HARNETT COUNTY

IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546
PERMIT SET

CONTACTS

CLIENT

HARNETT COUNTY
308 W. DUNCAN ST.
LILLINGTON, NC 27546

CHRIS JOHNSON
PROJECT MANAGER
910-814-6463
cjohnson@harnett.org

ENGINEERS/ARCHITECTS

DJG, INC.
1620 HILLSBOROUGH STREET, SUITE 100
RALEIGH, NC 27605

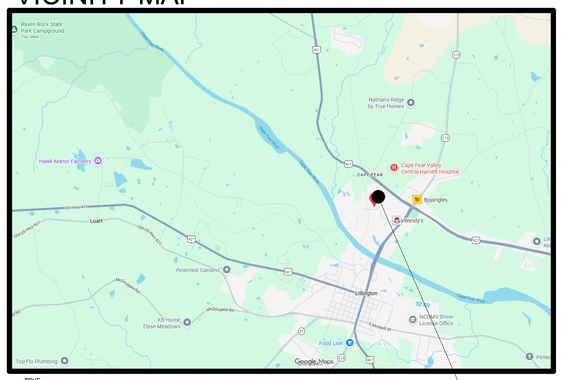
JENNY PROFET, RA, RID
PROJECT MANAGER
984-289-1300
jprofet@djginc.com

ENGINEERS

BNK INC
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, NC 27607

TAINE MERGENTHALER
PRINCIPAL ENGINEER
919-645-3525
taine.mergenthaler@bnkinc.com

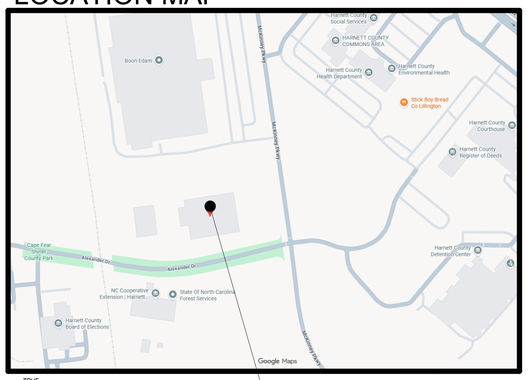
VICINITY MAP



TRUE NORTH

PROJECT LOCATION
420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

LOCATION MAP



TRUE NORTH

PROJECT LOCATION
420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

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www.djginc.com

HARNETT COUNTY

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS		
#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	
DESIGNED:	JMP
DRAWN:	KAH
CHECKED:	JCO
DATE:	05/20/2026

NORTH CAROLINA
ARCHITECT
05.20.2026
JENNY M. PROFET

SHEET TITLE
COVER SHEET

SHEET NUMBER
G-001

SHEET # 1 OF 21

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ABBREVIATIONS

AC	AIR CONDITIONING, ASBESTOS CEMENT, ACRES
ACT	ACOUSTIC CEILING TILE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AL	ALUMINUM
BD	BOARD
BOT	BOTTOM
BOS	BOTTOM OF SLAB
C	CELSIUS, CENTERLINE, CARPET
CLG	CEILING
CONC	CONCRETE
CPT	CARPET
CT	CERAMIC TILE
DEMO	DEMOLITION, DEMOLISH
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
(E)	EXISTING
EA	EACH
EJ	EXPANSION JOINT
ELEV	ELEVATOR, ELEVATION
EQ	EQUAL
FD	FLOOR DRAIN
FEC	FIRE EXTINGUISHER CABINET
GA	GAUGE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEIGHT
INSUL	INSULATION, INSULATED
INT	INTERIOR
JC	JANITOR CLOSET
KIT	KITCHEN
KO	KNOCK OUT
L	LENGTH
LT	LIGHT
LTG	LIGHTING
LVP	LUXURY VINYL PLANK
LVT	LUXURY VINYL TILE
MAX	MAXIMUM
MCJ	MASONRY CONTROL JOINT
MDF	MEDIUM-DENSITY FIBERBOARD
MECH	MECHANICAL
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MO	MASONRY OPENING
(N)	NEW
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
OC	ON CENTER
OFCI	OWNER-FURNISHED CONTRACTOR-INSTALLED
OFOI	OWNER-FURNISHED OWNER-INSTALLED
ORD	OVERFLOW ROOF DRAIN
PLYWD	PLYWOOD
PNT	PAINT
PVC	POLY VINYL CHLORIDE
RB	RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REV	REVISION
RO	ROUGH OPENING
SF	SQUARE FOOT
SIM	SIMILAR
SQ	SQUARE
SS	SOLID SURFACING
T	TILE
TO	TOP OF
TOF	TOP OF FOOTING
TOS	TOP OF SLAB
TOW	TOP OF WALL
TYP	TYPICAL
UCR	UNDER COUNTER REFRIGERATOR
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VEST	VESTIBULE
VTR	VENT THRU ROOF
VWC	VINYL WALL COVERING
W	WIDTH
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WIDTH, WOOD
WH	WATER HEATER
WT	WEIGHT
Ø	DIAMETER

GENERAL SYMBOL LEGEND

SHEET NUMBER
A-100
SHEET NUMBER
DISCIPLINE CODE

VIEW TITLE
1 View Name
1/8" = 1'-0"
DRAWING SCALE
DRAWING NUMBER

VIEW TITLE WITH REFERENCES
1 View Name
A-999 A-999 1/8" = 1'-0"
DRAWING NUMBER
DRAWING SCALE
SHEET NUMBER
REFERENCE
SHEET NUMBER

EXTERIOR ELEVATIONS
1 A-200
POSITION ON SHEET
SHEET NUMBER

INTERIOR ELEVATIONS
A1 B2 A-350 A2 B1
POSITION ON SHEET
SHEET NUMBER

MATCH LINES
MATCHLINE
SEE: A1/A-101B
SHEET NUMBER
POSITION ON SHEET

AREA REFERENCE
A
SEE: (X/X-XXX)
REFERENCE TO AREA
VIEW REFERENCE TO ADDITIONAL INFORMATION

BUILDING SECTION
1 SIM A-101 1 SIM A-101
POSITION ON SHEET
SHEET NUMBER

WALL SECTION
A SIM A-101
POSITION ON SHEET
SHEET NUMBER

EXISTING TO REMAIN ITEMS
PROJECTION OR SURFACE LINES
CUT LINES

ITEMS TO BE DEMOLISHED
PROJECTION OR SURFACE LINES
CUT LINES

COLUMN GRID LINES
1 2 A B
COLUMN GRID LINES

LEVEL DATUM
LEVEL XX 0' - 0"
LEVEL NAME
LEVEL ELEVATION

SPOT ELEVATION
0'-0"
SPOT ELEVATION

ROOM TAG/AREA TAG
ROOM NAME 101
ROOM OR AREA NAME
ROOM OR AREA NUMBER

DRAWING REVISIONS
3
REVISION NUMBER

NORTH ARROW
PLAN NORTH
PLAN NORTH
TRUE NORTH

GRAPHIC SCALE
0 4' 8' 16'
SCALE: 1/8"=1'-0"

DETAIL - SECTION
1 SIM A-101
POSITION ON SHEET
SHEET NUMBER

DETAIL - PLAN/RCP
1 SIM A-101
POSITION ON SHEET
SHEET NUMBER

? KEYNOTE

NEW TO EXISTING DESIGNATION

WALL TAG (SEE A-501)
1A1
FIRE RATING IN HOURS (1,2,3)
ASSEMBLY TYPE
ASSEMBLY MODIFIER

NOTE: SYMBOLS AND ABBREVIATIONS ARE SHOWN FOR REFERENCE ONLY AND DO NOT CONSTITUTE A CHECK LIST REQUIRED BY THE CONTRACT

PROJECT SUMMARY

THE PROJECT IS LOCATED AT 420 MCKINNEY PARKWAY IN LILLINGTON, NORTH CAROLINA. SCOPE OF WORK INCLUDES AN APPROXIMATELY 2,275 SQUARE FOOT OFFICE BUILD-OUT IN THE EXISTING WAREHOUSE SPACE OF THE BUILDING. THE EXISTING FACILITY IS A COMBINATION OF OFFICES AND WAREHOUSE. WORK INCLUDES ARCHITECTURAL, MECHANICAL & ELECTRICAL WORK.

GENERAL NOTES

1. DRAWINGS & SPECIFICATIONS ARE COMPLEMENTARY COMPONENTS OF THE CONTRACT DOCUMENTS. REVIEW ALL DRAWINGS AND SPECIFICATIONS FOR THE COMPLETE SCOPE OF WORK. NOTIFY ARCHITECT IMMEDIATELY FOR CLARIFICATION IF INCONSISTENCIES, CONTRADICTIONS OR OMISSIONS ARE DISCOVERED.
2. DO NOT SCALE DRAWINGS, IF DIMENSIONAL INFORMATION IS REQUIRED & NOT FOUND, NOTIFY ARCHITECT IMMEDIATELY FOR CLARIFICATION.
3. CARE SHALL BE EXERCISED DURING CONSTRUCTION WORK TO PROTECT EXISTING AREAS NOT IN CONTRACT BUT ADJACENT TO WORK.
4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, CONDITIONS AND DRAWINGS PRIOR TO SUBMITTING SHOP DRAWINGS, PROCURING MATERIALS AND STARTING WORK. ANY MINOR DISCREPANCY WILL NOT BE CONSIDERED FOR A CHANGE ORDER.
5. VERIFY EXISTING UTILITIES AND SCHEDULE ALL UTILITY OUTAGES REQUIRED FOR COMPLETION OF WORK FOR OWNER'S APPROVAL.
6. WHERE DISSIMILAR METALS ARE IN DIRECT PHYSICAL CONTACT, PROVIDE ADEQUATE SEPARATION, TO PREVENT GALVANIC REACTION.
7. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO EXAMINE ANY WORK PERFORMED ON THIS PROJECT AT ANY TIME TO DETERMINE THE CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AS INTENDED AND INTERPRETED BY THE ARCHITECT/ENGINEER.
8. FURNITURE NOT IN CONTRACT.

SHEET LIST

SHEET NUMBER	SHEET NAME
G-001	COVER SHEET
G-002	GENERAL INFORMATION
G-003	NC 2018 APPENDIX B
G-004	LIFE SAFETY PLAN
G-005	SPECIFICATIONS
A-101	NEW WORK PLAN
A-102	REFLECTED CEILING PLAN
A-501	PARTITION TYPES AND DETAILS
A-601	DOOR SCHEDULE & FINISH SCHEDULE
M-101	PARTIAL FLOOR PLAN-MECHANICAL
M-201	SCHEDULES - MECHANICAL
M-301	DETAILS - MECHANICAL
M-401	NOTES AND SPECIFICATIONS - MECHANICAL
E-101	ELECTRICAL PLAN
E-102	ELECTRICAL DETAILS
FA-101	FIRE ALARM PLAN
F-001	SPRINKLER COVER
F-101	SPRINKLER PARTIAL FIRST FLOOR
F-201	FIRST FLOOR SPRINKLER PIPING (AREA A)
F-202	FIRST FLOOR SPRINKLER PIPING(AREA B)
F-501	EXISTING SPRINKLER SITE PLAN

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HARNETT COUNTY
Harnett COUNTY NORTH CAROLINA

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

PERMIT SET

IT OFFICE UPFIT

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	As indicated
DESIGNED:	JMP
DRAWN:	KAH
CHECKED:	JCO
DATE:	05/20/2026

NORTH CAROLINA
ARCHITECT
05.20.2026
JENNY M. PROFFT

SHEET TITLE
GENERAL INFORMATION

SHEET NUMBER
G-002

SHEET # 2 OF 21

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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: HARNETT COUNTY IT OFFICE UPFIT
Address: 420 MCKINNEY PARKWAY LILLINGTON, NC Zip Code 27546
Owner/Authorized Agent: JENNY PROFET Phone # (984) 288 - 1300 E-mail:JPROFET@DJGINC.COM
Owned By: County
Code Enforcement Jurisdiction: County

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	DJG INC.	JENNY PROFET		(984)288-1300	JPROFET@DJGINC.COM
Civil				( )	
Electrical	BNK INC	MICHAEL HOFMANN 36795		(919)645-3518	Michael.Hofmann@bnkinc.com
Fire Alarm	BNK INC	TAINE MERGENTHALER		(919)645-3518	Taine.Mergenthaler@bnkinc.com
Plumbing				( )	
Mechanical	BNK INC	TAINE MERGENTHALER		(919)645-3525	Taine.Mergenthaler@bnkinc.com
Sprinkler-Standpipe	BNK INC	MARK SEABOCH 21653		(919) 645-3518	Mark.Seaboch@bnkinc.com
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: Renovation

EXISTING BUILDING

2018 NC EXISTING BUILDING CODE: Alteration Level II N/A N/A
CONSTRUCTED: (date) 1997 **CURRENT OCCUPANCY(S)** (Ch. 3): S-1
RENOVATED: (date) 10-30-2017 **PROPOSED OCCUPANCY(S)** (Ch. 3): N/A

RISK CATEGORY (Table 1604.5): **Current:** II **Proposed:** N/A

EXISTING BUILDING

BASIC BUILDING DATA
Construction Type: II-B
Sprinklers: Yes NFPA 13
Standpipes: No
Primary Fire District: No **Flood Hazard Area:** No
Special Inspections Required: No

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor	50,000	0	50,000
Basement			
TOTAL	50,000	0	50,000

AREA OF WORK 2,181 SF

EXISTING BUILDING

ALLOWABLE AREA

Primary Occupancy Classification(s): Business Storage - S-1 Select one Select one Select one Select one
Accessory Occupancy Classification(s): A-3
Incidental Uses (Table 509):
Special Uses (Chapter 4 – List Code Sections):
Special Provisions: (Chapter 5 – List Code Sections):
Mixed Occupancy: Yes Separation: Select one Exception:

Non-Separated Use (508.3)

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

$___ + ___ + \ldots = ___ \leq 1.00$

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]
1st Floor	S-1 Storage	35,553	70,000	32,900	UNLIMITED
1st Floor	B business	14,444	92,000	43,240	UNLIMITED

[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 = 650 (F)
b. Total Building Perimeter = 900 (P)
c. Ratio (F/P) = 72 (F/P)
d. W = Minumum width of public way = 30 (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25]$ x $W/30$ = 47 (%)
[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

EXISTING BUILDING

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE[1]
Building Height in Feet (Table 504.3) [2]	75'	30'	
Building Height in Stories (Table 504.4) [3]	3	1	

[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.

FIRE PROTECTION REQUIREMENTS

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		0	0				
Bearing Walls							
Exterior	>30	0	0				
North	>30	0	0				
East	>30	0	0				
West	>30	0	0				
South	>30	0	0				
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North	>30	0	0				
East	>30	0	0				
West	>30	0	0				
South	>30	0	0				
Interior walls and partitions							
Floor Construction Including supporting beams and joists		0	0				
Floor Ceiling Assembly		0	0				
Columns Supporting Floors		0	0				
Roof Construction, including supporting beams and joists		0	0				
Roof Ceiling Assembly		0	0				
Columns Supporting Roof		0	0				
Shaft Enclosures - Exit		N/A					
Shaft Enclosures - Other		N/A					
Corridor Separation		NOT REQUIRED					
Occupancy/Fire Barrier Separation		NOT REQUIRED					
Party/Fire Wall Separation		N/A					
Smoke Barrier Separation		N/A					
Smoke Partition		N/A					
Tenant/Dwelling Unit/ Sleeping Unit Separation		N/A					
Incidental Use Separation		N/A					

EXISTING BUILDING

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

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

EXISTING BUILDING

LIFE SAFETY SYSTEM REQUIREMENTS

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

EXISTING BUILDING

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: A101

- ☒ 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

EXISTING BUILDING

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

NOT APPLICABLE

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED 96" SPACES	# OF ACCESSIBLE SPACES PROVIDED 132" SPACES	TOTAL # ACCESSIBLE PROVIDED
TOTAL					

EXISTING BUILDING

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	5	7		2	3	3			2	
	NEW										
	REQ'D	3	3			3	3			1	

SPECIAL APPROVALS

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

ENERGY SUMMARY

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: Select one

Exempt Building: Select one Provide code or statutory reference:

Climate Zone: Select one

Method of Compliance: Select one
(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:

EXISTING BUILDING

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
winter dry bulb:
summer dry bulb:

Interior design conditions
winter dry bulb:
summer dry bulb:
relative humidity:

Building heating load:

Building cooling load:

Mechanical Spacing Conditioning System

SEE MECHANICAL DWGS

Unitary
description of unit:
heating efficiency:
cooling efficiency:
size category of unit:
Boiler
Size category. If oversized, state reason.:
Chiller
Size category. If oversized, state reason.:

List equipment efficiencies:

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

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Select one

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

SEE ELECTRICAL DWGS

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

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Harnett COUNTY NORTH CAROLINA

PERMIT SET

IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	
DESIGNED:	JMP
DRAWN:	JMP
CHECKED:	JCO
DATE:	05/20/2026

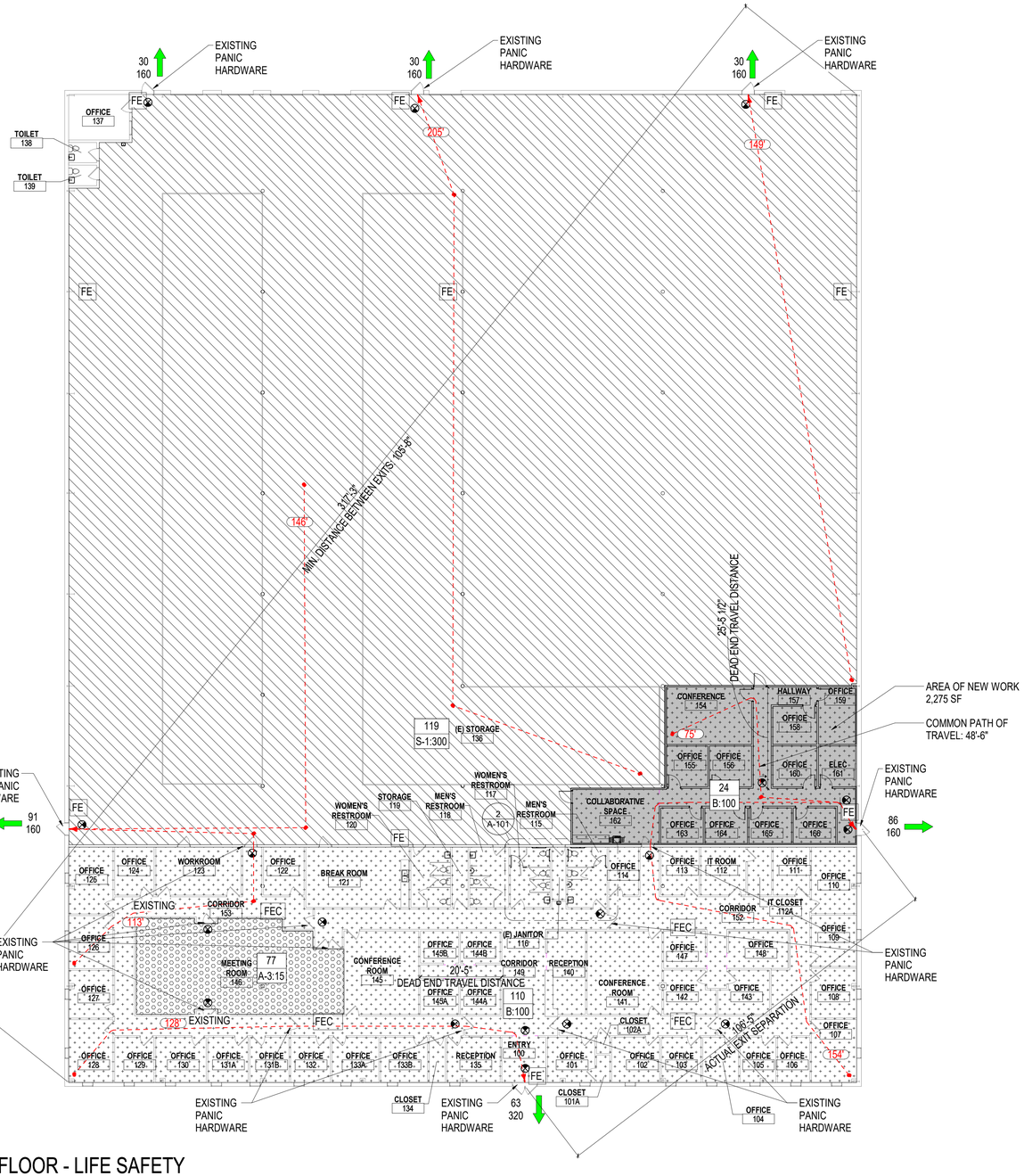
NORTH CAROLINA ARCHITECT JENNY M. PROFET 05.20.2026

SHEET TITLE
NC 2018
APPENDIX B

SHEET NUMBER
G-003

SHEET # 3 OF 21

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1 FIRST FLOOR - LIFE SAFETY

1/16" = 1'-0"

LIFE SAFETY SYMBOL LEGEND

- XX — MAXIMUM OCCUPANY
- X:XX — USE GROUP:OCCUPANT LOAD FACTOR
- NAME / 101 — ROOM OR AREA NAME AND NUMBER
- 0' — PRIMARY PATH OF TRAVEL
- PATH OF TRAVEL DISTANCE
- EXIT LIGHTING
- FEC FE — FIRE EXTINGUISHER (WALL MOUNTED HOOK)
- xx / xxx — EXIT DISCHARGE / ALLOWABLE DISCHARGE
- BUSINESS (B) OCCUPANCY GROUP (150 SF PER OCCUPANT)
- ASSEMBLY (A-3) OCCUPANCY GROUP (15 SF PER OCCUPANT)
- STORAGE (S-1) OCCUPANCY GROUP (300 SF PER OCCUPANT)

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

PLAN NORTH

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Harnett COUNTY NORTH CAROLINA

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DATE:	05/20/2026

NORTH CAROLINA ARCHITECT JENNY M. PROFFIT 05.20.2026

SHEET TITLE
LIFE SAFETY PLAN

SHEET NUMBER
G-004

SHEET # 4 OF 21

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DIVISION 1: GENERAL REQUIREMENTS

01.100 GENERAL NOTES AND CONDITIONS

01.101 THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH ALL OF THE DRAWINGS AND SPECIFICATIONS AND WHEREVER THE EXISTING CONDITIONS MAY HAVE A BEARING ON THE EXPEDITIOUS PERFORMANCE OF HIS WORK. THE CONTRACTOR SHALL VISIT THE JOBSITE AND PERSONALLY INSPECT AND VERIFY THE SITE FOR COMPARISON WITH PERTINENT SECTIONS OF THE SPECIFICATIONS AND DRAWINGS. NO ALLOWANCE CAN BE SUBSEQUENTLY MADE TO THE CONTRACTOR FOR ERRORS DUE TO NEGLIGENCE ON FAILING TO ACQUAINT HIMSELF WITH THE EXISTING FIELD CONDITIONS.

01.102 ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ARCHITECT PRIOR TO COMMENCING WORK IN THAT AREA.

01.103 EACH SUBCONTRACTOR SHALL MAKE THE FIELD MEASUREMENTS NECESSARY FOR HIS OWN WORK AND BE RESPONSIBLE FOR ITS ACCURACY. ALSO, SHOULD ANY STRUCTURAL DIFFICULTIES PREVENT A SUBCONTRACTOR OR TRADESMAN FROM INSTALLING HIS MATERIAL PROPERLY, THE CONTRACTOR SHALL BE PROMPTLY NOTIFIED SO THAT THE ARCHITECT MAY BE CONSULTED HOW TO BEST RESOLVE THE DIFFICULTY. CUTTING INTO EXISTING CONSTRUCTION, IF NECESSARY, SHALL BE CAREFULLY AND NEATLY PERFORMED AND THEN BE PREPARED IN AN APPROVED MANNER. THE ARCHITECT SHALL BE CONSULTED IN ALL CASES WHERE CUTTING INTO A STRUCTURAL PORTION OF THE BUILDING IS EITHER DESIRABLE OR NECESSARY SO THAT SATISFACTORY REINFORCEMENT MAY BE PROVIDED.

01.104 THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED INSPECTIONS AND APPROVALS. THE CONTRACTOR'S BID SHALL INCLUDE ALL APPLICABLE FEDERAL, STATE, AND LOCAL TAXES.

01.105 THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT, TRANSPORTATION, AND SERVICES NECESSARY FOR COMPLETION OF THE WORK. ALL EQUIPMENT, WORK, AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE CODES AND GOVERNING REGULATIONS.

01.106 THE CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE TO PROTECT HIMSELF AND HOLD THE OWNER AND THE ARCHITECT HARMLESS FROM ANY AND ALL CLAIMS FOR DAMAGES FOR PERSONAL OR BODILY INJURY, DEATH, OR PROPERTY DAMAGE DURING THE COURSE OF THE CONTRACT.

01.107 THE CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL WORK WITH THE APPROVAL OF THE OWNER AND SHALL DISRUPT NORMAL OPERATIONS OF EXISTING FACILITIES AS LITTLE AS POSSIBLE. ALL DEMOLITION SHALL BE KEPT TO A MINIMUM AND DEBRIS SHALL BE REMOVED FROM THE SITE WITHOUT DELAY. ALL WORK AREAS SHALL BE EFFECTIVELY BLOCKED AND BARRICADED TO GIVE COMPLETE PROTECTION TO THE BUILDING OCCUPANTS. THE OWNER SHALL BE CONSULTED BEFORE ANY BUILDING SERVICES ARE TEMPORARILY CUT OFF. TEMPORARILY RE-ROUTE ANY UTILITIES OR BUILDING SERVICES REQUIRED BY THE OWNER FOR CONTINUOUS SERVICE.

01.108 ALL DUST, NOISE, AND ODORS CAUSED BY THE WORK SHALL BE KEPT TO A MINIMUM.

01.109 EXISTING LEGAL EXITS SHALL NOT BE BLOCKED AT ANY TIME.

01.110 THE OWNER WILL PROVIDE TEMPORARY POWER AND WATER AND SPACE FOR PARKING, MATERIALS STORAGE, AND CONTRACTOR-PROVIDED WORKMAN'S TOILET FACILITIES AT DESIGNATED LOCATIONS.

01.111 THE CONTRACTOR SHALL PROTECT ALL FINISHED WORK AND SURFACES FROM DAMAGE DURING THE COURSE OF THE

01.112 THE CONTRACTOR AND SUBCONTRACTORS SHALL ATTEND PERIODIC MEETINGS WITH THE OWNER AND ARCHITECT AS MAY BE REQUIRED DURING THE COURSE OF THE PROJECT.

01.113 PROVIDE TEMPORARY LIGHTING AT LOCATIONS AND LEVELS OF ADEQUACY AS REQUIRED TO COMPLETE THE WORK IN A SAFE AND PROPER MANNER.

01.114 THE CONTRACTOR SHALL PROVIDE FIRST-AID, FIRE PROTECTION, AND OTHER TEMPORARY SERVICES AS REQUIRED BY AND IN ACCORDANCE WITH LEGAL REQUIREMENTS.

01.115 THE CONTRACTOR SHALL PROVIDE AN APPROVED FIRE EXTINGUISHER IN THE PROJECT AREA, IN EACH STORAGE LOCATION, AND IN EACH CONSTRUCTION TRAILER.

01.116 SMOKING IN THE EXISTING FACILITY, INCLUDING THE PROJECT AREA IS PROHIBITED.

01.117 FLAMMABLE AND COMBUSTIBLE LIQUIDS SHALL ONLY BE USED IN WELL VENTILATED AREAS AND SHALL BE STORED IN AN AREA CLEAR OF VEGETATION, WASTE MATERIALS, AND COMBUSTIBLES. SMOKING SHALL BE PROHIBITED IN STORAGE AREAS AND SHALL BE POSTED AS SUCH. LEAKING STORAGE VESSELS SHALL BE IMMEDIATELY REPAIRED OR TAKEN OUT OF SERVICE. SPILLS SHALL BE CLEANED UP AND DISPOSED OF PROPERLY.

01.118 MATERIALS SUSCEPTIBLE TO SPONTANEOUS COMBUSTION SHALL BE STORED IN A LISTED DISPOSAL CONTAINER.

01.119 TEMPORARY HEATING EQUIPMENT SHALL BE LISTED AND LABELED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND THE INTERNATIONAL FUEL GAS CODE. SUCH EQUIPMENT SHALL BE INSTALLED, USED, AND MAINTAINED IN ACCORDANCE WITH THE LISTING.

01.120 INTERNAL-COMBUSTION POWERED EQUIPMENT SHALL BE USED SUCH THAT EXHAUST DOES NOT DISCHARGE AGAINST COMBUSTIBLE MATERIALS. EXHAUST SHALL BE PIPED TO THE BUILDING EXTERIOR. EQUIPMENT SHALL NOT BE REFUELED WHILE IN OPERATION.

01.121 PATCH AND MATCH FINISHES WHERE NEW WORK ABUTS EXISTING WHERE NECESSARY. PROVIDE NEW BACKING IN WALLS WHERE NEW EQUIPMENT AND/OR CABINETS ARE TO BE INSTALLED ON EXISTING WALLS.

01.200 SUBMITTALS

01.201 THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS OR OTHER SUBMITTALS FOR REVIEW BY THE ARCHITECT AND OWNER WHERE SPECIFICALLY CALLED FOR IN THE SPECIFICATIONS, OR WHERE IT IS OTHERWISE FOUND NECESSARY TO DESCRIBE A SECTION OF THE WORK WHICH IS PROPOSED BY THE CONTRACTOR THAT IS CONTRARY TO THE DRAWINGS.

01.202 THE CONTRACTOR SHALL SUBMIT ONE PDF COPY OF THE REQUIRED SUBMITTALS COMPLETE WITH SAMPLES OF FINISHES FOR THE ACTUAL MATERIALS PROPOSED FOR INSTALLATION IN THE PROJECT.

01.203 THE CONTRACTOR SHALL MAKE ALL NECESSARY PROJECT CLOSE-OUT SUBMITTALS.

01.300 SCHEDULE OF VALUES

01.301 THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF VALUES ON AIA DOCUMENT G-703 TO THE ARCHITECT AND THE OWNER AT LEAST SEVEN (7) DAYS PRIOR TO SUBMITTING THE FIRST APPLICATION FOR PAYMENT (AIA DOCUMENT G-702).

01.400 TESTING AND INSPECTION

01.401 THE OWNER WILL PROVIDE TESTING AND INSPECTION SERVICES FOR ALL WORK AS REQUIRED BY THE STATEMENT OF SPECIAL INSPECTIONS. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS SAMPLING, TESTING, AND INSPECTION AS REQUIRED FOR COMPLETION OF THE WORK.

01.402 IF ANY MATERIAL OR WORKMANSHIP SHOULD FAIL TO PASS A REQUIRED TEST OR INSPECTION, THE COST OF SUBSEQUENT AND ADDITIONAL TESTING OR INSPECTING FOR THE FAILED ITEM SHALL BE PAID BY THE OWNER IN WHICH SUCH ADDED COST SHALL BE DEDUCTED FROM THE CONTRACT PRICE.

01.403 THE ARCHITECT RESERVES THE RIGHT TO EXAMINE ANY WORK PERFORMED ON THE PROJECT AT ANY TIME TO DETERMINE THAT THE WORK IS BEING PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

01.500 TEMPORARY FACILITIES

01.501 THE CONTRACTOR SHALL PROVIDE TEMPORARY FACILITIES AND CONTROLS REQUIRED FOR THE PERFORMANCE OF THE WORK INCLUDING, BUT NOT LIMITED TO:

A. FIELD OFFICES AND STORAGE SHEDS.

B. SANITARY FACILITIES.

C. FIRST AID AND FIRE PROTECTION.

D. PROTECTION AND SPECIAL CONTROLS.

E. ENCLOSURES AND MISCELLANEOUS TEMPORARY CONSTRUCTION AIDS.

F. SECURITY.

01.502 EMERGENCY TELEPHONE SERVICES SHALL BE PROVIDED. THE STREET ADDRESS OF THE PROJECT AND THE EMERGENCY TELEPHONE NUMBER OF THE FIRE DEPARTMENT SHALL BE POSTED ADJACENT TO THE TELEPHONE.

01.600 SUBSTITUTIONS

01.601 THE ARCHITECT MAY CONSIDER WRITTEN REQUESTS FROM THE CONTRACTOR FOR SUBSTITUTIONS UNDER THE FOLLOWING CONDITIONS:

A. THE SPECIFIED PRODUCT IS DISCONTINUED.

B. INSUFFICIENT QUANTITY, EXCEPT THAT FAILURE TO AWARD SUBCONTRACT IN SUFFICIENT TIME, OR FAILURE TO PLACE ORDERS FOR PRODUCTS SO AS TO ENSURE DELIVERY WITHOUT DELAYING COMPLETION OF THE WORK WILL NOT ESTABLISH CAUSE FOR SUBSTITUTION.

C. DELAYS BEYOND CONTROL SUCH AS LABOR DISPUTES, STORMS, FIRE, OR ACTS OF GOD WHICH MAY PRECLUDE THE PROCUREMENT AND DELIVERY OF PRODUCTS FOR PURPOSES OF THE PROJECT.

D. OTHER REASONS THE ARCHITECT MAY DEEM AS JUSTIFYING THE CONTRACTOR IN SUCH ACTION.

01.602 SHOULD THE SERVICES OF THE ARCHITECT OR ENGINEER BE REQUIRED AS A RESULT OF ANY PROPOSED SUBSTITUTION, THE COST OF THESE SERVICES SHALL BE CONSIDERED IN THE REVIEW AND APPROVAL PROCESS. THE COST OF ADDITIONAL PROFESSIONAL SERVICES DUE TO PROPOSED SUBSTITUTIONS SHALL BE PAID BY THE GENERAL CONTRACTOR.

01.700 GUARANTEES

01.701 THE CONTRACTOR SHALL PROVIDE A BLANKET ONE (1) YEAR GUARANTEE ON ALL MATERIALS AND WORKMANSHIP FOR THE TOTAL SCOPE OF WORK WITH SEPARATE GUARANTEES FOR SPECIFIC TRADES/EQUIPMENT ITEMS, WITH THE NAMES OF LOCAL REPRESENTATIVES TO BE CONTACTED FOR SERVICE. OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE OWNER UPON COMMISSIONING OF EQUIPMENT/PROJECT CLOSEOUT.

01.800 AS-BUILT DRAWINGS

01.801 THE CONTRACTOR SHALL SUBMIT ONE (1) COMPLETE SET OF DRAWINGS OF THE PROJECT INDICATING ALL DIFFERENCES, CHANGES, AND THE ACTUAL LOCATION OF CONCEALED WORK AS INSTALLED IN THE PROJECT, AS THEY MAY DIFFER FROM THE CONTRACT DOCUMENTS.

01.900 PROJECT CLOSEOUT

01.901 UPON COMPLETION OF THE WORK, ALL WORK AREAS SHALL BE LEFT BROOM-CLEAN AND ALL DEBRIS SHALL BE REMOVED FROM THE SITE.

01.902 NOTIFY THE OWNER AND THE ARCHITECT WHEN THE WORK IS CONSIDERED COMPLETE AND READY FOR FINAL INSPECTION AND PUNCH LIST.

01.903 COORDINATE WITH AND ASSIST THE OWNER IN THE ACQUISITION OF ALL FINAL LOCAL AND STATE APPROVALS NECESSARY FOR OCCUPANCY.

01.904 MAKE AND COMPLETE ALL CORRECTIONS TO THE WORK CALLED FOR ON THE PROJECT PUNCH LIST IN AN EXPEDITIOUS FASHION.

01.905 DELIVER ALL REQUIRED FINAL CLOSEOUT SUBMITTALS, CERTIFICATIONS, GUARANTEES, AND OTHER DOCUMENTATION REQUIRED BY FEDERAL, STATE, AND LOCAL AUTHORITIES, AND BY THESE SPECIFICATIONS.

