INDICATED BY THE CONTRACT DOCUMENT.
- PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK, VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
- ALL ITEMS IDENTIFIED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY. REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL ITEMS THE OWNER CHOOSES NOT TO ACCEPT.
- WHERE EXISTING PIPING, T.C. TUBING/WIRING ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, THE WALLS SHALL BE REPAIRED TO MATCH ORIGINAL CONDITIONS.
- WHERE EXISTING PIPING TO BE REMOVED PASSES THROUGH FLOORS, THEY SHALL BE CUT BACK TO WITHIN CONCRETE AND FILLED WITH GROUT TO ACHIEVE A SMOOTH AND EVEN FINISH WITH CONCRETE SURFACE.

ADD ALTERNATE #2
COOLING TOWER REBUILD

- COOLING TOWER REBUILD TO BE DONE BY SYS-KOOL OR APPROVED EQUAL.
- THE EXISTING TOWERS ARE BALTIMORE ARCOLL MODEL 33458-2FOR, SERIAL NUMBER U01363001MAD, TWO TOWER CELLS, ROOFTOP LOCATION.
- REPLACE THE NOZZLES IN THE EXISTING COOLING TOWER HOT WATER BASINS. THE NEW NOZZLES TO ACCOMMODATE THE REDUCED CONDENSER WATER FLOWS OF THE NEW CHILLERS. EACH CELL TO GO FROM 1346 GPM TO 900 GPM.
- ADDITIONAL SCOPE OF WORK INCLUDES THE FOLLOWING:
 - LOCK-OUT, TAG-OUT. PROTECT THE ELECTRIC SUMP HEATERS.
 - REMOVE FILL MEDIA, FILL SUPPORTS, AND HANGERS.
 - CRANE DOWN OLD MATERIAL. CRANE UP NEW MATERIAL TO ROOF.
 - CLEAN, DRY, AND GRIND HOT WATER BASINS, COLD WATER BASINS, AND SIDEWALLS ADJACENT TO FILL MATERIAL.
 - APPLY COOLING TOWER GRADE LINER TO HOT WATER BASINS, COLD WATER BASINS, AND SIDEWALLS ADJACENT TO FILL MATERIAL.
 - REPLACE BALANCE CLEAN CHAMBER IN WEST CELL ONLY. DEMO EXISTING AND INSTALL NEW.
 - INSTALL NEW COUPLINGS (QTY 8) FOR DISTRIBUTION SYSTEM.
 - REPLACE DRIVE SHAFTS DEMO EXISTING AND INSTALL NEW.
 - INSTALL NEW FIBERGLASS SUPPORTS.
 - INSTALL NEW 15 ML BLOCK FILL MEDIA WITH INTEGRAL LOUVER AND SEPARATE DRIFT ELIMINATOR.
 - REPLACE GEARBOXES AND ALIGN MECHANICALS.
 - REMOVE LOCKS, CLEAN SITE, AND DISPOSE OF OLD MATERIAL.

CODE REFRIGERATION CALCULATIONS								
UNIT	REFRIGERANT		ROOM	ROOM AREA (SF)	CEILING HEIGHT (FT)	REFRIGERATION DENSITY IN SPACE		REMARKS
	TYPE	AMOUNT (LB)				CALCULATED (LB / 1000 CF)	ALLOWED (LB / 1000 CF)	
CHILLER CH-1 OR CH-2	R-513A	650	MECHANICAL ROOM	4,638	13	60,294	10.8	20
REMARKS:								
1. CODE BASIS = 2021 IMC. REFER TO THE TABLE 1103.1 FOR ALLOWED REFRIGERATION DENSITY FOR THE OCCUPIED SPACES.								
2. THE CALCULATED REFRIGERATION DENSITIES IN THE OCCUPIED SPACES ARE WITHIN THE ALLOWABLE LIMITS.								
3. THE CHILLERS DO NOT REQUIRE A REFRIGERATION MACHINERY ROOM AS DESCRIBED IN 2021 IMC SECTION 1105.								

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TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

MECHANICAL SCHEDULES AND DETAILS

REVISIONS:

BID SET
DATE: 10/14/24
DRAWN BY: WOV
CHECKED BY: STC
JOB NO: 2023-375

SHEET NO.

M1.1

WATER COOLED CHILLER SCHEDULE

DESIG.	MFR.	MODEL	TYPE	COOLING CAPACITY (TONS)	REFRIGERANT		CHILLED WATER DATA					CONDENSER WATER DATA					PEAK KW INPUT	KW PER TON AT LOAD				SOUND OCTAVE BAND & CENTER BAND FREQUENCY								SIZE (INCHES)				ELECTRICAL				REMARKS					
					TYPE	LARGEST CIRCUIT LOAD (LBS)	NO. OF PASSES	EWT (°F)	LWT (°F)	WATER FLOW (GPM)	WATER FLOW (GPM)	PROP GLYCOL (%)	PRESS DROP (FT W.C.)	NO. OF PASSES	EWT (°F)	LWT (°F)		WATER FLOW (GPM)	WATER FLOW (GPM)	PRESS DROP (FT W.C.)	100%	75%	50%	25%	NPL	1	2	3	4	5	6	7	8	A-WTG	L	W	H		OPER. WEIGHT (LBS)	VOLTAGE	PHASE	MCA	MOCP
CH-1	CARRIER	23XRV 3032 NQVR351-	VARIABLE SPEED SCREW	300	R-513A	650	2	53.2	42.0	680	320	30%	29.9	2	75	84.3	900	470	15.6	170.2	0.5672	0.4258	0.3237	0.3215	0.3613	67.1	73.9	87.0	79.9	74.3	73.8	70.6	59.1	83.8	165	82	87	16,500	460	3	REMARK 1	REMARK 1	ALL
CH-2	CARRIER	23XRV 3032 NQVR351-	VARIABLE SPEED SCREW	300	R-513A	650	2	53.2	42.0	680	320	30%	29.9	2	75	84.3	900	470	15.6	170.2	0.5672	0.4258	0.3237	0.3215	0.3613	67.1	73.9	87.0	79.9	74.3	73.8	70.6	59.1	83.8	165	82	87	16,500	460	3	REMARK 1	REMARK 1	ALL

REMARKS:
 1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
 2. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
 3. PROVIDE CHILLER WITH HARMONIC FILTER OR LOW HARMONIC VFD, HINGED WATER BOXES, AND LOW SOUND PACKAGE.
 4. CHILLER TO HAVE STABLE OPERATION AT 10% LOAD.

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LOUVER SCHEDULE

DESIG.	MFR.	MODEL	INTAKE OR DISCHARGE	OVERALL DIMENSIONS (IN.)	FREE AREA (SF)	PEAK AIRFLOW (CFM)	AIR VELOCITIES (FPM)	AIR P.D. AT SEA LEVEL (IN WC)	MATERIAL	FINISH	REMARKS	
L-1	GREENHECK	ESD-435	DISCHARGE	36 x 48 x 4	6.55	5,000	417	763	0.09	ALUMINUM	AAMA 2605	ALL

REMARKS:
 1. LOUVER SUPPLIER SHALL REFER TO ARCHITECTURAL DRAWING TO DETERMINE THE FRAME STYLE REQUIRED BASED UPON WALL CONSTRUCTION AND ARCHITECTURAL DETAILS.
 2. THE ARCHITECT TO SELECT A CUSTOM LOUVER COLOR. THE PRELIMINARY CONCEPT IS TO MATCH THE EXISTING RED ON THE BUILDING. CONFIRM DURING THE SUBMITTAL PROCESS.
 3. INSTALL LOUVERS WITH BIRD SCREENS.

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DUCT PRESSURE CLASSIFICATION SCHEDULE

DUCT TYPE	MATERIAL	PRESSURE CLASS	REMARKS
MEDIUM PRESSURE EXHAUST	GALVANIZED STEEL	-4"	FAN INLET SIDE
MEDIUM PRESSURE EXHAUST	GALVANIZED STEEL	-4"	FAN DISCHARGE SIDE

REMARKS:

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FAN SCHEDULE

DESIG.	MFR.	MODEL	FAN TYPE	SERVICE	FAN CLASS	WHEEL DIA. (INCHES)	CFM AT ELEV. (CFM)	E.S.P. IN W.C. FEET	APPROX. RPM	TIP SPEED (FPM)	OUTLET VELOCITY (FPM)	REQ'D BHP	MAX HP SIZE	VOLTAGE	PHASE	ECM (YES/NO)	VFD/RELAY STARTER (YES/NO)	VFD BYPASS (YES/NO)	FEI VALUE	DRIVE TYPE	VIBRATION ISOLATOR TYPE	BACKDRAFT DAMPER (BDD) TYPE & LOCATION	AIR PRESS. DROP (IN WC)	APPROX. THROAT DIM.	ARRANGE. & MOUNTING	SOUND OCTAVE BAND & CENTER BAND FREQUENCY								SIZE (INCHES)				OPER. WEIGHT (LBS.)	CONTROL	REMARKS	
																										BAND 1	BAND 2	BAND 3	BAND 4	BAND 5	BAND 6	BAND 7	BAND 8	SONES	L	W	H				
																										63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz								
EP-CHR	GREENHECK	SQ-18-M2	MIX FLOW IN-LINE	MECHANICAL RM EXH	II	18	5,000	0.75	1384	6,522	1018	1.18	3	460	3	NO	VFD	NO	1.31	DIRECT	SPRING	MOTORIZED DISCHARGE	0.15	30/30	HORIZONTAL	INLET	72	80	73	71	71	71	70	69	16.3	27	30	30	300	BAS / DDC	ALL

REMARKS:
 1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
 2. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
 3. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.
 4. FEI = FAN ENERGY INDEX IN ACCORDANCE WITH AMCA 208.
 5. FAN E.S.P. INCLUDES DAMPER PRESSURE DROP. INCLUDE DAMPER PRESSURE DROP IN SUBMITTAL.

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HYDRONIC PUMP SCHEDULE - ADD ALTERNATE #3

DESIG.	MFR.	MODEL	PUMP TYPE	SERVICE	MAX PUMP OPER °F	PROP GLYCOL (%)	DESIGN GPM		PRESSURE (FT HD)	NPSH (FT HD)	EFF. %	BHP	HP	RPM AT 60HZ	MOTOR			VFD/RELAY STARTER (YES/NO)	VFD BYPASS (YES/NO)	VIBRATION ISOLATOR TYPE	INLET SIZE (IN.)	OUTLET SIZE (IN.)	SIZE (INCHES)				OPER. WEIGHT (LBS.)	REMARKS
							MAX FLOW	MIN FLOW							VOLTAGE	PHASE	L						W	H				
P-1	BELL & GOSSETT	41510-SEB	END SUCTION	CONDENSER WATER	150	0%	900	220	80	10	85.0	21.8	30.0	1800	460	3	VFD	NO	-	6	5	52	23	26	800	ALL		
P-2	BELL & GOSSETT	41510-SEB	END SUCTION	CONDENSER WATER	150	0%	900	220	80	10	85.0	21.8	30.0	1800	460	3	VFD	NO	-	6	5	52	23	26	800	ALL		

REMARKS:
 1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCRR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
 2. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
 3. PUMPS OPERATING THRU VFDs. UPON SELECTING THE PUMP FOR THE SPECIFIED DUTY POINT, THE SUPPLIER SHALL PROVIDE THE PUMP WITH THE LARGEST IMPELLER SIZE AVAILABLE FOR THE CASING THAT DOES NOT EXCEED THE DUTY POINT MOTOR HP AT THE RIGHT END OF THE CURVE. SUBMITTAL DATA SHALL SHOW ALL IMPELLER CURVES AVAILABLE FOR THE PUMP MODEL. THIS APPLIES TO ALL MANUFACTURERS.
 4. UNLESS INDICATED BY PUMP MODEL NUMBER, VARIABLE FREQUENCY DRIVE (VFD) IS REMOTE MOUNTED RATHER THAN PUMP MOUNTED WHEN REQUIRED.
 5. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.

