UNC - PEMBROKE - DIAL/LOWRY BUILDING

SCO ID NUMBER # 24-28864-01A

BID DOCUMENTS

DRAWING INDEX

MECHANICAL SHEET INDEX

G000	PROJECT COVERSHEET - DIAL & LOWRY BUILDING
G001.D	APPENDIX B REPORTS - DIAL BUILDING
G001.L	APPENDIX B REPORTS - LOWRY BUILDING
M000	MECHANICAL COVERSHEET - DIAL & LOWRY BUILDING
M200.D	MECHANICAL ROOM DUCTWORK AND PIPING PLAN - DIAL BUILDING
M200.L	MECHANICAL ROOM DUCTWORK AND PIPING PLAN - LOWRY BUILDING
M400.D	MECHANICAL HYDRONIC DIAGRAM - DIAL BUILDING
M400.L	MECHANICAL HYDRONIC DIAGRAM - LOWRY BUILDING
M500.D	MECHANICAL CONTROLS DIAGRAMS - DIAL BUILDING
M500.L	MECHANICAL CONTROLS DIAGRAMS - LOWRY BUILDING
M600.D	MECHANICAL SCHEDULES - DIAL BUILDING
M600.L	MECHANICAL SCHEDULES - LOWRY BUILDING
M700	MECHANICAL DETAILS - DIAL & LOWRY BUILDING
M701	MECHANICAL DETAILS - DIAL & LOWRY BUILDING
GRAND TOTAL: 14	

ELECTRICAL SHEET INDEX

E000	ELECTRICAL LEGEND NOTES DETAILS
E200.D	DIAL BUILDING ELECTRICAL PLAN POWER RISER DIAGRAM PANEL SCHEDULE
E200.L	LOWRY BUILDING ELECTRICAL PLAN POWER RISER DIAGRAM PANEL SCHEDULE
GRAND TOTAL: 3	

PROJECT CONTACTS

SITE:

UNC - PEMBROKE - DIAL/LOWRY BUILDING
1 University Drive, Pembroke, NC 28372

OWNER:

Matthew Greene
Project Manager
(910) 775-4576
Matt.Greene@uncp.edu

PROJECT ENGINEER

Bradley Felts, PE
IMEG CONSULTANT CORP., PA
3221 Blue Ridge Road
Suite 113,
Raleigh, NC 27612
919-571-1111
Brad.W.Felts@imegcorp.com

CONTRACTOR RESPONSIBILITIES

1. CONTRACTOR MUST VISIT JOB SITES PRIOR TO SUBMITTING A BID. BIDS SUBMITTED SHALL BE CONSIDERED VERIFICATION OF THE CONTRACTOR'S KNOWLEDGE OF PROJECT CONDITIONS. THE INTENT OF THE PROJECT AS DESCRIBED HEREIN (PLANS AND/OR SPECIFICATIONS) IS FOR THE CONTRACTOR TO PROVIDE THE OWNER WITH SAFE, CODE CONFORMING, FULLY OPERATIONAL, AND PROPERLY FUNCTIONING EQUIPMENT, SYSTEMS AND/OR NEW CONSTRUCTION AS REQUIRED TO PERFORM OWNER'S/USER'S TASK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND MATERIAL SUPPLY FOR CONSTRUCTION AND INSTALLATION; VERIFICATION OF DIMENSIONS AT THE SITE; THE VERIFICATION OF EXISTENCE AND LOCATION OF UTILITY SERVICES (UNDERGROUND AND ABOVE GROUND); AND THE VERIFICATION OF QUANTITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING ALL TRADES WORK IN COMPLETE COORDINATION WITH THE OWNER. CONTRACTOR SHALL MEET WITH THE OWNER TO DISCUSS SCHEDULING PRIOR TO CONSTRUCTION. CONTRACTOR SHALL MAKE ACCOMMODATIONS TO MINIMIZE DISRUPTION TO ACTIVITIES.
4. CONTRACTOR SHALL, WHEREVER POSSIBLE, ADHERE TO THE DRAWINGS AND SPECIFICATIONS. ANY VARIATION FROM THE DRAWINGS AND SPECIFICATIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER BEFORE CONTRACTOR PROCEEDS WITH WORK. IN AM EMERGENCY, ORAL APPROVAL FROM THE ENGINEER IS SUFFICIENT BUT THIS MUST BE FOLLOWED WITH WRITTEN APPROVAL. NO CLAIM FOR ADJUSTMENT TO THE CONTRACT PRICE SHALL BE VALID UNLESS THE PROCEDURE IS FOLLOWED.
5. CONTRACTOR SHALL, UNDER NO CIRCUMSTANCE, MAKE ANY ALTERATION TO THE EXISTING BUILDING STRUCTURE OR UTILITIES THAT WILL IN ANY WAY JEOPARDIZE THE STRUCTURAL STABILITY OR INTERRUPT THE BUILDING'S OPERATION WITHOUT PRIOR WRITTEN PERMISSION FROM THE ENGINEER.
6. SUCCESSFUL BIDDER ON THE PROJECT (PRIOR TO CONSTRUCTION) SHALL SUBMIT CUT SHEETS/SHOP DRAWINGS FOR APPROVAL BY THE DESIGNER, DETAILING THE DEVICES AND EQUIPMENT HE PROPOSES TO USE.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL DEBRIS AND WASTE MATERIALS OF CONSTRUCTION OFF SITE UNLESS SPECIFICALLY DIRECTED OTHERWISE ON THE DRAWING OR BY THE ENGINEER.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTABLE CLOSURE AND REPAIR OF ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, WALL, FLOOR, AND CEILING PENETRATIONS, DISTURBED CEILING(S) AND FLOOR(S), FASTENING OF SUPPORTS, ETC. REPAIR WORK SHALL UTILIZE LIKE MATERIALS WHERE POSSIBLE OR MATERIALS COMPATIBLE TO THE EXISTING CONSTRUCTION AND SHALL RESTORE THE DISTURBED SURFACE TO ORIGINAL CONDITION. UNLESS REQUIRED OTHERWISE, ALL REPAIRED AREAS SHALL BE FINISHED TO MATCH ADJACENT EXISTING SURFACES; AND EXPOSED PIPING, DUCT WORK, CONDUIT, AND HANGER ASSEMBLIES SHALL BE PAINTED TO MATCH THE EXISTING FEATURES.
9. CONTRACTOR SHALL CONSULT WITH THE ENGINEER PRIOR TO MAKING ANY PENETRATION OR ALTERATION OF ROOF DECK OR EXISTING ROOFING APPLICATION, AND SHALL OBTAIN CONCURRENCE PRIOR TO, DURING, AND UPON COMPLETION OF THE WORK. ALL ROOF WORK MUST BE PERFORMED BY A LICENSED ROOF CONTRACTOR AND APPROVED IN WRITING BY THE ENGINEER. ALL DAMAGE TO ROOF STRUCTURE AND WATERPROOF MEMBRANE RESULTING FROM CONTRACTOR'S ACTIVITY SHALL BE REPAIRED (DURING THE PERIOD OF THIS CONTRACT, AND AS SOON AS POSSIBLE) BY THE CONTRACTOR, AT THE EXPENSE OF THE CONTRACTOR, IN A MANNER TO MEET ANY AND ALL WARRANTY THAT MAY BE IN EFFECT.
10. BUILDING UTILITY SHUTDOWN - THE CONTRACTOR SHALL NOTIFY THE OWNER 10 WORKING DAYS BEFORE ANY UNAVOIDABLE UTILITY SHUTDOWN IS TO OCCUR. ULOCO REQUIRES 48 HOURS NOTICE. THESE INCLUDE BUT NOT LIMITED TO SUCH UTILITIES AS ELECTRICAL, DOMESTIC, WATER, SEWER, HVAC SYSTEM, ETC. CONTRACTOR SHALL KEEP DOWN TIME TO AN ABSOLUTE MINIMUM.
11. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON ENCOUNTERING ANY SUSPECTED ASBESTOS PRODUCT. ANY REMOVAL MUST BE COORDINATED THROUGH THE ENGINEER'S OFFICE BY APPROVED CONTRACTORS. THE OWNER IS NOT RESPONSIBLE FOR COMPENSATION DUE TO DELAYS FOR ASBESTOS REMOVAL.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ALL LANDSCAPE AREAS DAMAGED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, LAWN AREAS, PLANT BEDS, TREES AND SHRUBS, SIDEWALKS, PATIOS AND COURTYARDS. DAMAGED PLANT MATERIAL SHALL BE REPLACED IN KIND. ANY DESIRE BY CONTRACTOR FOR PRUNING, REMOVAL OF PLANT MATERIAL, CHANGES IN TREE PROTECTION, ETC., NOT DESCRIBED IN THE DRAWINGS MUST BE APPROVED BY THE ENGINEER PRIOR TO ANY SUCH ACTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTIONS OF HIS SUBCONTRACTORS WITH REGARD TO PROTECTION OF THE LANDSCAPE.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ALL CONSTRUCTION ACTIVITY WITHIN THE PROJECT LIMITS AND STAGING AREAS. ANY CHANGES IN STAGING AREAS OR SITE ACCESS MUST HAVE PRIOR APPROVAL BY THE ENGINEER. PARKING IS ALLOWED IN APPROVED SPACES ONLY. NO PARKING IS ALLOWED ON LAWN AREAS, SIDEWALKS, OR COURTYARDS.
14. CONTRACTOR SHALL BRIDGE ALL ACCESS AND STAGING AREAS INCLUDING BUT NOT LIMITED TO BRICK PAVING, PLANTING BEDS, GRASS AREAS, SIDEWALKS, CURBS, ETC. CONTRACTOR WILL PROVIDE BRIDGING MATERIALS, MIN. 3/4"X 4'X 8' SHEET PLYWOOD FOR UP TO 9,000 LBS. AND LOADS OVER 9,000 LBS. TWO LAYERS OF 3/4" SHEET ARE REQUIRED. AN INSPECTION OF EXISTING CONDITIONS WILL BE MADE PRIOR TO INSTALLATION AND DOCUMENTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RETURN ALL DAMAGED AREAS TO PRECONSTRUCTION CONDITIONS AT THE COMPLETION OF THE PROJECT.
15. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS AND ASSOCIATED FEES.
16. CONTRACTOR TO PROVIDE 24 HOUR CONTACT TO RESPONSIBLE PROJECT MANAGER DURING ENTIRE CONSTRUCTION PERIOD AND THROUGHOUT 1-YEAR WARRANTY PERIOD.
17. THE CONTRACTOR SHALL PROVIDE FANS TO VENTILATE THE WELDING FUMES DURING CONSTRUCTION. WELDING WILL BE ALLOWED WHEN THE BUILDING IS OCCUPIED.
18. CONTRACTOR TO PROVIDE PROPOSED WORK SCHEDULE INCLUDING NUMBERS OF PERSONNEL AND EXPECTED HOURS OF CONSTRUCTION FOR EACH DAY OF CONSTRUCTION. SCHEDULE TO BE REVIEWED AT PRE-CONSTRUCTION CONFERENCE.

PROJECT SCOPE

THIS PROJECT INVOLVES THE REPLACEMENT OF EXISTING HEATING HOT WATER BOILERS AND ASSOCIATED MECHANICAL SYSTEMS SERVING THE DIAL AND LOWRY BUILDINGS AT THE UNIVERSITY OF NORTH CAROLINA AT PEMBROKE. THE SCOPE INCLUDES THE COMPLETE REMOVAL OF THE EXISTING BOILER SYSTEMS, INCLUDING ASSOCIATED PUMPS, CONTROLS, HYDRONIC PIPING, FLUE SYSTEMS, GAS PIPING, AND ANCILLARY COMPONENTS WITHIN EACH MECHANICAL ROOM.

AT THE DIAL BUILDING, TWO (2) HIGH-EFFICIENCY 600 MBH CONDENSING BOILERS WILL BE INSTALLED. DUE TO INCREASED EQUIPMENT SIZE AND CLEARANCE REQUIREMENTS, THIS WILL REQUIRE RECONFIGURATION OF THE HEATING SYSTEM BY INSTALLING THEM INTO ADJACENT SPACE. SIMILARLY, TWO (2) 850 MBH CONDENSING BOILERS WILL BE INSTALLED AT THE LOWRY BUILDING, UTILIZING THE EXISTING MECHANICAL ROOM FOOTPRINT.

BASE PROJECT SCOPE:
- LOWRY BUILDING - (2) 850 MBH CONDENSING BOILERS; (2) PRIMARY BOILER PUMPS.

ALTERNATE PROJECT SCOPE:
- L-1: LOWRY BUILDING - NEW SECONDARY HOT WATER PUMP;
- L-2: LOWRY BUILDING - NEW GAS METERS (TOTAL OF 2) AND PRESSURE DIFFERENTIAL SENSOR FOR SECONDARY PUMP CONTROL;
- L-3: LOWRY BUILDING - NEW CHEMICAL POT (SHOT) FEEDER;
- D-1: DIAL BUILDING - (2) 600 MBH CONDENSING BOILERS, (2) PRIMARY BOILER PUMPS, SECONDARY HOT WATER PUMP; AIR SEPARATOR W/MAKE-UP WATER ASSEMBLY, EXPANSION TANK, CHEMICAL POT FEEDER, GAS METER, AND PRESSURE DIFFERENTIAL SENSOR FOR SECONDARY PUMP CONTROL.

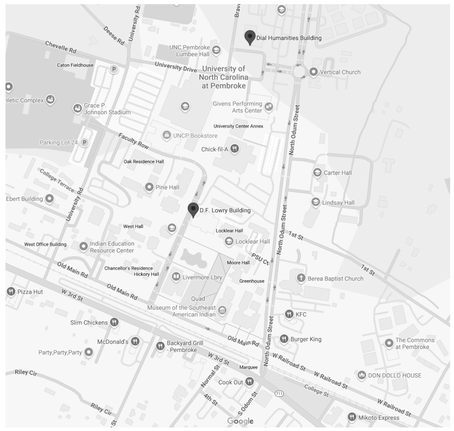
THE SCOPE INCLUDES:

- DEMOLITION OF EXISTING HEATING EQUIPMENT, PRIMARY/SECONDARY PUMPS, FLUE AND COMBUSTION AIR SYSTEMS, AND CONTROL PANELS.
- INSTALLATION OF NEW BOILERS WITH REVISED HYDRONIC DISTRIBUTION INCLUDING CLOSELY SPACED TEES, NEW SECONDARY PUMP(S), CHEMICAL POT FEEDER(S), AIR SEPARATOR, EXPANSION TANK(S), AND MAKE-UP WATER ASSEMBLIES.
- FLUE AND COMBUSTION AIR ROUTING USING PVC/CPVC PIPING AS PER BOILER MANUFACTURER'S REQUIREMENTS, INCLUDING TERMINATION MODIFICATIONS AT SIDEWALL AND ROOF PENETRATIONS.
- INTEGRATION WITH THE EXISTING BAS VIA BACNET INTERFACE USING NEW BOILER-MOUNTED AND PARENT CONTROLLERS.
- ELECTRICAL COORDINATION FOR EXPANDED MECHANICAL SPACE, NEW POWER CONNECTIONS, AND EMERGENCY SHUTOFF SWITCHES.
- SITE RESTORATION AND REPAIR OF ANY DISTURBED SURFACES TO MATCH EXISTING FINISHES, IN COMPLIANCE WITH APPLICABLE BUILDING CODES AND ADA ACCESSIBILITY REQUIREMENTS.
- ALL WORK SHALL BE COORDINATED TO MINIMIZE DISRUPTIONS TO BUILDING OPERATIONS. ALL PENETRATIONS, UTILITY MODIFICATIONS, AND SHUTDOWNS MUST BE SCHEDULED IN ADVANCE AND APPROVED BY THE OWNER AND ENGINEER. CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE 2018 NC BUILDING CODES, NEC 2020, AND ALL REFERENCED SCO DESIGN STANDARDS AND SPECIFICATIONS.

GENERAL & SITE SPECIFIC SCOPE NOTES:
1. AS PART OF ALTERNATE D-1, CONTRACTOR SHALL INCLUDE REMOVAL OF EXISTING BOILER CONCRETE PAD IN MECHANICAL ROOM. REMOVAL SHALL INCLUDE PATCHING OF EXISTING FLOOR TO CREATE A SMOOTH FLAT FLOOR.
2. NEW CONCRETE PADS FOR INSTALLATION OF NEW BOILERS AND PUMPS SHALL BE DOWELED INTO THE EXISTING FLOOR. NEW PADS SHALL INCLUDE 6X6 10 GA WWF STEEL REINFORCEMENT MESH MAT. MESH MAT SHALL BE SUSPENDED IN THE PAD ON "CHAIRS". NEW AND EXISTING PADS WITH NEW EQUIPMENT SHALL BE PAINTED WITH TWO COATS OF SAFETY YELLOW. THIS APPLIES TO PADS FOR BASE BID AND ALTERNATES.
3. CONTRACTOR SHALL PROVIDE SAFETY BARRICADES AT DIAL HALL/BUILDING TO PREVENT PATRONS FROM WALKING INTO ACTIVE WORK AREAS.
4. CONTRACTOR SHALL INCLUDE PRE-WORK TAB REPORT TO VERIFY EXISTING HOT WATER PUMP FLOWS. PRE-WORK TESTING SHALL BE DONE BY OPENING ALL CONTROL VALVES VIA CONTROLS AND RUNNING PUMPS. CONTRACTOR SHALL RECORD FLOW VIA BALANCE VALVE ON PUMP DISCHARGE FOR LOWRY. AT DIAL, THE CONTRACTOR SHALL MEASURE FLOW AT THE 27 ZONE HEATING VALVES LOCATED ON FOUR MULTIZONE AHU'S. AT CONCLUSION OF THE PROJECT THE HOT WATER SYSTEM SHALL BE BALANCED TO PROVIDE FLOWS AS MEASURED DURING PRE-WORK TAB.
5. THERE ARE THREE EXISTING GAS METERS AT D.F. LOWRY TO BE REPLACED AS PART OF L-2; TWO OUTSIDE AND ONE INSIDE ON THE WATER HEATER. METERS SHALL BE PROVIDED BY CONTROLS VENDOR AND INSTALLED IN THE LINE BY THE MECHANICAL CONTRACTOR. THERE ARE NO EXISTING GAS METERS AT DIAL HALL/BUILDING.

FOR DETAILED SCOPE, REVIEW ALL THE CONSTRUCTION DOCUMENTS THOROUGHLY.