DIVISION 2: DEMOLITION

02.100 DEMOLITION

02.101 ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH GOVERNING LAWS, CODES, AND CONSTRUCTION SAFETY ORDERS.

02.102 TAKE SPECIAL CARE TO PROTECT ADJACENT CONSTRUCTION FROM DAMAGE. NEATLY CUT OPENINGS IN EXISTING CONSTRUCTION PLUMB, SQUARE, AND TRUE USING METHODS LEAST LIKELY TO CAUSE DISRUPTION, DAMAGE, OR EXPOSURE TO DEBRIS OUTSIDE THE PROJECT AREA.

02.103 DO NOT DISRUPT ANY PLUMBING, MECHANICAL, ELECTRICAL, OR COMMUNICATIONS SERVICES WITHOUT THE PRIOR APPROVAL OF THE OWNER. COORDINATE ALL TEMPORARY SERVICE SHUTDOWNS IN ADVANCE.

02.104 THE OWNER MAINTAINS THE FIRST RIGHT OF SALVAGE TO ALL ITEMS AND MATERIALS SCHEDULED FOR DEMOLITION. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER ANY ITEMS TO BE SALVAGED PRIOR TO REMOVAL. SALVAGED ITEMS SHALL BE CAREFULLY REMOVED AND TURNED OVER TO THE OWNER IN PRE-REMOVAL CONDITION. ALL ITEMS OR MATERIALS NOT CLAIMED BY THE OWNER BECOME THE PROPERTY OF THE CONTRACTOR UPON REMOVAL FROM THE INSTALLED LOCATION. DEMOLISHED MATERIALS AND DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF IN A LEGAL MANNER ON A DAILY BASIS.

02.105 DEMOLITION DRAWINGS AND NOTES DO NOT NECESSARILY DESCRIBE THE EXACT EXTENT OF ALL DEMOLITION REQUIRED. THE CONTRACTOR SHALL REMOVE OR RELOCATE EXISTING ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL WORK THAT IS NECESSARY TO ALLOW FOR PLACEMENT OF THE NEW WORK IN ACCORDANCE WITH THE APPROVED PLANS.

02.106 REMOVE EXISTING MATERIALS AND ASSEMBLIES AS DIRECTED ON THE CONTRACT DOCUMENTS. PERFORM ADDITIONAL PLUMBING, MECHANICAL, AND ELECTRICAL DEMOLITION, CUTTING AND CAPPING, AS REQUIRED TO ACCOMMODATE NEW WORK.

02.107 PROVIDE AND INSTALL TEMPORARY DUST BARRIERS AS REQUIRED. SUBMIT DESIGN TO ARCHITECT FOR APPROVAL.

02.108 THE USE OF EXPLOSIVES IS PROHIBITED.

DIVISION 6: WOOD AND PLASTICS

06.100 ROUGH CARPENTRY

06.102 PROVIDE AND INSTALL WOOD BUCKS, BLOCKING, SHIMS, ETC. AND OTHER MISCELLANEOUS WOOD ITEMS REQUIRED TO COMPLETE THE WORK.

06.200 FINISH CARPENTRY

06.201 PROVIDE AND INSTALL TRIM WORK AND OTHER INCIDENTAL FINISHED CARPENTRY AND MATERIALS REQUIRED TO COMPLETE THE WORK.

06.202 UNLESS OTHERWISE NOTED, ALL INTERIOR WOOD TRIM AND MOLDINGS SHALL BE CLEAR, FINGER-JOINTED PINE WITH PAINTED FINISH. ALL JOINTS IN TRIM SHALL OCCUR ONLY AT CONNECTIONS. ALL NAILS AND SCREWS SHALL BE SET. FILL ALL NAIL HOLES, SAND SMOOTH AND FINISH.

06.300 CUSTOM CASEWORK

06.301 ALL CASEWORK SHALL BE HIGH-PRESSURE PLASTIC LAMINATE-COVERED WOOD CASEWORK, FLUSH OVERLAY STYLE, "CUSTOM GRADE" PER THE W.I.C. MANUAL OF MILLWORK. PROVIDE MATCHING CLOSURE PANELS FOR WALL AND TALL CABINETS. LAMINATES SHALL BE GRADE 10 (HGS), COLOR AND PATTERN AS SELECTED BY THE ARCHITECT. CABINET INTERIORS AND SEMI-EXPOSED AREAS SHALL BE WHITE MELAMINE.

06.302 ALL CABINET HARDWARE SHALL BE HEAVY DUTY TYPE, OR EQUIVALENT AND SHALL CONFORM TO ANSI/BHMA A156.9. CABINET DOORS SHALL BE EQUIPPED WITH 120 DEG. CONCEALED CLIP HINGES. ALL CABINET HARDWARE SHALL HAVE A US26D FINISH, UNLESS OTHERWISE NOTED.

1. HINGES: B01602 (BLUM)
2. CATCHES: B03171
3. PULLS: WIRE PULLS (31/2" CENTERS)
4. DRAWER GLIDES: B05091 (BLUM)
5. SHELF STANDARDS: B04071 (WHITE)
6. SHELF RESTS: B04091 (WHITE)

06.303 COUNTERTOPS SHALL BE HIGH-PRESSURE PLASTIC LAMINATE OVER HARDWOOD PLYWOOD SUBSTRATE. COUNTERTOPS SHALL BE FULLY FORMED, SQUARE EDGE TYPE WITH 4" HIGH BACK AND SIDE SPLASHES. LAMINATE SHALL BE GRADE 10 (HGS). COLOR AND PATTERN SHALL BE SELECTED BY ARCHITECT.

DIVISION 7: THERMAL AND MOISTURE PROTECTION

07.600 SEALANTS

07.601 INTERIOR SEALANTS SHALL CONFORM TO ASTM C834, WHITE, PAINTABLE.

07.602 PROVIDE AND INSTALL ANY MISCELLANEOUS CAULKING AND SEALANTS AS REQUIRED TO COMPLETE THE WORK.

DIVISION 8: DOORS AND WINDOWS

08.100 HOLLOW METAL DOORS AND FRAMES

08.101 HOLLOW METAL FRAMES SHALL CONFORM TO SDI-100, WELDED TYPE, FACTORY PRIMED FOR FIELD FINISHING IN ACCORDANCE WITH SECTION 09900. PROVIDE GALVANIZED FRAMES AT EXTERIOR LOCATIONS OR AS INDICATED ON PLANS. FRAMES SHALL BE MINIMUM 16 GAUGE TYPICAL AND MINIMUM 14 GAUGE FOR OPENINGS OVER 48" WIDE.

08.102 INSTALL FRAMES PER SDI 105 UNLESS OTHERWISE INDICATED. PROVIDE FRAME ANCHORS SUITABLE FOR THE WALL CONSTRUCTION IN WHICH THE FRAME IS TO BE INSTALLED.

08.200 WOOD DOORS

08.201 SOLID CORE FLUSH WOOD DOORS SHALL CONFORM TO NWWDA I.S.1-A, SIZE AND THICKNESS AS INDICATED ON DRAWINGS. HAVE A FACE VENEER OF PREMIUM GRADE WHITE BIRCH WITH MATCHING EDGES. DOORS SHALL BE PRE-FITTED AND FACTORY PREPPED FOR SPECIFIED HARDWARE. SEAL TOP AND BOTTOM EDGES.

08.600 DOOR HARDWARE

08.601 DOOR HARDWARE SHALL CONFORM TO ANSI/BHMA A156. ALL HARDWARE SHALL HAVE A US 26D FINISH, UNLESS OTHERWISE NOTED. PROVIDE HARDWARE EQUAL TO THE FOLLOWING:

1. HINGES: MCKINNEY T4B3786 4½ X 4½.
2. LOCKSETS (INTERIOR): STANDARD DUTY COMMERCIAL CYLINDER LOCKSET TO MATCH EXISTING. CORES WILL BE KEYED BY THE OWNER.
3. CLOSERS: C02021
4. WALL STOP: L12251
5. DOOR SILENCERS: (3) L03011
6. ELECTRONIC STRIKE:

08.602 HARDWARE SETS

#1 – HINGES, ENTRY LOCKSET, WALL STOP, SILENCERS

#2 – HINGES, STOREROOM LOCKSET, CLOSER, WALL STOP, SILENCERS

#3 – HINGES, PASSAGE LOCKSET, CLOSER, SILENCERS, ELECTRONIC STRIKE, CARD READER (PROVIDED BY OWNER)

#4 – PASSAGE LOCKSET (REMOVE CARD READER, ALL OTHER EXISTING TO REMAIN)

DIVISION 9: FINISHES

09.100 GYPSUM BOARD SYSTEMS

09.101 LIGHT GAUGE STEEL STUDS AND TRACKS SHALL CONFORM TO ASTM C645. STUDS SHALL BE C-SHAPED, ROLL-FORMED STEEL FROM G40 HOT DIP GALVANIZED COATED SHEET WITH A MINIMUM UNCOATED DESIGN THICKNESS OF 20 GAUGE. TRACKS SHALL BE UNPUNCHED WITH A MINIMUM 1" FLANGE.

09.102 ASTM C36, 48" WIDE BOARDS BY MAXIMUM PRACTICABLE LENGTH WITH TAPERED EDGES AND SQUARE-CUT ENDS, THICKNESS AS SHOWN ON PLANS. PROVIDE MOISTURE RESISTANT GYPSUM BOARD IN WET LOCATIONS AND AS INDICATED. PROVIDE TYPE "X" GYPSUM BOARD IN FIRE RATED ASSEMBLIES.

09.103 ALL GYPSUM BOARD PRODUCTS SHALL BE FASTENED TO FRAMING WITH SCREWS CONFORMING TO ASTM C1002. SCREWS SHALL BE BUGLE-HEAD, SELF-DRILLING, SELF-TAPPING FOR STEEL, TYPE W FOR WOOD FRAMING.

09.104 PROVIDE ALL GYPSUM BOARD ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION INCLUDING, BUT NOT LIMITED TO, CORNER BEAD AND CASING BEAD.

09.105 FINISH JOINTS AND SCREW-HEADS WITH ALL-PURPOSE JOINT COMPOUND WITH JOINT TAPE CONFORMING TO ASTM C475 AT PANEL JOINTS AND INSIDE CORNERS. FINISHED GYPSUM BOARD SURFACES SHALL BE FINISHED TO LEVEL 5 IN ACCORDANCE WITH ASTM C840. UNFINISHED GYPSUM BOARD SURFACES SHALL BE LEVEL 1 AND SHALL INCLUDE THE COVERING OF SCREW HEADS.

09.200 LAY-IN TILE CEILINGS

09.201 ACOUSTICAL UNITS: ASTM E1264, CLASS A. SQUARE EDGE, 24" X 24", FINE FISSURED, WITH FACTORY APPLIED STANDARD FINISH (WHITE).

09.202 SUSPENSION SYSTEM: ASTM C635, HEAVY DUTY, 15/16" WIDE MAIN RUNNERS AND CROSS TEES. PROVIDE FACTORY-APPLIED BAKED ENAMEL FINISH (WHITE). PROVIDE MATCHING WALL ANGLE AT PERIMETER AND AT PENETRATIONS.

09.203 HANGER WIRE SHALL BE 12 GAUGE GALVANIZED STEEL WIRE ATTACHED TO BUILDING STRUCTURE TO SUPPORT A MINIMUM 300 POUND VERTICAL LOAD WITHOUT FAILURE. HANGER WIRES SHALL BE VERTICAL. WHERE SPLAYING IS REQUIRED, BRACING OR COUNTER-SPLAYING IS REQUIRED TO MAINTAIN THE EQUILIBRIUM OF THE SUSPENSION SYSTEM.

09.204 ACCESS PANELS: WHERE ABOVE-CEILING ACCESS IS REQUIRED PROVIDE ACCESS PANELS IN THE GRID SYSTEM CONSISTING OF (2) ADJACENT CEILING TILES AND A REMOVABLE CROSS TEE.

09.300 RESILIENT TILE FLOORING

09.301 UNDERLAYMENT: POLYMER MODIFIED CEMENT-BASED, SELF LEVELING. APPLY TO PROPERLY CLEANED AND PRIMED SURFACE.

09.302 LUXURY VINYL TILE: ASTM F1700, CLASS III PRINTED FILM VINYL PLANK – TYPE B (EMBOSSED), 7" X 48" X 2.5mm. COLOR SHALL BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD PALETTE.

09.303 WALL BASE: RUBBER, 4" HIGH X 1/8" THICK, COVED. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD PALETTE.

09.400 PAINTS AND COATINGS

09.401 PAINTING SHALL PROVIDE FULL HIDE AND COVERAGE IN CONSISTENT AND UNIFORM FASHION, WITHOUT RUNS, DRIPS, OR HOLIDAYS. ALL MATERIALS SHALL BE USED WITHOUT THINNING, UNLESS OTHERWISE NOTED. ALL PAINT SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS FOR THE PARTICULAR SURFACES. PROVIDE MINIMUM TWO (2) COATS FINISH OVER ONE (1) COAT COMPATIBLE PRIMER. FINISH THE FOLLOWING EXPOSED SURFACES INCLUDING, BUT NOT LIMITED TO, GYPSUM BOARD WALLS AND CEILINGS, HOLLOW METAL DOORS AND FRAMES, TOP AND BOTTOM EDGES OF WOOD DOORS, TRIM, AND CABINET BACKS.

09.402 PROVIDE PRIME COAT PLUS TWO (2) FINISH COATS OF THE FOLLOWING PRODUCT ON THE SURFACES LISTED:

SURFACE MATERIAL	FINISH
GALVANIZED METAL	LATEX (SEMI-GLOSS)
FERROUS METAL	ALKYD/OIL (SEMI-GLOSS)
GYPSUM BOARD, PLASTER (TYPICAL)	LATEX (EGGHSELL)
GYP. BD., PLASTER (WET LOCATION)	LATEX (SEMI-GLOSS)
WOOD (OPAQUE)	ALKYD/OIL (SEMI-GLOSS)

09.500 CARPET

09.501 MODULAR CARPET TILE : 24"X24", TUFTED, TEXTURED PATTERN LOOP 16 OZ/YD, SOLUTION DYED. COLOR SHALL BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD PALETTE.

DIVISION 10: SPECIALTIES

10.200 TOILET ACCESSORIES

10.201 PROVIDE TOILET ACCESSORIES AS SHOWN ON THE DRAWINGS. EACH ACCESSORY ITEM SHALL BE FABRICATED OF TYPE 304 STAINLESS STEEL AND SHALL HAVE A NO. 4 SATIN FINISH. ACCESSORIES SHALL BE FURNISHED WITH THE NECESSARY MOUNTING PLATES AND HARDWARE. REQUIRED BLOCKING OR BACKING FOR THE MOUNTING OF ACCESSORIES SHALL BE PROVIDED PER SPECIFICATIONS.

10.300 TOILET PARTITIONS

10.301 RECONFIGURE EXISTING TOILET PARTITIONS IF POSSIBLE

10.302 TOILET PARTITIONS SHALL BE POWDER COATED STEEL OVERHEAD BRACED 1" WITH STAINLESS STEEL HARDWARE, FULL-HEIGHT CONTINUOUS STAINLESS STEEL BRACKETS, EXTRUDED ALUMNUM HEADRAIL, CLASS A PER ASTM E84. MUST MEET REQUIREMENTS OF ANSI A117.1. HINGES SHALL BE SELF CLOSING ADJUSTABLE TO HOLD DOORS OPEN AT ANY ANGLE UP TO 90 DEGREES WITH EMERGENCY ACCESS BY LIFTING DOOR. PROVIDE COAT HOOK WITH RUBBER TIPPED STOP AT EACH DOOR.

10.400 FIRE PROTECTION SPECIALTIES

10.401 PROVIDE 10-POUND DRY-TYPE CHEMICAL ABC EXTINGUISHER AT EACH CABINET LOCATION.

10.500 ROOM IDENTIFICATION SIGNAGE

10.501 COMPLY WITH APPLICABLE ACCESSIBILITY PROVISIONS OF AUTHORITY HAVING JURISDICTION.

10.502 ROOM IDENTIFICATION SIGN: SIGN WITH SMOOTH, UNIFORM SURFACES WITH MESSAGE AND CHARACTERS HAVING UNIFORM FACES, SHARP CORNERS, AND PRECISELY FORMED LINES AND PROFILES.

10.503 MATCH TO EXISTING SIGNS

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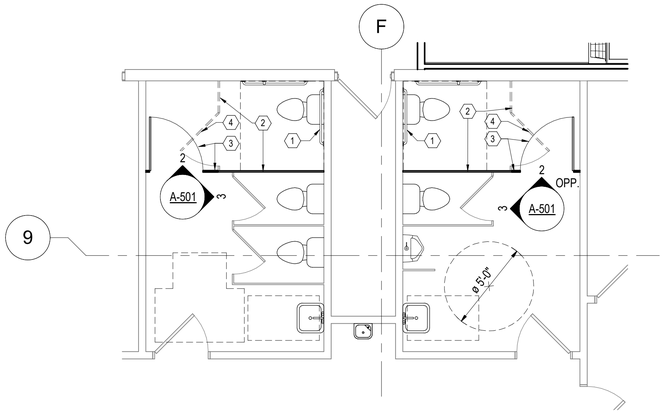
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JENNY M. PROFFITT
ARCHITECT
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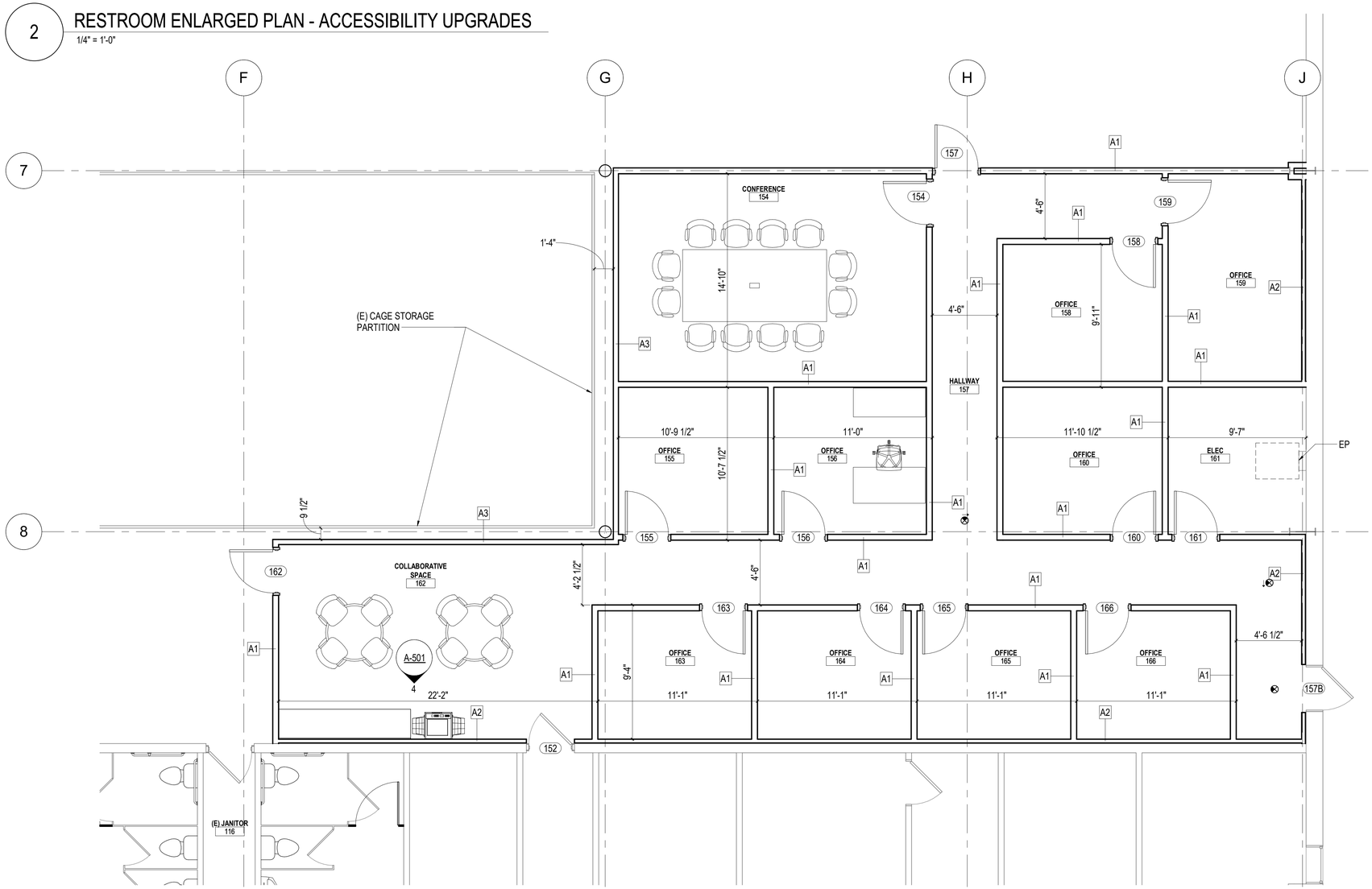


2 RESTROOM ENLARGED PLAN - ACCESSIBILITY UPGRADES

1/4" = 1'-0"

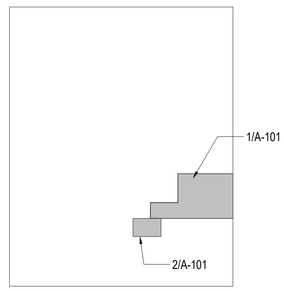
DEMOLITION OR NEW WORK KEYNOTES

KEY VALUE	KEYNOTE TEXT
1	REMOVE (E) GRAB BAR. INSTALL NEW 36" GRAB BAR. PATCH/REPAIR TILE WHERE (E) GRAB BAR HAS BEEN REMOVED.
2	REMOVE (E) PORTION OF TOILET PARTITION AND DOOR. PATCH WALL
3	PROVIDE NEW TOILET PARTITION AND DOOR. MATCH EXISTING TOILET PARTITION. BID ALTERNATE:REUSE EXISTING TOILET PARTITION IN NEW CONFIGURATION.
4	REMOVE (E) ROBE HOOK AND REINSTALL AT ACCESSIBLE HEIGHT MAX. 48" AFF ON NEW PARTITION DOOR.



1 NEW WORK FIRST FLOOR PLAN

1/4" = 1'-0"



KEYPLAN

1/64" = 1'-0"

0 2' 4' 8'

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

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Harnett COUNTY NORTH CAROLINA

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

PERMIT SET

IT OFFICE UPFIT

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	As indicated
DESIGNED:	JMP
DRAWN:	KAH
CHECKED:	JCO
DATE:	05/20/2026

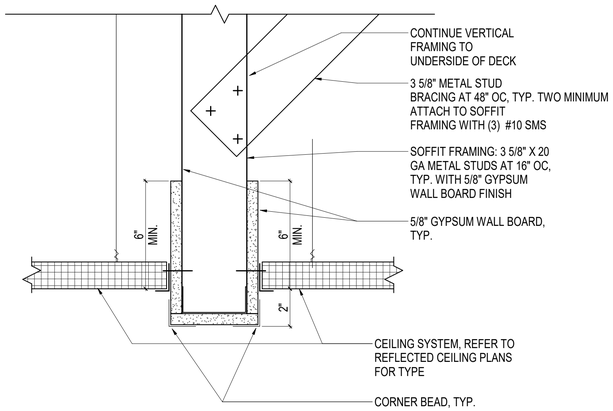
NORTH CAROLINA ARCHITECT JENNY M. PROFFIT 05.20.2026

SHEET TITLE
NEW WORK PLAN

SHEET NUMBER
A-101

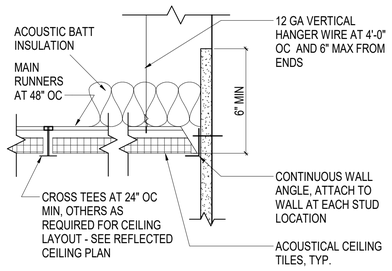
SHEET # 6 OF 21

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3 BULKHEAD DETAIL

3" = 1'-0"

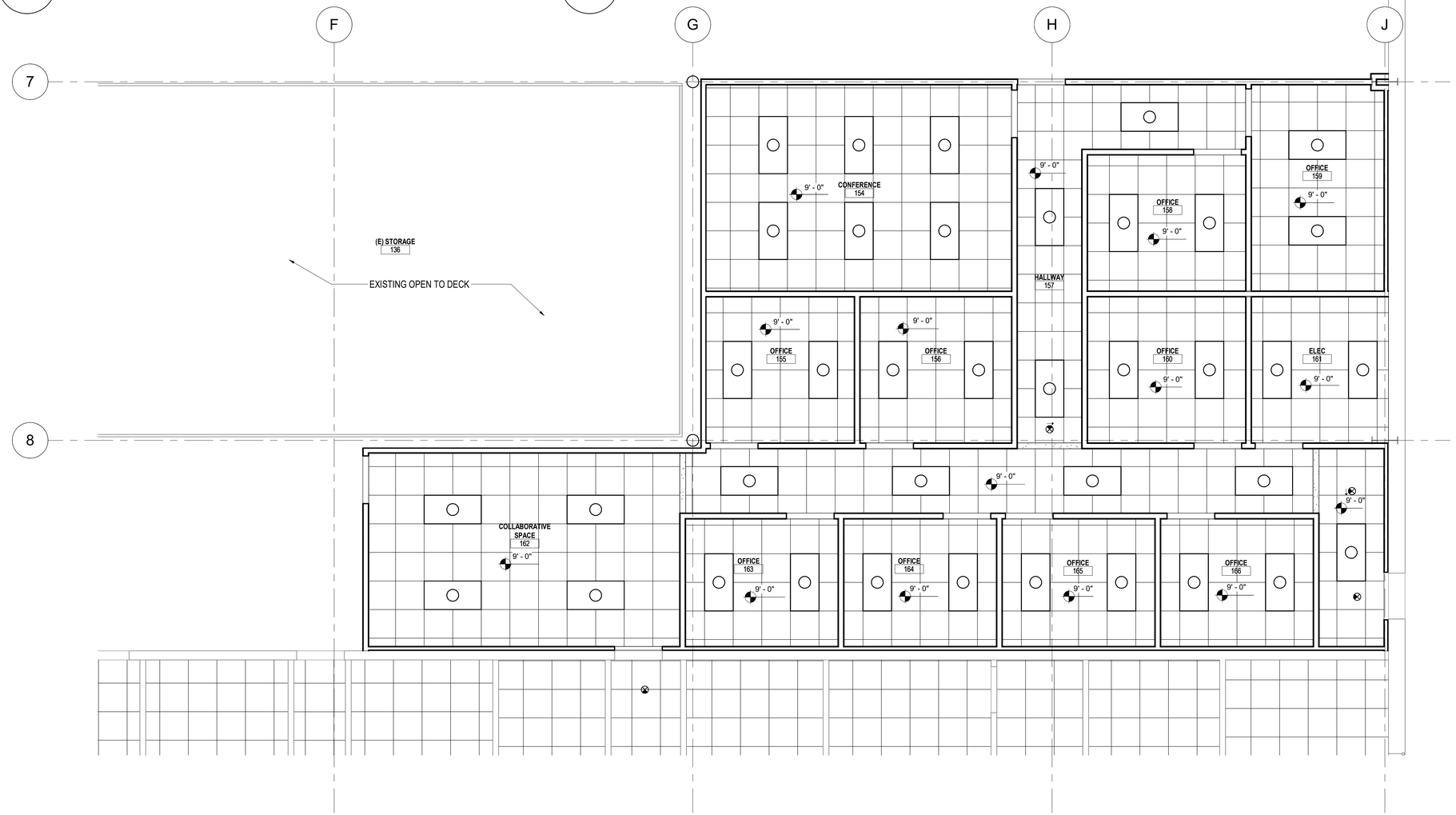


2 TYPICAL SUSPENDED ACOUSTIC TILE CEILING

3" = 1'-0"

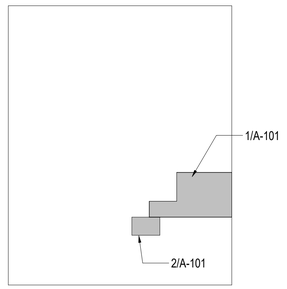
RCP LEGEND

- 2'X2' SUSPENDED ACOUSTICAL TILE CEILING
- RECESSED OR SUSPENDED LIGHT FIXTURES, SEE ELEC DRAWINGS
- EXIT LIGHTS, ARROW DESIGNATES THE PATH OF EGRESS
- 9' - 0" CEILING HEIGHT



1 REFLECTED CEILING PLAN

1/4" = 1'-0"



KEYPLAN

1/64" = 1'-0"

0 2' 4' 8'

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

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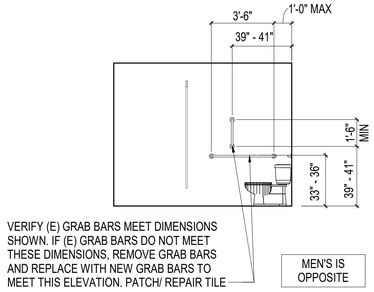
NORTH CAROLINA ARCHITECT JENNY M. PROFFIT 05.20.2026

SHEET TITLE
REFLECTED CEILING PLAN

SHEET NUMBER
A-102

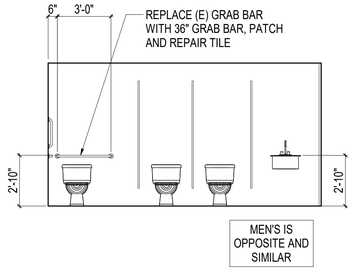
SHEET # 7 OF 21

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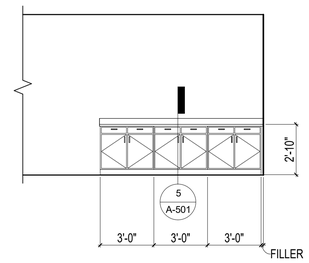
2 WOMEN RESTROOM - ELEV A

1/4" = 1'-0"



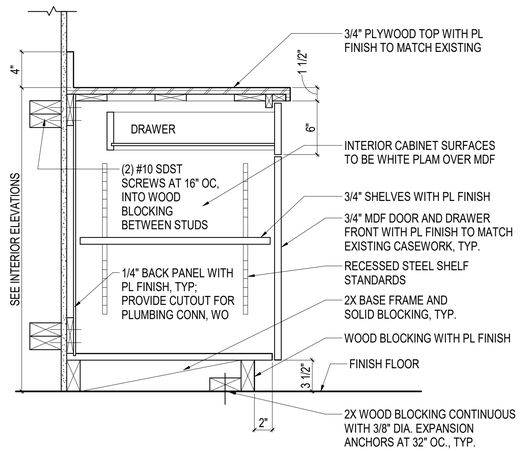
3 WOMEN RESTROOM - ELEV B

1/4" = 1'-0"



4 CASEWORK ELEVATION

1/4" = 1'-0"

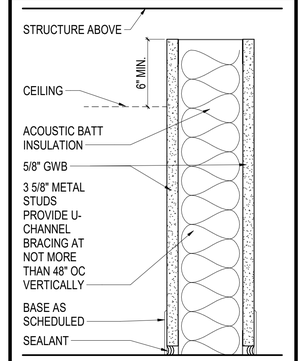


5 BASE CABINET - DOOR & DRAWER

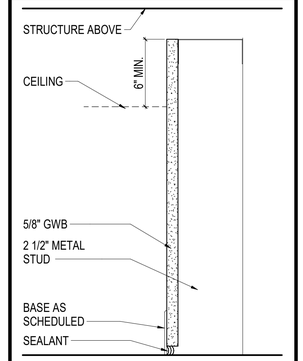
1 1/2" = 1'-0"

PARTITION TYPES

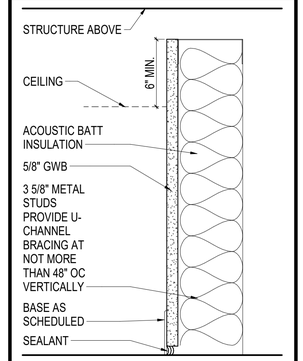
TYPE	UL	STC
A1	N/A	N/A



TYPE	UL	STC
A2	N/A	N/A



TYPE	UL	STC
A3	N/A	N/A



ASSEMBLY TYPE LEGEND:
A - METAL STUD
F - FURRING
M - MASONRY

1 PARTITION TYPES

3" = 1'-0"

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DESIGNED:	Designer
DRAWN:	Author
CHECKED:	Checker
DATE:	05/20/2026

NORTH CAROLINA
ARCHITECT
05.20.2026
JENNY M. PROFFIT

SHEET TITLE
PARTITION TYPES AND DETAILS

SHEET NUMBER
A-501

SHEET # 8 OF 21

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DOOR SCHEDULE

DOOR						FRAME							
MARK	TYPE	MATERIAL	SIZE			TYPE	MATERIAL	DETAIL			HARDWARE SET	FIRE RATING	Notes
			WIDTH	HEIGHT	THICKNESS			HEAD	JAMB	SILL			
152	EXISTING	EXISTING	3' - 0"	7' - 0"	1 3/4"	EXISTING	EXISTING	3	3	1	HW#4		EXISTING DOOR HARDWARE SET WILL BE REPLACED SEE DETAIL 3/A601
154	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
155	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
156	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
157	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#3		
157B	EXISTING	EXISTING	3' - 0"	7' - 0"	1 3/4"	EXISTING	EXISTING	3	3	1	EXISTING		EXISTING, SEE DETAIL 3/A601
158	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
159	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
160	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
161	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#2		
162	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#3		
163	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
164	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
165	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		
166	F	WD	3' - 0"	7' - 0"	1 3/4"	F1	HM	2	2	1	HW#1		

ABBREVIATIONS

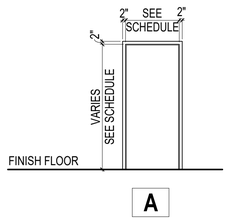
ACT	ACOUSTICAL TILE CEILING
CPT	CARPET
CONC	CONCRETE
(E)	EXISTING
GWB	GYPSUM WALLBOARD
HM	HOLLOW METAL
LVP	LUXURY VINYL PLANK
PR	PREFINISHED
RB	RUBBER BASE
WD	WOOD

FINISH SCHEDULE

ROOM NAME	ROOM NUMBER	FLOOR		EAST WALL		NORTH WALL		SOUTH WALL		WEST WALL		CEILING MATERIAL	CEILING	REMARKS
		FINISH	BASE	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH			
CONFERENCE	154	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	155	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	156	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
HALLWAY	157	LVP	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	158	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	159	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	160	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
ELEC	161	CONC	RB	(E)	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
COLLABORATIVE SPACE	162	LVP	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	163	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	164	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	165	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	
OFFICE	166	CPT	RB	GWB	P1	GWB	P1	GWB	P1	GWB	P1	ACT	PR	

COLOR SCHEDULE

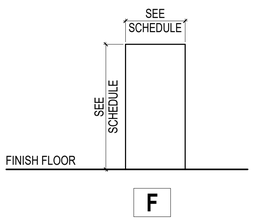
LABEL	PRODUCT TYPE	MANUFACTURER	STYLE	COLOR/PRODUCT#	REMARKS
ACOUSTICAL TILE CEILING					
ACT TILE	ACOUSTICAL TILE CEILING	ARMSTRONG	CIRRUS TEGULAR	WHITE	24" X 24" X 3/4"
ACT GRID	ACOUSTICAL TILE CEILING	ARMSTRONG	PRELUDE 15/16" GRID	WHITE	9/16" GRID
CARPET TILE					
CPT	CARPET TILE	MOHAWK GROUP	BT585 FLUX FOUNDATION	957 LEVI	24" X 24"
INTERIOR SIGNAGE					
	INTERIOR SIGNAGE	MATCH EXISTING	MATCH EXISTING	MATCH EXISTING BACKGROUND COLOR AND TEXT COLOR	SIGNAGE SHALL MEET ANSI GUIDELINES
LUXURY VINYL TILE					
LVT	LUXURY VINYL TILE	EF CONTRACT	WOODLANDS II	EFCW2012 HAZEL	
PAINT					
P1	PAINT	SHERWIN WILLIAMS		MATCH EXISTING WALL COLOR	FIELD WALL COLOR
P2	PAINT	SHERWIN WILLIAMS		MATCH EXISTING DOOR FRAME COLOR	DOOR FRAMES
PLASTIC LAMINATE CASEWORK					
PL1	PLASTIC LAMINATE CASEWORK			MATCH EXISTING	
PLASTIC LAMINATE COUNTERS					
SS1	PLASTIC LAMINATE COUNTERS			MATCH EXISTING	
RUBBER BASE					
RB	RUBBER BASE	TARKETT		MATCH EXISTING	
WOOD DOORS					
	WOOD DOORS			STAINED TO MATCH EXISTING OR PAINTED??	



