

# UNIVERSITY STORAGE

COATS, NORTH CAROLINA

### SUBMITTED TO:

TTL COATS, LLC

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NOTE: DETAIL LABELS CONTAINED WITHIN THIS SET OF PLANS MAY REFERENCE THE ERECTION DRAWINGS MARKED IN THIS SCHEDULE. EXAMPLE: DETAIL A/900 REFERS TO DETAIL "A" LOCATED ON ERC900X

ERECTION DRAWINGS									
ERC010X	X	ERC200X		ERC420X		ERC619X		ERC752X	
ERC016X	X	ERC201X	X	ERC500X		ERC620X		ERC753X	
ERC100X	X	ERC202X	X	ERC505X	X	ERC621X		ERC754X	
ERC105X	X	ERC203X	X	ERC506X	X	ERC622X		ERC800X	
ERC106X		ERC204X		ERC515X		ERC623X		ERC900X	
ERC110X	X	ERC206X		ERC600X	X	ERC624X		ERC901X	
ERC112X	X	ERC207X	X	ERC601X	X	ERC625X		ERC902X	
ERC115X		ERC208X	X	ERC602X	X	ERC626X		ERC903X	
ERC120X		ERC209X		ERC603X		ERC630X	X	ERC904X	
ERC130X	X	ERC250X	X	ERC604X		ERC631X	X	ERC905X	
ERC150X		ERC250XFHP		ERC605X		ERC650X	X	ERC907X	
ERC151X		ERC251X		ERC606X		ERC700X	X	ERC908X	
ERC152X		ERC251XFHP		ERC607X		ERC710X		ERC910X	
ERC153X		ERC252X	X	ERC608X		ERC711X		ERC911X	
ERC154X		ERC251XFHP		ERC609X		ERC712X		ERC912X	
ERC155X		ERC253X		ERC610X	X	ERC713X		ERC913X	
ERC175X		ERC254X	X	ERC611X		ERC720X		ERC914X	
ERC176X		ERC255X		ERC612X		ERC725X		ERC915X	
ERC177X		ERC256X		ERC613X		ERC730X		ERC916X	
ERC178X		ERC257X		ERC614X	X	ERC731X		ERC917X	
ERC179X		ERC258X		ERC615X	X	ERC731XFHP		ERC918X	
ERC180X		ERC302X	X	ERC616X		ERC732X		ERC919X	
ERC181X		ERC302X(INS)		ERC617X	X	ERC732XFHP			:
ERC182X		ERC410XFL	X	ERC618X	X	ERC750X			
					N 7	1			

ERC183X ERC411X ERC618XALT ERC751X

#### SCHEDULE OF DRAWINGS

DRAWING NO. **DESCRIPTION** COVER SHEET CS2. . . . . . . . BUILDING NOTES . . . . . . . . . . APPENDIX B

ELEVATIONS & NOTES
FLOOR PLAN, DETAILS & NOTES
FLOOR PLAN, DETAIL & NOTES
FLOOR PLAN, DETAILS & NOTES

F3 ..... FOUNDATION PLAN, DETAILS & NOTES

CROSS SECTIONS
FRAMING ELEVATIONS & NOTES F1 . . . . . . . . . FOUNDATION PLAN, DETAIL & NOTES F2 ... FOUNDATION PLAN, DETAILS & NOTES WIND LOAD DESIGN DATA:

ULTIMATE DESIGN WIND SPEED (V<sub>ULT</sub>): 110 MPH NOMINAL DESIGN WIND SPEED  $(V_{ASD})$ : 86 MPH

RISK CATEGORY: I

WIND EXPOSURE: B

INTERNAL PRESSURE COEFFICIENT: ± 0.18

**SNOW LOAD DESIGN DATA:** 

GROUND SNOW LOAD (Pg): 15 PSF

FLAT-ROOF SNOW LOAD (Pf): 12.1 PSF

SNOW EXPOSURE FACTOR (Ce): 1.2

SNOW LOAD IMPORTANCE FACTOR (I): 0.8

THERMAL FACTOR (Ct): 1.2

#### EARTHQUAKE LOAD DESIGN DATA:

- RISK CATEGORY: I
- SEISMIC IMPORTANCE FACTOR (I): 1.0
- SEISMIC DESIGN CATEGORY: C
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE (ASCE 7-10 SECTION 12.8)
- BASIC SEISMIC-FORCE-RESISTING SYSTEM: LIGHT FRAMED WALLS WITH STEEL SHEAR PANELS
- SITE CLASS: D
- DESIGN BASE SHEAR:

BUILDING "1": 2.268<sup>K</sup> BUILDING "2": 2.268<sup>K</sup> BUILDING "3": 1.040<sup>K</sup>

- RESPONSE MODIFICATION FACTOR (R): 7.0
- SEISMIC RESPONSE COEFFICIENT (Cs): 0.027
- MAPPED SPECTRAL RESPONSE ACCELERATION  $(S_s)$ : 17.7% G

 $(S_1)$ : 8.4% G

- SPECTRAL RESPONSE COEFFICIENTS

(S<sub>DS</sub>): 18.8% G

 $(S_{D1}): 13.4\% G$ 

### BUILDING DATA:

**BUILDING DESCRIPTION:** 

SINGLE STORY METAL BUILDINGS BOLTED TO CONCRETE SLAB FOUNDATIONS.

**BUILDING SIZE:** 

60' x 280' = 16,800 sq. ft. 60' x 280' = 16,800 sq. ft. 27.5' x 280' = 7,800 sq. ft. TOTAL = 41,300 sq. ft. 9'-4" EAVE HEIGHT 9'-4" EAVE HEIGHT 9'-4" EAVE HEIGHT BUILDING "1" BUILDING "2" BUILDING "3"

PARKING DATA:

SEE SITE PLAN BY OTHERS

BUILDING CODE:

THE 2018 NORTH CAROLINA BUILDING CODE

DESIGN CRITERIA:

THESE BUILDINGS HAVE BEEN DESIGNED TO CONFORM TO THE STRUCTURAL REQUIREMENTS OF THE 2018 NORTH CAROLINA BUILDING CODE, WITH CURRENT REVISIONS.

THESE BUILDINGS HAVE BEEN DESIGNED FOR THE FOLLOWING LIVE LOADINGS IN ADDITION TO THE DEAD LOADINGS:

ROOF LIVE LOADING:

FLOOR LIVE LOADING: 125 psf

USE GROUP:

TYPE OF CONSTRUCTION: II-B

IT IS THE RESPONSIBILITY OF THE BUYER/OWNER TO VERIFY THE FIREWALL, LIVE LOAD AND WIND LOAD REQUIREMENTS WITH THE LOCAL CODE AUTHORITY.

20 psf

S-1

PROJECT NUMBER:

NC19185

ADDED ERC650X 10/28/19 JCM ADDED SHEET 10/28/19 JCM



2. EXTERIOR OPENINGS, NOT DESIGNATED AS DOOR LOCATIONS, TO BE COMPLETED USING EXTERIOR WALL PANELS FURNISHED BY BETCO.

3. USE DOW 191 SILICONE CAULK AND 1/2" WIDE BUTYL RUBBER TAPE SEALANT FOR ROOF INSTALLATION. USE DOW 199 SILICONE CAULK AT DOWNSPOUT TO GUTTER JOINT.

4. INTERIOR PARTITIONS PERPENDICULAR TO ROOF BEAM(S) MUST BE COMPLETED BEFORE ROOF PANELS ARE INSTALLED. USE PARTITION FRAMING TO PLUMB AND SQUARE COLUMNS AND HEADER SECTIONS. CHECK BUILDING WIDTH AT TOP OF COLUMNS PRIOR TO ROOF INSTALLATION.

5. THOROUGHLY SWEEP ROOF PANELS FOLLOWING INSTALLATION TO REMOVE METAL DRILLINGS.

6. THIS DESIGN IS BASED ON USING ONLY METAL BUILDING COMPONENTS WHICH ARE PROPRIETARY TO BETCO. FURTHER. THE PROFESSIONAL ENGINEER'S SEAL IS INVALID UNLESS ONLY BETCO METAL BUILDING COMPONENTS ARE UTILIZED.

7. METAL STUDS (IF APPLICABLE) MAY REQUIRE FIELD CUTTING DEPENDING UPON THE EAVE HEIGHT OF THE STRUCTURE.

8. UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY YARY ACCORDING TO FINAL DESIGN OF COMPONENTS.

9. THESE DRAWINGS ARE THE PROPERTY OF BETCO, INC. AND MAY NOT BE USED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN CONSENT OF BETCO, INC.

10. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.

11. THE GENERAL CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL SLEEVES, PADS, DEPRESSIONS, OPENINGS, ETC. AS REQUIRED BY THE YARIOUS TRADES.

#### FOUND ATIONS

THE FOUNDATION DESIGN IS BASED ON A PRESUMED ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF.

NOTIFY ENGINEER IF SITE CONDITIONS DIFFER FROM DESIGN ASSUMPTIONS SPECIFIED. 2. IF FOOTING ELEVATIONS SHOWN OCCUR IN A DISTURBED, UNSTABLE OR UNSUITABLE SOIL,

THE ENGINEER SHALL BE NOTIFIED.

3. TOP OF FOOTING ELEVATIONS ARE SHOWN ON THE DRAWINGS ARE TO BE DETERMINED BY THE CONTRACTOR IN THE FIELD IN ACCORDANCE WITH THE GUIDE LINES SET FORTH IN THE DRAWINGS AND SPECIFICATIONS.

4. FILL MATERIAL SHALL BE FREE OF ROOTS, WOOD OR OTHER ORGANIC MATERIAL AND COMPLY WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. MATERIALS USED FOR FILL UNDER FOOTINGS AND WITHIN BUILDING LIMITS SHALL BE TESTED AND APPROVED FOR THE USE BY THE GEOTECHNICAL TESTING AGENCY.

5. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEERS APPROVAL.

6. FOUNDATION WALLS RETAINING EARTH SHALL BE BRACED AGAINST BACK FILLING PRESSURES UNTIL FLOOR SLABS AT TOP AND BOTTOM ARE IN PLACE.

7. FOUNDATION WALLS OR GRADE BEAMS HAVING EARTH PLACED ON EACH SIDE SHALL HAVE BOTH FILLED SIMULTANEOUSLY TO MAINTAIN A COMMON ELEVATION.