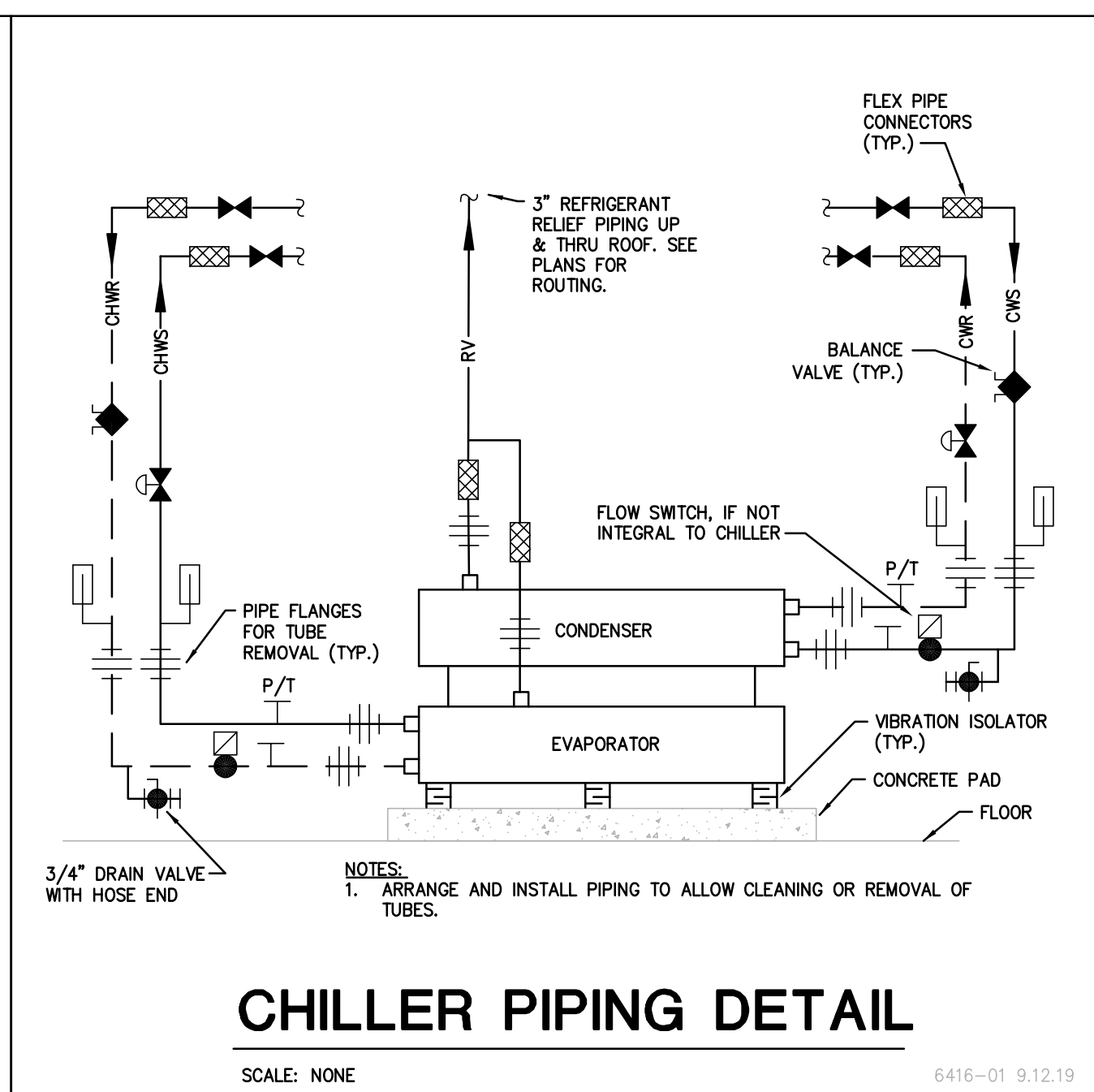
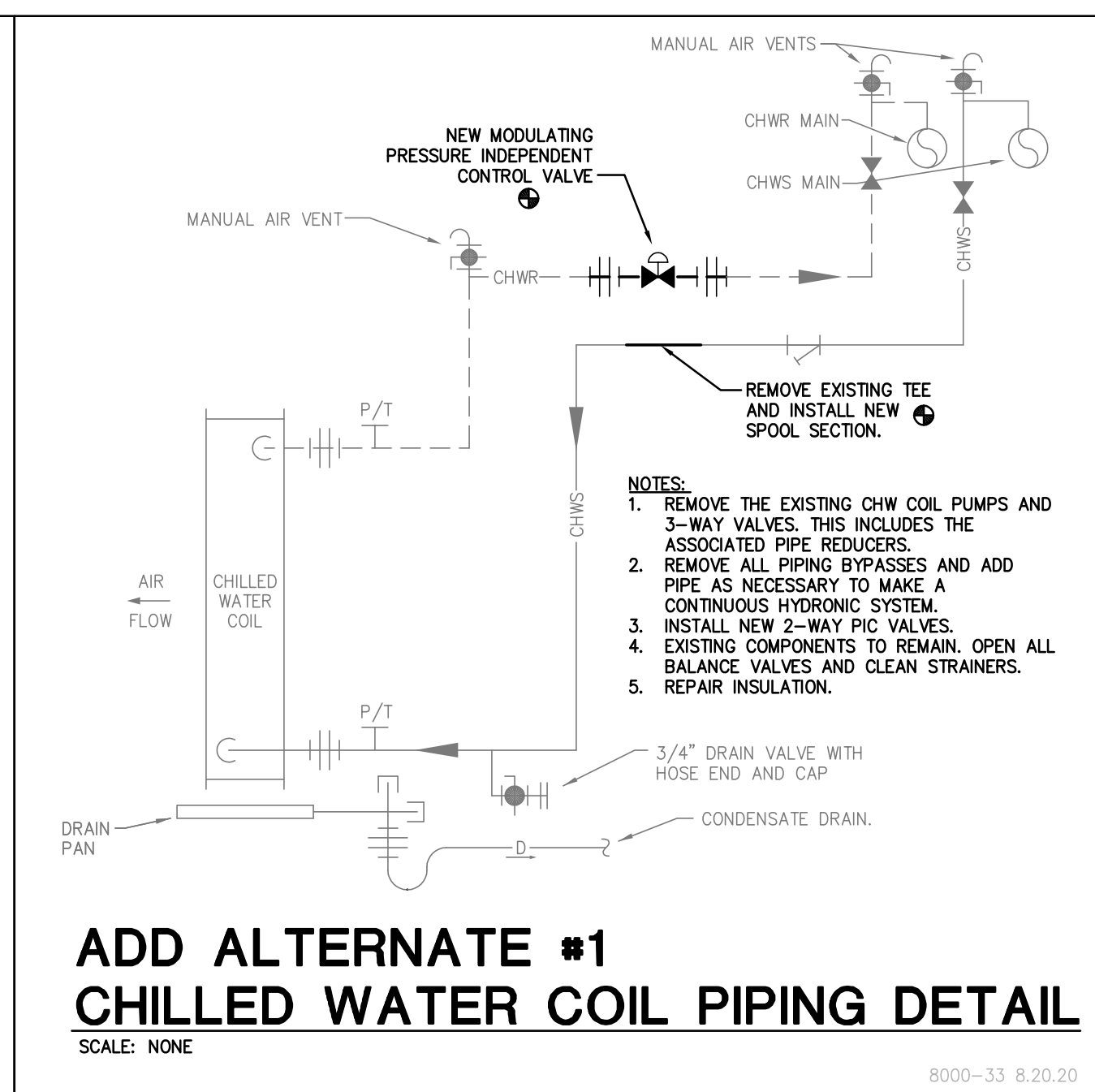
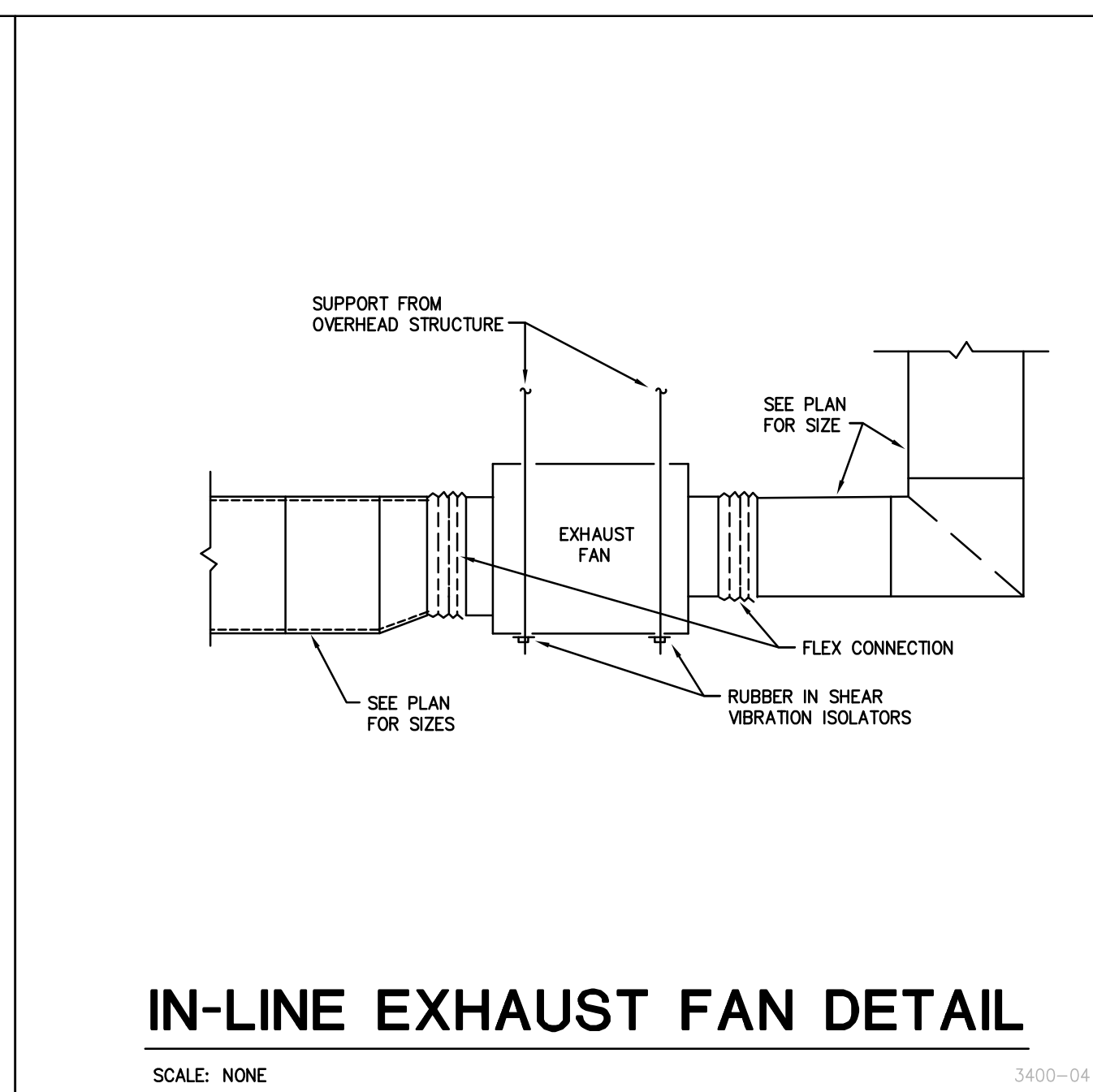
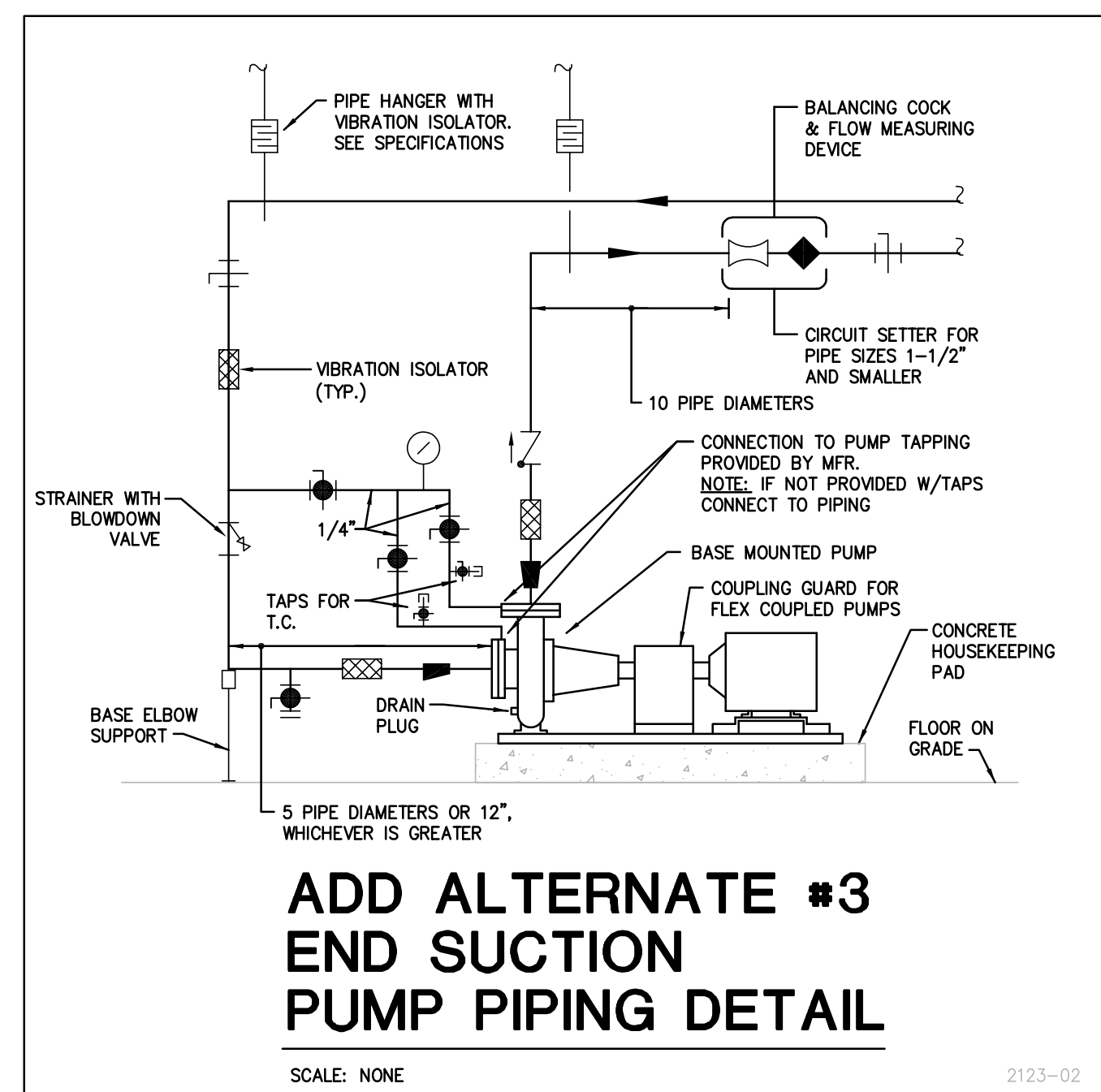
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CONTROL VALVE SCHEDULE - ADD ALTERNATE #2

NUMBER	SYSTEM	LOCATION	SERVICE	MFR.	MODEL	FLUID	VALVE TYPE	VALVE SIZE (IN.)	FLOW RATE (GPM)	ACTUATOR TYPE	SIGNAL	FAIL POSITION	REMARKS
1	AHU-1	NORTH PENTHOUSE	CHILLED WATER	BRAY	SSM-6	30% PG	2-WAY, PRESSURE INDEPENDENT	6"	422	ELECTRIC	PROPORTIONAL	IN PLACE	ALL
2	AHU-2	NORTH PENTHOUSE	CHILLED WATER	BRAY	SSM-3	30% PG	2-WAY, PRESSURE INDEPENDENT	3"	122	ELECTRIC	PROPORTIONAL	IN PLACE	ALL
3	AHU-3	EAST ADDITION	CHILLED WATER	BRAY	SSM-4	30% PG	2-WAY, PRESSURE INDEPENDENT	4"	212	ELECTRIC	PROPORTIONAL	IN PLACE	ALL
4	RTU-7	65 ROSS HALL	CHILLED WATER	BRAY	SSM-4	30% PG	2-WAY, PRESSURE INDEPENDENT	4"	170	ELECTRIC	PROPORTIONAL	IN PLACE	ALL
5	RTU-8	65 ROSS HALL	CHILLED WATER	BRAY	SSM-4	30% PG	2-WAY, PRESSURE INDEPENDENT	4"	187	ELECTRIC	PROPORTIONAL	IN PLACE	ALL
6	CC-1	89 ADDITION	CHILLED WATER	BRAY	SSM-4	30% PG	2-WAY, PRESSURE INDEPENDENT	4"	154	ELECTRIC	PROPORTIONAL	IN PLACE	ALL
7	RTU-9	GREENHOUSE	CHILLED WATER	BRAY	SS-2	30% PG	2-WAY, PRESSURE INDEPENDENT	2	30	ELECTRIC	PROPORTIONAL	IN PLACE	ALL

REMARKS:
 1. COORDINATE CONTROL SIGNALS WITH BUILDING AUTOMATION SYSTEM.
 2. VALVE DIFFERENTIAL PRESSURE OPERATING RANGE = 5-75 PSID.
 3. ALTERNATE PIC CONTROL VALVES= DELTA P VALVES AND BELIMO ENERGY VALVES

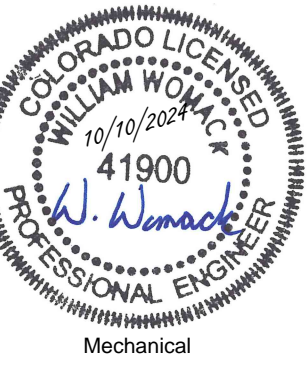
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DEMO KEY NOTES:

1. DEMO ABSORPTION CHILLER.
2. DEMO HTHW PUMP, DEMO HTHW PIPING BACK TO MAINS AND CAP.
3. ADD ALTERNATE #3: REPLACE THE CONDENSER WATER PUMPS.
4. PIPE DEMO TO INCLUDE TEE, REMOVE TEE AND INSTALL SPOOL PIECE TO MAKE EXISTING PIPING CONTINUOUS.
5. DEMO CONDENSER WATER BYPASS.



1"
IF LINE DOES NOT MEASURE 1/8" INCH,
DRAWING IS NOT TO SCALE.

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

GROUND LEVEL
MECHANICAL DEMO PLAN

REVISIONS:

BID SET

DATE: 10/14/24

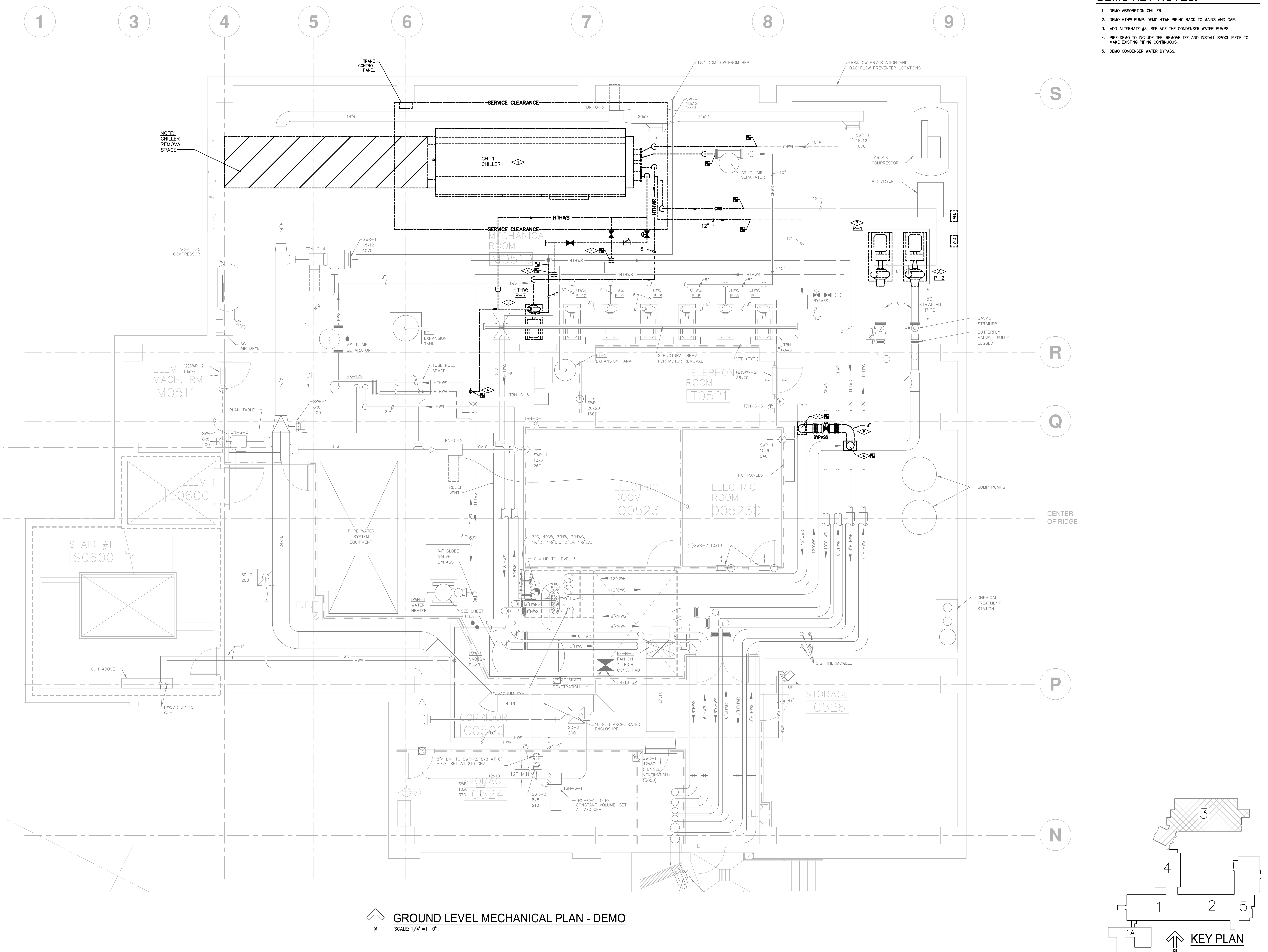
DRAWN BY: WOW

CHECKED BY: STC

JOB NO: 2023-375

SHEET NO.