A

FRAME TYPES

1/4" = 1'-0"

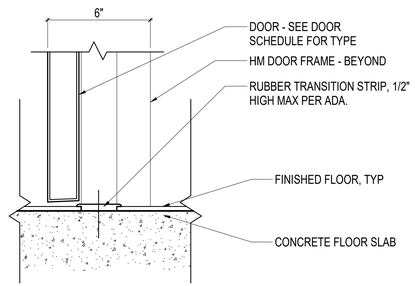


F

FLUSH

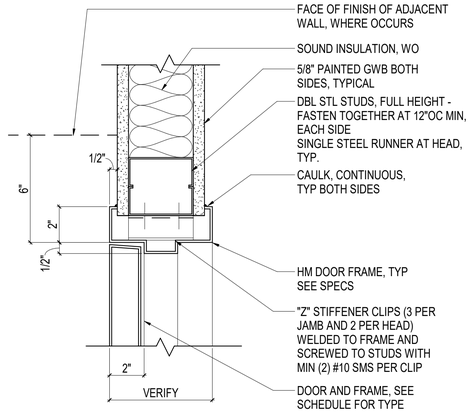
DOOR TYPES

1/4" = 1'-0"



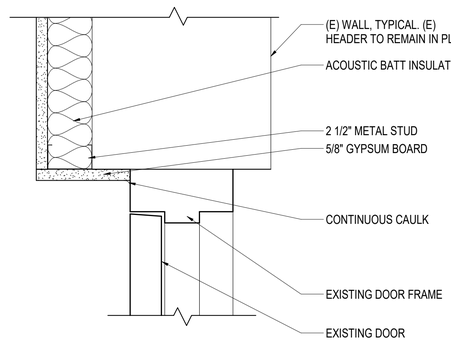
1 DOOR SILL

3" = 1'-0"



2 DOOR JAMB (HEAD SIM)

3" = 1'-0"



3 DOOR JAMB AT (E) WALL (HEAD SIM)

3" = 1'-0"

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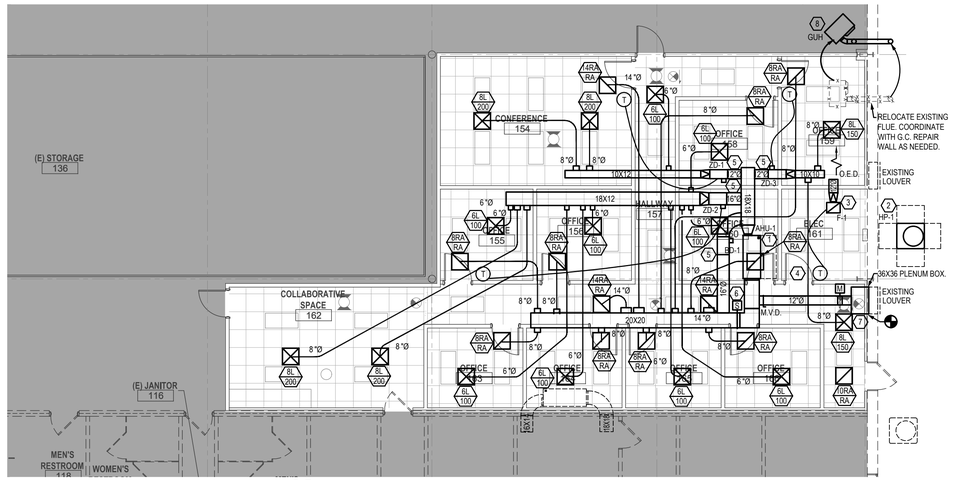
NORTH CAROLINA ARCHITECT 05.20.2026 JENNY M. PROFET

SHEET TITLE
DOOR SCHEDULE & FINISH SCHEDULE

SHEET NUMBER
A-601

SHEET # 9 OF 21

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1 PARTIAL FLOOR PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"

MECHANICAL KEYED NOTES

1. PROVIDE NEW AIR HANDLING UNIT ABOVE CEILING AS SHOWN. SEE SCHEDULE AND DETAIL. MAINTAIN ALL MANUFACTURER'S RECOMMENDED CLEARANCES. ROUTE REFRIGERANT LINES FROM AIR HANDLING UNIT TO NEW HEAT PUMP UNIT ON GROUND. FIELD VERIFY EXACT ROUTING OF LINES. PROVIDE PROTECTIVE COVERING ON ALL EXPOSED LINES. FIELD VERIFY EXACT ROUTING OF REFRIGERANT LINES. MAINTAIN MANUFACTURERS RECOMMENDED MAXIMUM REFRIGERANT LINE LENGTHS. ROUTE 3/8" INSULATED COPPER CONDENSATE LINE FROM CORRESPONDING CONDENSATE PUMP TO OUTSIDE WALL. FIELD VERIFY EXACT ROUTING OF CONDENSATE LINE.
2. PROVIDE NEW CONDENSING UNIT OUTSIDE ON GROUND. SEE SCHEDULE AND DETAIL. FIELD VERIFY EXACT LOCATION. MAINTAIN ALL MANUFACTURER'S RECOMMENDED CLEARANCES AND REFRIGERANT LINE LENGTHS.
3. PROVIDE NEW HEAT REMOVAL FAN IN CEILING AS SHOWN. SEE DETAIL. FIELD VERIFY EXACT LOCATION. MAINTAIN ALL MANUFACTURERS RECOMMENDED CLEARANCES.
4. G.C. TO PROVIDE 2'X2' LOUVER WITH 50% FREE AREA IN DOOR. SEE ARCHITECTURAL PLANS
5. PROVIDE NEW VVT DAMPER AS SHOWN. FIELD VERIFY EXACT LOCATION. CONNECT TO EXISTING BUILDING CONTROL SYSTEM. MAINTAIN ALL MANUFACTURERS RECOMMENDED CLEARANCES.
6. INSTALL SMOKE DETECTOR IN RETURN DUCT UPSTREAM OF O.A. CONNECTION TO SHUT DOWN UNIT ON ALARM. AIR HANDLING UNITS SHALL BE SHUT DOWN UPON DETECTION OF SMOKE OR ACTIVATION OF THE FIRE ALARM SYSTEM WITH A LIFE SAFETY RATED CONTROL SYSTEM OR DIRECTLY BY THE FIRE ALARM SYSTEM.
7. PROVIDE 12" INSULATED OUTSIDE AIR INTAKE TO EXISTING LOUVER WITH M.V.D. FIELD VERIFY EXACT ROUTING. OUTDOOR AIR INTAKE TO REMAIN A MIN. OF 10' FROM ALL EXHAUST AIR OPENINGS.
8. RELOCATE EXISTING GAS FIRE UNIT HEATER TO NEW LOCATION IN WAREHOUSE AS SHOWN. FIELD VERIFY EXACT LOCATION. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. EXTEND GAS PIPING AND RECONNECT.

MECHANICAL LEGEND

X / XXX	NEW 2'X2' CEILING DIFFUSER. SEE SCHEDULE.
X / RA	NEW CEILING RETURN GRILLE
	EXISTING 2'X2' CEILING DIFFUSER TO REMAIN. REBALANCE TO PROVIDE CFM SHOWN.
	EXISTING CEILING RETURN GRILLE TO REMAIN.
'Ø	NEW FLEX DUCT AND HARD DUCT COMBINATION. LENGTH ON PLAN IS DIAGRAMMATICAL ONLY. SEE DETAIL.
'Ø	EXISTING FLEX DUCT TO REMAIN. LENGTH ON PLAN IS DIAGRAMMATICAL ONLY.
'Ø	EXISTING FLEX DUCT AND HARD DUCT COMBINATION TO BE REMOVED BY THIS CONTRACTOR.
12X12	NEW SHEET METAL DUCTWORK. SEE DETAIL.
	EXISTING SHEET METAL DUCTWORK/EQUIPMENT TO REMAIN.
	EXISTING SHEET METAL DUCTWORK/EQUIPMENT TO BE REMOVED BY THIS CONTRACTOR.
S	NEW DUCT MOUNTED SMOKE DETECTOR. FURNISHED BY E.C. INSTALLED BY M.C.
M	NEW LOW-LEAKAGE CLASS 1 MOTORIZED DAMPER. NORMALLY CLOSED TO POWER OPEN UPON AHU-1 ACTIVATION.
T	NEW WALL MOUNTED THERMOSTAT.
T	EXISTING WALL MOUNTED THERMOSTAT TO REMAIN.
	CONNECT TO EXISTING DUCT AS SHOWN.
	INDICATES 2 HOUR RATED BARRIER
	INDICATES NON-RATED WALL TO DECK.
AHU-1	NEW AIR HANDLING UNIT MARK. SEE SCHEDULE.
F-1	NEW EXHAUST FAN MARK. SEE SCHEDULE.
HP-1	NEW HEAT PUMP MARK. SEE SCHEDULE.
GUH-1	EXISTING GAS FIRED UNIT HEATER.
O.E.D.	OPEN-END DUCT
M.V.D.	MANUAL VOLUME DAMPER
A / 100	DIFFUSER MARK / DIFFUSER CFM
	INDICATES AREA NOT IN CONTRACT

2018 APPENDIX B

BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

MECHANICAL DESIGN

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone - 4A
- winter dry bulb: 20.4 deg. F.
- summer dry bulb: 92.5 deg. F.

Interior design conditions
- winter dry bulb: 72 deg. F.
- summer dry bulb: 75 deg. F.
- relative humidity: 50%

Building heating load: see schedules

Building cooling load: see schedules

Mechanical Spacing Conditioning System

Unitary
- description of unit: see schedules
- heating efficiency: see schedules
- cooling efficiency: see schedules.
- size category of unit: see schedules

Boiler
- Size category, If oversized, state reason.: not applicable

Chiller
- Size category, If oversized, state reason.: not applicable

List equipment efficiencies: see mechanical schedules

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LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
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SCALE:	1/8" = 1'-0"
DESIGNED:	RBA
DRAWN:	RBA
CHECKED:	TTM
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL SEAL 51720 ENGINEER JAMES A. MERGENTHALER
05/20/2026

SHEET TITLE
PARTIAL FLOOR PLAN - MECHANICAL

SHEET NUMBER
M-101

SHEET # 10 OF 21

SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	O.A. CFM	REFRIGERANT TYPE	SUPPLY FAN			TOTAL HEAT (KW) / STAGES	ELECTRICAL			CONDENSATE DRAIN SIZE (INCH)	OPERATING WEIGHT (LBS)	NOTES
					SUPPLY FAN CFM	SUPPLY FAN E.S.P. (IN. W.G.)	SUPPLY FAN HP		MCA	MOCP	VOLTAGE			
AHU-1	TRANE	5TEM6D06	350	R-454B	2000	0.5	3/4	10.8 / 1	45	45	208/3	1"	190	1-7

NOTES:
1. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
2. PROVIDE SMOKE DETECTOR IN RETURN DUCT UPSTREAM OF O.A. CONNECTION TO SHUT DOWN UNIT ON ALARM. AIR HANDLING UNITS SHALL BE SHUT DOWN UPON DETECTION OF SMOKE OR ACTIVATION OF THE FIRE ALARM SYSTEM WITH A LIFE SAFETY RATED CONTROL SYSTEM OR DIRECTLY BY THE FIRE ALARM SYSTEM.
3. PROVIDE AUX. DRAIN PAN WITH FLOAT SWITCH TO SHUT DOWN UNIT ON OVERFLOW CONDITION.
4. PROVIDE FILTER SECTION FOR 1" THICK DISPOSABLE FILTER. ACCESS TO FILTER SHALL NOT REQUIRE A TOOL.
5. PROVIDE LONG LINE REFRIGERANT KIT.
6. PROVIDE LOW AMBIENT CONTROL KIT CAPABLE OF OPERATING DOWN TO 0°F.
7. PROVIDE ECM FAN MOTOR WITH VARIABLE SPEED CONTROL, ENHANCED DEHUMIDIFICATION, AND FACTORY THERMOSTAT/HUMIDISTAT.

SPLIT SYSTEM HEAT PUMP UNIT

MARK	MODEL	CAPACITY INFORMATION				ELECTRICAL			OPERATING WEIGHT (LBS)	NOTES
		TOTAL COOLING CAPACITY (MBH)	SEER / EER	TOTAL HEATING CAPACITY (MBH)	COP / HSPF	VOLTAGE	MCA	MOCP		
HP-1	5TWR4060A1	55.9	14.3 / 11.7	36.6	4.0 / 7.5	208/1	33	50	310	1-3

NOTES:
1. PROVIDE LONG LINE REFRIGERANT KIT.
2. PROVIDE LOW AMBIENT CONTROL KIT CAPABLE OF OPERATING DOWN TO 0°F.
3. OUTDOOR UNIT SHALL MATCH INDOOR UNIT AND BE PART OF AN AHRI RATED SPLIT SYSTEM.

CONDENSATE PUMP

MANUFACTURER	MODEL	FT. OF HEAD	UNIT ELECTRICAL		NOTES
			AMPS	VOLTAGE	
HARTELL	A2-X-1965	25'	3.5	120/1	1,2

NOTES:
1. PROVIDE WITH CHECK VALVE MOUNTED ON PUMP DISCHARGE.
2. MOUNT CONDENSATE PUMP ON WALL NEXT TO INDOOR UNIT IN PAN WITH FLOAT SWITCH. FLOAT SWITCH ACTIVATION TO SHUTDOWN FAN.

SEQUENCE OF OPERATION (TYPICAL FOR VVT CONTROLS)

APPLICATION:
A WALL-MOUNTED THERMOSTAT LOCATED IN EACH ZONE WILL SENSE LOAD REQUIREMENTS AND ACTIVATE THE CONTROL SEQUENCE TO ACCOMMODATE COOLING OR HEATING. LOAD REQUIREMENTS AND SOUND LEVEL ACCEPTABILITY GOVERN TERMINAL SIZING. THIS CONTROL PACKAGE PROVIDES THE FOLLOWING SEQUENCES OF OPERATIONS:

A. COOLING:
WHEN THE PRIMARY AIR SOURCE IS PROVIDING COOLING, AS DETECTED BY THE PRIMARY AIR SENSOR, REFER TO THE FLOW DIAGRAM (FIG.1).

1. 1-2 INDICATES THAT MAXIMUM FLOW IS ESTABLISHED BY THE USER-DEFINED MAXIMUM DAMPER POSITION UNTIL THE ZONE COMES UNDER CONTROL AT 2.
2. BEGINNING AT 2, THE FLOW IS REGULATED OVER A THROTTLING RANGE BY THE DAMPER UNTIL THE USER-DEFINED MINIMUM DAMPER POSITION IS REACHED AT 3.
3. 3-4 INDICATES THAT, SHOULD THE ZONE TEMPERATURE CONTINUE TO FALL, THE DAMPER WILL HOLD THE MINIMUM DAMPER POSITION.
4. IT MUST BE NOTED THAT THE MINIMUM DAMPER POSITION COULD BE SET TO ZERO BY THE USER. IN THIS CASE, THE DAMPER WILL HOLD A FULLY CLOSED POSITION IF THE ZONE TEMPERATURE CONTINUES TO FALL.

B. HEATING:
WHEN THE PRIMARY AIR SOURCE IS PROVIDING HEAT AS DETECTED BY THE PRIMARY AIR SENSOR, REFER TO THE FLOW DIAGRAM (FIG.1).
1. AT 6, THE MAXIMUM FLOW IS ESTABLISHED BY THE MAXIMUM DAMPER POSITION UNTIL THE ZONE COMES UNDER CONTROL AT 5.
2. BEGINNING AT 5, THE FLOW IS REGULATED OVER A THROTTLING RANGE BY THE DAMPER UNTIL THE MINIMUM DAMPER POSITION IS REACHED AT 4.
3. AT 4, THE MINIMUM DAMPER POSITION IS HELD AS LONG AS THE ZONE'S TEMPERATURE REMAINS ABOVE THE HEATING SET POINT.

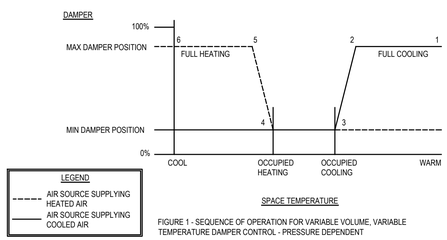


FIGURE 1 - SEQUENCE OF OPERATION FOR VARIABLE VOLUME, VARIABLE TEMPERATURE DAMPER CONTROL - PRESSURE DEPENDENT

C. UNOCCUPIED TIME PERIOD: (COOLING)
WHEN THE UNOCCUPIED PERIOD IS REACHED, THE USER-DEFINED OCCUPIED COOLING SET POINT IS RESET UPWARD TO A USER-DEFINED UNOCCUPIED COOLING SET POINT. THE DAMPER WILL THROTTLE IN THE SAME MANNER (AS PER A) DURING THE UNOCCUPIED PERIOD, USING THE UNOCCUPIED COOLING SET POINT.

D. UNOCCUPIED TIME PERIOD: (HEATING)
WHEN THE UNOCCUPIED PERIOD IS REACHED, THE USER-DEFINED OCCUPIED HEATING SET POINT IS RESET DOWNWARD TO A USER-DEFINED UNOCCUPIED HEATING SET POINT. THE DAMPER WILL OPERATE IN THE SAME MANNER (AS PER B) DURING THE UNOCCUPIED PERIOD, USING THE UNOCCUPIED HEATING SET POINT.

E. EQUIPMENT CONTROL: (COOLING, WHEN THIS PACKAGE IS CONNECTED TO VVT MONITOR THERMOSTAT AND COOLING EQUIPMENT)

1. WHEN THE REFERENCE ZONE'S (ZONE WITH THE MAXIMUM ERROR FROM SET POINT) TEMPERATURE RISES AT LEAST 1.5 DEGREES ABOVE ITS COOLING SET POINT, THE FAN IS STARTED IF NOT ALREADY OPERATING AND THE FIRST STAGE OF COOLING IS ENERGIZED. IF THE COOLING MODE LOCKOUT IS CONFIGURED, THEN THE OUTDOOR-AIR TEMPERATURE MUST BE ABOVE THE COOLING LOCKOUT SET POINT FOR COOLING TO OPERATE.

2. IF THE ZONE'S TEMPERATURE RISES TO AT LEAST 2.0 DEGREES ABOVE THE COOLING SET POINT, THE SECOND STAGE OF COOLING WILL BE ENERGIZED. IF TEMPERATURE TREND STAGING IS CONFIGURED, AND IF THE ZONE'S TEMPERATURE IS DECREASING TOWARD SET POINT, THE SECOND STAGE MAY NOT BE ACTIVATED.

3. IF AT ANY TIME THE TEMPERATURE OF THE SUPPLY AIR SENSED IN ANY ZONE OR BY THE BYPASS DAMPER FALLS BELOW THE USER-DEFINED SAFE OPERATING LIMIT OF THE EQUIPMENT, COOLING STAGES ARE DISABLED.

F. EQUIPMENT CONTROL: (HEATING, WHEN THIS PACKAGE IS CONNECTED TO A VVT MONITOR THERMOSTAT AND HEATING EQUIPMENT)

1. WHEN THE REFERENCE ZONE'S (ZONE WITH THE MAXIMUM ERROR FROM SET POINT) TEMPERATURE FALLS AT LEAST 1.5 DEGREES BELOW ITS HEATING SET POINT, THE FAN IS STARTED IF NOT ALREADY OPERATING AND THE FIRST STAGE OF HEATING IS ENERGIZED. IF THE HEATING MODE LOCKOUT IS CONFIGURED, THEN THE OUTDOOR-AIR TEMPERATURE MUST BE BELOW THE HEATING LOCKOUT SET POINT FOR HEATING TO OPERATE.

2. IF THE ZONE'S TEMPERATURE FALLS TO AT LEAST 2.0 DEGREES BELOW THE HEATING SET POINT, THE SECOND STAGE OF HEATING WILL BE ENERGIZED. IF TEMPERATURE TREND STAGING IS CONFIGURED, AND IF THE ZONE'S TEMPERATURE IS DECREASING TOWARD SET POINT, THE SECOND STAGE MAY NOT BE ACTIVATED.

3. IF AT ANY TIME THE TEMPERATURE OF THE SUPPLY AIR SENSED IN ANY ZONE OR BY THE BYPASS DAMPER RISES ABOVE THE USER-DEFINED SAFE OPERATING LIMIT OF THE EQUIPMENT, HEATING STAGES ARE DISABLED.

1. A DISCRETE FAN STATUS SENSOR (FIELD-SUPPLIED AND FIELD INSTALLED) MAY BE USED TO MONITOR THE OPERATION OF THE SYSTEM'S SUPPLY FAN. THE SWITCH STATUS WILL BE MONITORED AND DISPLAYED AS ON/OFF.

2. A DISCRETE FILTER STATUS SENSOR (FIELD-SUPPLIED AND FIELD INSTALLED) MAY BE USED TO MONITOR THE CONDITION OF THE FILTER IN THE AIR SOURCE EQUIPMENT. THE SWITCH STATUS WILL BE MONITORED AND DISPLAYED AS DIRTY/CLEAN.

VVT DAMPER SCHEDULE

MARK	MANUFACTURER	MODEL	MAX. CFM	INLET SIZE	MAX A.P.D. (IN. W.G.)	SECOND. E.S.P (IN. W.G.)	MAX. NC.	NOTES
ZD-1	CARRIER	OPNDR12ZC	500	12"Ø	0.2	-	-	1,2
ZD-2	CARRIER	OPNDR16ZC	1200	16"Ø	0.2	-	-	1,2
ZD-3	CARRIER	OPNDR12ZC	300	12"Ø	0.2	-	-	1,2
BD-1	CARRIER	OPNDR16ZC	1500	16"Ø	-	0.4	35	1,3

NOTES:
1. PROVIDE TRANSFORMER AT EACH DAMPER.
2. ZONE CONTROL DAMPER.
3. BYPASS DAMPER.

AIR DISTRIBUTION SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	NECK SIZE	DESCRIPTION	NOTES
6L	TITUS	TMS	ON DWG	6"Ø	2'X2' LOUVERED SUPPLY DIFFUSER	1,2,3
8L	TITUS	TMS	ON DWG	8"Ø	2'X2' LOUVERED SUPPLY DIFFUSER	1,2,3
8RA	TITUS	PAR	VARIES	8"Ø	2'X2' PERFORATED RETURN GRILLE	1,2,3
10RA	TITUS	PAR	VARIES	10"Ø	2'X2' PERFORATED RELIEF GRILLE WITH OPEN ENDED FLEX DUCT. SEE DETAIL.	1,2,3
14RA	TITUS	PAR	VARIES	14"Ø	2'X2' PERFORATED RETURN GRILLE	1,2,3

NOTES:
1. THIS CEILING IS NOT RATED.
2. PROVIDE TRANSITIONS AT NECK AS REQUIRED.
3. PROVIDE WITH FACTORY MOLDED INSULATION BLANKET.

HEAT REMOVAL FAN SCHEDULE

MARK	MANUFACTURER	MODEL	FAN DRIVE	CFM	E.S.P. (IN. W.G.)	FAN RPM	MCA	VOLTAGE	SERVICE	DESCRIPTION	NOTES
F-1	GREENHECK	CSP-A510-VG	DIRECT	500	0.2	1167	3.1	115/1	ELEC 161 ROOM	HEAT REMOVAL FAN	1,2

NOTES:
1. PROVIDE SOLID STATE SPEED CONTROLLER. MOUNT ADJACENT TO FAN ABOVE CEILING.
2. PROVIDE LINE VOLTAGE THERMOSTAT. SET TO 78°F (ADJ.) MAKES ON TEMPERATURE RISE.

REQUIRED OUTSIDE AIR CALCULATION

AHU-1 Data		Table 403.3			Breathing Zone O.A.			Zone Outdoor Air				System Outdoor Air		
AREA	AREA (SQFT.)	Rp (CFM/PERSON)	Pz ZONE POPULATION	Ra CFM/SQFT	Vbz-p	Vbz-a	TOTAL Vbz	Ez	Vozp	Voza	TOTAL Vozt	Vot	O.A. Required CFM	O.A. Supplied CFM
CONFERENCE ROOM AREA	620	5	20	0.06	100	37	137	0.8	125	47	172	172	172	350
OFFICE AREA	1580	5	9	0.06	45	95	140	0.8	56	119	175	175	175	

REFRIGERANT CALCULATIONS - ASHRAE 15-2022: SECTION 7.6

SPACE LOCATION	LARGEST SYSTEM IN SPACE	SPACE HEIGHT (ft)	SPACE AREA (ft2)	EFFECTIVE DISPERSAL VOLUME (Veff)	SYSTEM REFRIGERANT TYPE	REFRIGERANT CLASSIFICATION	SYSTEM REFRIGERANT CHARGE (lb)	CONCENTRATION FACTOR (CF)	LFL (lb/ft3)	OCCUPANCY ADJUSTMENT FACTOR (Focc)	EFFECTIVE DISPERSAL VOLUME CHARGE (lb) Eqn. 7-8	COMPLIANCE (YES/NO)
OFFICE SPACE	AHU-1/HP-1	9 FT	2200	19,800	R-454B	A2L	8.90	0.5	0.022	1	217.8	YES

ASHRAE 15-2022 COMPLIANCE METHOD

1. ALL SPLIT-SYSTEMS/RTU'S USING AN A2L REFRIGERANT, AS CLASSIFIED BY ASHRAE 34-2019, SHALL BE LISTED AND COMPLY WITH ASHRAE 15-2022 SECTION 7.6.2 AND SHIP WITH FACTORY INSTALLED REFRIGERANT DETECTION SYSTEM AND MITIGATION PER 7.6.2
2. FOLLOW ASHRAE 15-2022 SECTION 9 FOR INSTALLATION & CONSTRUCTION, INCLUDING PROTECTION MEASURES FOR REFRIGERANT LINE SET IN WALL AND CEILING CAVITIES.

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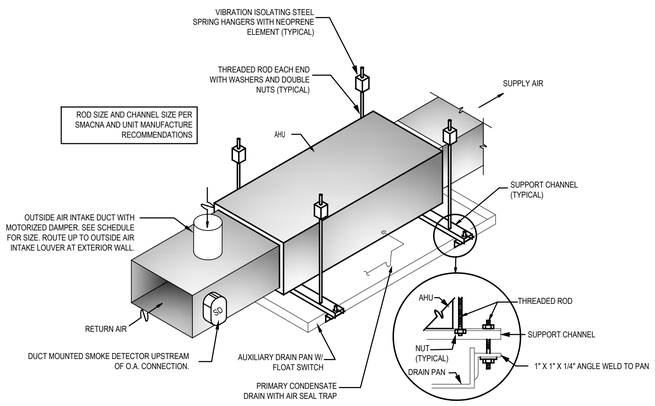
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CHECKED:	TTM
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 51720 TIMOTHY A. MERCENTHALER
05/20/2026

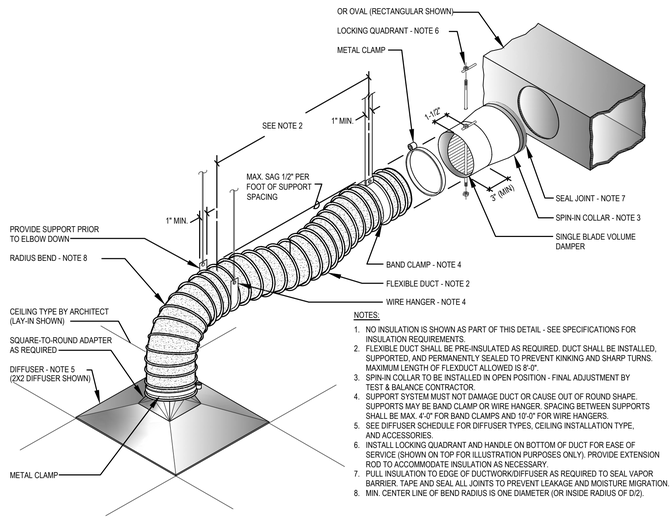
SHEET TITLE
SCHEDULES - MECHANICAL

SHEET NUMBER
M-201



AHU HANGER DETAIL ABOVE CEILING

1 SCALE: NONE

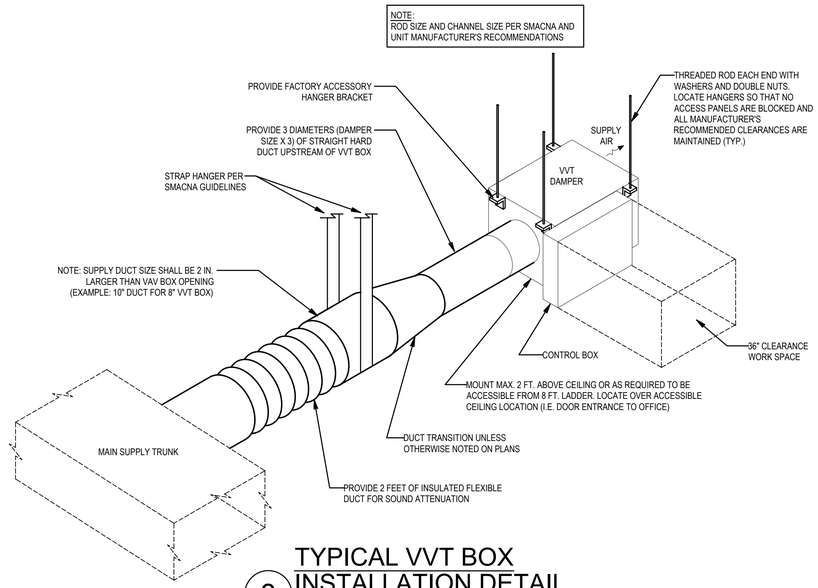


NOTES:

1. NO INSULATION IS SHOWN AS PART OF THIS DETAIL - SEE SPECIFICATIONS FOR INSULATION REQUIREMENTS.
2. FLEXIBLE DUCT SHALL BE PRE-INSULATED AS REQUIRED. DUCT SHALL BE INSTALLED, SUPPORTED, AND PERMANENTLY SEALED TO PREVENT KINKING AND SHARP TURNS. MAXIMUM LENGTH OF FLEXDUCT ALLOWED IS 8'-0".
3. SPIN-IN COLLAR TO BE INSTALLED IN OPEN POSITION - FINAL ADJUSTMENT BY TEST & BALANCE CONTRACTOR.
4. SUPPORT SYSTEM MUST NOT DAMAGE DUCT OR CAUSE OUT OF ROUND SHAPE. SUPPORTS MAY BE BAND CLAMP OR WIRE HANGER. SPACING BETWEEN SUPPORTS SHALL BE MAX. 4'-0" FOR BAND CLAMPS AND 10'-0" FOR WIRE HANGERS.
5. SEE DIFFUSER SCHEDULE FOR DIFFUSER TYPES, CEILING INSTALLATION TYPE, AND ACCESSORIES.
6. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASE OF SERVICE (SHOWN ON TOP FOR ILLUSTRATION PURPOSES ONLY). PROVIDE EXTENSION ROD TO ACCOMMODATE INSULATION AS NECESSARY.
7. PULL INSULATION TO EDGE OF DUCTWORK/DIFFUSER AS REQUIRED TO SEAL VAPOR BARRIER. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE AND MOISTURE MIGRATION.
8. MIN. CENTER LINE OF BEND RADIUS IS ONE DIAMETER (OR INSIDE RADIUS OF D/2).

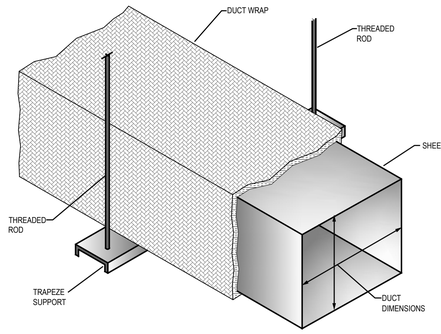
2'X2' SUPPLY DIFFUSER DETAIL

5 SCALE: NONE



TYPICAL VVT BOX INSTALLATION DETAIL

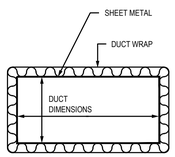
8 SCALE: NONE



NOTE: ALL DUCT DIMENSIONS SHOWN ON THESE DRAWINGS ARE INSIDE CLEAR. SEE SPECIFICATIONS FOR DUCT GAUGE AND INSULATION TYPE.

DUCT FABRICATION DETAIL

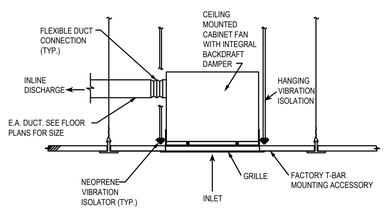
2 SCALE: NONE



NOTE: ALL DUCT DIMENSIONS SHOWN ON THESE DRAWINGS ARE INSIDE CLEAR. SEE SPECIFICATIONS FOR DUCT GAUGE AND INSULATION TYPE.

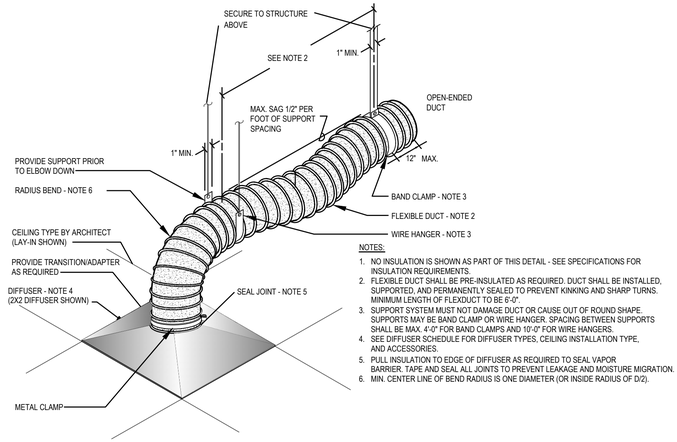
DUCT FABRICATION DETAIL

3 SCALE: NONE



NEW HEAT REMOVAL FAN DETAIL

4 SCALE: NONE

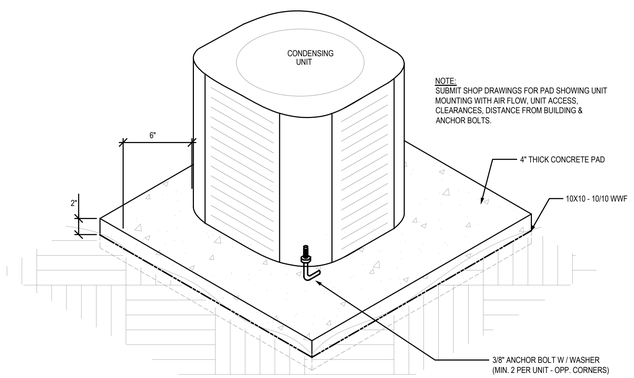


NOTES:

1. NO INSULATION IS SHOWN AS PART OF THIS DETAIL - SEE SPECIFICATIONS FOR INSULATION REQUIREMENTS.
2. FLEXIBLE DUCT SHALL BE PRE-INSULATED AS REQUIRED. DUCT SHALL BE INSTALLED, SUPPORTED, AND PERMANENTLY SEALED TO PREVENT KINKING AND SHARP TURNS. MINIMUM LENGTH OF FLEXDUCT TO BE 6'-0".
3. SUPPORT SYSTEM MUST NOT DAMAGE DUCT OR CAUSE OUT OF ROUND SHAPE. SUPPORTS MAY BE BAND CLAMP OR WIRE HANGER. SPACING BETWEEN SUPPORTS SHALL BE MAX. 4'-0" FOR BAND CLAMPS AND 10'-0" FOR WIRE HANGERS.
4. SEE DIFFUSER SCHEDULE FOR DIFFUSER TYPES, CEILING INSTALLATION TYPE, AND ACCESSORIES.
5. PULL INSULATION TO EDGE OF DIFFUSER AS REQUIRED TO SEAL VAPOR BARRIER. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE AND MOISTURE MIGRATION.
6. MIN. CENTER LINE OF BEND RADIUS IS ONE DIAMETER (OR INSIDE RADIUS OF D/2).