8. DO NOT PLACE CONCRETE IN ANY EXCAVATION CONTAINING ICE, FROST, FROZEN GROUND

OR FREE WATER FROZEN SUB GRADES MUST BE THAWED AND RECOMPACTED PRIOR TO PLACING

9. EARTH FORMED FOOTINGS SHALL CONFORM TO THE SHAPE, LINES, AND DIMENSIONS AS SHOWN ON THE FOUNDATION PLAN. ALL WATER SHALL BE REMOVED BEFORE DEPOSITING CONCRETE.

10. BEFORE PLACING CONCRETE, ALL EMBEDDED ITEMS SHALL BE PROPERLY LOCATED, ACCURATELY POSITIONED, AND MAINTAINED SECURELY IN PLACE.

11. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION, AND ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

12. PERIMETER FOUNDATION MUST NOT EXCEED 1/4" ELEVATION VARIATION ALONG ANY 50" DISTANCE OF BUILDING LENGTH

13. PERIMETER FOUNDATION TO EXTEND BELOW FROST LINE. YERIFY REQUIRED DEPTH WITH LOCAL BUILDING OFFICIALS

PRIOR TO PROCEEDING WITH FOUNDATION WORK AND NOTIFY ENGINEER OF DEVIATION FROM DRAWING. 14. THE AMERICAN CONCRETE INSTITUTE DOES NOT RECOGNIZE FIBERMESH AS A SUBSTITUTE FOR WIRE MESH REINFORCED CONCRETE WHEN SUBJECTED TO TENSILE STRESS

15. SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0' INTERVALS ... OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.

#### REINFORCING STEEL

1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS

CONFORMING TO ASTM A-615, GRADE 60 (Fy-60,000 PSI). 2. FIELD BENDING OF CONCRETE REINFORCING STEEL IS NOT PERMITTED WITHOUT

WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. 3. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI SP-66 'ACI DETAILING MANUAL-1994' ANDTHE 'CRSI MANUAL OF STANDARD

PRACTICE", LATEST EDITION. 4. PLACE REINFORCEMENT AND TIES IN GROUT SPACES PRIOR TO GROUTING.

5. CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE UNLESS NOTED

A. FOOTING AND GRADE BEAMS IN GROUND CONTACT B. BEAMS AND COLUMNS

2 INCHES 3/4 INCH - NOT EXPOSED TO EARTH, LIQUID

OR WEATHER

C. SLABS, WALLS, AND JOISTS 2 INCHES FROM TOP

D. SLABS ON GRADE E. FORMED SURFACES IN

2 INCHES

GROUND CONTACT

6. DEVELOPMENT LENGTHS AND LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI 318-14 CHAPTER 12 AND AS INDICATED ON THE DRAWINGS. WHERE SPLICES ARE NOT CALLED OUT ON THE DRAWINGS, USE CLASS "B", BUT IN NO CASE SHALL ANY SPLICE BE LESS THAN 12 INCHES. FOR BARS AS INDICATED BELOW THE BASIC DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY THE FACTORS AS INDICATED FOR TENSION OR COMPRESSION AND THEN ROUNDED UP TO THE NEAREST WHOLE INCH. THE FACTORS INDICATED BELOW ARE CUMULATIVE FOR EACH OF THE CONDITIONS APPLICABLE.

1. WELDED WIRE MAT/FABRIC SHALL CONFORM TO ASTM AIB4 AND AIB5 RESPECTIVELY AND BE LAPPED 1'-0' AT ALL SPLICES.

8. ALL REINFORCING TERMINATING AT THE TOPS OF COLUMNS AND PILASTERS SHALL BE HOOKED UNLESS OTHERWISE NOTED.

9. SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING, AND PLACEMENT OF CONCRETE REINFORCEMENT. COMPLY WITH ACI DETAILING MANUAL (6P-66) SHOWING BAR SCHEDULES, STIRRUP SPACING, DIAGRAMS OF BENT BARS, ARRANGEMENT OF CONCRETE REINFORCEMENT. INCLUDE SPECIAL REINFORCEMENT REQUIRED AT OPENINGS THROUGH CONCRETE STRUCTURES. INCLUDE ALL ACCESSORIES SPECIFIED! REQUIRED TO SUPPORT REINFORCING.

10. SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMISSION. DRAWINGS SHALL BEAR THE CONTRACTOR'S APPROVAL STAMP ACCEPTING RESPONSIBILITY FOR DIMENSIONS, QUANTITIES AND COORDINATION WITH THE OTHER

II. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER AND TESTING AGENCY A MINIMUM OF 48 HOURS PRIOR TO ALL CONCRETE POURS IN ORDER TO PERMIT REINFORCING STEEL REVIEW AS REQUIRED BY THE INSPECTION SCHEDULE.

12. REINFORCING IN ALL CONTINUOUS STRIP FOOTINGS SHALL HAVE CORNER BARS OR DOWELS. PROVIDE AT ALL CORNERS AND INTERSECTIONS.

#### CONSTRUCTION AND SAFETY:

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT.

2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS.

3. MEANS AND METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS ARE SOLELY THE CONTRACTORS RESPONSIBILITY.

4. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE DRAWINGS OF OTHER CONSULTANTS AND TRADES. THE CONTRACTOR SHALL COORDINATE THE VARIOUS REQUIREMENTS.

5. NO OPENINGS NOR ANY CHANGES IN SIZE, DIMENSION OR LOCATION SHALL BE MADE IN ANY STRUCTURAL

ELEMENTS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. 6. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE

STRUCTURE, SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME. 7. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTORS MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR

8. THE CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER, CLEARLY AND EXPLICITLY IN WRITING, OF ANY DEVIATION OR SUBSTITUTION OF REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONTRACTOR IS NOT RELIEVED OF ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS BY VIRTUE OF THE STRUCTURAL ENGINEERS REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS CLEARLY AND EXPLICITLY INFORMED THE STRUCTURAL ENGINEER IN WRITING OF ANY DEVIATIONS OR SUBSTITUTIONS AT TIME OF SUBMISSION, AND THE STRUCTURAL ENGINEER HAS GIVEN WRITTEN APPROVAL FOR THE SPECIFIC DEVIATIONS OR SUBSTITUTIONS.

ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS OR AMBIGUITIES IN THE DRAWINGS OR SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER CORRECTIONS OR WRITTEN INTERPRETATIONS SHALL BE ISSUED BEFORE AFFECTED WORK MAY PROCEED.

10. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH NEW WORK IN AREAS AFFECTED BY THE EXISTING CONDITIONS, STRUCTURAL ENGINEER SHALL BE INFORMED IN WRITING OF CONFLICTS BETWEEN EXISTING AND PROPOSED NEW CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE STRUCTURAL DRAWINGS OR BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION, OR OTHER DRAWINGS OR INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH AFFECTED WORK.

12. DO NOT SCALE THESE DRAWINGS, USE THE DIMENSIONS SHOWN.

#### CONCRETE:

SUBMIT WRITTEN REPORTS OF EACH PROPOSED CONCRETE DESIGN MIX NOT LESS THAN 15 DAYS PRIOR TO THE START OF WORK. DESIGN MIXES PREPARED MORE THAN TWELVE (12) MONTHS PRIOR TO THE DATE THE SUBMITTAL ARE NOT PERMITTED.

?. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE

, ALL CONCRETE SHALL BE TESTED BY AN INDEPENDENT TESTING AGENCY FOR STANDARD PARAMETERS (SLUMP, COMPRESSIVE STRENGTH, ETC.) TWO COPIES OF ALL REPORTS SHALL BE SUBMITTED TO THE ENGINEER/

. ALL NORMAL WEIGHT CONCRETE SHALL HAVE ASTM C-33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI AT 28 DAYS, MINIMUM FOR FOUNDATIONS AND SLABS ON GRADE. ALL CONCRETE FOR FLOOR SLABS ON METAL DECK FORMS SHALL BE NORMAL WEIGHT CONCRETE WITH COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

MIX DESIGNS, INCLUDING WATER CEMENT RATIOS AND SLUMPS, SHALL BE PREPARED IN ACCORDANCE WITH MOST CURRENT ACI 301 CHAPTER 3, EXCEPT WHERE NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS. CEMENT SHALL COMFORM TO ASTM C 150 TYPE I OR AT CONTRACTOR'S OPTION, ASTM C 595 TYPE IP WHERE FLY ASH IS PERMITTED. NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF AND LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C 330 AGGREGATE, NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED IN ANY CONCRETE.

AGGREGATE SIZES SHALL BE: COARSE MASONRY GROUT REQUIRED .....

IV. FINE MASONRY GROUT REQUIRED ...

....\*8 STONE (3/8" MAX)

6. WATER REDUCING ADMIXTURE SHALL BE USED IN ALL CONCRETE.

. AIR ENTRAINING ADMIXTURE IN ACCORDANCE WITH ACI 301-84 TABLE 3.4.1, SHALL BE USED IN ALL CONCRETE EXPOSED TO FREEZING AND THAWING DURING CONSTRUCTION OR SERVICE CONDITIONS.

8. WATER/CEMENT RATIO SHALL NOT EXCEED Ø.45 FOR ANY CONCRETE SUBJECTED TO FREEZING/THAWING.

9. ALL PUMPED CONCRETE SHALL HAVE A WATER/CEMENT RATIO LESS THAN 0.45 AND SHALL CONTAIN A HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER).

IØ. IN NO CASE SHALL A WATER/CEMENT RATIOS EXCEED THE FOLLOWING:

ALL FOUNDATION CONCRETE to 3000 psi.... .....0.55 MAX. W/C RATIO II. EXTERIOR PAYING CONCRETE to 3500 bai. 

IIII. SLABS ON GRADE fo 3000 psi.....

. LIQUID MEMBRANE CURING COMPOUND WITH A MINIMUM 30% SOLIDS CONTENT SHALL BE APPLIED WITHIN TWO (2) HOURS AFTER COMPLETION OF FINISHING TO ALL CONCRETE FLATWORK AND WALLS, UN.O., OTHER THAN FOOTINGS AND GRADE BEAMS.

2. FLOORS IN AREAS RECEIVING QUARRY TILE, CERAMIC TILE AND LIQUID FLOOR HARDENER SHALL BE CURED WITH DISSIPATING LIQUID MEMBRANE CURING COMPOUND OR WET CURED BY USE OF MOISTURE RETAINING COVER. DISSIPATING CURING COMPOUND SHALL BE THOROUGHLY BROOMED AND WASHED OFF PRIOR TO APPLICATION OF FLOOR FINISH.