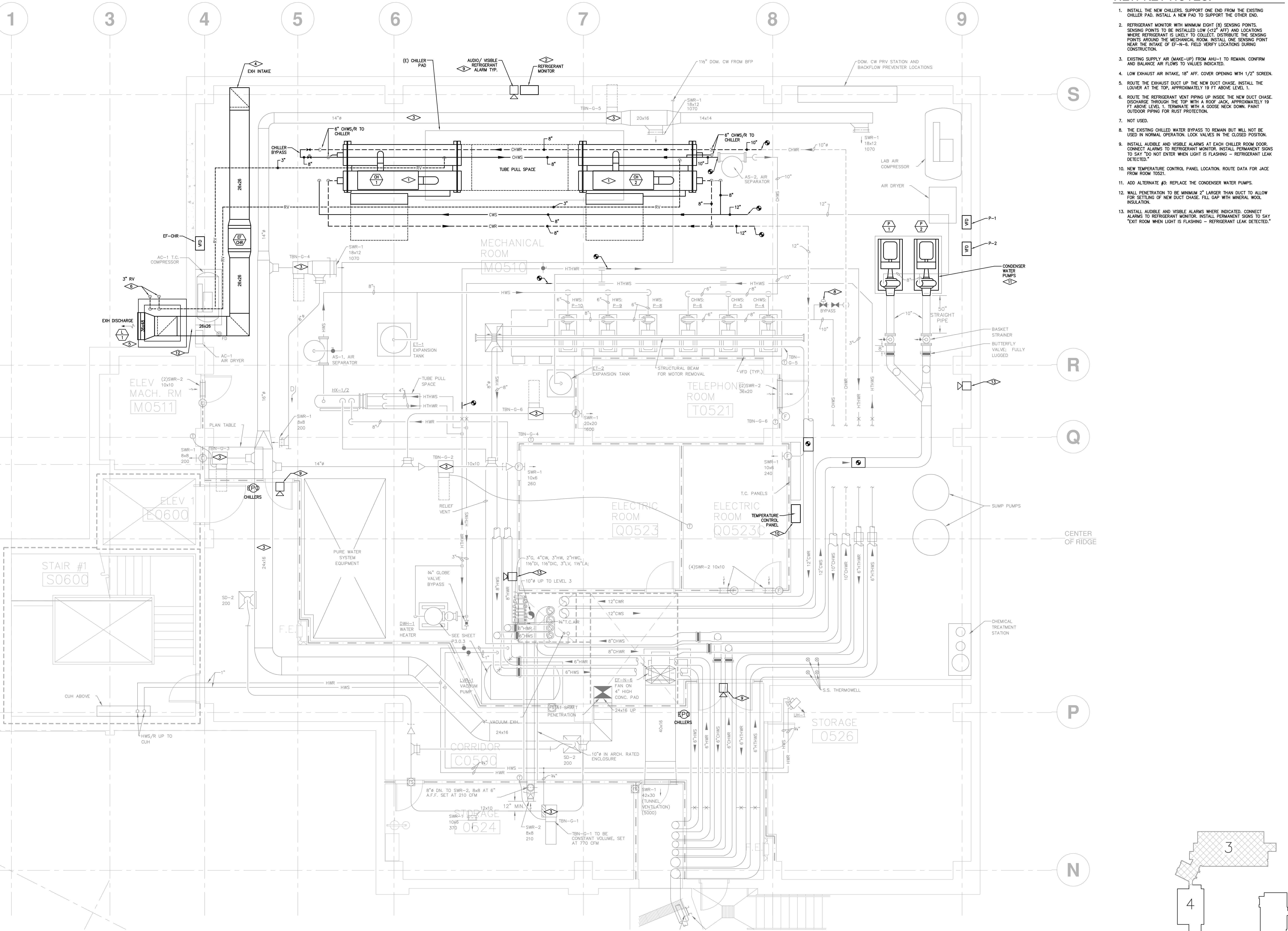
MD2.0



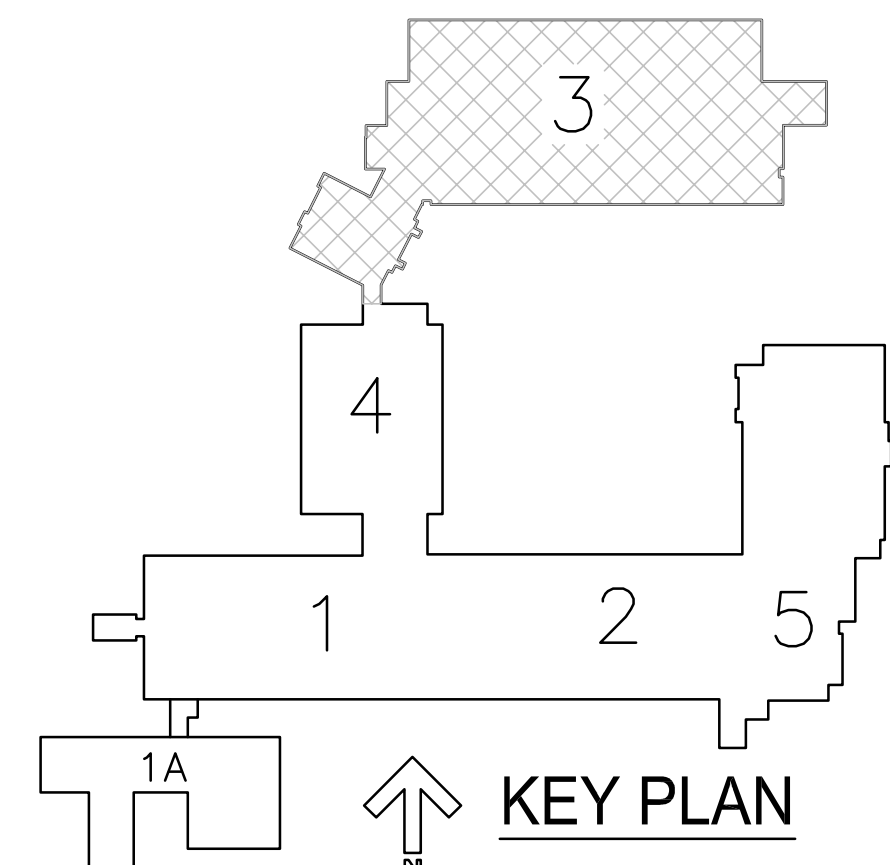
GROUND LEVEL MECHANICAL PLAN - DEMO
SCALE: 1/4"=1'-0"

FILENAME: P:\UNC\2023-375 Ross Hall Chiller Replacement\CoatMech\p-dwg.dwg LAYOUT: MD2.0 REVISED: 6/17/2024 07:04 PLOTTED: 10/10/2024 11:00:05 USER: Willie Worrock

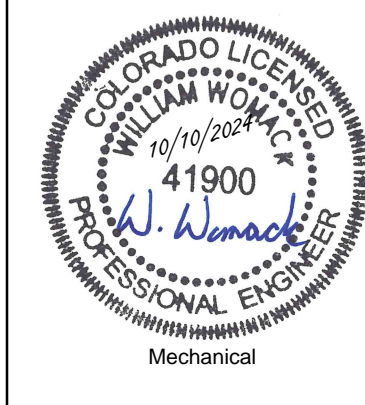
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GROUND LEVEL MECHANICAL PLAN - NEW
SCALE: 1/4"=1'-0"



- NEW KEY NOTES:**
- INSTALL THE NEW CHILLERS. SUPPORT ONE END FROM THE EXISTING CHILLER PAD. INSTALL A NEW PAD TO SUPPORT THE OTHER END.
 - REFRIGERANT MONITOR WITH MINIMUM EIGHT (8) SENSING POINTS. SENSING POINTS TO BE INSTALLED LOW (<12" AFF) AND LOCATIONS WHERE REFRIGERANT IS LIKELY TO COLLECT. DISTRIBUTE THE SENSING POINTS AROUND THE MECHANICAL ROOM. INSTALL ONE SENSING POINT NEAR THE INTAKE OF EF-N-6. FIELD VERIFY LOCATIONS DURING CONSTRUCTION.
 - EXISTING SUPPLY AIR (MAKE-UP) FROM AHU-1 TO REMAIN. CONFIRM AND BALANCE AIR FLOWS TO VALUES INDICATED.
 - LOW EXHAUST AIR INTAKE, 18" AFF. COVER OPENING WITH 1/2" SCREEN.
 - ROUTE THE EXHAUST DUCT UP THE NEW DUCT CHASE. INSTALL THE LOUVER AT THE TOP, APPROXIMATELY 19 FT ABOVE LEVEL 1.
 - ROUTE THE REFRIGERANT VENT PIPING UP INSIDE THE NEW DUCT CHASE. DISCHARGE THROUGH THE TOP WITH A ROOF JACK, APPROXIMATELY 19 FT ABOVE LEVEL 1. TERMINATE WITH A GOOSE NECK DOWN. PAINT OUTDOOR PIPING FOR RUST PROTECTION.
 - NOT USED.
 - THE EXISTING CHILLED WATER BYPASS TO REMAIN BUT WILL NOT BE USED IN NORMAL OPERATION. LOCK VALVES IN THE CLOSED POSITION.
 - INSTALL AUDIBLE AND VISIBLE ALARMS AT EACH CHILLER ROOM DOOR. CONNECT ALARMS TO REFRIGERANT MONITOR. INSTALL PERMANENT SIGNS TO SAY "DO NOT ENTER WHEN LIGHT IS FLASHING - REFRIGERANT LEAK DETECTED."
 - NEW TEMPERATURE CONTROL PANEL LOCATION. ROUTE DATA FOR JACE FROM ROOM T0521.
 - ADD ALTERNATE #X. REPLACE THE CONDENSER WATER PUMPS.
 - WALL PENETRATION TO BE MINIMUM 2" LARGER THAN DUCT TO ALLOW FOR SETTLING OF NEW DUCT CHASE. FILL GAP WITH MINERAL WOOL INSULATION.
 - INSTALL AUDIBLE AND VISIBLE ALARMS WHERE INDICATED. CONNECT ALARMS TO REFRIGERANT MONITOR. INSTALL PERMANENT SIGNS TO SAY "EXIT ROOM WHEN LIGHT IS FLASHING - REFRIGERANT LEAK DETECTED."



1"
IF LINE DOES NOT MEASURE 1 INCH, DRAWING IS NOT TO SCALE.

TITLE
UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

GROUND LEVEL MECHANICAL PLAN

REVISIONS:

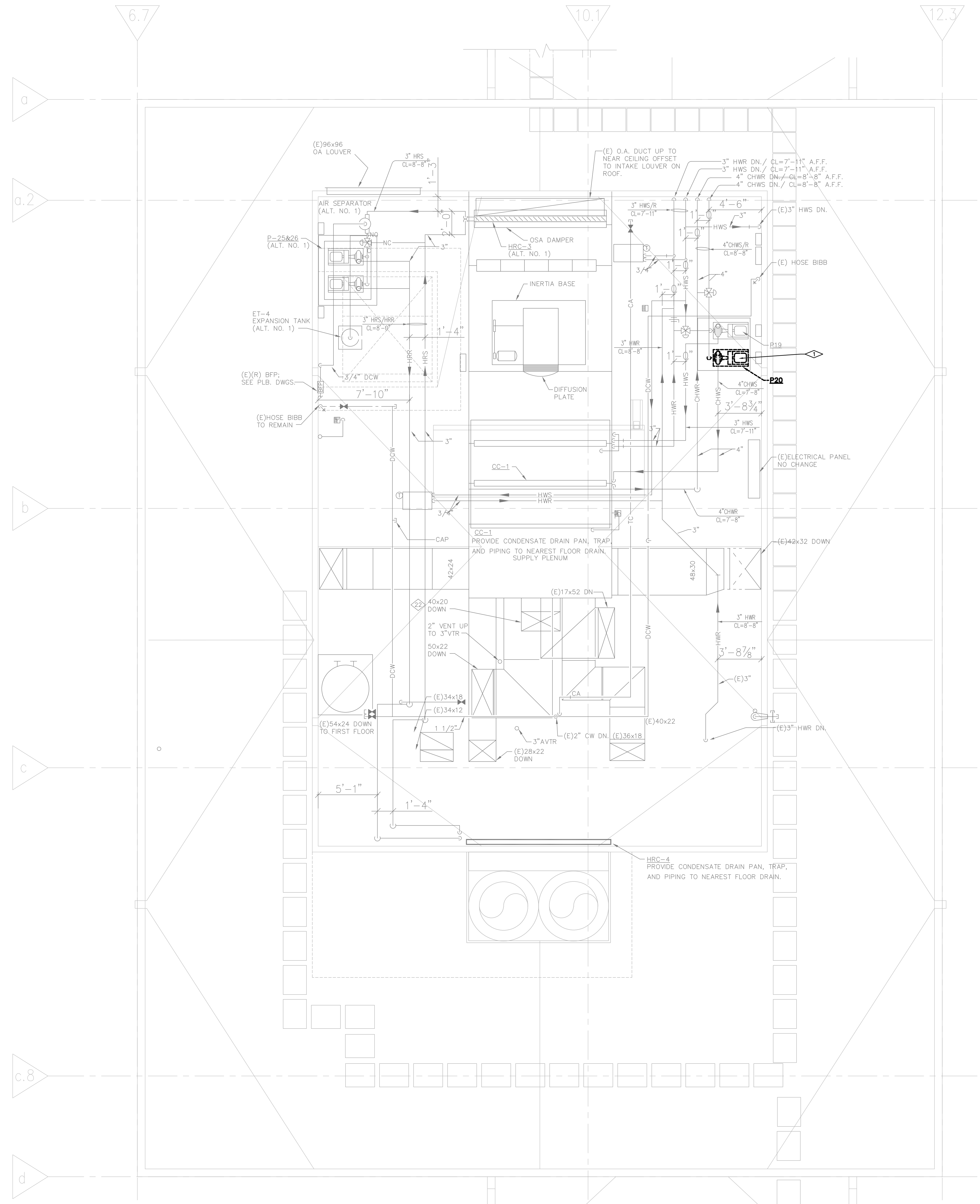
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BID SET
DATE: 10/14/24
DRAWN BY: WOV
CHECKED BY: STC
JOB NO: 2023-375

SHEET NO.

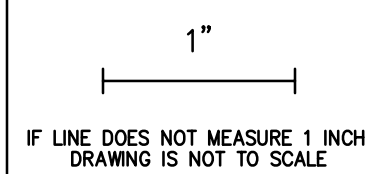
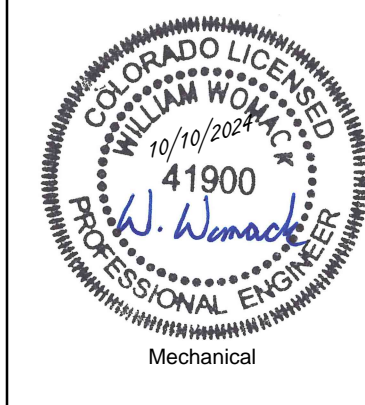
M2.0

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KEY NOTES:

1. ADD ALTERNATE #1: DEMO AND REMOVE THE CHILLED WATER COIL PUMP AND 3-WAY VALVE. ADD A PRESSURE INDEPENDENT CONTROL VALVE AND REWORK THE PIPING TO MAKE CONTINUOUS. SEE COIL DETAIL AND SCHEDULE FOR MORE INFORMATION. DEMO THE ELECTRICAL POWER CIRCUIT.



TITLE
UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
 1100 22nd Street
 Greeley, CO 80639

DRAWING TITLE

THIRD LEVEL MECHANICAL PLAN
 89 ADDITION

REVISIONS:

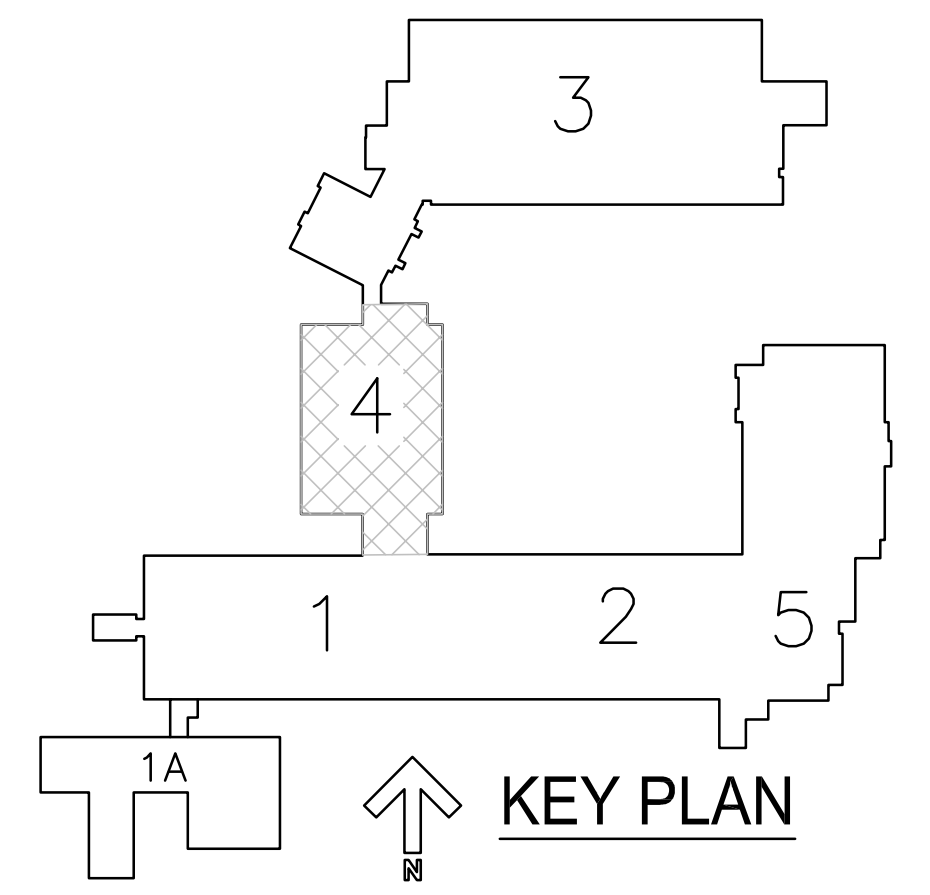
NO.	DATE	DESCRIPTION

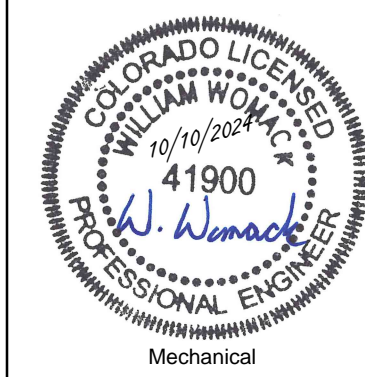
BID SET
 DATE: 10/14/24
 DRAWN BY: WOW
 CHECKED BY: STC
 JOB NO: 2023-375

SHEET NO.

M2.1

THIRD LEVEL MECHANICAL PLAN - 89 ADDITION
 SCALE: 1/4"=1'-0"





1" = 1' IF LINE DOES NOT MEASURE IN INCH, DRAWING IS NOT TO SCALE

TITLE
UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

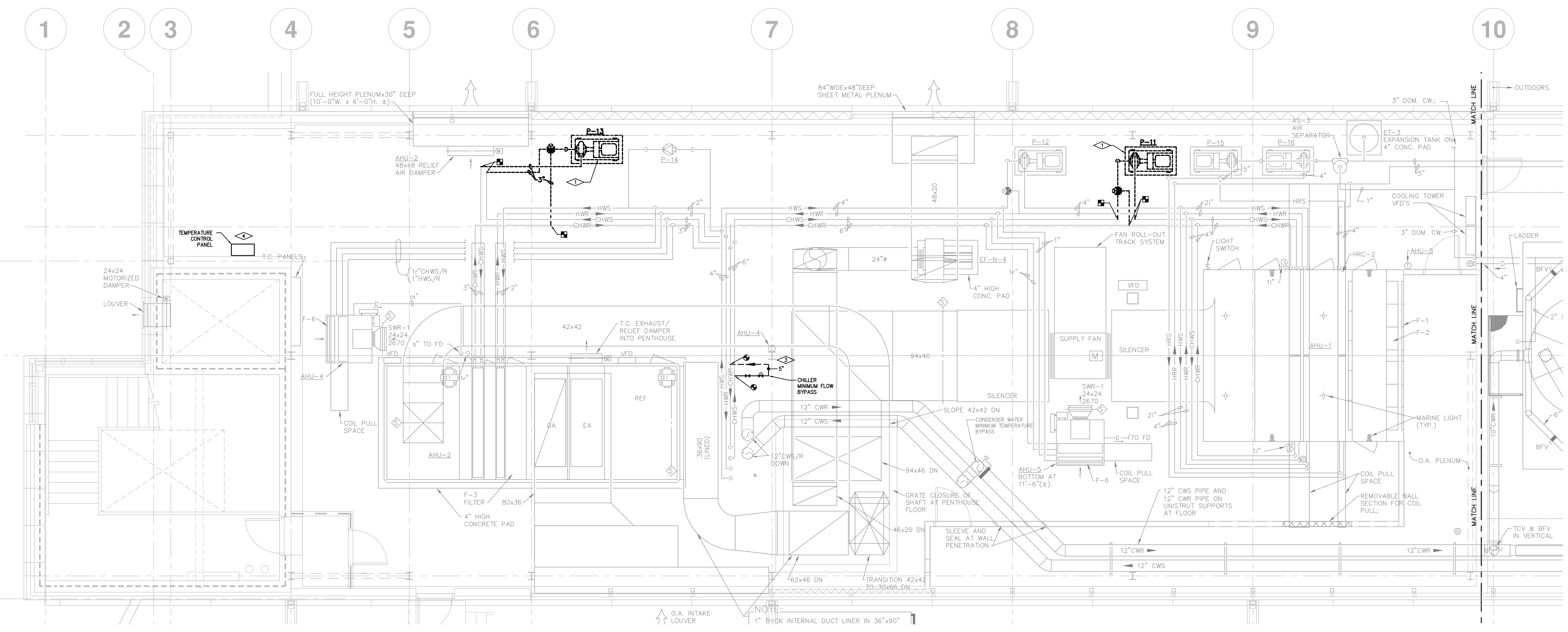
PENTHOUSE MECHANICAL PLAN
NORTH ADDITION

REVISIONS:

BID SET
DATE: 10/14/24
DRAWN BY: WOV
CHECKED BY: STC
JOB NO: 2023-375

SHEET NO.