RELIEF GRILLE WITH FLEX DETAIL

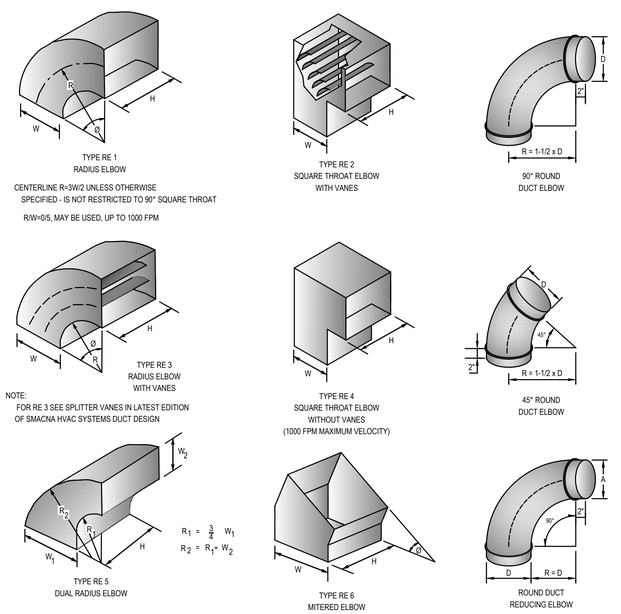
6 SCALE: NONE



NOTE:
SUBMIT SHOP DRAWINGS FOR PAD SHOWING UNIT MOUNTING WITH AIR FLOW, UNIT ACCESS, CLEARANCES, DISTANCE FROM BUILDING & ANCHOR BOLTS.

OUTDOOR CONDENSING UNIT CONCRETE PAD MOUNTING DETAIL

7 SCALE: NONE



NOTES:
BEAD, CROSSBREAK AND REINFORCE FLAT SURFACES AS IN STRAIGHT DUCT.

RECTANGULAR & ROUND SHEETMETAL ELBOWS

9 SCALE: NONE

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NORTH CAROLINA PROFESSIONAL SEAL 51720 ENGINEER MICHAEL J. MERGENTHALER
05/20/2026

SHEET TITLE
DETAILS - MECHANICAL

SHEET NUMBER
M-301

SHEET # 12 OF 21

MECHANICAL NOTES AND SPECIFICATIONS (PROVIDED UNDER THIS CONTRACT)

GENERAL REQUIREMENTS

GENERAL

1. AS USED HEREIN, THE FOLLOWING DEFINITIONS SHALL APPLY:

a. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL"
b. "FURNISH" SHALL MEAN "SUPPLY FOR USE OR INSTALLATION"
c. "INSTALL" SHALL MEAN "INSTALLATION OF EQUIPMENT AND MATERIALS FURNISHED"

2. THE HEATING AND AIR CONDITIONING CONTRACTOR (THE CONTRACTOR) SHALL PROVIDE ALL SPECIFIED AND MISCELLANEOUS MATERIAL AND LABOR AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

3. PRIOR TO BIDDING, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE HIMSELF/HERSELF WITH EXISTING CONDITIONS AND RESOLVE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND THESE PLANS WITH THE ENGINEER.

4. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY TO COMPLETE HIS/HER WORK UNDER THIS CONTRACT.

5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. WHERE TRADE NAMES ARE MENTIONED, THEY ARE GIVEN AS A REFERENCE TO THE QUALITY OF THE APPARATUS REQUIRED.

6. ALL MATERIALS AND EQUIPMENT SHALL BEAR THE U.L. LABEL OR EQUIVALENT WHERE APPLICABLE. OTHER MAKES MAY BE USED IF APPROVED IN WRITING BY THE ENGINEER.

7. THE CONTRACTOR SHALL SUBMIT A COMPLETE LIST OF EQUIPMENT, MATERIALS, AND METHODS PROPOSED FOR USE IN THIS CONTRACT TO THE ENGINEER WITHIN TEN DAYS FOLLOWING THE AWARD OF CONTRACT. IF SUCH LIST IS NOT SUBMITTED, THE CONTRACTOR SHALL SUPPLY THE MATERIALS AND EQUIPMENT SPECIFIED OR AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL CHECK SUBMITTAL DATA FOR COMPLIANCE PRIOR TO FORWARDING TO THE ENGINEER, AND SUBMITTAL SHALL BEAR EVIDENCE OF SAID REVIEW.

8. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL CODES AND RECOMMENDATIONS OF THE MANUFACTURERS. IF THERE IS A CONFLICT IN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED.

9. WORKMANSHIP SHALL BE FIRST-CLASS AND PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN.

10. DO NOT SCALE THESE DRAWINGS. REFER TO THE ARCHITECTURAL PLANS FOR DIMENSIONS.

11. ALL EQUIPMENT, DUCTWORK, AND PIPING SHOWN ON THESE DRAWINGS ARE STRICTLY DIAGRAMMATIC.

12. ALL DUCTWORK SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS (I.E. FREE AREA).

13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ITEMS FURNISHED UNDER THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE.

14. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR THE COMPLETE EXECUTION OF THIS CONTRACT. SUCH VARIANCES AND CONTINGENCIES SHALL BE ALLOWED FOR IN THE CONTRACTOR'S BID AND SHALL BE ACCOMPLISHED WITHOUT ADDITIONAL COST TO ANY OTHER PARTIES.

15. PRIOR TO ORDERING EQUIPMENT AND MATERIALS AND PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL:

a. COORDINATE HIS/HER WORK WITH ALL OTHER TRADES. ALL DRAWINGS INDICATE THE GENERAL ARRANGEMENT DESIRED. THE EXACT LOCATIONS AND DETAILS OF CONSTRUCTION MAY BE SUCH THAT VARIANCES ARE REQUIRED.

b. MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS, AND SHALL PROVIDE SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE INTENT AND MEANING OF THESE DRAWINGS AND SPECIFICATIONS. ANY CONFLICTS SHALL BE RESOLVED WITH THE ENGINEER.

c. VERIFY ALL ELECTRICAL CONNECTION REQUIREMENTS (LOCATIONS, VOLTAGE, WIRE SIZE, BREAKER SIZE, DISCONNECT SIZE) OF EQUIPMENT TO BE SUBMITTED WITH THE ELECTRICAL CONTRACTOR. VERIFY GAS SERVICE (PRESSURE, SIZE) AVAILABLE ON SITE AND COORDINATE WITH GAS COMPANY. NOTIFY ENGINEER OF ANY DISCREPENCIES AND OBTAIN WRITTEN DIRECTIVE FROM ENGINEER ON HOW TO PROCEED.

d. PROVIDE COORDINATION DRAWINGS: CONTRACTOR SHALL SHOW HOW HIS/HER EQUIPMENT IS TO BE LOCATED IN THE SPACE INDICATED. THIS DRAWING SHALL SHOW THE NEW AND EXISTING WORK OF ALL OTHER TRADES. THE CONTRACTOR SHALL CONTACT THE OTHER CONTRACTORS INVOLVED FOR DIMENSIONS, LOCATIONS, AND REQUIRED CLEARANCES OF THE EQUIPMENT THEY INTEND TO PROVIDE FOR THIS JOB. THE COORDINATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

e. PROVIDE COORDINATION DRAWINGS USING BUILDING INFORMATION MODELING (BIM) SOFTWARE: PROVIDE COORDINATION DRAWINGS FOR ALL TRADES (FIRE SPRINKLER, PLUMBING, MECHANICAL, ELECTRICAL, ETC.). ALL TRADE CONTRACTORS SHALL PARTICIPATE IN THIS COORDINATION PROCESS.

- THE COORDINATION DRAWINGS SHALL BE IN BIM FORMAT (REVIT OR AUTOCAD MEP).

1) THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING THE OVERALL BIM MODEL AND IMPORTING IN NAVISWORKS. EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR GENERATING THEIR WORK IN BIM AND PROVIDING IT TO THE MECHANICAL CONTRACTOR.

2) THE MECHANICAL CONTRACTOR SHALL SCHEDULE REOCCURRING COORDINATION MEETINGS WITH ALL SUBCONTRACTOR BIM MODELERS UNTIL THE MODEL IS COMPLETE.

3) THE MECHANICAL CONTRACTOR SHALL SUBMIT THE COMPLETED OVERALL BIM MODEL PLANS TO ALL SUBCONTRACTORS AND TO THE DESIGN TEAM FOR APPROVAL.

4) THE COMPLETED OVERALL BIM MODEL PLANS SHALL BE SUBMITTED WITH THE MAJOR EQUIPMENT SUBMITTALS.

5) THE COORDINATION DRAWINGS SHALL SHOW THE INSTALLED LOCATIONS OF ALL EQUIPMENT AND MATERIALS (INCLUDING DIMENSIONS AND REQUIRED SERVICE ACCESS CLEARANCES) FOR ALL TRADES, THROUGHOUT THE BUILDING.

6) PROVIDE FLOOR AND WALL SLEEVING PLAN TO GENERAL CONTRACTOR.

7) OBTAIN ENGINEER'S APPROVAL OF SUBMITTALS AND PROPOSED VARIANCES.

16. ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.MAINTAIN ALL MANUFACTURER'S RECOMMENDED SERVICE ACCESS CLEARANCES FOR ALL NEW AND EXISTING EQUIPMENT.

17. COORDINATE EXACT LOCATION OF ALL DIFFUSERS WITH LIGHTS, SPRINKLER HEADS, AND OTHER CEILING MOUNTED DEVICES. SEE THE REFLECTED CEILING PLAN.

18. OPEN ENDS OF PIPING SHALL BE CLOSED AND PROTECTED UNTIL FINAL CONNECTIONS ARE MADE. SUCH CLOSING SHALL BE MADE WITH FITTINGS WHICH CANNOT BE EASILY REMOVED. CAPS OR PLUGS SHALL BE REQUIRED AT ALL TIMES DURING CONSTRUCTION SO THAT NO PIPES ARE LEFT OPEN AT THE END OF ANY DAY'S WORK, EVEN THOUGH CONTINUATION IS EXPECTED THE NEXT DAY.

19. ALL PIPING AND DUCTWORK SHALL BE CONCEALED EXCEPT AS SHOWN IN UNFINISHED SPACES (I.E. SHELL, MECHANICAL ROOMS).

20. CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE HVAC SYSTEM AND EQUIPMENT SHALL BE DONE BY THIS CONTRACTOR. CUTTING SHALL BE DONE WITH CARE TO AVOID DAMAGE TO ADJACENT WORK. IN NO CASE SHALL CUTTING BE DONE WHICH, IN THE OPINION OF THE ENGINEER, WILL WEAKEN THE STRUCTURE OR DETRACT FROM THE APPEARANCE OF THE BUILDING. ANY DESTRUCTION, SOILING OR OTHER DAMAGE TO FINISHED SURFACES (LAY IN CEILINGS, WALLS, ETC.) SHALL BE REPAIRED OR REPLACED AS JUDGED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER. PATCHING SHALL MATCH EXISTING EXCEPT WHERE CONCEALED.

21. AT ALL PENTRATIONS OF FIRE AND/OR SMOKE RATED ASSEMBLIES, THE CONTRACTOR SHALL PROVIDE REQUIRED FIRE DAMPERS AND SMOKE DAMPERS IN DUCTWORK; RADIATION DAMPERS IN CEILINGS; FIRESTOPPING AND SMOKE SEALING OF DUCT, PIPING, AND CONDUIT; ALL USING U.L. APPROVED SYSTEMS, MATERIALS, EQUIPMENT, AND METHODS. REFER TO THESE PLANS AND ARCHITECTURAL PLANS FOR LOCATIONS OF RATED ASSEMBLIES.

22. PROVIDE ACCESS PANELS AS REQUIRED FOR SERVICE ACCESS TO EQUIPMENT, VALVES, DAMPERS, CONTROLS AND ANY OTHER ITEM INSTALLED UNDER THIS CONTRACT REQUIRING SERVICE ACCESS. ACCESS PANELS/DOORS SHALL BE RATED TO MATCH THE FIRE RATING OF THE ASSEMBLIES IN WHICH THEY ARE INSTALLED.

23. IDENTIFICATION & LABELING:

a. EQUIPMENT: PROVIDE NAMEPLATES, 3-LAYER BLACK PLASTIC WITH 1/2" HIGH WHITE ENGRAVED LETTERS (I.E. RTUS, AHUS, FANS, TERMINAL CONTROL UNITS, AND PANELS.)

b. ABOVE CEILING EQUIPMENT: PROVIDE CEILING LABELS ON T-BAR TO IDENTIFY LOCATION OF EQUIPMENT ABOVE ACCESSIBLE CEILINGS.

c. PIPING: PROVIDE FLEXIBLE PLASTIC PIPE MARKERS WITH FLOW DIRECTION ARROW AND NAME OF FLUID/GAS BEING CONVEYED (AND PRESSURE FOR GAS PIPING); COLOR TO MATCH EXISTING BUILDING STANDARD OR IF NEW BUILDING, USE ASME A13.1.

d. BURIED PIPING: INSTALL BRIGHT COLORED CONTIUOUSLY PRINTED PLASTIC RIBBON TAPE (6" WIDE, 4 MIL THICK) 6 TO 8 INCHES BELOW FINISHED GRADE. PROVIDE TRACER WIRE.

e. ISOLATION VALVES: PROVIDE 1.5" DIAMETER METAL TAGS AND CHAIN WITH TYPEWRITTEN VALVE TAG CHART.

24. PRESSURE & OPERATIONAL TESTING:

a. PRIOR TO ENCLOSING AND BACKFILLING PIPING, CONTRACTOR SHALL PERFORM TESTS ON ALL PIPING (REFRIGERANT, GAS, HYDRONIC) INSTALLED UNDER THIS CONTRACT IN ACCORDANCE WITH BUILDING CODES. HYRONIC PIPING SHALL BE TESTED AT 1.5X OPERATING PRESSURE OR 150 PSIG, WHICHEVER IS GREATER, FOR ONE HOUR WITH NO REDUCTION IN PRESSURE. VISUAL INSPECTION ALONG LENGTH OF PIPE IS ALSO REQUIRED.

b. THE CONTRACTOR SHALL VERIFY THE OPERATION OF ALL MECHANICAL EQUIPMENT FURNISHED AND ALL EXISTING MECHANICAL EQUIPMENT RELOCATED, MODIFIED, REPROGRAMMED, OR REQUIRES BALANCING.

c. THE CONTRACTOR SHALL VERIFY THE OPERATION OF ALL EXISTING MECHANICAL EQUIPMENT IN THE AREA OF WORK.

- *GUIDANCE: DOES UNTOUCHED EQUIPMENT IN THE AREA OF WORK NEED TO BE VERIFIED? THIS NEEDS TO BE ASKED UP FRONT. FOR EXAMPLE, OLD EQUIPMENT LIKE VAV BOXES OR RTUS MIGHT BENEFIT CLIENT TO MAKE SURE THEY ARE OPERATIONAL WHEN TENANT MOVES IN. SUGGEST INDICATING SPECIFIC EQUIPMENT ON PLANS.*

d. VERIFY THAT EQUIPMENT FOLLOWS SPECIFIED CONTROL SEQUENCES OF OPERATION BY TESTING THE MODES OF OPERATION, INCLUDING OCCUPIED/UNOCCUPIED SCHEDULES, SETPOINTS, HEATING, COOLING, DEHUMIDIFICATION, INTERLOCKS, AND ALARMS.

e. ALL MEASUREMENTS SHALL BE RECORDED AS NECESSARY TO ASCERTAIN THE PROPER OPERATION OF THE EQUIPMENT INCLUDING, BUT NOT LIMITED TO: REFRIGERANT CHARGE, FAN AMPERAGE, COMPRESSOR AMPERAGE, AND VALUES SPECIFIED UNDER "TEST AND BALANCE" SECTION HEREIN.

f. ANY DEFICIENCY IN THE OPERATION OR RATED OUTPUT OF THE EQUIPMENT SHALL BE REPORTED TO THE ENGINEER AND BUILDING OWNER.

g. MECHANICAL AND ELECTRICAL EQUIPMENT SHALL OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION, AS DETERMINED BY THE ENGINEER. IF SUCH OBJECTIONABLE NOISE OR VIBRATION SHOULD BE PRODUCED AND TRANSMITTED TO OCCUPIED PORTIONS OF THE BUILDING, THE CONTRACTOR SHALL MAKE THE NECESSARY CHANGES TO CORRECT THE NOISE OR VIBRATION WITHOUT ADDITIONAL COST TO THE OWNER.

25. TEST AND BALANCE:

a. AFTER HVAC SYSTEM INSTALLATION IS COMPLETE AND OPERATIONAL IN A SAFE AND NORMAL CONDITION, THE CONTRACTOR SHALL USE AN INDEPENDENT TEST & BALANCE CONTRACTOR, CERTIFIED WITH THE ASSOCIATED AIR BALANCE COUNCIL (AABC), TO TEST AND BALANCE THE HVAC SYSTEM IN ACCORDANCE WITH AABC NATIONAL STANDARDS FOR "TOTAL SYSTEM BALANCE".

b. PRIOR TO TAB, ENSURE THAT FINAL FILTERS ARE CLEAN AND IN PLACE; DUCT SYSTEMS ARE CLEAN OF DEBRIS; MACHINERY IS ROTATING CORRECTLY; HYDRONIC SYSTEMS ARE CLEANED, FLUSHED, FILLED, AND VENTED; FINAL STRAINER BASKETS ARE IN PLACE AND CLEAN; SERVICE AND BALANCE VALVES ARE OPEN.

c. BALANCE ALL AIRFLOWS TO WITHIN ±10% OF THE CFMs NOTED ON THESE PLANS. BALANCE ALL HYDRONIC FLOWS TO WITHIN ±10% OF THE GPMs NOTED ON THESE PLANS.

d. THE FOLLOWING SHALL BE MEASURED, BALANCED, AND RECORDED WITH MANUFACTURER, MODEL, AND RELEVANT NAMEPLATE DATA:

- INLETS AND OUTLETS: AIR FLOW (I.E. DIFFUSERS, GRILLES, LOUVERS, HOODS).

1) AIR MOVING EQUIPMENT: TOTAL SUPPLY, EXHAUST, AND OUTSIDE AIR FLOW AT EACH NEW ITEM OF EQUIPMENT AND AT EACH MODIFIED ITEM OF EXISTING EQUIPMENT. TOTAL STATIC PRESSURE AND EXTERNAL STATIC PRESSURE. ENTERING/LEAVING AIR TEMPS.

2) TERMINAL UNITS: AIRFLOW AT DESIGN MIN AND MAX (VAV BOXES, FAN-POWERED BOXES). *GUIDANCE: CONTROLS CONTRACTOR NEEDS THE TAB CONTRACTOR'S INDEPENDENT MEASUREMENTS TO VALIDATE THE MIN/MAX READINGS HE SEES THROUGH THE BAS (WHICH READS FROM THE VAV BOX'S INTEGRAL AIRFLOW STATION) AND HELPS THEM CALIBRATE.*

3) PUMPS: DESIGN GPM @ HEAD, GPM @ DEAD-HEAD, GPM @ FULL OPEN, AMPS.

4) HYDRONIC COILS AND HEAT EXCHANGERS: AIR PRESSURE DROP AT DESIGN AIR FLOW, WATER PRESSURE DROP AT DESIGN FLOW, ENTERING/LEAVING WATER TEMPS.

e. ONE WEEK AFTER THE OWNER HAS OCCUPIED THE BUILDING AND OPENED FOR BUSINESS, THE CONTRACTOR SHALL RE-BALANCE THE SYSTEM ACCORDING TO THE NEEDS OF THE OCCUPANTS. PROVIDE A COMPLETE TEST AND BALANCE REPORT TO THE ENGINEER. *GUIDANCE: THIS STATEMENT IS SOMEWHAT VAGUE AND MAYBE INTENDED FOR TAB TO LEAVE MONEY IN JOB TO HANDLE NUISANCE ISSUES.*

26. DURING CONSTRUCTION, THE CONTRACTOR SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM HIS/HER WORK AND LEAVE THE AREA AND BUILDING CLEAN.

27. ALL WORK SHALL BE COORDINATED WITH THE BUILDING CONTRACT SO ALL WILL FINISH TOGETHER. THE ENTIRE SYSTEM SHALL BE ACCEPTED AS A UNIT. UNLESS PHASING IS SPECIFICALLY NOTED ON PLANS, THERE WILL BE NO PARTIAL ACCEPTANCE.

28. AT THE COMPLETION OF WORK, CLEAN, POLISH, AND/OR WASH ALL EXPOSED ITEMS OF MATERIALS, EQUIPMENT, AND FIXTURES IN HIS CONTRACT TO LEAVE SUCH ITEMS BRIGHT AND CLEAN.

29. FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF PROJECT.

30. THE CONTRACTOR SHALL PROVIDE A COMPLETE 1-YEAR WARRANTY ON ALL LABOR AND MATERIALS UNDER THIS CONTRACT. REFRIGERATION COMPRESSORS PROVIDED UNDER THIS CONTRACT SHALL CARRY THE MANUFACTURER'S PUBLISHED 5-YEAR NON-PRORATED WARRANTY.

MATERIALS AND EQUIPMENT

HVAC EQUIPMENT

1. ALL EQUIPMENT SHALL BEAR THE UL, CSA, MET OR OTHER ACCREDITED TESTING LABORATORY LABEL WHERE APPROPRIATE. ALL EQUIPMENT SHALL CONFORM TO THE TYPE, SIZE, RATING, AND PERFORMANCE OF THAT LISTED ON THE DRAWINGS UNDER THIS CONTRACT.

HVAC DUCTWORK - GENERAL USE - HARD RECTANGULAR & ROUND SINGLE WALL

1. CONSTRUCT IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, INCLUDING FABRICATION, SHEET METAL GAUGE, REINFORCEMENT, SUPPORT/SUSPENSION, AND SEALING.

2. ALL DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS (I.E. FREE AREA). WHERE INTERNAL INSULATION IS USED, FABRICATOR SHALL MAKE APPROPRIATE ADJUSTMENTS IN SHEET METAL SIZE TO ACCOMMODATE INSULATION THICKNESS.

3. MATERIALS: USE G90 HOT-DIPPED GALVANIZED SHEET METAL, ASTM A653/A653M FS TYPE B, FOR DUCTWORK AND ACCESSORIES, UNLESS OTHERWISE NOTED HEREIN.

4. FINISH: WHERE EXPOSED IN FINISHED SPACES, PROVIDE PAINT-GRIP FOR PAINTING BY GENERAL CONTRACTOR. [PAINT COLOR TO MATCH STRUCTURE OR AS DIRECTED BY ARCHITECT.] *GUIDANCE: FOR DUCTS IN EXPOSED AREAS, NEED TO DECIDE HOW THE OUTSIDE IS GOING TO LOOK? DO YOU WANT TO INSULATE DUCT WITH LINER AND USE PAINTABLE METAL SURFACE ON OUTSIDE? OR DO YOU WANT TO COVER DUCT WITH A RIGID FIBERGLASS BOARD (RIGID FOR APPEARANCE) AND USE A PAINTABLE JACKET LIKE CANVAS? MOST ARCHITECTS WILL WANT THE CLEANER LOOK OF PAINTED METAL ON OUTSIDE.*

5. SMACNA SEAL CLASS: ALL DUCTWORK SHALL BE SEALED TO CLASS "A".

6. SMACNA PRESSURE CLASS: BASED ON HVAC UNIT'S MAX CFM SPECIFIED IN EQUIPMENT SCHEDULES. FABRICATE ALL DUCTWORK CONNECTED TO UNIT AS FOLLOWS:

a. UNITS UP TO 2,000 CFM: 1-INCH W.C. ALL DUCTS.

b. UNITS UP TO 10,000 CFM: 2-INCH W.C. ALL DUCTS.

c. UNITS > 10,000 CFM: 3-INCH W.C. SUPPLY; 2-INCH W.C. ALL OTHER DUCTS.

d. ALL MULTI-ZONE UNITS (REGARDLESS OF CFM):

- SUPPLY: 3-INCH W.C. UPSTREAM SIDE OF TERMINAL CONTROL UNITS / VAV BOXES
1) SUPPLY: 1-INCH W.C. DOWNSTREAM SIDE OF TERMINAL CONTROL UNITS / VAV BOXES

2) EXHAUST: 3-INCH W.C. DOWNSTREAM SIDE OF TERMINAL CONTROL UNITS / VAV BOXES
3) EXHAUST: 1-INCH W.C. UPSTREAM SIDE OF TERMINAL CONTROL UNITS / VAV BOXES

4) 2-INCH W.C. ALL OTHER DUCTS.

GUIDANCE: INTENDED TO ADDRESS ALL VAV APPLICATIONS, INCLUDING THOSE THAT MAY USE EXHAUST VAV BOXES, SUCH AS LARGE ENERGY RECOVERY UNITS AND LAB SPACES

e. GENERAL USE FANS: USE SAME CRITERIA ABOVE.

f. TRANSFER DUCTS NOT CONNECTED TO EQUIPMENT: 1-INCH W.C.

7. FITTINGS & JOINTS:

a. LONGITUDINAL AND TRANSVERSE JOINTS PER SMACNA PRESSURE CLASS SPECIFIED.

b. CONSTRUCT ELBOWS, TEES, AND BENDS WITH CENTERLINE RADIUS NOT LESS THAN 1.5 X WIDTH OF DUCT. USE TURNING VANES IN SQUARE ELBOWS, TEES, AND BENDS.

c. BRANCH DUCTS: USE 45-DEGREE TAKE-OFF FITTING.

8. BALANCING DAMPERS FOR SYSTEM BALANCING AND ISOLATION:

a. PROVIDE MANUAL BALANCING DAMPERS IN ALL BRANCH DUCTS, FLEX RUN-OUTS TO DIFFUSERS/GRILLES, AND OUTSIDE AIR INTAKE DUCTS. PRESSURE CLASS AND VELOCITY RATING TO MATCH THAT SPECIFIED HEREIN FOR DUCTWORK.

b. PROVIDE LOCKING QUADRANT LEVER WITH STAND-OFF EXTENSION TO MATCH INSULATION THICKNESS.

c. USE OPPOSED-BLADE DAMPERS FOR RECTANGULAR DUCTS AND ROUND/ELLIPTICAL DAMPERS FOR ROUND DUCTS.

9. ADDITIONAL NOTES FOR ROUND SINGLE-WALL DUCTWORK:

a. FOR PRESSURE CLASSES UP TO 1-INCH W.C., SNAP-LOCK TYPE DUCT MAY BE USED, OTHERWISE USE SPIRAL CONSTRUCTION NOTED BELOW.

b. FOR PRESSURE CLASSES GREATER THAN 1-INCH, USE SINGLE-WALL SPIRAL LOCKSEAM CONSTRUCTION, FABRICATED FOR POSITIVE (+)10-INCH TO NEGATIVE (-) 2-INCH W.C..

c. FITTINGS: USE SMOOTH-RADIUS ELBOWS AND CONICAL TEES/WYES.

10. DUCT INSULATION:

a. ALL HVAC DUCTS SHALL BE INSULATED AS NOTED HEREIN AND IN ACCORDANCE WITH SMACNA STANDARDS AND INSULATION MANUFACTURER'S INSTALLATION INSTRUCTIONS.

b. STANDARDS:

- ASTM C518 TEST METHOD FOR STEADY-STATE THERMAL TRANSMISSION.
1) ASTM C553 MINERAL FIBER BLANKET THERMAL INSULATION.
2) ASTM C1071 FIBROUS GLASS DUCT LINING.
3) ASTM C1290 FLEXIBLE FIBROUS GLASS BLANKET FOR EXTERNAL WRAP.
4) ASTM E96 TEST METHOD FOR WATER VAPOR TRANSMISSION.
5) ASTM G21 RESISTANCE OF SYNTHETIC POLYMERIC MATERIALS TO FUNGI.

c. MATERIALS SHALL HAVE A MAX FLAME SPREAD RATING OF 25 AND MAX SMOKE DEVELOPMENT RATING OF 50. ASTM E84, UL 723.

d. ALL DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS (I.E. FREE AREA). WHERE INTERNAL INSULATION IS USED, FABRICATOR SHALL MAKE APPROPRIATE ADJUSTMENTS IN SHEET METAL SIZE TO ACCOMMODATE INSULATION THICKNESS.

e. FLEXIBLE WRAP, GLASS FIBER: ASTM C553; FLEXIBLE NON-COMBUSTIBLE BLANKET, MAX K = 0.29 @ 75 DEG. F. (ASTM C518); SERVICE TEMP = 250 DEG. F.; MAX WATER VAPOR ABSORP = 5% BY WEIGHT; VAPOR BARRIER JACKET IS KRAFT PAPER WITH GLASS FIBER YARN BONDED TO ALUMINIZED FILM WITH 0.02 PERM-INCH PERMEABILITY (ASTM E96/E96M). SEAL JACKET WITH PRESSURE SENSITIVE TAPE OF SAME CONSTRUCTION AS INSULATION JACKET. USE SPACERS TO LIFT DUCT OFF TRAPEZE HANGERS IN NON-CONDITIONED SPACES. PROVIDE MECHANICAL FASTENERS TO PREVENT SAGGING. USE WELDED-TYPE PINS FOR FASTENING TO DUCT.

f. RIGID BOARD, GLASS FIBER: ASTM C612; RIGID NON-COMBUSTIBLE BOARD, MAX K=0.22 @ 75 DEG. F. (ASTM C177 OR C518); SERVICE TEMP = 450 DEG. F.; MAX WATER VAPOR ABSORP = 5% BY WEIGHT; DENSITY = 6.0 PCF; VAPOR BARRIER JACKET IS KRAFT PAPER WITH GLASS FIBER YARN BONDED TO ALUMINIZED FILM WITH 0.02 PERM-INCH PERMEABILITY (ASTM E96/E96M). SEAL JACKET WITH PRESSURE SENSITIVE TAPE OF SAME CONSTRUCTION AS INSULATION JACKET. USE SPACERS TO LIFT DUCT OFF TRAPEZE HANGERS IN NON-CONDITIONED SPACES. PROVIDE MECHANICAL FASTENERS TO PREVENT SAGGING. USE WELDED-TYPE PINS FOR FASTENING TO DUCT.

g. LINER: NON-CORROSIVE, NON-COMBUSTIBLE GLASS FIBER (ASTM C1071); IMPREGNATED SURFACE AND EDGES COATED WITH THERMOSETTING RESIN; SERVICE TEMP = 250 DEG.F.; MAX K=0.23 @ 75 DEG.F.; MIN. 5,000 FPM RATED AIR VELOCITY. ADHESIVE TO BE WATER-PROOF AND FIRE RETARDANT. LINER FASTENERS TO BE WELDED, GALV STEEL WITH INTEGRAL HEAD.

h. RIGID BOARD POLYISOCYANURATE (OUTDOOR DUCTS): ASTM C591 RIGID MOLDED MODIFIED POLYISOCYANURATE CELLULAR PLASTIC; ASTM C585 DIMENSIONALITY; DENSITY = 2.05 PCF (ASTM D1622/D1622M); MAX K=0.19 @ 75 DEG.F.; SERVICE TEMP RANGE = -70 DEG.F. TO 300 DEG.F.; MAX WATER ABSORP = LESS THAN 2% BY VOLUME (ASTM D2842); MOISTURE VAPOR TRANSMISSION = 4.0 PERM-IN.. COMPLETELY ENCLOSE IN WEATHERPROOF WHITE TPO ROOFING MEMBRANE JACKET.

GUIDANCE: EDIT BELOW TO SUIT PROJECT

i. INSULATION SCHEDULE FOR SUPPLY DUCTS:

- SUPPLY DUCTS INSIDE BUILDING THERMAL ENVELOPE AND CONCEALED ABOVE CEILING OR BEHIND WALLS: USE R6.5 FLEXIBLE WRAP.
1) SUPPLY DUCTS INSIDE BUILDING BUT OUTSIDE THERMAL ENVELOPE (I.E. ATTICS, CRAWLSPACES) OR DUCTS IN NON-COOLED SPACES VENTILATED WITH OUTDOOR AIR: USE R8.0 FLEXIBLE WRAP.
2) SUPPLY DUCTS INSIDE BUILDING THERMAL ENVELOPE AND EXPOSED: [USE 1.5 PCF, 1.5-INCH THICK DUCT LINER.] [USE 2-INCH THICK RIGID BOARD GLASS FIBER, JACKETED WITH CANVAS JACKET SIZED FOR PAINTING.]

j. INSULATION SCHEDULE FOR RETURN AND EXHAUST DUCTS:

- RETURN & EXHAUST DUCTS INSIDE BUILDING THERMAL ENVELOPE AND CONCEALED ABOVE CEILING OR BEHIND WALLS: [NO INSULATION UNLESS OTHERWISE NOTED ON PLANS.]
1) RETURN AND EXHAUST DUCTS INSIDE BUILDING BUT OUTSIDE THERMAL ENVELOPE (I.E. ATTICS, CRAWLSPACES) OR DUCTS IN NON-COOLED SPACES VENTILATED WITH OUTDOOR AIR: USE R8.0 FLEXIBLE WRAP.
2) RETURN DUCTS INSIDE BUILDING THERMAL ENVELOPE AND EXPOSED: [NO INSULATION UNLESS OTHERWISE NOTED ON PLANS]

k. INSULATION SCHEDULE FOR OUTSIDE AIR DUCTS:

- OUTSIDE AIR DUCTS INSIDE BUILDING AND CONCEALED ABOVE CEILING OR BEHIND WALLS: USE R8.0 FLEXIBLE WRAP.
1) OUTSIDE AIR DUCTS INSIDE BUILDING BUT OUTSIDE THERMAL ENVELOPE (I.E. ATTICS, CRAWLSPACES) OR DUCTS IN NON-COOLED SPACES VENTILATED WITH OUTDOOR AIR: USE R8.0 FLEXIBLE WRAP.
2) OUTSIDE AIR DUCTS INSIDE BUILDING THERMAL ENVELOPE AND EXPOSED: [USE 3-INCH THICK RIGID BOARD GLASS FIBER, JACKETED WITH CANVAS JACKET SIZED FOR PAINTING.]

l. INSULATION SCHEDULE FOR ALL DUCT TYPES OUTSIDE BUILDING OR EXPOSED TO WEATHER:

- RIGID POLYISOCYANURATE, R-10, WITH [TPO JACKET][BANDED ALUMINUM JACKET.]

m. INSULATION SCHEDULE FOR DUCT LINER:

- SOUND TRAP TRANSFER DUCTS: INSULATE RECTANGULAR DUCTS WITH 1.5 PCF DENSITY, 1.0-INCH THICK THERMOSETTING RESIN COATED FIBERGLASS DUCT LINER INSTALLED PER SMACNA DUCT LINER APPLICATION STANDARD
1) RETURN DUCTS SHALL BE LINED FOR FIRST 15 FEET CONNECTED TO UNIT WITH 1.5 PCF DENSITY, 1.5-INCH THICK THERMOSETTING RESIN COATED FIBERGLASS DUCT LINER INSTALLED PER SMACNA DUCT LINER APPLICATION STANDARD.
2) OTHERWISE, NO LINER SHALL BE USED UNLESS OTHERWISE NOTED ON PLANS.

HVAC DUCTWORK - FLEXIBLE

1. CONSTRUCT IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, INCLUDING FABRICATION, REINFORCEMENT, SEALING, AND SUPPORT/SUSPENSION.