. USE A NON-CORROSIVE, NON-CHLORIDE ACCELERATING ADMIXTURE IN CONCRETE EXPOSED TO TEMPERATURES BELOW 40 DEGREES. UNIFORMLY HEAT THE WATER AND AGGREGATES TO A TEMPERATURE OF NOT LESS THAN 50 DEGREES. PLACE AND CURE CONCRETE IN ACCORDANCE

4. ALL CONSTRUCTION JOINTS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURE UNLESS THEIR ELIMINATION IS APPROVED BY THE STRUCTURAL ENGINEER.

5. REINFORCING IN ALL ABUTTING CONCRETE, INCLUDING FOOTINGS, SHALL BE CONTINUOUS THROUGH OR AROUND ALL CORNERS OR INTERSECTIONS. DOWELS OR SPLICES SHALL BE EQUAL IN SIZE AND SPACING TO THE REINFORCING IN THE ABUTTING MEMBERS.

6. REFER TO ARCHITECTURAL DRAWINGS FOR DOOR AND WINDOW OPENINGS, DRIPS, REGLETS, WASHES, MASONRY ANCHORS, BRICK LEDGE ELEVATIONS, SLAB DEPRESSIONS AND MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.

. FORMS FOR ROUND COLUMNS SHALL BE ONE PIECE FIBERGLASS FORM TO PRODUCE SMOOTH FINISH ON EXPOSED COLUMNS.

8. REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES. WHERE FINISH IS NOT SPECIFIED, CONFORM TO REQUIREMENTS OF ACI 301.

19. BASE PLATES, ANCHOR RODS, SUPPORT ANGLES AND OTHER STEEL EXPOSED TO EARTH OR GRANULAR FILL SHALL BE COYERED WITH A MINIMUM OF 3' OF CONCRETE.

SHALL BE GIVEN TO SEQUENCING OF CONCRETE PLACEMENT TO FACILIATE CONTROL OF FINISH

1. NON-SHRINK GROUT SHALL BE PRE-MIXED, NON-CORROSIVE, NON-METALLIC, NON-STAINING CONTAINING SILICA SANDS, PORTLAND CEMENT, SHRINKAGE COMPENSATING AND WATER REDUCING AGENTS. PRODUCTS SHALL ONLY REQUIRE THE ADDITION OF WATER, MINIMUM COMPRESSIVE STRENGTH SHALL BE 5000 PSI AFTER ONE DAY AND 1000 PSI AFTER 28 DAYS. GROUT SHALL BE FREE OF GAS PRODUCING OR AIR RELEASING AND OXIDIZING AGENTS AND CONTAIN NO CORROSIVE IRON, ALUMINUM

20. FINISHING TOLERANCE SHALL BE WITHIN CLASS IS IN ACCORDANCE WITH ACI 301 AND CONSIDERATION

22. PROVIDE CONCRETE GROUT - NOT MORTAR - FOR REINFORCING MASONRY LINTEL AND BOND BEAMS WHERE INDICATED ON DRAWINGS OR AS SCHEDULED.

23. TOLERANCE FOR ANCHOR RODS AND OTHER EMBEDDED ITEMS SHALL BE PER THE AISC CODE OF STANDARD PRACTICE SECTION 1.5.

24. UNLESS OTHERWISE SHOWN IN THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4' CHAMFERS AT ALL COLUMN, WALL, SLAB, OR BEAM EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED STRUCTURE.

#### BLOCK YENEER - STEEL STUDWALLS:

a. 2 in (51 mm) MINIMUM AIR SPACE RECOMMENDED ± 1 in (24,5 mm) MINIMUM AIR SPACE REQUIRED. b. 4 1/2 in (114 mm) MAXIMUM DISTANCE REQUIRED BETWEEN BACK OF BLOCK VENEER AND STEEL FRAMING UNLESS ANCHORS ARE RATIONALLY DESIGNED.

a. DO NOT STOP FLASHING BEHIND FACE OF THE BLOCKWORK.

b. PLACE FLASHING AT ALL POINTS WHERE AIR SPACE IS INTERRUPTED. C. EXTEND FLASHING YERTICALLY UP THE BACKING TO 8 in (203 mm) MINIMUM HEIGHT. d. LAP FLASHING 4 In (102 mm) MINIMUM HEIGHT UNDER WATER-RESISTANT BARRIER OR BEHIND SHEATHING ABOVE GRADE.

e. INSTALL BASE FLASHING MINIMUM 6 in (152 mm) ABOVE GRADE. F. TURN UP FLASHING ENDS INTO HEAD JOINT A MINIMUM OF 1 in (25.4 mm) FOR FORM END DAM.

a. OPEN HEAD JOINT WEEPS SPACED AT NO MORE THAN 24 in (610 mm) O.C. RECOMMENDED. b. MOST BUILDING CODES PERMIT WEEPS NO LESS THAN 3/16" IN (4.8 mm) DIAMETER AND SPACED NO MORE THAN 33 in (838 mm) O.C. C. WICK AND TUBE WEEP SPACING RECOMMENDED AT NO MORE THAN 16 In (406 mm) O.C.

a. CORRUGATED ANCHORS NOT PERMITTED WITH STEEL STUD BLOCKING.

6. MINIMUM WIT (9 gage) ADJUSTABLE WIRE ANCHORS, HOT-DIPPED GALVANIZED, TWO PIECE PER ASTM ABS CLASS B-2. C. YERTICAL SPACING: MAXIMUM 16 in (406 mm) O.C.

d. HORIZONTAL SPACING: MAXIMUM 24 in (610 mm) O.C. e. SECURELY ATTACH ANCHORS TO THE STEEL STUDS THROUGH THE SHEATHING, NOT THE

5. SHELF ANGLES AND LINTELS: a. SHELF ANGLES LOCATED ABOVE THE HEIGHT LIMIT MAY SUPPORT NO MORE THAN

b. SIZE HORIZONTAL LEG OF ALL SHELF ANGLES AND LINTELS TO PROVIDE A MINIMUM BEARING OF 2/3 THICKNESS OF THE BRICK WYTHE.

a. EXTERIOR GRADE GYPSUM SHEATHING OR OSB OR GLASS FIBER MAT-FACED SHEATHING OR CEMENT BOARD, MINIMUM 1/2 in (12.7 mm) THICK.

T. WATER-RESISTANT BARRIER:

a. WATER-REGISTANT BARRIERS INCLUDE 15 ASPHALT FELT, BUILDING PAPER, QUALIFYING HIGH-DENSITY POLYETHYLENE OR POLYPROPYLENE PLASTICS (HOUSEWRAPS).

b. INSTALL WATER-RESISTANT BARRIER OVER SHEATHING.

C. SEAL WATER-RESISTANT SHEATHING PER MANUFACTURER TO PERFORM AS WATER-RESISTANT BARRIER
d. SHIP LAP WATER-RESISTANT BARRIER PIECES MINIMUM 6 in (152 mm).

a. GALYANIZED STEEL STUDS WITH MINIMUM G-90 COATING. 6. RESTRICT ALLOWABLE OUT-OF-PLANE DEFLECTION OF STEEL STUDS TO LIGOD USING

SERVICE LEVEL LOADS. c. MINIMUM 0043 in (18 gage ± 1.09 mm) STUDS FOR EXTERIOR WALLS. d. DO NOT FIELD WELD STEEL STUDS.

a. COMPLY WITH ASTM C270.

b. TYPE N RECOMMENDED & TYPE & ALTERNATE.

