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**2018 APPENDIX B - BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS**

NAME OF PROJECT: THERASPACE  
 BUILDING ADDRESS: 2297 NC HIGHWAY 24-87 ZIP CODE: 28326  
 PROPOSED USE: PHYSICAL THERAPY OFFICE  
 OWNER OR AUTHORIZED AGENT: BRYANT DICKINSON PHONE: (919) 868-1427 EMAIL: BRYANT@HMDEVELOPMENT.COM  
 CITY: CAMERON COUNTY: STATE: NC

CONTACT:  
 DESIGNER: REDFOOT STUDIO COMPANY NAME: RICHARD REDFOOT LICENSE# 9231 TELEPHONE# (919) 931-7134 EMAIL: RICHARD@REDFOOTSTUDIO.COM  
 ARCHITECTURAL: NA CIVIL: NA ELECTRICAL: NA FIRE ALARM: NA PLUMBING: NA MECHANICAL: NA SPRINKLER/STANDPIPE: NA STRUCTURAL: NA RETAINING WALLS > 5' HIGH: NA OTHER: NA

2018 NC BUILDING CODE:  NEW BUILDING  ADDITION  RENOVATION  
 1ST TIME INTERIOR COMPLETION  
 SHELLCORE - CONTACT THE LOCAL INSPECTION JURISDICTION FOR POSSIBLE ADDITIONAL PROCEDURES AND REQUIREMENTS  
 PHASED CONSTRUCTION - SHELLCORE - CONTACT THE LOCAL INSPECTION JURISDICTION FOR POSSIBLE ADDITIONAL PROCEDURES AND REQUIREMENTS

2018 NC EXISTING BUILDING CODE:  PRESCRIPTIVE  REPAIR  CHAPTER 14  
 LEVEL I  LEVEL II  LEVEL III  
 HISTORIC PROPERTY  CHANGE OF USE

CONSTRUCTED (date): 2022 CURRENT OCCUPANCY(S) (Ch. 3): NA  
 RENOVATED (date): NA PROPOSED OCCUPANCY(S) (Ch. 3): B

RISK CATEGORY (TABLE 1604.5): CURRENT:  I  II  III  IV  
 PROPOSED:  I  II  III  IV

BUILDING DATA:  
 CONSTRUCTION TYPE:  I-A  I-B  I-B  I-B  I-B  I-B  I-B  I-B  
 SPRINKLERS:  NO  PARTIAL  YES  NFPA 13  NFPA 13R  NFPA 13R  
 STANDPIPES:  NO  YES CLASS  I  II  III  WET  DRY  
 FIRE DISTRICT:  NO  YES (Primary) FLOOD HAZARD AREA:  NO  YES  
 SPECIAL INSPECTIONS REQUIRED:  NO  YES (contact the local inspection jurisdiction for additional procedures and requirements)

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3RD FLOOR	NA	NA	NA
2ND FLOOR	NA	NA	NA
MEZZANINE	NA	NA	NA
1ST FLOOR	17,178	2,896 (AREA OF WORK)	17,178 (2,896)
BASEMENT	NA	NA	NA
TOTAL	17,178	2,896 (AREA OF WORK)	17,178 (2,896)

ALLOWABLE AREA OCCUPANCY:  
 ASSEMBLY:  A-1  A-2  A-3  A-4  A-5  
 BUSINESS:  B  
 EDUCATIONAL:  E  
 FACTORY/INDUSTRIAL:  F-1 MODERATE  F-2 LOW  
 HAZARDOUS:  H-1 DETONATE  H-2 DEFLAGRATE  H-3 COMBUST  H-4 HEALTH  H-5 HPM  
 INSTITUTIONAL:  I-1 CONDITION  I-2  I-3  I-4  
 MERCANTILE:  M  
 RESIDENTIAL:  R-1  R-2  R-3  R-4  
 STORAGE:  S-1 MODERATE  S-2 LOW  HIGH PILED  
 PARKING GARAGE  OPEN  ENCLOSED  REPAIR GARAGE  
 UTILITY AND MISCELLANEOUS:  U

ACCESSORY OCCUPANCY CLASSIFICATIONS: NA  
 INCIDENTAL USES (TABLE 509): NA  
 SPECIAL USES (CHAPTER 4 - LIST CODE SECTIONS): NA  
 SPECIAL PROVISIONS (CHAPTER 5 - LIST CODE SECTIONS): NA  
 MIXED OCCUPANCY:  NO  YES SEPARATION: NA HR EXCEPTION: NA  
 NON-SEPARATED USE (508.3) - THE REQUIRED TYPE OF CONSTRUCTION FOR THE BUILDING SHALL BE DETERMINED BY APPLYING THE HEIGHT AND AREA LIMITATIONS FOR EACH OF THE APPLICABLE OCCUPANCIES TO THE ENTIRE BUILDING. THE MOST RESTRICTIVE TYPE OF CONSTRUCTION, SO DETERMINED, SHALL APPLY TO THE ENTIRE BUILDING.  
 SEPARATED USE (508.4) - SEE BELOW FOR AREA CALCULATIONS FOR EACH STORY. THE AREA OF THE OCCUPANCY SHALL BE SUCH THAT THE SUM OF THE RATIOS OF THE ACTUAL FLOOR AREA OF EACH USE DIVIDED BY THE ALLOWABLE FLOOR AREA FOR EACH USE SHALL NOT EXCEED 1.  

$$\frac{\text{ACTUAL AREA OF OCCUPANCY A}}{\text{ALLOWABLE AREA OF OCCUPANCY A}} + \frac{\text{ACTUAL AREA OF OCCUPANCY B}}{\text{ALLOWABLE AREA OF OCCUPANCY B}} \leq 1$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG. AREA PER STORY (ACTUAL)	(B) TABLE 508.2 <sup>4</sup> AREA	(C) AREA FOR FRONTAGE INCREASE <sup>5</sup>	(E) ALLOWABLE AREA PER STORY OR UNLIMITED <sup>2,3</sup>
1	B	17,178	69,000	NOT USED	69,000

<sup>1</sup> FRONTAGE AREA INCREASES FROM SECTION 508.2 ARE COMPUTED THIS:  
 A. PERIMETER WHICH FRONTS A PUBLIC WAY OR OPEN SPACE HAVING 20 FEET MINIMUM WIDTH = --- (F)  
 B. TOTAL BUILDING PERIMETER = --- (P)  
 C. RATIO (FR) = --- (F/P)  
 D. W = MINIMUM WIDTH OF PUBLIC WAY = --- (W)  
 E. PERCENT OF FRONTAGE INCREASE  $I_1 = 100 \left[ \frac{FR \cdot W}{25} \right] \times W(3) = \text{---} (\%)$   
<sup>2</sup> UNLIMITED AREA APPLICABLE UNDER CONDITIONS OF SECTION 507  
<sup>3</sup> MAXIMUM BUILDING AREA = TOTAL NUMBER OF STORIES IN THE BUILDING x D (MAXIMUM 3 STORIES) (508.2)  
<sup>4</sup> THE MAXIMUM AREA OF OPEN PARKING GARAGES MUST COMPLY WITH 406.5.4. THE MAXIMUM AREA OF AIR TRAFFIC CONTROL TOWERS MUST COMPLY WITH 412.3.1.  
<sup>5</sup> FRONTAGE INCREASE BASED ON THE UNSPRINKLERED AREA VALUE IN TABLE 506.2

ALLOWABLE HEIGHT	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
BUILDING HEIGHT IN FEET (TABLE 504.3)	NA - EXISTING TO REMAIN		
BUILDING HEIGHT IN STORES (TABLE 504.4)	NA - EXISTING TO REMAIN		

**FIRE PROTECTION REQUIREMENTS**

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING PROVIDED (W/ NA * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
STRUCTURAL FRAME, INCLUDING COLUMNS, GIRDERS, TRUSSES	NA	0	0	NA	NA	NA
BEARING WALLS						
EXTERIOR						
NORTH	NA	NA	NA	NA	NA	NA
EAST	NA	NA	NA	NA	NA	NA
WEST	NA	NA	NA	NA	NA	NA
SOUTH	NA	NA	NA	NA	NA	NA
INTERIOR	NA	NA	NA	NA	NA	NA
NON-BEARING WALLS AND PARTITIONS						
EXTERIOR WALLS						
NORTH	30+	0	NA	NA	NA	NA
EAST	30+	0	NA	NA	NA	NA
WEST	30+	0	NA	NA	NA	NA
SOUTH	30+	0	NA	NA	NA	NA
INTERIOR WALLS AND PARTITIONS	NA	0	0	NA	NA	NA
FLOOR CONSTRUCTION, INCLUDING SUPPORTING BEAMS AND JOISTS	NA	0	0	NA	NA	NA
FLOOR CEILING ASSEMBLY	NA	NA	NA	NA	NA	NA
COLUMNS SUPPORTING FLOORS	NA	0	NA	NA	NA	NA
ROOF CONSTRUCTION, INCLUDING SUPPORTING BEAMS AND JOISTS	NA	0	0	NA	NA	NA
ROOF CEILING ASSEMBLY	NA	0	0	NA	NA	NA
COLUMNS SUPPORTING ROOF	NA	0	0	NA	NA	NA
SHAFT ENCLOSURES - EXIT	NA	NA	NA	NA	NA	NA
SHAFT ENCLOSURES - STAIR	NA	NA	NA	NA	NA	NA
CORRIDOR SEPARATION	NA	0	0	NA	NA	NA
OCCUPANCY / FIRE BARRIER SEPARATION	NA	2	2-EXISTING	1A0.0	UL L419	WL 1001
PARTY/FIRE WALL SEPARATION	NA	NA	NA	NA	NA	NA
SMOKE BARRIER SEPARATION	NA	NA	NA	NA	NA	NA
SMOKE PARTITION	NA	NA	NA	NA	NA	NA
TENANT DWELLING UNIT / SLEEPING UNIT SEPARATION	NA	1	1	1A0.0	UL L419	WL 1001
INCIDENTAL USE SEPARATION	NA	NA	NA	NA	NA	NA
MEDICAL GAS CLOSET	NA	NA	NA	NA	NA	NA

\* INDICATES SECTION NUMBER PERMITTING REDUCTION.