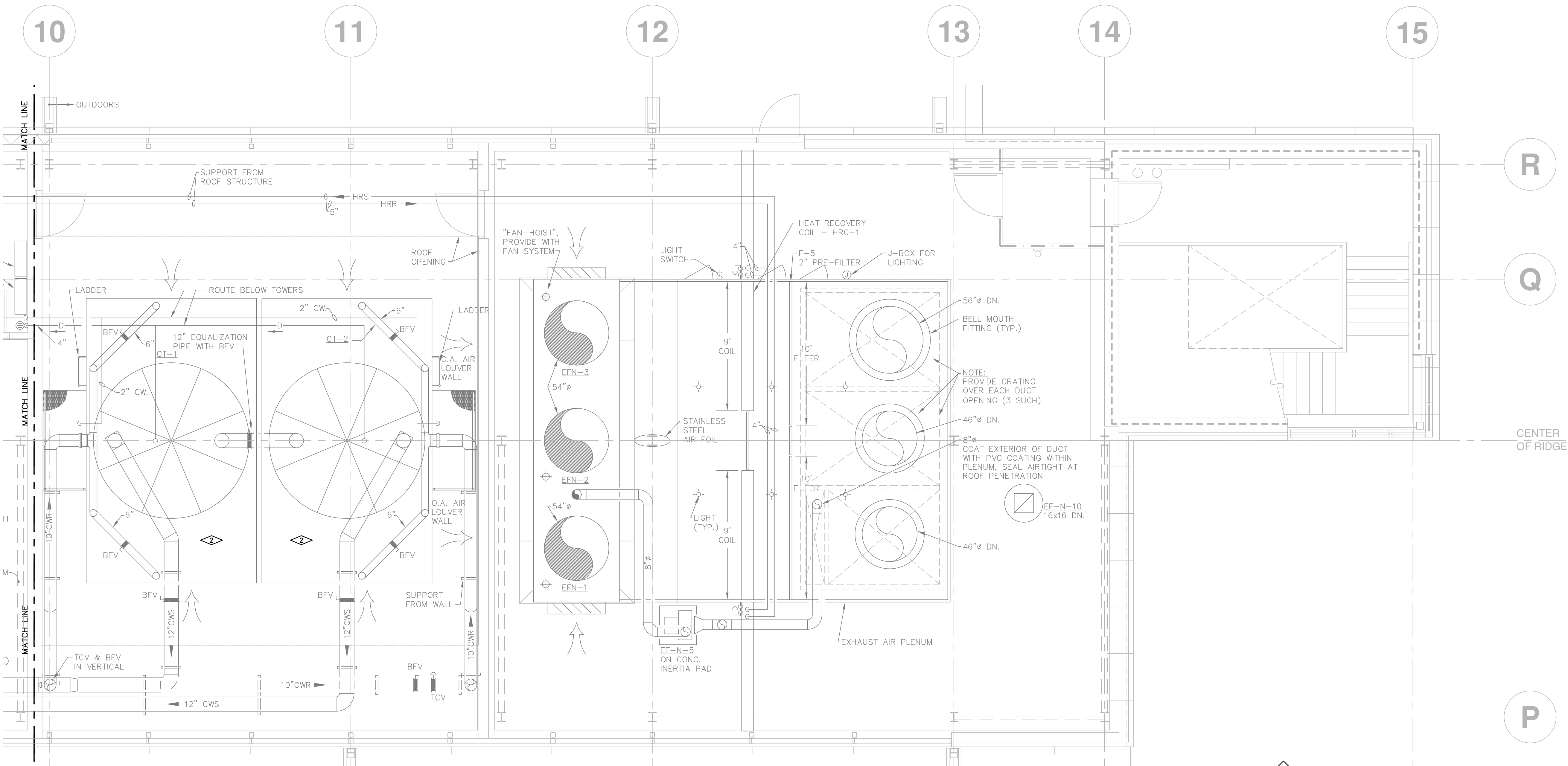
M2.2



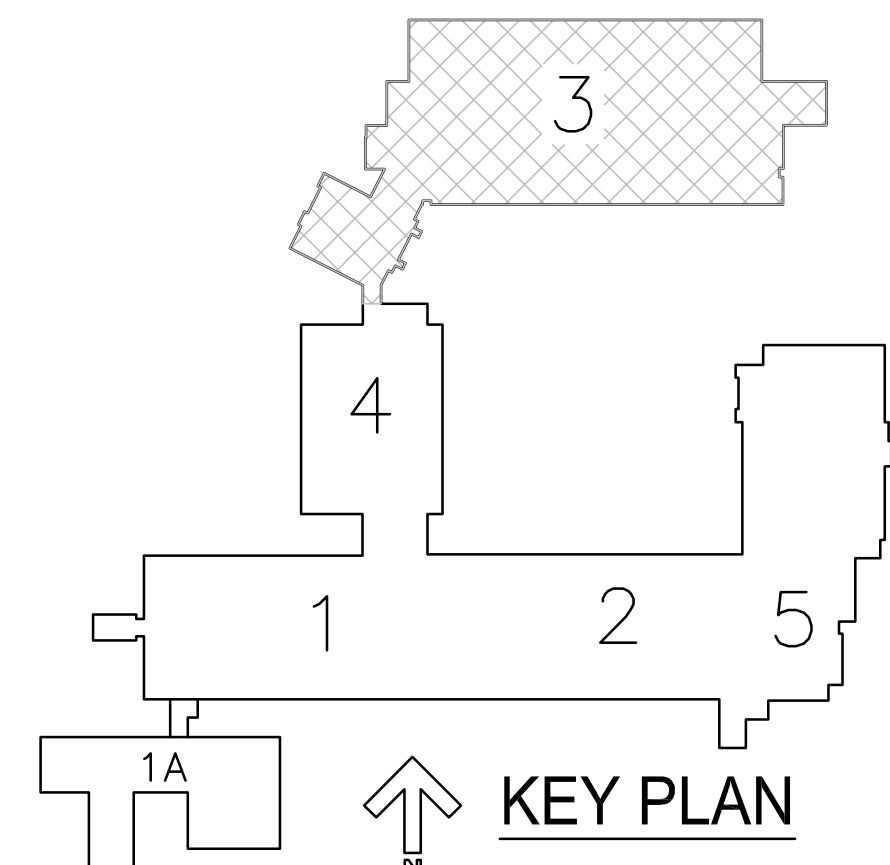
NOTE:
1" THICK INTERNAL DUCT LINER IN 36"x90"

KEY NOTES:

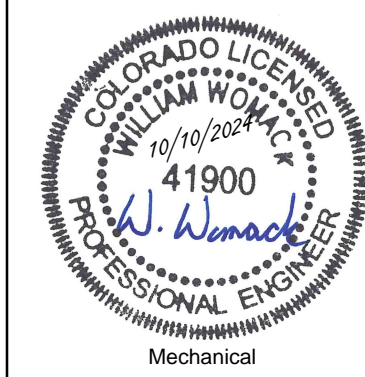
1. ADD ALTERNATE #1: DEMO AND REMOVE THE CHILLED WATER COIL PUMP AND 3-WAY VALVE. ADD A PRESSURE INDEPENDENT CONTROL VALVE AND REMOVE THE PIPING TO MAKE CONTINUOUS. SEE COIL DETAIL AND SCHEDULE FOR MORE INFORMATION. DEMO THE ELECTRICAL POWER CIRCUIT.
2. ADD ALTERNATE #2: REBUILD EXISTING COOLING TOWERS. SEE SHEET M1.0 FOR SCOPE OF WORK.
3. CHILLER MINIMUM FLOW BYPASS: THE MINIMUM FLOW BYPASS IS TO PROVIDE THE REQUIRED MINIMUM CHILLED WATER FLOW FOR THE CHILLER. THE SIZING OF THE CONTROL VALVE AND PIPING SHALL BE BASED ON THE ACTUAL CHILLER SUPPLIED. CONFIRM DURING THE SUBMITTAL PROCESS.
4. NEW TEMPERATURE CONTROL PANEL LOCATION. ROUTE DATA FOR JACE FROM ROOM 13521. EXISTING CABINET MAY BE REUSED IF BENEFICIAL.



PENTHOUSE MECHANICAL PLAN - NORTH ADDITION
SCALE: 1/4"=1'-0"



FILENAME: P:\UNC\2023-375 Ross Hall Chiller Replacement\Cad\Mech\p-h-n4.dwg LAYOUT: M2.2 REVISED: 6/1/2024 07:08 PLOTTED: 10/10/2024 11:24:40 USER: William Wornack



1" = 1" IF LINE DOES NOT MEASURE 1/4" INCH, DRAWING IS NOT TO SCALE

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

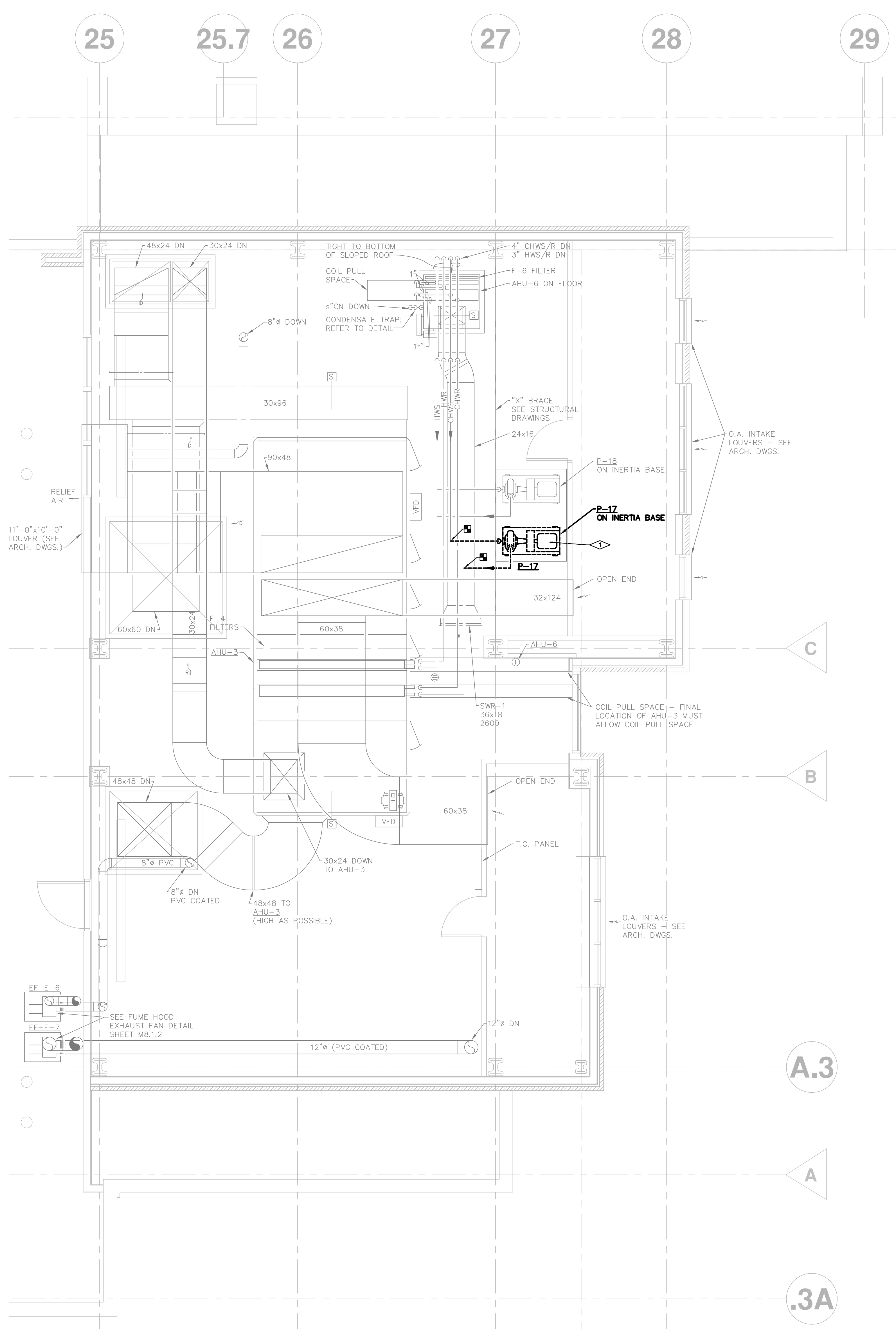
PENTHOUSE MECHANICAL PLAN - AHU-3

REVISIONS:

BID SET
DATE: 10/14/24
DRAWN BY: WOW
CHECKED BY: STC
JOB NO: 2023-375

SHEET NO.

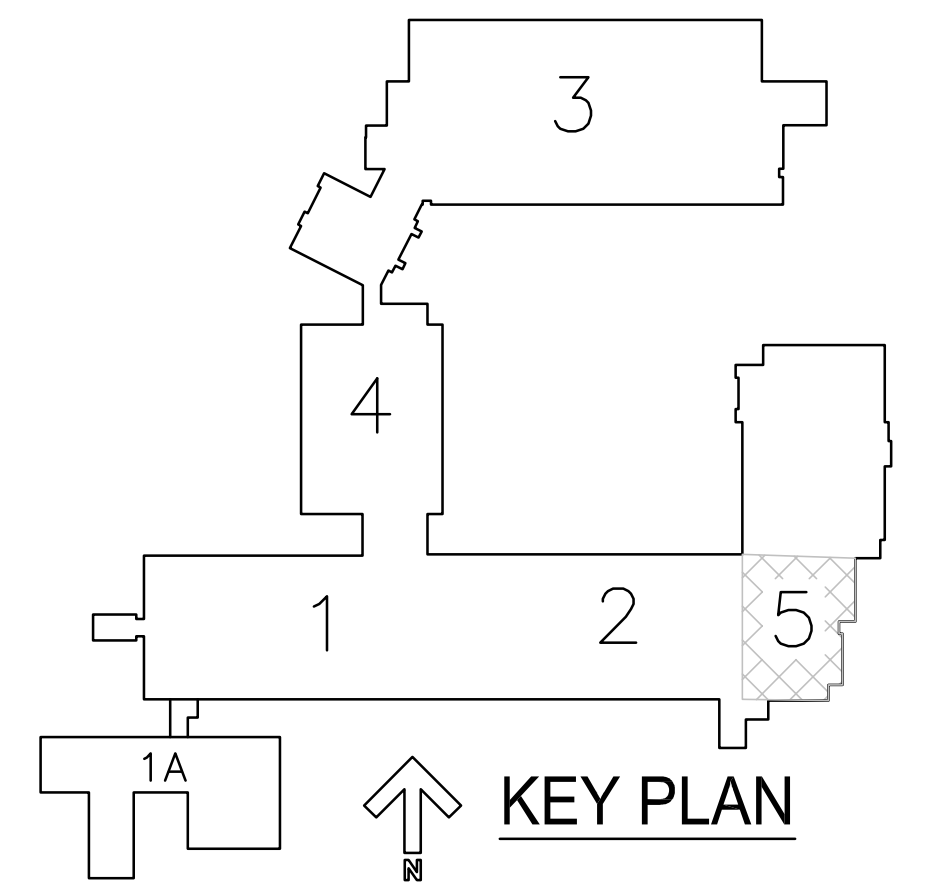
M2.3



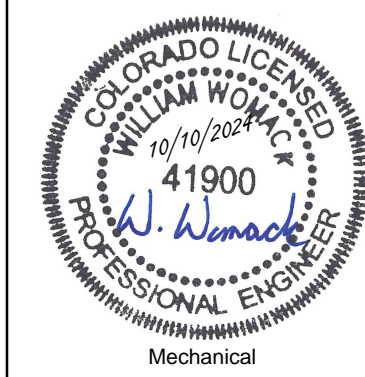
KEY NOTES:

1. ADD ALTERNATE #1: DEMO AND REMOVE THE CHILLED WATER COIL PUMP AND SWAY VALVE. ADD A PRESSURE INDEPENDENT CONTROL VALVE AND REWORK THE PIPING TO MAKE CONTINUOUS. SEE COIL DETAIL AND SCHEDULE FOR MORE INFORMATION. DEMO THE ELECTRICAL POWER CIRCUIT.