VICINITY MAP



UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

IMEG
The FUTURE. Built Smarter www.imegcorp.com
3221 BLUE RIDGE ROAD
SUITE 113
RALEIGH, NC 27612
P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025036 BRADLEY W. FELTS IMEG CONSULTANTS CORP. Nc. P-1507

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**CONSTRUCTION SET**
Date	**12/15/2025**
Project #	**25003279.00**
Drawn	**SD**
Checked	**AP**
Approved	**BF**

SHEET TITLE

PROJECT COVERSHEET - DIAL & LOWRY BUILDING

SCALE

Scale: **12" = 1'-0"**

SHEET NUMBER

G000

NORTH

25003279.00 12/4/2025 10:52:53 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: UNC - PEMBROKE - DIAL BUILDING
Address: 1 UNIVERSITY DRIVE, PEMBROKE, NC Zip Code 28372
Owner/Authorized Agent: Matthew Greene Phone # (910) 775 - 4576 E-Mail Matt.greene@uncp.edu
Owned By: ☐ City/County ☐ Private ☒ State
Code Enforcement Jurisdiction: ☐ City ☐ County ☒ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				( )	
Civil				( )	
Electrical	IMEG Consultants Corp	Sujin Pramojaney	027479	(919) 571-1111	Sujin.Pramojaney@imegcorp.com
Fire Alarm				( )	
Plumbing				( )	
Mechanical	IMEG Consultants Corp	Bradley Felts	025036	(919) 571-1111	Brad.W.Felts@imegcorp.com
Sprinkler-Standpipe				( )	
Structural				( )	
Retaining Walls >5' High				( )	
Other				( )	

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: ☐ New Building ☐ Addition ☒ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
☐ Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE: EXISTING: ☒ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use

CONSTRUCTED: (date) ________ **CURRENT OCCUPANCY(S)** (Ch. 3): ________
RENOVATED: (date) ________ **PROPOSED OCCUPANCY(S)** (Ch. 3): ________

RISK CATEGORY (Table 1604.5): **Current:** ☐ I ☐ II ☒ III ☐ IV
Proposed: ☐ I ☐ II ☒ III ☐ IV

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
(check all that apply) ☐ I-B ☒ II-B ☐ III-B ☐ V-B
Sprinklers: ☒ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☒ No ☐ Yes **Flood Hazard Area:** ☒ No ☐ Yes
Special Inspections Required: ☒ No ☐ Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

FIRE PROTECTION REQUIREMENTS

N/A

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction Including supporting beams and joists							
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof Construction, including supporting beams and joists							
Roof Ceiling Assembly							
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy Separation							
Party/Fire Walls							
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/Sleeping Unit Separation							
Incidental Use Separation							

* Indicate section number permitting reduction

ENERGY SUMMARY

N/A

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: ☐ No ☐ Yes (The remainder of this section is not applicable)
Exempt Building: ☐ No ☐ Yes (Provide code or statutory reference): ________
Climate Zone: ☐ 3A ☐ 4A ☐ 5A
Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
(If "Other" specify source here) ________

THERMAL ENVELOPE (Prescriptive method only)

Roof/ceiling Assembly (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Skylights in each assembly:
U-Value of skylight:
total square footage of skylights in each assembly:

Exterior Walls (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Openings (windows or doors with glazing)
U-Value of assembly:
Solar heat gain coefficient:
projection factor:
Door R-Values:

Walls below grade (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:

Floors over unconditioned space (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:

Floors slab on grade
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Horizontal/vertical requirement:
slab heated:

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone 3A
winter dry bulb: 22.5 F
summer dry bulb: 95.4 F

Interior design conditions
winter dry bulb: 70 F
summer dry bulb: 74 F
relative humidity: 50%

Building heating load: 535 MBH

Building cooling load: 1032 MBH

Mechanical Spacing Conditioning System
Unitary
description of unit: N/A
heating efficiency: ________
cooling efficiency: ________
size category of unit: ________
Boiler
Size category. If oversized, state reason.: 600 MBH (N+1)
Chiller
Size category. If oversized, state reason.: N/A

List equipment efficiencies: SEE M600.D

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor			
Basement			
TOTAL	33,860		

ALLOWABLE AREA

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☒
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 Condition ☐ 1 ☐ 2
☐ I-2 Condition ☐ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

N/A

Accessory Occupancy Classification(s): ________
Incidental Uses (Table 509): ________
Special Uses (Chapter 4 – List Code Sections): ________
Special Provisions: (Chapter 5 – List Code Sections): ________
Mixed Occupancy: ☐ No ☐ Yes Separation: ____ Hr. Exception: ________

☐ Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

______ + ______ + …… = ______ ≤ 1.00

PERCENTAGE OF WALL OPENING CALCULATIONS

N/A

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

LIFE SAFETY SYSTEM REQUIREMENTS

N/A

Emergency Lighting: ☐ No ☐ Yes
Exit Signs: ☐ No ☐ Yes
Fire Alarm: ☐ No ☐ Yes
Smoke Detection Systems: ☐ No ☐ Yes ☐ Partial ________
Carbon Monoxide Detection: ☐ No ☐ Yes

LIFE SAFETY PLAN REQUIREMENTS

N/A

Life Safety Plan Sheet #: ________
☐ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on the site plan)
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
☐ Occupant loads for each area
☐ Exit sign locations (1013)
☐ Exit access travel distances (1017)
☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
☐ Clear exit widths for each exit door
☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☐ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

N/A

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient HVAC Equipment Performance
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Site Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating

N/A

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = ______ (F)
b. Total Building Perimeter = ______ (P)
c. Ratio (F/P) = ______ (F/P)
d. W = Minimum width of public way = ______ (W)
e. Percent of frontage increase I_f = 100[F/P – 0.25] x W/30 = ______ (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE[1]
Building Height in Feet (Table 504.3)[2]			
Building Height in Stories (Table 504.4)[3]			

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

N/A

UNIT CLASSIFICATION	TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS REQUIRED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	TOTAL ACCESSIBLE PROVIDED
TOTAL						

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE	WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS /TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE EXIST'G										
NEW										
REQ'D										

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

N/A

DESIGN LOADS:

Importance Factors: Snow (I_S) ______
Seismic (I_E) ______

Live Loads: Roof ______ psf
Mezzanine ______ psf
Floor ______ psf

Ground Snow Load: ______ psf

Wind Load: Ultimate Wind Speed ______ mph (ASCE-7)
Exposure Category ______

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S ______ %g S_1 ______ %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system ☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Analysis Procedure: ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☐

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) ______ psf
Presumptive Bearing capacity ______ psf
Pile size, type, and capacity ______

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

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3221 BLUE RIDGE ROAD
SUITE 113
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P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507

NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SD
Checked	AP
Approved	BF

SHEET TITLE
APPENDIX B REPORTS - DIAL BUILDING

SCALE
Scale:

SHEET NUMBER
G001.D

25003279.00 12/4/2025 10:53:16 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: UNC - PEMBROKE - LOWRY BUILDING
Address: 1 UNIVERSITY DRIVE, PEMBROKE, NC Zip Code 28372
Owner/Authorized Agent: Matthew Greene Phone # (910) 775 - 4576 E-Mail Matt.greene@uncp.edu
Owned By: ☐ City/County ☐ Private ☒ State
Code Enforcement Jurisdiction: ☐ City ☐ County ☒ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				( )	
Civil				( )	
Electrical	IMEG Consultants Corp	Sujin Pramojaney	027479	(919) 571-1111	Sujin.Pramojaney@imegcorp.com
Fire Alarm				( )	
Plumbing				( )	
Mechanical	IMEG Consultants Corp	Bradley Felts	025036	(919) 571-1111	Brad.W.Felts@imegcorp.com
Sprinkler-Standpipe				( )	
Structural				( )	
Retaining Walls >5' High				( )	
Other				( )	

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: ☐ New Building ☐ Addition ☒ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
☐ Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE: EXISTING: ☒ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use

CONSTRUCTED: (date) ______ **CURRENT OCCUPANCY(S)** (Ch. 3): ______
RENOVATED: (date) ______ **PROPOSED OCCUPANCY(S)** (Ch. 3): ______

RISK CATEGORY (Table 1604.5): **Current:** ☐ I ☐ II ☒ III ☐ IV
Proposed: ☐ I ☐ II ☒ III ☐ IV

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
(check all that apply) ☐ I-B ☒ II-B ☐ III-B ☐ V-B
Sprinklers: ☐ No ☐ Partial ☒ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☒ No ☐ Yes **Flood Hazard Area:** ☒ No ☐ Yes
Special Inspections Required: ☒ No ☐ Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

FIRE PROTECTION REQUIREMENTS

N/A

* Indicate section number permitting reduction

ENERGY SUMMARY

N/A

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: ☐ No ☐ Yes
Exempt Building: ☐ No ☐ Yes
Climate Zone: ☐ 3A ☐ 4A ☐ 5A
Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive

THERMAL ENVELOPE (Prescriptive method only)
Roof/ceiling Assembly (each assembly)
Exterior Walls (each assembly)
Walls below grade (each assembly)
Floors over unconditioned space (each assembly)
Floors slab on grade

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone 3A
winter dry bulb: 22.5 F
summer dry bulb: 95.4 F

Interior design conditions
winter dry bulb: 70 F
summer dry bulb: 74 F
relative humidity: 50%

Building heating load: 720.5 MBH

Building cooling load: 785.3 MBH

Mechanical Spacing Conditioning System
Unitary
description of unit: N/A
heating efficiency:
cooling efficiency:
size category of unit:
Boiler
Size category. If oversized, state reason.: 850 MBH (N+1)
Chiller
Size category. If oversized, state reason.: N/A

List equipment efficiencies: SEE M600.L

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor	19,134		
Basement			
TOTAL			

ALLOWABLE AREA

N/A

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☒
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 Condition ☐ 1 ☐ 2
☐ I-2 Condition ☐ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐
Accessory Occupancy Classification(s):
Incidental Uses (Table 509):
Special Uses (Chapter 4 – List Code Sections):
Special Provisions: (Chapter 5 – List Code Sections):
Mixed Occupancy: ☐ No ☐ Yes Separation: ___ Hr. Exception:
☐ Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \le 1$

PERCENTAGE OF WALL OPENING CALCULATIONS

N/A

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☐ Yes
Exit Signs: ☐ No ☐ Yes
Fire Alarm: ☐ No ☐ Yes
Smoke Detection Systems: ☐ No ☐ Yes ☐ Partial
Carbon Monoxide Detection: ☐ No ☐ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #:
☐ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
☐ Occupant loads for each area
☐ Exit access travel distances (1017)
☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
☐ Clear exit widths for each exit door
☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☐ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

N/A

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient HVAC Equipment Performance
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Site Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]

N/A

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = ______ (F)
b. Total Building Perimeter = ______ (P)
c. Ratio (F/P) = ______ (F/P)
d. W = Minimum width of public way = ______ (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30$ = ______ (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building $\times$ D (maximum 3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE[1]
Building Height in Feet (Table 504.3)[2]			
Building Height in Stories (Table 504.4)[3]			

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

UNIT CLASSIFICATION	TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

N/A

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED: REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
TOTAL						

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE	WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS /TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE EXIST'G										
NEW										
REQ'D										

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

N/A

DESIGN LOADS:
Importance Factors: Snow (I_S) ______ Seismic (I_E) ______
Live Loads: Roof ______ psf Mezzanine ______ psf Floor ______ psf
Ground Snow Load: ______ psf
Wind Load: Ultimate Wind Speed ______ mph (ASCE-7) Exposure Category ______
SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S ______ %g S_1 ______ %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system ☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Analysis Procedure: ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☐ No
LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☐
SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) ______ psf
Presumptive Bearing capacity ______ psf
Pile size, type, and capacity ______

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

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NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507
NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS
12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507
0 1 2 3
REF. SCALE IN INCHES PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SD
Checked	AP
Approved	BF

SHEET TITLE
APPENDIX B REPORTS - LOWRY BUILDING

SCALE
Scale:

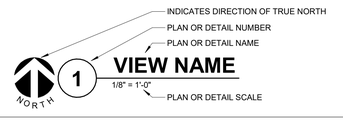
SHEET NUMBER
G001.L

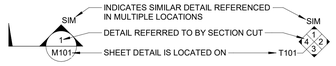
25003279.00 12/4/2025 10:53:38 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

VIEW KEY

NAME — LEVEL NAME
10'-0" — HEIGHT ABOVE PROJECT 0'-0"

1 — KEYNOTE: INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
——— NEW
- - - - - - - - EXISTING TO BE REMOVED (SHORT DASHED PATTERN)
— — — NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
——— EXISTING
- - - - - - - - EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)
— — — EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

'TAG'-E — TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

TAG-1 — UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

FIRE / SMOKE BARRIER DESIGNATIONS

FIRE AND SMOKE SEPARATIONS ARE NOT SHOWN ON THESE DOCUMENTS. CONTRACTOR SHALL REVIEW THE ARCHITECTURAL PLANS AND DETERMINE THE LOCATIONS OF ALL FIRE AND SMOKE PARTITIONS, BARRIERS, AND WALLS. THIS INCLUDES FLOOR RATINGS. PRICING SHALL INCLUDE ALL MATERIALS AND LABOR REQUIRED TO MAINTAIN THE RATINGS OF ALL RATED SEPARATIONS, WHETHER SHOWN ON THE ENGINEERING PLANS OR NOT.

APPLICABLE CODES

CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

BUILDING CODE:	2018 NORTH CAROLINA BUILDING CODE
FIRE CODE:	2018 NORTH CAROLINA FIRE PREVENTION CODE
PLUMBING CODE:	2018 NORTH CAROLINA STATE PLUMBING CODE
MECHANICAL CODE:	2018 NORTH CAROLINA STATE MECHANICAL CODE
ELECTRICAL CODE:	2020 NEC WITH STATE AMENDMENTS
ENERGY CONSERVATION CODE:	2018 NORTH CAROLINA STATE ENERGY CONSERVATION CODE
LOCAL BUILDING CODE:	CURRENT EDITION

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR

MECHANICAL SYMBOL LIST

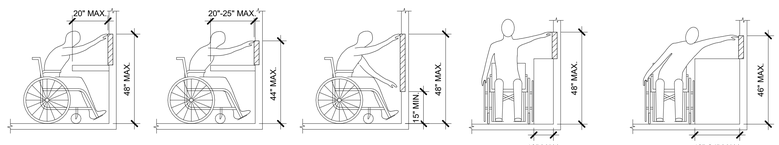
NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
BD	BOILER BLOW DOWN
BF	BOILER FEED WATER
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
CW	COLD WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN - PLUMBING
DMG	DRAIN - MEDICAL GAS
DPP	DRAIN - PIPING
DT	DRAIN TILE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
G	NATURAL GAS
GRV	GAS REGULATOR VENT
GRV	GAS VENT
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
V	VENT
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
	ROUTE TO DRAIN
	DIELECTRIC CONNECTION
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
	BALANCING VALVE (NUMBER INDICATES GPM)
	AUTOMATIC BALANCING VALVE
	MIXING VALVE
	CONTROL VALVE (THREE-WAY)
	CONTROL VALVE (TWO-WAY)
	SOLENOID VALVE
	CHECK VALVE
	SAFETY/RELIEF VALVE
	SAFETY RELIEF VALVE W/ DRIP PAN ELBOW
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	PRESSURE REDUCING VALVE (STEAM)
	TRIPLE DUTY VALVE (ANGLE TYPE)
	TRIPLE DUTY VALVE (IN-LINE TYPE)
	PUMP
	VACUUM BREAKER
	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
	AUTOMATIC DRAIN VALVE
	AIR PRESSURE MAINTENANCE DEVICE
	AIR SUPERVISORY SWITCH
	ANGLE VALVE
	BUTTERFLY VALVE WITH MONITOR SWITCH
	INSPECTOR TEST AND DRAIN VALVE
	OS&Y GATE VALVE
	OS&Y GATE VALVE WITH MONITOR SWITCH
	CHECK VALVE
	BACKFLOW PREVENTER
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	BASKET STRAINER
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
	SUCTION DIFFUSER WITH SUPPORT FOOT
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	DRAIN VALVE WITH HOSE CONNECTION AND CAP
	ALIGNMENT GUIDE
	PIPE ANCHOR
	AIR ADMITTANCE VALVE
M	METER

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
	DIRECTION OF AIR FLOW
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
R	RISE IN DIRECTION OF AIR FLOW
D	DROP IN DIRECTION OF AIR FLOW
	DUCT CAP
	DUCT DOWN
	DUCT UP
	SUPPLY/OUTSIDE AIR DUCT SECTION
	RETURN AIR DUCT SECTION
	EXHAUST/RELIEF AIR DUCT SECTION
	4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION
	OPPOSED BLADE DAMPER (REFER TO SCHEDULE)
	PARALLEL BLADE DAMPER (REFER TO SCHEDULE)
ACT	ACTUATOR
DS	DOOR SWITCH
DP	DIFFERENTIAL PRESSURE SWITCH
CS	CURRENT SWITCH
VS	VIBRATION SWITCH
FM	FLOW METER
	FAN
MTR	MOTOR
R	CONTACTOR
	PUMP
	NORMALL CLOSED CONTACT
	NORMALLY OPEN CONTACT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
FM	FLOW METER
F	FLOW SWITCH
FS	FLOW SENSOR
FS	AIR FLOW SWITCH
FM	DUCT FLOW METER
P	PRESSURE SWITCH
	MONITOR SWITCH
P	PRESSURE SENSOR (FURNISHED WITH BALL VALVE)
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	DIFFERENTIAL PRESSURE SENSOR
P	PRESSURE SENSOR (DUCT MOUNTED)
SP	STATIC SWITCH
LD	LIQUID DETECTION DEVICE
LD	WATER-LEVEL DETECTION DEVICE
T	THERMOSTAT
T	THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE
T	TEMPERATURE SENSOR (DUCT MOUNTED)
T	TEMPERATURE SENSOR WITH WELL
T	THERMOMETER WITH WELL (DIAL TYPE)
	THERMOMETER WITH WELL (FILLED TYPE)
T	AVERAGING TEMPERATURE SENSOR
T	LOW LIMIT TEMPERATURE SWITCH
T	PROBE TEMPERATURE SENSOR
C	CARBON MONOXIDE SENSOR



INSTALL ABOVE COUNTER DEVICE AT 44" ABOVE FINISHED FLOOR.

INSTALL ABOVE COUNTER DEVICE AT 40" ABOVE FINISHED FLOOR.

INSTALL DEVICE AT 18" ABOVE FINISHED FLOOR.

INSTALL DEVICE AT 44" ABOVE FINISHED FLOOR.

INSTALL DEVICE AT 42" ABOVE FINISHED FLOOR.

ADA STANDARDS - FRONT ACCESS

ADA STANDARDS - SIDE ACCESS

ADA STANDARDS FOR ACCESSIBLE DESIGN

MECHANICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, MEDICAL GAS, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
4. THE CONTRACTOR IS RESPONSIBLE FOR CUTTING, REMOVAL AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS.
5. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY ALL CONTRACTORS. NOTIFY THE CONTRACTOR OF AFFECTED AREAS PRIOR TO BIDDING.
6. WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.
7. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLATIONS THAT REMAIN ACTIVE.
8. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE INSTALLED.
9. MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR TIE IN AND SWITCHOVER. DRAIN SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER BEFORE PARTIALLY OR COMPLETELY DRAINING SYSTEM. MAKE CHANGEOVER TO NEW SYSTEMS WITH MINIMUM OUTAGE.
10. DISCONNECT AND REMOVE MECHANICAL DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.
11. PROPERLY RECLAIM AND DISPOSE OF ALL REFRIGERANT IN REMOVED EQUIPMENT/ REFRIGERANT PIPING. RECLAIMED REFRIGERANT SHALL HAVE DOCUMENTATION AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ).