**PERCENTAGE OF WALL OPENING CALCULATIONS**

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINE	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
NA - EXISTING BUILDING			

**LIFE SAFETY SYSTEM REQUIREMENTS**

EMERGENCY LIGHTING:  NO  YES  
 EXIT SIGNS:  NO  YES  
 FIRE ALARM:  NO  YES  
 SMOKE DETECTION SYSTEMS:  NO  YES  PARTIAL  
 CARBON MONOXIDE DETECTION:  NO  YES

**LIFE SAFETY PLAN REQUIREMENTS**  
 LIFE SAFETY PLAN SHEET # 3/A2.0

FIRE AND SMOKE RATED WALL LOCATIONS (Chapter 7)  
 ASSUMED AND REAL PROPERTY LINE LOCATIONS (IF NOT ON THE SITE PLAN)  
 EXTERIOR WALL OPENINGS WITH RESPECT TO DISTANCE TO ASSUMED PROPERTY LINES (705.8)  
 OCCUPANCY USE FOR EACH AREA AS IT RELATES TO OCCUPANT LOAD CALCULATION (TABLE 1004.1.2)  
 OCCUPANT LOADS FOR EACH AREA  
 EXIT ACCESS TRAVEL DISTANCE (1017)  
 COMMON PATHS 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 (1010.1.8.7)  
 LOCATION OF DOORS EQUIPPED WITH HOLD-OPEN DEVICES  
 LOCATION OF EMERGENCY ESCAPE WINDOWS (1030)  
 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

**ACCESSIBLE DWELLING UNITS (SECTION 1107) NA - NO DWELLING UNITS**

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

**ACCESSIBLE PARKING NA - EXISTING BUILDING AND PARKING**

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 13' ACCESS AISLE	8' ACCESS AISLE	
USE 1						
USE 2						
USE 3						
TOTAL						

**STRUCTURAL DESIGN NA - EXISTING BUILDING**

DESIGN LOADS

IMPORTANCE FACTORS: SNOW (S) \_\_\_\_\_ SEISMIC (S<sub>s</sub>) \_\_\_\_\_

LIVE LOADS: ROOF \_\_\_\_\_ psf MEZZANINE \_\_\_\_\_ psf FLOOR \_\_\_\_\_ psf

GROUND SNOW LOAD \_\_\_\_\_ psf

WIND LOAD: BASIC WIND SPEED \_\_\_\_\_ mph (ASCE-7) EXPOSURE CATEGORY \_\_\_\_\_

SEISMIC DESIGN CATEGORY  A  B  C  D

PROVIDE THE FOLLOWING SEISMIC DESIGN PARAMETERS:

RISK CATEGORY (Table 1604.5)  I  II  III  IV  
 SPECTRAL RESPONSE ACCELERATION S<sub>s</sub> \_\_\_\_\_ %g S<sub>1</sub> \_\_\_\_\_ %g  
 SITE CLASSIFICATION (ASCE 7)  A  B  C  D  E  F  
 DATA SOURCE:  FIELD TEST  PRESUMPTIVE  HISTORICAL DATA

BASIC STRUCTURAL SYSTEM (CHECK ONE)  
 BEARING WALL  DUAL W/ SPECIAL MOMENT FRAME  
 BUILDING FRAME  DUAL W/ INTERMEDIATE R/C OR SPECIAL STEEL  
 MOMENT FRAME  INVERTED PENDULUM

ANALYSIS PROCEDURE  SIMPLIFIED  EQUIVALENT LATERAL FORCE  DYNAMIC  
 ARCHITECTURAL, MECHANICAL, COMPONENTS ANCHORED?  YES  NO

LATERAL DESIGN CONTROL: EARTHQUAKE  WIND   
 SOIL BEARING CAPACITY: FIELD TEST (PROVIDE COPY OF TEST REPORT) \_\_\_\_\_ psf PRESUMPTIVE BEARING CAPACITY \_\_\_\_\_ psf PILE SIZE, TYPE, AND CAPACITY \_\_\_\_\_ psf

**PLUMBING REQUIREMENTS**

SPACE	USE	WATER CLOSET		URINALS	LAVATORIES		SHOWERS & TUBS	DRINKING FOUNTAINS
		MALE	FEMALE		MALE	FEMALE		
EXISTING	EXISTING	0	0	0	0	0	0	0
	NEW	1	1	0	1	1	0	1
	REQUIRED	1	1	0	1	1	0	1

SPECIAL APPROVALS (LOCAL JURISDICTION, DEPARTMENT OF INSURANCE, OSC, DPI, DHS, ETC., DESCRIBE BELOW)  
 NA

**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 BUDGET FOR THE STANDARD REFERENCE DESIGN VERSUS ANNUAL ENERGY COST FOR THE PROPOSED DESIGN.

EXISTING BUILDING ENVELOPE COMPLIES WITH CODE:  NO  YES (THE REMAINDER OF THIS SECTION IS NOT APPLICABLE) NA

EXEMPT BUILDING:  NO  YES (PROVIDE CODE OR STATUTORY REFERENCE) NA

CLIMATE ZONE:  3A  4A  5A  
 METHOD OF COMPLIANCE:  
 ENERGY CODE:  PERFORMANCE  PRESCRIPTIVE  
 ASHRAE 90.1:  PERFORMANCE  PRESCRIPTIVE  
 (IF OTHER SPECIFY SOURCE HERE)

**THERMAL ENVELOPE (PRESCRIPTIVE METHOD ONLY)**

ROOF/CEILING ASSEMBLY (each assembly):  
 DESCRIPTION OF ASSEMBLY: NA  
 U-VALUE OF TOTAL ASSEMBLY: NA  
 R-VALUE OF INSULATION: NA  
 SKYLIGHTS IN EACH ASSEMBLY:  
 U-VALUE OF SKYLIGHT: NA  
 TOTAL SQ FT OF SKYLIGHTS IN EACH ASSEMBLY: NA

EXTERIOR WALLS (each assembly):  
 DESCRIPTION OF ASSEMBLY: NA  
 U-VALUE OF TOTAL ASSEMBLY: NA  
 R-VALUE OF INSULATION: NA  
 OPENINGS (WINDOWS OR DOORS WITH GLAZING)  
 U-VALUE OF ASSEMBLY: NA  
 SOLAR HEAT GAIN COEFFICIENT: NA  
 PROTECTION FACTOR: NA  
 DOOR R-VALUES: NA

WALLS BELOW GRADE (each assembly):  
 DESCRIPTION OF ASSEMBLY: NA  
 U-VALUE OF TOTAL ASSEMBLY: NA  
 R-VALUE OF INSULATION: NA

FLOORS OVER UNCONDITIONED SPACE (each assembly):  
 DESCRIPTION OF ASSEMBLY: NA  
 U-VALUE OF TOTAL ASSEMBLY: NA  
 R-VALUE OF INSULATION: NA  
 HORIZONTAL/VERTICAL REQUIREMENT: NA  
 SLAB HEATED: NA

FLOORS SLAB ON GRADE:  
 DESCRIPTION OF ASSEMBLY: NA  
 U-VALUE OF TOTAL ASSEMBLY: NA  
 R-VALUE OF INSULATION: NA  
 HORIZONTAL/VERTICAL REQUIREMENT: NA  
 SLAB HEATED: NA

**MECHANICAL SUMMARY SEE MECHANICAL DRAWINGS**

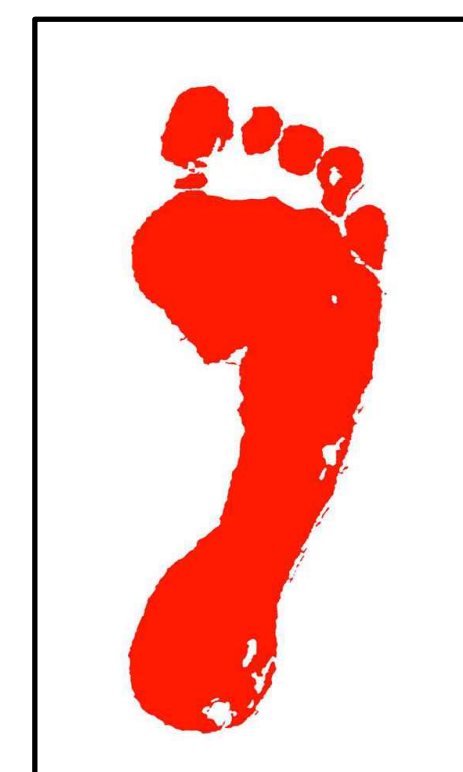
MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT  
 THERMAL ZONE: WINTER DRY BALLB SUMMER DRY BALLB  
 INTERIOR DESIGN CONDITIONS: WINTER DRY BALLB SUMMER DRY BALLB RELATIVE HUMIDITY \_\_\_\_\_  
 BUILDING HEATING LOAD \_\_\_\_\_  
 BUILDING COOLING LOAD \_\_\_\_\_  
 MECHANICAL SPACING CONDITIONING SYSTEM 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: \_\_\_\_\_

**ELECTRICAL SUMMARY SEE ELECTRICAL DRAWINGS**

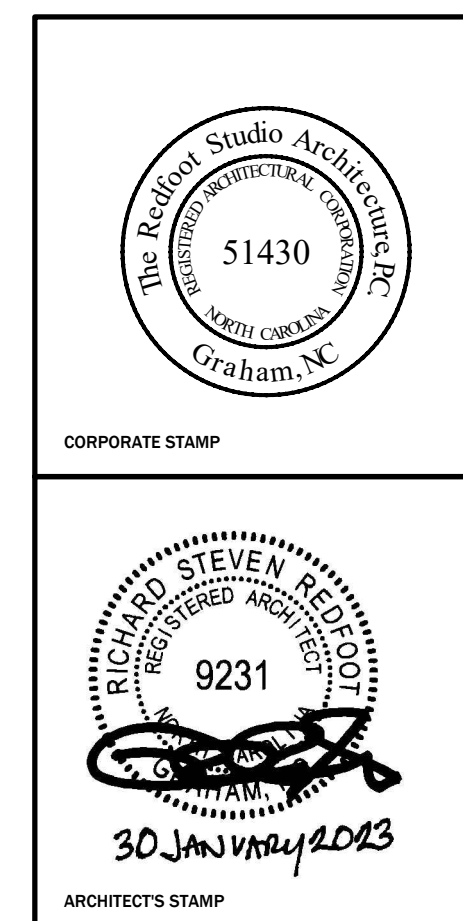
ELECTRICAL SYSTEM AND EQUIPMENT  
 METHOD OF COMPLIANCE: ENERGY CODE  PRESCRIPTIVE  PERFORMANCE  
 ASHRAE 90.1  PRESCRIPTIVE  PERFORMANCE