2. SHALL BE INSULATED, SOUND ATTENUATING, LOW VELOCITY TYPE AND SHALL COMPLY WITH NFPA 90A AND 90B. FLEXIBLE DUCT SHALL BEAR THE UL CLASS 1 AIR DUCT LABEL AS TESTED UNDER UL 181. FLEXIBLE DUCT SHALL BE FACTORY-FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. INSULATION R-VALUE SHALL BE PER THE NORTH CAROLINA ENERGY CODE.

3. THE INSTALLATION OF FLEX DUCT SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS. BENDS IN FLEXIBLE DUCT SHALL NOT BE LESS THAN TWO DUCT DIAMETERS CENTERLINE RADIUS AND BENDS.

4. SHALL NOT BEGIN WITHIN THREE INCHES OF A SHEET METAL CONNECTION. DUCT SHALL NOT BE COMPRESSED. SUPPORT DUCT FROM STRUCTURE AT INTERVALS NOT TO EXCEED TEN FEET. MAXIMUM PERMISSIBLE SAG IS 1/2-INCH PER FOOT OF SPACING BETWEEN.

5. SUPPORTS. HANGER OR SADDLE MATERIAL IN CONTACT WITH THE DUCT SHALL BE WIDE ENOUGH SO THAT IT DOES NOT REDUCE THE INTERNAL DIAMETER OF THE DUCT WHEN THE SUPPORTED SECTION RESTS ON THE SUPPORT AND IN NO CASE SHALL BE LESS THAN 1-INCH WIDE.

HVAC DUCTWORK - DOUBLE WALL SPIRAL

1. USE FOR ALL EXPOSED ROUND DUCTS IN FINISHED AREAS

2. CONSTRUCT IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, INCLUDING FABRICATION, REINFORCEMENT, SEALING, AND SUPPORT/SUSPENSION.

3. DOUBLE-WALL PRE-INSULATED ROUND DUCTS WITH SPIRAL LOCKSEAM CONSTRUCTION, FABRICATED FOR POSITIVE (+)10-INCH TO NEGATIVE (-) 2-INCH W.C.:

4. STRAIGHT SECTIONS: [PERFORATED][SOLID] INNER WALL AND SOLID OUTER WALL.

5. FITTINGS: SOLID INNER AND OUTER WALLS; SMOOTH-RADIUS ELBOWS AND CONICAL TEES/WYES.

6. INTERSTITIAL INSULATION: [1-INCH THICK, R4.2 (NORMALLY USE THIS ONE - REMOVE THIS SECTION OF THE NOTE)][2-INCH THICK, R8.4 (ONLY USE THIS IF PASSING THROUGH UNCONDITIONED SPACE)] WITH MAX FLAME SPREAD RATING OF 25 AND MAX SMOKE DEVELOPMENT RATING OF 50.

7. FINISH: [PAINT-GRIP FOR PAINTING BY GENERAL CONTRACTOR. PAINT COLOR TO MATCH STRUCTURE OR AS DIRECTED BY ARCHITECT.][GALVANIZED.]

8. SUSPEND WITH [STAINLESS STEEL] [CABLE SYSTEM] [THREADED ROD AND STRAP SYSTEM].

HVAC DUCTWORK - COMMERCIAL KITCHEN HOODS

1. CONSTRUCT IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, INCLUDING FABRICATION, REINFORCEMENT, SEALING, AND SUPPORT/SUSPENSION.

2. GREASE HOOD EXHAUST (TYPE 1 & 2 HOODS) - 16 GAUGE, BLACK STEEL SHEET, FULL-SEAM WELDED, SLOPED PER CODE, AND WRAPPED WITH 2-LAYERS (2-HOUR FIRE-RATED) OF 3M FIREWRAP FROM HOOD TO OUTLET AT EXTERIOR OF BUILDING. SLOPE DUCTWORK AND PROVIDE CLEAN-OUTS PER THE NC MECHANICAL CODE. SEE GREASE DUCT DETAIL ON THESE PLANS.

3. DISHWASHER EXHAUST - 18 GAUGE, 304 STAINLESS STEEL SHEET, FULL-SEAM WELDED, SLOPED DOWN TO DISHWASHER AT 1/4-INCH PER FOOT MINIMUM. WRAP WITH R-6 FIBERGLASS WITH FOIL-BACKED JACKET WHERE DUCT RUNS THROUGH UNHEATED SPACES.

4. HOOD MAKE-UP AIR - SEE "HVAC DUCTWORK - HARD RECTANGULAR & ROUND". DO NOT USE FLEXIBLE DUCTS.

GUIDANCE: DETERMINE WHETHER FOOD SERVICE CONTRACTOR OR MECHANICAL IS PROVIDING THE KITCHEN HOODS. NOT UNUSUAL FOR MECHANICAL CONTRACTOR TO PROVIDE THE DUCTWORK, FANS, AND MAKE-UP AIR UNITS ONLY; AND HOOD BY FOOD SERVICE CONTRACTOR.

CAN'T USE FIRE DAMPERS, SO PENETRATIONS OF RATED ASSEMBLIES MUCH USE FIREWRAP TO EXTERIOR OF BUILDING. USE OUR DETAIL FOR THIS.

HVAC DUCTWORK - CLOTHES DRYERS

1. CONSTRUCT IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, INCLUDING FABRICATION, REINFORCEMENT, SEALING, AND SUPPORT/SUSPENSION.

2. PROVIDE G-90 GALVANIZED DUCTWORK, SEALED TO SMANCA CLASS "A", IN ACCORDANCE WITH DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS, INCLUDING LIMITATIONS ON DUCT LENGTH AND NUMBER OF ELBOWS. WHEN JOINING DUCTWORK, DO NOT USE SCREWS OR OTHER MECHANICAL ATTACHMENTS THAT PENETRATE THE DUCTWORK.

3. WHERE DRYER VENTS PENETRATE A FIRE RATED ASSEMBLY, WRAP THE DUCTWORK WITH 2-LAYERS (2-HOUR FIRE-RATED) OF 3M FIREWRAP FROM PENETRATION TO OUTLET AT EXTERIOR OF BUILDING.

4. MAKE-UP AIR - PROVIDE TRANSFER AIR GRILLES WHERE DRYERS ARE INSTALLED WITHIN CLOSETS.

GUIDANCE: SEE NC MECH CODE SECTION 504. CAN'T USE FIRE DAMPERS, SO PENETRATIONS OF RATED ASSEMBLIES MUCH USE FIREWRAP TO EXTERIOR OF BUILDING. SEE MAKEUP AIR REQUIREMENTS.

HVAC DUCTWORK - LAB HOOD EXHAUST

1. CONSTRUCT IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, INCLUDING FABRICATION, REINFORCEMENT, SEALING, AND SUPPORT/SUSPENSION.

2. SEAL CLASS: ALL DUCTWORK SHALL BE SEALED TO CLASS "A".

3. DUCT PRESSURE CLASS: POSITIVE (+) 10-INCH W.C. TO NEGATIVE (-) 4-INCH W.C. [NEED TO LOWER FOR FIBERGLASS OR PVC DUCT OPTIONS]

4. USE [18 GAUGE STAINLESS STEEL DUCTS AND FITTINGS WITH FULL-SEAM WELDED JOINTS] [G-90 GALVANIZED STEEL DUCTS AND FITTINGS] [FIBERGLASS DUCTS AND FITTINGS WITH WET-LAYUP EPOXY RESIN JOINTS] [SCHEDULE 40 PVC DUCTS AND FITTINGS WITH SOLVENT WELD JOINTS].

DON'T RUN PLASTIC DUCT (PVC OR FIBERGLASS) THROUGH A RETURN AIR PLENUM.

GUIDANCE: USE CHEMICAL COMPATABILITY TABLES OR DUCT MANUFACTURER'S TABLES TO LOOK UP WHAT DUCT MATERIALS ARE GOOD OR EXCELLENT FOR THE CHEMICALS USED UNDER HOOD. ONE REFERENCE: HTTP://WWW.COLEPARMER.COM/CHEMICAL-RESISTANCE.

FLEXIBLE EQUIPMENT-TO-DUCT CONNECTIONS

1. FURNISH AND INSTALL FLEXIBLE DUCT CONNECTORS FOR AHUS AND FANS [WITH RATED AIRFLOW GREATER THAN 2,000 CFM]. *GUIDANCE: TYPICALLY NOT NEEDED FOR RESIDENTIAL UNITS.*

MOTORIZED DAMPERS (NON-SMOKE)

1. COMPLY WITH AMCA STANDARD 511. GALVANIZED CONSTRUCTION, AMCA CLASS [1] DAMPERS WITH MOTORIZED ACTUATOR. RECTANGULAR DAMPERS SHALL BE OPPOSED BLADE TYPE AND ROUND DAMPERS SHALL BE ROUND/ELLIPTICAL TYPE. FABRICATE WITH BLADE AND JAMB SEALS. PROVIDE STANDOFF EXTENSION FOR ACTUATOR TO MATCH INSULATION THICKNESS. [MOTORIZED ACTUATOR: SEE PLANS FOR TYPE - 2-POSITION/MODULATING, POWERED OPEN/CLOSE AND FAIL OPEN/CLOSED/LAST POSITION].

2. MOTORIZED ACTUATOR SHALL BE RATED FOR DAMPER SIZE/TORQUE REQUIREMENTS. LOCATE ACTUATOR OUTSIDE OF DUCTWORK ON ACCESSIBLE SIDE. PROVIDE ACCESS DOOR FOR DAMPER INSPECTION.

GUIDANCE:
FOR REFERENCE AMCA STANDARD 511 LEAKAGE, CFM/SF OF DAMPER AREA
PRESSURE/CLASS 1-INCH W.C. 4-INCH W.C. 8-INCH W.C.
1A 3 8
11
1 4 8
11 - REC. FOR SYSTEMS UP TO 4-INCH MAX
2 10 20
28 - REC. FOR SYSTEMS UP TO 2-INCH MAX
3. 3 40 80
112 - NOT RECOMMENDED

SMOKE DAMPERS & COMBINATION FIRE/SMOKE DAMPERS

1. NFPA 90A, U.L 555, UL 555S. GALVANIZED CONSTRUCTION, UL CLASS - I LEAKAGE, MULTIPLE BLADE DAMPER, GALVANIZED STEEL FRAME, AIRFOIL BLADES. SPRING-RETURN MOTORIZED ACTUATOR SUITABLE FOR 120V, SINGLE PHASE, UNLESS VOLTAGE IS OTHERWISE SPECIFIED ON PLANS.

2. LOCATE DAMPER ACTUATOR ON EXTERIOR OF DUCT IN AN ACCESSIBLE LOCATION. PROVIDE ACCESS DOOR FOR DAMPER INSPECTION.

3. [FAIL STATE: TYPICALLY POWERED OPEN AND FAIL CLOSED]. PROVIDE TWO (2) END SWITCHES TO INDICATE DAMPER POSITION.

GUIDANCE:
FOR REFERENCE U.L. 555S, SMOKE DAMPERS CLASSIFIED LEAKAGE RATINGS, CFM/SF OF DAMPER AREA
MECH/FIRE CODE SAYS TO USE CLASS I OR II.
PRESSURE/CLASS 4-INCH W.C. 8-INCH W.C. 12-INCH W.C.
I 8 11
14 - BNK SPECIFIES MORE STRINGENT
II 20 28
35
III 80 112
140

HOUSEKEEPING PADS

1. PROVIDE CONRETE PADS WITH CHAMFERED EDGES FOR ALL ITEMS OF HVAC EQUIPMENT RESTING ON THE FLOOR OR GRADE. THIS INCLUDES CONDENSING UNITS, PUMPS, TANKS, CHILLERS, AND BOILERS. PROVIDE FOR AHUS NOT OTHERWISE SUPPORTED BY A STAND. PADS SHALL BE OF SUFFICIENT THICKNESS TO RAISE EQUIPMENT 4 INCHES ABOVE TOP OF ADJACENT FLOOR/GRADE. INCREASE THICKNESS AS REQUIRED TO ACCOMMODATE DEPTH OF AHU CONDENSATE TRAPS.

SMOKE DETECTORS

1. SMOKE DETECTORS SHALL BE PROVIDED IN ACCORDANCE WITH THE NC MECHANICAL CODE TO SHUT DOWN AIR HANDLERS UPON ACTIVATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SMOKE DETECTOR MANUFACTURER'S INSTRUCTIONS.

2. SMOKE DETECTORS SHALL BE U.L. LISTED FOR THEIR APPLICATION (I.E. SAMPLING TUBE TYPE FOR DUCT-MOUNT AND SPOT TYPE AT OPEN-ENDED INLETS).

3. SMOKE DETECTORS SHALL BE LOCATED IN THE RETURN AIR STREAM AND UPSTREAM OF OUTSIDE AIR CONNECTION. ONLY DETECTORS IN MAKE-UP AIR UNITS ARE ALLOWED IN OUTSIDE AIR STREAM.

4. BUILDINGS WITH FIRE ALARM SYSTEMS: ELECTRICAL CONTRACTOR SHALL FURNISH SMOKE DETECTORS FOR THE MECHANICAL CONTRACTOR TO INSTALL IN APPROVED LOCATIONS. ELECTRICAL CONTRACTOR SHALL CONNECT/WIRE THE SMOKE DETECTORS TO THE FIRE ALARM SYSTEM. ACTUATION OF SMOKE DETECTORS SHALL GENERATE A SUPERVISORY SIGNAL IN ACCORDANCE WITH NC MECHANICAL CODE SECTION 606.4.1.. COORDINATE SMOKE DETECTOR REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.

5. BUILDINGS WITHOUT FIRE ALARM SYSTEMS: THE MECHANICAL CONTRACTOR SHALL PROVIDE AND WIRE SMOKE DETECTORS AND REMOTE TEST STATION IN AN APPROVED LOCATION TO PROVIDE VISIBLE AND AUDIBLE SIGNAL (SECTION 606.4.1) IN RESPONSE TO BOTH ALARM AND TROUBLE CONDITIONS. U.O.N. REMOTE STATION SHALL BE LOCATED ADJACENT TO THE AIR HANDLER'S THERMOSTAT AND LABELED AS AIR DUCT DETECTOR TROUBLE.

6. IN ALL CASES, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING THE SMOKE DETECTORS. PROVIDE ACCESS DOOR FOR DUCT-MOUNTED SMOKE DETECTORS.

PIPE SLEEVES

1. CONTRACTOR SHALL PROVIDE SLEEVES WHERE HVAC PIPES ARE TO PASS THROUGH WALLS AND FLOORS. COORDINATE LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO CONSTRUCTION.

2. PIPE SLEEVES THROUGH WALLS SHALL BE CUT FLUSH WITH WALL FINISH, AND SLEEVES THROUGH THE FLOOR SHALL PROJECT 1/2" ABOVE FINISH FLOOR.

3. SLEEVES SHALL BE OF SUCH SIZE TO PERMIT PASSAGE OF PIPE COVERING THROUGH WALL WHERE IT IS REQUIRED.

4. SLEEVES INSIDE BUILDING AND ABOVE GRADE SHALL BE OF STANDARD WEIGHT BLACK STEEL PIPE.

5. SLEEVES IN CONTACT WITH THE GROUND SHALL BE OF STANDARD WEIGHT GALVANIZED STEEL PIPE.

6. PENETRATIONS OF BASEMENT / BELOW-GRADE WALLS: PROVIDE MANUFACTURED MODULAR, ELASTOMER SLEEVE-SEAL SYSTEMS. PRESSURE RESISTANT TO 20 PSIG (40 FT OF HEAD). ALL HARDWARE TO BE S316 STAINLESS STEEL. ELASTOMER SELECTION TO MATCH PIPE OPERATING TEMPERATURES. USE GARLOCK LINK-SEAL OR APPROVED EQUAL.

REFRIGERANT PIPING (NON-VRF SYSTEMS):

1. REFRIGERANT PIPING SHALL BE FURNISHED AND INSTALLED AND TESTED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE NC BUILDING CODE.

2. USE COPPER TUBING, PHOSPHORIC ACID DEOXIDIZED, SEAMLESS, WITH BRAZED JOINTS AND RATED FOR MINIMUM 550 PSIG OPERATING PRESSURE OR AS REQUIRED BY THE MANUFACTURER.

3. INTERIOR PIPE INSULATION: USE 1-1/2 INCH THICK PREFORMED ARMSTRONG ARMAFLEX INSULATION PER THE MANUFACTURER'S INSTRUCTIONS. *GUIDANCE: ENERGY CODE REQUIRES 1-1/2 INCH THICK BUT CONTRACTORS WILL REQUEST THINNER INSULATION FOR EASE OF INSTALLATION AND BECAUSE PIPING IS WITHIN AIR-CONDITIONED SPACES AND LESS LIKELY FOR CONDENSATION. FIELD INSPECTOR WILL SOMETIMES APPROVE, IF LETTER PROVIDED BY ENGINEER. IF ALSO APPROVED BY MANUF, GENERALLY IT IS NOT A PROBLEM TO GO THINNER FOR INTERIOR PIPING.*

4. EXTERIOR PIPE INSULATION: USE 1-1/2 INCH THICK PREFORMED ARMSTRONG ARMAFLEX INSULATION PER THE MANUF INSTRUCTIONS. [PROVIDE TWO COATS OF EXTERIOR LATEX PAINT FOR UV PROTECTION.] [COVER EXTERIOR INSULATION WITH ALUMINUM JACKET FOR UV PROTECTION.]

5. FLUSH PIPING, PULL VACUUM, REPEAT, AND CHARGE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

REFRIGERANT PIPING FOR VRF/VRV (VARIABLE REFRIGERANT FLOW/VOLUME):

1. VARIABLE REFRIGERANT FLOW PIPING SHALL BE FURNISHED AND INSTALLED AND TESTED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE NC BUILDING CODE.

2. USE COPPER TUBING, PHOSPHORIC ACID DEOXIDIZED, SEAMLESS, WITH BRAZED JOINTS AND RATED FOR MINIMUM 550 PSIG OPERATING PRESSURE OR AS REQUIRED BY THE MANUFACTURER.

3. INTERIOR PIPE INSULATION: USE 1-1/2 INCH THICK PREFORMED ARMSTRONG ARMAFLEX INSULATION PER THE MANUFACTURER'S INSTRUCTIONS. *GUIDANCE: ENERGY CODE REQUIRES 1-1/2 INCH THICK BUT CONTRACTORS WILL REQUEST THINNER INSULATION FOR EASE OF INSTALLATION AND BECAUSE PIPING IS WITHIN AIR-CONDITIONED SPACES AND LESS LIKELY FOR CONDENSATION. FIELD INSPECTOR WILL SOMETIMES APPROVE, IF LETTER PROVIDED BY ENGINEER. IF ALSO APPROVED BY MANUF, GENERALLY IT IS NOT A PROBLEM TO GO THINNER FOR INTERIOR PIPING.*

4. EXTERIOR PIPE INSULATION: USE 1-1/2 INCH THICK PREFORMED ARMSTRONG ARMAFLEX INSULATION PER THE MANUF INSTRUCTIONS. [PROVIDE TWO COATS OF EXTERIOR LATEX PAINT FOR UV PROTECTION.] [COVER EXTERIOR INSULATION WITH ALUMINUM JACKET FOR UV PROTECTION.]

5. SEE VRF COMMISSIONING NOTES ON THESE PLANS.

6. FLUSH PIPING, PULL VACUUM, REPEAT, AND CHARGE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

CONDENSATE DRAINS

1. ON ROOF: USE [SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS.] [TYPE L COPPER W/ 1/2-INCH ARMSTRONG ARMAFLEX PIPE INSULATION FOR FIRST 10 FEET.] TERMINATE AT NEAREST ROOF DRAIN. SUPPORT PIPE EVERY 4 FEET WITH UV-RESISTANT POLYCARBONATE RESIN SUPPORTS WITH RUBBER PADS. FOR PIPES 2-INCHES AND LARGER, PROVIDE ROLLER VERSION. PROVIDE ADDITIONAL PADS AS REQUIRED BENEATH SUPPORTS TO SLOPE DRAIN PIPES. USE MIRO INDUSTRIES OR APPROVED EQUAL.

2. INSIDE BUILDING ABOVE GROUND:

a. CONTINUOUSLY SLOPE DRAIN PIPES AWAY FROM CONDENSATE PANS TO TERMINATION POINT INDICATED ON PLANS. WHERE SPACE PERMITS, SLOPE DRAINS 1/4 INCH PER FOOT, BUT IN NO CASE SHALL DRAINS BE SLOPED LESS THAN 1/8 INCH PER FOOT.

b. PROVIDE INLINE WYE CLEAN-OUTS WITH THREADED PLUG EVERY 75 FEET.

c. PROVIDE UNIONS ON BOTH SIDES OF HVAC UNIT TRAPS TO FACILITATE REMOVAL OF TRAPS FOR CLEANING AND BLOWING OUT DRAIN PIPES.

d. USE TYPE L COPPER TUBING WITH SOLDERED JOINTS. INSULATE WITH 1/2" THICK CLOSED CELL PIPE INSULATION RATED FOR PLENUMS. USE ARMACELL ARMAFLEX PIPE INSULATION OR APPROVED EQUAL.

e. OPTION: OUTSIDE OF RETURN AIR PLENUM SPACES, SCHEDULE 40 PVC DRAIN PIPE WITH SOLVENT WELD JOINTS MAY BE USED IN LIEU OF COPPER. INSULATE WITH 1/2" THICK CLOSED CELL PIPE INSULATION. USE ARMACELL ARMAFLEX PIPE INSULATION OR APPROVED EQUAL.

3. UNDERGROUND:

a. SLOPE DRAINS 1/4 INCH PER FOOT AWAY FROM CONDENSATE PANS TO TERMINATION POINT INDICATED ON PLANS.

b. PROVIDE CLEAN-OUTS WITH THREADED PLUG EVERY 75 FEET.

c. USE SCHEDULE 40 PVC-DWV DRAIN PIPE WITH SOLVENT WELD JOINTS.

4. DRAIN SIZE BASED ON CONNECTED TONS OF COOLING:

a. UP TO 2 TONS: 3/4-INCH*
b. UP TO 5 TONS: 1-INCH*
c. UP TO 30 TONS: 1 1/2-INCH*
d. UP TO 100 TONS: 2-INCH
e. UP TO 300 TONS: 3-INCH
* IF UNDERGROUND, MINIMUM DRAIN SIZE SHALL BE 2-INCH.

SYSTEM COMMISSIONING (CX) OF VARIABLE REFRIGERANT FLOW/VOLUME (VRF/VRV)

GUIDANCE: PROPER REFRIGERANT PIPE INSTALLATION IS CRITICAL TO SUCCESS OF VRF SYSTEMS - MANY MORE JOINTS TO LEAK COMPARED TO THAT OF TYPICAL SPLIT-SYSTEMS

1. MECHANICAL CONTRACTOR SHALL SUBCONTRACT THE VRF MANUFACTURER TO COMMISSION THE VRF SYSTEM. THE CX TECHNICIAN SHALL NOT BE EMPLOYED WITH THE MECHANICAL CONTRACTOR. THE CX TECHNICIAN SHALL BE A 3RD PARTY FACTORY AUTHORIZED AND TRAINED VRF CX TECHNICIAN.

2. CX TECHNICIAN SHALL PERFORM MULTIPLE SITE VISITS TO: PROVIDE PRE-CONSTRUCTION INSTALLATION TRAINING; INSPECT INSTALLATION OF ALL VRF COMPONENTS, INCLUDING CONDENSING UNITS, FAN COIL UNITS, REFRIGERANT JUNCTION BOXES, REFRIGERANT PIPING & INSULATION, AND REFRIGERANT CONTROLS; AND VERIFY COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3. CX TECHNICIAN SHALL WITNESS ALL VACUUM AND PRESSURE TESTS AND REFRIGERANT CHARGING OF ALL PORTIONS OF THE REFRIGERANT PIPING SYSTEM AND GENERATE WRITTEN AND SIGNED TEST REPORTS TO BE FURNISHED TO OWNER AND ENGINEER WITHIN 48 HOURS OF COMPLETED TEST AND REPORT ALL DEFICIENCIES. IN LIEU OF TRIP, CONTRACTOR MAY PROVIDE DOCUMENTATION WITH PHOTOS OF TEST GAUGES TO CX TECHNICIAN.

4. CX TECHNICIAN AND/OR MECHANICAL CONTRACTOR SHALL TEST ALL SPACE REFRIGERANT DETECTORS IN ACCORDANCE WITH THE MANUFACTURER'S IOM USING APPROVED TRACER GAS.

5. IF VRF CONTROLS ARE SPECIFIED TO BE INTERCONNECTED WITH BUILDING AUTOMATION SYSTEM (BAS), CX TECHNICIAN SHALL CONFIRM COMMUNICATION BETWEEN SYSTEMS AND SEQUENCES OF OPERATION ARE FUNCTIONING AS SPECIFIED.

6. AT COMPLETION OF ALL CX TESTS AND PUNCHLIST ITEMS, THE CX TECHNICIAN SHALL PREPARE A FINAL REPORT DETAILING ALL TESTS AND RESULTS AND FURNISH TO OWNER AND ENGINEER. VARIABLE REFRIGERANT FLOW (VRF) SYSTEM WARRANTY.

7. PROVIDE TEN (10) YEAR COMPRESSOR AND ALL PARTS WARRANTY FROM THE VRV MANUFACTURER FOR ALL INDOOR AND OUTDOOR REFRIGERATION UNITS INCLUDING REMOTE CONTROLLERS. PROVIDE TWO (2) YEAR LABOR WARRANTY. LABOR WARRANTY IS THE RESPONSIBILITY OF THE TRAINED & CERTIFIED INSTALLING MECHANICAL CONTRACTOR.

ESCUTCHEONS

1. FURNISH AND INSTALL ESCUTCHEONS IN ALL PLACES WHERE PIPING OR MECHANICAL EQUIPMENT PENETRATES A FINISHED WALL OR CEILING IN AN EXPOSED LOCATION.

SYSTEM BALANCING

1. PROVIDE LOCKING QUADRANT TYPE MANUAL VOLUME DAMPER AT EACH FLEXIBLE DUCT RUNOUT. PROVIDE SPLITTER DAMPERS AT SUPPLY TEES AND EXTRACTORS AT ALL SUPPLY AIR BRANCHES. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE REQUIRED FOR SYSTEM BALANCING AS SHOWN OR AS REQUIRED.

AIR DISTRIBUTION

1. PROVIDE ALL GRILLES, REGISTERS, AND DIFFUSERS PER THE SCHEDULE ON THE DRAWINGS. PROVIDE SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER AND DAMPER INSTALLED IN A LAY-IN CEILING. SLOT DIFFUSERS SHALL BE CONSTRUCTED SO THAT EACH SLOT MAY BE INDEPENDENTLY CONFIGURED TO INSURE A FULL 180° AIR CONTROL PATTERN. THE CONTRACTOR SHALL COORDINATE FINISH STYLES AND COLORS WITH THE ARCHITECT PRIOR TO ORDERING EQUIPMENT.

RADIATION DAMPERS

1. PENETRATIONS OF FIRE-RATED CEILINGS ARE REQUIRED TO BE PROTECTED WITH RADIATION DAMPERS AND THERMAL BLANKETS. ALL RADIATION DAMPERS SHALL BEAR THE UL LABEL. INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE "FIRE, SMOKE AND RADIATION DAMPER INSTALLATION GUIDE", PUBLISHED BY SMACNA.

GAS PIPING

1. NC FUEL GAS CODE, ASME B31.9, NFPA 54, NFPA 58.

2. OPERATING PRESSURES: AS NOTED ON PLANS, 5 PSIG MAXIMUM.

3. ABOVE GRADE: ASTM A53 BLACK STEEL PIPE, SCHEDULE 40; ASME B16.3 CLASS 150 MALLEABLE IRON THREADED FITTINGS FOR PIPE SIZES 2.0-INCH AND SMALLER; ASTM A234 WROUGHT STEEL WELDED FITTINGS FOR PIPE SIZES LARGER THAN 2.0-INCH.

4. UNIONS/STRAINERS: CLASS 150 THREADED FOR PIPE SIZES 2-INCHES AND SMALLER. FORGED STEEL FLANGES WITH PREFORMED GASKETS RATED FOR NATURAL GAS SERVICE. STRAINERS SHALL HAVE REMOVABLE PERFORATED STAINLESS STEEL SCREEN.

5. PIPE HANGERS/SUPPORTS - ANSI/MSS SP-58, ASME B31.9.

6. PAINTING: WHERE EXPOSED TO WEATHER, PROVIDE TWO COATS OF RUST-INHIBITING PAINT. COLOR OF PAINT SHALL COMPLY WITH REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION.

7. LINE PRESSURE REGULATORS - ANSI Z21.80/CSA 6.22

8. APPLIANCE REGULATORS - ANSI Z21.18/CSA 6.3

9. OVER-PRESSURE PROTECTION - PROVIDE OVER-PRESSURE DEVICES PER NC FUEL GAS CODE SECTION 416.

10. BALL VALVES - MSS SP-110, THREADED, SOCKET-WELDING, FULL-PORT.

11. PLUG VALVES - MSS SP-78, THREADED, FLANGED.

12. PROVIDE ISOLATION VALVES AS NOTED ON PLANS AND AT BUILDING ENTRANCE, AT ALL EQUIPMENT/APPLIANCE CONNECTIONS, AND IMMEDIATELY UPSTREAM OF ALL GAS PRESSURE REGULATORS. WHERE PIPE IS SHOWN FOR FUTURE CONNECTION, PROVIDE ISOLATION VALVE AND GAS-TIGHT THREADED PLUG OR CAP TO CLOSE THE OPEN END OF VALVE.

13. PROVIDE UNIONS DOWNSTREAM OF EQUIPMENT/APPLIANCE ISOLATION VALVES. EXCEPTION: APPROVED FLEXIBLE GAS CONNECTIONS TO KITCHEN EQUIPMENT OR WHEREAS OTHERWISE INDICATED ON PLANS.

14. INACCESSIBLE PIPING IN WALL CAVITIES OR CHASES: USE WELDED FITTINGS. NO ISOLATION VALVES OR DEVICES PERMITTED IN INACCESSIBLE PORTIONS OF PIPING.

15. PIPE VENTS FROM GAS PRESSURE REGULATORS TO OUTDOORS AND TERMINATE IN WEATHER PROOF HOOD.

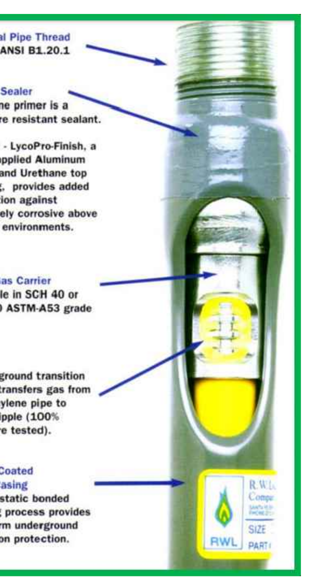
16. NO GAS VALVES, REGULATORS, OR ANY OTHER GAS DEVICE ARE PERMITTED WITHIN RETURN AIR PLENUMS.

17. BELOW GRADE (NOT UNDER BUILDING): USE ANODELESS RISERS FOR TRANSITION FROM BELOW GROUND POLYETHYLENE PIPE TO ABOVE GROUND METALLIC PIPE. *GUIDANCE: POLYETHYLENE PIPE WITH HEAT FUSION JOINTS IS PREFERRED BELOW GRADE DUE TO CORROSION RESISTANCE, BUT CODE WON'T ALLOW IT ABOVE GRADE DUE TO SUSCEPTABILITY OF BEING DAMAGED (I.E. LAWN MOWERS). CONVERSELY, WE USE STEEL PIPE ABOVE GRADE DUE TO DURABILITY BUT DON'T WANT IT BURIED. WHERE CAN YOU MAKE THE TRANSITION? ANODELESS RISERS SOLVE THIS BY PROVIDING A PRE-MANUF FITTING THAT PLACES THE PLASTIC-TO-METAL TRANSITION ABOVE GRADE WITHIN AN EPOXY-COATED STEEL CASING. THIS ALSO ELIMINATES NEED FOR CATHODIC PROTECTION THAT IS REQUIRED FOR BURIED METALLIC PIPE.*

18. BELOW SLAB-ON-GRADE: NOT PERMITTED BENEATH A BUILDING UNLESS SLEEVING SYSTEM IS PROVIDED IN ACCORDANCE WITH BUILDING CODE USE PREMANUFACTURED....

19. SEE SECTION: IDENTIFICATION & LABELING.

20. IMAGE OF ANODELESS GAS RISER



CONTROLS

1. CONTROL WIRING: DIGITAL SIGNALING SHALL BE NEC CLASS 2, PLENUM RATED, AND COMPATIBLE WITH THE CONTROL SYSTEM COMPONENTS. FOR WIRING OTHER THAN DIGITAL SIGNALING, USE #18 COPPER WIRE OR CONTROL CABLE. ALL CONDUCTORS SHALL BE RUN IN A METALLIC RACEWAY. THE METALLIC RACEWAY MAY BE OMITTED WHERE PLENUM-RATED CABLE IS INSTALLED ABOVE ACCESSIBLE CEILING WITHIN THE BUILDING ENVELOPE. RING & STRING METHOD MAY BE APPLIED IN LIEU OF METALLIC RACEWAY ON VERTICAL RUN IN INSULATED WALLS . THERE SHALL BE NO SPLICES IN THE CONTROL SYSTEM WIRING OTHER THAN AT TERMINAL BLOCKS. WIRE NUTS AND CRIMP SPLICES ARE NOT PERMITTED.

2. STAND-ALONE A/C SYSTEMS: PROVIDE MANUFACTURER'S ACCESSORY DIGITAL PROGRAMMABLE THERMOSTAT WITH AUTO-CHANGEOVER/HEAT/COOL AND FAN ON/OFF/AUTO SELECTABLE FUNCTIONS. WHERE UNITS ARE SPECIFIED WITH DEHUMIDIFICATION OR ENHANCED DEHUMIDIFICATION, PROVIDE THERMOSTAT WITH INTEGRAL HUMIDISTAT.

3. EXISTING BUILDING AUTOMATION SYSTEM (BAS) CONTROLS: SEE CONTROL SCHEMATICS ON THESE PLANS. CONNECT TO EXISTING BAS AND PROVIDE CONTROL COMPONENTS THAT MATCH THE BUILDING STANDARD AND ARE COMPATIBLE WITH AND MATCH COMMUNICATION PROTOCOL OF EXISTING BAS. PROGRAM SETPOINTS AND SCHEDULES TO MATCH THOSE IN EXISTING FACILITY (VERIFY WITH LANDLORD). CONTROLS CONTRACTOR SHALL WORK WITH TAB AND MECHANICAL CONTRACTOR TO CALIBRATE MEASURING EQUIPMENT (I.E. FLOW STATIONS, SENSORS, VFDS, MIN/MAX SETPOINTS, ETC.).