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, MEDICAL GAS, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. CATALOG AND MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE DESCRIPTION OF MATERIAL SCHEDULED ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL AND SCHEDULED PERFORMANCE TAKES PRECEDENCE OVER THE MODEL NUMBER. THE FIRST MANUFACTURER SCHEDULED IS THE BASIS OF DESIGN.
3. DETERMINATION OF QUANTITIES OF MATERIAL AND EQUIPMENT REQUIRED SHALL BE MADE BY THE CONTRACTOR FROM THE DOCUMENTS. WHERE MATERIAL AND/OR QUANTITY DISCREPANCIES ARISE BETWEEN DRAWINGS, SCHEDULES AND/OR SPECIFICATIONS, THE HIGHER QUALITY/ GREATER NUMBER SHALL GOVERN.
4. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
5. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
6. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
7. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
9. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
10. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
11. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
12. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
13. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
14. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
15. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
16. MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
17. MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT.MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING: DUCTWORK, PIPING, ETC.
18. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT EXCEPT WHERE PAD EXTENSION WOULD INTERFERE WITH WORKING SPACE AT EQUIPMENT CONTROL PANELS AND ELECTRICAL PANELS.
19. DO NOT EXCEED 25 LBS PER HANGER AND A MINIMUM SPACING OF 2'-0" ON CENTER WHEN ATTACHING TO METAL ROOF DECKING (LIMITATION NOT REQUIRED WITH CONCRETE ON METAL DECK). THIS 25 LBS. LOAD AND 2'-0" SPACING INCLUDE ADJACENT ELECTRICAL AND ARCHITECTURAL ITEMS HANGING FROM DECK. IF THE HANGER RESTRICTIONS CANNOT BE ACHIEVED, SUPPLEMENTAL FRAMING OFF STEEL FRAMING SHALL BE ADDED. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

PIPING GENERAL NOTES:

1. PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN.

MECHANICAL DESIGN CONDITIONS:

DESIGN CONDITIONS:	BASED ON ASHRAE 0.4% DB/MCWB FOR LUMBERTON, NC
SUMMER:	95.4°F DRY BULB, 76.4°F WET BULB
WINTER:	22.5°F DRY BULB

MECHANICAL SHEET INDEX

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING

The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

IMEG
The FUTURE. Built Smarter www.imegcorp.com
3221 BLUE RIDGE ROAD
SUITE 113
RALEIGH, NC 27612
P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507

CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES

PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SD
Checked	AP
Approved	BF

SHEET TITLE

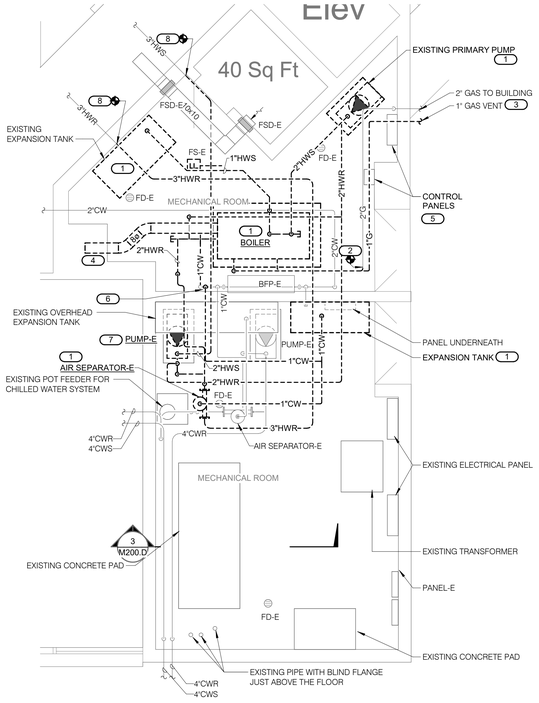
MECHANICAL COVERSHEET - DIAL & LOWRY BUILDING

SCALE

Scale: As indicated

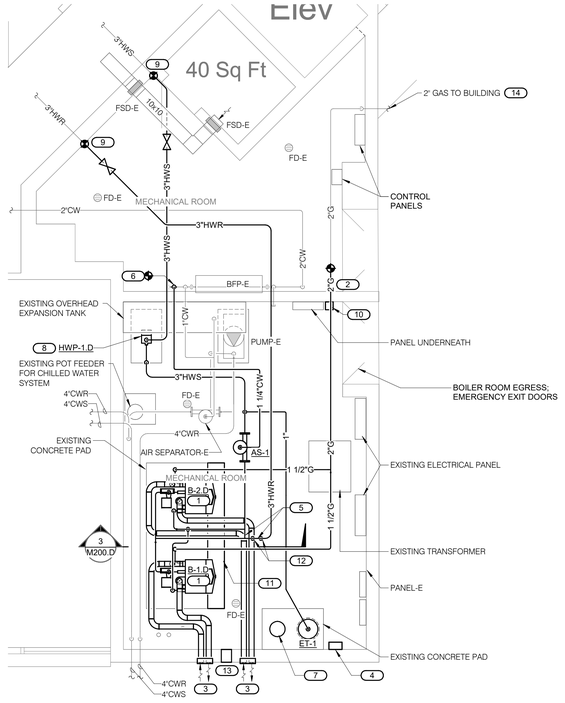
SHEET NUMBER

M000



1 MECHANICAL ROOM DUCTWORK AND PIPING PLAN - DEMOLITION - DIAL BUILDING

1/4" = 1'-0"



2 MECHANICAL ROOM DUCTWORK AND PIPING PLAN - DIAL BUILDING

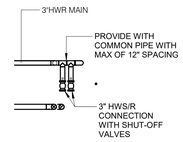
1/4" = 1'-0"

KEYNOTES: (#)

1. EXISTING BOILER, ASSOCIATED CIRCULATING PUMP, HYDRONIC PRIMARY LOOP, COMBUSTION AIR CONNECTION, FLUE PIPE, GAS PIPE CONNECTION, MAKE-UP WATER CONNECTION, AIR SEPARATOR, EXPANSION TANK(S), CHEMICAL POT FEEDER, DRAIN PIPE CONNECTION, AND ASSOCIATED ACCESSORIES SHALL BE REMOVED IN ITS ENTIRETY. EQUIPMENT PAD FOR BOTH BOILER AND PUMP SHALL ALSO BE DEMOLISHED.
2. TEMPORARILY CAP THE EXISTING GAS PIPING CONNECTION AT THE 2"Ø MAIN.
3. REMOVE THE EXISTING 1" GAS VENT AND ASSOCIATED ACCESSORIES IN ITS ENTIRETY.
4. SEAL THE ANNULAR SPACE AIRTIGHT AFTER REMOVING THE FLUE PIPE PENETRATING THROUGH THE CHIMNEY.
5. EXISTING CHILLED WATER SYSTEM CONTROL PANELS AND ASSOCIATED CONTROLS SHALL REMAIN IN PLACE.
6. REMOVE COLD WATER CONNECTION TO THE AIR SEPARATOR SERVING THE HOT WATER SYSTEM.
7. EXISTING SECONDARY HEATING HOT WATER PUMP SHALL BE REMOVED IN ITS ENTIRETY WITH ASSOCIATED PIPING AND ACCESSORIES.
8. CUT AND CAP EXISTING 3"Ø HWS/R TO RECEIVE NEW HOT WATER PIPING CONNECTIONS.

KEYNOTES: (#)

1. INSTALL NEW BOILERS WITH ALL THE CONNECTIONS PER THE MANUFACTURER'S IOM. INSTALL BOTH THE BOILERS ON THE EXISTING EQUIPMENT PAD MAINTAINING THE MANUFACTURER AND AHJ REQUIRED CLEARANCE ON ALL SIDES. MAINTAIN MINIMUM OF 6" CLEAR FROM THE EDGE OF THE EQUIPMENT PAD. CLEARANCES AND PASSAGEWAYS SHALL BE MAINTAINED AROUND THE BOILER TO PERMIT INSPECTION, SERVICING, REPAIR, REPLACEMENT AND VISIBILITY OF ALL GAUGES IN ACCORDANCE WITH 2018 NC MECHANICAL CODE 1004.3. MIN CODE REQUIRED DISTANCE ALL AROUND - 18", AS DESIGNED, 36" CAN BE ACHIEVED ALL AROUND.
2. EXTEND 2"Ø GAS CONNECTION WITH 1-1/2"Ø BRANCHES TO EACH BOILER. PROVIDE REDUCER AT THE GAS TRAIN TO CONNECT WITH THE BOILER'S 1"Ø GAS INLET.
3. PROVIDE 4"Ø COMBUSTION AIR AND FLUE VENT CONNECTIONS WITH PVC/CPVC PIPING (OR AS APPROVED BY THE MANUFACTURER). TERMINATE WITH SIDEWALL TERMINATION ASSEMBLY PER THE MANUFACTURER'S IOM; REFER TO DETAIL 3/M701. MAINTAIN MINIMUM OF 12" BETWEEN TWO ADJACENT ASSEMBLIES.
4. EXTEND THE LOCAL BOILER CONTROLS TO THE PARENT BOILER CONTROLLER. THE BOILER MOUNTED CONTROLLER FOR EACH BOILER SHALL COMMUNICATE WITH THE MASTER/PARENT CONTROLLER. CONNECT THE BOILER PARENT CONTROLLER WITH THE BAS VIA BACNET INTERFACE.
5. PROVIDE WITH COMMON PIPE WITH MAX OF 12" SPACING.
6. PROVIDE NEW 1-1/4" CW CONNECTION TO THE AIR SEPARATOR FROM THE POC AT THE CW MAIN. PROVIDE WITH THE MAKE-UP WATER ASSEMBLY AS SHOWN ON THE HYDRONIC DIAGRAM.
7. PROVIDE NEW CHEMICAL POT FEEDER FOR THE HEATING HOT WATER SYSTEM. PIPE AS SHOWN ON THE HYDRONIC DIAGRAM ON M400.D AND/OR PER THE MANUFACTURER'S IOM.
8. PROVIDE NEW SECONDARY HOT WATER PUMP WITH PIPING AND ACCESSORIES AS SHOWN ON THE HYDRONIC DIAGRAM ON M400.D AND PER THE MANUFACTURER'S IOM.
9. CONNECT NEW 3"Ø HWS/R PIPING TO THE EXISTING 3"Ø PIPING TO/FROM THE BUILDING. PROVIDE WITH SHUT-OFF VALVES.
10. PROVIDE EMERGENCY BOILER SHUTDOWN SWITCHES FOR BOTH BOILERS (B-1.D & B-2.D).
11. EXTEND EXISTING CONCRETE PAD WITH THE SAME WIDTH AS THE EXISTING PAD, EXTEND UP TO 6" OFF OF THE EXISTING FLOOR DRAIN.
12. CONNECT 3" HW MAIN WITH 3" HWS/R TEMPORARY CONNECTIONS WITH SHUT-OFF VALVES (VICTAULIC NO-HUB WRENCH VALVE OR SIMILAR). REFER TO THE DETAIL 3/M200.D FOR REFERENCE.
13. CUT/DRILL THROUGH THE WALL TO HOUSE TWO (2) 3" HWS/R PIPES/HOSES; 8"Ø SLEEVE THROUGH WALL. FURNISH THE OPENING AT 46" AFF. PROVIDE WITH REMOVABLE WEATHERCAP WITH BIRDSCREEN.
14. PROVIDE NEW GAS METER AT THE GAS MAIN AND CONNECT WITH THE BAS.



3 HW TEMP CONNECTIONS DIAL

NO SCALE

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

IMEG
The FUTURE. Built Smarter www.imegcorp.com
3221 BLUE RIDGE ROAD
SUITE 113
RALEIGH, NC 27612
P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507

NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

0 1 2 3
REF. SCALE IN INCHES
PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SD
Checked	AP
Approved	BF

SHEET TITLE

MECHANICAL ROOM DUCTWORK AND PIPING PLAN - DIAL BUILDING

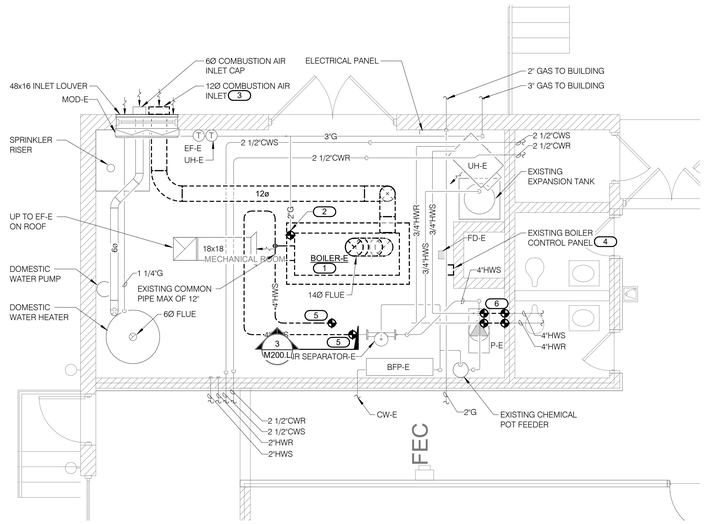
SCALE

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

SHEET NUMBER

M200.D

25003279.00 12/4/2025 10:53:46 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

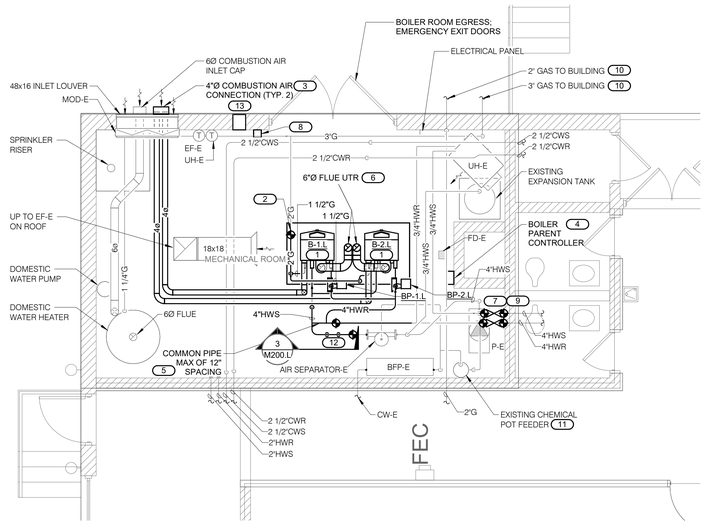


1 MECHANICAL ROOM DEMOLITION PLAN - LOWRY BUILDING

1/4" = 1'-0"

KEYNOTES: (#)

1. EXISTING BOILER, ASSOCIATED CIRCULATING PUMP, HYDRONIC PIPING CONNECTIONS TO THE PRIMARY LOOP, COMBUSTION AIR CONNECTION, FLUE PIPE, GAS PIPE CONNECTION, DRAIN PIPE CONNECTION, ASSOCIATED ACCESSORIES, AND EQUIPMENT PAD SHALL BE REMOVED IN ITS ENTIRETY.
2. TEMPORARILY CAP THE EXISTING GAS PIPING CONNECTION AT THE 2"Ø MAIN.
3. TEMPORARILY CAP THE EXISTING COMBUSTION AIR OPENING.
4. EXISTING BOILER CONTROL PANEL AND ASSOCIATED CONTROLS SHALL BE REMOVED.
5. REMOVE PORTION OF 4"Ø HW MAIN AND TEMPORARILY CAP EITHER ENDS TO RECEIVE NEW CONNECTIONS.
6. CUT AND CAP EXISTING 4"Ø HWS/R TO RECEIVE NEW SHUT-OFF VALVES.

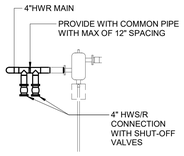


2 MECHANICAL ROOM DUCTWORK AND PIPING PLAN - LOWRY BUILDING

1/4" = 1'-0"

KEYNOTES: (#)

1. INSTALL NEW BOILERS WITH ALL THE CONNECTIONS PER THE MANUFACTURER'S IOM. INSTALL BOTH THE BOILERS ON THE NEW 12" TALL EQUIPMENT PAD MAINTAINING THE MANUFACTURER AND AHJ REQUIRED CLEARANCE ON ALL SIDES. MAINTAIN MINIMUM OF 6" CLEAR FROM THE EDGE OF THE EQUIPMENT PAD. CLEARANCES AND PASSAGEWAYS SHALL BE MAINTAINED AROUND THE BOILER TO PERMIT INSPECTION, SERVICING, REPAIR, REPLACEMENT AND VISIBILITY OF ALL GAUGES IN ACCORDANCE WITH 2018 NC MECHANICAL CODE 1004.3. MIN CODE REQUIRED DISTANCE ALL AROUND - 18", AS DESIGNED, 36" CAN BE ACHIEVED ALL AROUND.
2. EXTEND 2"Ø GAS CONNECTION WITH 1-1/2"Ø BRANCHES TO EACH BOILER. PROVIDE REDUCER AT THE GAS TRAIN TO CONNECT WITH THE BOILER'S 1"Ø GAS INLET.
3. PROVIDE TWO (2) 4"Ø PVC/CPVC (OR AS APPROVED BY THE MANUFACTURER) COMBUSTION AIR CONNECTIONS TO THE EXISTING COMBUSTION AIR OPENING. SEAL THE ANNULAR SPACE AROUND TWO (2) 4"Ø OPENINGS AIRTIGHT. TERMINATE WITH A BIRDSCREEN AT THE ELBOW FACING DOWNWARDS.
4. EXTEND THE LOCAL BOILER CONTROLS TO THE PARENT BOILER CONTROLLER. THE BOILER MOUNTED CONTROLLER FOR EACH BOILER SHALL COMMUNICATE WITH THE MASTER/PARENT CONTROLLER. CONNECT THE BOILER PARENT CONTROLLER WITH THE BAS VIA BACNET INTERFACE.
5. RECONNECT THE PRIMARY HOT WATER LOOP WITH 4"Ø HOT WATER MAIN. RECEIVE NEW 4"Ø HWS & HWR CONNECTIONS WITH MAX 12" LENGTH OF COMMON PIPE.
6. RUN TWO (2) 6"Ø PVC/CPVC (OR AS APPROVED BY THE MANUFACTURER) FLUE VENT UP THROUGH ROOF; RE-USE EXISTING ROOF OPENING THAT WAS PREVIOUSLY HOSTING 14"Ø FLUE VENT. TERMINATE WITH COUPLING AND BIRDSCREEN PER MANUFACTURER'S IOM. THE VENT MUST TERMINATE AT LEAST 3' ABOVE HIGHEST PLACE IN WHICH THE VENT PENETRATES THE ROOF AND AT LEAST 2' ABOVE ANY PART OF THE BUILDING WITHIN 10 HORIZONTAL FEET.
7. PROVIDE EXISTING 4"Ø HWS/R WITH NEW SHUT-OFF VALVES.
8. PROVIDE EMERGENCY BOILER SHUTDOWN SWITCHES FOR BOTH BOILERS (B-1.L & B-2.L).
9. ALTERNATE SCOPE: EXISTING SECONDARY HOT WATER PUMP & ITS CONCRETE PAD SHALL BE REPLACED WITH A NEW SECONDARY HOT WATER PUMP (HWP-1.L), ASSOCIATED PIPING, ACCESSORIES, dP SENSOR AT THE FARTHEST TERMINAL UNIT OF THE HEATING WATER SYSTEM, AND 12" TALL EQUIPMENT PAD. FOR PIPING CONNECTION DETAIL REFER TO DETAIL #1/M701. INSTALLATION SHALL ALSO CONFORM WITH THE MANUFACTURER'S IOM. REFER TO M600.L FOR PUMP DESIGN PARAMETERS AND PERFORMANCE REQUIREMENTS.
10. ALTERNATE SCOPE: VERIFY IF THE EXISTING GAS METERS CAN BE INTEGRATED TO THE BAS, INTEGRATE IF SO, OTHERWISE, PROVIDE NEW GAS METERS AT THE GAS MAINS AND CONNECT WITH THE BAS.
11. ALTERNATE SCOPE: REPLACE THE CHEMICAL POT FEEDER, ASSOCIATED PIPING, AND ACCESSORIES.
12. CONNECT 4" HW MAIN WITH 4" HWS/R TEMPORARY CONNECTIONS WITH SHUT-OFF VALVES (VICTAULIC NO-HUB WRENCH VALVE OR SIMILAR). REFER TO THE DETAIL 3/M200.L FOR REFERENCE.
13. CUT/DRILL THROUGH THE WALL TO HOUSE TWO (2) 4" HWS/R PIPES/HOSES; 10"Ø SLEEVE THROUGH WALL. FURNISH THE OPENING AT 48" AFF. PROVIDE WITH REMOVABLE WEATHERCAP WITH BIRDSCREEN.