10. EXPANSION JOINTS: a. PROVIDE VERTICAL AND HORIZONTAL EXPANSION JOINTS THROUGH BLOCK VENEER.

WH CARC 027355

7/30/19 K. MACLAY AS NOTED PPROVED BY: ADDED VENEER NOTES 10/29/19 JCM DATE REVISIONS

228 COMMERCE BLVD. STATESVILLE, NC 28625 (800)654 - 7813

UNIVERSITY STORAGE

COATS, NORTH CAROLINA TTL COATS, LLC

NC19185 DRAWING NUMBER BUILDING NOTES CS2 of

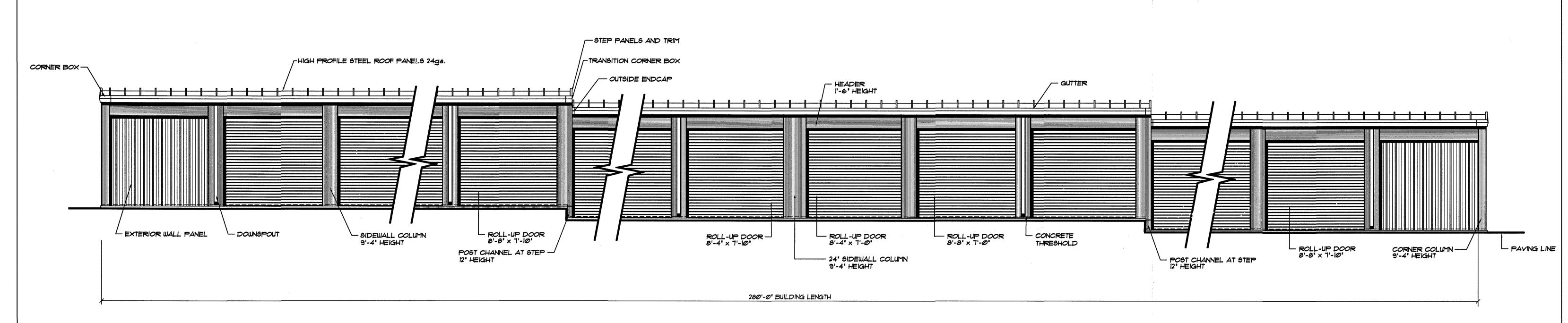
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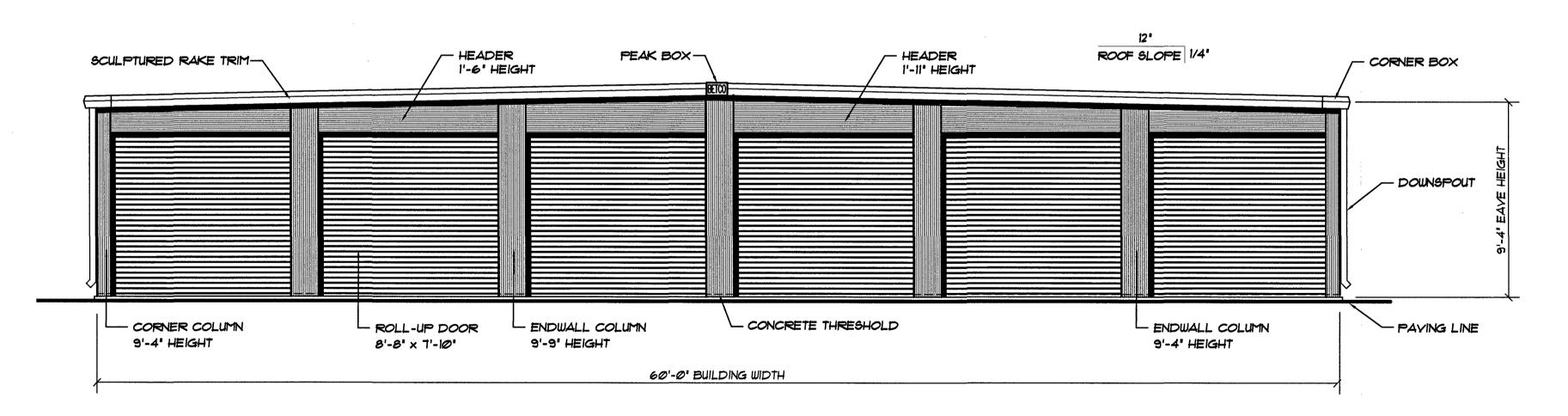
2018 APPENDIX B	Incidental Uses (Tablo 509):	North N/A	Exit access travel distances (1017)
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS	Special Uses (Chapter 4 – List Code Sections):	East N/A	Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)	Special Provisions: (Chapter 5 – List Code Sections):	West N/A	Dead end lengths (1020.4)
(Reproduce the following data on the building plans sheet 1 or 2)	Mixed Occupancy: No Separation: Select one Exception:	South N/A	Clear exit widths for each exit door
(Neproduct and Parish and Carlotte State of the Parish State of th	Select one	Interior walls and partitions N/A	Maximum calculated occupant load capacity each exit door can accommodate based on egress width (100).
	Actual Area of Occupancy A + Actual Area of Occupancy B <1	Floor Construction N/A	Actual occupant load for each exit door
me of Project: University Storage	Allowable Area of Occupancy A Allowable Area of Occupancy B	Including supporting beams and joists	A separate schematic plan indicating where fire rated floor/celling and/or roof structure is provided for
dress: Coats, NC Zip Code: 27521	+ + = ≤1.00	Floor Ceiling Assembly N/A	purposes of occupancy separation  Location of doors with panic hardware (1010.1.10)
mer/Authorized Agent: Michael Smith Phone # (910) 890-3252 E-Mail:		Columns Supporting Floors	Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
med By: Private	STORY DESCRIPTION AND (A) (B) (C) (D)	Roof Construction, including NC	Location of doors with electromagnetic egress locks (1010.1.9.9)
de Enforcement Jurisdiction: Select one	NO. USE BLOG AREA PER TABLE 506.2 AREA FOR FROWTAGE ALLOWABLE AREA PER	Supporting beams and joists  Poof Cultimy Accomplyty  N/A	Location of doors equipped with hold-open devices
ANALYSIS OF ANALYS	STORY (ACTUAL). AREA INCREASE STORY OR UNLIMITED?	Root Centing Assembly	Location of emergency escape windows (1030)
	Bldg I S-1 16800 17500 0 17500	Columns Supporting Roof N/A Shaft Enclosures - Exit N/A	The square footage of each fire area (202)
NTACT:	Bldg 2 S-1 16800 17500 0 17500 Bldg 3 S-1 7700 17500 0 17500	Shaft Enclosures - Other N/A	The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
signer firm name license# telephone# b-mail	Bldg 3 S-1 7700 17500 0 17500	State Environities - Outed	Note any code exceptions or table notes that may have been utilized regarding the items above
chitectural		Corridor Separation N/A	
ril ( ) corrical (	<sup>1</sup> Frontage area increases from Section 506.2 are computed thus:	Occupancy/Fire Barrier Separation ERC614X U419	A CODECATE A PARTY TO THE ANALYSIS OF
e Alarma	a. Perimeter which fronts a public way or open space having 20 feet minimum width =(F) b. Total Building Derimeter(D)  (P)	Party/Fire Wall Separation N/A Smoke Barrier Separation N/A	ACCESSIBLE DWELLING UNITS (SECTION 1107)
unbing	a. Perimeter which fronts a public way or open space having 20 feet minimum width =(F)  b. Total Building Perimeter =(P)  c. Ratio (F/P) =(F/P)  d. W = Minimum width of public way =(W)	Smoke Barrier Separation N/A Smoke Partition N/A	, , , , , , , , , , , , , , , , , , , ,
rebanical	d. W = Minimum width of public way =(W)	Tenan/Dwelling Unit/ N/A	TOTAL ACCESSIBLE ACCESSIBLE TYPE A TYPE A TYPE B TYPE B TOTAL UNITS UNITS UNITS UNITS UNITS UNITS UNITS UNITS UNITS
rinkler-Standpipe () uctural Betco Self 27355 (704)872-2999 reeds@betcoinc.com	e. Percent of frontage increase $I_{\ell} = 100[F/P - 0.25] \times W/30 = $ (%)	Steeping Unit Separation	Units Units Units Units Units Units Units Accessible Units Accessible Units Required Provided Provided Provided Provided Provided Provided Provided Units Units Accessible Units Accessible Units Unit
taining Walls >5' High	<ul> <li>Unlimited area applicable under conditions of Section 507.</li> <li>Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).</li> </ul>	Incidental Use Separation N/A	
* * * * * * * * * * * * * * * * * * *	The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic	* Indicate section number permitting reduction NC=Non-combustible	
ner  Other' should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)	control towers must comply with Table 412.3.1.	·	
AND DESIGN DEPTO CONTRACTOR DEPTO.	<sup>5</sup> Frontage increase is based on the unsprinklered area value in Table 506.2.		ACCESSIBLE PARKING
18 NC BUILDING CODE: New Building			(SECTION 1106)
IS NC EXISTING BUILDING CODE: N/A N/A N/A	ALLOWABLE HEIGHT	PERCENTAGE OF WALL OPENING CALCULATIONS	LOT OR PARKING TOTAL # OF PARKING SPACES # OF ACCESSIBLE SPACES PROVIDED TOTAL #
CONSTRUCTED: (date) CURRENT OCCUPANCY(S) (Ch. 3):	TABLE WARE	FIRE SEARATION DISTANCE DEGREE OF OPENINGS ADJOWABLE AREA ACTUAL SHOWN ON PLANS	AREA REQUIRED PROVIDED REGULAR WITH VAN SPACES WITH ACCESSIBI
RENOVATED: (date) PROPOSED OCCUPANCY(S) (Ch. 3):	ALLOWABLE SHOWN ON FLANS CODE REFERENCE	(FEET) FROM PROPERTY LINES PROTECTION (%) (%)	S ACCESS AISLE 132" ACCESS 8 'ACCESS PROVIDE
CUPANCY CATEGORY (Table 1604.5): Current: NA Proposed: I	Building Height in Feet (Table 504.3) 55 ft 9,33 ft		AISLE AISLE
	Building Height in Stories (Table 504.4) 2 1		
SIC BUILDING DATA	Provide code reference if the "Shown on Plane" quantity is not based on Table 504.3 or 504.4.		TOTAL
nstruction Type: <u>II-B</u>			
rinklers: <u>N/A N/A</u>			
indpipes: <u>N/A</u>	FIRE PROTECTION REQUIREMENTS	LIFE SAFETY SYSTEM REQUIREMENTS	PLUMBING FIXTURE REQUIREMENTS
imary Fire District: <u>Select one</u> Flood Hazard Area: <u>Select one</u>	BUILDING ELEMENT FIRE RATING DETAIL# DESIGN# SHEET#FOR SHEET#	LIPE SAFEI I SISIEM REQUIREMENTS	(TABLE 2902.1)
ecial Inspections Required: No	SEPARATION EXQ'D PROYDED AND FOR PATED FOR	Emergency Lighting: Select one	
	DISTANCE (W/ SÉDET# RATED PENETRATION RATED (FEET).  **REDUCTION) ASSEMBLY JOINTS	Exit Signs: Select one	USE WATERCLOSETS URINALS LAVATORIES SHOWERS DRINKING FOUNT MALE FEMALE UNISEX MALE FEMALE UNISEX TUBS REGULAR ACCES
Gross Building Area Table	Structural Frame, NC	Fire Alarm: Select one	SPACE EXIST'G
LOOR EXISTENC (SQ FT) NEW (SQ FT) SUB-TOTAL	including columns, girders,	Smoke Detection Systems: <u>Select one</u> Carbon Monoxide Detection: Select one	NBW NBW
	trusses	Carbon Monoxide Detection: Select one	REQ'D
uilding 1 16800 16800 uilding 2 16800 16800	Bearing Walls  Fivereigns >= 10 ft		
uilding 2     16800       uilding 3     7700       7700     7700	DAGIO:	LIFE SAFETY PLAN REQUIREMENTS	
1700 7700	1101111	Life Safety Plan Sheet #: SEE LS-1 FOR ALL INFORMATION BELOW	SPECIAL APPROVALS
TOTAL 41300 41300	East		
7,200	South >= 10 ft	Fire and/or smoke rated wall locations (Chapter 7)	Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)
ALLOWABLE AREA	Interior Interior	Assumed and real property line locations (if not on the site plan)	
· · · · · · · · · · · · · · · · · · ·	Nonbearing Walls and N/A	Exterior wall opening area with respect to distance to assumed property lines (705.8)	
imary Occupancy Classification(s): <u>Storage - S-1 N/A N/A N/A N/A N/A N/A</u>	Partitions   Parti	Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)	
	Exterior walls	Occupant loads for each area	
vessory Occupancy Classification(s):	2010 NO 6 destablished Andread Politica	2018 NC Administrative Code and Policies	2018 NC Administrative Code and Policies
vessory Occupancy Classification(s):	2018 NC Administrative Code and Policies		
	2010 NC Administrative Code and Policies	l l	
	2010 NC Administrative Code and Policies		
	2010 NC Administrative Code and Policies		
	ZULO NC Administrative code and Policies		