4. NEW BUILDING AUTOMATION SYSTEM (BAS) CONTROLS:

a. SEE CONTROL SCHEMATICS ON THESE PLANS.

b. PROVIDE AUTOMATIC TEMPERATURE CONTROL FIELD MONITORING AND CONTROL SYSTEM USING FIELD PROGRAMMABLE MICRO-PROCESSOR BASED UNITS WITH COMMUNICATIONS TO BUILDING MANAGEMENT SYSTEM.

c. [COMMUNICATION PROTOCOL: WORKSTATION, CONTROLLERS, AND BAS CONTROL BACKBONE TO COMMUNICATE USING BACNET OVER IP PROTOCOL AND ADDRESSING IN ACCORDANCE WITH ASHRAE STANDARD 135.]

d. BAS SHALL BE A DISTRIBUTED SYSTEM OF FULLY INTELLIGENT, STAND-ALONE CONTROLLERS, OPERATING IN A MULTI-TASKING, MULTI-USER ENVIRONMENT NETWORK, WITH CENTRAL AND REMOTE HARDWARE, SOFTWARE, AND INTERCONNECTING WIRE AND CONDUIT.

e. CONTROL SYSTEM SHALL CONSIST OF ALL SOFTWARE, HARDWARE, OPERATOR INPUT/OUTPUT DEVICES, CONTROL UNITS, LOCAL AREA NETWORKS (LAN), CONTROL DEVICES, EQUIPMENT CONTROLLERS, SENSORS, CONTROL VALVES, CONTROL DAMPERS, OPERATORS, INDICATING DEVICES, INTERFACE EQUIPMENT, CONTROL WIRING, CONDUIT, CONTROL TRANSFORMERS, AND OTHER APPARATUS AND ACCESSORIES REQUIRED TO OPERATE MECHANICAL SYSTEMS AND PERFORM FUNCTIONS SPECIFIED.

f. CONTROLS CONTRACTOR SHALL WORK WITH TAB AND MECHANICAL CONTRACTOR TO CALIBRATE MEASURING EQUIPMENT (I.E. FLOW STATIONS, SENSORS, VFDS, MIN/MAX SETPOINTS, ETC.).

g. LIGHTING CONTROLS FOR LIGHTING CONTACTORS: WHERE LIGHTING CONTACTORS / CONTACTOR PANELS HAVE BEEN INSTALLED, THE CONTROLS SYSTEM SHALL INCLUDE ON/OFF DIGITAL OUTPUT POINTS FOR EACH LIGHTING ZONE, AND DIRECT HARDWIRED CONNECTIONS FROM THE CONTROLS SYSTEM TO EACH LIGHTING CONTACTOR. THE SYSTEM SHALL ALSO INCLUDE AN INPUT POINT CONNECTED TO A PHOTOCELL SENSOR, FOR DUSK/DAWN CONTROL OF LIGHTING ZONES. THE CONTROLS SOFTWARE SHALL INCLUDE USER-ADJUSTABLE TIMECLOCK AND DUSK/DAWN CONTROL OF ALL LIGHTING ZONES, WITH COMPLETE GRAPHICS PACKAGE AND WEB-BASED INTERFACE FOR LIGHTING CONTROLS.

h. SUMP PUMP ALARMS: WHERE SUMP PUMP SYSTEMS HAVE BEEN INSTALLED, THE CONTROL SYSTEM SHALL INCLUDE INPUT POINTS FOR EACH SUMP PUMP, AND DIRECT HARDWIRED CONNECTIONS FROM THE CONTROLS SYSTEM TO EACH SUMP PUMP. THE CONTROLS SOFTWARE SHALL INCLUDE USER-ADJUSTABLE REMOTE NOTIFICATIONS AND ALARMS IN THE EVENT OF SUMP PUMP FAILURE, INCLUDING COMPLETE GRAPHICS PACKAGE AND WEB-BASED INTERFACE.

i. INCLUDE INSTALLATION AND CALIBRATION, SUPERVISION, ADJUSTMENTS, AND FINE TUNING NECESSARY FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM.

5. VARIABLE REFRIGERANT FLOW/VOLUME (VRF/VRV) SPLIT-SYSTEM [WITH HEAT RECOVERY]: PROVIDE VRF MANUFACTURER'S FACTORY DDC (DIRECT DIGITAL CONTROL) SYSTEM WITH I-TOUCH WEB INTERFACE, THERMOSTATS, FCU AND CONDENSING UNIT CONNECTIONS, AND ALL INTERCONNECTING WIRING AND INTERFACES. SEE VRF CONTROL SCHEMATICS ON THESE PLANS FOR INTERFACE WITH BUILDING AUTOMATION SYSTEM (BAS).

GUIDANCE: VRF SYSTEMS COME WITH STAND-ALONE FACTORY DDC CONTROLS. IF INTERFACE IS DESIRED WITH BUILDING BAS (IF ONE EXISTS), TYPICALLY BEST TO LIMIT THAT TO BAS SENDING OCCUPIED/UNOCCUPIED SCHEDULES AND SPACE TEMP SETPOINTS TO VRF FCUS. ANYTHING MORE COMPLICATED THAN THAT TYPICALLY BECOMES A CHALLENGE GETTING VRF AND BAS CONTROL SYSTEMS TO INTEGRATE WELL.

VAV BOXES

1. (SINGLE DUCT MEDIUM VELOCITY TERMINAL UNITS) SHALL BE OF SIZES SHOWN ON DRAWINGS OR TERMINAL UNIT SCHEDULE. UNITS SHALL HAVE FACTORY CATALOG PERFORMANCE RATINGS THAT CONFORM TO CFM, STATIC PRESSURE, DISCHARGE AND RADIATED SOUND POWER AND ATTENUATION DESIGNATED. UNITS SHALL BE PRESSURE INDEPENDENT AND SHALL RESET AIR QUANTITY AS DETERMINED BY THE SPACE THERMOSTAT. CABINETS SHALL BE CONSTRUCTED OF NOT LIGHTER THAN 22 GAUGE, ZINC-COATED STEEL. INTERNAL SURFACES SHALL BE ACOUSTICALLY AND THERMALLY INSULATED WITH 1 INCH GLASS FIBER MATERIAL SURFACE-TREATED TO PREVENT EROSION AND HAVING U.L. APPROVAL MEETING NBFU 90A AND NFPA. AIR VOLUME DAMPER SHALL BE CONSTRUCTED TO PREVENT AIR LEAKAGE IN EXCESS OF 2% OF RATED AIR QUANTITY AT 1" INLET STATIC PRESSURES. AUTOMATIC DAMPER OPERATORS SHALL BE FURNISHED BY THE CONTROLS SUBCONTRACTOR AND SHALL BE FACTORY INSTALLED AND THOROUGHLY TESTED FOR PROPER PERFORMANCE. PERFORMANCE OF UNITS SHALL BE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE STANDARD 36-72 AND ADC STANDARD L062R4 WITH NO DUCTWORK BETWEEN THE UNIT DISCHARGE AND THE SOUND ROOM. USE TITUS PER SCHEDULE ON DRAWINGS OR EQUAL BY PRICE, NAILOR, OR ENVIRO-TEC.

FAN BOXES

1. SHALL BE OF SIZES AND CAPACITIES AS INDICATED ON THE DRAWINGS. UNITS SHALL BE PRESSURE INDEPENDENT AND SHALL RESET PRIMARY AIR VOLUME AS DETERMINED BY THE SPACE THERMOSTAT. BOXES SHALL BE CAPABLE OF HAVING PRIMARY AIR DAMPER TRAVEL ADJUSTED FULLY CLOSED, BEFORE OR AFTER INSTALLATION WITHOUT ADDITIONAL LINKAGE OR MODIFICATION. AUTOMATIC DAMPER OPERATORS SHALL BE FURNISHED BY THE CONTROL SUBCONTRACTOR AND SHALL BE FACTORY INSTALLED AND THOROUGHLY TESTED FOR PROPER PERFORMANCE. UNITS SHALL BE EQUIPPED WITH ACCESSORY ELECTRIC HEAT SECTION OF SIZE, VOLTAGE AND CAPACITY AS INDICATED ON THE DRAWING.

2. HEATING COIL SHALL BE PROTECTED BY A THROWAWAY AIR FILTER. FANS SHALL BE FORWARD CURVED, DIRECT DRIVE, FOUR SPEED WITH SPLIT CAPACITOR MOTORS. UNITS SHALL INCLUDE FACTORY MOUNTED DISCONNECT AND BE PREWIRED AND SHALL HAVE SINGLE POINT ELECTRICAL CONNECTION. INTERNAL INSULATION SHALL COMPLY WITH NFPA 90A AND UL 181 REQUIREMENTS. PERFORMANCE RATINGS PER ASHRAE STD. 36-72 AND ADC STD. 1062R4. USE TITUS PER SCHEDULE ON DRAWINGS OR EQUAL BY PRICE, NAILOR, OR ENVIRO-TEC.

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REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	1/8" = 1'-0"
DESIGNED:	RBA
DRAWN:	RBA
CHECKED:	TTM
DATE:	05/20/26

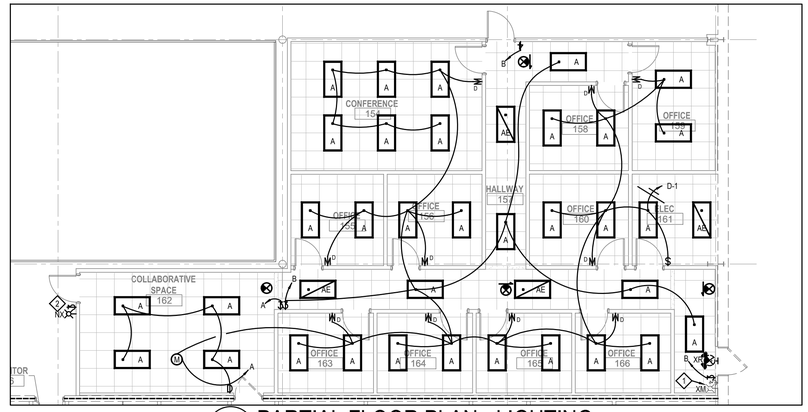
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 51720 TAINEY T. MERGENTHALER
05/20/2026

SHEET TITLE
NOTES AND SPECIFICATIONS - MECHANICAL

SHEET NUMBER
M-401

ELECTRICAL LEGEND

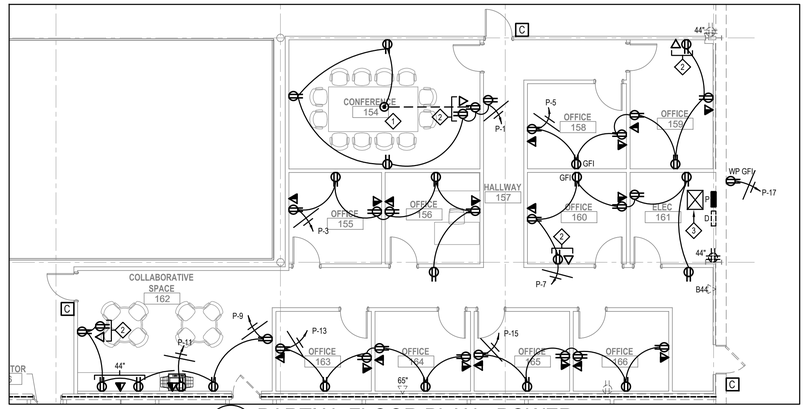
SYMBOL	DESCRIPTION
	HOME RUN TO PANEL MINIMUM SIZE PER CKT BKR
	BRANCH CIRCUIT MINIMUM SIZE PER CKT BKR
A	NEW SWITCHABLE LED 2X4 FIXTURE - LITHONIA CPX 2X4 ALO8 80CRI SWW7 SWL MVOLT - 120/277V 26W - SET TO LOW LUMENS & 3500K COLOR TEMP
AE	SAME AS TYPE 'A' - PROVIDE WITH E10W OPTION (EMERGENCY BATTERY PACK)
NX	EXISTING WALL SCONCE - NEW LOCATION
XM	EXISTING WALL SCONCE - RELOCATE
NX	EXISTING EXIT WALL PACK COMBO - NEW LOCATION
XM	EXISTING EXIT WALL PACK COMBO - RELOCATE
	NEW EXIT LIGHT - LITHONIA LQM OR EQUAL TO MATCH BUILDING STANDARD WITH EL OPTION
M	NEW CEILING MOUNTED OCCUPANCY SENSOR (DUAL TECHNOLOGY) - WATT STOPPER DT-355 SERIES (LINE VOLTAGE) - E.C. SHALL SET TIME DELAY TO 30 MINUTES
D	NEW WALL-SWITCH OCCUPANCY SENSOR WITH 0-10V DIMMING CONTROL - WATT STOPPER DW-311 SERIES - E.C. SHALL SET TIME DELAY TO 30 MINUTES - PROVIDE LOW VOLTAGE WIRING AS NECESSARY
	NEW SINGLE POLE WALL SWITCH, 44" AFF.
	NEW 0-10V DIMMER WALL SWITCH, 44" AFF. - SINGLE POLE/3-WAY CAPABLE - PROVIDE LOW VOLTAGE WIRING AS NECESSARY
	NEW 3-WAY WALL SWITCH, 44" AFF.
	EXISTING 3-WAY WALL SWITCH, 44" AFF. - RELOCATE/REMOVE
X	SWITCH LEG - LETTER DENOTES CONNECTION ZONE
	NEW 4-WAY WALL SWITCH, 44" AFF.
	NEW DUPLEX RECEPTACLE 18" AFF. OR AS NOTED.
	EXISTING DUPLEX RECEPTACLE - REMOVE
	EXISTING QUAD RECEPTACLE - REMAIN
	EXISTING QUAD RECEPTACLE - REMOVE
	NEW CONNECTRAC FLEX SYSTEM - PROVIDE DUPLEX RECEPTACLE & DATA/AV DEVICE AT POWER HUB & PROVIDE ALL WIREWAY COMPONENTS & ACCESSORIES FOR A COMPLETE & WORKING SYSTEM - CIRCLE INDICATES POWER HUB
	NEW AV WALL BOX - 60" A.F.F. OR AS NOTED (RUN 1-1/2" EMT TO ACCESSIBLE POINT ABOVE CEILING)
	NEW PHONE/DATA WALL OUTLET - 18" A.F.F. OR AS NOTED (RUN 3/4" EMT TO ACCESSIBLE POINT ABOVE CEILING)
	EXISTING PHONE/DATA OUTLET - REMOVE
B	EXISTING SINGLE GANG BOX W/ A BLANK COVER PLATE - REMOVE
	NEW PANEL SEE INSTALLATION DETAILS
	EXISTING PANEL - REMAIN
	NEW TRANSFORMER
	NEW DISCONNECT SWITCH - FUSIBLE
C	NEW WALL MOUNTED JB FOR CARD READER - 44"AFF - EQUIPMENT BY OTHERS (RUN 3/4" EMT TO AN ACCESSIBLE POINT ABOVE CEILING)
	MOTOR SWITCH
	NEW WALL
	EXISTING WALL - REMAIN



1 PARTIAL FLOOR PLAN - LIGHTING

SCALE: 1/8" = 1'-0"

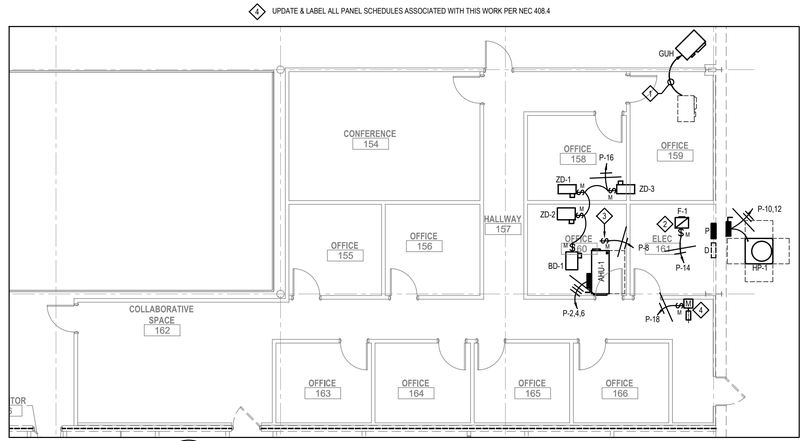
1. EXISTING 3-WAY SWITCH & WALL LIGHT TO BE RELOCATED TO OUTSIDE COLLABORATIVE SPACE 162. SEE PLAN & TAG 2 FOR NEW LOCATION.
2. NEW LOCATION OF AN EXISTING 3-WAY SWITCH & WALL LIGHT. EXTEND EXISTING CIRCUIT/SWITCH LEG TO NEW LOCATION & RECONNECT TO THE EXISTING & RELOCATED WALL LIGHT. EXISTING SWITCH & WALL LIGHT ARE LOCATED BY THE EXTERIOR DOOR. SEE PLAN & TAG 1 ABOVE.
3. CONNECT ALL EMERGENCY & EXIT LIGHTING AHEAD OF ANY SWITCHES OR MOTION SENSORS TO THE CIRCUIT SERVING THE AREA (CIRCUIT D-1)



2 PARTIAL FLOOR PLAN - POWER

SCALE: 1/8" = 1'-0"

1. CONFIRM EXACT LOCATION OF THE NEW CONNECTRAC POWER HUB & THE PREFERRED ROUTING WITH THE TENANT/FURNITURE VENDOR PRIOR TO ROUGH-IN.
2. CONFIRM EXACT LOCATION & MOUNTING HEIGHT FOR THE NEW TV OUTLETS WITH TENANT/AV VENDOR PRIOR TO ROUGH-IN
3. PROVIDE & INSTALL A NEW 45KVA TRANSFORMER MOUNTED ABOVE CEILING
4. UPDATE & LABEL ALL PANEL SCHEDULES ASSOCIATED WITH THIS WORK PER NEC 408.4



3 PARTIAL FLOOR PLAN - MECHANICAL POWER

SCALE: 1/8" = 1'-0"

1. EXTEND EXISTING CIRCUIT & RECONNECT
2. EXHAUST FAN SHALL BE CONTROLLED VIA THERMOSTAT PROVIDED BY MC. EC SHALL RUN LINE VOLTAGE FROM FAN TO THERMOSTAT.
3. CONNECT CONDENSATE PUMP
4. EC SHALL TIE AHU-1 TO THE NEW MOTORIZED DAMPER WHICH IS NORMALLY CLOSED. UPON ACTIVATION OF AHU-1, MOTORIZED DAMPER WILL POWER OPEN. COORDINATE WITH MC
5. PROVIDE A GFI OUTLET AT ALL MECHANICAL EQUIPMENT TO MEET NEC 210.8 & 210.63

NORTH CAROLINA ENERGY CONSERVATION CODE

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE: ENERGY CODE ☐ PERFORMANCE ☒ PRESCRIPTIVE
ASHRAE 90.1 ☐ PERFORMANCE ☐ PRESCRIPTIVE

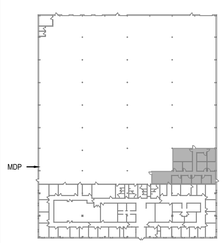
LIGHTING SCHEDULE:

LAMP TYPE REQUIRED IN FIXTURE:	SEE LEGEND
NUMBER OF LAMPS IN FIXTURE:	SEE LEGEND
BALLAST TYPE USED IN EACH FIXTURE:	SEE LEGEND
NUMBER OF BALLASTS IN FIXTURE:	SEE LEGEND
TOTAL WATTAGE PER FIXTURE:	SEE LEGEND
TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED:	988/1818 (W)

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

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE ELECTRICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE.



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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36795 MICHAEL J. HAMMOND
05/20/2026

SHEET TITLE
ELECTRICAL PLAN

SHEET NUMBER
E-101

SHEET # 14 OF 21

EQUIPMENT CONNECTION SCHEDULE

MARK	EQUIPMENT	FURN. BY	TOTAL KW	HEAT KW	HP	VOLTAGE	HEAT FLA	MOTOR FLA	FLA	MCA	DISC SIZE	BREAKER SIZE	WIRE SIZE	GND SIZE	CONDUIT SIZE
AHU-1	AIR HANDLER	MECH	13.0	10.8	3/4	208/3	30.0	3.5	36.0	45.0	60/3	45/3	3-#6	#10	3/4"
HP-1	HEAT PUMP	MECH	5.5			208/1			26.4	33.0	60/2	50/2	2-#6	#10	3/4"

FUSE DISCONNECT AT BREAKER SIZE

VERIFY IF EQUIPMENT REQUIRES A NEUTRAL BASED ON NAMEPLATE RATING PRIOR TO ROUGH IN

ELECTRICAL SPECIFICATIONS

GENERAL REQUIREMENTS

1. WORKMANSHIP SHALL CONFORM TO N.E.C.A. PUBLICATION "STANDARDS OF INSTALLATION".
2. INSTALLATION SHALL COMPLY WITH NATIONAL ELECTRICAL CODE, STATE BUILDING CODE, AND ALL REQUIREMENTS OF THE LOCAL INSPECTOR (FURNISH INSPECTION CERTIFICATE). ALL WORK SHALL BE BY LICENSED ELECTRICAL CONTRACTOR.
3. ALL ELECTRICAL PRODUCTS PROVIDED SHALL BEAR UL LABEL.
4. ALL NEW FIXTURES SHALL BE APPROVED BY ARCHITECT PRIOR TO PLACING ORDER. SUBMIT SHOP DRAWINGS FOR APPROVAL.
5. ALL NEW EQUIPMENT SHALL MATCH EXISTING BUILDING STANDARDS. NO DEVIATIONS SHALL BE ALLOWED. E.C. SHALL VISIT SITE PRIOR TO SUBMITTING BID. E.C. SHALL SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT PROVIDED FOR APPROVAL.
6. MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. LOCATIONS SHOWN ARE APPROXIMATE. THE ELECTRICAL CONTRACTOR SHALL FULLY COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE AND PROVIDE THE PROPER EQUIPMENT CONNECTION AT EACH EQUIPMENT DISCONNECTING MEANS.
7. CONDUCTORS, FUSES, DISCONNECT SWITCHES AND CIRCUIT BREAKERS ARE SIZED FOR SPECIFIED EQUIPMENT. CONTRACTOR SHALL VERIFY FEEDER AND CIRCUIT SIZES FOR ALL EQUIPMENT BEFORE INSTALLATION OF FEEDER. ANY FEEDER INSTALLED BEFORE VERIFICATION SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CONTRACTOR SHALL EXAMINE DRAWINGS OF OTHER TRADES PRIOR TO BIDDING AND PROVIDE CONNECTIONS TO EQUIPMENT NOTED AT NO ADDITIONAL COST. NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR AND/OR BREAKER AND FUSE SIZES REQUIRE CHANGE.
8. VERIFY LOCATION OF ALL FLOOR OUTLETS BEFORE INSTALLATION.
9. SEE ARCHITECTURAL FOR EXTENT OF RENOVATIONS.
10. EXISTING FIXTURES SHALL BE VERIFIED FOR PROPER OPERATION, CLEAN, RELAMP AND RE-BALLAST AS REQUIRED. ALL LIGHT FIXTURES MUST BE REPAIRED AND FULLY OPERATIONAL. ALL LAMPS MUST BE CONSISTENT IN LIGHT COLOR.
11. ALL RELOCATED LIGHT FIXTURES SHALL BE PROVIDED WITH AN INTERNAL DISCONNECT

PRODUCTS

1. CONDUIT SHALL BE STEEL, HOT-DIPPED GALVANIZED, SHERARDIZED OR ZINC METALIZED, RIGID, THREADED, IRON PIPE SIZE, OR IMC ELECTRICAL CONDUIT BY PITTSBURGH, WALKER, TRIANGLE, OR NATIONAL. EMT SHALL BE ELECTRUNITE, REPUBLIC, PITTSBURGH BRAND OR APPROVED EQUAL, MANUFACTURED WITH NO VISIBLE SEAM. FITTINGS FOR EMT SHALL BE COMPRESSION TYPE, ALL STEEL, INSULATED THROAT.
2. HANGERS AND FASTENERS - FOR BAR JOISTS OR OTHER STEEL SYSTEMS USE ERICO OR EQUAL SPRING STEEL FASTENERS. FOR ATTACHING CONDUIT TO STRUCTURAL STEEL USE ERICO COMBINATION CONDUIT CLAMPS. FOR ATTACHING EMT TO SUSPENSION RODS OR TO STRUCTURAL STEEL BEAMS USE ERICO KON OR OTHER SPRING STEEL CLIPS. WHERE CONDUIT CAN BE ARRANGED IN PARALLEL RUNS, USE KINDORF OR UNISTRUT CHANNELS AND CONDUIT STRAPS. FOR ATTACHING TO CONCRETE OR MASONRY CONSTRUCTION USE TAPCON SELF-TAPPING ANCHORS. FOR EXTERIOR SUPPORTS, ALL MATERIALS SHALL BE GALVANIZED.
3. CONDUCTORS OF STANDARD CONDUCTIVITY BEST GRADE COPPER SHALL BE USED. USE TYPE THWN OR HIGHER FOR WET LOCATIONS AND THHN FOR OTHER LOCATIONS. CONDUCTORS SHALL BE COLOR-CODED. USE BLACK AND RED FOR PHASES A AND B RESPECTIVELY FOR 120/240 VOLT SYSTEMS AND WHITE FOR NEUTRAL. USE BLACK, RED AND BLUE FOR PHASES A, B AND C RESPECTIVELY FOR 120/208 VOLT SYSTEMS AND WHITE FOR NEUTRAL. USE BROWN, ORANGE AND YELLOW FOR PHASES A, B AND C RESPECTIVELY FOR 277/480 VOLT SYSTEMS AND NATURAL GRAY FOR NEUTRAL. COLORS SHALL BE FACTORY APPLIED FOR SIZES NO. 6 AND SMALLER. WIRE SIZES NO. 10 AND SMALLER SHALL BE SOLID; NO. 8 AND LARGER SHALL BE STRANDED, MINIMUM SIZE IS #12. ALUMINUM CONDUCTORS MAY BE USED IN SIZES TO NO. 2 AND LARGER WITH EQUIVALENT AMPACITY AND INCREASED CONDUIT SIZES FOR COPPER SIZES SHOWN ON THE DRAWINGS IF APPROVED BY THE ENGINEER. MINIMUM SIZE CONDUCTOR SHALL BE #12. ALL GROUNDING CONDUCTORS TO EQUIPMENT AND DEVICES SHALL BE INSULATED AND GREEN IN COLOR AND NO SMALLER THAN #12.
4. ALL WALL AND CEILING OUTLET BOXES SHALL BE STEEL CITY OR RACO.
5. RECEPTACLES AND SWITCHES SHALL BE BRYANT, SIERRA, LEVITON, HUBBELL BRAND EXCEPT AS SPECIFIED. PLATES AND COLOR SHALL MATCH EXISTING.
6. FURNISH LUMINAIRES AS INDICATED IN SCHEDULE INCLUDED ON THE DRAWINGS. IF THE EXISTING 2x4 & 2x2 RECESSED FIXTURES IN THE BUILDING UTILIZE COMBINATION HEAT REMOVAL AND AIR RETURN, THEN THE NEW 2x4 & 2x2 FIXTURES SHALL ALSO BE COMBINATION HEAT REMOVAL AND AIR RETURN THAT IS RATED FOR 100 CFM AT 0.01" W.G PRESSURE DROP.
7. PROVIDE BALLAST DISCONNECTING MEANS COMPLYING WITH NFPA 70 WHERE REQUIRED.
8. LIGHT FIXTURES SHALL MATCH BUILDING STANDARDS AND SHALL HAVE ENERGY SAVING ELECTRONIC BALLASTS AND ENERGY SAVING LAMPS.
9. FLUORESCENT BATTERY PACKS (4' T8) SHALL PROVIDE A MINIMUM OF 1400 LUMENS AND DRIVE A MINIMUM OF TWO LAMPS.
10. SAFETY DISCONNECT SWITCHES SHALL BE HORSEPOWER RATED, FUSIBLE, INSTALLED WHERE INDICATED AND/OR REQUIRED BY THE NATIONAL ELECTRICAL CODE. SWITCHES EXCEPT WHERE SHOWN, AS BEING FURNISHED BY OTHER SECTIONS SHALL BE FURNISHED UNDER THIS SECTION. SWITCHES SHALL BE FUSED WITH DUAL ELEMENT CURRENT LIMITING FUSES (UNLESS OTHERWISE NOTED) AND SIZED PER NAME-PLATE AMPERAGE OF EQUIPMENT SERVED. PROVIDE FUSE REJECTION CLIPS. SWITCHES INDICATED TO BE INSTALLED OUTDOORS SHALL BE NEMA TYPE 3R WITH RAIN-TIGHT CONDUIT HUBS.
11. SWITCHGEAR SHALL BE TYPICAL OF THE BUILDING. SWITCHGEAR/PANELBOARDS SHALL BE SQUARE D, CUTLER-HAMMER, OR ITE. SWITCHGEAR/PANELBOARDS SHALL BE RATED FOR THE AVAILABLE FAULT CURRENT. CIRCUIT BREAKERS INCLUDING MAINS AND BRANCHES SHALL BE FULLY RATED OR SERIES RATED FROM FACTORY.
12. DRY TRANSFORMERS SHALL BE PROVIDED AS INDICATED IN SIZES SHOWN. ALL TRANSFORMERS SIZE 75 KVA AND SMALLER SHALL BE WALL MOUNTED, SUSPENDED FROM THE STRUCTURE ABOVE OR FLOOR MOUNTED. ALL LARGER SIZES SHALL BE FLOOR MOUNTED. VOLTAGE SHALL BE 480 VOLTS DELTA PRIMARY TO 208/120 VOLTS SECONDARY WYE, THREE-PHASE, FOUR-WIRE, WITH FOUR 2 1/2 PERCENT TAPS. PROVIDE LOCAL GROUND. USE GENERAL ELECTRIC, SQUARE D OR HEVI-DUTY "QUIET" TYPE, 115 DEGREE RISE.
13. ANY ELECTRICAL USE METERS INSTALLED SHALL BE VERIS INDUSTRIES E5X SERIES ENERGY METER HAVE DEMAND, PULSE AND KWH READING CAPABILITY.

INSTALLATION

1. SEE ARCHITECTURAL SHEETS FOR EXACT LOCATIONS AND HEIGHT OF ALL DEVICES.
2. ALL MOUNTING HEIGHTS ARE GIVEN TO THE CENTERLINE OF THE DEVICE UNLESS OTHERWISE NOTED.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE 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. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS. DO NOT SCALE THESE DRAWINGS.
4. ELECTRICAL PLANS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL ALIGN FIXTURES, FIRE ALARM DETECTORS, CEILING DIFFUSERS, SPEAKERS, ETC. AS REQUIRED TO PROVIDE A PATTERN OF UNIFORMITY. AT NO TIME SHALL A SMOKE DETECTOR BE LOCATED WITHIN 3'-0" OF A SUPPLY OR RETURN GRILLE.
5. ALL ELECTRICAL DEVICES SHALL BE ALIGNED WITH THE ARCHITECTURAL FEATURES. DEVICES FOR VARIOUS SYSTEMS LOCATED IN THE SAME GENERAL AREA SHALL BE INSTALLED TOGETHER (ALIGNED) AT THEIR RESPECTIVE MOUNTING HEIGHTS. BACK BOXES SHALL BE MOUNTED ON THE SAME SIDE OF THE SAME WALL STUD TO PRESENT AN ALIGNED APPEARANCE. ANY DIMENSIONS SHOWN SHALL SUPERSEDE THIS GUIDANCE.
6. COORDINATE LOCATIONS OF EACH LIGHT FIXTURE WITH REFLECTED CEILING PLANS. FOR LIGHT FIXTURES INSTALLED IN MECHANICAL AREAS, COORDINATE EACH FIXTURE LOCATION TO AVOID PIPING, EQUIPMENT AND DUCTWORK. SUSPEND EACH FIXTURE TO A POINT JUST BELOW THE ADJACENT DUCTWORK AND LOCATE TO PERMIT ADEQUATE LIGHTING OF ALL EQUIPMENT
7. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS.
8. FLEXIBLE CONDUIT IS APPROVED ONLY FOR FIXTURE AND EQUIPMENT CONNECTIONS WITH LENGTHS NOT TO EXCEED SIX FEET.
9. ELECTRICAL CONTRACTOR SHALL NOT RUN CONDUIT FOR DEVICES HORIZONTALLY IN WALL BETWEEN DEVICES. CONDUIT SHALL BE RUN VERTICALLY TO ABOVE CEILING THEN ACROSS AND DOWN TO NEXT DEVICE. THE ONLY EXCEPTION SHALL BE WHERE IT IS NOT POSSIBLE. I.E. IN A PERIMETER OR LOW WALL.
10. WHEREVER ELECTRICAL OR TELEPHONE APPEAR BACK-TO-BACK THE OUTLET BOXES SHALL BE STAGGERED SO AS TO REDUCE NOISE TRANSMISSION THROUGH THE PARTITION. (SEPARATE STUD CAVITIES)
11. PROVIDE TYPED PANEL DIRECTORIES LISTING ROOM NUMBERS FOR LIGHTS, RECEPTACLES, ETC. PER FIELD DESIGNATIONS BY OWNER AND NOT BY PLAN'S DESIGNATIONS IF DIFFERENT FROM PLANS. ALL ELECTRICAL PANEL DIRECTORIES SHALL BE CHANGED TO CORRECT FOR CIRCUIT CHANGES. NO HAND WRITTEN LABELING ACCEPTED.
12. ALL SWITCHES, RECEPTACLES, AND ELECTRICAL EQUIPMENT SHALL BE MARKED WITH CLEAR TAPE AND BLACK TYPE TO INDICATE THE PANEL AND CIRCUIT SERVING THE DEVICE.
13. FREE STANDING EQUIPMENT SHALL BE MOUNTED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD WITH 3/4" CHAMFERED EDGES.
14. WHERE MULTIPLE LIGHTING SWITCHES ARE SHOWN NEXT TO EACH OTHER, A MULTIGANG BOX SHALL BE USED WITH DIVIDERS AS REQUIRED AND A SINGLE MULTIGANG FACEPLATE. WHERE THE BOX HAS CIRCUITS OF DIFFERENT VOLTAGES OR SYSTEMS WHICH ARE REQUIRED TO BE SEPARATED, PROVIDE THE CODE REQUIRED SEPARATION USING A FULL HEIGHT AND DEPTH BARRIER PLATE.
15. REFER TO MECHANICAL SHEETS FOR EXACT LOCATIONS OF LINE VOLTAGE THERMOSTATS, FAN SWITCHES, HUMIDISTATS, FIRE SENSING DEVICES, OR OTHER CONTROL DEVICES FURNISHED BY THE MECHANICAL CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.
16. CONNECTIONS SERVING ELECTRIC WATER COOLERS SHALL BE INSTALLED CONCEALED BEHIND OR WITHIN THE ENCLOSURES OF THE WATER COOLER SO THAT CORD AND OUTLET ARE NOT VISIBLE. COORDINATE MOUNTING HEIGHTS WITH THE PLUMBING CONTRACTOR. OUTLET SHALL BE GFI.
17. WHERE AN INDIVIDUALLY MOUNTED SAFETY SWITCH, STARTER OR CIRCUIT BREAKER IS SHOWN ADJACENT TO ITS RESPECTIVE LOAD AND NOT MOUNTED ON A WALL, PROVIDE ALL SUPPORTS, BRACKETS, ANCHORING, ETC. NECESSARY TO PROPERLY SUPPORT THE DEVICE.
18. ALL DATA CONDUITS TERMINATIONS ARE TO BE FINISHED WITH INSULATED BUSHING AND THREADED CONNECTOR.
19. WORKMANLIKE CABLE MANAGEMENT IS REQUIRED. USE CABLE TRAYS, J-HOOKS, OR OTHER EQUIPMENT AS REQUIRED TO PROVIDE EXCELLENT CABLE MANAGEMENT. CABLE MUST BE INDEPENDENTLY SUPPORTED. ALL FIRE WALL PENETRATIONS MUST BE SLEEVED AND FIRE STOPPED. PLENUM RATED CABLE REQUIRED.
20. ALL RECEPTACLES WITHIN 6'-0" OF A SINK SHALL BE GFI PER NEC 210.8 (B) (5).
21. THE ELECTRICAL CONTRACTOR IS TO INCLUDE IN HIS BASE BID ALL STRAPPING AND HANGING OF EXISTING CONDUIT IN THE PLENUM AREA ABOVE THE CEILING.
22. CIRCUIT A MAXIMUM OF 9 RECEPTACLES ON ANY GIVEN CIRCUIT. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
23. ALL CIRCUITS SHALL BE TESTED WITH 500 VOLT TESTER PRIOR TO ENERGIZING.
24. CONNECT TO TERMINALS OF MECHANICAL EQUIPMENT AND EQUIPMENT SUPPLIED BY OWNER.
25. FINAL LOCATIONS OF ALL EMERGENCY AND EXIT FIXTURES SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION AND SHOULD MATCH THE BUILDING STANDARD. (SHALL BE BATTERY-PACK TYPE)
26. ALL WALL AND CEILING BOXES (NEW & EXISTING) MUST HAVE COVERS (INCLUDING ALL TELEPHONE BOXES).
27. GROUNDING SHALL BE PER N.E.C. PROVIDE GREEN GROUND WIRE IN ALL CONDUITS SIZED PER N.E.C. PROVIDE GREEN GROUNDING JUMPER ON ALL RECESSED DUPLEX RECEPTACLES.
28. WIRING METHODS: IN GENERAL ALL CONDUIT SHALL BE CONCEALED EXCEPT IN MECHANICAL AREAS OR SIMILAR UNFINISHED AREAS OR AS NOTED. USE EMT, IMC OR RIGID CONDUIT FOR ALL BRANCH CIRCUITS INSIDE THE BUILDING. EMT MAY BE USED IN CHASES, CEILING OR FLOOR CAVITIES, INTERIOR PARTITIONS, AND IN ANY DRY LOCATION. USE EXPOSED WIREMOLD SURFACE RACEWAY FOR EXPOSED WIRING IN FINISHED AREAS WHERE ALLOWED. SCHEDULE 40 PVC MAY BE USED FOR CIRCUITS UNDER SLAB ON GRADE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF, FLEXIBLE CONDUIT. FLEXIBLE CONNECTIONS TO RECESSED LIGHT FIXTURES SHALL BE MADE USING A MAXIMUM OF SIX FEET OF FLEXIBLE MC CABLE OR FLEXIBLE CONDUIT AND CONDUCTORS. IN LIEU OF MC CABLE, THE USE OF 3/8 INCH FLEXIBLE CONDUIT PROVIDED ON THE FIXTURE BY THE FIXTURE MANUFACTURER WILL BE ALLOWED.
29. CIRCUIT LENGTH LIMITS: BRANCH CIRCUITS SHALL HAVE 3% VOLTAGE DROP OR LESS. WHERE CIRCUITS EXCEED THE LENGTH INDICATED BELOW, UTILIZE LARGER SIZE PHASE & GROUND CONDUCTORS FOR THAT CIRCUIT AS REQUIRED TO LIMIT VOLTAGE DROP TO 3% PER NEC.