3 HW TEMP CONNECTIONS LOWRY

NO SCALE

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

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P: 919.571.1111

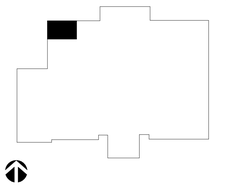
PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. P-1507

NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN



AGENCY APPROVAL

DISCLAIMER

0 1 2 3
REF. SCALE IN INCHES

PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SD
Checked	AP
Approved	BF

SHEET TITLE

MECHANICAL ROOM DUCTWORK AND PIPING PLAN - LOWRY BUILDING

SCALE

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

SHEET NUMBER

M200.L

25003279.00 12/4/2025 10:53:50 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

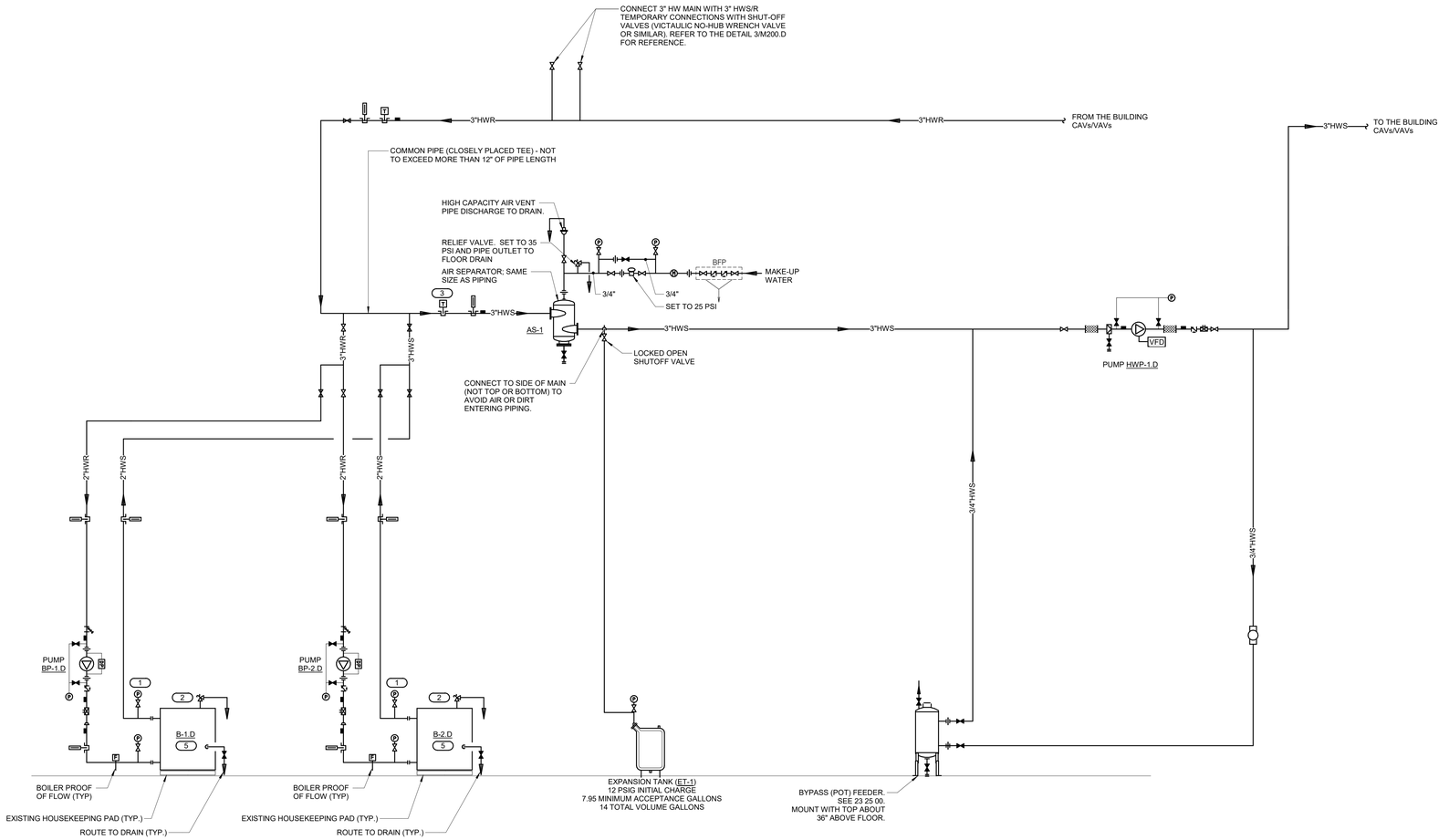


DIAGRAM DOES NOT REPRESENT THE EXACT LENGTHS OF PIPING - MECHANICAL CONTRACTOR SHALL ENSURE THAT THE REVERSE RETURN IS PERFORMED TO KEEP RETURN FOR ONE BOILER CLOSER TO THE MAIN AND SUPPLY FOR ANOTHER BOILER CLOSER TO THE MAIN

HEATING WATER FLOW DIAGRAM SYMBOL LIST

SYMBOL:	DESCRIPTION:
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
CW	COLD WATER - POTABLE
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
M	METER
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	SUCTION DIFFUSER WITH SUPPORT FOOT AND A STRAINER
	AUTOMATIC AIR VENT
	MANUAL AIR VENT W/ BALL VALVE
	DRAIN WITH HOSE CONNECTION, CAP & BALL VALVE
F	FLOW SWITCH
FM	FLOW METER
T	TEMPERATURE SENSOR WITH WELL
	THERMOMETER WITH WELL (FILLED TYPE)
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
	BALANCING VALVE
	CONTROL VALVE (TWO-WAY)
	CONTROL VALVE (THREE-WAY)
	CHECK VALVE
	SAFETY/RELIEF VALVE
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
	LOW TEMPERATURE VALVE (LTV)
	SIGHT GLASS (PROOF OF FLOW)

KEYNOTES (#)

1. PRESSURE GAUGE WITH SNUBBER PER SECTION 23 09 13. INSTALL WITH MOUNTING ON WALL, STAND, OR VIBRATION-FREE PIPE ABOVE PUMP FLEXIBLE CONNECTOR. INSTALL FLEXIBLE COPPER TUBING TO PIPING CONNECTIONS TO AVOID VIBRATION DAMAGE TO THE GAUGE. PREFERRED CONNECTION LOCATIONS ARE: (a) JUST UPSTREAM OF STRAINER, (b) GAUGE PORT ON SUCTION DIFFUSER OR BETWEEN STRAINER AND PUMP INLET (c) GAUGE TAPPING ON PUMP INLET FLANGE. (d) GAUGE TAPPING ON PUMP OUTLET FLANGE.
2. INSTALL SAFETY RELIEF VALVE PROVIDED BY BOILER MANUFACTURER. PIPE TO DRAIN. SUPPORT SOLIDLY.
3. TEMPERATURE SENSOR PROVIDED BY BOILER MANUFACTURER, WIRED TO BOILER/BOILER CONTROL PANEL.
4. PROVIDE COUPON TEST RACK AS INDICATED FOR EACH SYSTEM AS SHOWN.
5. ROUTE BOILER FLUE VENT'S BOTTOM OF THE PIPE WITH DRAIN TEE TO A CONDENSATE TRAP WITH NEUTRALIZER KIT PRIOR TO DRAINING IT TO THE FLOOR SINK.

1 HEATING PLANT - CONDENSING BOILER PRIMARY SECONDARY

NO SCALE

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

IMEG
The FUTURE. Built Smarter www.imegcorp.com
3221 BLUE RIDGE ROAD
SUITE 113
RALEIGH, NC 27612
P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507

NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

0 1 2 3
REF. SCALE IN INCHES

PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	AP
Checked	AP
Approved	BF

SHEET TITLE

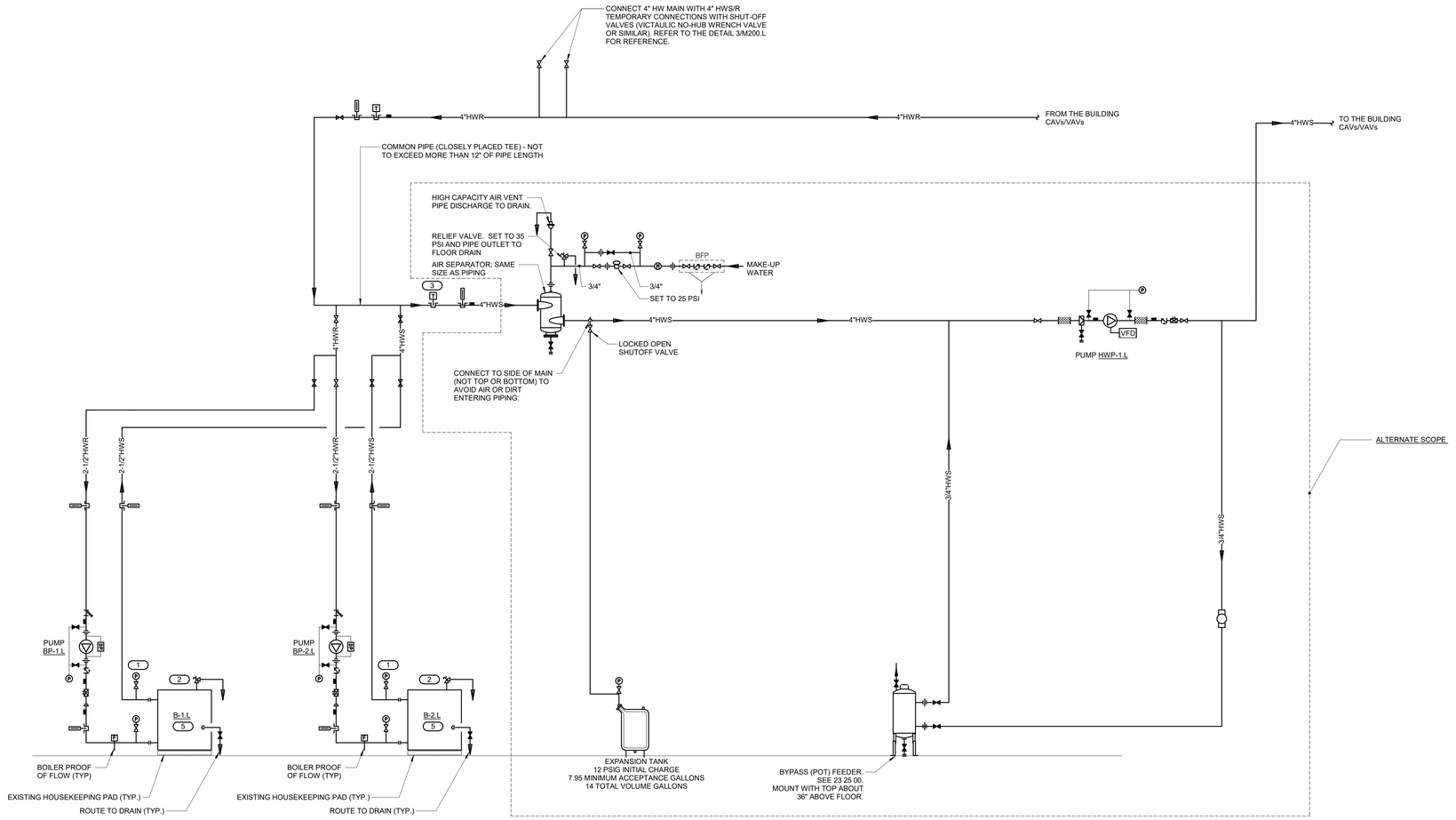
MECHANICAL HYDRONIC DIAGRAM - DIAL BUILDING

SCALE

Scale: 12" = 1'-0"

SHEET NUMBER

M400.D



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1 HEATING PLANT - CONDENSING BOILER PRIMARY SECONDARY

NO SCALE

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NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

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MECHANICAL HYDRONIC DIAGRAM - LOWRY BUILDING

SCALE

Scale: 12" = 1'-0"

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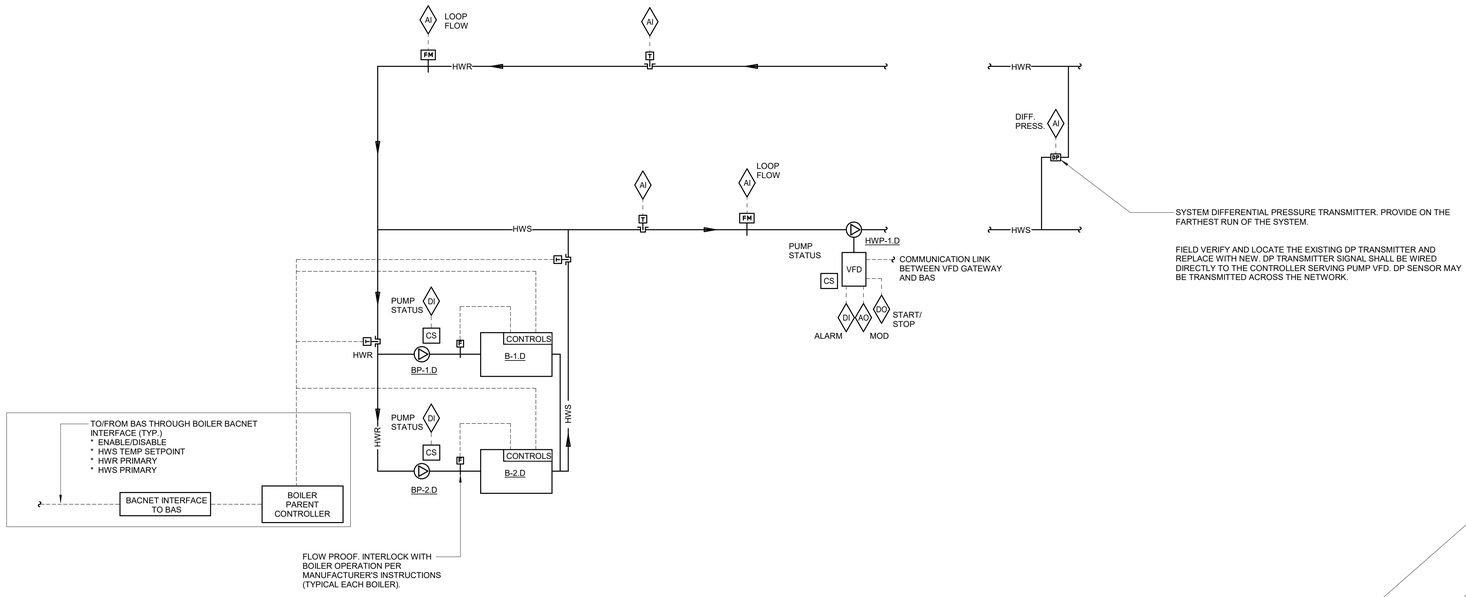
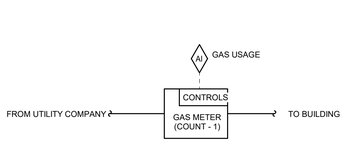
M400.L





SEQUENCE OF OPERATION:

GENERAL:
THE UTILITIES ARE METERED THROUGH THE DDC VIA THE BAS.

UTILITY METERING CONTROL:

- GAS METERING:
  THE TCC SHALL CONNECT THE BAS TO THE GAS METER TO PROVIDE GAS CONSUMPTION INFORMATION.

UTILITY METERING REPORT GENERATION:

- BAS SHALL MONITOR THE FOLLOWING POINTS ON 5 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR A 14-DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL OVERWRITE THE OLDEST VALUES:
  - DATE
  - TIME
  - GLOBAL OUTSIDE AIR TEMP. (°F)
  - GLOBAL OUTSIDE AIR DEWPOINT TEMP. (°F)
  - GAS USE (THERMS)
- THIS INFORMATION SHALL BE ACCESSIBLE TO VIEW IN EITHER TABULAR OR GRAPHICAL FORM ON THE BAS OPERATOR INTERFACE.
- TRENDING REQUIREMENTS:
  DIGITAL POINTS: RECORD EVERY CHANGE OF ACTION WITH CORRESPONDING TIME STAMP FOR POINTS LISTED.
  ANALOG POINTS: RECORD EVERY [15 MINUTES] WITH CORRESPONDING TIME STAMP FOR POINTS LISTED.
  THIS INFORMATION SHALL BE STORED TO A MEMORY LOCATION ON THE BAS OPERATOR WORKSTATION THAT IS MAINTAINED FOR A PERIOD OF ONE YEAR.

SEQUENCE OF OPERATION:
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BOILER CONTROL PANEL SEQUENCE OF OPERATION:
WHEN THE BAS ENABLES THE BOILER PARENT CONTROLLER TO RUN, THE BOILER PARENT CONTROLLER SHALL ENABLE THE LEAD BOILER, OPEN THE ASSOCIATED CIRCULATING PUMP, AND ENERGIZE THE LEAD PUMP.

THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL STAGE AND MODULATE THE BOILER PLANT TO MAINTAIN THE HIGHEST PLANT EFFICIENCY THAT WILL PROVIDE THE REQUIRED SUPPLY WATER TEMPERATURE. THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL START AND STOP BOILER CIRCULATING PUMP IN SUCH A WAY AS TO PROVIDE PRE AND POST FLOW. THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL VERIFY PROOF OF WATER FLOW BEFORE FIRING BOILERS. THE BOILER SEQUENCING CONTROLLER CAN STAGE ON MULTIPLE BOILERS AT PART LOAD TO INCREASE THE EFFICIENCY OF THE PLANT. BOILER SEQUENCING CONTROLLER (CONTROL PANEL) SHALL START/STOP BOILERS ON A FIRST ON/FIRST OFF BASIS TO EQUALIZE RUN TIME BETWEEN BOILERS.