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 famish 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 cavelope compiles with code: Select one  Exempt Building: Yes Provide code or statutory reference; N.C.G.S. 143-138  Climate Zone: Select one  Method of Comptiance: Select one  (If "Other" specify source here)  THERMAL ENVELOPE (Prescriptive method only)  Roof/ceiling Assembly (cach assembly)  Description of assembly:  U-Value of total assembly:  U-Value of statistics:  Skylights in each assembly:  U-Value of satistics:  U-Value of of old assembly:  U-Value of fortal assembly:  U-Value of sesembly:  Solar beat gain coefficient:  projection factor:  Door R-Values:  Walls below grade (each assembly)  Description of assembly:  U-Value of total assembly:  R-Value of insulation:  Hoors siab un grade  Description of assembly:  U-Value of insulation:  Hoors siab un grade  Description of assembly:  U-Value of insulation:  Hoors siab un grade  Description of assembly:  U-Value of insulation:  U-Value of insulation:	### The control of th	BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS MECHANICAL SHEETS IF APPLICABLE)  MECHANICAL SUMMARY  MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT  Thermal Zone winter dry bulb: summer dry bulb: drieflictensy: Building heating load:  Mechanical Spacing Conditioning System  Unitary description of unit: heating efficiency: cooling efficiency: size category. If oversized, state reason.: Chiller Size category. If oversized, state reason.: List equipment efficiencies:  List equipment efficiencies:  """  **  **  **  **  **  **  **  **	2018 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS ELECTRICAL SELECTRICAL SHEETS IF APPLICABLE)  ELECTRICAL SUMMARY  ELECTRICAL SUMMARY  SEE ELECTRICAL DRAWINGS  ELECTRICAL SYSTEM AND EQUIPMENT  Method of Compliance: Select one  Lighting schedule (each fixture type)  SEE ELECTRICAL SCHEDULE  lamp type required in fixture number of lamps in fixture ballast type used in the fixture number of the lists in fixture total wattage per fixture total interior wattage specified vs. allowed (whole building or space by space)  Additional Efficiency Package Options (When using the 2018 NCECC; not required for ASHRAE 90.1)  C406.2 Behaned Digital Lighting Controls  C406.5 The Abaned Digital Lighting Controls  C406.5 The Reduced Lighting Fower Density  C406.6 The Reduced Lighting Fower De
R-Vanue of instanton. Horizontal/vertical requirement: slab heated:  2018 NC Administrative Code and Policies	2018 NC Administrative Code and Policies	2018 NC Administrative Code and Policies	2018 NC Administrative Code and Policies

			7/30/19 DRAWN BY: K. MACLAY	BETCO	PROJECT NAME:  UNIVERSITY STORAGE  PROJECT ADDRESS:  COATS, NORTH CAROLINA		
			AS NOTED		OWNER:	TTL COATS, LLC	PROJECT NO.: NC19185
			APPROVED BY:	228 COMMERCE BLVD. STATESVILLE, NC 28625 (800)654-7813	SHEET TITLE:	APPENDIX B	DRAWING NUMBER:
REVISIONS	DATE	BY		(600)654-7815			CS3 of 3



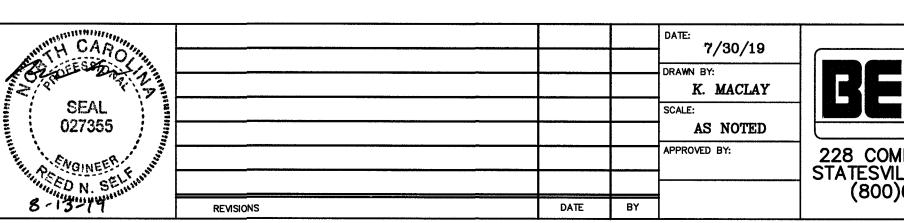
A SIDEWALL ELEVATION . . BUILDING "1"
SI SCALE: 1/4" = 1'-0"



BENDWALL ELEVATION . . BUILDING "1"
S1) SCALE: 1/4' = 1'-0'

NOTE:
DOUNSPOUTS LOCATIONS SHOWN FOR
ELEVATION PURPOSE ONLY. REFER
TO FLOOR PLAN SHEETS FOR LOCATIONS

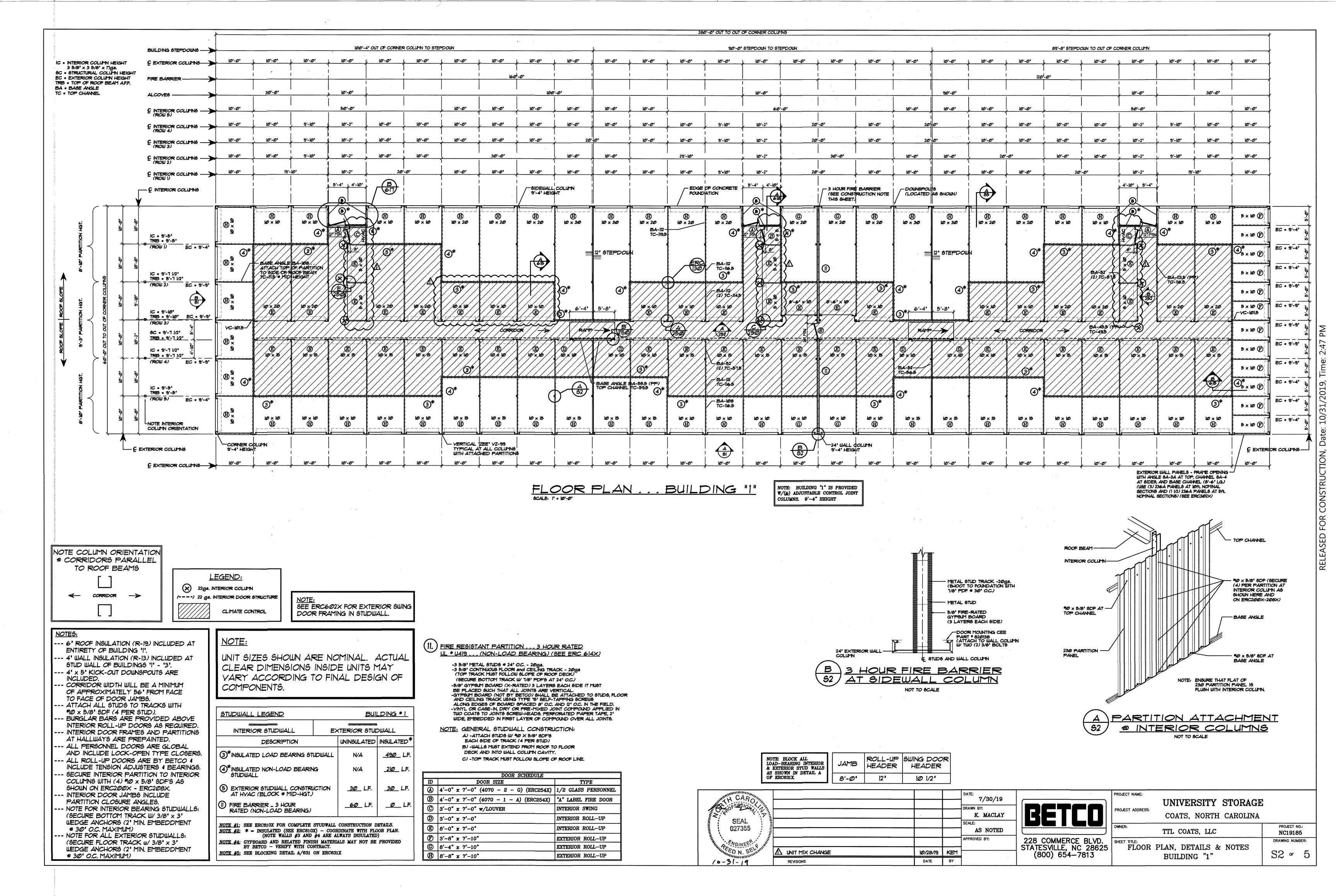
NOTE: . . SEE OWNER FOR BUILDING ORIENTATION ON SITE