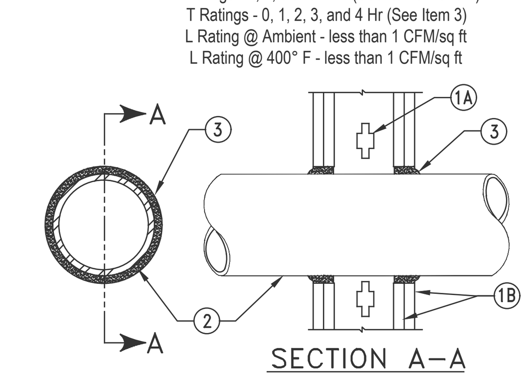
WIRE	120V	208V, 1Ø	277V
#12	75'	135'	180'
#10	105'	185'	250'
#8	120'	210'	280'

30. TELEPHONE BOARDS SHALL BE FIRE RATED WOOD WITH TWO (2) COATS OF PAINT, 3/4" PLYWOOD.
31. COMBINE HOMERUNS IN CONDUIT AS DESIRED (3 ON 3-PHASE, 2 ON SINGLE PHASE) PER NEC 210.4.B OR NEC 605.7.
32. CONDUIT INSTALLATION - IN GENERAL, ALL CONDUIT SHALL BE CONCEALED. EXPOSED CONDUIT IS ALLOWED IN EQUIPMENT ROOMS, CHASES, AND MECHANICAL AREAS WHERE EXPOSED DUCTWORK AND OTHER EQUIPMENT IS INSTALLED. EXPOSED CONDUIT SHALL BE RUN AT RIGHT ANGLES TO WALLS AND CEILINGS AND SHALL BE SUPPORTED WITH GALVANIZED ONE-HOLE STRAPS OR HANGERS ATTACHED TO MASONRY WITH INSERTS OR LEAD EXPANSION SLEEVES AND BOLTS. THE USE OF SOFT IRON, COPPER WIRE, PLASTIC STRAPS, OR CONDUIT IS NOT PERMITTED FOR SUPPORTING CONDUIT. EXPOSED CONDUIT SHALL BE RUN WITH CAST FITTINGS AND FACTORY ELLS. USE "FS" SERIES THREADED HUB BOXES FOR EXPOSED WORK. ON ALL SURFACE MOUNTED EXPOSED CONDUIT, USE CAST GALVANIZED BOXES AND JUNCTION BOXES WITH THREADED HUBS. ALLOY METAL FITTINGS SHALL NOT BE USED FOR EMT. CUT METAL CONDUIT WITH HACKSAW AND REAM ENDS OF FINS AND BURRS AFTER THREADING. DO NOT USE WHEEL CUTTERS. BEVEL SQUARE-END CUTTER MAY BE USED. USE ONLY APPROVED CONDUIT BENDERS FOR BENDING CONDUIT. ANY FLATTENED BENDS SHALL BE REMOVED AND REPLACED AS DIRECTED. RUNNING THREADS ARE NOT PERMITTED BUT UNIVERSAL COUPLINGS MAY BE USED. ALL CONDUIT WORK WILL IN GENERAL FOLLOW THE LAYOUT ON THE PLANS. THIS LAYOUT IS DIAGRAMMATIC ONLY AND WHERE CHANGES ARE NECESSARY DUE TO STRUCTURAL CONDITIONS OR OTHER CAUSES, SUCH CHANGES SHALL BE MADE WITHOUT ADDED COST TO THE OWNER. PVC CONDUIT IS NOT ALLOWED IN ANY STRUCTURAL CONCRETE. PROVIDE EXPANSION FITTINGS WHERE CONDUIT IS REQUIRED TO CROSS BUILDING EXPANSION JOINTS. EXCEPT AS OTHERWISE SPECIFIED FOR BONDING, INSULATED BUSHINGS SHALL BE USED WITH DOUBLE LOCKNUTS ON CONDUITS ENTERING PANELS, CABINETS OR PULL BOXES. ALL EMPTY CONDUITS REQUIRED SHALL HAVE INSULATING BUSHING AND PULL WIRE OR CABLE INSTALLED. FOR EMPTY CONDUIT STUBBED ABOVE CEILINGS, USE INSULATED THROAT FITTINGS OR INSULATING BUSHING. CONDUIT SHALL BE 1/2 INCH MINIMUM FOR POWER AND 3/4" MINIMUM FOR FIRE ALARM OR OTHER SYSTEMS CONDUIT.
33. REMOVE ABANDONED POWER, PHONE AND COMPUTER CABLING/CONDUIT WITH EACH RENOVATION.
34. INSTALL BLANK COVER PLATES ON ABANDONED OUTLETS IN WALL TO REMAIN.
35. CIRCUITS BROKEN DURING DEMOLITION SHALL BE RECONNECTED.
36. DEVICES SHOWN TO REMAIN SHALL REMAIN CONNECTED OR BE RECONNECTED TO EXISTING CIRCUITS.
37. RECONNECT CIRCUITS AS SHOWN. DO NOT OVERLOAD CIRCUITS.
38. WHERE EXISTING DEVICES ARE SHOWN TO REMAIN WITH NO NEW CIRCUITING, THESE DEVICES SHALL REMAIN CONNECTED WITH NO MODIFICATIONS. IF DURING DEMOLITION THESE DEVICES BECOME DISCONNECTED, RECONNECT.
39. OUTLET BOXES INSTALLED IN RATED WALLS SHALL BE INSTALLED PER NCBC 714.3.2. NO BOX LARGER THAN 4 INCHES SQUARE MAY BE USED AND NO MORE THAN 6 BOXES PER 100 SQUARE FEET.
40. IN ALL AREAS WHERE 1 AND 2 HOUR FIRE RATED WALLS, FLOOR AND CEILINGS ARE INSTALLED, ALL PENETRATIONS OF ELECTRICAL CONDUITS OR OTHER RELATED ELECTRICAL MATERIAL SHALL BE PROPERLY SEALED WITH UL LISTED FIRE RATED MATERIALS TO MAINTAIN THE RATING OF THE BUILDING CONSTRUCTION IN ACCORDANCE WITH ARTICLE 300-21, OF THE LATEST EDITION OF THE NEC AND THE NORTH CAROLINA STATE BUILDING CODE. AT NO TIME SHALL A FOUR-HOUR RATED WALL BE PENETRATED WITHOUT THE WRITTEN APPROVAL OF THE BUILDING INSPECTOR. ALL PENETRATION SEALS SHALL COMPLY WITH THE LATEST EDITION OF THE UL FIRE RESISTANCE DIRECTORY.
41. WHERE RECEPTACLES ARE SHOWN ON OPPOSITE SIDES OF A FIRE RATED WALL THEY SHALL BE STAGGERED 24" ON CENTER ON BOTH SIDES OF THE ASSEMBLY.
42. OPENINGS FOR ELEC. OUTLETS, SWITCHES OR JUNCTION BOXES IN FIRE RATED WALLS OR PARTITION ASSEMBLIES CONSTRUCTED OF HOLLOW MASONRY UNITS ARE PERMITTED, PROVIDED THE VOID SPACE(S) EXPOSED BY SUCH AN INSTALLATION ARE FILLED WITH CONCRETE, MORTAR, OR GROUT WITHIN NOT LESS THAN 4" OF THE BOXES, AND MASONRY BOXES ARE USED.
43. WIRING OF MULTI-WIRE BRANCH CIRCUITS SHALL CONFORM TO NEC 210.4.B. USE MULTI-POLE BREAKER OR HANDLE TIE.
44. CONNECT ONLY 3 CUBICLES PER CIRCUIT.
45. WHERE THREE 120/1 HOME RUNS ARE SHOWN TO BE CONNECTED TO CUBICLES, EACH HOME RUN SHALL BE ON A SEPARATE PHASE.
46. DO NOT COMBINE SAME PHASES IN THE CUBICLES, CONNECT PHASE A,B, AND C TO EACH CUBICLE. (NOT 3 PHASE A CKTS.)
47. REWORK PANEL BOARD CIRCUITING AS NECESSARY TO ACCOMMODATE THE ABOVE.
48. COORDINATE ALL ELEVATOR REQUIREMENTS WITH ELEVATOR INSTALLER. FINAL LOCATIONS OF ALL DEVICES SHALL BE PER MANUFACTURERS REQUIREMENTS.
49. ALL COMMUNICATIONS CABLE, CABLE INSTALLATION, CONNECTORS, TERMINATIONS AND MULTI-PART FACEPLATES ARE BY TENANT'S VENDOR, AND ARE NOT IN THIS CONTRACT.
50. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF 2018 NCBC ACCESSIBILITY CODE, (ANSI SECTION 308 & 309).
51. CONDUCTORS AND SPLICING: USE COPPER CONDUCTORS FOR ALL FEEDERS AND BRANCH CIRCUITS. FOR CONDUCTORS SIZE 8 AWG AND SMALLER, USE TWIST-ON INSULATED SPRING CONNECTORS. FOR CONDUCTORS SIZE 6 AWG AND LARGER, USE MECHANICAL CONNECTORS OR COMPRESSION CONNECTORS. FOR MECHANICAL CONNECTOR PROVIDE BOLTED TYPE OR SET-SCREW TYPE. FOR COMPRESSION CONNECTORS, PROVIDE CIRCUMFERENTIAL TYPE OR HEX TYPE CRIMP CONFIGURATION. FOR PARALLELED CONDUCTORS INSTALL CONDUCTORS OF THE SAME LENGTH AND TERMINATE IN THE SAME MANNER. ALL CONNECTORS SHALL BE AS MANUFACTURED BY BURNDY, ILSCO OR THOMAS & BETTS.
52. ALL RECEPTACLES AT COUNTERTOPS AND BUILT-IN DESKTOPS SHALL COMPLY WITH ANSI A117-1 FOR ACCESSIBILITY.
53. ANY EQUIPMENT INSTALLED IN WET LOCATIONS OR OUTDOORS SHALL BE RATED FOR SUCH INSTALLATION, FOR EXAMPLE NEMA 3R
54. FOR TELEPHONE AND COMPUTER CABLES THAT ENTER THE CEILING PLENUM, PLENUM RATED CABLE SHALL BE USED.
55. COMMUNICATIONS CABLE MUST BE EITHER BLUE, WHITE OR GRAY. HVAC CONTROLS CABLE IS TO BE PURPLE OR YELLOW. THERE SHALL BE NO SPLICING OF CONTROL WIRE.
56. IF A TENANT EXPANDS INTO PART OF A VACANT AREA, A LIGHT SWITCH MUST BE INSTALLED TO CONTROL THE REMAINING VACANT SPACE.

UL SYSTEM NO. W-L-1001

UPDATED JUNE 15, 2005

F Ratings - 1, 2, 3 and 4 Hr (See Items 2 and 3)
T Ratings - 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating @ Ambient - less than 1 CFM/sq ft
L Rating @ 400° F - less than 1 CFM/sq ft



1. Wall Assembly - The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to (610 mm) OC. consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in.

B. Gypsum Board* - Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. Through Penetrant - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe - Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
C. Conduit - Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing
D. Copper Tubing - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing
E. Copper Pipe - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
F. Through Penetrating Product* - Flexible Metal Piping - The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
OMEGA FLEX INC
2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
GASTITE, DIV. OF TITEFLEX
3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
WARD MFG INC

3. Fill,Void or Cavity Material* - Caulk or Sealant - Min 5/8. 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead ofcaulk applied to gypsum board/penetrant interface at point contact location on both sides of wall.

The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table.
The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam, in (mm)	F Rating, Hr	T Rating, Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 hr.

3M COMPANY - CP 25WB + or FB-3000 WT ,

*Bearing the UL Classification Marking

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1 — 1,2,3 AND 4 HR. PENETRATION FIRESTOP
SCALE: NTS

Panel D

Panel Name: D — Voltage 277/480, 3P 4W — Main Breaker 400 Amps — Poles 42

Connection	Load Type	kVA	Breaker Size	CKT		CKT	Breaker Size	kVA	Load Type	Connection
LTS 154-166	Cont	0.99	20/1*	1	A	2		0.00	Other	
SPARE	Other	0.00	20/1*	3	B	4	20/3	0.00	Other	SPARE
SPARE	Other	0.00	20/1*	5	C	6		0.00	Other	
SPARE	Other	0.00		7	A	8		0.00	Other	
SPARE	Other	0.00	20/3	9	B	10	20/3	0.00	Other	SPARE
SPARE	Other	0.00		11	C	12		0.00	Other	
SPARE	Other	0.00		13	A	14		6.65	Other	
SPARE	Other	0.00	20/3	15	B	16	30/3	6.65	Other	MID HEATER
SPARE	Other	0.00		17	C	18		6.65	Other	
SPARE	Other	0.00		19	A	20		4.43	Other	
SPARE	Other	0.00	20/3	21	B	22	20/3	4.43	Other	ROLL UP DOOR
SPARE	Other	0.00		23	C	24		4.43	Other	
SPARE	Other	0.00		25	A	26		0.00	Other	
SPARE	Other	0.00	60/3	27	B	28	20/3	0.00	Other	SPARE
SPARE	Other	0.00		29	C	30		0.00	Other	
	Other	6.65		31	A	32		15.00	Other	
WELDER	Other	6.65	30/3	33	B	34	70/3*	15.00	Other	PANEL P
	Other	6.65		35	C	36		15.00	Other	VIA 45 KVA XFMR
SPARE	Other	0.00		37	A	38		0.00	Other	
SPARE	Other	0.00	50/3	39	B	40	90/3	0.00	Other	SPARE
SPARE	Other	0.00		41	C	42		0.00	Other	
Phase:	A	B	C				A	B	C	
	33.7	32.7	32.7	kVA			34.0	32.7	32.7	
Per Phase Connected	121.7	118.2	118.2	amps			122.6	118.2	118.2	Per Phase Demand
	kVA	amps								
Demand Load	99.4	119.6					S/N BAR	AIC Rating	22000	
Connected Load	99.2	119.3					GND BAR	SURFACE MOUNTED		

EXISTING PANEL — EXISTING LOADS BASED ON 80% OF BREAKER SIZE

*-PROVIDE A NEW BREAKER TO REPLACE THE EXISTING & CONNECT

PROVIDE TYPE WRITTEN PANEL SCHEDULE & PROPER IDENTIFICATION PER NEC 408.4

Panel P

Panel Name: P — Voltage 120/208, 3P 4W — Main Breaker 150 Amps — Poles 42

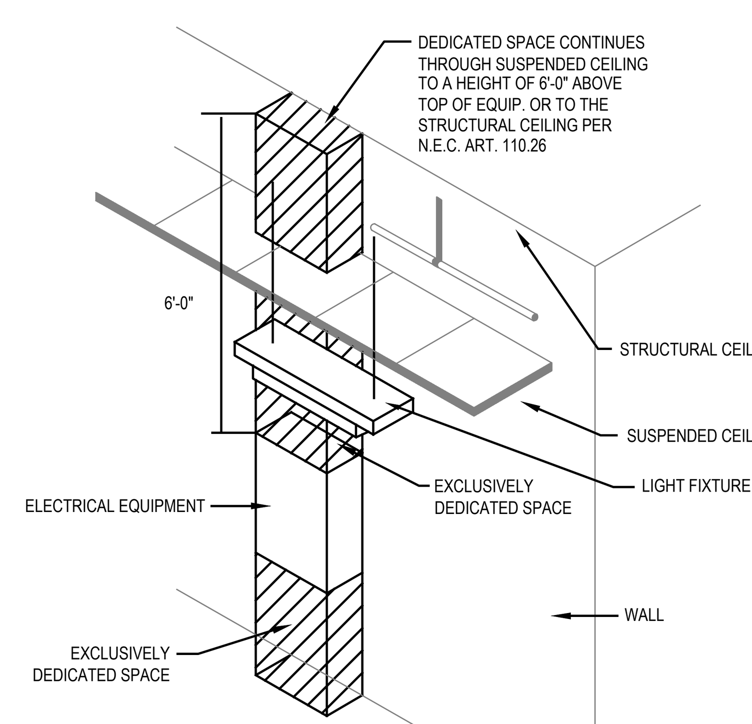
Connection	Load Type	kVA	Breaker Size	CKT		CKT	Breaker Size	kVA	Load Type	Connection
RECS 154	Recep	1.26	20/1	1	A	2		4.33	Motor	
RECS 155,156	Recep	1.26	20/1	3	B	4	45/3*	4.33	Motor	AHU-1
RECS 158,159	Recep	1.26	20/1	5	C	6		4.33	Motor	
RECS 160,161	Recep	1.26	20/1	7	A	8	20/1	0.42	Motor	COND PUMP
RECS 162	Recep	1.08	20/1	9	B	10	50/2*	2.75	Motor	HP-1
COPIER 162	Other	1.20	20/1	11	C	12		2.75	Motor	
RECS 163,164	Recep	1.08	20/1	13	A	14	20/1	0.35	Motor	EX FAN F-1
RECS 165,166	Recep	1.08	20/1	15	B	16	20/1	0.05	Other	ZONE DAMPERS
EXTERIOR REC	Recep	0.18	20/1	17	C	18	20/1	0.02	Other	MOTORIZED DAMPER
SPARE	Other	0.00	20/1	19	A	20	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	21	B	22	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	23	C	24	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	25	A	26	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	27	B	28	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	29	C	30	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	31	A	32	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	33	B	34	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	35	C	36	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	37	A	38	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	39	B	40	20/1	0.00	Other	SPARE
SPARE	Other	0.00	20/1	41	C	42	20/1	0.00	Other	SPARE
Phase:	A	B	C				A	B	C	
	8.7	10.6	9.7	kVA			9.8	11.6	10.8	
Per Phase Connected	72.5	87.9	81.2	amps			81.5	96.9	90.2	Per Phase Demand
	kVA	amps								
Demand Load	32.2	89.5					S/N BAR	AIC Rating	10000	
Connected Load	29.0	80.5					GND BAR	SURFACE MOUNTED		

NEW PANEL — *-SEE EQUIPMENT CONNECTION SCHEDULE FOR CONDUIT/WIRE SIZE

PROVIDE TYPE WRITTEN PANEL SCHEDULE & PROPER IDENTIFICATION PER NEC 408.4

MDP LOAD SUMMARY

PEAK DEMAND LOAD(POWER CO.) (0.85 PF)	123.5	KVA
+ 25% OF PEAK	30.9	KVA
NEW LIGHTS	1.0	KVA
+ 25% CONTINUOUS FOR LIGHTS	0.3	KVA
NEW HVAC	19.4	KVA
+ 25% FOR LARGEST MOTOR	0.3	KVA
NEW RECEPS & MISC 120V POWER	9.5	KVA
222.4 AMPS @ 480V/3Ø — TOTAL	184.9	KVA
MDP IS 1000A		



NOTE:
THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER THE ELECTRICAL EQUIPMENT FOR THE CABLES, RACEWAYS, ETC... TO AND FROM THE ELECTRICAL EQUIPMENT REQUIRED BY SECTION 110-26 OF THE NATIONAL ELECTRICAL CODE.

2 — DEDICATED SPACE FOR ELECTRICAL EQUIPMENT N.E.C. ART.110-26 (F)(1)
SCALE: NONE

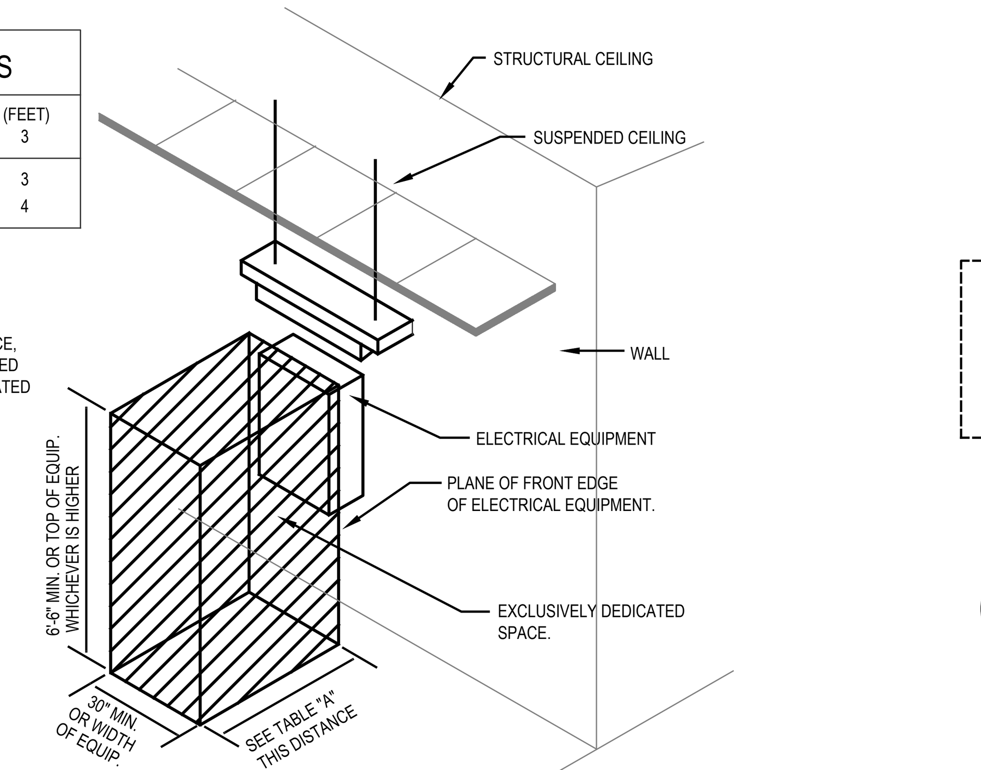
TABLE A - WORKING CLEARANCES

VOLTAGE TO GROUND NOMINAL	CONDITION: 1	2	3
0-150	3	3	3
151-600	3	3-1/2	4

(MINIMUM CLEAR DISTANCE (FEET))

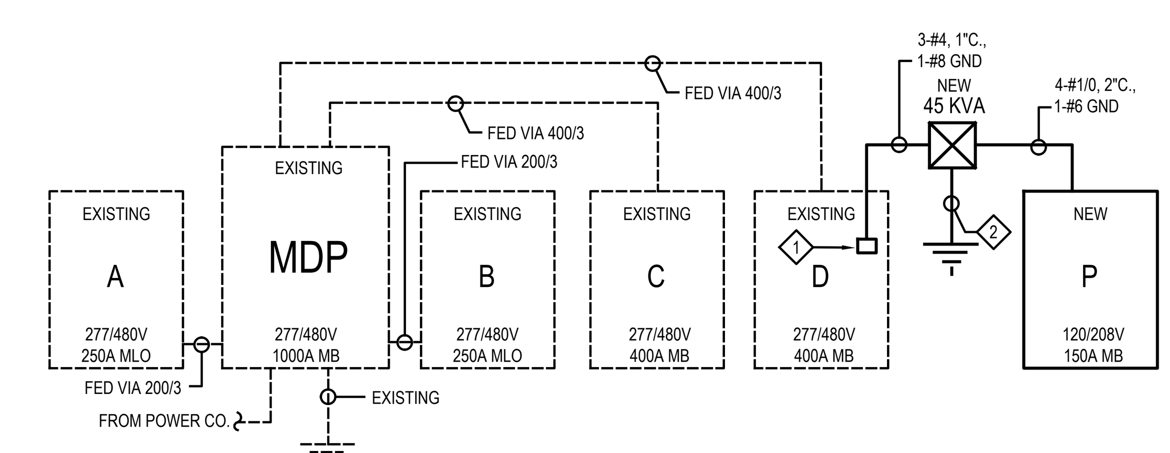
WHERE THE "CONDITIONS" ARE AS FOLLOWS:

1. EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR EXPOSED GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300V SHALL NOT BE CONSIDERED LIVE PARTS.
2. EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.
3. EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.



NOTE:
THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT REQUIRED BY SECTION 110-26 OF THE NATIONAL ELECTRICAL CODE.

3 — WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT N.E.C. ART. 110-26
SCALE: NONE



4 — PARTIAL ELECTRICAL RISER DIAGRAM
SCALE: NONE

1. PROVIDE A NEW 70A/3 BREAKER & CONNECT NEW PANEL P VIA THE NEW 45KVA TRANSFORMER AS SHOWN
2. 1-#6 GND TO BLDG STEEL & COLD WATER PIPING
3. UPDATE & LABEL ALL PANEL SCHEDULES ASSOCIATED WITH THIS WORK PER NEC 408.4

RISER DIAGRAM LEGEND

SYMBOL	DESCRIPTION
———	NEW EQUIPMENT/FEEDER
- - - - - -	EXISTING EQUIPMENT/FEEDER - REMAIN

DJG INC.
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Harnett COUNTY NORTH CAROLINA

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ENGINEERING FIRM NUMBER: C-0110
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, N.C. 27607
P.919.851.4422 BNKINC.COM

PERMIT SET

HARNETT COUNTY IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	1/8" = 1'-0"
DESIGNED:	MJH
DRAWN:	MJH
CHECKED:	MJH
DATE:	05/20/26

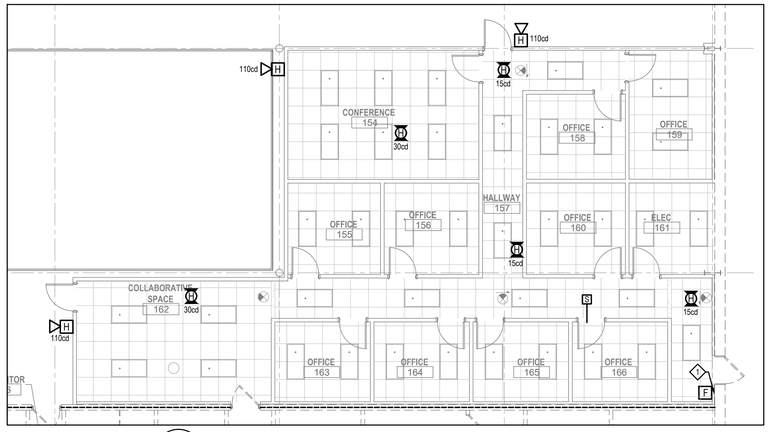
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36795 MICHAEL J. HOFMANN
05/20/2026

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-201

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

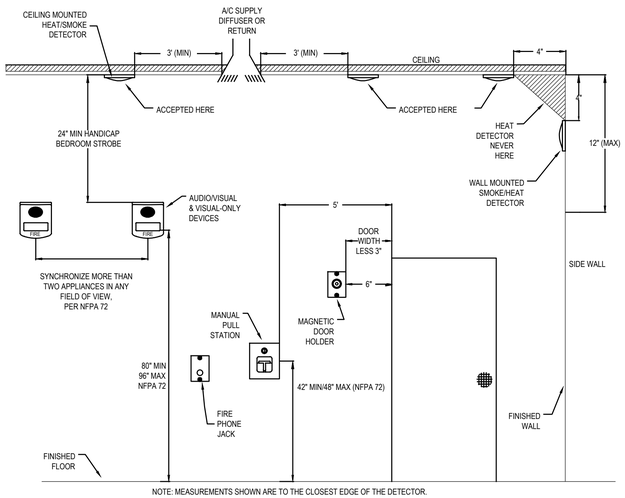
SYSTEM INPUTS		SYSTEM OUTPUTS: ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE GENERAL EVACUATION SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	RELEASE MAGNETICALLY HELD DOORS	UNLOCK EXITS AND CONTROL DOORS	SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	FIRE ALARM SYSTEM AC POWER FAILURE					●	●						●						1
2	FIRE ALARM SYSTEM LOW BATTERY					●	●						●						2
3	OPEN CIRCUIT					●	●						●						3
4	GROUND FAULT					●	●						●						4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●						●						5
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●	●				6
7	CORRIDOR SMOKE DETECTORS	●	●					●	●	●	●			●	●				7
8	AREA SMOKE DETECTORS	●	●					●	●	●	●			●	●				8
9	HVAC AIR DUCT SMOKE DETECTORS			●	●			●		●		●				●			9
10	SPRINKLER TAMPER SWITCH			●	●			●		●		●							10
11	SPRINKLER WATER FLOW IN BUILDING	●	●					●	●	●	●			●	●				11
12	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	●	●					●	●	●	●			●	●				12
13	FIRE PUMP POWER FAILURE/PHASE REVERSAL			●	●			●		●		●							13
14	FIRE PUMP RUNNING	●	●					●	●	●	●			●	●				14
15	FIRE PUMP SYSTEM NOT IN AUTOMATIC			●	●			●		●		●							15
16	AREA OF REFUGE TWO-WAY COMMUNICATIONS STATUS			●	●			●		●		●							16
17	FIRE SPRINKLER PREACTION FLOW	●	●					●	●	●	●			●	●				17
18	FIRE SPRINKLER PREACTION SUPERVISORY			●	●			●		●		●							18
19	FIRE SPRINKLER PREACTION TROUBLE					●	●						●						19



1 PARTIAL FLOOR PLAN - FIRE ALARM

SCALE: 1/8" = 1'-0"

1. REMOVE THE EXISTING FIRE ALARM PULL STATION & WALL MOUNTED 15 CANDELA NOTIFICATION DEVICE IN THIS LOCATION DUE TO THE WALL BEING FURRED OUT. RELOCATE THE PULL STATION ON THE NEW FURRED OUT WALL AS SHOWN.



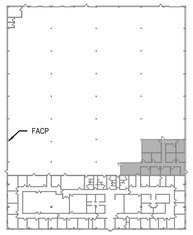
NOTE: MEASUREMENTS SHOWN ARE TO THE CLOSEST EDGE OF THE DETECTOR.

2 FIRE ALARM DEVICE MOUNTING HEIGHTS

SCALE: NONE

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
H cd	NEW FIRE ALARM HORN/STROBE CEILING MOUNTED - TO MATCH EXISTING WITH ADJUSTABLE VOLUME & CANDELA FEATURE, TIE INTO EXISTING FIRE ALARM SYSTEM. cd - MINIMUM CANDELA
H cd	NEW FIRE ALARM HORN/STROBE MOUNTED AT 80" AFF OR 12" BELOW CEILING (WHICHEVER IS LOWER) - TO MATCH EXISTING WITH ADJUSTABLE VOLUME & CANDELA FEATURE, TIE INTO EXISTING FIRE ALARM SYSTEM. cd - MINIMUM CANDELA
F	NEW FIRE ALARM PULL STATION
S	DUCT MOUNTED SMOKE DETECTOR W/ REMOTE KEYED SWITCH - PROVIDED BY E.C., M.C. TO INSTALL, AND E.C. TO CONNECT TO FA SYSTEM
	NEW WALL
	EXISTING WALL - REMAIN



KEY PLAN

FIRE ALARM NOTES

1. ALL VISIBLE NOTIFICATION APPLIANCES SHALL BE SYNCHRONIZED PER EDITION 2013 OF NFPA 72, SECTION 18.5.
2. E.C. SHALL VERIFY THAT DECIBEL LEVELS THROUGH OUT ENTIRE AREA OF WORK IS 70 DBA MINIMUM AND 110 DBA MAXIMUM PRIOR TO CALLING FOR INSPECTION. ADJUST LEVEL OF ALL HORNS AS NEEDED. (100db IN MACHINE AND MECH ROOMS)
3. PROVIDE ADDITIONAL DEVICES UL LISTED FOR USE WITH EXISTING SYSTEM AS INDICATED AND CONNECT TO EXISTING SYSTEM, PROVIDE REVISED BATTERY CALCS. FOR SYSTEM WITH ALL NEW AND EXISTING DEVICES INSTALLED. PROVIDE ADDITIONAL BATTERIES AS REQUIRED TO MAINTAIN SYSTEM IN FULL COMPLIANCE WITH NFPA 72, ADA AND ALL APPLICABLE STATE AND LOCAL CODES. PROVIDE ADDITIONAL ZONE MODULES AS REQUIRED IN EXISTING FACP SPACE FOR DEVICES ADDED. AS ALTERNATE CONTRACTOR MAY ADD POWER BOOSTER AND PROVIDE CALCULATIONS FOR THE ADDED DEVICES ONLY PROVIDED THAT NO NEW LOADS ARE ADDED TO EXISTING SYSTEM.
4. E.C. SHALL PROVIDE BATTERY CALCULATIONS AND CUT SHEETS FOR FIRE ALARM SYSTEM. IF BATTERY CALCS SHOW THE SYSTEM AS INSUFFICIENT, CONTRACTOR SHALL PROVIDE ALTERNATE PRICE TO ADD A NEW POWER EXTENDER UL LISTED FOR USE WITH EXISTING SYSTEM AND CONNECT NEW DEVICES TO IT. PRIOR TO INSTALLING NEW POWER EXTENDER NOTIFY ENGINEER. AS ALTERNATE CONTRACTOR MAY ADD POWER BOOSTER AND PROVIDE CALCULATIONS FOR THE ADDED DEVICES ONLY PROVIDED THAT NO NEW LOADS ARE ADDED TO EXISTING SYSTEM.
5. FIRE ALARM PROVIDER SHALL PROVIDE SHOP DRAWINGS WITH BATTERY & VOLTAGE DROP CALCULATIONS TO CITY PRIOR TO ROUGH-IN INSPECTION BY CITY.
6. FIRE ALARM CONNECTIONS TO MECHANICAL EQUIPMENT ARE NOT SHOWN. PROVIDE ALL REQUIRED CONDUIT, WIRING, CONTROL MODULES, RELAYS, TERMINAL STRIPS, ETC. FOR INTERFACE WITH FIRE ALARM SYSTEM. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.
7. ALL CEILING MOUNTED FIRE ALARM NOTIFICATION DEVICES SHALL BE MOUNTED 10' AFF OR LOWER UNLESS OTHERWISE NOTED ON THESE PLANS.