THE FOLLOWING BOILER SEQUENCING CONTROLLER POINTS (TO INCLUDE BUT NOT LIMITED TO) SHALL BE CONTROLLED BY THE BAS AND DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN:
- BOILER SYSTEM STATUS: ENABLE/DISABLE
- BOILER OUTLET WATER TEMPERATURE SETPOINT: [°F]

THE FOLLOWING BOILER SEQUENCING CONTROLLER POINTS (TO INCLUDE BUT NOT LIMITED TO) SHALL BE MONITORED BY THE BAS AND DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN:
- BOILER STATUS: DISABLED/STANDBY/MANUAL OPERATION/REMOTE OPERATION/AUTO/FAULT
- FIRING RATE INPUT: [0 - 100%]
- FIRING RATE OUTPUT: [0 - 100%]
- ACTIVE SETPOINT: [°F]
- SYSTEM HWR TEMP: [°F]
- SYSTEM HWS TEMP: [°F]
- FAULT MESSAGE DISPLAY CODE: [NUMERICAL]
- RUN CYCLES: [NUMERICAL]
- RUN HOURS: [NUMERICAL]

ALARMS, INTERLOCKS & SAFETIES:
BOILER CONTROLS SHALL BE PROGRAMMED TO MAINTAIN CONSTANT SETPOINT (LAST KNOWN VALUE) IN THE EVENT THE BAS NETWORK COMMUNICATION SIGNAL IS LOST.

BAS SEQUENCE OF OPERATION:
BAS SHALL OPERATE HEATING WATER SYSTEM PER THE FACILITY'S CALENDAR (CONTROLS CONTRACTOR TO COORDINATE WITH FACILITY PRIOR TO SCHEDULING).

BAS SHALL MODULATE SIGNAL TO PUMP VFD (HWP-1.D) AS REQUIRED TO MAINTAIN HEATING WATER DIFFERENTIAL PRESSURE (DP) SETPOINT.

BAS SHALL RESET HEATING WATER DIFFERENTIAL PRESSURE (DP) SETPOINT AS REQUIRED TO MAINTAIN AT LEAST ONE HEATING WATER VALVE 95% (ADJ.) OPEN. BAS SHALL UTILIZE COMMAND TO ALL HEATING WATER VALVE POSITIONS TO RESET THE HEATING WATER DIFFERENTIAL PRESSURE. IN NO EVENT SHALL THE BAS DECREASE THE HEATING WATER (DP) SETPOINT BELOW 4 PSI (ADJ.) OR ABOVE 10 PSI (ADJ.).

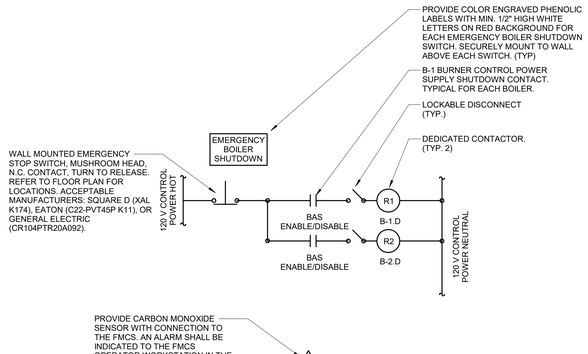
ALL CONTROLLED AND MONITORED POINTS LISTED IN THE BOILER CONTROL PANEL SEQUENCE ABOVE SHALL BE DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN.

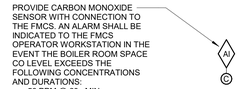
MINIMUM HEATING WATER FLOW CONTROL:
AS CIRCULATING PUMPS (BP-1.D & BP-2.D) RUN AT A CONSTANT SPEED (FULL LOAD CONDITION), THERE SHALL BE NO OCCURRENCE OF NOT MEETING THE MINIMUM FLOW THROUGH THE BOILER.

ALARMS, INTERLOCKS & SAFETIES:
TCC SHALL COORDINATE ALL SAFETY AND INTERLOCK REQUIREMENTS WITH BOILER MANUFACTURER. TCC SHALL COORDINATE AND PROVIDE THE INSTALLATION AND WIRING OF BOILER WATER DIFFERENTIAL PRESSURE/FLOW SWITCHES AND OTHER COMPONENTS PROVIDED WITH THE BOILER AS REQUIRED FOR PROPER OPERATION. TCC SHALL PROVIDE AND TERMINATE ALL SAFETY AND INTERLOCK WIRING WITH BOILER CONTROL PANELS AS REQUIRED.

TCC SHALL VERIFY THE ACCEPTABLE TEMPERATURE RANGES THE BOILERS ARE APPROVED TO OPERATE AT AS PUBLISHED IN THE BOILER MANUFACTURER'S LITERATURE. IF THE TEMPERATURE RANGES LISTED IN THE MANUFACTURER'S LITERATURE DIFFER FROM THOSE IN THIS SEQUENCE OF OPERATION, CONTACT PROJECT ARCHITECT/ENGINEER FOR DIRECTION.

AN ALARM SHALL BE INDICATED TO THE BAS OPERATOR WORKSTATION IN THE EVENT ANY OF THE FOLLOWING OCCUR:
- HWR TEMPERATURE DROPS BELOW 50°F (ADJ.) FOR 5 MINUTES (ADJ.) (AUTO RESET).
- HWS TEMPERATURE RISES MORE THAN 10°F (ADJ.) ABOVE SETPOINT (AUTO RESET).
- HWS TEMPERATURE DROPS MORE THAN 10°F (ADJ.) BELOW SETPOINT (AUTO RESET).
- AN ALARM IS INDICATED AT ANY BOILER ALARM PANEL.
- AN ALARM IS INDICATED AT ANY PUMP VFD.
- SHOULD THE BAS COMMAND THE SECONDARY HEATING WATER PUMP TO OPERATE AND THE PUMP FAILS TO DO SO AS DETERMINED BY THE VFD STATUS, AN ALARM SHALL BE INDICATED AT THE BAS OPERATOR WORKSTATION.

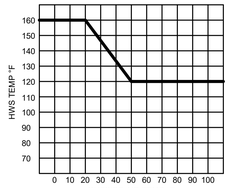




ALARMS, INTERLOCKS, AND SAFETIES:
TCC SHALL PROVIDE EMERGENCY BOILER SHUTDOWN SWITCH AT EACH BOILER ROOM EXIT MEETING CSD-1 REQUIREMENTS. ACTIVATION OF ANY SWITCH SHALL INTERRUPT POWER TO ALL BOILER CONTROLS VIA BOILER SAFETY SHUTDOWN CONTACTS.

TYPICAL FOR B-1.D AND B-2.D

EMERGENCY BOILER SHUTDOWN



HEATING WATER SUPPLY TEMPERATURE RESET SCHEDULE

1 HEATING CONTROL - CONDENSING BOILER PRIMARY SECONDARY
NO SCALE

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
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NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

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REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

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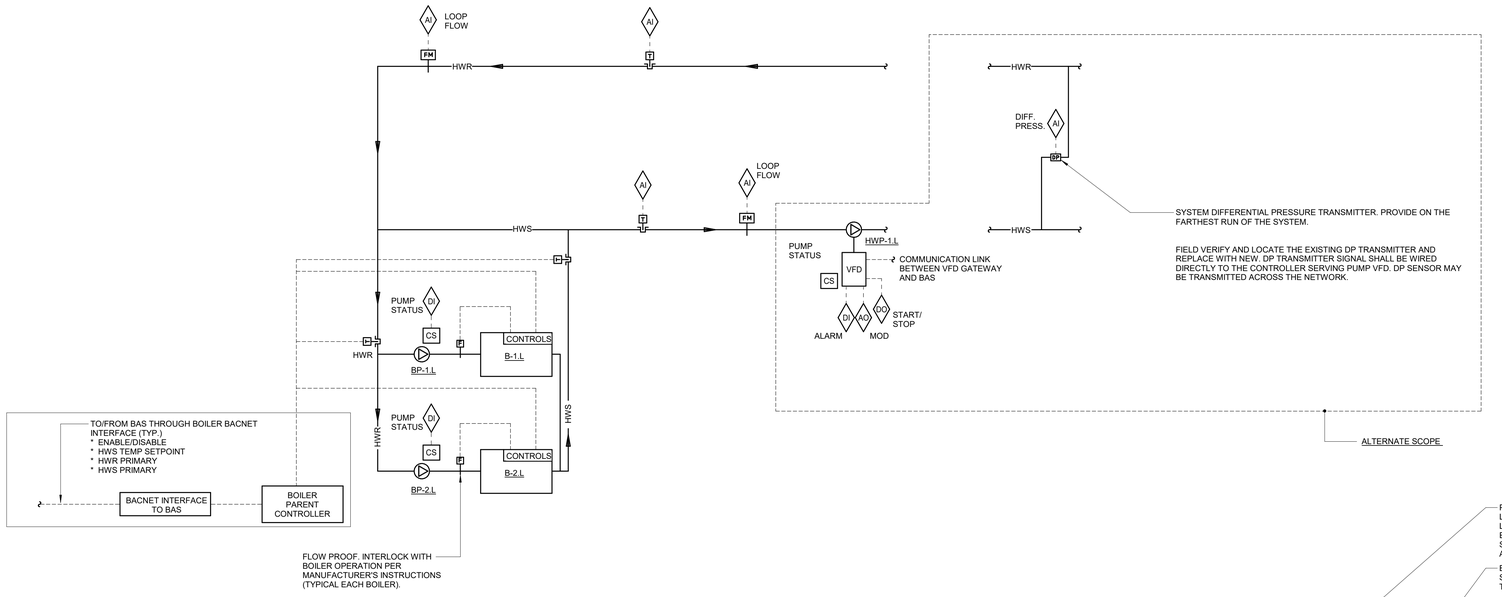
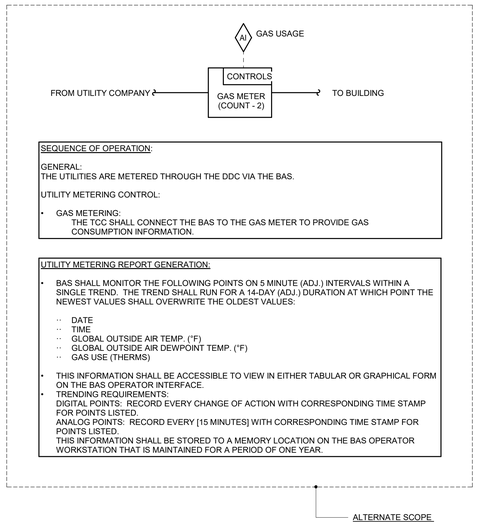
Date	**12/15/2025**
Project #	**25003279.00**
Drawn	**AP**
Checked	**AP**
Approved	**BF**

SHEET TITLE
MECHANICAL CONTROLS DIAGRAMS - DIAL BUILDING

SCALE
Scale: **12" = 1'-0"**

SHEET NUMBER
M500.D





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- ACTIVE SETPOINT: [°F]
- SYSTEM HWR TEMP: [°F]
- SYSTEM HWS TEMP: [°F]
- FAULT MESSAGE DISPLAY CODE: [NUMERICAL]
- RUN CYCLES: [NUMERICAL]
- RUN HOURS: [NUMERICAL]

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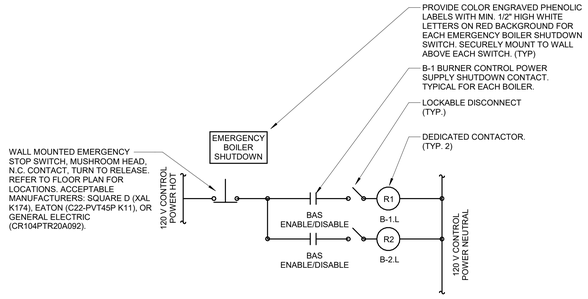
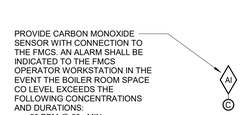
- HWR TEMPERATURE DROPS BELOW 50°F (ADJ.) FOR 5 MINUTES (ADJ.) (AUTO RESET).
- HWS TEMPERATURE RISES MORE THAN 10°F (ADJ.) ABOVE SETPOINT (AUTO RESET).
- HWS TEMPERATURE DROPS MORE THAN 10°F (ADJ.) BELOW SETPOINT (AUTO RESET).
- AN ALARM IS INDICATED AT ANY BOILER ALARM PANEL.
- AN ALARM IS INDICATED AT ANY PUMP VFD.
- SHOULD THE BAS COMMAND THE SECONDARY HEATING WATER PUMP TO OPERATE AND THE PUMP FAILS TO DO SO AS DETERMINED BY THE VFD STATUS, AN ALARM SHALL BE INDICATED AT THE BAS OPERATOR WORKSTATION.

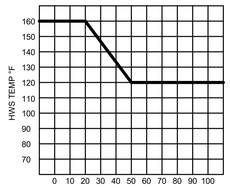




ALARMS, INTERLOCKS, AND SAFETIES:
TCC SHALL PROVIDE EMERGENCY BOILER SHUTDOWN SWITCH AT EACH BOILER ROOM EXIT MEETING CSD-1 REQUIREMENTS. ACTIVATION OF ANY SWITCH SHALL INTERRUPT POWER TO ALL BOILER CONTROLS VIA BOILER SAFETY SHUTDOWN CONTACTS.

TYPICAL FOR B-1.L AND B-2.L

EMERGENCY BOILER SHUTDOWN



HEATING WATER SUPPLY TEMPERATURE RESET SCHEDULE

1 HEATING CONTROL - CONDENSING BOILER PRIMARY SECONDARY
NO SCALE

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING
The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

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3221 BLUE RIDGE ROAD
SUITE 113
RALEIGH, NC 27612
P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

REF. SCALE IN INCHES 0 1 2 3 — PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	AP
Checked	AP
Approved	BF

SHEET TITLE

MECHANICAL CONTROLS DIAGRAMS - LOWRY BUILDING

SCALE

Scale: 12" = 1'-0"

SHEET NUMBER

M500.L

25003279.00 12/4/2025 10:53:53 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

BOILER SCHEDULE - HOT WATER - DIAL

NOTES:
1. BOILER AND ITS ACCESSORIES SHALL BE PROVIDED W/OUTDOOR AIR TEMPERATURE SENSOR UNLESS OAT IS AVAILABLE VIA BAS.
2. BOILER SHALL BE PROVIDED WITH BACnet MS/TP COMMUNICATION CARD.
3. BOILERS SHALL BE CONTROLLED LEAD/LAG. POWER LOSS TO LEAD BOILER SHALL NOT PREVENT LAG BOILER FROM OPERATING.
4. PROVIDE WITH CONDENSATE NEUTRALIZATION KIT FOR VENTING, SS P-TRAP AND LINE FROM VENT TO THE NEUTRALIZER.
5. PROVIDE CALIBRATED BALANCE VALVE B&G CIRCUIT SETTER, CB-2-1/2, NPT FOR EACH BOILER. INSTALLED DOWNSTREAM FROM BOILER OUTLET.
6. THE BOILER PUMP SHALL BE PROVIDED SEPARATELY OR AS SUPPLIED BY THE MANUFACTURER. IT SHALL BE PIPED, AND WIRED BY OTHERS. BOILER WILL CONTROL PUMP AND POWER SHALL BE SUPPLIED SEPARATELY.
7. PROVIDE FACTORY SUPPLIED 2# TO 14" WC NON-VENTED GAS REGULATOR FOR EACH UNIT.
8. BOILER MANUFACTURER TO PROVIDE (SHIP LOOSE) THE FLOW SWITCH FOR THE DETECTION OF THE FLOW. THE CONTRACTOR SHALL FIELD INSTALL.
9. BOILER SHALL BE VENTED WITH POLYPROPYLENE EXHAUST AND SCHEDULE 40 PVC INTAKE.
10. THE BOILER SHALL BE CONSTRUCTED AND INSPECTED IN ACCORDANCE WITH 2024 NORTH CAROLINA GENERAL STATUTES CHAPTER 95 - DEPARTMENT OF LABOR AND LABOR REGULATIONS ARTICLE 7A - UNIFORM BOILER AND PRESSURE VESSEL ACT. § 95-69.10.
* LOCHINVAR IS OWNER-PREFERRED MANUFACTURER. ALTERNATES SHALL BE WEIL-MCLAIN SVF 600 OR AERCO MODULEX EXT 600; ALTERNATES MUST BE APPROVED BY OWNER AND ENGINEER PRIOR TO PURCHASING.

TAG NAME	FUEL	PERFORMANCE								ELECTRICAL						MAX. DIMENSIONS (IN)			WEIGHT (LBS)		MANUFACTURER	MODEL	NOTES
		TURNDOWN RATIO	THERMAL EFFICIENCY	INPUT BTUH/HR	OUTPUT BTU/HR	EWT °F	MIN LWT °F	MIN DELTA T AT FULL LOAD CONDITION (°F)	MAX OPERATING PRESSURE PSI	FLA	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER	WIDTH	DEPTH	HEIGHT	DRY	MAX OPERATING			
													BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)								
B-1.D	NATURAL GAS	7:1	98	600000	585000	120	160	40	160	7	120	1	MFR	NF	MFR	26-1/4	23-1/2	53-1/4	504	560	LOCHINVAR	FTX600	1 THROUGH 10
B-2.D	NATURAL GAS	7:1	98	600000	585000	120	160	40	160	7	120	1	MFR	NF	MFR	26-1/4	23-1/2	53-1/4	504	560	LOCHINVAR	FTX600	1 THROUGH 10

PUMP SCHEDULE - DIAL

NOTES:
1. PUMP SHALL BE PROVIDED WITH FITTINGS, AND ACCESSORIES.
2. PUMP SHALL COMPLY WITH ANSI-125 RATING.
3. PUMP SHALL BE PROVIDED W/BACnet MS/TP COMMUNICATION CARD.
4. PUMP TO BE CONTROLLED BY THE BOILER CONTROL PANEL.
5. PROVIDE WITH PUMP-MOUNTED CONTROLLER AND CONTROL DISPLAY INTEGRATED INTO THE CONTROL BOX. PUMP SHALL HAVE BUILT-IN DP AND TEMP SENSORS. THE CONTROLLER SHALL BE PROVIDED WITH INTEGRATED FREQUENCY CONVERTER (PROPRIETARY).
6. PROVIDE WITH EXTERNAL VFD.
7. PUMP PACKAGE SHALL INCLUDE PRESSURE GAUGES, SUCTION DIFFUSER WITH STRAINER & DRAIN PORT, DISCHARGE VALVE ASSEMBLY WITH CHECK AND ISOLATION VALVE.
8. PROVIDE PUMP'S INLET AND OUTLET WITH FLEXIBLE CONNECTIONS.
9. PROVIDE INVERTER RATED MOTOR AND SHAFT GROUNDING RING.
* GRUNDFOS AND TACO ARE ACCEPTABLE ALTERNATES. ALTERNATES MUST BE APPROVED BY OWNER AND ENGINEER PRIOR TO PURCHASING.