PENTHOUSE MECHANICAL PLAN - AHU-3
SCALE: 1/4"=1'-0"



FILENAME: P:\UNC\2023-375 Ross Hall Chiller Replacement\Cad\Mech\p-h4.dwg LAYOUT: M2.3 REVISED: 6/7/2024 07:08 PLOTTED: 10/10/2024 11:25:00 USER: Willie Wernick



1" = 1'-0"
IF LINE DOES NOT MEASURE 1/8" INCH, DRAWING IS NOT TO SCALE

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

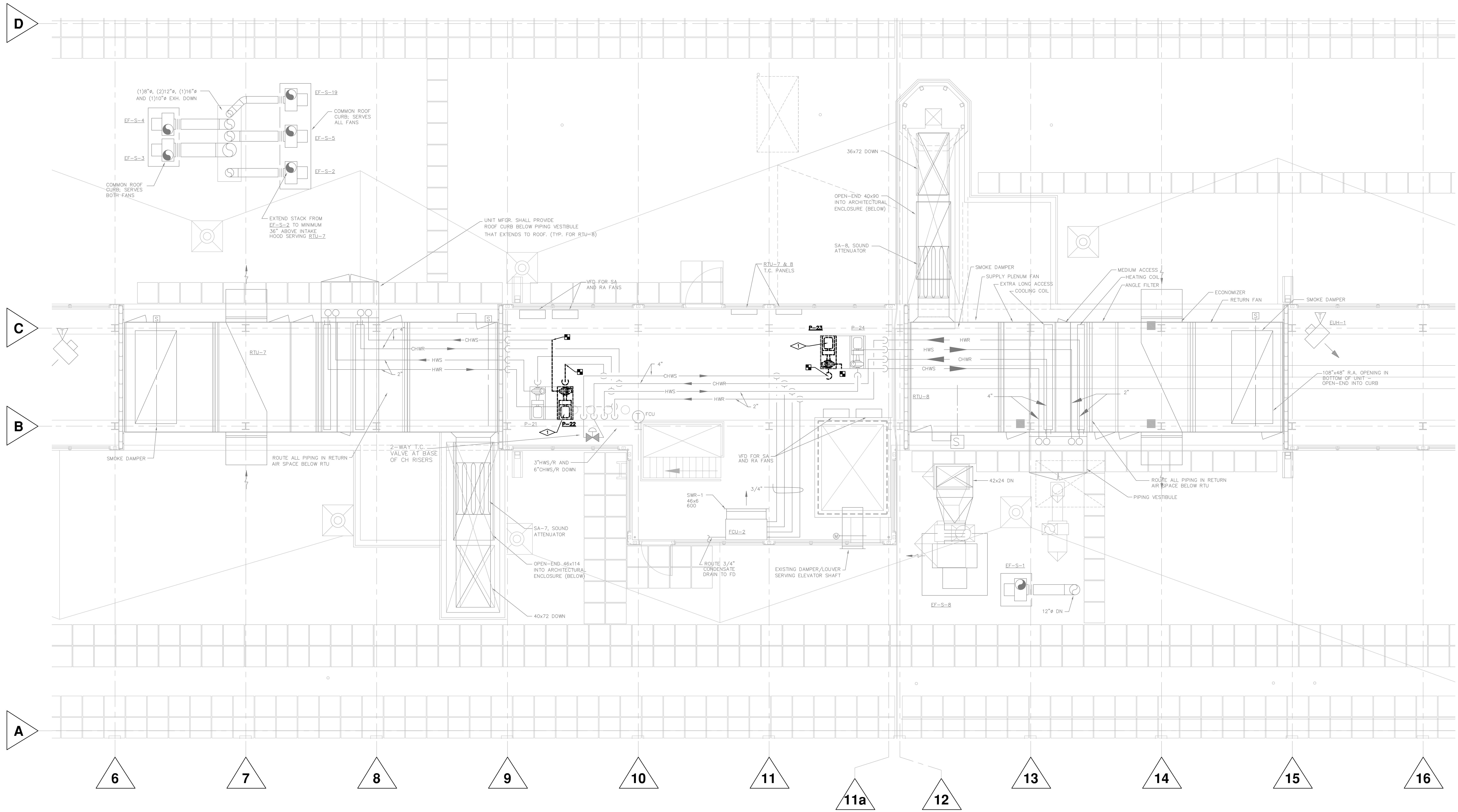
PENTHOUSE MECHANICAL PLAN - RTU-7 & RTU-8

REVISIONS:

BID SET
DATE: 10/14/24
DRAWN BY: WOW
CHECKED BY: STC
JOB NO: 2023-375

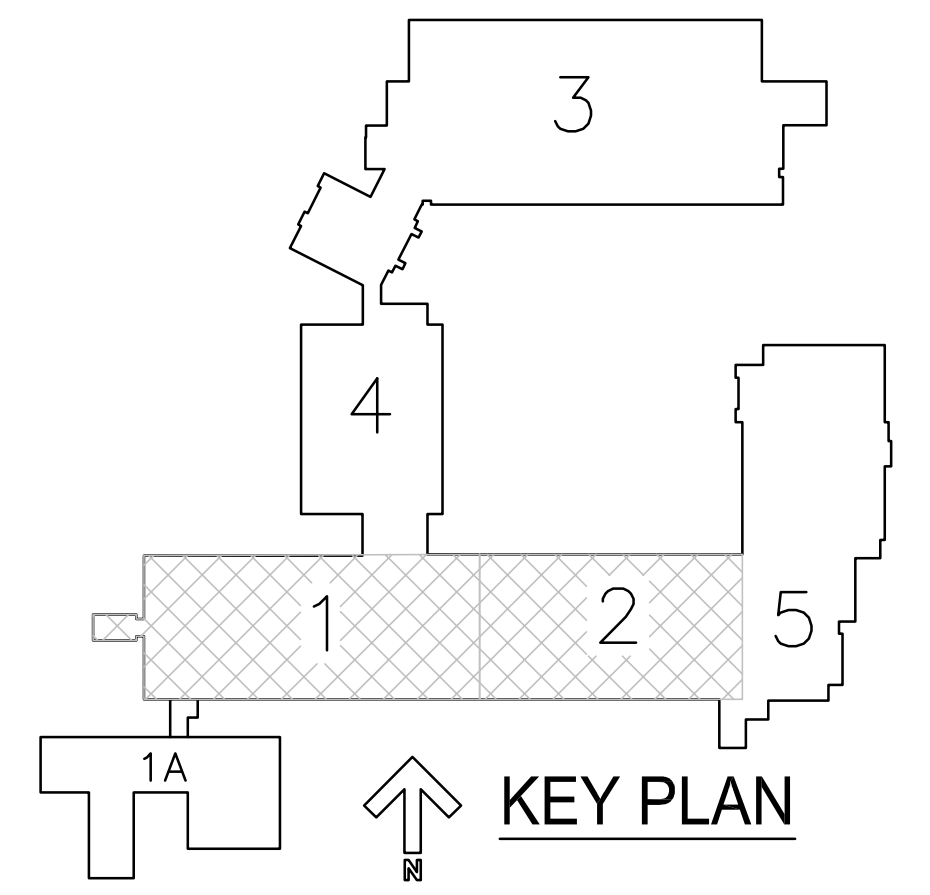
SHEET NO.

M2.4

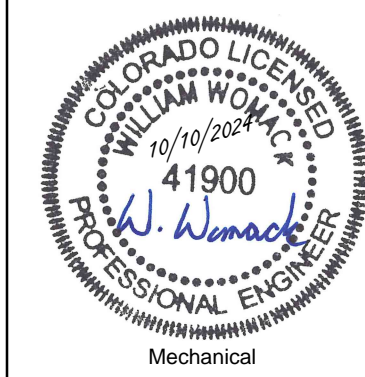


 **PENTHOUSE MECHANICAL PLAN - RTU-7 & RTU-8**
SCALE: 1/4"=1'-0"

KEY NOTES:
1. ADD ALTERNATE #1: DEMO AND REMOVE THE CHILLED WATER COIL PUMP AND 3-WAY VALVE. ADD A PRESSURE INDEPENDENT CONTROL VALVE AND REWORK THE PIPING TO MAKE CONTINUOUS. SEE COIL SCHEDULE AND SCHEDULE FOR MORE INFORMATION. DEMO THE ELECTRICAL POWER CIRCUIT.



FILENAME: P:\UNC\2023-375 Ross Hall Chiller Replacement\Cad\Mech\p-hv4.dwg LAYOUT: M2.4 REVISED: 6/1/2024 07:08 PLOTTED: 10/10/2024 11:25:21 USER: Willie Womack



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

PIPING SCHEMATICS AND CONTROLS

REVISIONS:

BID SET

DATE: 10/14/24
DRAWN BY: WOW
CHECKED BY: STC
JOB NO: 2023-375

SHEET NO.

M3.0

BUILDING AUTOMATION SYSTEM CONTROL MATRIX							
EQUIPMENT, SYSTEM & POINT	POINT TYPE						
	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS
IN ADDITION TO THE DDC POINTS LISTED BELOW, THE CONTRACTOR SHALL CAREFULLY REVIEW ALL DRAWINGS, ALL SPECIFICATIONS, & ALL SEQUENCES OF OPERATION. THE DOCUMENTS ARE ALL INCLUSIVE & COMPLEMENTARY TO EACH OTHER. THE PROJECT SHALL INCLUDE ANY AND ALL NECESSARY DDC POINTS TO SUPPORT THE REQUIREMENTS OF ALL THE DOCUMENTS.							
EXISTING CONTROL POINTS							
OUTSIDE AIR TEMPERATURE			X				
COOLING TOWERS (CT-1, CT-2)							
COOLING TOWER ISOLATION VALVE OPEN/ CLOSE	X						
COOLING TOWER FAN START/ STOP		X					
COOLING TOWER FAN STATUS	X				X		
COOLING TOWER FAN VFD SPEED				X			
COOLING TOWER SUMP TEMPERATURE		X					
COOLING TOWER SUMP HEATER STATUS	X						
CONDENSER WATER FLOW	X						
COOLING TOWER BYPASS			X				3-WAY VALVE IN PENTHOUSE
CONDENSER WATER SUPPLY TEMPERATURE		X					
CONDENSER WATER RETURN TEMPERATURE			X				
CONDENSER WATER PUMPS (P-1, P-2)							
PUMP START/ STOP		X					
PUMP STATUS	X				X		
CHILLED WATER PUMPS (P-4, P-5, P-6)							
PUMP START/ STOP		X					
PUMP STATUS	X				X		
PUMP VFD SPEED				X			
CHW DIFFERENTIAL PRESSURE AHU-1 & 2		X					
CHW DIFFERENTIAL PRESSURE AHU-3			X				
CHW DIFFERENTIAL PRESSURE RTU-7 & 8		X					
EXHAUST FAN EF-N-4 (MECH RM 0510)							
FAN START/ STOP		X					
FAN STATUS	X				X		

NOTES:
1. ALWAYS REFER TO DRAWINGS FOR QUANTITY.
2. PROVIDE OPEN PROTOCOL COMMUNICATION WITH FACTORY SUPPLIED CONTROLLERS.
3. BAS CONTRACTOR SHALL COORDINATE STATUS LEVEL FOR EACH ALARM POINT WITH THE OWNER TO DETERMINE WHICH ONES REQUIRE IMMEDIATE ATTENTION.

BUILDING AUTOMATION SYSTEM CONTROL MATRIX							
EQUIPMENT, SYSTEM & POINT	POINT TYPE						
	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS
IN ADDITION TO THE DDC POINTS LISTED BELOW, THE CONTRACTOR SHALL CAREFULLY REVIEW ALL DRAWINGS, ALL SPECIFICATIONS, & ALL SEQUENCES OF OPERATION. THE DOCUMENTS ARE ALL INCLUSIVE & COMPLEMENTARY TO EACH OTHER. THE PROJECT SHALL INCLUDE ANY AND ALL NECESSARY DDC POINTS TO SUPPORT THE REQUIREMENTS OF ALL THE DOCUMENTS.							
CHILLER, WATER-COOLED (CH-1, CH-2)							
CHILLER ENABLE		X					
CHILLER STATUS	X				X		
CHILLER CAPACITY IN TONS				X			
CHILLER POWER KW				X			
CHILLER GENERAL ALARM	X					X	
CHILLED WATER RETURN TEMPERATURE			X				
CHILLED WATER SUPPLY TEMPERATURE			X				
CHILLED WATER SUPPLY TEMPERATURE SET POINT				X			
CHILLED WATER FLOW SWITCH	X						THERMAL DISPERSION
CHILLER CHW ISOLATION VALVE				X			SLOW OPENING, SLOW CLOSING
CHILLER CW ISOLATION VALVE				X			SLOW OPENING, SLOW CLOSING
CHILLER EMERGENCY SHUTDOWN	X					X	EPO SWITCHES
CONDENSER WATER RETURN TEMPERATURE			X				
CONDENSER WATER SUPPLY TEMPERATURE			X				
CONDENSER WATER FLOW SWITCH	X						THERMAL DISPERSION
MISCELLANEOUS							
REFRIGERANT MONITOR- STATUS	X				X		
REFRIGERANT MONITOR- LEAK DETECTED	X					X	
CHILLED WATER DIFFERENTIAL PRESSURE		X					INSTALL AT THE FURTHEST AHU.
CHILLED WATER FLOW RATE		X					INSERTION TURBINE FLOW METER
MINIMUM FLOW BYPASS CONTROL VALVE				X			IN NORTH ADDITION PENTHOUSE
CHILLER BYPASS ISOLATION VALVE				X			SLOW OPENING, SLOW CLOSING
CONDENSER WATER CHEMICAL FEEDER ENABLE	X						ENABLE FEEDER WHEN CONDENSER WATER FLOWING
EXHAUST FAN (EF-CHR)							
FAN START/STOP		X					
FAN STATUS	X						
VFD SPEED			X				
MOTORIZED DAMPER		X					
MOTORIZED DAMPER STATUS	X						TWO END SWITCHES REQUIRED

NOTES:
1. ALWAYS REFER TO DRAWINGS FOR QUANTITY.
2. PROVIDE OPEN PROTOCOL COMMUNICATION WITH FACTORY SUPPLIED CONTROLLER.
3. BAS CONTRACTOR SHALL COORDINATE STATUS LEVEL FOR EACH ALARM POINT WITH THE OWNER TO DETERMINE WHICH ONES REQUIRE IMMEDIATE ATTENTION.

BUILDING AUTOMATION SYSTEM CONTROL MATRIX							
EQUIPMENT, SYSTEM & POINT	POINT TYPE						
	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS
IN ADDITION TO THE DDC POINTS LISTED BELOW, THE CONTRACTOR SHALL CAREFULLY REVIEW ALL DRAWINGS, ALL SPECIFICATIONS, & ALL SEQUENCES OF OPERATION. THE DOCUMENTS ARE ALL INCLUSIVE & COMPLEMENTARY TO EACH OTHER. THE PROJECT SHALL INCLUDE ANY AND ALL NECESSARY DDC POINTS TO SUPPORT THE REQUIREMENTS OF ALL THE DOCUMENTS.							
AIR HANDLERS (AHU-1,2, 3, RTU-7,8,9,CC-1) ADD ALTERNATE #1							
CHILLED WATER CONTROL VALVE				X			REFER TO SCHEDULE.
LEAVING AIR TEMPERATURE		X					

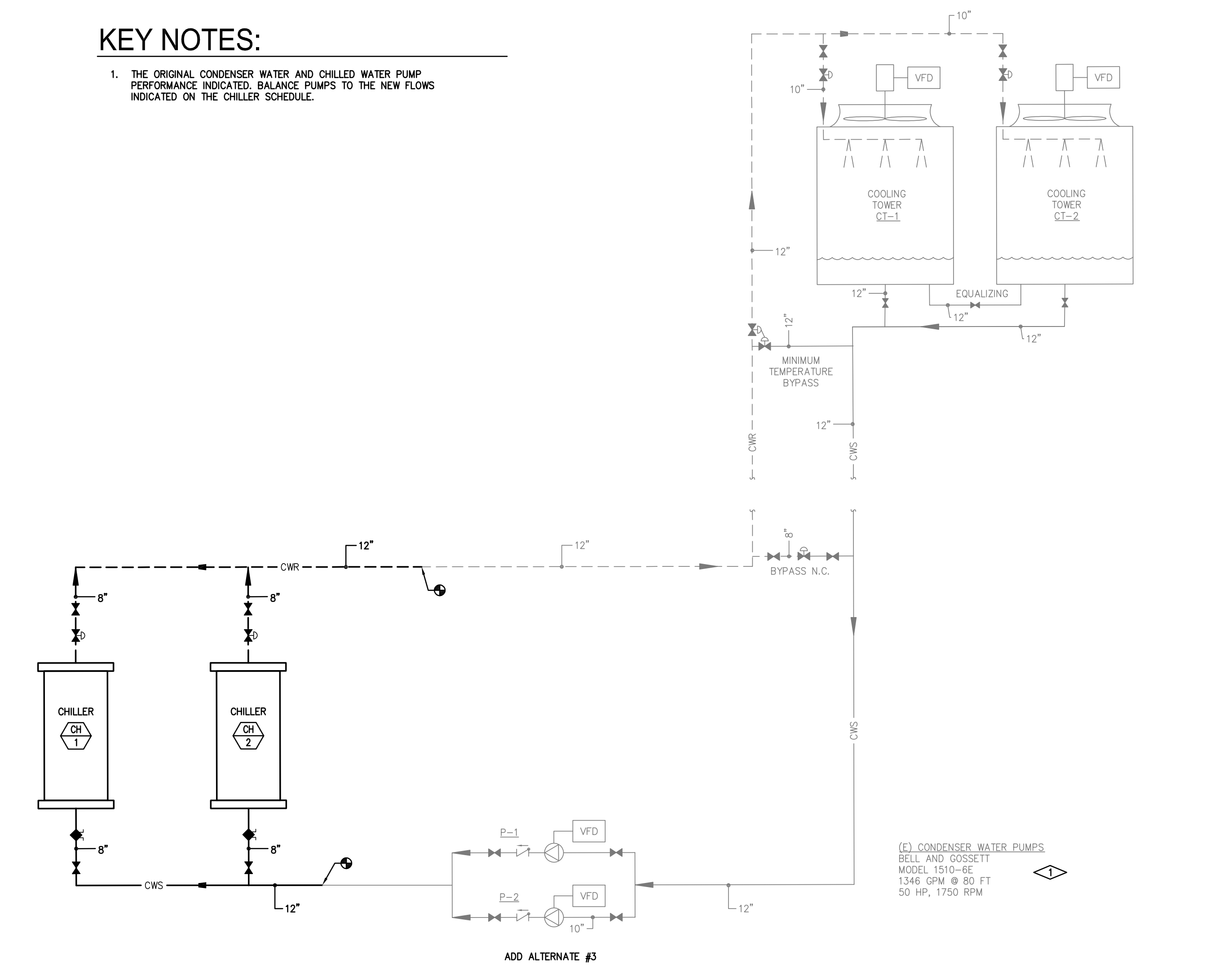
NOTES:
1. ALWAYS REFER TO DRAWINGS FOR QUANTITY.
2. PROVIDE OPEN PROTOCOL COMMUNICATION WITH FACTORY SUPPLIED CONTROLLER.
3. BAS CONTRACTOR SHALL COORDINATE STATUS LEVEL FOR EACH ALARM POINT WITH THE OWNER TO DETERMINE WHICH ONES REQUIRE IMMEDIATE ATTENTION.