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Harnett COUNTY NORTH CAROLINA

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ENGINEERING FIRM NUMBER: C-0110
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P.919.851.4422 BNKINC.COM

PERMIT SET

HARNETT COUNTY IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	1/8" = 1'-0"
DESIGNED:	MJH
DRAWN:	MJH
CHECKED:	MJH
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL SEAL 36795 ENGINEER MICHAEL J. HARMANN
05/20/2026

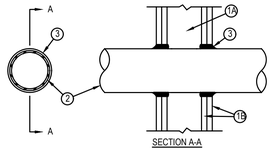
SHEET TITLE
FIRE ALARM PLAN

SHEET NUMBER
FA-101

SHEET # 16 OF 21

UL SYSTEM #WL1001

(Formerly System No. 147)
F Ratings-1, 2, 3 and 4 Hr (See Items 2 and 3)
T Ratings- 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating At Ambient-less than 1 CFM/sq ft
L Rating At 400 F-less than 1 CFM/sq ft



SECTION A-A

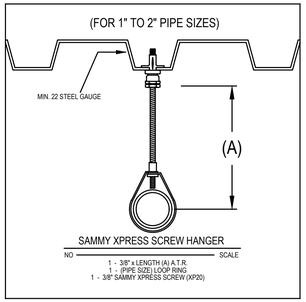
1. Wall Assembly-The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs-Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
   B. Wallboard, Gypsum*-Nom 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max Diam of opening is 13-1/2 in.
2. Pipe or Conduit-Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 12 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe, nom 6 in. diam (or smaller) steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing, nom 6 in. diam (or smaller) Type L or (or heavier) copper tubing or nom 1 in. diam (or smaller) flexible steel conduit. When copper pipe is used, max F Rating of firestop system (Item 3) is 2 h. Steel pipes or conduits larger than nom 4 in. diam may only be used in walls constructed using steel channel studs. A max of one pipe or conduit is permitted in the firestop system. Pipe or conduit to be installed near center of stud cavity width and to be rigidly supported on both sides of wall assembly.
3. Fill, Void or Cavity Material*-Caulk-Caulk fill material installed to completely fill annular space between pipe or conduit and gypsum wallboard and with a min 1/4 in. diam bead of caulk applied to perimeter of pipe or conduit at its egress from the wall. Caulk installed symmetrically on both sides of wall assembly. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

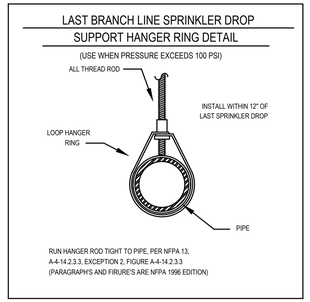
Max Pipe or Conduit Diam, in	Annular Space, In	F Rating, Hr	T Rating, Hr
1	0 to 3/16	1 or 2	0+, 1 or 2
1	1/4 to 1/2	3 or 4	3 or 4
4	0 to 1/4	1 or 2	0
4	0 to 1-1/2#	1 or 2	0
6	1/4 to 1/2	3 or 4	0
12	3/16 to 3/8	1 or 2	0

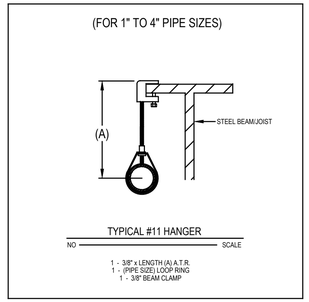
+When copper pipe is used, T Rating is 0 h.
#0 to 1-1/2 in. annular space applies only when Type CP-25 WB+ caulk is used and only when the min thickness of the gypsum wallboard is 5/8 in. for 1 hr rated walls and 1-1/4 in. for 2 hr rated walls.

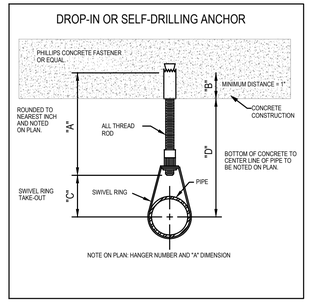
Minnesota Mining & Mfg. Co.-CP 25WB+.
*Bearing the UL Classification Marker

3 1,2,3 AND 4 HR. PENETRATION FIRESTOP
SCALE: NONE

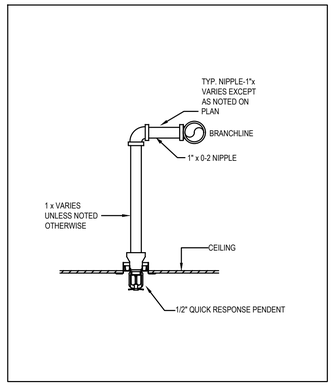


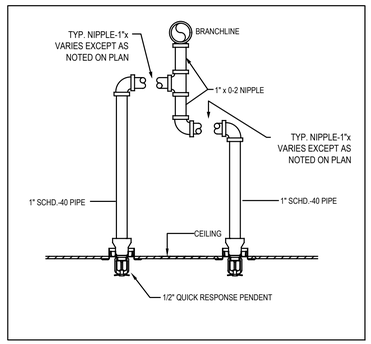


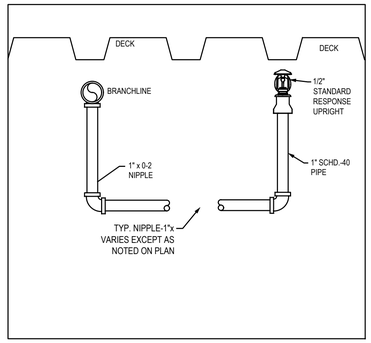




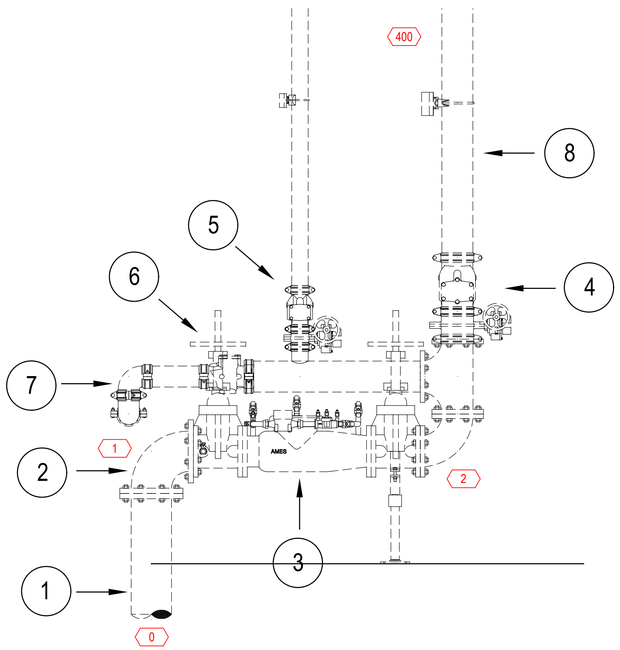
1 TYPICAL HANGER DETAILS
SCALE: NONE







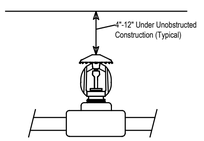
2 TYPICAL ARMOVER DETAIL - PENDENT/UPRIGHT
SCALE: NONE



RISER LEGEND

1 - 8" RUN IN
2 - 8"X6" CONC. REDUCER
3 - 6" AMES 3000 SS BACKFLOW
4 - 6" CHECK
5 - 3" CHECK
6 - 4" CHECK
7 - TO FDC
8 - 6" TO SYSTEM

5 EXISTING SPRINKLER RISER DETAIL
SCALE: NONE



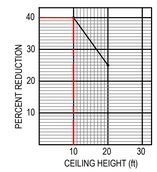
4 SPRINKLER HEAD CLEARANCE
SCALE: NONE

SPRINKLER DESIGN DATA

PROJECT NAME: HARNETT COUNTY IT
PROJECT LOCATION: 420 MCKINNEY PKWY, LILLINGTON, NORTH CAROLINA
SYSTEM NO.: 1
SYS. SQ. FT.: --
CEILING HGT.: 9'-0"
TOTAL BLDG. HGT.: VARIES
DESIGNED BY: CHANNING DUKE
PH#: (919) 851-4422
OCCUPANCY DESCRIPTION: OFFICE
HAZARD CLASS: LIGHT

DESIGN SUMMARY

DESIGN METHOD:	CALC'D
SYSTEM ID NO.:	1
LOCATION:	1ST FLOOR
TYPE OF SYSTEM:	WET
HAZARD CLASS:	LIGHT
CRITERIA FROM:	NFPA 13
DESIGN AREA:	10820
SPKLR. SPACING:	2250 MAX
DENSITY:	0.10
K-FACTOR:	5.6
HOSE ALLOWANCE:	100
# DESIGN SPKLR.:	13
REQUIREMENTS @:	BOR
GPM REQ'D:	211.085
PSI REQ'D:	20.09
NODE #	2
REQUIREMENTS @:	CITY
GPM REQ'D:	311.085
PSI REQ'D:	23.171
NODE #	TEST
SAFETY FACTOR PSI:	59.707



NFPA 13 2013
FIGURE 11.2.3.2.3.1
DESIGN AREA REDUCTION FOR QUICK-RESPONSE SPRINKLERS.

1500(FT) X ((100-40)/100) = 900Ø

FIRE PUMP DATA

RATED GPM :	--	RESIDUAL (PSI):	--
RATED PRES. :	--	FLOW (GPM):	--
ELECTRIC HP :	--	COMBINED GPM :	--
ELECTRIC VOLT :	--	COMBINED STATIC :	--
BOOST PRES :	--	COMBINED RESIDUAL :	--
DISCHARGE PRES :	--	SUCTION NODE # :	--
DISCHARGE FLOW :	--	DISCHARGE NODE # :	--

WATER SUPPLY INFORMATION

TESTED BY:	BNK, INC.
DATE / TIME:	05/12/2026
PRESS. HYDRANT:	4311204
HYDRANT ELEV:	153'
FLOW HYDRANT:	4311204B
STATIC (PSI):	84
RESIDUAL (PSI):	65
FLOW (GPM):	1436

IS COPY OF WATER TEST DATA INCLUDED WITH CALCULATIONS? : YES [X] NO [ ]
IS STORAGE HEIGHT GREATER THAN 12 FEET? : YES [ ] NO [X]

GENERAL NOTES

1. CONTRACTOR SHALL PIPE ALL RELOCATED SPRINKLERS IN A PIPING CONFIGURATION SIMILAR TO EXISTING PIPING CONFIGURATION.
2. MATERIALS AND INSTALLATION SHALL COMPLY WITH NFPA 13, STATE BUILDING CODE, LOCAL FIRE MARSHALL AND INSURANCE UNDERWRITER'S REQUIREMENTS.
3. THE DRAWINGS ARE DIAGRAMMATIC AND METHODS SHOWN MAY NOT SHOW EVERY SPRINKLER, FITTING, VALVE, OR HANGER REQUIRED FOR APPROVAL BY AUTHORITIES HAVING JURISDICTION (AHJ). THE PIPING METHODS SHOWN DO NOT RELIEVE THE CONTRACTOR FROM INSTALLING THE SYSTEM PER NC BUILDING CODE OR TO THE APPROVAL OF THE AHJ OR ENGINEER. PRIOR TO BIDDING, THE CONTRACTOR SHALL VISIT THE SITE, FAMILIARIZE HIMSELF WITH THE SCOPE OF WORK AND IMMEDIATELY CONTACT THE ENGINEER IF EXISTING CONDITIONS ARE NOT AS SHOWN. THE BID SHALL INCORPORATE ALL WORK REQUIRED TO MEET THE APPROVAL OF THE ENGINEER AND THE AHJ. THE WORK REQUIRED SHALL LEAVE THE SYSTEM(S) COMPLETE AND OPERATIONAL.
4. CALL FOR INSPECTIONS BY THE AHJ AS REQUIRED FOR APPROVAL.
5. FIRESTOP ALL RATED PENETRATIONS WITH A LISTED UL SYSTEM TO MATCH RATING OF WALL OR FLOOR.
6. COORDINATE THE SHUTDOWN OF THE SPRINKLER SYSTEM WITH THE BUILDING SUPERINTENDENT/LANDLORD.
7. RETURN SPRINKLER SYSTEM TO NORMAL OPERATION AS SOON AS POSSIBLE. PROVIDE TEST BLANKS AS REQUIRED TO MINIMIZE THE LOSS OF PROTECTION TO OTHER AREAS. THE SYSTEM SHALL BE RESTORED TO NORMAL AT THE END OF WORK EACH DAY. A SPRINKLER FITTER SHALL REMAIN ON SITE AT ALL TIMES WHILE THE CONTROL VALVE IS SHUT.
8. CONTRACTOR SHALL OBTAIN APPROVAL OF ENGINEER PRIOR TO MAKING CHANGES TO SPRINKLER SYSTEM INSTALLATION AND PROVIDE AS-BUILT PLANS AND/OR REVISED HYDRAULIC CALCULATIONS TO THE ENGINEER UPON COMPLETION OF WORK AT NO COST TO THE ENGINEER OR OWNER.
9. ALL NEW PIPING 2-1/2" AND LARGER SHALL BE SC 10 BLACK STEEL PIPE. ALL NEW PIPING 2" AND SMALLER SHALL BE SC 40 BLACK STEEL PIPE. ALL FITTINGS SHALL BE VICTAULIC OR APPROVED EQUAL. **NEW BRANCHLINES SHALL MATCH TYPE OF PIPE USED FOR EXISITING BRANCHLINES (WHERE ENHANCED FLOW CHARACTERISTIC PIPE IS USED.)
10. CONTRACTOR SHALL PROVIDE LOW POINT DRAINS AS REQUIRED AND COORDINATE DISCHARGE WITH OWNER AND LOCATION OF DRAIN PIPING WITH OTHER TRADES.
11. SPRINKLER CONTRACTOR SHALL COORDINATE THE INSTALLATION OF SPRINKLER PIPING WITH ELECTRICAL AND MECHANICAL CONTRACTOR AND PROVIDE ADEQUATE CLEARANCES FOR DUCT WORK AND LIGHT FIXTURES. ALL SPRINKLERS SHALL BE INSTALLED LOCATED CENTER OF CEILING TILE UNLESS NOTED OTHERWISE.
12. ALL COORDINATION BETWEEN TRADES AND OF INTENDED INSTALLATION PROCEDURES SHALL BE COMPLETED AND ALL CONFLICTS RESOLVED PRIOR TO BEGINNING WORK.
13. DIMENSIONS SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND COORDINATE SPRINKLER SYSTEM INSTALLATION WITH ALL OTHER TRADES AND THE OWNERS REPRESENTATIVE PRIOR TO BEGINNING WORK.
14. CONTRACTOR SHALL COORDINATE THE INSTALLATION LOCATIONS OF SPRINKLERS WITH ALL OTHER TRADES AND CONFIRM COMPLETE COMPLIANCE OF ALL REQUIRED CLEARANCES TO SPRINKLER DEFLECTORS AS REQUIRED BY NFPA 13.

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Harnett COUNTY NORTH CAROLINA

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CONSULTING ENGINEERS
ENGINEERING FIRM NUMBER: C-0119
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RALEIGH, N.C. 27607
P.919.851.4422 BNKINC.COM

PERMIT SET

HARNETT COUNTY IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

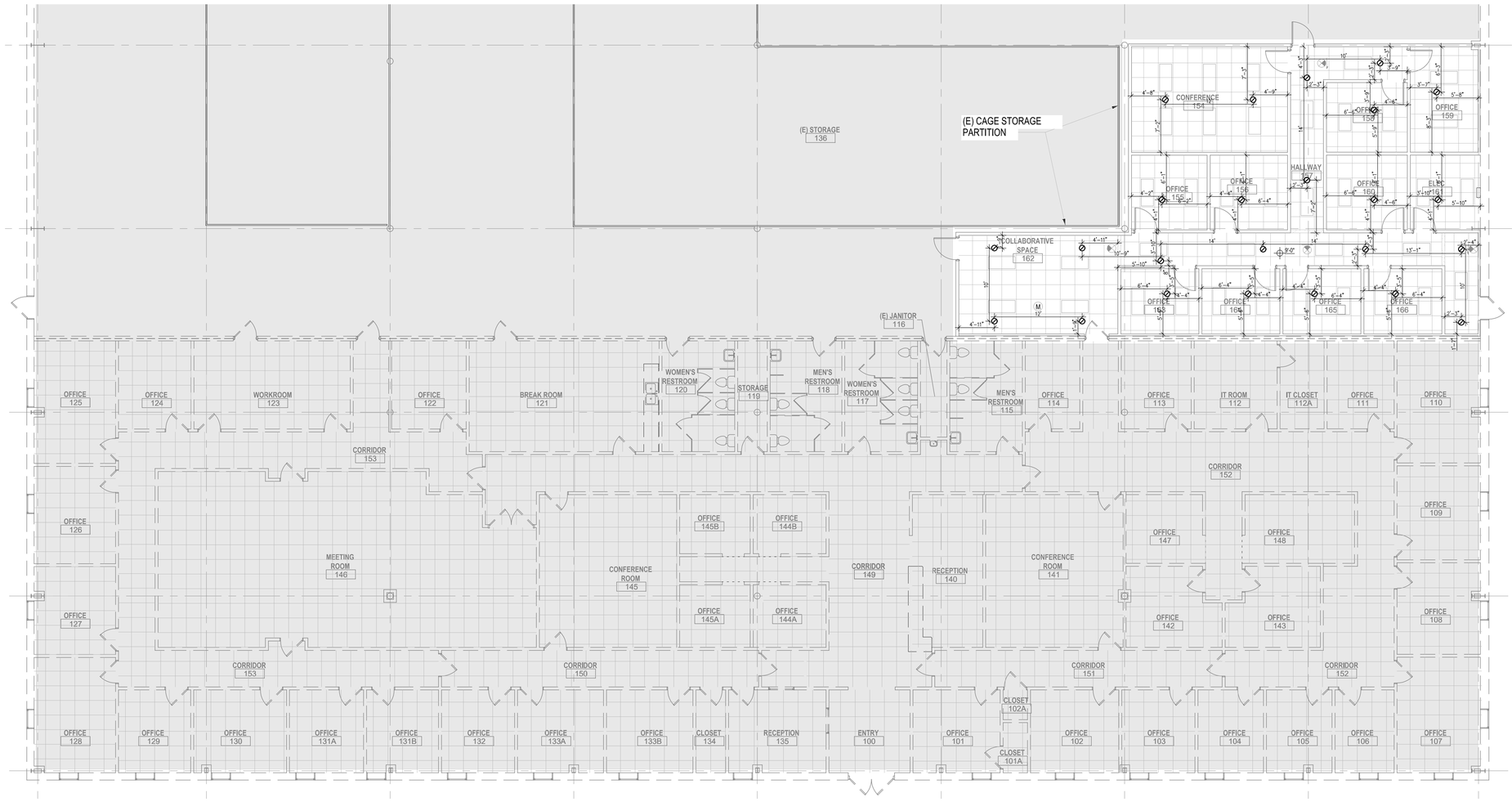
SCALE:	1/8" = 1'-0"
DESIGNED:	CND
DRAWN:	CND
CHECKED:	MAS
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL SEAL 21653 ENGINEER MARK A. SAMBOCK
5-20-2026

SHEET TITLE
SPRINKLER COVER

SHEET NUMBER
F-001

SHEET # 17 OF 21



1 PARTIAL FIRST FLOOR - SPRINKLER RCP

SCALE: 1/8" = 1'-0"

SPRINKLER LEGEND

- NEW 1/2", 5.6K 155°F QR PENDENT SPRINKLER WITH ESCUTCHEON - RASCO RA1414
- EXISTING 3/4", 8.0K 286°F SR UPRIGHT SPRINKLER TO REMAIN - FSD
- EXISTING PIPE
- EXISTING PIPE TO BE REMOVED
- NEW PIPE
- INDICATES EXISTING WALL
- INDICATES NEW WALL
- INDICATES NON-RATED WALL TO DECK
- 2-HOUR RATED FIRE WALL
- 1-HOUR RATED FIRE WALL
- INDICATES EXISTING PLUGGED OUTLET
- INDICATES NEW MECHANICAL PIPING CONNECTION
- INDICATES AREA NOT IN CONTRACT
- INDICATES CALC AREA
- ## INDICATES HYDRAULIC CALCULATION NODE
- ## INDICATES HEAD SPACING FOR NEAREST NODE
- 9'-0" INDICATES CEILING HEIGHT
- AREA: A / AREA: B INDICATES MATCHLINE

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Harnett COUNTY NORTH CAROLINA

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ENGINEERING FIRM NUMBER: C-0110
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RALEIGH, N.C. 27607
P.919.851.4422 BNKINC.COM

PERMIT SET

HARNETT COUNTY IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	1/8" = 1'-0"
DESIGNED:	CND
DRAWN:	CND
CHECKED:	MAS
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL SEAL 21653 ENGINEER MARK A. SEABOCH
5-20-2026

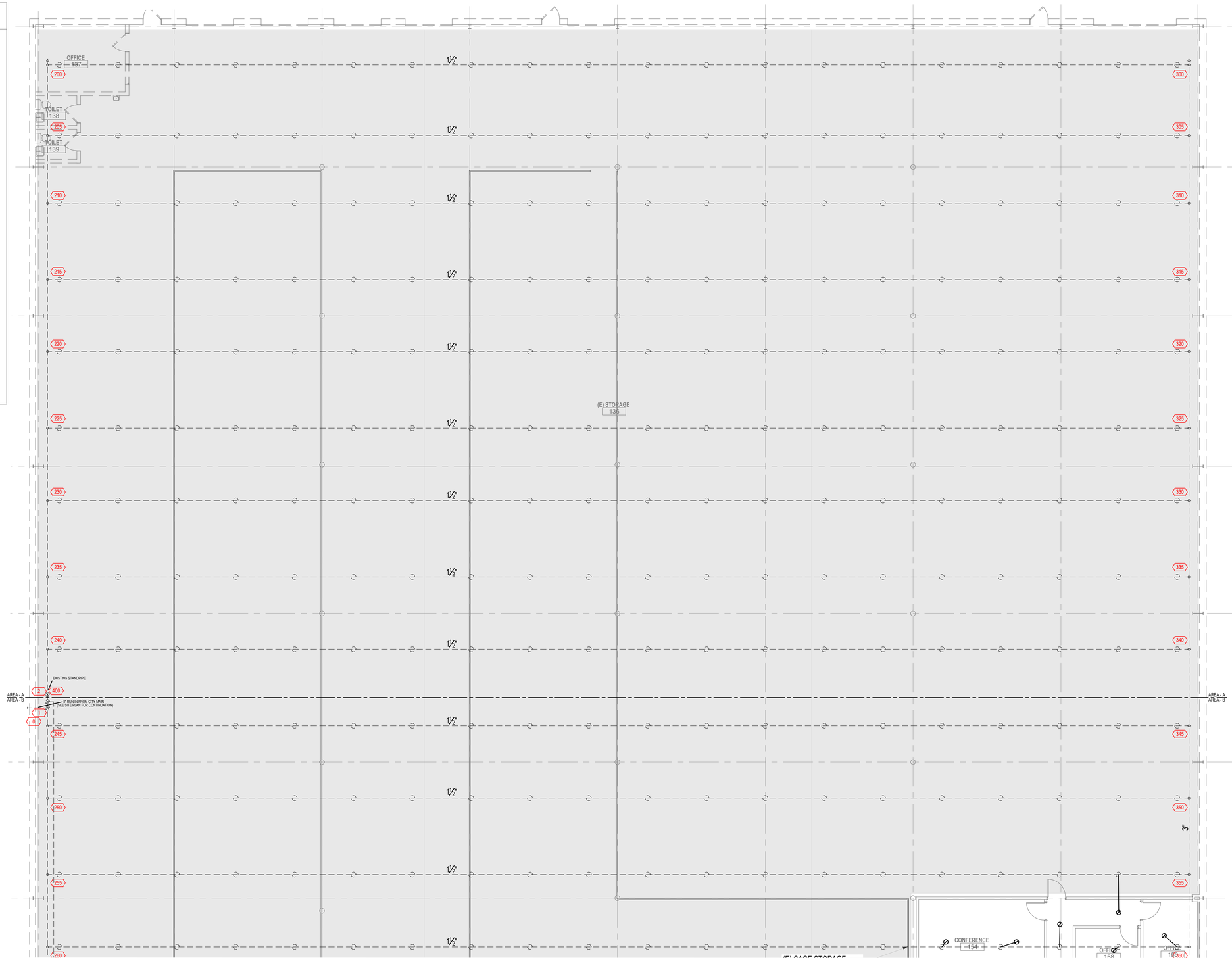
SHEET TITLE
PARTIAL FIRST FLOOR SPRINKLER RCP

SHEET NUMBER
F-101

SHEET # 18 OF 21

SPRINKLER LEGEND

- NEW 1/2", 5.6K 155°F QR PENDENT SPRINKLER WITH ESCUTCHEON - RASCO RA1414
- EXISTING 3/4", 8.0K 286°F SR UPRIGHT SPRINKLER TO REMAIN - FSD
- EXISTING PIPE
- EXISTING PIPE TO BE REMOVED
- NEW PIPE
- INDICATES EXISTING WALL
- INDICATES NEW WALL
- INDICATES NON-RATED WALL TO DECK
- 2-HOUR RATED FIRE WALL
- 1-HOUR RATED FIRE WALL
- INDICATES EXISTING PLUGGED OUTLET
- INDICATES NEW MECHANICAL PIPING CONNECTION
- INDICATES AREA NOT IN CONTRACT
- INDICATES CALC AREA
- ## INDICATES HYDRAULIC CALCULATION NODE
- ## INDICATES HEAD SPACING FOR NEAREST NODE
- 0'-0" INDICATES CEILING HEIGHT
- AREA - A / AREA - B INDICATES MATCHLINE



1 FIRST FLOOR - SPRINKLER PIPING (AREA A)
SCALE: 1/8" = 1'-0"

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Harnett COUNTY NORTH CAROLINA

BNK
BASS | NIXON | KENNEDY
CONSULTING ENGINEERS
ENGINEERING FIRM NUMBER: C-0110
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, N.C. 27607
P.919.851.4422 BNKINC.COM

PERMIT SET

HARNETT COUNTY IT OFFICE UPFIT

420 MCKINNEY PARKWAY
LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	1/8" = 1'-0"
DESIGNED:	CND
DRAWN:	CND
CHECKED:	MAS
DATE:	05/20/26

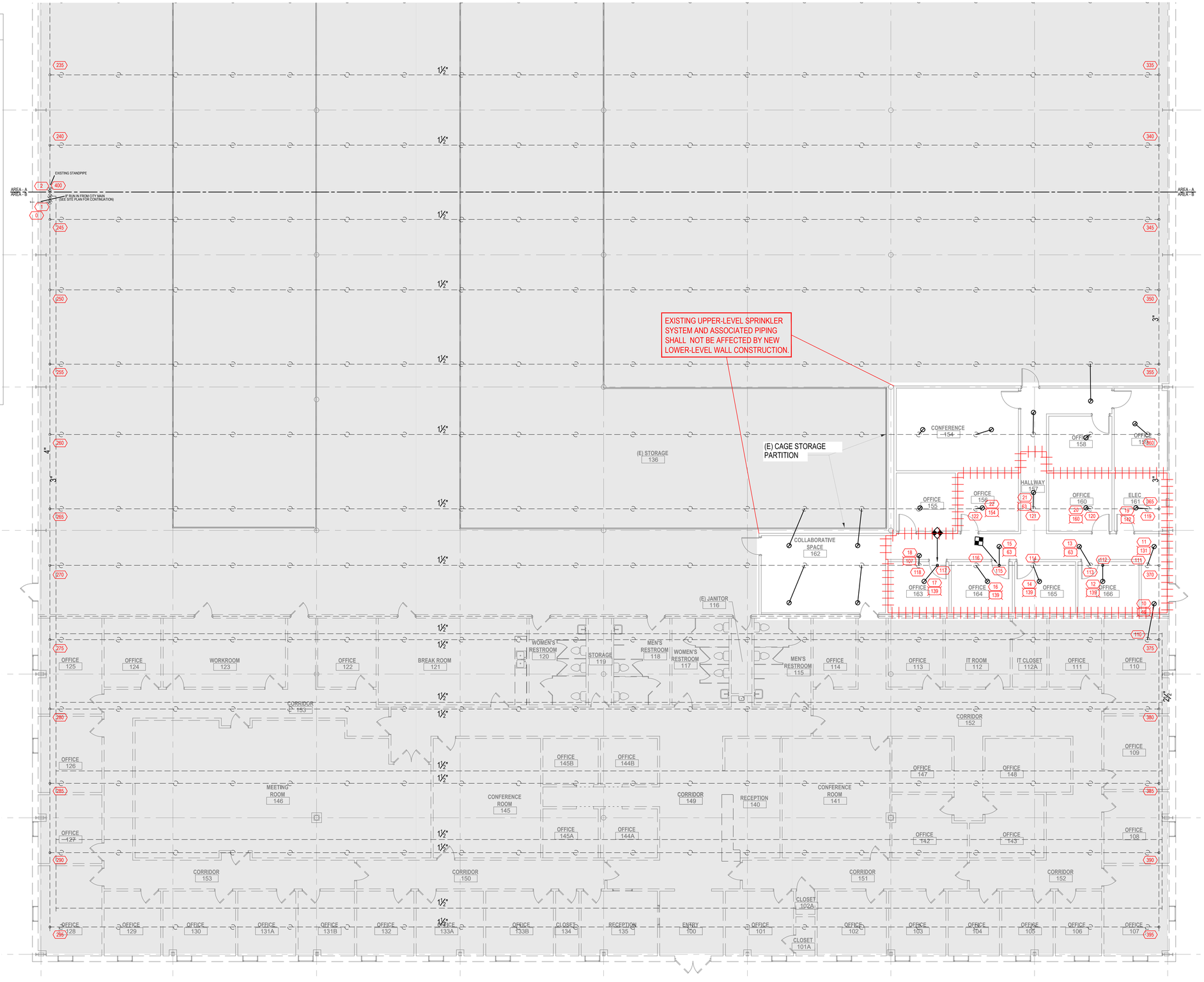
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21653 MARIA A. STOCK
5-20-2026

SHEET TITLE
FIRST FLOOR SPRINKLER PIPING (AREA A)

SHEET NUMBER
F-201

SPRINKLER LEGEND

- NEW 1/2", 5.6K 155°F QR PENDENT SPRINKLER WITH ESCUTCHEON - RASCO RA1414
- EXISTING 3/4", 8.0K 286°F SR UPRIGHT SPRINKLER TO REMAIN - FSD
- EXISTING PIPE
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- INDICATES NEW MECHANICAL PIPING CONNECTION
- INDICATES AREA NOT IN CONTRACT
- INDICATES CALC AREA
- ## INDICATES HYDRAULIC CALCULATION NODE
- ## INDICATES HEAD SPACING FOR NEAREST NODE
- 0'-0" INDICATES CEILING HEIGHT
- AREA - A / AREA - B INDICATES MATCHLINE



1 FIRST FLOOR - SPRINKLER PIPING (AREA B)
SCALE: 1/8" = 1'-0"

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LILLINGTON, NC 27546

REVISIONS

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COMMISSION NUMBER
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SCALE:	1/8" = 1'-0"
DESIGNED:	CND
DRAWN:	CND
CHECKED:	MAS
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21653 MARK A. SCHWOCH
5-20-2026

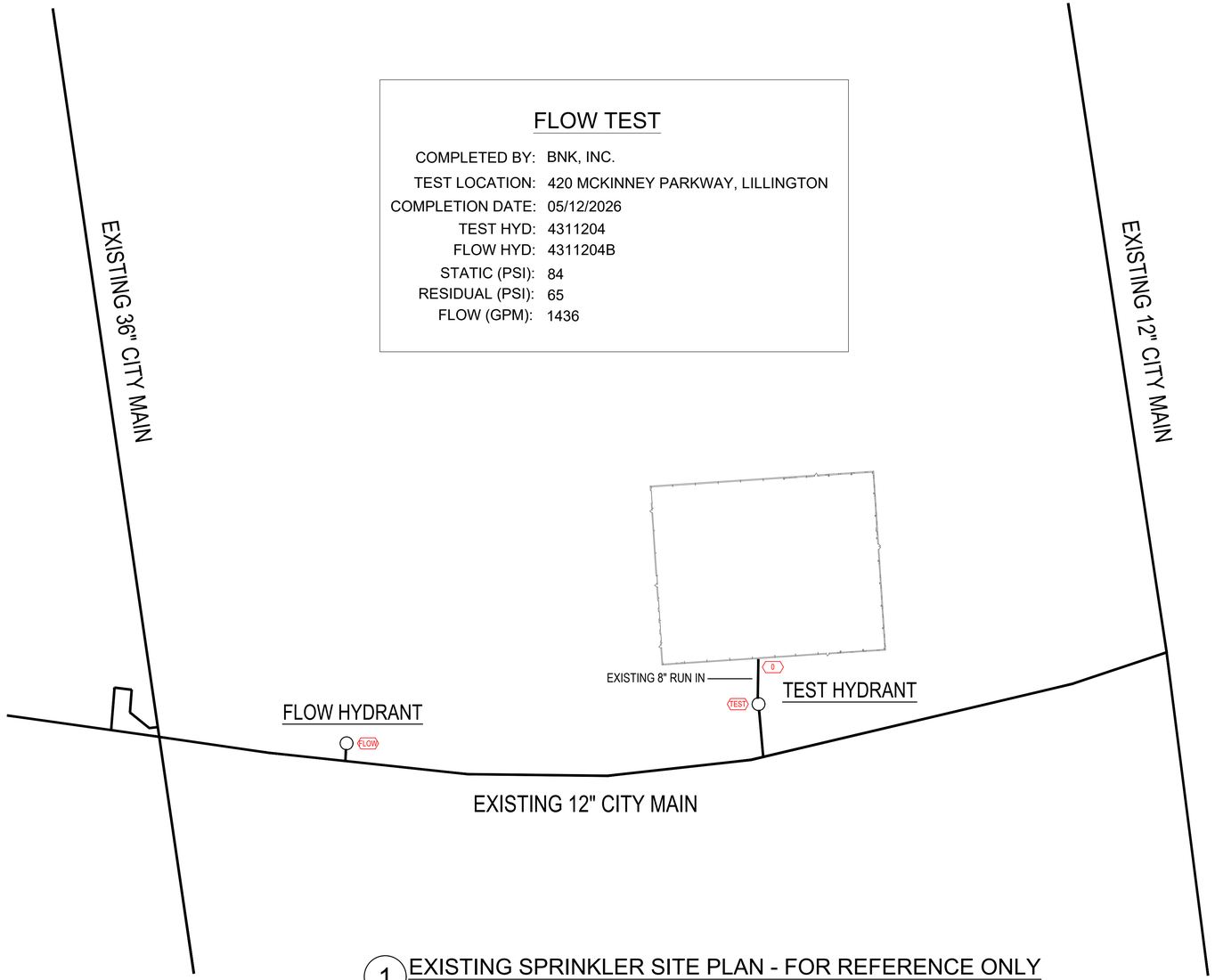
SHEET TITLE
FIRST FLOOR SPRINKLER PIPING (AREA B)

SHEET NUMBER
F-202

SHEET # 20 OF 21

FLOW TEST

COMPLETED BY:	BNK, INC.
TEST LOCATION:	420 MCKINNEY PARKWAY, LILLINGTON
COMPLETION DATE:	05/12/2026
TEST HYD:	4311204
FLOW HYD:	4311204B
STATIC (PSI):	84
RESIDUAL (PSI):	65
FLOW (GPM):	1436



1 EXISTING SPRINKLER SITE PLAN - FOR REFERENCE ONLY
SCALE: NONE

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LILLINGTON, NC 27546

REVISIONS

#	DATE	DESCRIPTION

COMMISSION NUMBER
2260260

SCALE:	1/8" = 1'-0"
DESIGNED:	CND
DRAWN:	CND
CHECKED:	MAS
DATE:	05/20/26

NORTH CAROLINA PROFESSIONAL SEAL 21653 ENGINEER MARK A. STRICKLAND
5-20-2026

SHEET TITLE
EXISTING SPRINKLER SITE PLAN

SHEET NUMBER
F-501

SHEET # 21 OF 21