TAG NAME	SYSTEM SERVED	GPM	PUMP FT. HEAD AT DESIGN	MINIMUM PUMP EFFICIENCY	INLET SIZE	PUMP TYPE	MOTOR ENCLOSURE	OPERATING MOTOR RPM	MAX MOTOR RPM	ELECTRICAL (NOTE 1)							MAX. DIMENSIONS			WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
										MOTOR HP	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER		LENGTH	WIDTH	HEIGHT				
													BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)							
BP-1.D	BOILER B-1 (DIAL)	29	20	47	2"	CIRCULATING PUMP	IP44	2003	4600	1	208	1	MC	NF	MFR	SS	15	10	15	35	BELL & GOSSETT	ECOCIRC XL 65-130	1, 2, 3, 4, 5, 9
BP-2.D	BOILER B-2 (DIAL)	29	20	47	2"	CIRCULATING PUMP	IP44	2003	4600	1	208	1	MC	NF	MFR	SS	15	10	15	35	BELL & GOSSETT	ECOCIRC XL 65-130	1, 2, 3, 4, 5, 9
HWP-1.D	SECONDARY HEATING LOOP (DIAL)	82	45	64	3"	HORIZONTAL END-SUCTION PUMP	ODP	1084	1800	3	460	3	MC	NF	MC	VFD	26	21	10	352	BELL & GOSSETT	E-1532 2EB	1, 2, 3, 6, 7, 8, 9

SCHEDULE GENERAL NOTES

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND INSTALLED BY:
MFR = MANUFACTURER
EC = ELECTRICAL CONTRACTOR.
MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.
MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR.
TCC = TEMPERATURE CONTROL CONTRACTOR

B. DISCONNECT TYPE:
CB = CIRCUIT BREAKER
F = FUSED
NF = NON-FUSED
PLUG = PLUG AND CORD

C. CONTROLLER STARTER TYPE:
FV = FULL VOLTAGE
WYE = WYE-DELTA
SS = SOLID STATE (SOFT START)
MS = MANUAL STARTER
VFD = VARIABLE FREQUENCY DRIVE
VFD/B = VARIABLE FREQUENCY DRIVE WITH BYPASS
YD = WYE - DELTA
ECM = ELECTRONICALLY COMMUTATED MOTOR

D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE, WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:
MFR = STANDARD CURB BY MANUFACTURER
GC = BY GENERAL CONTRACTOR
SAC = SOUND ATTENUATOR CURB

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING

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PROFESSIONAL SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025036 BRADLEY W. FELTS
IMEG CONSULTANTS CORP. No. F-1507

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

0 1 2 3
REF. SCALE IN INCHES PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**CONSTRUCTION SET**
Date	**12/15/2025**
Project #	**25003279.00**
Drawn	**AP**
Checked	**AP**
Approved	**BF**

SHEET TITLE
MECHANICAL SCHEDULES - DIAL BUILDING

SCALE
Scale:

SHEET NUMBER
M600.D

25003279.00 12/4/2025 10:53:54 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING

BOILER SCHEDULE - HOT WATER - LOWRY

NOTES:
1. BOILER AND ITS ACCESSORIES SHALL BE PROVIDED W/OUTDOOR AIR TEMPERATURE SENSOR UNLESS OAT IS AVAILABLE VIA BAS.
2. BOILER SHALL BE PROVIDED WITH BACnet MS/TP COMMUNICATION CARD.
3. BOILERS SHALL BE CONTROLLED LEAD/LAG. POWER LOSS TO LEAD BOILER SHALL NOT PREVENT LAG BOILER FROM OPERATING.
4. PROVIDE WITH CONDENSATE NEUTRALIZATION KIT FOR VENTING, SS P-TRAP AND LINE FROM VENT TO THE NEUTRALIZER.
5. PROVIDE CALIBRATED BALANCE VALVE B&G CIRCUIT SETTER, CB-2-1/2, NPT FOR EACH BOILER, INSTALLED DOWNSTREAM FROM BOILER OUTLET.
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TAG NAME	FUEL	PERFORMANCE								ELECTRICAL						MAX. DIMENSIONS (IN)			WEIGHT (LBS)		MANUFACTURER	MODEL	NOTES
		TURNDOWN RATIO	THERMAL EFFICIENCY	INPUT BTUH/HR	OUTPUT BTU/HR	EWT °F	MIN LWT °F	MIN DELTA T AT FULL LOAD CONDITION (°F)	MAX OPERATING PRESSURE PSI	FLA	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER	WIDTH	DEPTH	HEIGHT	DRY	MAX OPERATING			
													BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)								
B-1.L	NATURAL GAS	6:1	97	850000	825000	120	160	40	160	8	120	1	MFR	NF	MFR	26-1/4	23-1/2	53-1/4	604	693	LOCHINVAR	FTX850	1 THROUGH 10
B-2.L	NATURAL GAS	6:1	97	850000	825000	120	160	40	160	8	120	1	MFR	NF	MFR	26-1/4	23-1/2	53-1/4	604	693	LOCHINVAR	FTX850	1 THROUGH 10

PUMP SCHEDULE - LOWRY

NOTES:
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										MOTOR HP	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER		LENGTH	WIDTH	HEIGHT				
													BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)							
BP-1.L	BOILER B-1 (LOWRY)	41	27	50	2"	CIRCULATING PUMP	IP44	2366	4600	1	208	1	MC	NF	MFR	SS	15	10	15	35	BELL & GOSSETT	ECOCIRC XL 65-130	1, 2, 3, 4, 5, 9
BP-2.L	BOILER B-1 (LOWRY)	41	27	50	2"	CIRCULATING PUMP	IP44	2366	4600	1	208	1	MC	NF	MFR	SS	15	10	15	35	BELL & GOSSETT	ECOCIRC XL 65-130	1, 2, 3, 4, 5, 9
HWP-1.L	SECONDARY HEATING LOOP (LOWRY - ALTERNATE SCOPE)	160	75	74	2 1/2"	HORIZONTAL END-SUCTION PUMP	ODP	1599	1800	7.5	208	3	MC	NF	MC	VFD	26	21	10	259	BELL & GOSSETT	E-1532 2BD	1, 2, 3, 6, 7, 8, 9

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SAC = SOUND ATTENUATOR CURB

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025036 BRADLEY W. FELTS

IMEG CONSULTANTS CORP. PROFESSIONAL CORPORATION No. F-1507

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES PROJECT #25003279.00

REVISIONS

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SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
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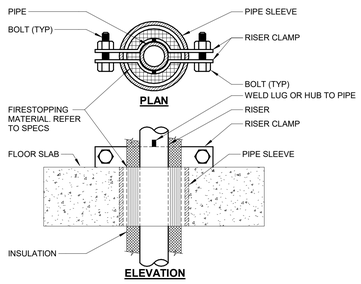
Approved	BF

SHEET TITLE
MECHANICAL SCHEDULES - LOWRY BUILDING

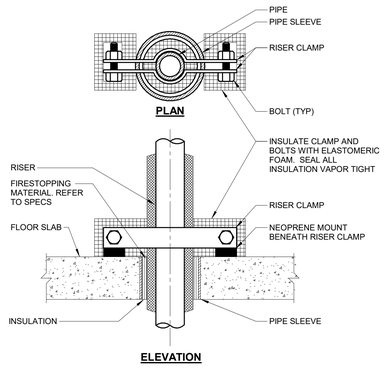
SCALE
Scale:

SHEET NUMBER
M600.L

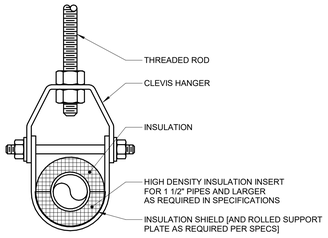
25003279.00 12/4/2025 10:53:55 AM UNC - PEMBROKE - DIAL/LOWRY BUILDING



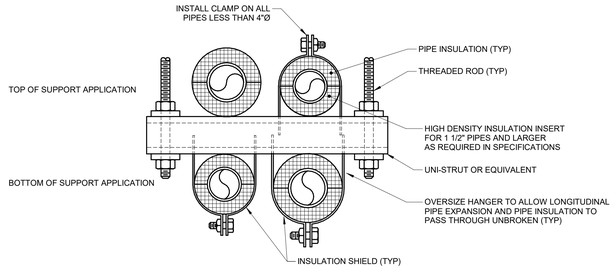
INSULATED HOT PIPE RISER SUPPORT



INSULATED COLD PIPE RISER SUPPORT



INSULATED COLD PIPE HANGER



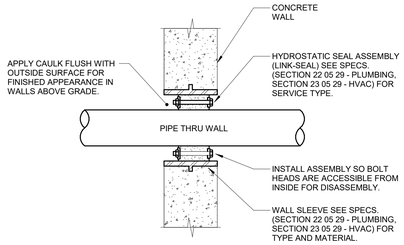
TRAPEZE HANGER

NOTES:

1. REFER TO SPECIFICATION SECTIONS (SECTION 22 05 29-PLUMBING, SECTION 23 05 29-HVAC) & (SECTION 22 07 19-PLUMBING, SECTION 23 07 19-HVAC).

1 PIPE - HANGERS AND SUPPORTS

NO SCALE

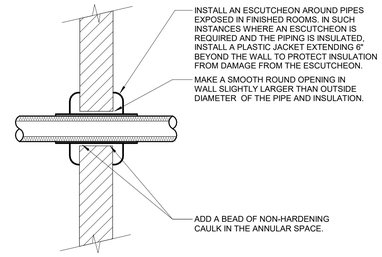


NOTES:

1. CONTRACTOR MAY FABRICATE PIPE SLEEVE.
2. SEAL SELECTION BASED ON O.D. OF PIPE THRU WALL AND I.D. OF SLEEVE.
3. SLEEVE NOT REQUIRED FOR CORE DRILLED PENETRATIONS.

2 WALL PENETRATION - EXTERIOR - PIPING

NO SCALE

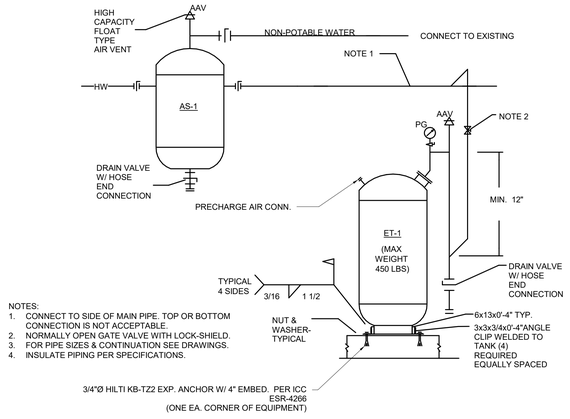


NOTES:

1. THIS DETAIL APPLIES TO ALL PIPES. THE INTENTION IS TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS. PERMIT THERMAL EXPANSION WITHOUT DAMAGING INSULATION, AND TO SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL.
2. SEE SPECIFICATION SECTIONS (SECTION 22 05 29 - PLUMBING, SECTION 23 05 29 - HVAC) FOR ADDITIONAL INFORMATION.
3. FLOOR OPENINGS ARE SIMILAR, SEE SPECIFICATION SECTION (SECTION 22 05 29 - PLUMBING, SECTION 23 05 29 - HVAC) FOR DIFFERENCES BETWEEN FLOOR AND WALL PENETRATIONS.

3 WALL PENETRATION - NON-FIRE RATED

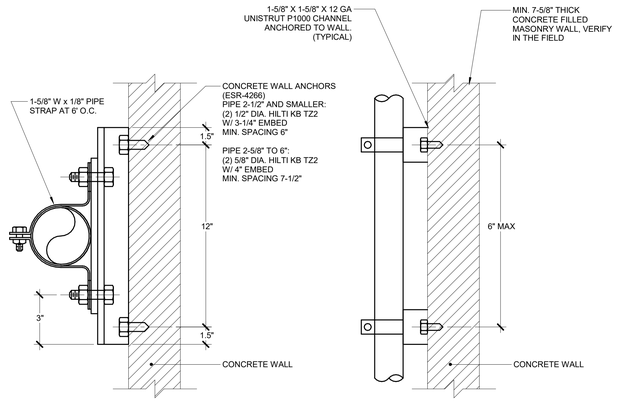
NO SCALE



NOTES:
1. CONNECT TO SIDE OF MAIN PIPE. TOP OR BOTTOM CONNECTION IS NOT ACCEPTABLE.
2. NORMALLY OPEN GATE VALVE WITH LOCK-SHIELD.
3. FOR PIPE SIZES & CONTINUATION SEE DRAWINGS.
4. INSULATE PIPING PER SPECIFICATIONS.

4 AIR SEPARATOR & EXPANSION TANK DETAIL

NO SCALE



HORIZONTAL PIPE AGAINST WALL | **VERTICAL PIPE AGAINST WALL**

* DIMENSIONS FOR PIPE CLAMPS & CHANNELS VARY PER PIPE SIZE. REFER TO B-LINE B2400 SERIES STANDARD PIPE CLAMP SPECIFICATIONS.

5 PIPE SUPPORT ON MASONRY WALL

NO SCALE

UNC PEMBROKE

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SHEET TITLE

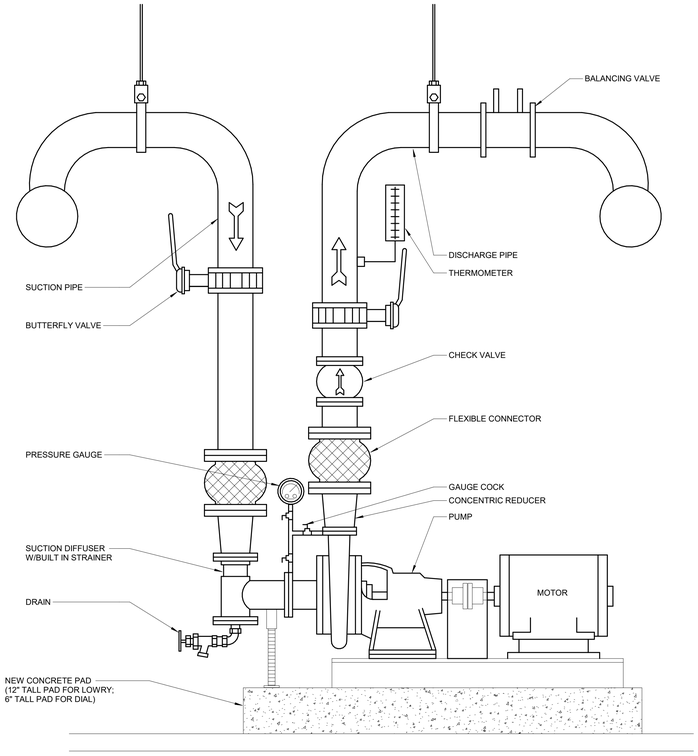
MECHANICAL DETAILS - DIAL & LOWRY BUILDING

SCALE

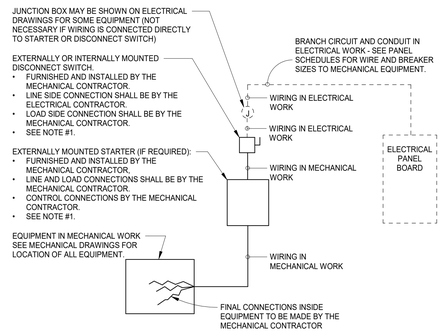
Scale: 12" = 1'-0"

SHEET NUMBER

M700



1 PUMP - END SUCTION BASE MOUNTED
NO SCALE



NOTES:

1. A COMBINATION STARTER MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER.
   - COMBINATION STARTER SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
   - LINE SIDE CONNECTION SHALL BE BY THE ELECTRICAL CONTRACTOR.
   - LOAD SIDE CONNECTION SHALL BE BY THE MECHANICAL CONTRACTOR
   - CONTROL CONNECTIONS BY THE MECHANICAL CONTRACTOR.
2. M.C. SHALL FURNISH ALL REQUIRED FUSES.

2 SCO MP CONNECT WIRING DETAIL
NO SCALE

Figure 4-1B *PVC/CPVC/Polypropylene Sidewall Termination of Air and Vent*

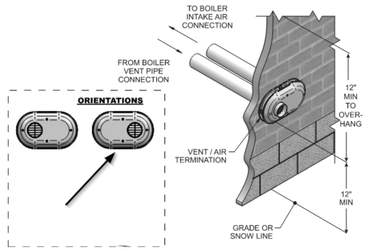
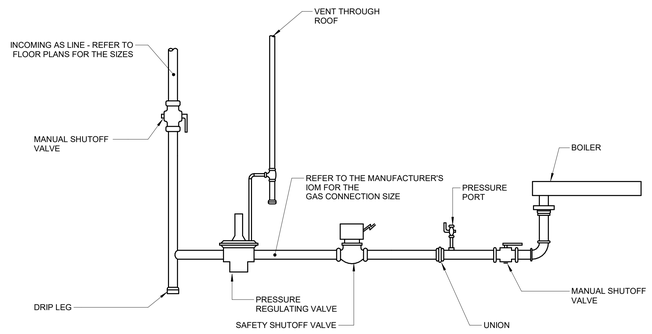


Table 4A *Sidewall Vent Kits*

Model	Kit Number	Air	Vent	Centerline Width
400 - 600	100157611	4" (102 mm)	4" (102 mm)	5 5/8" (143 mm)

← FOR SIDEWALL TERMINATION AT DIAL

3 PVC/CPVC SIDEWALL TERMINATION OF AIR AND VENT
NO SCALE



4 GAS TRAIN - BOILER
NO SCALE

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SCO ID# 24-28864-01A

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P: 919.571.1111

PROFESSIONAL SEAL

NORTH CAROLINA IMEG CONSULTANTS CORP. No. F-1507 PROFESSIONAL CORPORATION

NORTH CAROLINA PROFESSIONAL SEAL 025036 ENGINEER BRADLEY W. FELTS

12/05/2025

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES PROJECT #25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	AP
Checked	AP
Approved	BF

SHEET TITLE
MECHANICAL DETAILS - DIAL & LOWRY BUILDING

SCALE
Scale: As indicated

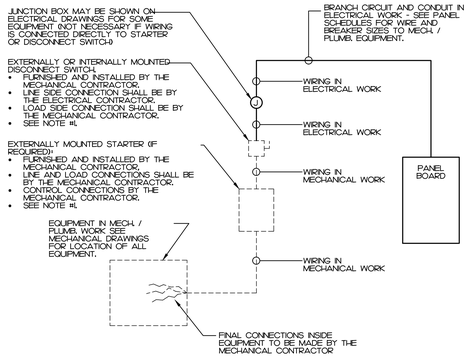
SHEET NUMBER
M701

SYMBOL LEGEND

SYMBOL	DESCRIPTION	REMARKS
(J)	EXISTING: EQUIPMENT CONNECTION TO BE REMOVED. SEE NOTE ON PLAN.	EXISTING
S_R	EXISTING: MOTOR RATED TOGGLE SWITCH TO BE REMOVED. SEE NOTE ON PLAN.	EXISTING
	EXISTING: DISCONNECT SWITCH, STARTER AND VFD TO BE REMOVED. SEE NOTE ON PLAN.	EXISTING
S_{EQ}	20A SINGLE POLE MOTOR RATED TOGGLE SWITCH FOR EQUIPMENT DISCONNECT MOUNT ADJACENT TO EQUIPMENT	HUBBELL 1221-** WITH METAL COVER PLATE
S_{EQ2}	20A DOUBLE POLE MOTOR RATED TOGGLE SWITCH FOR EQUIPMENT DISCONNECT MOUNT ADJACENT TO EQUIPMENT	HUBBELL 1222-** WITH METAL COVER PLATE
	DISCONNECT SWITCH AND VFD FURNISHED BY M.C. SEE DETAIL VE000 FOR SCOPE OF WORK.	SEE MECH. PLAN
	NEW CONCEALED WIRING	PER N.E.C.
	HOME RUN TO PANEL BOARD NUMBERS OF ARROW INDICATE CIRCUITS	PER N.E.C.
	EXISTING: 120/208V 3Ø, 4W PANEL BOARD SEE PANEL SCHEDULES	EXISTING
	EXISTING: 277/480V 3Ø, 4W PANEL BOARD SEE POWER RISER	EXISTING
TF	DRY TYPE DISTRIBUTION TRANSFORMER. SEE POWER RISER	EXISTING
A.F.C.	ABOVE FINISHED CEILING	
A.F.F.	ABOVE FINISHED FLOOR - NOTE ALL MOUNTING DIMENSIONS GIVEN ARE TO THE BOTTOM OF THE OUTLET BOX	