**LIGHTING SCHEDULE (each fixture type)**  
 LAMP TYPE REQUIRED IN FIXTURE \_\_\_\_\_  
 NUMBER OF LAMPS IN FIXTURE \_\_\_\_\_  
 BALLAST TYPE USED IN FIXTURE \_\_\_\_\_  
 NUMBER OF BALLASTS IN FIXTURE \_\_\_\_\_  
 TOTAL WATTAGE PER FIXTURE \_\_\_\_\_  
 TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED (whole building or space by space) \_\_\_\_\_  
 TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED \_\_\_\_\_

ADDITIONAL EFFICIENCY PACKAGE OPTIONS (WHEN USING THE 2018 NCECC, NOT REQUIRED FOR ASHRAE 90.1)  
 C406.2 MORE EFFICIENT MECHANICAL EQUIPMENT  
 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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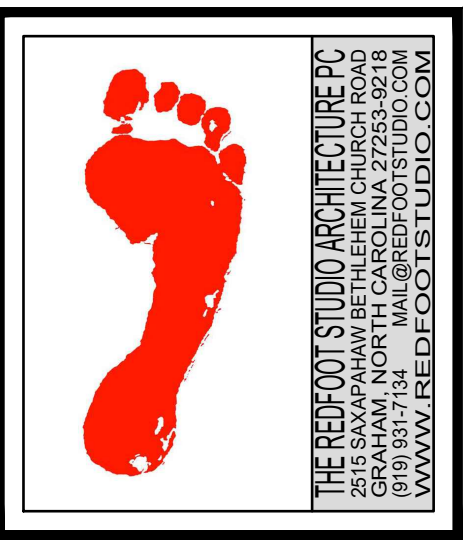


**THERASPACE**









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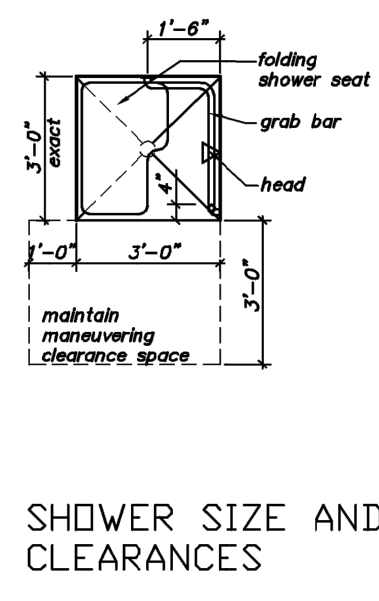
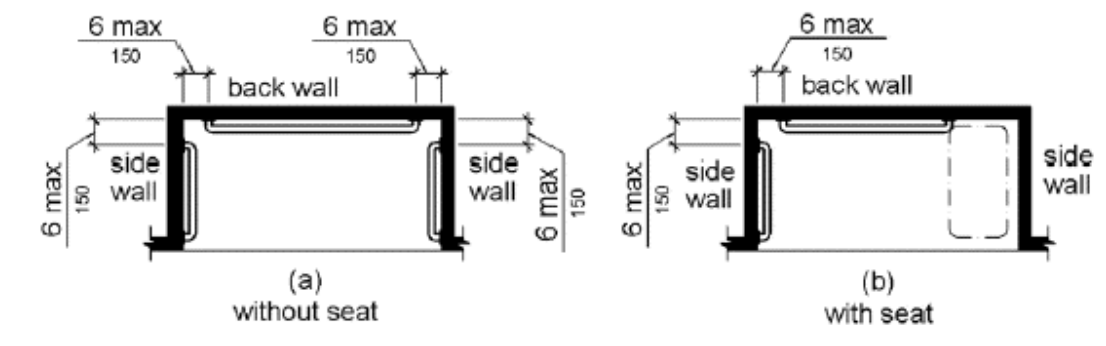
**THERASPACE**  
 2297 NC HIGHWAY 24-87  
 CAMERON, NORTH CAROLINA



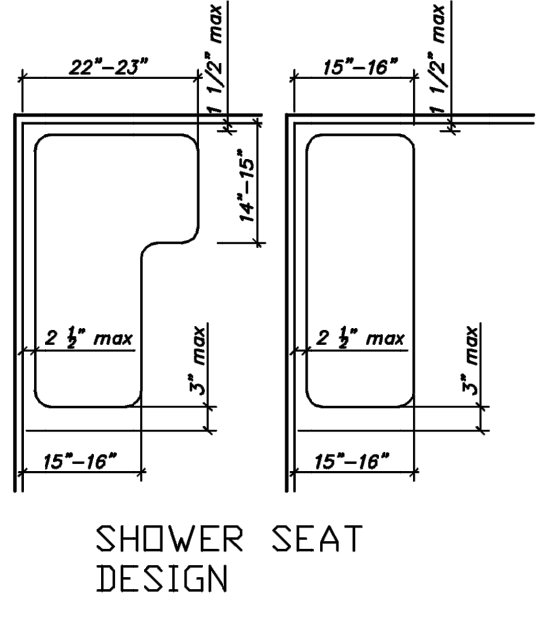
No	Rev./Submissions	Date
	PERMIT	01/30/23
SCALE	PROJECT NO	
AS NOTED	221105	
DESIGNED	DATE	
RSR	30 JAN 23	
DRAWN	CHECKED	
RSR	RSR	

DRAWINGS  
**ACCESSIBILITY**  
 DETAILS  
 DRAWING NO  
**A0.1**

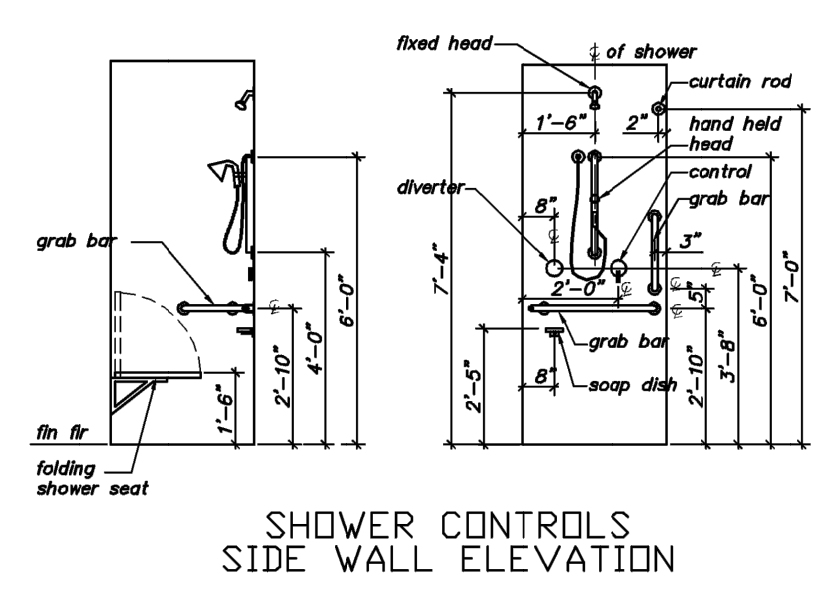
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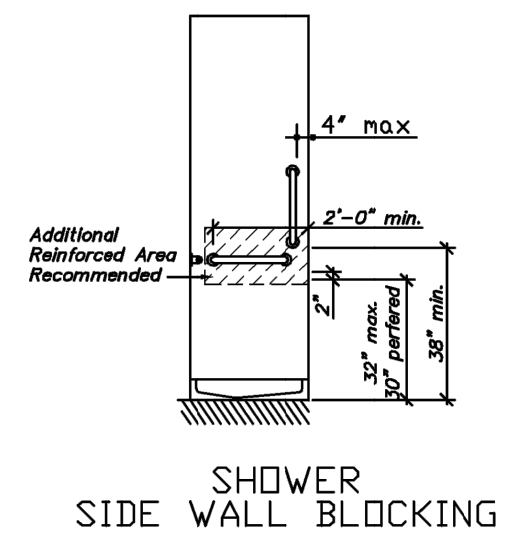
SHOWER SIZE AND CLEARANCES