CONTROL NOTES:

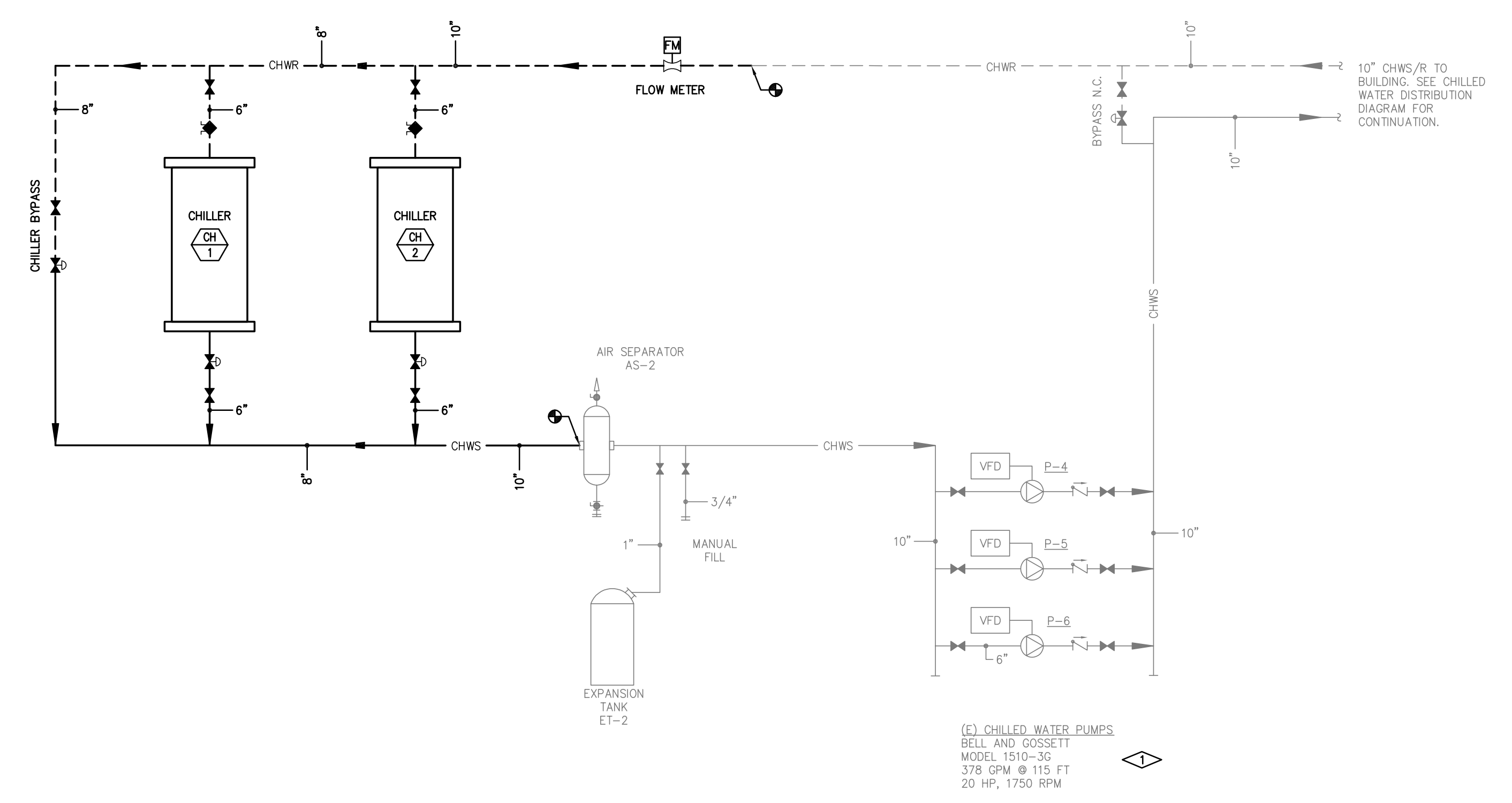
- CONTROLS TO BE BY DYNAMIC CONTROLS INC. THE NEW JACE TO BE TROJIM JACE 8000 RUNNING V4.
- ALL CONTROL POINTS ASSOCIATED WITH THE CHILLED WATER AND CONDENSER WATER SYSTEMS SHALL BE SERVED BY NEW JACE CONTROLLERS AND NEW I/O BOARDS WITHIN NEW TEMPERATURE CONTROL PANELS.
- THE EXISTING FIELD DEVICES MAY BE REUSED IF FUNCTIONAL AND CALIBRATED. THE CONTRACTOR TO VERIFY, WIRE TO THE NEW TEMPERATURE CONTROL PANELS.
- DEMO AND REMOVE EXISTING CONTROL DEVICES AND WIRING THAT ARE NOT REUSED. DO NOT ABANDON ITEMS IN PLACE.
- ALL NEW VALVE ACTUATORS TO BE ELECTRIC. COORDINATE POWER REQUIREMENTS BETWEEN THE CONTROLS CONTRACTOR AND THE ELECTRICAL CONTRACTOR. 120 V CIRCUITS, WHERE REQUIRED FOR THE BUILDING AUTOMATION SYSTEM, TO BE INCLUDED IN THE BID. REFER TO 230900 FOR MORE INFORMATION.

KEY NOTES:

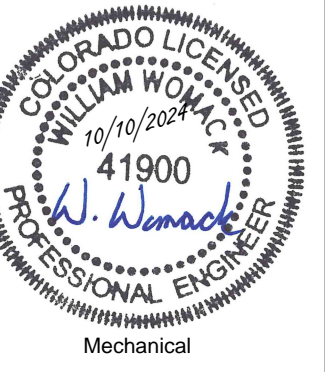
- THE ORIGINAL CONDENSER WATER AND CHILLED WATER PUMP PERFORMANCE INDICATED. BALANCE PUMPS TO THE NEW FLOWS INDICATED ON THE CHILLER SCHEDULE.



CONDENSER WATER PIPING SCHEMATIC
SCALE: NONE



CHILLED WATER PIPING SCHEMATIC
SCALE: NONE



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

CHILLED WATER DISTRIBUTION DEMO DIAGRAM

REVISIONS:

BID SET

DATE: 10/14/24

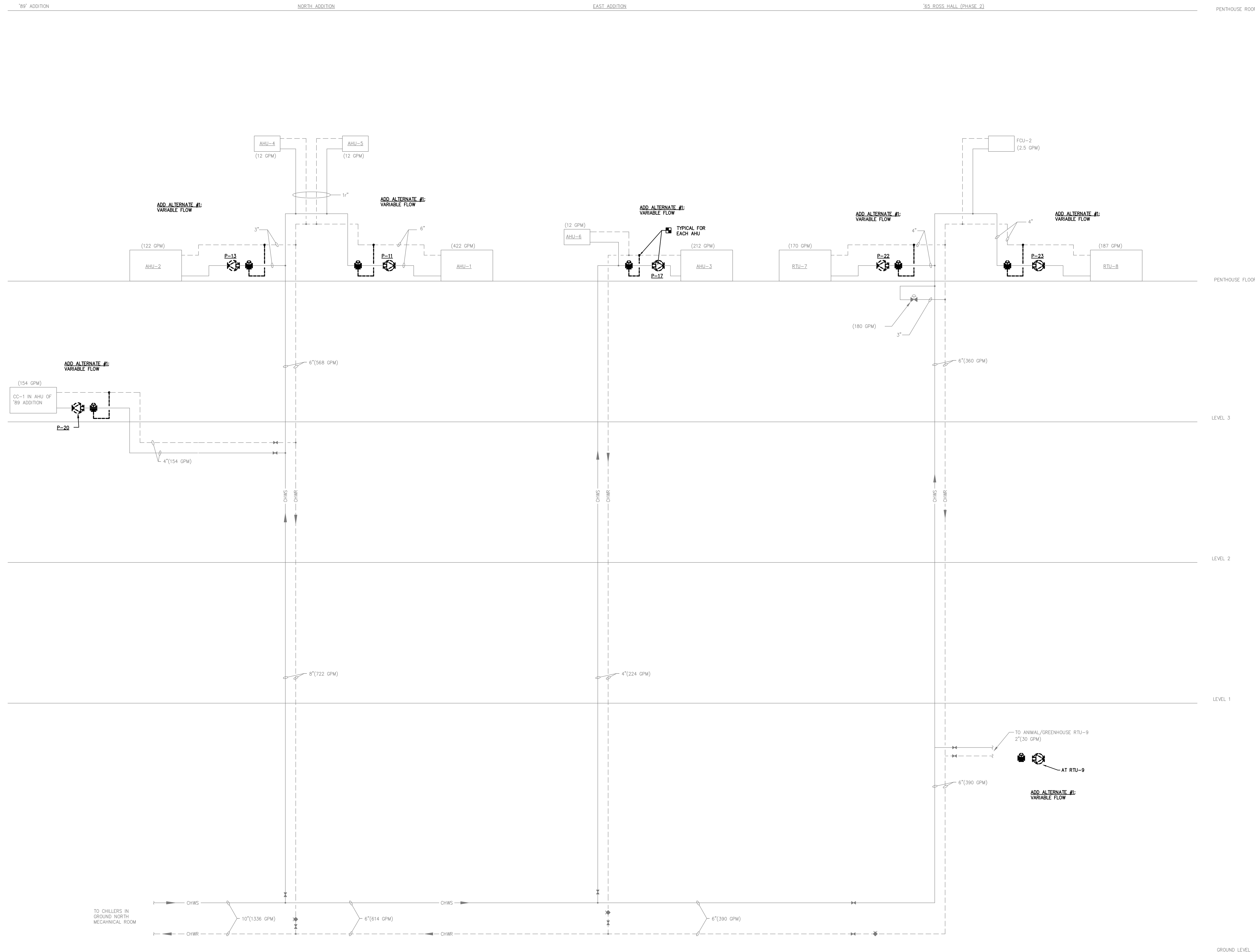
DRAWN BY: WOW

CHECKED BY: STC

JOB NO: 2023-375

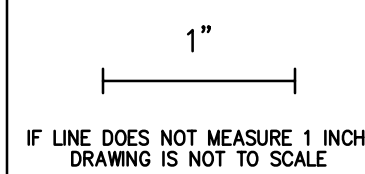
SHEET NO.

MD3.1



CHILLED WATER DISTRIBUTION DIAGRAM - DEMO
SCALE: NTS

FILENAME: P:\UNC\2023-375 Ross Hall Chiller Replacement\Cad\Mech\p-hw2.dwg LAYOUT: MD3.1 REVISED: 10/10/2024 11:15 PLOTTED: 10/10/2024 11:23:36 USER: Willie Warnock



TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

ELECTRICAL LEGENDS AND NOTES

REVISIONS:

BID SET

DATE: 10/14/24
DRAWN BY: KPC
CHECKED BY: CMP
JOB NO: 2023-375

SHEET NO.

E1.0

POWER PLAN NOTES:

1. MAKE ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT REQUIRING ELECTRICAL CONNECTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO ALL MECHANICAL AND OTHER EQUIPMENT INCLUDED IN THIS PROJECT.
2. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3. PROVIDE FUSES SIZED PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. DISCONNECT SWITCH LOCATIONS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS TO SUIT EQUIPMENT AND SPACE. DISCONNECT SWITCHES SHALL BE WITHIN SIGHT OF THE EQUIPMENT THEY SERVE AND MOUNTED AT 6'-3", MAXIMUM, TO TOP OF CABINET. MAINTAIN NEC WORK SPACE REQUIREMENTS.
5. COORDINATE AND VERIFY EXACT MOUNTING LOCATIONS OF WALL AND FLOOR DEVICES WITH ARCHITECTURAL ELEVATIONS, AND ANY FURNITURE OR SPECIALTY EQUIPMENT SUPPLIER DRAWINGS PRIOR TO ROUGH-IN.
6. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V CIRCUIT.
7. CIRCUITS MAY BE COMBINED INTO HOMERUNS OF UP TO SIX (6) CURRENT CARRYING CONDUCTORS INCLUDING NEUTRALS, UNLESS OTHERWISE INDICATED. WHERE CIRCUITS ARE COMBINED WITHIN A SINGLE CONDUIT, PROVIDE STRIPING FOR FULL LENGTH OF NEUTRAL CONDUCTOR INSULATION TO MATCH THE COLOR CODE OF THE ASSOCIATED PHASE CONDUCTOR. SEE SPECIFICATION FOR COLOR CODES.
8. 120V POWER HAS BEEN SHOWN ON DRAWINGS TO J-BOXES IDENTIFIED FOR BAS CONTROLS, DAMPER ACTUATORS AND OTHER MISCELLANEOUS POWER TO OPERATE MECHANICAL CONTROLS AND DEVICES. COORDINATE ALL 120V REQUIREMENTS WITH MECHANICAL CONTROLS AND EQUIPMENT AND MAKE ALL CONNECTIONS REQUIRED TO THESE OR OTHER 120V MECHANICAL CIRCUITS AS REQUIRED. DO NOT CONNECT THESE LOADS TO OTHER CIRCUITS WITH LOADS OTHER THAN THOSE IDENTIFIED HERE.

GENERAL NOTES:

1. FOR REMODELING, WORK INCLUDED IS DENOTED IN BOLD. EXISTING CONDITIONS TO REMAIN ARE DENOTED LIGHTLY.
2. PROTECT STRUCTURE AND OWNER EQUIPMENT FROM DAMAGE. IMMEDIATELY REPLACE OR REPAIR TO ORIGINAL CONDITION. DAMAGE CAUSED BY THE CONTRACTOR WHETHER EQUIPMENT APPEARS TO BE CURRENTLY IN USE OR NOT, UNLESS WRITTEN AUTHORIZATION FROM THE OWNER INDICATED OTHERWISE. PREPARE LISTING OF ALL EXISTING DAMAGED ITEMS AND SUBMIT TO OWNER PRIOR TO BEGINNING WORK.
3. INSTALL CONDUIT CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED. PAINT EXPOSED CONDUIT TO MATCH EXISTING FINISHES WITHIN THE SURROUNDING AREA.
4. FIRE SEAL ALL FIRE RATED WALL AND FLOOR PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS.
5. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN AND ORDERING MATERIALS OR EQUIPMENT.
6. EXISTING INFORMATION SHOWN ON THE DRAWINGS HAS BEEN TAKEN FROM OWNER FURNISHED DRAWINGS AND/OR LIMITED FIELD OBSERVATIONS. CATOR, RUMA & ASSOCIATES IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION OR THE ADEQUACY, SAFETY AND CONFORMANCE TO CURRENT PREVAILING CODES OF ANY WORK SHOWN AS EXISTING ON THESE DRAWINGS.
7. FIELD LOCATE EXISTING UNDERGROUND PUBLIC AND OWNER UTILITIES OF ALL TRADES AND BUILDING GROUNDING/LIGHTNING PROTECTION SYSTEMS PRIOR TO ANY EXCAVATION. REPLACE OR REPAIR DAMAGED UTILITIES AND GROUNDING/LIGHTNING PROTECTION SYSTEMS TO ORIGINAL CONDITION.
8. PROVIDE SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS, HOMERUN AND BRANCH CIRCUITS.
9. COORDINATE ALL SERVICES SHUTDOWN WITH THE OWNER. PROVIDE TEMPORARY SERVICES. COORDINATE ANY REQUIRED DISRUPTIONS WITH OWNER, AT A MINIMUM OF 72 HOURS IN ADVANCE.

DEMOLITION NOTES:

1. UNLESS NOTED OTHERWISE, BOLD ITEMS INDICATE EQUIPMENT, DEVICES, ETC. TO BE REMOVED. SEE SPECIFICATION SECTION 280000 FOR REMODEL/DEMOLITION DETAILED REQUIREMENTS.
2. DEMOLITION DRAWINGS MAY NOT SHOW EVERY ITEM TO BE DEMOLISHED. CONTRACTOR SHALL VISIT SITE TO DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION TO FACILITATE ALL WORK INDICATED BY THE CONTRACT DOCUMENTS PRIOR TO QUOTATION. NO EXTRAS WILL BE ALLOWED FOR WORK REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY THE CONTRACT DOCUMENTS. REWORK EXISTING TERMINATIONS, CONNECTIONS, CONDUIT, WIRING, ETC. TO ACCEPT NEW WORK. MAINTAIN CIRCUIT CONTINUITY TO EXISTING CIRCUITS AND DEVICES TO REMAIN OR REMODEL/DEMOLITION DETAILED REQUIREMENTS TO BE RELOCATED. PRIOR TO COMMENCEMENT OF ANY DEMO WORK, CONFIRM EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
3. ALL ITEMS IDENTIFIED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ALL WIRING AND EXPOSED CONDUIT AND CONDUIT SUPPORTS BACK TO POINT OF ORIGIN OR NEXT DEVICE TO REMAIN. REMOVED ITEMS SHALL BE TURNED OVER TO THE OWNER UNLESS NOTED OTHERWISE, AND STORED IN THE AREA DESIGNATED BY THE OWNER. REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL ITEMS THE OWNER CHOOSES NOT TO ACCEPT.
4. WHERE EXISTING CONDUITS ARE SHOWN TO BE REMOVED AND HAVE BEEN ROUTED IN CONCRETE FLOOR SLABS, CONCRETE WALLS OR CONCRETE CEILINGS, THEY SHALL BE CUT BACK FLUSH WITH CONCRETE. FILL WITH GROUT TO ACHIEVE A SMOOTH AND EVEN FINISH FLUSH WITH CONCRETE SURFACE AFTER CONDUCTORS HAVE BEEN REMOVED.
5. REUSE EXISTING CONDUIT WHERE CURRENT NEC AND LOCAL CODE REQUIREMENTS ARE MAINTAINED. PROVIDE NEW CONDUIT AND WIRE FOR NEW INSTALLATIONS AND EXTENSION OF EXISTING INSTALLATIONS. REUSE EXISTING CONDUIT IN PLACE, DO NOT REINSTALL EXISTING CONDUIT. PROVIDE LABELING PER SPECIFICATIONS FOR REUSED CONDUIT.
6. WHERE EXISTING DEVICES, SWITCHES, MOTOR CONNECTIONS, ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, WALLS SHALL BE PATCHED TO MATCH ORIGINAL FINISH. BLANK COVERPLATES OVER EXISTING BOXES ARE NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.
7. ADD ALTERNATE 3: REMOVE CHILLED WATER COIL PLUMP P-11, P-13, P-17, P-20, P-22, AND P-23 BRANCH CIRCUITS BACK TO SOURCE. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS.