GENERAL NOTES

1. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR FLOOR PLAN DIMENSIONS. DO NOT SCALE THESE DRAWINGS.
2. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ANY AND ALL WORK WITH OTHER TRADES INVOLVED IN THE PROJECT, PRIOR TO THE INSTALLATION OF HIS EQUIPMENT SO AS TO AVOID CONFLICTS DURING CONSTRUCTION AND TO ALLOW FOR OPTIMUM MAINTENANCE AND WORKING SPACE.
3. USE OF THE CONDUIT SYSTEM FOR EQUIPMENT GROUNDING SHALL NOT BE ACCEPTABLE. A SEPARATE GREEN GROUND WIRE SHALL BE RUN WITH THE CIRCUIT CONDUCTORS IN EACH CONDUIT.
4. ALL BREAKER SIZES, SHOWN FOR MECHANICAL EQUIPMENT, SHALL BE VERIFIED BEFORE THE PURCHASE OR INSTALLATION OF SAID EQUIPMENT, WITH THE EQUIPMENT SUPPLIER AND THE MECHANICAL CONTRACTOR.
5. ALL WORK AND MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH THE STATE, LOCAL AND NATIONAL CODES, ORDINANCES AND 2020 NATIONAL ELECTRICAL CODE (NFPA 70).
6. EACH CONTRACTOR SHALL PROVIDE HIS OWN SUPPORT OF ALL DEVICES AND EQUIPMENT PROVIDED BY HIM AND SHALL SUPPORT SUCH EQUIPMENT PER APPROVED GOVERNING CODES OR PER APPROVAL OF THE ENGINEER. UNACCEPTABLE WORKMANSHIP OR MATERIALS SHALL BE REPLACED AT THE REQUEST OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
7. THE MOUNTING HEIGHTS AND LOCATIONS OF ALL WALL MOUNTED OUTLETS AND JUNCTION BOXES SHALL BE REVIEWED AND COORDINATED WITH THE ARCHITECT, PRIOR TO INSTALLATION FOR USE WITH THE ACTUAL EQUIPMENT, CASEWORK, AND MILLWORK TO BE FURNISHED.
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, AND RECEPTACLES UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS TO AND FINAL CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS. SEE DETAILS FOR CONNECTION TO EQUIPMENT PROVIDED BY MECHANICAL AND PLUMBING CONTRACTORS.
9. PENETRATION:
   - WHERE ELECTRICAL EQUIPMENT PENETRATES RATED WALLS AND CEILINGS, EXTERIOR WALLS, THEY SHALL BE PROPERLY SEALED PER APPROVED U.L. METHODS.
   - WHERE ELECTRICAL EQUIPMENT PENETRATES EXTERIOR WALLS, THEY SHALL BE PROPERLY SEALED WITH METHODS APPROVED BY THE ENGINEER. SUBMIT DETAIL OF PROPOSED SEALING METHODS.
10. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR.
11. THE CONTRACTOR SHALL PROVIDE COMPLETE UPDATED TYPEWRITTEN PANEL SCHEDULES FOR ALL PANELBOARDS.
12. AS BUILT DRAWINGS SHALL BE GIVEN TO THE OWNER AT THE COMPLETION OF THE PROJECT.
13. ALL WIRE SIZES INDICATED ON THE PANEL SCHEDULES ARE BASED ON 75 DEGREE COPPER THHN/THWN WIRE. ALL WIRE TERMINALS AND EQUIPMENT SHALL BE LISTED AND APPROVED FOR 75°C. ONLY THWN-2 WIRE SHALL BE INSTALLED IN WET AND EXTERIOR LOCATION.
14. MINIMUM WIRE AND CONDUIT SIZES:
   - MINIMUM WIRE SIZE SHALL BE #12 AWG.
   - MINIMUM CONDUIT SIZE INSIDE BUILDING SHALL BE 3/4".
   - MINIMUM CONDUIT SIZE OUTSIDE BUILDING ABOVE GROUND SHALL BE 3/4".
   - MINIMUM CONDUIT SIZE UNDER GROUND SHALL BE 1".
15. ARMORED CABLE (TYPE AC) AND METAL-CLAD CABLE (TYPE MC) ARE NOT ALLOWED IN THIS PROJECT.
16. THE MAXIMUM NUMBER OF HOMERUNS IN A CONDUIT SHALL NOT EXCEED THREE (3). FEEDING CIRCUITS WITH SHARED NEUTRAL IS NOT ALLOWED.
17. WHERE OUTLETS ARE SHOWN BACK TO BACK ON RATED WALLS, STAGGER OUTLETS SO THAT THEY ARE SEPARATED BY A MINIMUM OF 24".
18. ALL DISCONNECTS SHALL HAVE SEPARATE NEUTRAL AND GROUND BARS.
19. ALL PANELS SHALL BE THREE PHASE, FOUR WIRE UNLESS OTHERWISE NOTED.
20. BOXES AND CONDUITS SHALL NOT BE INSTALLED RECESSED IN A 3-HOUR OR HIGHER RATED WALL. WHEN OUTLETS ARE INDICATED ON THESE WALLS, FIELD COORDINATE CONDUIT AND BOX INSTALLATION.
21. DEMOLITION NOTES:
    a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR A COMPLETE ELECTRICAL DEMOLITION NOTED OR IMPLIED ON THESE PLANS.
    b. ALL ABANDONED AND UNUSED CABLES IN HOLLOW SPACES, VERTICAL SHAFTS, AND VENTILATION OR AIR-HANDLING DUCTS SHALL BE REMOVED PER NEC 725.25, 760.25, 770.25, 800.25, 820.25 AND 830.25.
    c. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CIRCUIT CONTINUITY TO ALL LIGHTING, DEVICES AND EQUIPMENT NOT SUBJECT TO REMOVAL. PROVIDE ADDITIONAL CONDUIT AND WIRING AS REQUIRED.
    d. RELOCATE AS NECESSARY ALL EXISTING CIRCUITS FOUND PASSING THROUGH THE AREA OF CONSTRUCTION, AND WHICH ARE PRESENTLY IN USE IN OTHER PARTS OF THE BUILDING UNAFFECTED BY THIS PROJECT PHASE, TO MAINTAIN THE CONTINUITY OF SERVICE AND GROUNDING, AND TO CONCEAL THEM ABOVE NEW CEILINGS.
    e. WHERE EXISTING EQUIPMENT AND DEVICES SHALL BE REMOVED, THE CONTRACTOR SHALL REMOVE ALL THE ASSOCIATED CONDUIT AND CONDUCTORS THAT SHALL NOT REMAIN IN OPERATION BACK TO THEIR RESPECTIVE SOURCE OR TO THE POINT ON A SHARED CIRCUIT FROM WHERE THE EQUIPMENT OR DEVICE IS SERVED.
22. THE STATE CONSTRUCTION OFFICE IS THE AUTHORITY HAVING JURISDICTION (AHJ) FOR THE ELECTRICAL INSPECTION ON THIS PROJECT. IT IS THE RESPONSIBILITY OF E.C. TO NOTIFY THE STATE PROPERTY ELECTRICAL INSPECTORS IN THE STATE CONSTRUCTION OFFICE, TO SCHEDULE THE REQUIRED ROUGH-IN, ABOVE CEILING, AND FINAL INSPECTIONS. NO WORK WILL BE COVERED UP UNTIL AFTER THE INSPECTION HAS BEEN COMPLETED AND APPROVED BY AN AUTHORIZED SCO INSPECTOR. SCO ELECTRICAL INSPECTORS ARE ONLY AVAILABLE MONDAY THRU FRIDAY.
23. SEE SPECIFICATIONS



NOTES:

1. A COMBINATION STARTER MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER.
   - COMBINATION STARTER SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
   - LINE SIDE CONNECTION SHALL BE BY THE ELECTRICAL CONTRACTOR.
   - LOAD SIDE CONNECTION SHALL BE BY THE MECHANICAL CONTRACTOR
   - CONTROL CONNECTIONS BY THE MECHANICAL CONTRACTOR.
2. E.C. SHALL FURNISH ALL REQUIRED FUSES.

1 WIRING TO MECHACNICAL EQUIPMENT
NOT TO SCALE

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UNC PEMBROKE

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SCO ID# 24-28864-01A

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PROFESSIONAL SEAL

12/15/2025

IMEG CONSULTANTS CORP. No. F-1507

NORTH CAROLINA PROFESSIONAL SEAL 027479 ENGINEER BRANDON W. FRANKLIN

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES

PROJECT # 25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**CONSTRUCTION SET**
Date	**12/15/2025**
Project #	**25003279.00**
Drawn	**SP**
Checked	**SP**
Approved	**BWF**

SHEET TITLE

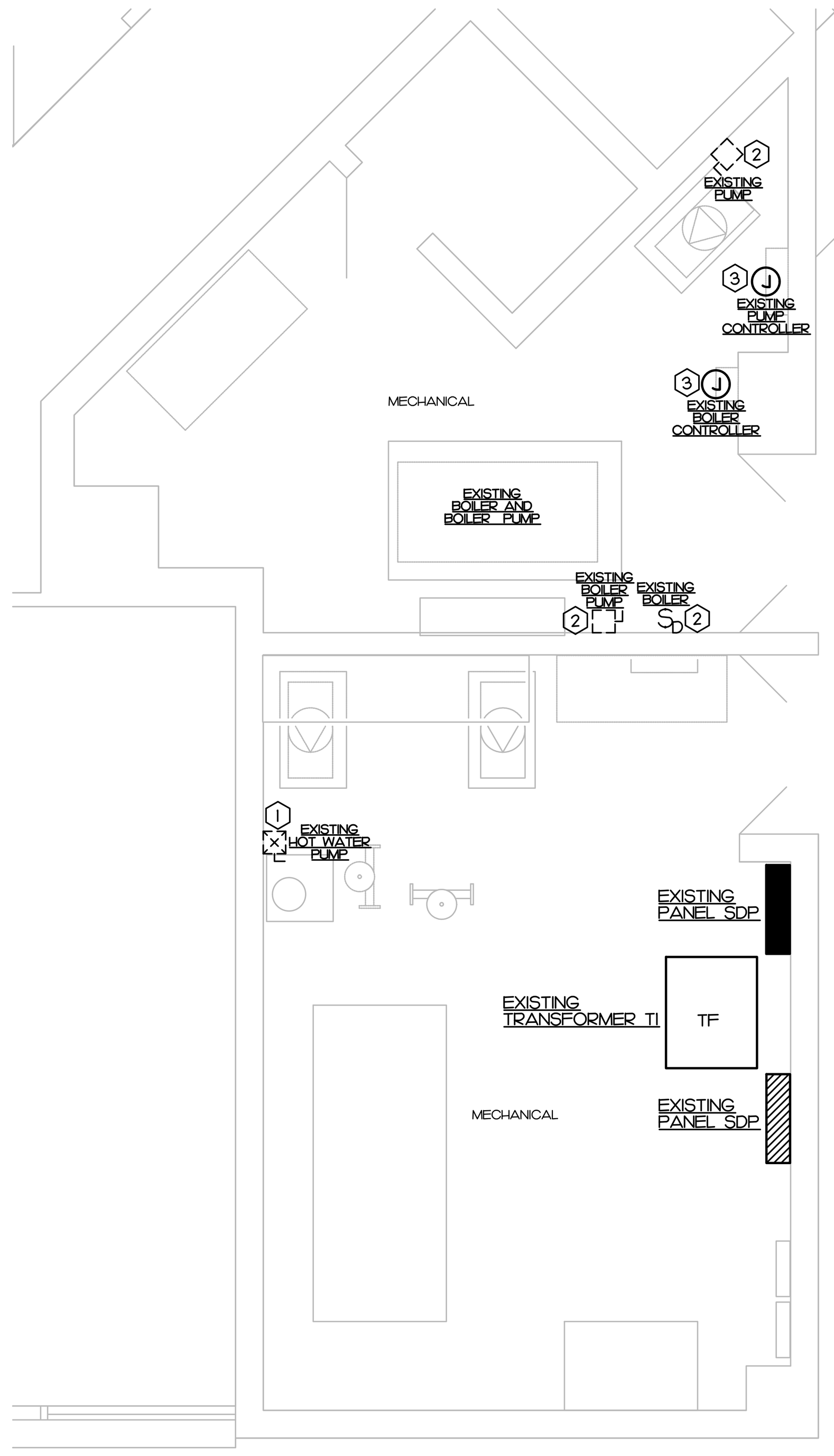
ELECTRICAL LEGEND NOTES DETAILS

SCALE

Scale: **AS NOTED**

SHEET NUMBER

E000

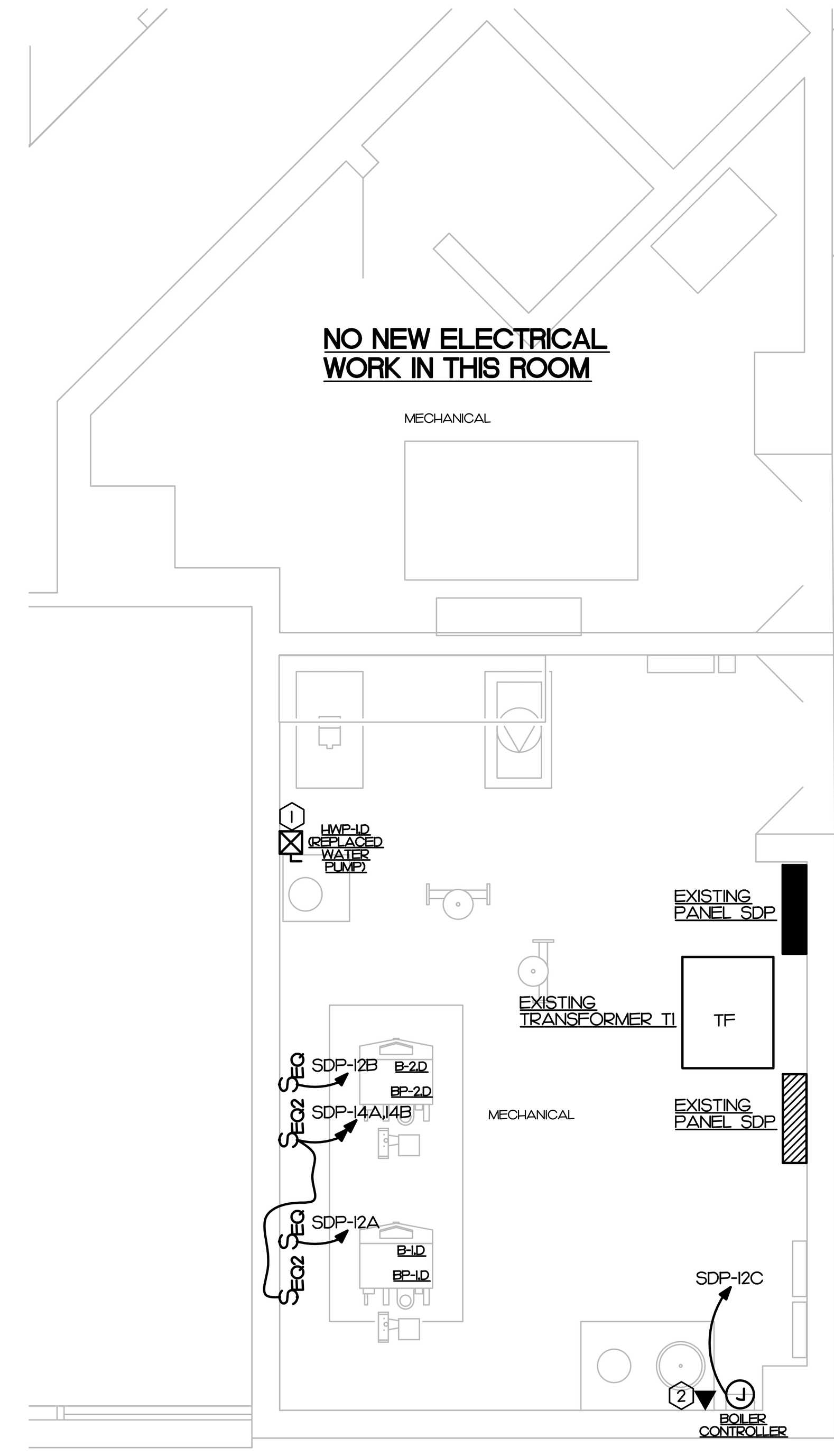


KEY NOTES:

1. EXISTING HOT WATER PUMP STARTER TO BE REPLACED. FED FROM 20A/3P BREAKER IN PANEL DP (480V 3Ø). MAINTAIN EXISTING CIRCUIT FOR NEW CONNECTION TO NEW DISCONNECT.
2. EXISTING EQUIPMENT CONNECTION TO BE REMOVED. REMOVE ALL WIRES BACK TO PANEL BOARD. FIELD VERY WITH M.C. PRIOR TO REMOVING CIRCUITS.
3. EXISTING CONTROLLER TO REMAIN. MAINTAIN EXISTING CIRCUIT.