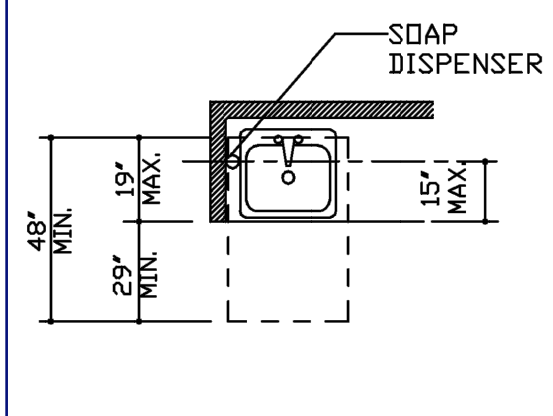
SHOWER SEAT DESIGN



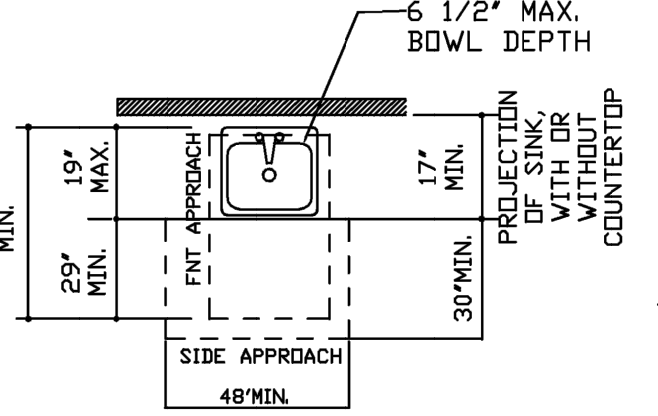
SHOWER CONTROLS SIDE WALL ELEVATION



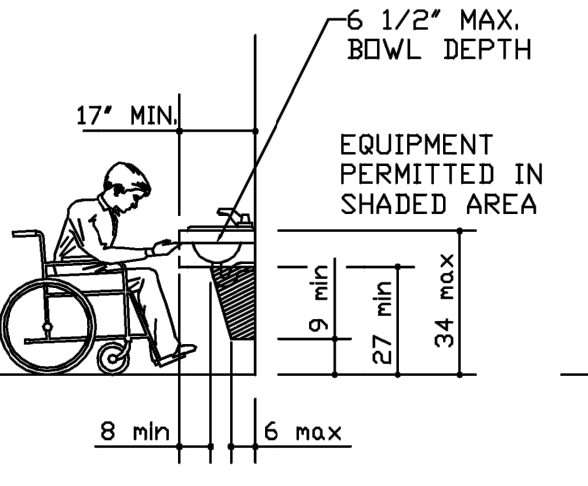
SHOWER SIDE WALL BLOCKING



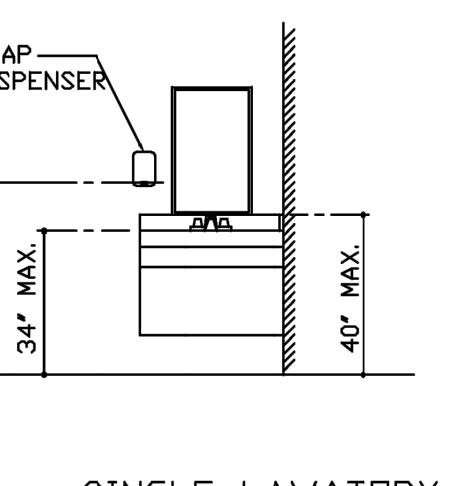
ACCESSIBLE SINK FLOOR CLEARANCE



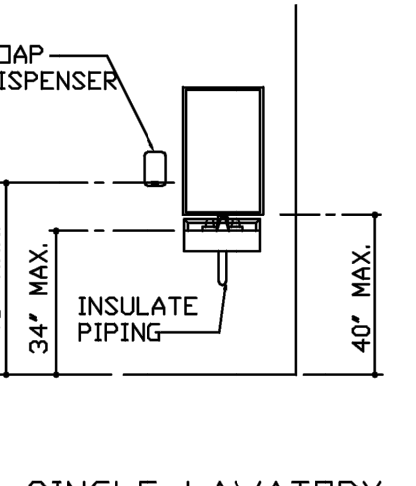
ACCESSIBLE SINK FLOOR CLEARANCE



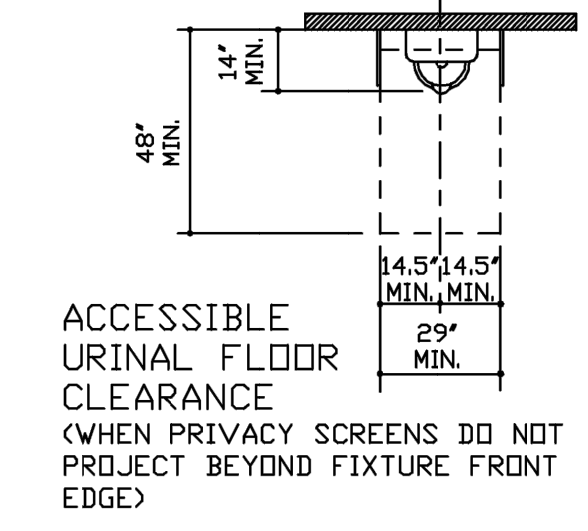
ACCESSIBLE SINK COUNTER HEIGHT AND KNEE CLEARANCE



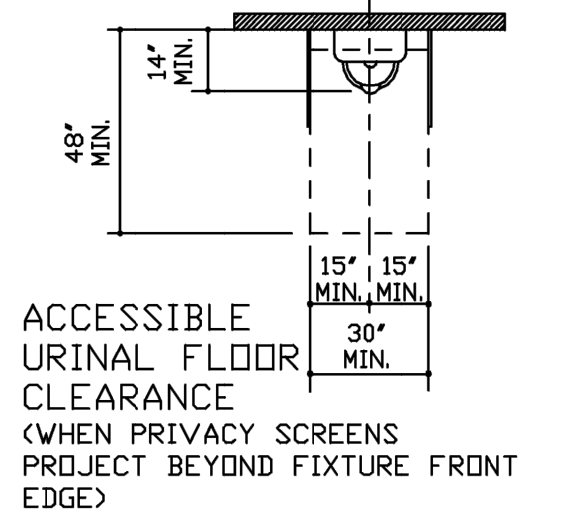
SINGLE LAVATORY COUNTER W/MIRROR



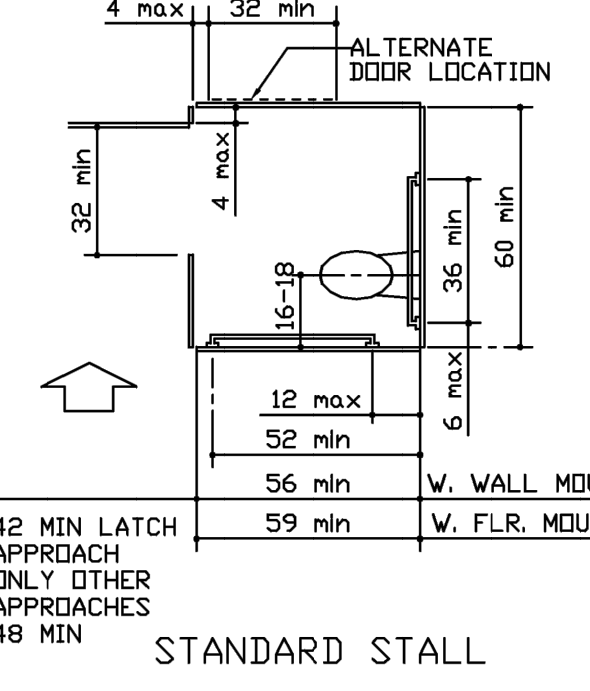
SINGLE LAVATORY WALLHUNG W/MIRROR



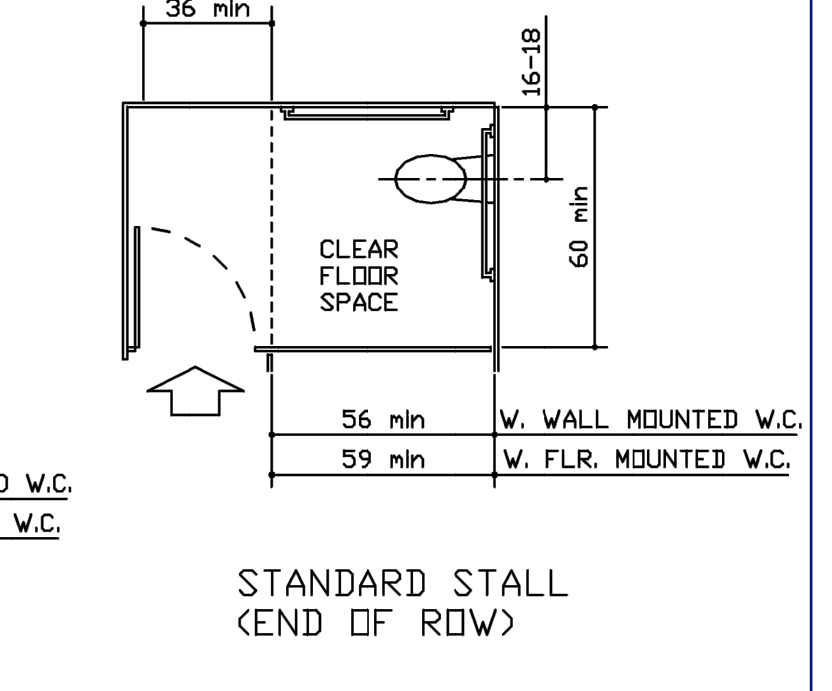
ACCESSIBLE URINAL FLOOR CLEARANCE (WHEN PRIVACY SCREENS DO NOT PROJECT BEYOND FIXTURE FRONT EDGE)



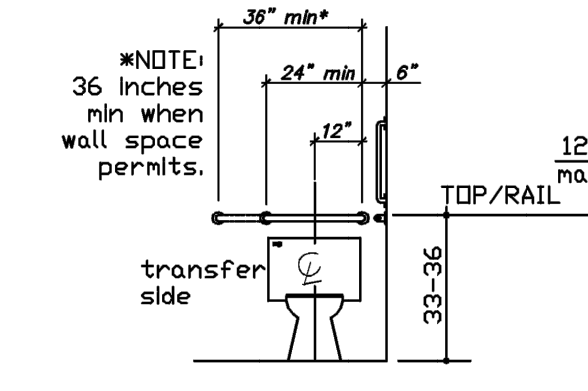
ACCESSIBLE URINAL FLOOR CLEARANCE (WHEN PRIVACY SCREENS PROJECT BEYOND FIXTURE FRONT EDGE)



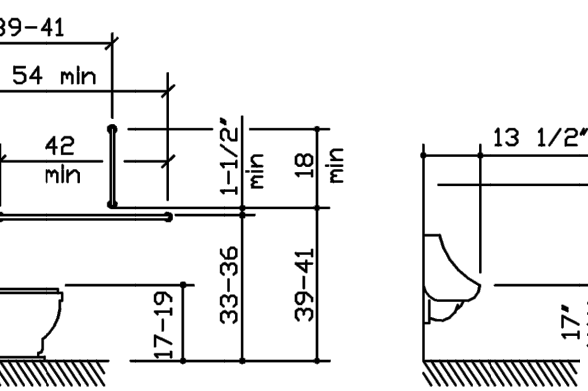
STANDARD STALL



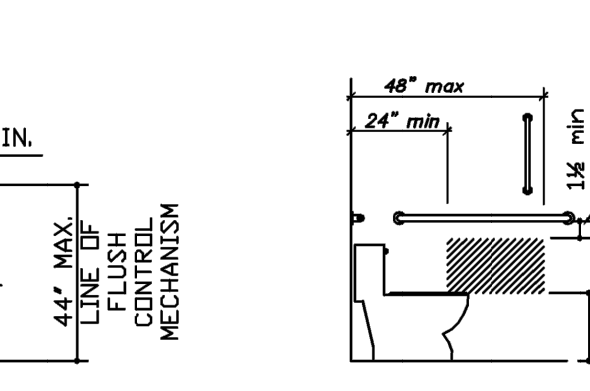
STANDARD STALL (END OF ROW)