ONE-LINE DIAGRAM NOTES:

1. PANELBOARDS INDICATED ON ONE-LINE DIAGRAMS DO NOT SHOW ALL BRANCH CIRCUITS. REFER TO PANELBOARD SCHEDULES.
2. EQUIPMENT SHOWN SHADED REPRESENTS STANDBY POWERED SERVICES.
3. ADJUSTABLE BREAKERS SHALL BE SOLID STATE TRIP. CIRCUIT BREAKER TRIP FUNCTIONS:
L=LONG TIME
S=SHORT TIME
I=INSTANTANEOUS
G=GROUND FAULT
Z=ZONE SELECT INTERLOCK
4. EXISTING ONE-LINE DIAGRAM TAKEN FROM DRAWINGS. EXISTING INFORMATION SHOWN OTHER THAN LOCATIONS IMPACTED BY NEW WORK HAS NOT BEEN VERIFIED.
5. COORDINATE MOUNTING, CONDUIT, WIRE, AND OCPD SIZE FOR SPD'S WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

POWER LEGEND

(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
⊕	SINGLE RECEPTACLE	PM	PLUG MOLD (MULTI-OUTLET ASSEMBLY)
⊕	DOUBLE RECEPTACLE	WM	WIREMOLD (SURFACE RACEWAY)
⊕	DOUBLE DUPLEX RECEPTACLE	---	CONDUIT CONCEALED
⊕	RECEPTACLE, HALF SWITCHED	---	CONDUIT EXPOSED
⊕	DUPLEX RECEPTACLE, CEILING MOUNTED	---	CONDUIT, UNDERGROUND OR CONCEALED IN FLOOR AS ALLOWED PER SPECIFICATIONS
⊕	DUPLEX RECEPTACLE, FLOOR MOUNTED	---	CONDUIT TURNING DOWN
⊕	DOUBLE DUPLEX RECEPTACLE, FLOOR MOUNTED	---	CONDUIT TURNING UP
⊕	SPECIAL RECEPTACLE	---	CONDUIT CAPPED
⊕	SPECIAL RECEPTACLE, FLOOR MOUNTED	---	BRANCH CIRCUIT HOME RUN, NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS, SUBSCRIPTS INDICATE PANEL & CIRCUITS
⊕	JUNCTION BOX, WALL OR CEILING MOUNTED	---	GROUND BAR
⊕	JUNCTION BOX, FLOOR MOUNTED	---	MAIN SWITCHBOARD/DISTRIBUTION CENTER
⊕	MOTOR	---	TRANSFORMER
⊕	DISCONNECT SWITCH (NON-FUSED)	---	CURRENT TRANSFORMER
⊕	DISCONNECT SWITCH (FUSED)	---	THERMOSTAT
⊕	VARIABLE SPEED DRIVE WITH DISCONNECT	---	GENERATOR ANNUNCIATOR PANEL
⊕	ENCLOSED CIRCUIT BREAKER	---	SHADING INDICATES EMERGENCY SYSTEM
⊕	TOGGLE SWITCH	---	TEXT INDICATES PANEL AND CIRCUIT DESIGNATION
⊕	ELECTRICAL PANELBOARD, CONTROL PANEL, OR OTHER CABINET, AS NOTED	---	UTILITY METER

ONE-LINE DIAGRAM LEGEND

(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	DISCONNECT SWITCH	PA	PANELBOARD "A"
---	DISCONNECT SWITCH, FUSED	EM	EM-ENERGY METER, PM=POWER METER, CM=CIRCUIT MONITOR
---	CIRCUIT BREAKER	VS	VOLTMETER TEST SWITCH
---	FUSE	AS	AMMETER TEST SWITCH
---	GROUND	V	VOLTMETER
---	STEP DOWN TRANSFORMER, ## INDICATES KVA	A	AMMETER
---	K-RATED STEP DOWN TRANSFORMER	SEE	SEE FEEDER/MCC/TRANSFORMER SCHEDULES FOR FEEDER SIZE
---	## INDICATES KVA, # INDICATES K-RATING	EN	ENGINE GENERATOR
---	CURRENT TRANSFORMER	---	CONTACTOR/RELAY/CAPACITOR (AS NOTED)
---	POTENTIAL TRANSFORMER	TS	TRANSFER SWITCH - ATS=AUTOMATIC, MTS=MANUAL
---	SERVICE ENTRANCE TRANSFORMER	GI	GROUND FAULT INTERRUPTER
---	METER	SPD	SURGE PROTECTIVE DEVICE
---	EQUIPMENT ENCLOSURE	ST	SHUNT TRIP
---	SERVICE WEATHERHEAD	---	TERMINATIONS LB=LOAD BREAK, NLB=NO LOAD BREAK
---	SHORT CIRCUIT CURRENT AVAILABLE	---	DRAW-OUT DEVICE
---	KIRK KEY INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP	---	PLUG-IN DEVICE
---	ELECTRICAL INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP	---	ELECTRICALLY OPERATED
---	MECHANICAL INTERLOCK	---	

ABBREVIATIONS LEGEND

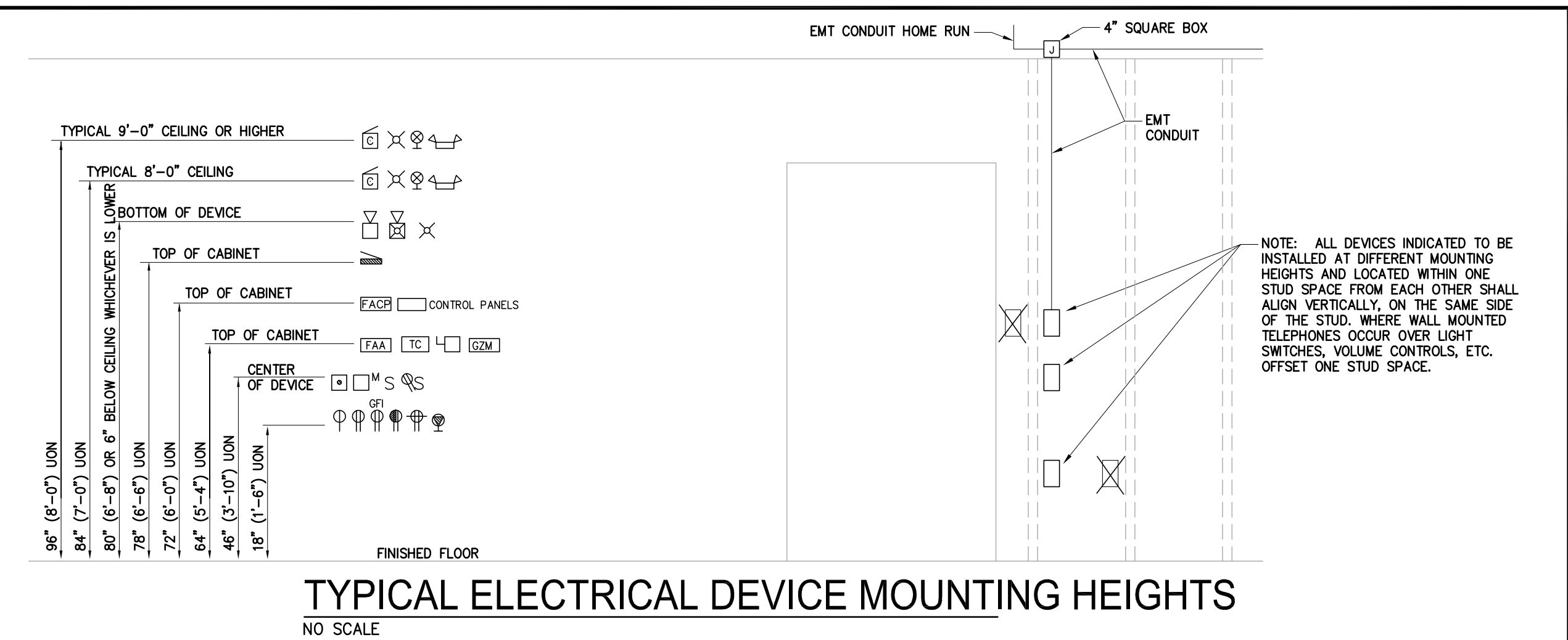
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	MCP	MOTOR CIRCUIT PROTECTOR
AC	ABOVE COUNTER, MOUNT HORIZONTALLY TO CENTERLINE OF DEVICE, +6" ABOVE COUNTER OR BACK SPLASH	MEC	SEE MECHANICAL EQUIPMENT SCHEDULE
AF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUGS ONLY
ANN	ANNUNCIATOR	MTS	MANUAL TRANSFER SWITCH
ARF	ABOVE RAISED FLOOR	NC	NORMALLY CLOSED
ASSD	AIR SAMPLING SMOKE DETECTION	NIC	NOT IN CONTRACT
ATS	AUTOMATIC TRANSFER SWITCH	NL	NIGHT LIGHT
BFG	BELOW FINISHED GRADE	NO	NORMALLY OPEN
C	CONDUIT	NTS	NOT TO SCALE
CATV	CABLE TELEVISION	OC	ON CENTER
CB	CIRCUIT BREAKER	OFI	OWNER FURNISHED, CONTRACTOR INSTALLED
CCTV	CLOSED CIRCUIT TELEVISION	OFI	OWNER FURNISHED, OWNER INSTALLED
(E)	EXISTING	OSWF	ON SITE WORK FORCE
EM	EMERGENCY	PB	PULL BOX
EMDC	EMERGENCY MAIN DISTRIBUTION CENTER	SB	STAND-BY
EP	EXPLOSION PROOF	SDC	SUB-DISTRIBUTION CENTER
EPO	EMERGENCY POWER OFF	TP	TAMPER PROOF
EVO	EMERGENCY VENTILATION ON/OFF	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
EW	ELECTRIC WATER COOLER	TYP	TYPICAL
FA	FIRE ALARM	UF	UNDER FLOOR
G	GROUND	UG	UNDER GROUND
GCP	GENERATOR CONTROL PANEL	UN	UNLESS OTHERWISE NOTED
GI	GROUND FAULT INTERRUPTING	UPS	UNINTERRUPTIBLE POWER SUPPLY
HOA	HAND OFF AUTOMATIC	V	VOLTS
IG	ISOLATED GROUND	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	W/	WITH
MCB	MAIN CIRCUIT BREAKER	W/O	WITHOUT
MCC	MOTOR CONTROL CENTER	WP	WEATHER PROOF
MDC	MAIN DISTRIBUTION CENTER	XFR	TRANSFORMER

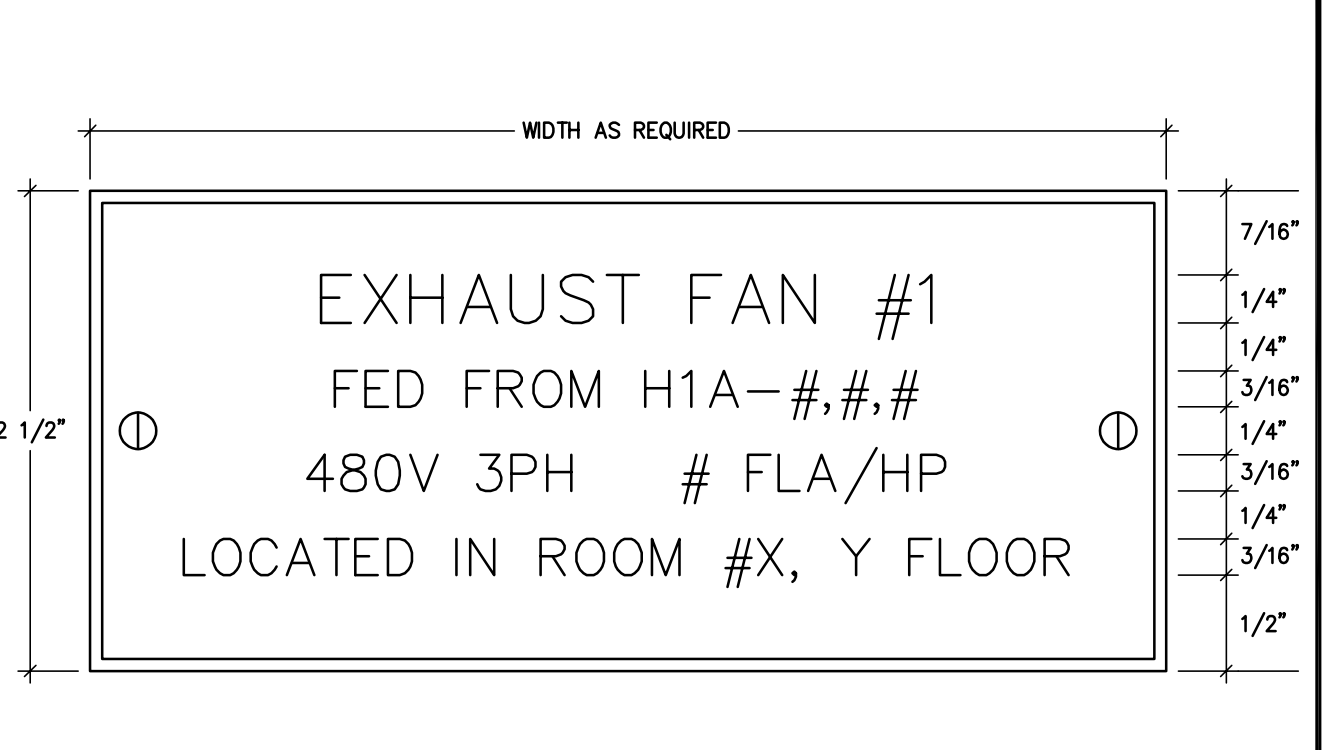
REFERENCE SYMBOLS LEGEND

(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
⊕	KEY NOTE REFERENCE	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE
⊕	TYPICAL CIRCUIT NUMBER	⊕	EXISTING TO REMAIN
⊕	TYPICAL LUMINAIRE TYPE	⊕	EXISTING TO BE REMOVED
⊕	TYPICAL ROOM REFERENCE (TOP=PM#, BOTTOM=FL#)	⊕	EXISTING TO BE RELOCATED
⊕	MECHANICAL EQUIPMENT REFERENCE	⊕	EXISTING TO REMAIN - REPLACE DEVICE
⊕	LIGHTING CONTROL/ EQUIPMENT REFERENCE	⊕	EXISTING TO BE REMOVED AND REPLACED



- NOTES:
1. HEIGHTS SHOWN ARE TYPICAL TO CENTERLINE OF BOX UNLESS NOTED OTHERWISE.
 2. WHERE EVER DEVICES ARE INDICATED TO BE ABOVE DOORS, DEVICE SHALL BE CENTERED BETWEEN TOP OF DOOR TRIM AND CEILING LINE.
 3. MOUNTING HEIGHTS SHOWN ON ARCHITECTURAL ELEVATIONS SHALL GOVERN OVER THOSE SHOWN ABOVE. VERIFY MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS. DEVICES AND COVER PLATES SHALL NOT COVER/OVERLAP EDGES OF MANICOTTING, TILE OR OTHER SPECIALTY WALL FINISHES.
 4. REFER TO TYPICAL TECHNOLOGY DEVICE MOUNTING HEIGHTS DETAIL FOR ADDITIONAL INFORMATION.
 5. DEVICE MOUNTING HEIGHTS SHALL BE PER MOST CURRENT VERSION OF GOVERNING CODES AND STANDARDS. NEC, IBC, NFPA, ADA, ETC. WHERE DISCREPANCIES BECOME EVIDENT CONSULT THE ARCHITECT AND ENGINEER OF RECORD.
 6. WHERE RECEPTACLES, SWITCHES AND OTHER DEVICES ARE INSTALLED ABOVE COUNTERS, THE DEVICES SHALL BE INSTALLED AT 48" MAXIMUM (COUNTERS/SHELVES 0-20 INCHES WIDE) AND 44" MAXIMUM (COUNTERS/SHELVES 20-25 INCHES WIDE) ABOVE FINISHED FLOOR TO DEVICE CENTER.
 7. RECEPTACLES AND LOW VOLTAGE DEVICES SHALL NOT BE INSTALLED BELOW 15" AFF PER ADA STANDARDS.





1" IF LINE DOES NOT MEASURE 1/8" INCH, DRAWING IS NOT TO SCALE

TITLE

UNC ROSS HALL CHILLER REPLACEMENT PROJECT # 2024-041M23 1100 22nd Street Greeley, CO 80639

DRAWING TITLE

ELECTRICAL SCHEDULES AND DETAILS

REVISIONS:

BID SET

DATE: 10/14/24 DRAWN BY: KPC CHECKED BY: CMP JOB NO: 2023-375

SHEET NO.

E1.1

MECHANICAL EQUIPMENT SCHEDULE

GENERAL NOTES: A. PRIOR TO WORK, VERIFY ELECTRICAL REQUIREMENTS (VOLTAGE, AMPERAGE, RECOMMENDED OCPD, CONDUCTORS, AND DISCONNECT) FOR EACH PIECE OF EQUIPMENT. B. PRIOR TO WORK, VERIFY EXACT LOCATION FOR EACH PIECE OF EQUIPMENT WITH ARCHITECT AND/OR OWNER. C. COORDINATE AND PROVIDE ALL FIELD CONNECTIONS AS REQUIRED. D. COORDINATE 120V POWER CONNECTIONS TO DAMPERS AND OTHER CONTROL CIRCUITS. GROUP EQUIPMENT CONTROL CIRCUITS SUCH THAT FAILURE OF ONE CONTROL CIRCUIT DOES NOT AFFECT OPERATION OF OTHER EQUIPMENT. FOR EXAMPLE, DO NOT CONNECT A DAMPER ASSOCIATED WITH ONE AIR HANDLING UNIT TO THE SAME BRANCH CIRCUIT AS DAMPERS ASSOCIATED WITH A DIFFERENT AIR HANDLING UNIT. E. FEEDERS, BREAKERS, DISCONNECTS, AND FUSING APPLIES TO FIELD-INSTALLED AND/OR FACTORY-INSTALLED EQUIPMENT. F. COORDINATE LOCATION OF VFD'S AND WORKING SPACE CLEARANCES IF INSTALLED REMOTE FROM EQUIPMENT. PROVIDE CIRCUIT CONNECTION FROM VFD TO MOTOR(S). G. WHERE MULTIPLE MOTORS ARE SERVED BY A SINGLE VFD, COORDINATE FIELD-WIRING REQUIREMENTS WITH EQUIPMENT VENDOR. H. DISCONNECT SWITCHES PROVIDED IN THE MOTOR FEEDERS BEING PROVIDED WITH AUXILIARY CONTACTS AT THE DISCONNECT THAT DE-ENERGIZES POWER TO THE VFD. SPECIFIC NOTES: 1. NEW PUMP UNDER ADD ALTERNATE 3.

Table with columns: KEY, ITEM, MOTORS (HP, FLA, WATTS), OTHER, EQUIV. LD (VA), VOLTAGE, FEEDER SIZE, PROTECTION, DISC AT UNIT, FUSE, NOTE.

EXISTING SWITCHBOARD MDS

Table with columns: DESCRIPTION OF SUB-LOAD OR PANEL, CONNECTED LOADS (IN VA) BY CATEGORY AND PHASE, MOTORS, OTHER, GENERAL, REMARKS.

Table for EXISTING PANEL BH1 with columns: NOTE, DESCRIPTION, LTG, RECEPT, MOTORS, OTHER, GENERAL, BREAKER, TOTAL, GENERAL, OTHER, MOTORS, RECEPT, LTG, DESCRIPTION, NOTE.

Table for EXISTING PANELBOARD MBN with columns: DESCRIPTION OF SUB-LOAD OR PANEL, CONNECTED LOADS (IN VA) BY CATEGORY AND PHASE, MOTORS, OTHER, GENERAL, REMARKS.

Table for EXISTING PANEL BL1 with columns: NOTE, DESCRIPTION, LTG, RECEPT, MOTORS, OTHER, GENERAL, BREAKER, TOTAL, GENERAL, OTHER, MOTORS, RECEPT, LTG, DESCRIPTION, NOTE.

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1" = 1' IF LINE DOES NOT MEASURE 1/4" INCH, DRAWING IS NOT TO SCALE

TITLE

UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

ELECTRICAL ONE-LINE DIAGRAM

REVISIONS:

BID SET

DATE: 10/14/24

DRAWN BY: KPC

CHECKED BY: CMP

JOB NO: 2023-375

SHEET NO.