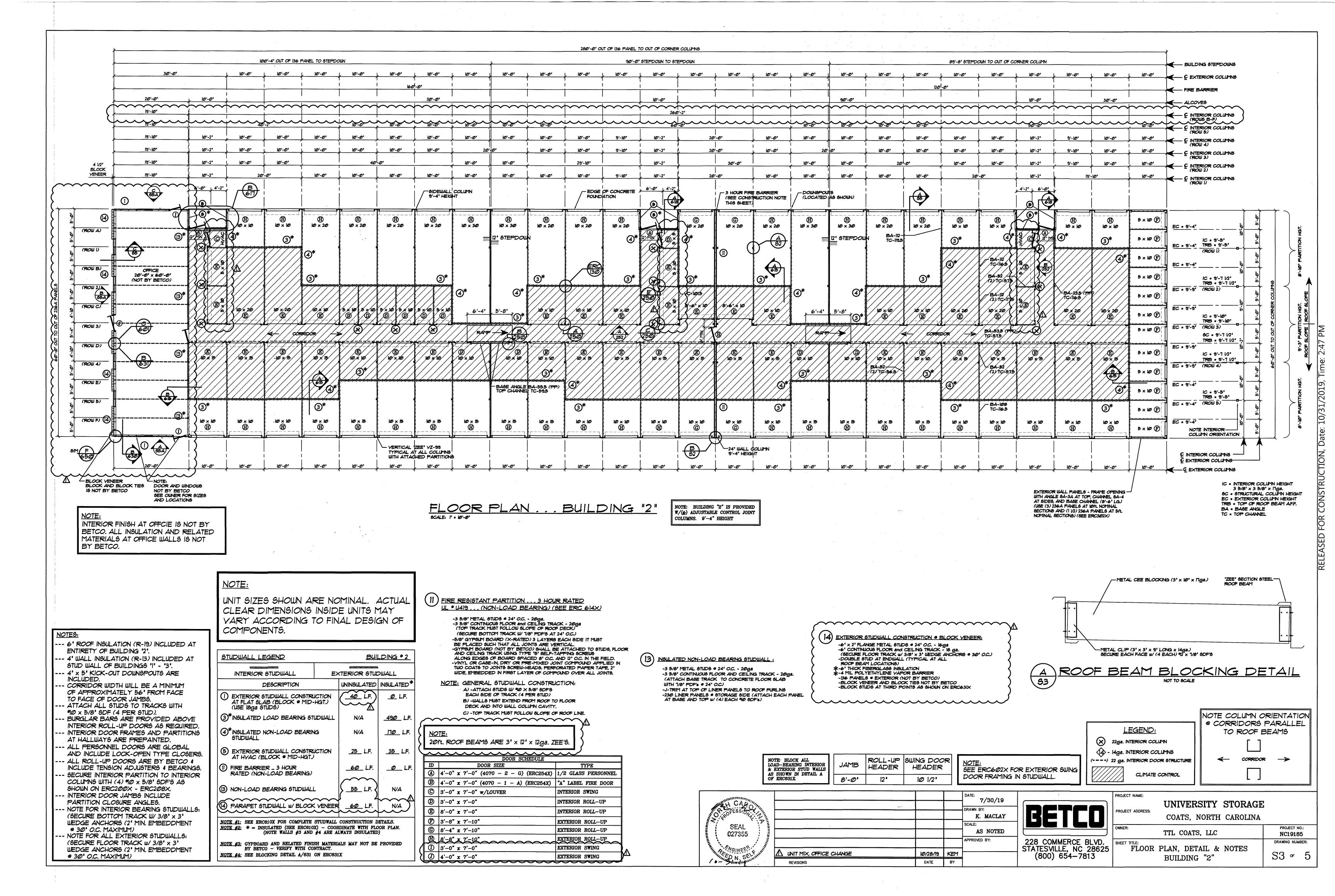


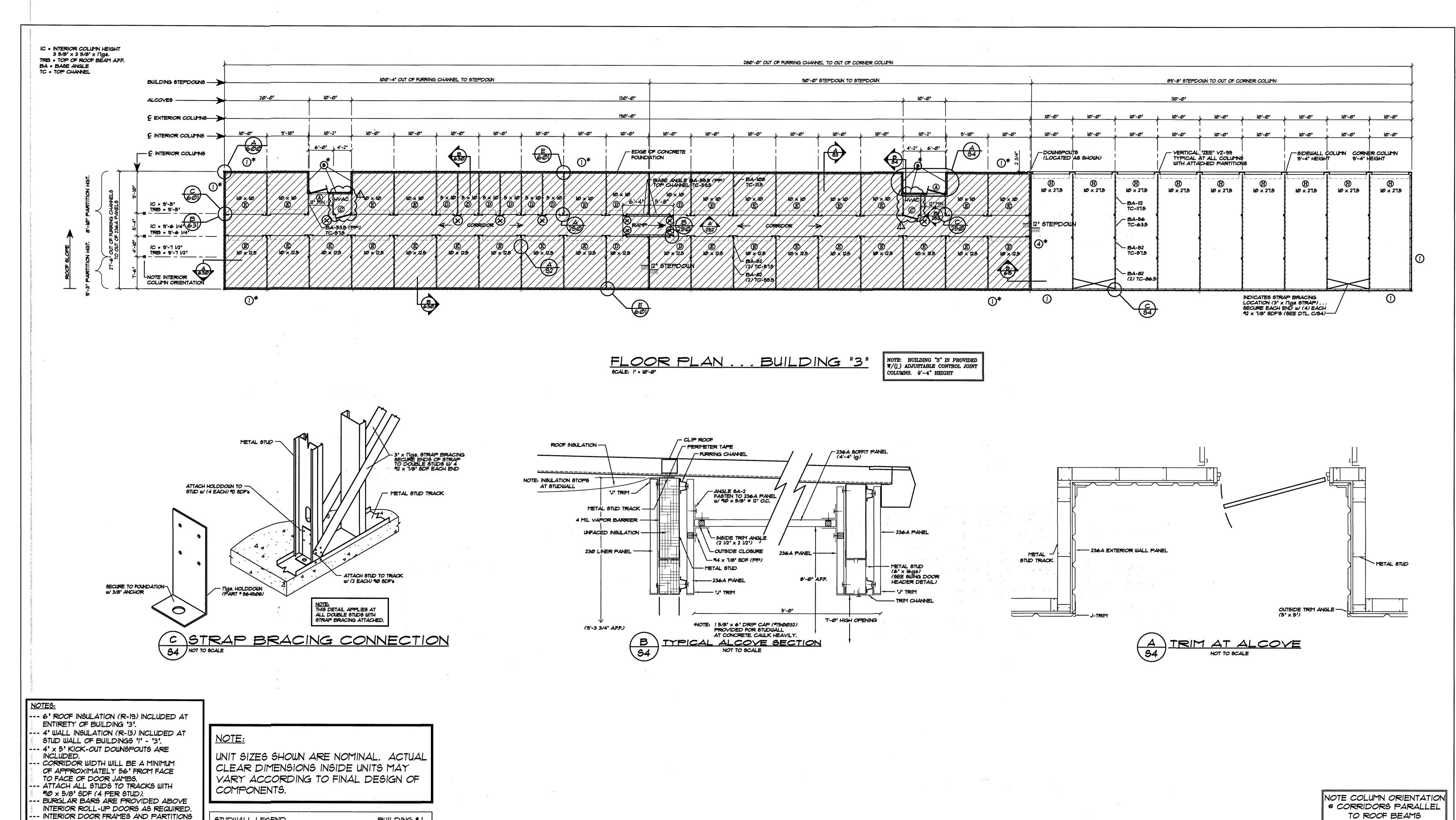
		PROJEC
7	BETCO	PROJE
		OWNER
	228 COMMERCE BLVD.	SHEET
	STATESVILLE, NC 28625 (800)654-7813	

	PROJECT NAME:	
	PROJECT ADDRESS:	UNIVERSITY STORAGE
	PROJECT ADDRESS:	COATS, NORTH CAROLINA
4	OWNER:	

	TTL COATS, LLC	NC19185
T TITLE:		DRAWING NUMBER:
	ELEVATIONS & NOTES	S1 of 5







- AT HALLWAYS ARE PREPAINTED.
  --- ALL PERSONNEL DOORS ARE GLOBAL
- AND INCLUDE LOCK-OPEN TYPE CLOSERS.
  --- ALL ROLL-UP DOORS ARE BY BETCO &
  INCLUDE TENSION ADJUSTERS & BEARINGS.
- --- SECURE INTERIOR PARTITION TO INTERIOR
  COLUMNS WITH (4) \*10 x 5/8" SDF'S AS
  SHOWN ON ERC200X ERC208X.
- --- INTERIOR DOOR JAMBS INCLUDE
  PARTITION CLOSURE ANGLES.
  --- NOTE FOR INTERIOR BEARING STUDWALL
- --- NOTE FOR INTERIOR BEARING STUDWALLS: (SECURE BOTTOM TRACK W/ 3/8" x 3" WEDGE ANCHORS (2" MIN. EMBEDDMENT) 9 30" O.C. MAXIMUM)
- -- NOTE FOR ALL EXTERIOR STUDWALLS:
  (SECURE FLOOR TRACK w/ 3/8" x 3"
  WEDGE ANCHORS (2" MIN. EMBEDDMENT)

  9 30" O.C. MAXIMUM)

STUDWALL LEGEND BUILDING * 1					
INTERIOR STUDWALL	EXTERIOR STUDWALL				
DESCRIPTION	UNINGULATED	INSULATED*			
*EXTERIOR STUDWALL CONSTRI	<u>117.5</u> L.F.	<u>387.5</u> LF.			
(4)*INSULATED NON-LOAD BEARING STUDWALL	NA	27.5 L.F.			
(5) EXTERIOR STUDWALL CONSTRU AT HYAC (BLOCK # MID-HGT.)	ICTION	N/A	<u>40</u> LF.		

NOTE #1: SEE ERC610X FOR COMPLETE STUDWALL CONSTRUCTION DETAILS.

NOTE #2: \* = INSULATED (SEE ERC610X) - COORDINATE WITH FLOOR PLAN.

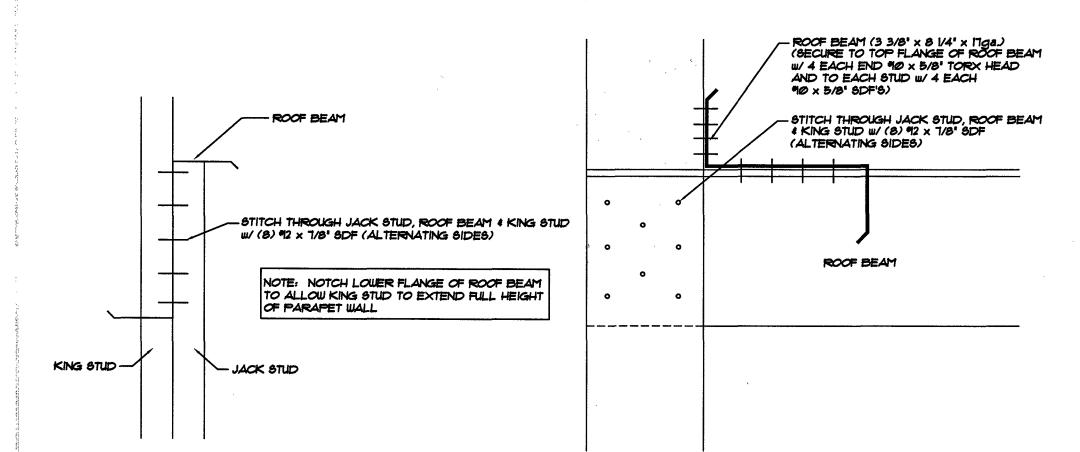
(NOTE WALLS #3 AND #4 ARE ALWAYS INSULATED)

NOTE #3: GYPBOARD AND RELATED FINISH MATERIALS MAY NOT BE PROVIDED BY BETCO - VERIFY WITH CONTRACT.