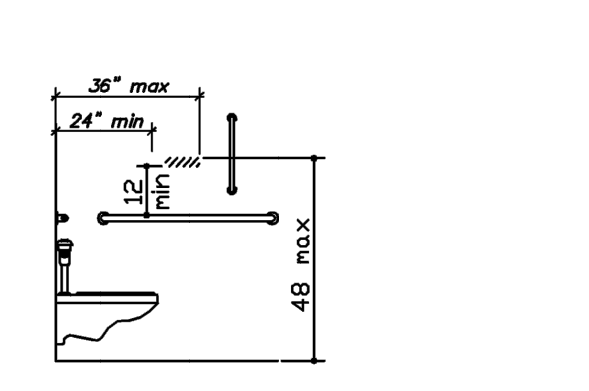
BACK WALL GRAB BARS AT WATER CLOSETS



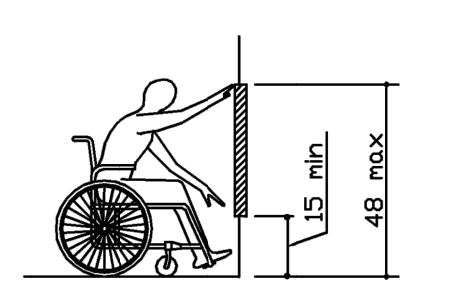
SIDE WALL GRAB BARS AT WATER CLOSETS



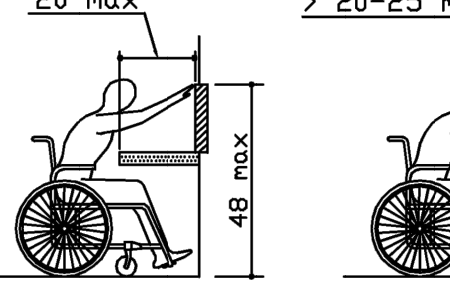
SIDE WALL ACCESSIBLE WALL HUNG URINAL



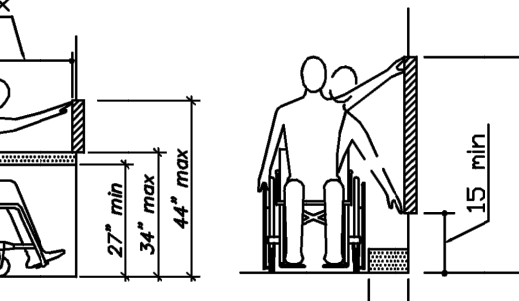
below grab bar above grab bar TOILET PAPER DISPENSER LOCATION



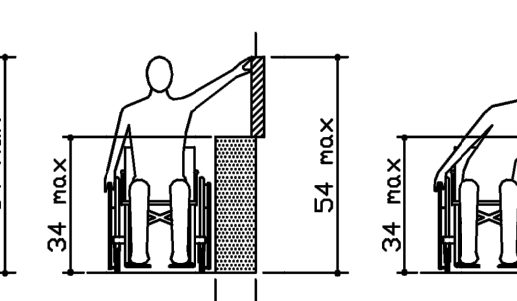
UNOBSTRUCTED FORWARD REACH



OBSTRUCTED HIGH FORWARD REACH



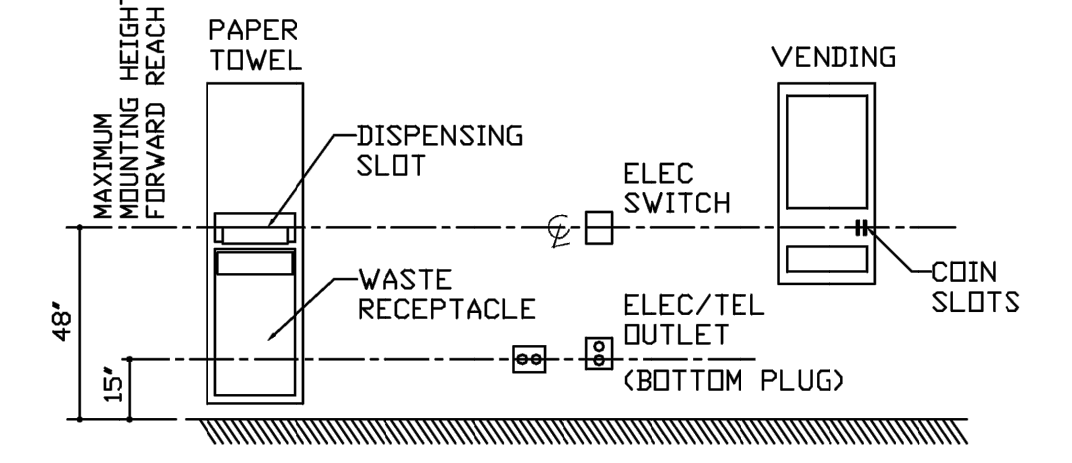
UNOBSTRUCTED SIDE REACH



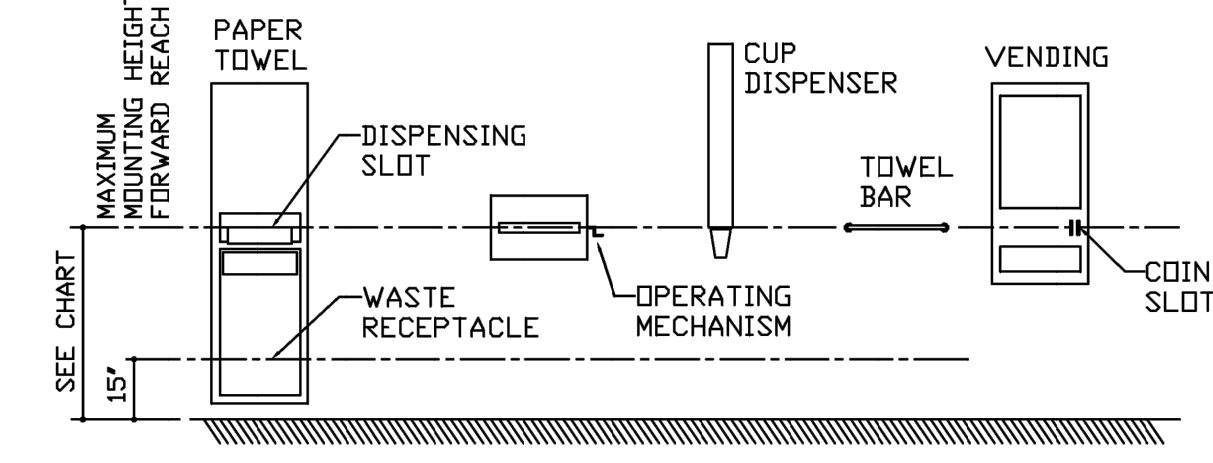
OBSTRUCTED HIGH SIDE REACH

SURFACE MOUNTED ACCESSORIES  
 MAXIMUM REACH DEPTH AND HEIGHT (FORWARD APPROACH)

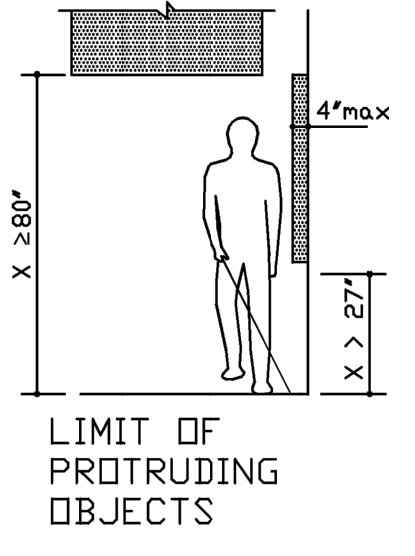
PROJECTED DIM FROM WALL FACE	.5 INCH	2 INCHES	5 INCHES	6 INCHES	9 INCHES	11 INCHES
MAXIMUM MOUNTING HEIGHT	48 INCH	46 INCH	42 INCH	40 INCH	36 INCH	34 INCH



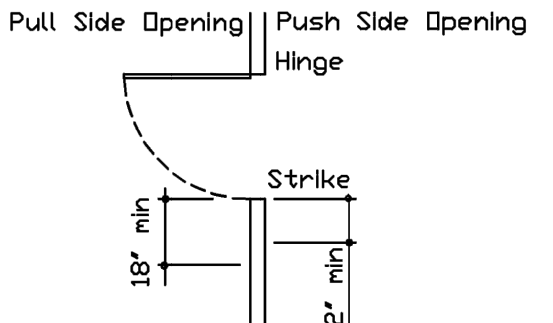
FLUSH MOUNTED EQUIPMENT (LESS THAN 1/2" PROJECTION FROM WALL FACE)



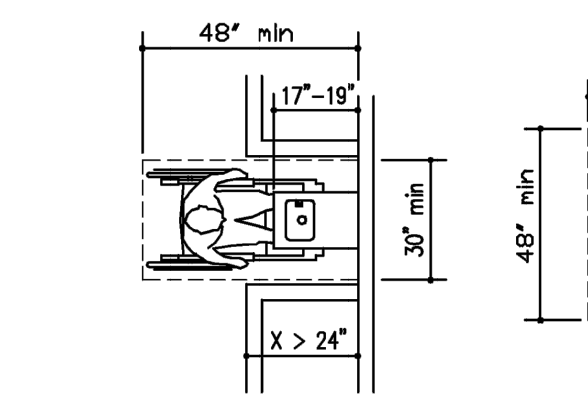
SURFACE MOUNTED EQUIPMENT (GREATER THAN 1/2" PROJECTION FROM WALL FACE)



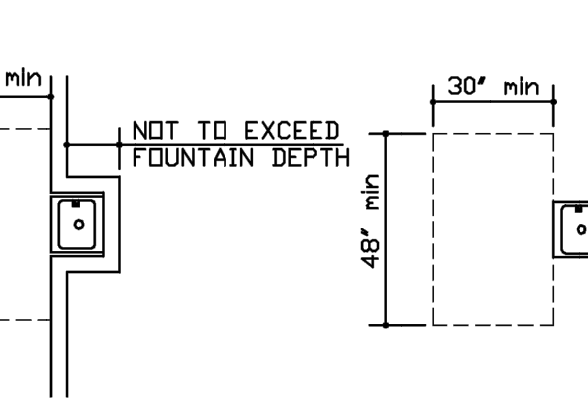
LIMIT OF PROTRUDING OBJECTS



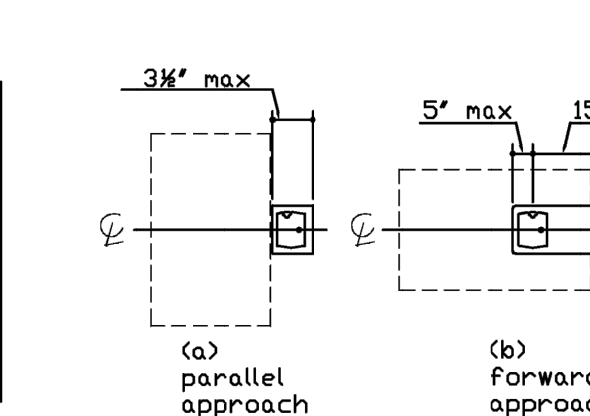
CLEAR AREA OF ACCESSIBILITY FORWARD APPROACH TO ACCESS WAY