E1.2

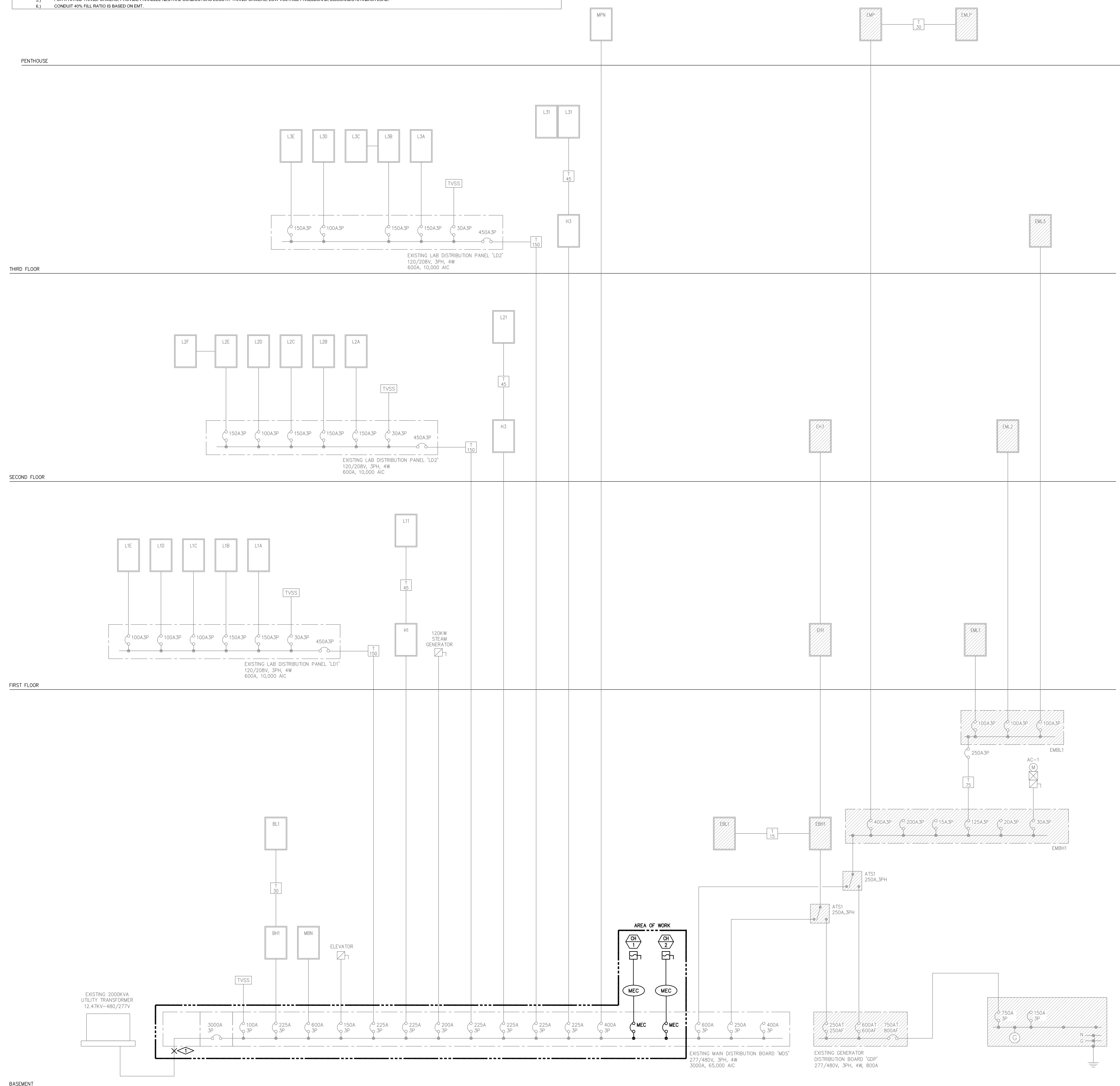
KEY NOTES:

1. THE CONTRACTOR SHALL METER THE POINTS INDICATED FOR A PERIOD OF 30 DAYS PRIOR TO SUBMITTING FOR PERMIT TO VERIFY EXISTING LOAD. METER SHALL RECORD VOLTAGE, AMPERAGE, KVA, AND POWER FACTOR FOR EACH PHASE AND SUM OF THE PHASES. THE METER SHALL CONTINUALLY AVERAGE THE POWER DEMAND OVER MAXIMUM 15 MINUTE INTERVALS AS REQUIRED BY NEC 220.87. COMPLETE A METERING SUMMARY REPORT AND DELIVER RESULTS TO ENGINEER AFTER 7 DAYS AND AFTER 30 DAYS. VERIFY EXISTING LOADS AT AND DOWNSTREAM OF THE METERING LOCATION AND PROVIDE LIST TO ENGINEER OF WHAT LOADS ARE NOT ON DURING THE 30 DAY METERING AND THE REASON WHY. ORGANIZE LIST BY EQUIPMENT NAME. IF ANY LOADS HAVE BEEN REMOVED OR PERMANENTLY ABANDONED, TURN CIRCUIT BREAKER OFF AND RELABEL AS SPARE.

TRANSFORMER SCHEDULE																																		
KEY	FRN	FLA	SEC	FLA/PRIMARY	SWITCH	FUSE	CONDUCTORS				SECONDARY				DIMENSIONS	WEIGHT	BTU/H	NOTE																
							TYPE	SIZE	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE					TYPE	SIZE	TYPE	SIZE												
T15	18.0	41.6	25	A 3P	30	A 3P	FRS-R	25	3#	10	1#	10	G	3#	50	A 3P	60	A 3P	FRN-R	50	4#	6	1#	8	G	1#	8	3/4	27.00	20.13	16.00	310	2806	
T20	26.1	63.3	45	A 3P	60	A 3P	FRS-R	45	3#	6	1#	10	G	1	100	A 3P	100	A 3P	FRN-R	100	4#	1	1#	6	G	1-1/2	1#	6	3/4	30.00	20.13	16.00	370	3753
T45	54.1	124.9	70	A 3P	100	A 3P	FRS-R	70	3#	4	1#	8	G	1-1/4	150	A 3P	200	A 3P	FRN-R	150	4#	10	1#	6	G	1-1/2	1#	6	3/4	39.25	25.13	20.00	480	7425
T75	90.2	209.2	110	A 3P	200	A 3P	FRS-R	110	3#	1	1#	6	G	1-1/2	250	A 3P	400	A 3P	FRN-R	250	4#	200	1#	2	G	2-1/2	1#	2	3/4	39.25	30.00	20.00	675	10549
T122	135.3	312.3	175	A 3P	200	A 3P	FRS-R	175	3#	20	1#	6	G	2	400	A 3P	600	A 3P	FRN-R	400	2 1/4	30	1#	2	G	2 1/2	1#	10	3/4	39.25	30.00	24.00	725	14166
T150	180.4	418.4	225	A 3P	400	A 3P	FRS-R	225	3#	40	1#	4	G	2	500	A 3P	600	A 3P	FRN-R	500	2 1/4	250	1#	10	G	2-1/2	1#	10	3/4	48.63	32.00	27.00	925	16560

- NOTES:
1. OVERCURRENT PROTECTION IS SIZED PER NEC 400.3.
 2. ALL CONDUCTORS ARE COPPER. SEE PLANS FOR INCREASED CONDUCTOR SIZES DUE TO VOLTAGE DROP, ETC.
 3. SECONDARY BONDING AND GROUNDING CONDUCTORS ARE SIZED PER NEC 250.96 AND 250.102.
 4. DIMENSIONS, WEIGHTS & BTU/H OUTPUT SHOWN ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS MAY VARY FROM MANUFACTURER TO MANUFACTURER.
 5. FOR K-RATED TRANSFORMERS, PROVIDE PARALLEL NEUTRAL CONDUCTORS LUGS AT TRANSFORMERS, LOW VOLTAGE PANELBOARD, DISCONNECTS AND/OR LOAD.
 6. CONDUIT 40% FILL RATIO IS BASED ON EMT.

FEEDER SCHEDULE		
KEY	CONDUCTORS	TYPE
MEC	SEE MECH. EQUIPMENT SCHEDULE	TYPE



ELECTRICAL ONE-LINE DIAGRAM
SCALE: NONE

FILENAME: P:\UNC\2023-375 Ross Hall Chiller Replacement\Coat\Elec\p-line.dwg LAYOUT: E1.2 REVISED: 5/30/2024 03.01 PLOTTED: 10/11/2024 10:48:00 USER: Kevin Cramdall

FILENAME: P:\UNC\2023-275 Ross Hall Chiller Replacement\Coat\Elec\p-pwr-gg.dwg LAYOUT: E2.0 REVISED: 5/30/2024 03:01 PLOTTED: 10/11/2024 10:48:15 USER: Kevin Comdall

DEMO KEY NOTES:

1. REMOVE CONNECTION TO EXISTING PUMP. PROTECT EXISTING BRANCH CIRCUIT FOR RECONNECTION.

NEW KEY NOTES:

1. PROVIDE 120V CONNECTION TO REFRIGERANT MONITOR.
2. PROVIDE 120V CONNECTION TO MECHANICAL CONTROLS.
3. CONNECT NEW PUMP TO EXISTING BRANCH CIRCUIT.



1"
IF LINE DOES NOT MEASURE 1/8" INCH, DRAWING IS NOT TO SCALE.

TITLE

**UNC ROSS HALL CHILLER REPLACEMENT
PROJECT # 2024-041M23**
1100 22nd Street
Greeley, CO 80639

DRAWING TITLE

GROUND LEVEL POWER PLAN

REVISIONS:

BID SET

DATE: 10/14/24

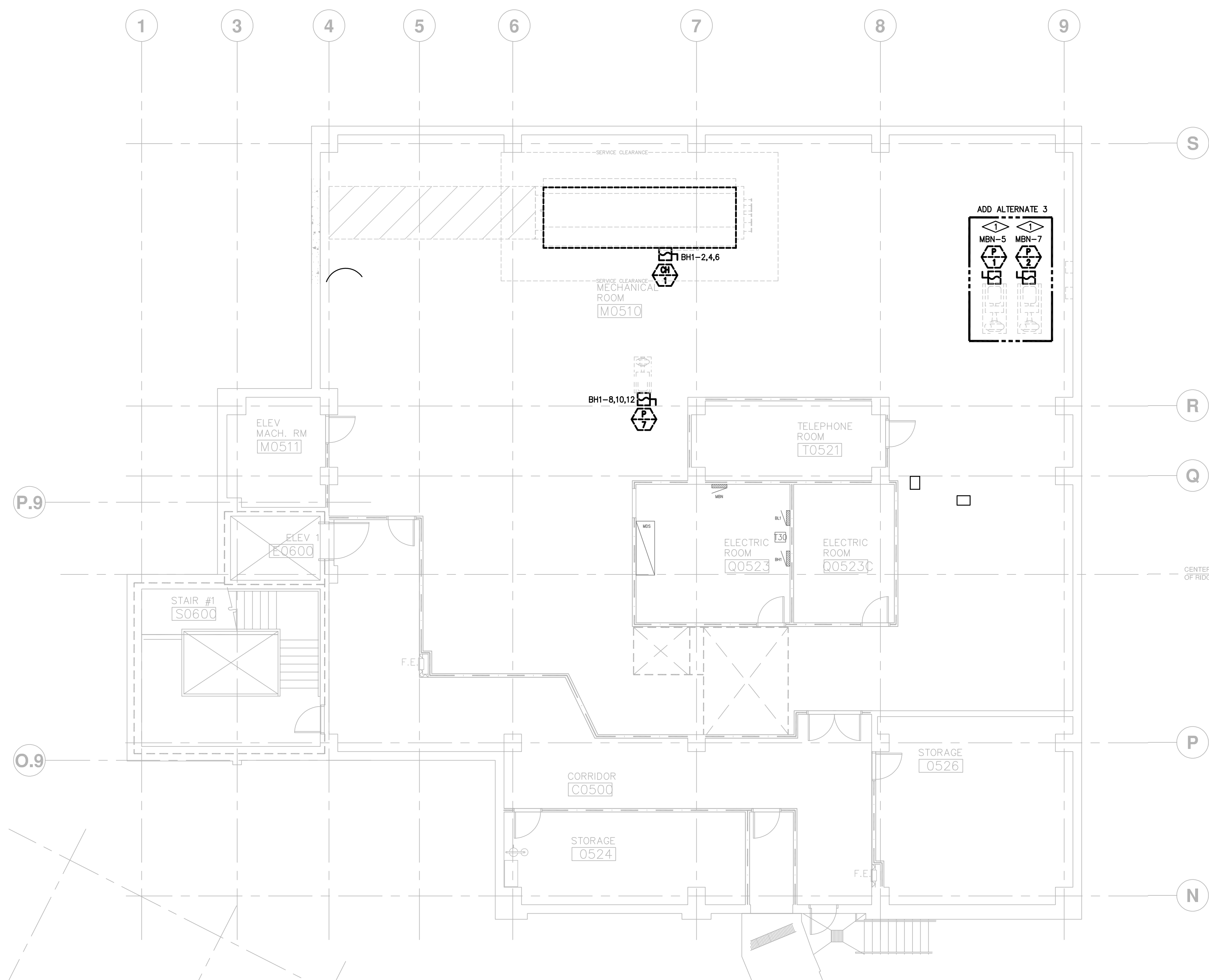
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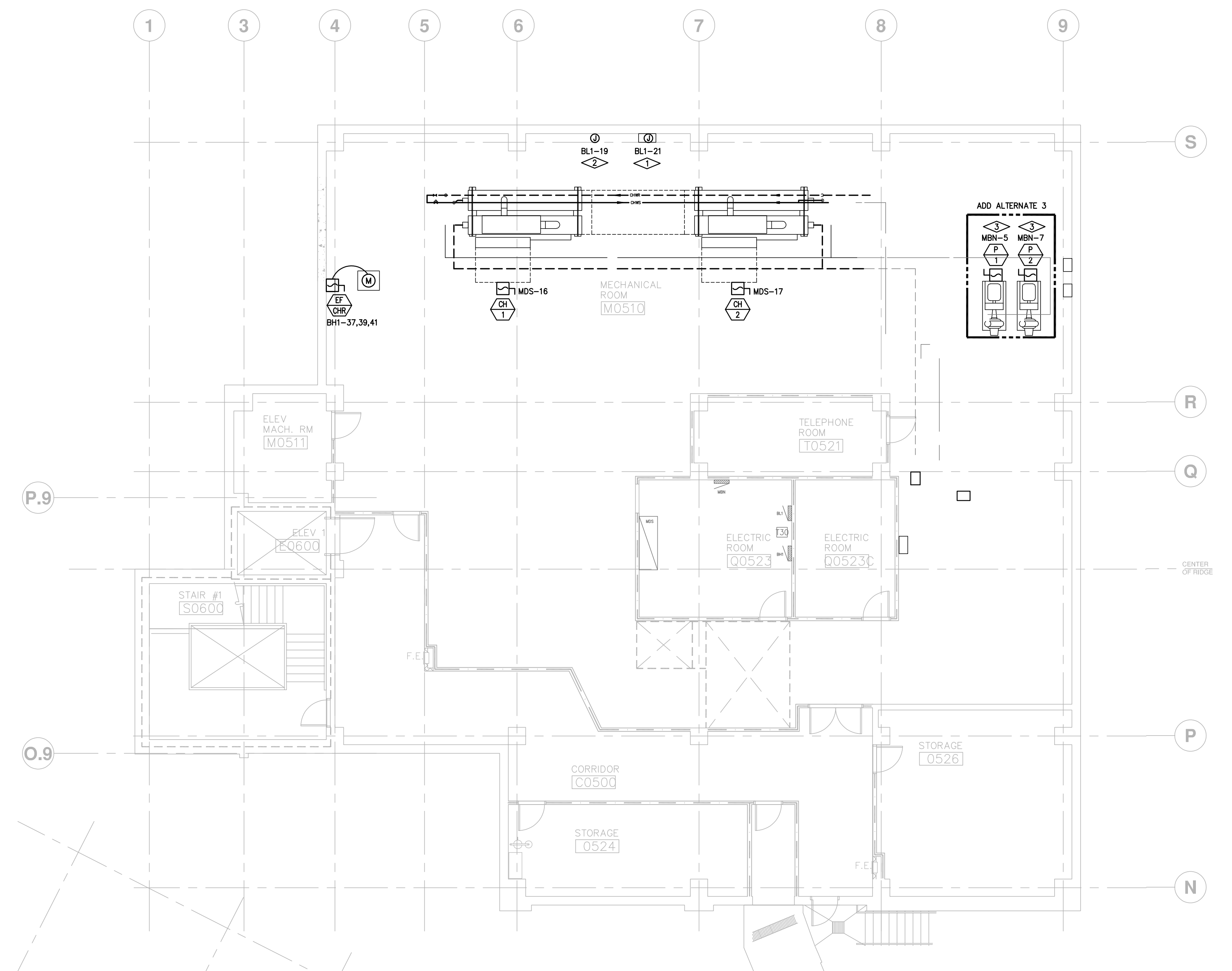
JOB NO: 2023-375

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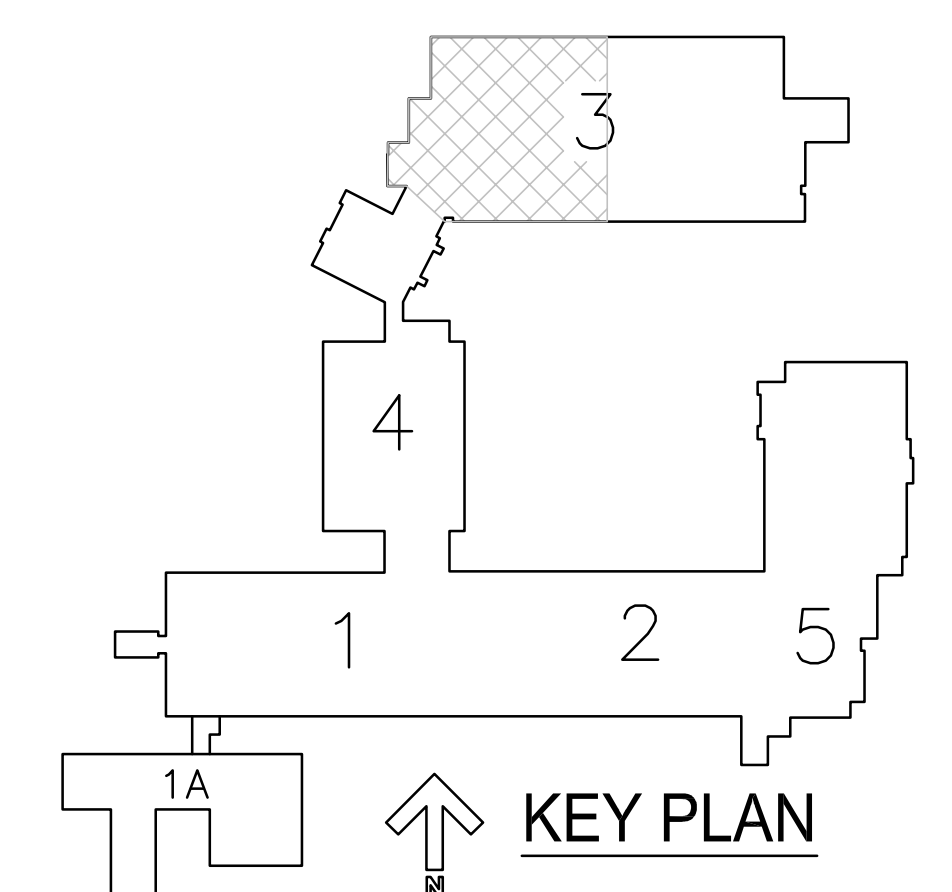
E2.0



GROUND LEVEL POWER PLAN - DEMOLITION
SCALE: 1/8"=1'-0"



GROUND LEVEL POWER PLAN - NEW



KEY PLAN