1 ELECTRICAL DEMOLITION PLAN

1/4" = 1'-0"

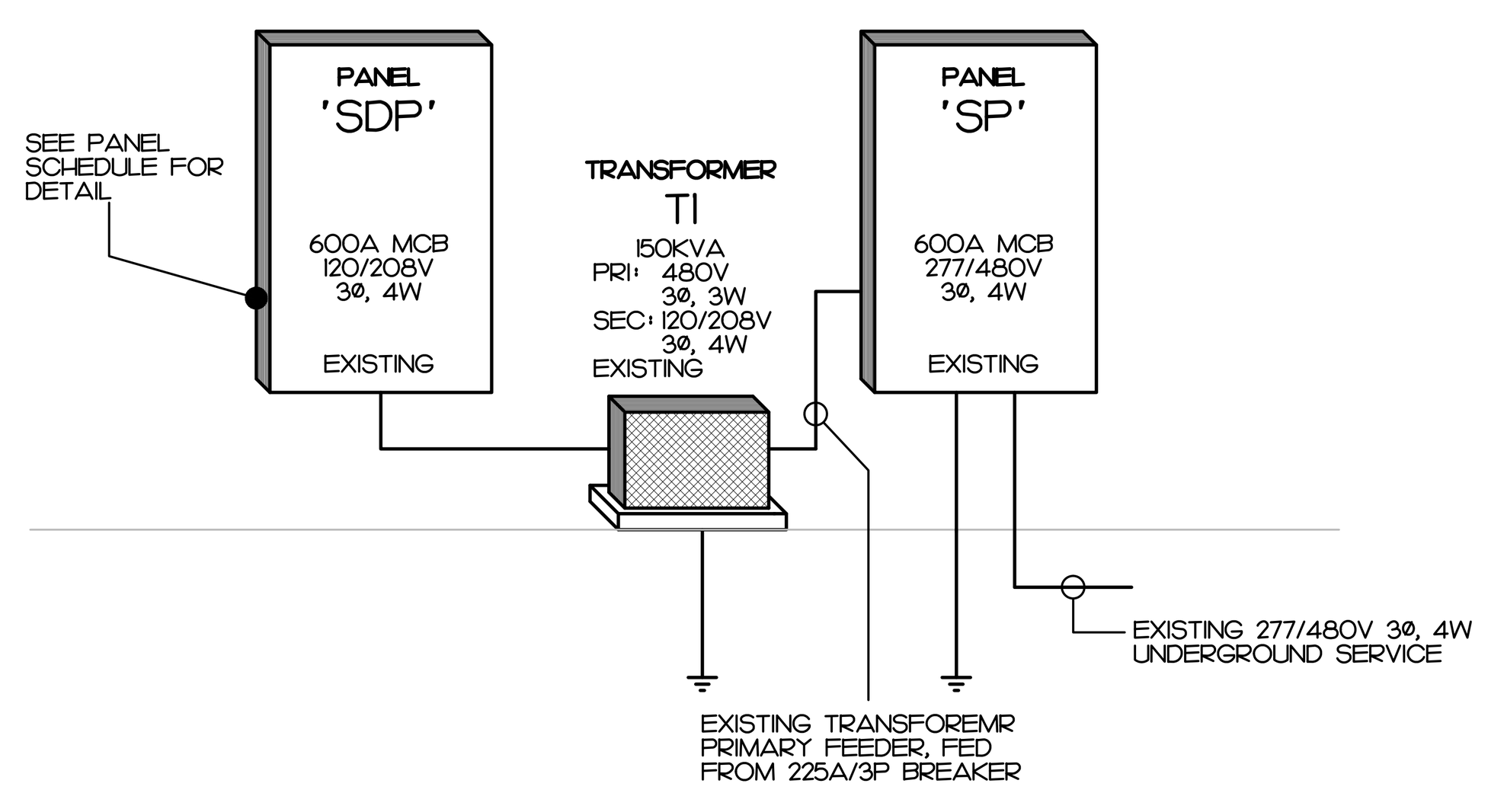


KEY NOTES:

1. PROVIDE NEW DISCONNECT AND VFD FOR THE NEW REPLACED HOT WATER PUMP.
   - DISCONNECT SHALL BE 30A, 480VAC, 3P NEMA 1 FUSIBLE DISCONNECT.
   - CONNECT TO EXISTING CIRCUIT. SEE KEY NOTE #1 IN 1/E200.D FOR EXISTING STARTER.
2. PROVIDE NEW COMMUNICATION OUTLET BELOW BOILER CONTROLLER.
   - PROVIDE 1"C TO NEAREST MDF OR IDF ROOM.
   - CONTRACTOR SHALL CONTRACT OWNER PREFERRED VENDOR TO INSTALL DATA DROP.

2 ELECTRICAL RENOVATION PLAN

1/4" = 1'-0"



3 PARTIAL POWER RISER DIAGRAM

NO SCALE

PANEL DP LOAD STATEMENT

REMOVED LOAD		
HOT WATER PUMP	2327	VA
PANEL SDP REMOVED LOAD	3840	VA
TOTAL REMOVED LOAD	6167	VA
ADDITONAL LOAD		
HOT WATER PUMP: HWP-1.D	3989	VA
PANEL SDP ADDITONAL LOAD	3778	VA
TOTAL ADDITIONAL LOAD	7766	VA
NET LOAD INCREASE	1600	VA
CURRENT AT 480V 3Ø	2	AMPS

PANEL SDP LOAD STATEMENT

REMOVED LOAD		
BOILER	600	VA
BOILER PUMP	936	VA
BOILER CONTROLER	600	VA
PUMP	1104	VA
PUMP CONTROLER	600	VA
TOTAL REMOVED LOAD	3840	VA
ADDITONAL LOAD		
BOILER: B-1.D	840	VA
BOILER PUMP: BP-1.D	749	VA
BOILER: B-2.D	840	VA
BOILER PUMP: BP-2.D	749	VA
BOILER CONTROLLER	600	VA
TOTAL ADDITIONAL LOAD	3778	VA
NET LOAD DECREASE	62	VA
CURRENT AT 208V 3Ø	0	AMPS

PANEL SDP — 120/208V, 3 PHASE, 4 WIRE

CKT	DESCRIPTION		KVA	C	G	W	CB	CKT	CKT	CB	W	G	C	KVA		DESCRIPTION	CKT
1A	EXISTING LOAD	EXISTING	E	E	E	E	20	1	2	100	E	E	E	E	EXISTING	PANEL CC	2
1B	SPACE ONLY		0.0	--	--	--	--	3		3P	E	--	--	E			
1C	SPACE ONLY		0.0	--	--	--	--	5		--	E	--	--	E			
3	PANEL BB	EXISTING	E	E	E	E	100	7	4	100	E	E	E	E	EXISTING	PANEL DD	4
			E	--	--	E	3P	9		3P	E	--	--	E			
			E	--	--	E	--	11		--	E	--	--	E			
5	FURNACE	EXISTING	E	E	E	E	20	13	6	30	E	E	E	E	EXISTING	COOLING TOWER	6
			E	--	--	E	3P	15		3P	E	--	--	E			
			E	--	--	E	--	17		--	E	--	--	E			
7	PANEL CP2	EXISTING	E	E	E	E	100	19	8	40	E	E	E	E	EXISTING	EXISTING LOAD	8
			E	--	--	E	3P	21		3P	E	--	--	E			
			E	--	--	E	--	23		--	E	--	--	E			
9	SPACE ONLY		0.0	--	--	--	--	25	10	225	E	E	E	E	EXISTING	EXISTING PANEL	10
			0.0	--	--	--	--	27		3P	E	--	--	E			
			0.0	--	--	--	--	29		--	E	--	--	E			
11	PANEL AA	EXISTING	E	E	E	E	100	31	12	15	12	12	1/2	0.8		B-1.D	12A
			E	--	--	E	3P	33		15	12	12	1/2	0.8		B-2.D	12B
			E	--	--	E	--	35		20	12	12	1/2	1.2		BOIELR CONTROLER	12C
13	SPACE ONLY		0.0	--	--	--	--	37	14	15	12	12	1/2	0.7		BP-1.D, BP-2.D	14A
			0.0	--	--	--	--	39		2P	12	--	--	0.7			14B
			0.0	--	--	--	--	41		--	--	--	--	0.0			14C

PROVIDE NEW BREAKERS AT AVAILABLE SPACES.
(2) 15A/1P BREAKERS
(1) 20A/1P BREAKER
(1) 15A/2P BREAKER

DESCRIPTION	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
CONT. LOAD			NOTE 3
RECEPTACLE			NOTE 3
MTRS/COOLS			NOTE 3
HEATS			NOTE 3
WATER HEATER			NOTE 3
EQUIPMENT			NOTE 3
KITCHEN EQUIP.			NOTE 3
SPECIAL EQ.			NOTE 3
25% OF LARGEST HVAC/MOTOR			NOTE 3
TOTAL DEMAND			NOTE 3

600 A MINIMUM BUS SIZE
600 A MAIN CIRCUIT BREAKER
10 K MINIMUM AIC RATING

SURFACE MOUNTING
NEMA 1 ENCLOSURE
GROUND BAR

NOTES
1. EXISTING: SQUARE D: I-LINE HCM
2. 'E' DNOTES EXISTING.
3. SEE LOAD STATEMENT
4.
5.

CONNECTED LOADS	
PHASE A:	NOTE 3
PHASE B:	NOTE 3
PHASE C:	NOTE 3
TOTAL:	NOTE 3
DEMAND	NOTE 3

4 LOAD STATEMENTS AND PANEL SCHEDULE

NO SCALE

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25003279.00

UNC PEMBROKE

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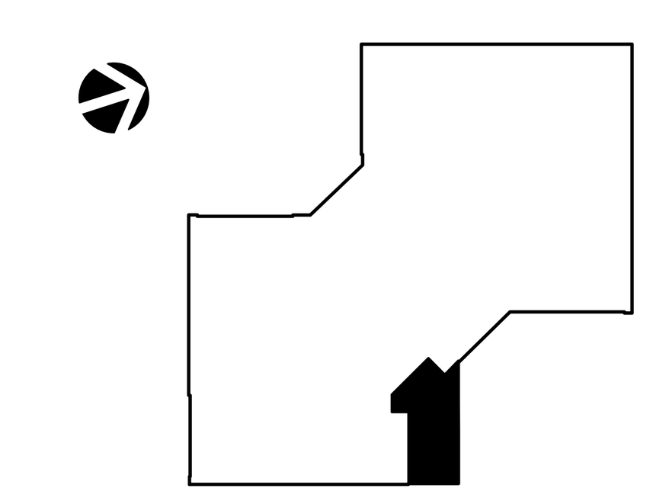
PROFESSIONAL SEAL

12/15/2025

NORTH CAROLINA PROFESSIONAL CORPORATION IMEG CONSULTANTS CORP. No. F-1507 SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027479

KEY PLAN



AGENCY APPROVAL

DISCLAIMER

North Carolina Design Registration #F-1507

0 1 2 3
REF. SCALE IN INCHES PROJECT # 25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SP
Checked	SP
Approved	BWF

SHEET TITLE

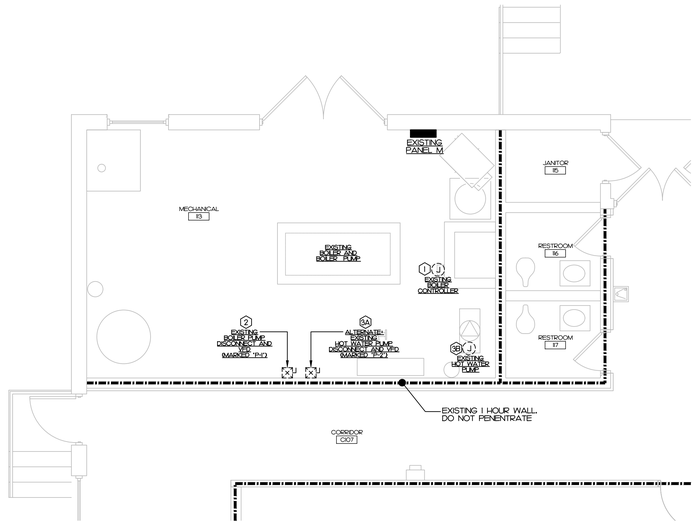
DIAL BUILDING
ELECTRICAL PLAN
POWER RISER DIAGRAM
PANEL SCHEDULES

SCALE

Scale: AS NOTED

SHEET NUMBER

E200.D



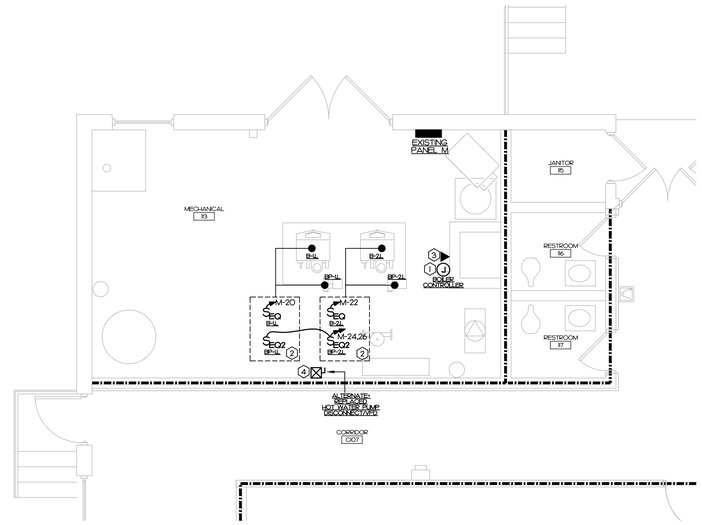
KEY NOTES:

1. EXISTING BOILER CONTROLLER TO BE REPLACED. MAINTAIN EXISTING CIRCUIT FOR NEW BOILER CONTROLLER CONNECTION. PER SURVEY, EXISTING CIRCUIT IS CKT# M-12
2. EXISTING EQUIPMENT CONNECTION TO BE REMOVED. REMOVE ALL WIRES BACK TO PANEL BOARD. FIELD VERIFY WITH M.C. PRIOR TO REMOVING CIRCUITS.
3. ALTERNATE1: REPLACE EXISTING HOT WATER PUMP
   - 3A. REMOVE EXISTING DISCONNECT AND VFD. MAINTAIN EXISTING CIRCUIT FOR CONNECTION TO NEW REPLACED DISCONNECT. THE CIRCUIT IS CKT# M-13,5 (50A/3P 208V 3Ø) PER EXISTING PANEL SCHEDULE.
   - 3B. REMOVE EXISTING PUMP CONNECTION.

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

1 ELECTRICAL DEMOLITION PLAN

1/4" = 1'-0"



KEY NOTES:

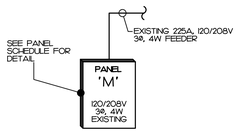
1. CONNECT NEW REPLACED BOILER CONTROLLER TO EXISTING CIRCUIT. SEE KEY NOTE #1 IN I/E200L FOR EXISTING CONTROLLER.
2. FIELD COORDINATE DISCONNECT LOCATION WITH M.C. PRIOR TO ROUGH-IN.
3. PROVIDE NEW COMMUNICATION OUTLET BELOW BOILER CONTROLLER.
   - PROVIDE 1"C TO NEAREST MDF OR IDF ROOM.
   - CONTRACTOR SHALL CONTACT OWNERS PREFERRED VENDOR TO INSTALL DATA DROP.
4. ALTERNATE1: REPLACE EXISTING HOT WATER PUMP

   PROVIDE NEW DISCONNECT AND VFD FOR THE NEW REPLACED HOT WATER PUMP.
   - DISCONNECT SHALL BE 60A, 240VAC, 3P, NEMA 1 FUSIBLE DISCONNECT.
   - CONNECT TO EXISTING CIRCUIT. SEE KEY NOTE #3A IN I/E200L FOR EXISTING DISCONNECT/VFD.

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

2 ELECTRICAL RENOVATION PLAN

1/4" = 1'-0"



3 PARTIAL POWER RISER DIAGRAM

NO SCALE

PANEL M — **120/208V, 3 PHASE, 4 WIRE**

CKT	DESCRIPTION		KVA	C	G	W	CB	CKT	CKT	CB	W	G	C	KVA	DESCRIPTION		CKT
1	PUMP #2	EXISTING	2.9	E	E	E	50	1	2	15	--	--	--	0.0	SPARE		2
3			2.9	--	--	E	3P	3	4	3P	--	--	--	0.0			4
5			2.9	--	--	E	--	5	6	--	--	--	--	0.0			6
7	HEAT TAPE	EXISTING	0.5	E	E	E	20	7	8	20	E	E	E	0.8	EXISTING	EXHAUST FAN	8
9	SPARE		0.0	--	--	--	20	9	10	20	E	E	E	0.6	EXISTING	HVAC CTRL	10
11	SPARE		0.0	--	--	--	20	11	12	20	E	E	E	0.6		BOILER CTRL	12
13	SPARE		0.0	--	--	--	20	13	14	20	E	E	E	1.1	EXISTING	RACEWAY	14
15	WATER HEATER	EXISTING	1.5	E	E	E	20	15	16	20	--	--	--	0.0		SPARE	16
17	CEILING HEATER	EXISTING	1.5	E	E	E	20	17	18	20	E	E	E	1.1	EXISTING	RACEWAY	18
19	SPARE		0.0	--	--	--	20	19	20	15	12	12	1/2	1.0		BP-1L	20
21	RACEWAY	EXISTING	1.1	E	E	E	20	21	22	15	12	12	1/2	1.0		BP-2L	22
23	RACEWAY	EXISTING	1.1	E	E	E	20	23	24	15	12	12	1/2	0.7		BP-1L, BP-2L	24
25	RACEWAY	EXISTING	1.1	E	E	E	20	25	26	2P	12	--	--	0.7			26
27	RACEWAY	EXISTING	1.1	E	E	E	20	27	28	20	--	--	--	0.0		SPARE	28
29	SPARE		0.0	--	--	--	20	29	30	20	--	--	--	0.0		SPARE	30
31	SPARE		0.0	--	--	--	20	31	32	30	--	--	--	0.0		SPARE	32
33	SPARE		0.0	--	--	--	20	33	34	3P	--	--	--	0.0			34
35	SPARE		0.0	--	--	--	20	35	36	--	--	--	--	0.0			36
37	SPARE		0.0	--	--	--	20	37	38	20	--	--	--	0.0		SPARE	38
39	SPARE		0.0	--	--	--	20	39	40	20	--	--	--	0.0		SPARE	40
41	SPARE		0.0	--	--	--	20	41	42	--	--	--	--	0.0		SPARE	42

ALTERNATE1: CONNECT EXISTING CIRCUIT TO NEW REPLACED COMBINATION DISCONNECT/VFD CONTROLLER.

SPARE CIRCUIT AVAILABLE FROM P-1 DEMOLITION

CONNECT EXISTING CIRCUIT TO NEW REPLACED BOILER CONTROLLER.

REPLACE EXISTING (4) 20A/1P SPARE BREAKER WITH: (2) 15A/1P BREAKERS (1) 15A/2P BREAKER

DESCRIPTION	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
CONT. LOAD	0.00	125%	0.00
RECEPTACLE	6.48	100%/50%	6.48
MTRS/COOLS	11.01	100%	11.01
HEATS	1.50	100%	1.50
WATER HEATER	1.50	100%	1.50
EQUIPMENT	3.62	100%	3.62
KITCHEN EQUIP.	0.00	65%	0.00
SPECIAL EQ.	0.00	100%	0.00
25% OF LARGEST HVAC/MOTOR			2.18
TOTAL DEMAND			26.29

225 A MINIMUM BUS SIZE
MAIN LUGS ONLY
10 K MINIMUM AIC RATING

SURFACE MOUNTING
NEMA 1 ENCLOSURE
GROUND BAR

NOTES
1. EXISTING GE SERIES II PANEL BOARD
2. "E" DENOTES EXISTING , LOAD PER SURVEY
3.
4.
5.

CONNECTED LOADS	
PHASE A:	8.1 KVA
PHASE B:	8.1 KVA
PHASE C:	7.9 KVA
TOTAL:	24.1 KVA
DEMAND	73 AMP

4 PANEL SCHEDULE

NO SCALE

UNC - PEMBROKE - DIAL/LOWRY BUILDING

25003279.00

UNC PEMBROKE

UNC - PEMBROKE - DIAL/LOWRY BUILDING

The University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

SCO ID# 24-28864-01A

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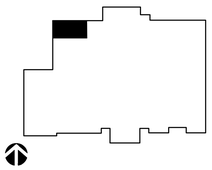
PROFESSIONAL SEAL

12/5/2025

IMEG CONSULTANTS CORP. No. F-1507

SEAL 027479 ENGINEER

KEY PLAN



AGENCY APPROVAL

DISCLAIMER

0 1 2 3
REF. SCALE IN INCHES — PROJECT # 25003279.00

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	CONSTRUCTION SET
Date	12/15/2025
Project #	25003279.00
Drawn	SP
Checked	SP
Approved	BWF

SHEET TITLE

LOWRY BUILDING
ELECTRICAL PLAN
POWER RISER DIAGRAM
PANEL SCHEDULE

SCALE

Scale: **AS NOTED**

SHEET NUMBER

E200.L