WATER COOLER CLEAR FLOOR SPACE



BUILT-IN FOUNTAIN OR COOLER

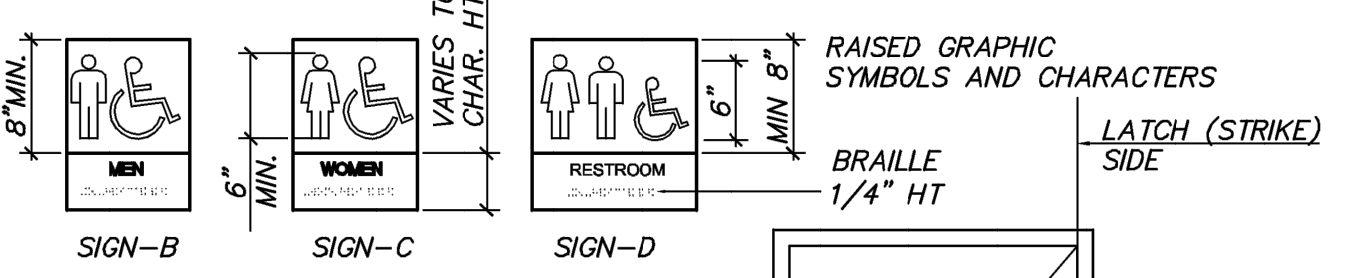


FREESTANDING FOUNTAIN OR COOLER



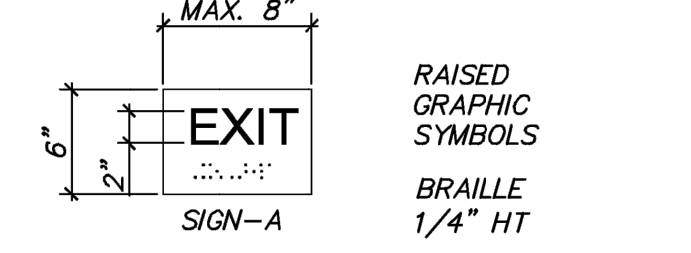
DRINKING FOUNTAIN SPOUT LOCATION

IDENTIFICATION SIGNAGE AT 60" A.F.F., ARE TO BE DISTINCTLY DIFFERENT FROM THE DOOR OR WALL IN COLOR AND CONTRAST.

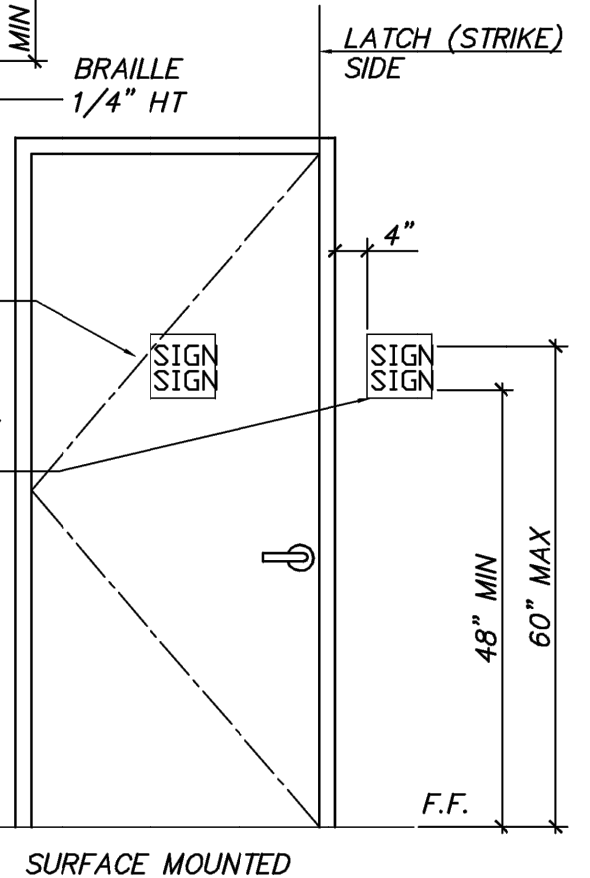


ONLY IF ADJACENT WALL SPACE CANNOT ACCOMMODATE, THEN SIGN(S) SHALL BE CENTERED PLACE ON THE DOOR.

IF NO WALL SPACE AVAILABLE ADJACENT TO THE STRIKE JAMB/LATCH SIDE OF DOOR, THEN THE SIGN(S) SHALL BE PLACED ON THE NEAREST ADJACENT WALL.



EXIT SIGN: REQUIRED AT DOOR(S): NOTED (EXIT HC)



SURFACE MOUNTED

**1 Accessibility Details and Requirements**  
 SCALE 1 1/2"=1'-0"



























GENERAL MECHANICAL NOTES

- ADMINISTRATIVE:**
- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:  
PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR  
MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR, FASC - FIRE ALARM SYSTEM CONTRACTOR.
  - "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
  - THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
  - ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
  - THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
  - THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
  - THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
  - ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
  - THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC. TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
  - ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
  - IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
  - MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
  - MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
  - MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
  - CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
  - ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
  - IF A ROOF PENETRATION IS REQUIRED AND THE ROOF UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
  - ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
  - MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

**MATERIALS:**

- THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED SPLIT SYSTEM HEAT PUMPS AND AIR-CONDITIONERS SHALL BE BY FRAME, CARRIER, OR YORK. AIR-COOLED THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
- THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY.
- DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2ND E.P.
- EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDICES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:  
1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.  
2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.  
3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.  
4. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A-95 OR UL 181B-98. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAN THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
- ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED TO. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
- FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH 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 FOAM VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTINGS AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
- THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILING, INSTALL SUPPORT FROM THE STRUCTURE

- FOR EACH DIFFUSER OR DAMPER, AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-AIRE, NALOR, OR CARNES.
- AR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE 2018 NC MECHANICAL CODE.
- THE MC SHALL PROVIDE ALL REFRIGERATION PIPING, ALL PPE AND FITTINGS SHALL BE TYPE ACR HARD COPPER TUBING WITH SWEAT FITTINGS. REFRIGERATION LINES SHALL BE RUN NEATLY, WHERE A GROUP OF LINES ARE RUN, TRAPEZE HANGERS MAY BE USED. DO NOT USE CHAIN OR WIRE HANGERS. WRAP TUBING WITH RUBBER TAPE AT EACH CLAMP OR HANGER. FOR COVERED PIPES, HANGERS SHALL FIT AROUND THE OUTSIDE OF THE COVERING WITH 1/2 GAUGE GALVANIZED STEEL SHEETS OF A LENGTH EQUAL TO THE OUTSIDE DIAMETER OF THE INSULATION AND COVERING 3/4 OF THE CIRCUMFERENCE OF THE INSULATION. SAGS SHALL NOT BE PERMISSIBLE. HORIZONTAL LINES SHALL PITCH DOWN NOT LESS THAN 1 INCH IN 40 FEET. INSULATE WITH 1 INCH CLOSED CELL ARMAFLEX TYPE INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50. ALL JOINTS AND SPLICES IN INSULATION SHALL BE TAPED AND AIR TIGHT. SOLDER REFRIGERATION LINES USING 15 PERCENT SILVER SOLDER AND EVALUATE LINES TO 300 MICRONS. PROVIDE MOISTURE INDICATING SIGHT GLASS AND FILTER DRYER IN LIQUID LINE. PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUGGING AT THE COMPRESSOR AND INSURE PROPER LUBRICATION. MC SHALL BE RESPONSIBLE FOR SEALING LINE PENETRATIONS OF ANY RATED ASSEMBLY IN ACCORDANCE WITH A SYSTEM LISTED IN THE UL DIRECTORY FOR THE SPECIFIC ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR A LIST OF ALL UL FIRE RATED ASSEMBLIES.

**METHODS:**

- INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP. INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE, SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEALS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLUNCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNUF INSULATION, OWENS CORNING CORFO, OR CERTIFIED EQUIVALENT. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
- WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET ARE SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOWER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
- PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
- CONSTRUCT TS, BENDS, AND ELBOWS WITH RADI OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
- IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, ORDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
- DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, ORDERS, OR BEAMS.
- CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENTS. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
- PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
- MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLIDES AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE 2018 NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NALOR, OR LLOYD INDUSTRIES.
- MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A) IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISION SHALL COMPLY WITH 606.4.1 OF THE 2018 NC MECHANICAL CODE. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DETECTOR DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
- MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION 0403.2.4 OF THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
- FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
- MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
- P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER.
- INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE 0402.5.5

RATED WALL LEGEND	
2 HOUR RATED WALL	████████████████████
3 HOUR RATED WALL	████████████████████

**MECHANICAL PLAN HEX NOTES**

- ROUTE CONDENSATE TO EXTERIOR OF BUILDING. TERMINATE IN LOCATION THAT WILL NOT PRODUCE SLIPPING HAZARD.

SPLIT SYSTEM HEAT PUMP SCHEDULE														
MARK	MFG / MODEL #	NOMINAL CAPACITY TONS	REF LINES		MOTORS			EFFICIENCIES			REMARKS			
			GAS	L110	COMPRESSOR	COND. FAN	SEER	CEP @ 17"	HSPF	V/PH		MCA	MDDP	
HP-1,2	YORK / YHE48T2E1S	4	7/8"	3/8"	1	1	14.3/10.5	2.47	7.5	208/1	26.1	45	215	1,5,6,8-10

SPLIT SYSTEM AIR HANDLER SCHEDULE																	
MARK	MFG / MODEL #	NOMINAL CAPACITY TONS	AIR FLOW		FAN MOTORS		HEATING CAPACITY		COOLING CAPACITY		ELECTRICAL	WEIGHT LBS	REMARKS				
			SUPPLY CFM	MIN. OA CFM	SUPPLY	ESP	OUTPUT	AUX ELEC. HEAT	EAT WB/DB	TOTAL				SENSIBLE	V/PH	MCA	MDDP
AHU-1,2	YORK / JHETC48GCSN1	4	1600	325	1	0.5	15.0	4.4	12	65.7/79.1	46.7	34.8	208/1	30.7	30	129	2-5,7-10

- PROVIDE CONCRETE PAD FOR UNIT TO SIT ON
- PROVIDE HEAT STRIP OUTDOOR TEMPERATURE LOCKOUT TO PREVENT SUPPLEMENTAL HEAT OPERATION IN RESPONSE TO THE THERMOSTAT BEING CHANGED TO A WARMER SETTING. SET NO LOWER THAN 35°F AND NO HIGHER THAN 40°F
- REPLACE ALL FILTERS AT PROJECT'S COMPLETION
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHT-TIME SET BACK
- CONSULT MANUFACTURER ON LINE SET LENGTHS EXCEEDING 60FT
- PROVIDE HARD START KIT
- HEATER RATED AT 208V
- OR EQUAL BY CARRIER, LENOX, DAIKIN OR TRANE
- ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER AIR)
- MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES

① THERMOSTAT LOCATION MOUNT AT 48" A.F.F.

EXHAUST FAN SCHEDULE						
MARK	MFG / MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA
EF-1,2	GREENHECK SP-B110	CEILING	0.40	96	120/1	1.14

- PROVIDE WITH PITCHED ROOF CURB & CAP FOR FLAT OR SLOPED ROOF, OR HOODED WALL WITH BACKDRAFT DAMPER CAP AS APPLICABLE.
- PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
- OR EQUAL BY LOREN COOK OR PENNBARRY OR TWIN CITY

REGISTER & GRILLE SCHEDULE				
MARK	MFG	MODEL #	SIZE	NOTES
A	HART & COOLEY	HVS	24X24	LAY-IN 4-WAY DIFFUSER, BRIGHT WHITE
R	HART & COOLEY	RH4ST	24X24	LAY-IN ALUMINUM, LAY IN RETURN GRILLE

- OR EQUAL BY PRICE, METAL-AIRE, CARNES, TITUS OR NALOR.
- PROVIDE WITH FOIL LINED, MOLDED INSULATION BLANKET.

Ventilation Calculation (Therapace Center)							
Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez
Office Areas	Office Space	2477	5	0.06	5	12.39	0.8
Reception	Reception	213	5	0.06	30	6.39	0.8
Storage	Storage	98	0	0.12	0	0.00	0.8
Restroom	N/A	112	0	0	0	0.00	0.8
	N/A	0	0	0	0	0.00	0.8
			Maximum Zp:	0.22365			
			Ev:	0.9			
			Actual System Population:	15			
Uncorrected Intake	248 cfm						
Outdoor Air Intake	276 cfm						
Percent of Unit Air	9%						

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE: THERMAL ZONE

EXTERIOR DESIGN CONDITIONS:  
HEATING DESIGN DRY BULB: 22.9°F  
COOLING DESIGN DRY BULB: 91.3°F  
COOLING DESIGN WET BULB: 74.7°F

INTERIOR DESIGN CONDITIONS:  
HEATING DESIGN DRY BULB: 70°F  
COOLING DESIGN DRY BULB: 75°F  
COOLING RELATIVE HUMIDITY: 50%

HEATING LOAD: 28,770 BTU/H

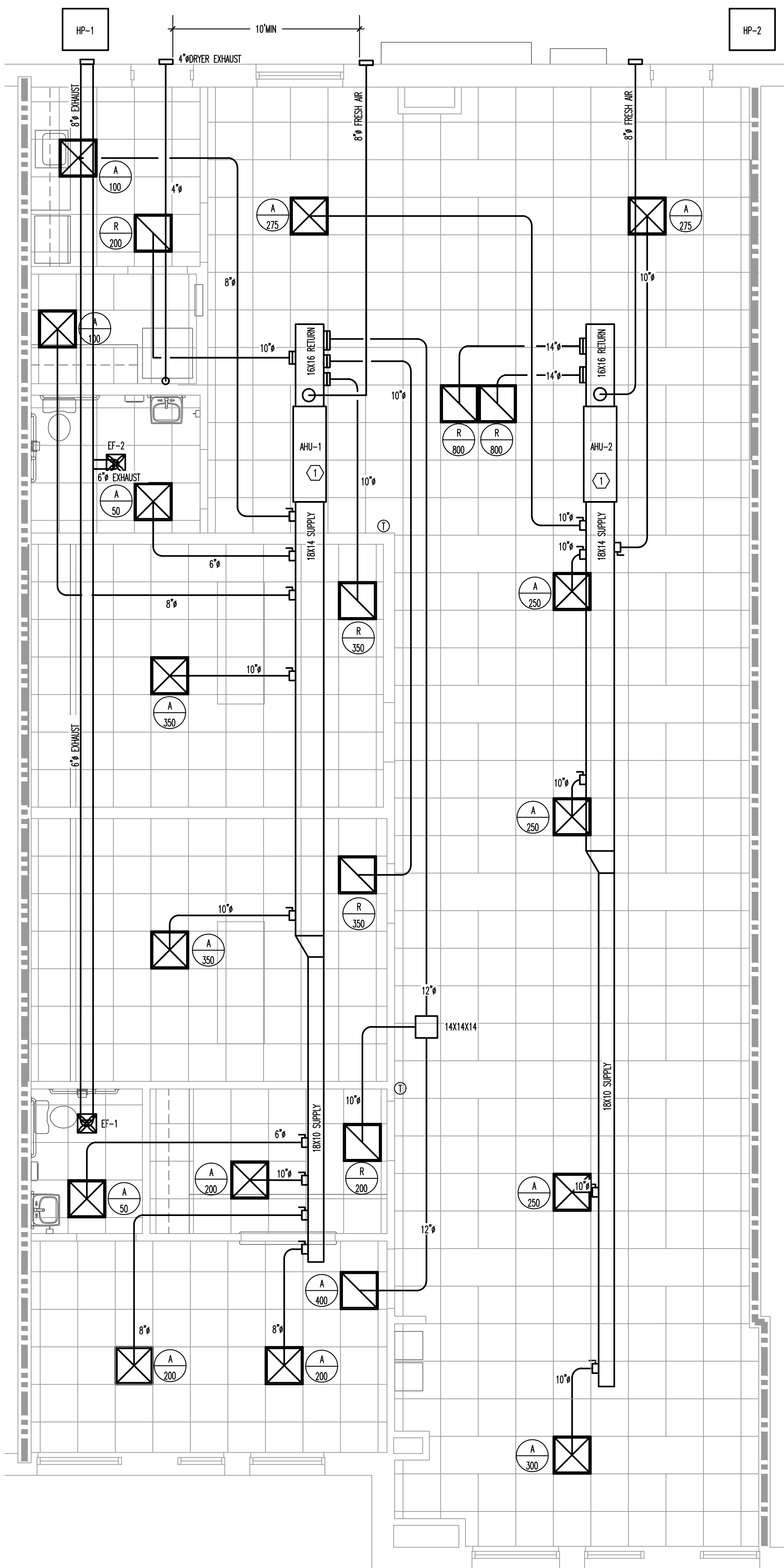
SENSIBLE COOLING LOAD: 36,975 BTU/H  
LATENT COOLING LOAD: 9,700 BTU/H

MECHANICAL SPACING CONDITIONING SYSTEM:  
UNITARY DESCRIPTION OF UNIT(S): AIR COOLED DX  
BOILER: SEE SCHEDULES  
TOTAL BOILER OUTPUT: N/A  
CHILLER: N/A  
TOTAL CHILLER CAPACITY: N/A

EQUIPMENT EFFICIENCIES: SEE SCHEDULES

EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS): SEE SCHEDULES

DESIGNER STATEMENT:  
TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH CAROLINA STATE BUILDING CODE AND 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.



**Kilian Engineering, Inc.**  
Professional Engineer  
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UPFIT FOR  
**THERAPACE**

REVISION:  
ISSUED:  
DRAWN BY: CLS  
CHECKED BY: JLM  
MECHANICAL PLAN  
SHEET NO. **M1**  
PROJECT NO: 230046



MARK	DESCRIPTION	LUMEN/LENS	LUMPS		VOLTAGE	INPUT VOLTAGE	MOUNTING	REMARKS	MFG	MODEL
			TYPE	CCT						
A	2X4 LED FLAT PANEL - HIGH LUMEN	ACRYLIC	LED	4000K	120	52.7	RECESSED	2,3	LITHONIA	CPANL-2X4-AL06-SWV-M2
B	2X4 LED FLAT PANEL - MEDIUM LUMEN	ACRYLIC	LED	4000K	120	43.3	RECESSED	2,4	LITHONIA	CPANL-2X4-AL06-SWV-M2
C	LED DOWNLIGHT	-	LED	4000K	120	17.5	RECESSED	2	LITHONIA	LING-40/15-L06-AR-LSS-IVOLT1-EZ10
D	LED DOWNLIGHT	-	LED	4000K	120	8.9	RECESSED	2	LITHONIA	LING-40/07-L06-AR-LSS-IVOLT1-EZ10
DE	EXTERIOR DUAL LED EMERGENCY LIGHT	-	LED	N/A	120	2.8	SURFACE	2	LITHONIA	AFD-DB-IVOLT1-H-SD
EX	LED EXIT SIGN W/ BATTERY BACKUP	-	LED	N/A	120	0.71	SURFACE	1,2	LITHONIA	LOM-S-V-3-R-120/277-EL-H-SD
EKH	LED EXIT/DMOD W/ BATTERY BACKUP	-	LED	N/A	120	4.3	SURFACE	1,2	LITHONIA	LHOM-LED-R-SD
EM	DUAL HEAD EMERGENCY FIXTURE	-	LED	N/A	120	1.09	SURFACE	1,2	LITHONIA	ELMEL-M12

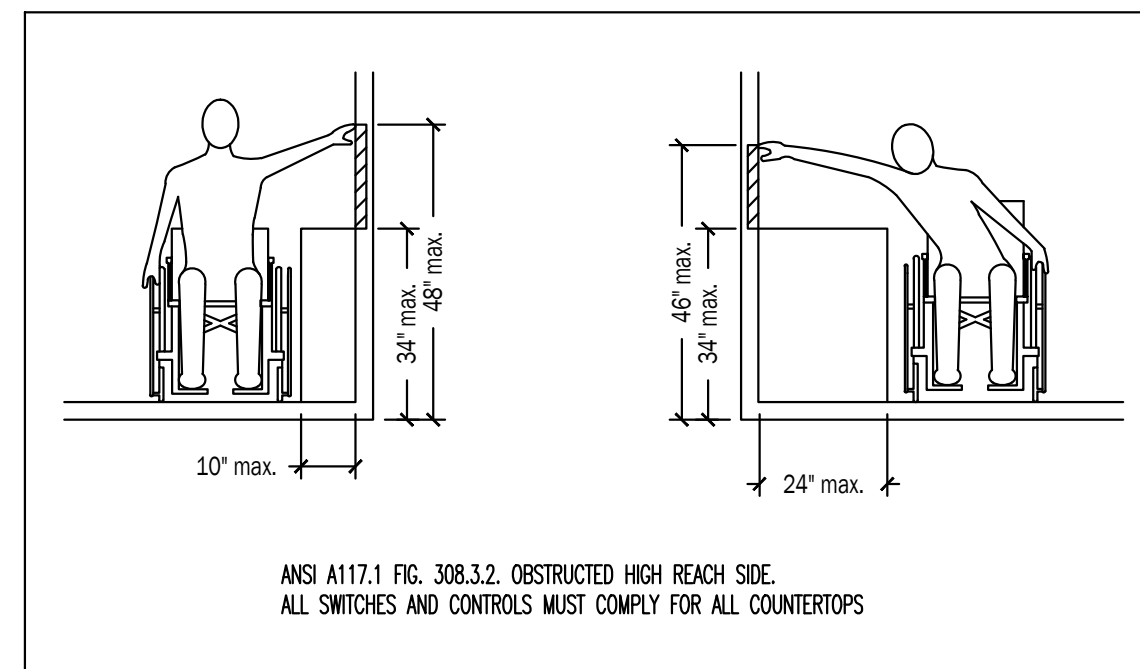
- FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
- OR EQUAL BY COOPER, PHILIPS OR DAY-BRITE LIGHTING
- FIXTURE IS SELECTABLE. SET COLOR TEMPERATURE TO 4000K AND NOMINAL LUMENS TO 6000LM.
- FIXTURE IS SELECTABLE. SET COLOR TEMPERATURE TO 4000K AND NOMINAL LUMENS TO 5000LM.

LIGHTING DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
⚡	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-S-596.
Ⓜ	OCCUPANCY SENSOR/DIMMER SWITCH	LUTRON MS-2101
Ⓜ	WALL MOUNTED OCCUPANCY SENSOR	LUTRON MS-EP56M2-DV-WH
Ⓜ	LOW VOLTAGE SWITCH	LUTRON PJ-2B-G0X-YY
Ⓜ	CEILING OCCUPANCY SENSOR	LUTRON LRF2-D0R2B-P-WH
Ⓜ	POWER PACK	LUTRON RMJS-16R-DV-B
Ⓜ	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.
Ⓜ	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

- GENERAL LIGHTING SENSOR NOTES:
- INSTALL PICO SWITCHES IN LOCATIONS SHOWN.
  - ALL SWITCHES AND SENSORS TO BE WHITE.
  - RMJS WITH A NUMBER ASSOCIATE WITH THE WALL OR CEILING MOUNT DEVICE WITH THE SAME NUMBER (IE RM11 ASSOCIATES WITH WM1, WC1, WH1 ETC.)
  - EC TO ORDER ALL WALL PLATES AND ACCESSORIES FOR COMPLETE INSTALLATION.

POWER DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
Ⓜ	DATA AND TELEPHONE JACK	PHONE/DATA OUTLET. EC TO INSTALL 3/4" W/ PULL-STRING FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. JACKS AND COMMUNICATION CABELING BY OTHERS
Ⓜ	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. "WP" DENOTES WEATHERPROOF COVER. "CH" DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596
Ⓜ	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE.
Ⓜ	DEDICATED RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1 UNLESS OTHERWISE NOTED IN PLANS. VERIFY PLUG TYPE PRIOR TO PURCHASE & INSTALLATION GFCI OR AFCI IF NOTED. "WP" DENOTES WEATHERPROOF COVER. "CH" DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596. MAY BE EITHER SIMPLEX, DUPLEX, OR QUAD.
Ⓜ	DUPLEX FLOOR RECEPTACLE	DUPLEX RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
Ⓜ	QUAD FLOOR RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
Ⓜ	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE, TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS. FUSE ACCORDING TO NAMEPLATE DATA.
Ⓜ	DISCONNECT SWITCH	HEAVY DUTY TYPE, TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.
Ⓜ	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.

LED LIGHT FIXTURE SCHEDULE



ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE			
PRESCRIPTIVE ____ PERFORMANCE ____ ENERGY COST BUDGET ____			
LAMP TYPE REQUIRED IN FIXTURE: SEE LIGHTING LEGEND			
NUMBER OF LAMPS PER FIXTURE: SEE LIGHTING LEGEND			
BALLAST TYPE USED IN FIXTURE: SEE LIGHTING LEGEND			
NUMBER OF BALLASTS IN FIXTURE: SEE LIGHTING LEGEND			
TOTAL WATTAGE PER FIXTURE: SEE LIGHTING LEGEND			
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:		WATTS SPECIFIED	WATTS ALLOWED
		1541.8	2610.00
OCCUPANCY	AREA (sqF)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
HEALTH CARE	2900	0.90	2610.00
TOTAL	2900		2610.00
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)			
MOTOR HERSFEMER: N/A			
NUMBER OF PHASES: N/A			
MINIMUM EFFICIENCY: N/A			
MOTOR TYPE: N/A			
NUMBER OF POLES: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.			
FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.			
1541.8 W SPECIFIED <= 234.9 W (2610.00 W ALLOWED X 90%)			

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
  - PC - PLUMBING CONTRACTOR; EC - ELECTRICAL CONTRACTOR;
  - MC - MECHANICAL CONTRACTOR; GC - GENERAL CONTRACTOR;
  - FASC - FIRE ALARM SYSTEM CONTRACTOR; AHJ - AUTHORITY HAVING JURISDICTION.
- "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR HAS PROVIDED. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERRABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
- ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDING IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
- ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
- CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS; WIRING AND ELECTRICAL EQUIPMENT; AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HAZARDOUS SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
- ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRIC CODE, 2018 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

MATERIALS:

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC. UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. PRIOR TO ORDERING EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL OBTAIN THEM MANUFACTURER'S DATA SHEETS, SPECIFICATIONS, AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BUSES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. ELECTRICAL CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. ELECTRICIAN SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
- ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SAFETY SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MORGAN.
- OCCUPANCY SENSORS SHALL BE BY WHITTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
- CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERVED RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM. SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
- ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
- THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THIN/THIN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THIN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE GOLD OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC., INDUSTRIAL WIRE & CABLE, INC., ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
- JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR TAB "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED

- CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN FASC OR JUNCTION BOXES, TROUGHS, OR OUTLETS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
- ALL LUMINAIRES SHALL BE LISTED LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82111 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
- ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APLETON, RACO, OR O-Z/GENEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED.
- EC SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C82.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
- METAL CONDUIT SHALL BE BY ALIUM TUBING & CONDUIT, BECK MANUFACTURING, INC. OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AEG CABLE SYSTEMS, INC., ELECTRA-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

METHODS:

- EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
- ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4" IN CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS, DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
- COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
- ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
- MOUNT LIGHT SWITCHES AT 48" IN AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OOWNER. INSTALL SWITCHES WITH OFF POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, Ivory PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SENIOR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
- ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
- ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 488 STANDARDS. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SENIOR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
- LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
- CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE GFI CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAT-IN LIGHT FIXTURES, USE MINIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND PVC CONDUIT UNDER THE SECONDARY UNDERGROUND TELEPHONE SERVICE, UNDERGROUND TELEPHONE SERVICE, AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE # 4-8 IN BRIDGE GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT SIB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2" ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(G), 300.7(A), AND 300.50(E) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILING PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SIB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
- CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2" IN MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E).
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE 3R. WAPORITE BOXES SHALL BE TYPE 3S. WHERE SURFACE MOUNTED BOXES ARE USED, THESE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM

- THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE 714.3.2 (MINIMUM BOX SIZE IS 16 SQUARE INCHES AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
- ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE GALVALUM ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 IN EMT CONDUIT MAXIMUM AND 4 IN JUNCTION BOXES MAXIMUM MAY NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.
- WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.
- PROVIDE AND INSTALL LISTED TAMPER PROOF RECEPTACLES IN WAITING AREAS, THERAPY AREAS, AND OFFICES.
- IN PATIENT CARE AREAS, EQUIPMENT GROUNDING SHALL COMPLY WITH NEC 517.13 (THIS INCLUDES LIGHTS AND SWITCHES), THE METAL RACEWAY SYSTEM, METALLIC CABLE ARMOR, OR SHEATH ASSEMBLY SHALL ITSELF QUALIFY AS AN EQUIPMENT GROUNDING CONDUCTOR PER NEC 250.118.
- PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
- INSTALL ONE (1) 3/4" IN FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.
- ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUNG-HS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE 4 IN SQUARE BY 2-1/8 IN DEEP BOX WITH 3/4 IN KNOCK-OUTS AND A 3/4 IN CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
- ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCATED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART II. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC. IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
- ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC 404.8(B).
- ELECTRICAL CONTRACTOR SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 IN MINIMUM) ETCHED INTO THE WHITE CORE. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.

**Kilian Engineering, Inc.**

NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL  
 NO. 27356  
 1-30-23  
 SEAL  
 KILIAN ENGINEERING CORPORATION  
 NORTH CAROLINA  
 SEAL

UPFIT FOR  
**THERASPACE**

2297 NC HIGHWAY 24-87, SUITE  
 CAMERON, NORTH CAROLINA

ISSUED FOR PERMITTING CONSTRUCTION  
 01-01-2023  
 01-01-2023

REVISION:

ISSUED:

DRAWN BY: CLS  
 CHECKED BY: JLM

ELECTRICAL NOTES & SCHEDULES

SHEET NO. **E1**

PROJECT NO: 230046