NOTE #4: SEE BLOCKING DETAIL A/631 ON ERC631X

	DOOR SCHEDULE								
ID	DOOR SIZE	TYPE							
A	4'-0" x 7'-0" (4070 - 2 - G) (ERC254X)	1/2 GLASS PERSONNEL							
B	4'-0" x 7'-0" (4070 - 1 - A) (ERC254X)	"A" LABEL FIRE DOOR							
0	3'-0" x 7'-0" w/LOUVER	INTERIOR SWING							
(9)	3'-0" x 7'-0"	INTERIOR ROLL-UP							
<b>(E)</b>	8'-0" x 7'-0"	INTERIOR ROLL-UP							
Ē	3'-8" x 7'-10"	EXTERIOR ROLL-UP							
(G	8'-4" x 7'-10"	EXTERIOR ROLL-UP							
$^{\odot}$	8'-8" x 7'-10"	EXTERIOR ROLL-UP							

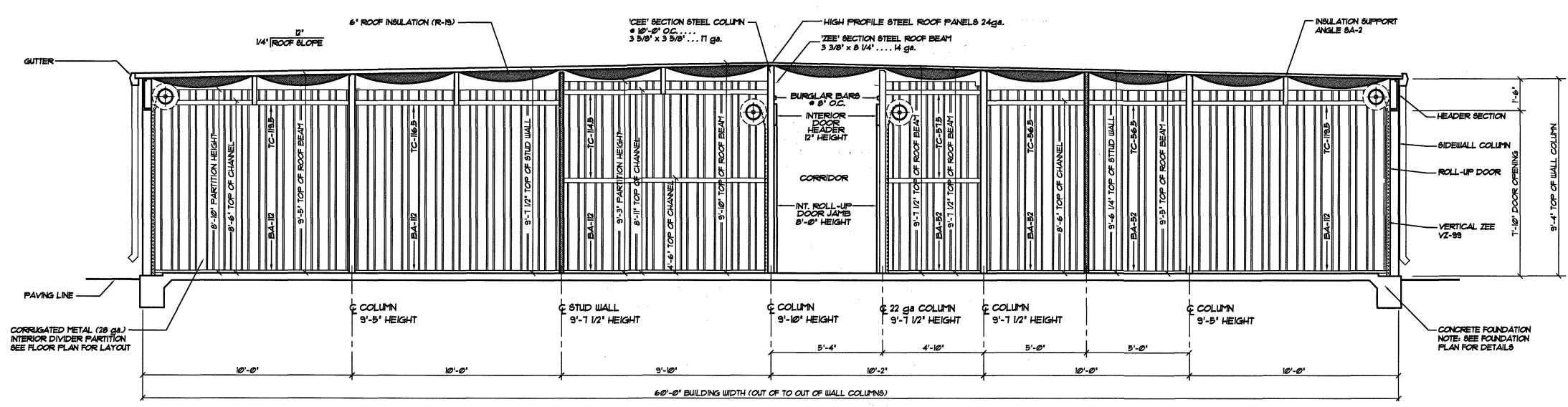
									LEGEND:		
	NOTE: BLOCK ALL LOAD—BEARING INTER & EXTERIOR STUD W. AS SHOWN IN DETAIL	ALLS	ROLL-UP S	BWING DOC HEADER			OR EXTERIOR SWING	⊗   <i>[</i> /////	22ga. INTERIOR COLUMN	← corribor	₹ →
	OF ERC631X	8'-0"	12"	10 1/2"		DOOR FRAMING I	N STUDWALL.	CLIMATE CONTROL		L J	
TO PESSION AND THE PROPERTY OF						DATE: 7/30/19 DRAWN BY: K. MACLAY SCALE:	BETC		PROJECT ADDRESS:  COATS, 1	SITY STORAGE	
SEAL 027355						AS NOTED			OWNER: TTL COATS	S, LLC	PROJECT NO.: NC19185
A MOINEER L	A UNIT MIX C	LANGE		10/28/19	KEM	APPROVED BY:	228 COMMERCE E STATESVILLE, NC	28625	SHEET TITLE: FLOOR PLAN, DETA	AILS & NOTES	DRAWING NUMBER:
AND SELFINE	REVISIONS			DATE	BY		(800) 654-78	113	BUILDING	· "3"	S4 • 5



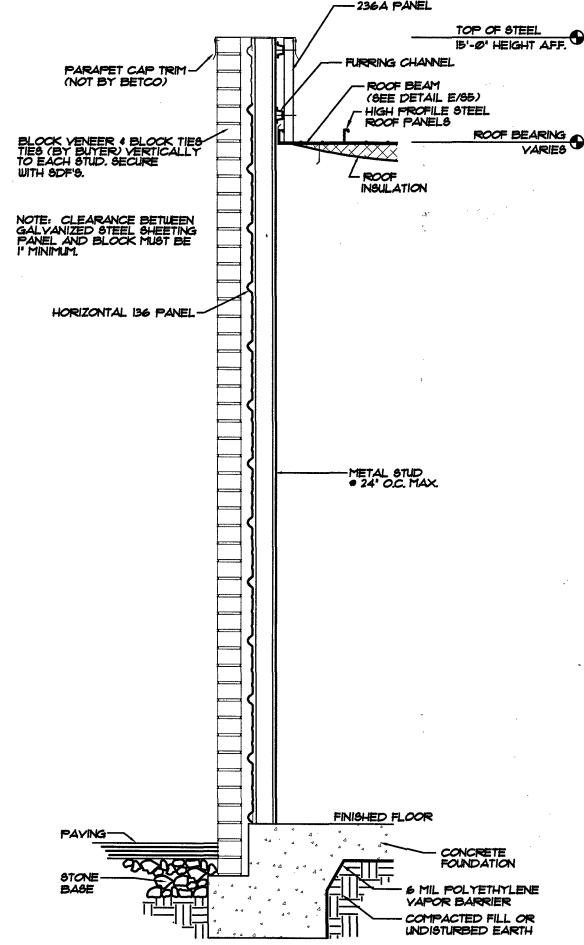
E DETAIL AT ROOF BEAM TIE IN

TO PARAPET WALL

SCALE: 3/8' • 1'-0'



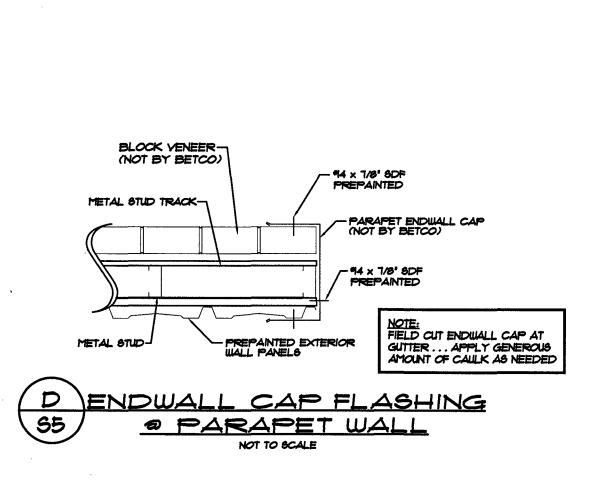
A 60'-0" WIDE CROSS SECTION . . . BUILDINGS "1" # "2"
S5 SCALE: 3/8'-1'-0'

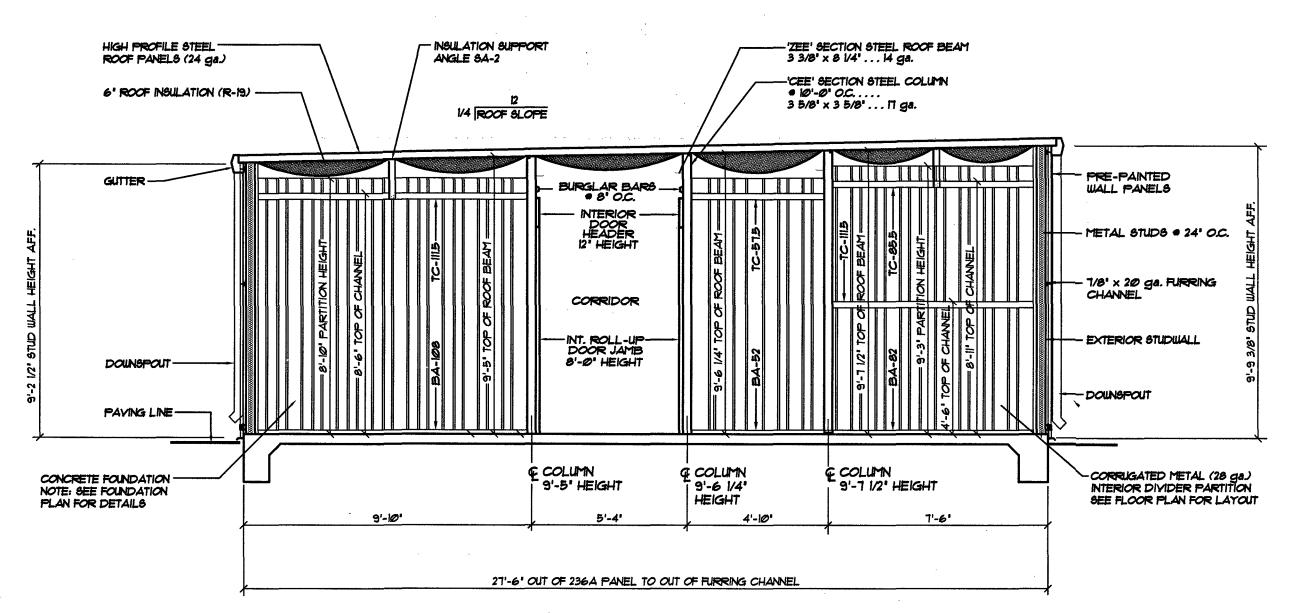


C SECTION AT EXTERIOR

S5 STUD WALL W/ VENEER

NOT TO SCALE





B 27'-6" WIDE CROSS SECTION . . . BUILDING "3"
S5 SCALE: 3/8'-1'-0'

A Marine Marine				DATE: 7/25/19	
CARONESSION OF ESSION			<u></u>	DRAWN BY:  K. MACLAY	R
SEAL 027355				SCALE: AS NOTED	
				APPROVED BY:	228 CC STATES (800
MILE OF NOINEER KINE	⚠ ADDED DETAILS	10/28/19	KEM		31A1E3 (800
Cara Ministration	REVISIONS	DATE	BY		(55)

PROJECT NAME:

PROJECT ADDRESS:

OWNER:

228 COMMERCE BLVD.
TATESVILLE, NC 28625
(800) 654-7813

PROJECT NAME:

PROJECT NAME:

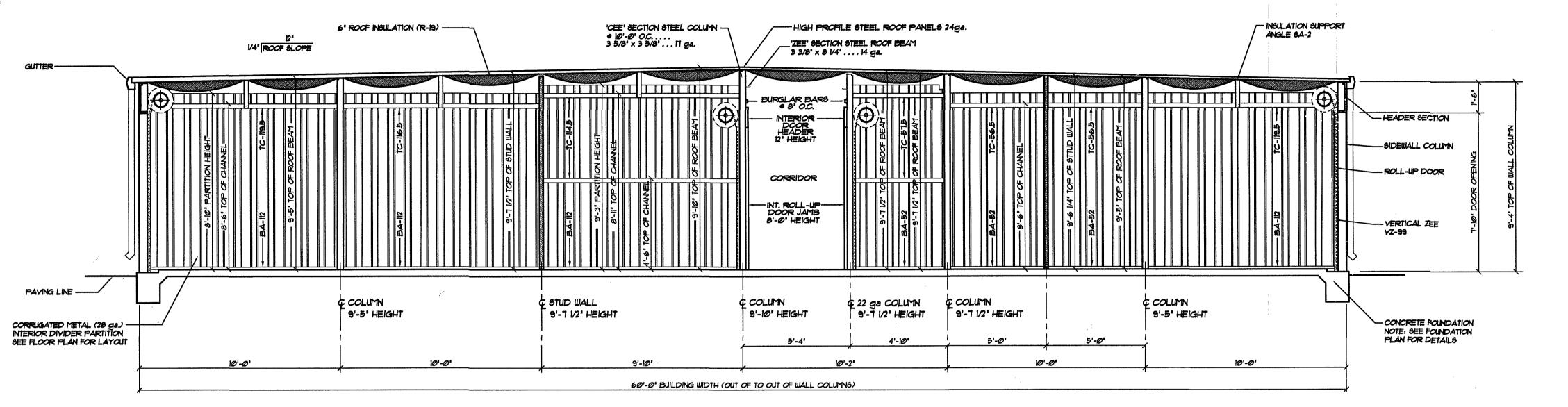
PROJECT NAME:

CROSS

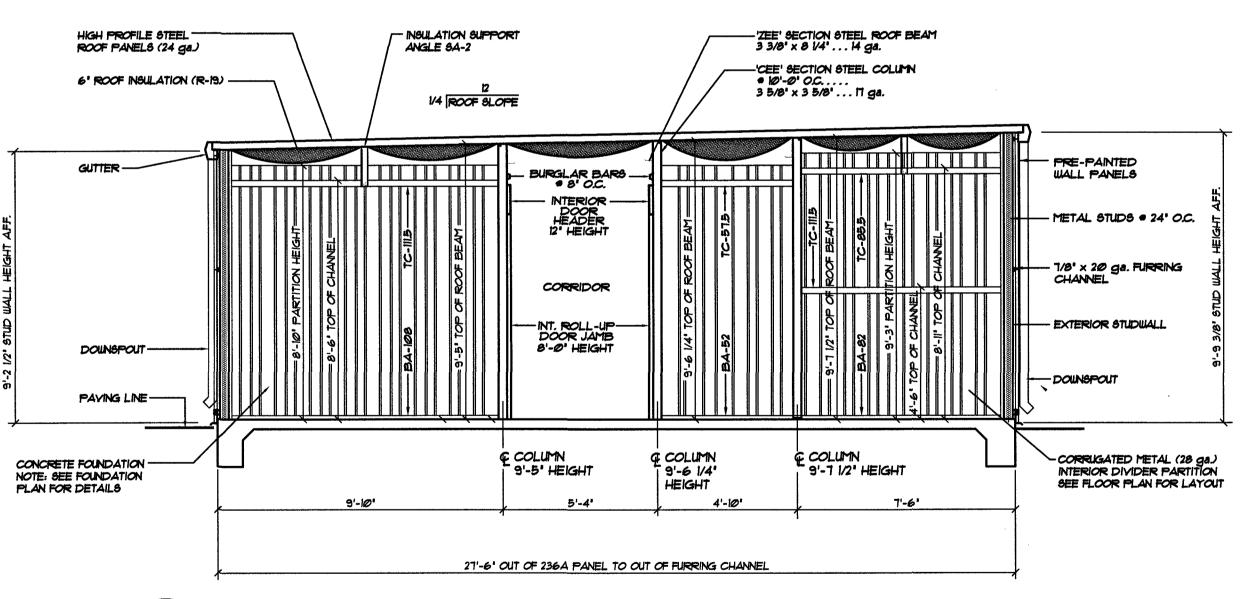
	DD0/507 4000500	UNIVERSITY STORAGE	
	PROJECT ADDRESS:	COATS, NORTH CAROLINA	
	OWNER:	TTL COATS, LLC	PROJECT N NC1918
D.	SHEET TITLE:		DRAWING NUM

CROSS SECTIONS & DETAILS

S5 of 5



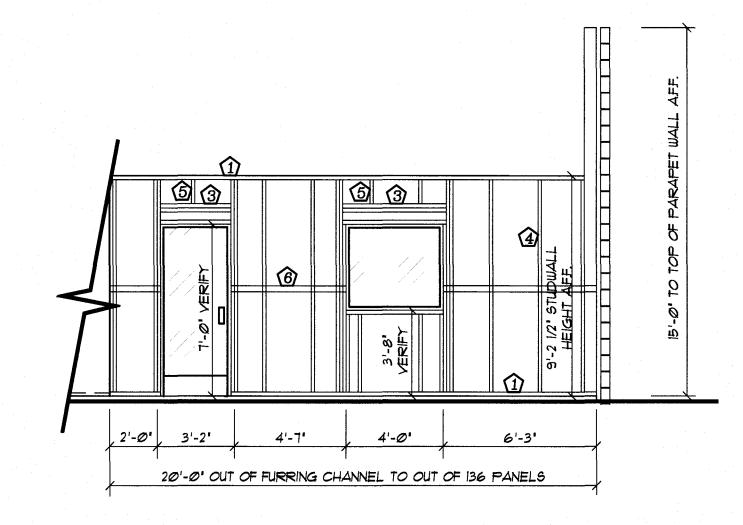
A 60'-0" WIDE CROSS SECTION . . . BUILDINGS "1" \$ "2" S5 SCALE: 3/8' - 1'-0'



B 27'-6" WIDE CROSS SECTION . . . BUILDING "3"

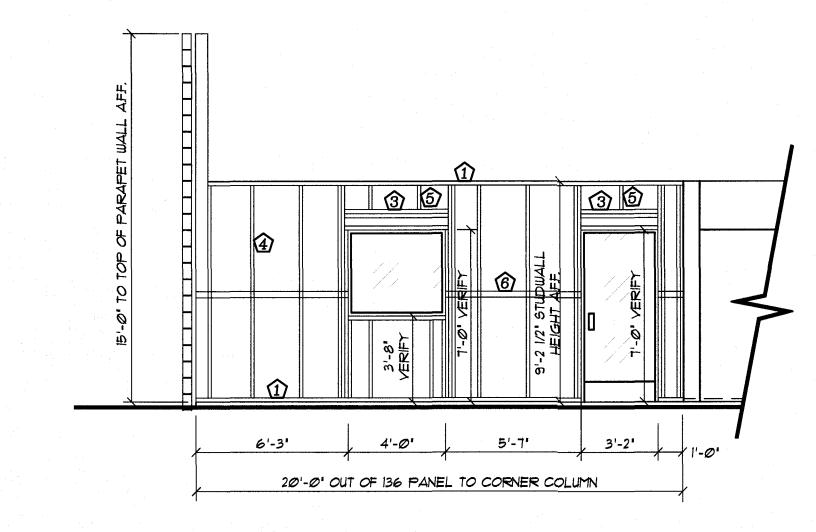
65 SCALE: 3/8' - 1'-0'

WAR CAROLL				DATE: 7/25/19		PROJECT NAME:		
STORES SIZE IN				DRAWN BY:		DDG IFOT ADDDESS.	UNIVERSITY STORAGE	
SEAL				K. MACLAY		PROJECT ADDRESS:	COATS, NORTH CAROLINA	
027355	***************************************			AS NOTED		OWNER:	TTL COATS, LLC	PROJECT NO.: NC19185
THE PASSOINEES E LINE				APPROVED BY:	228 COMMERCE BLVD. STATESVILLE, NC 28625	SHEET TITLE:	CROSS SECTIONS	DRAWING NUMBER
William SEmme					(800) 654-7813		CROSS SECTIONS	S5 of
8-13-19	REVISIONS	DATE	BY					



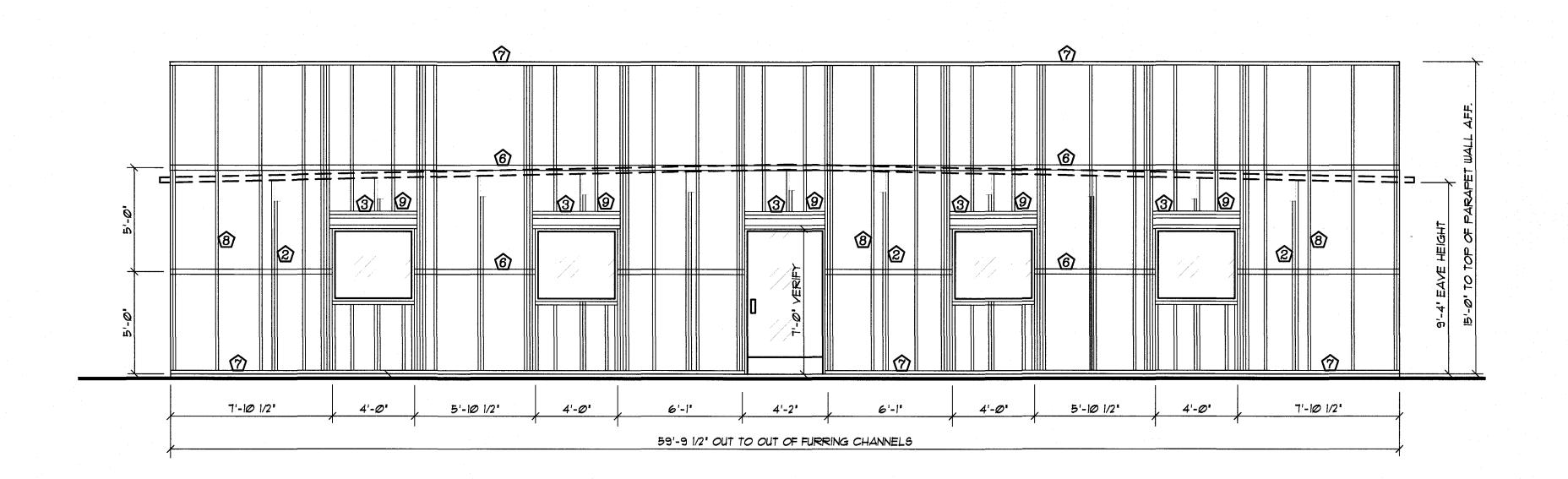
C FRAMING ELEVATION SIDEWALL . . BUILDING "2"

(NOTE: VERIFY ALL ROUGH OPENING LOCATIONS AND SIZES)



A FRAMING ELEVATION SIDEWALL . . BUILDING "2"

(NOTE: VERIFY ALL ROUGH OPENING LOCATIONS AND SIZES)



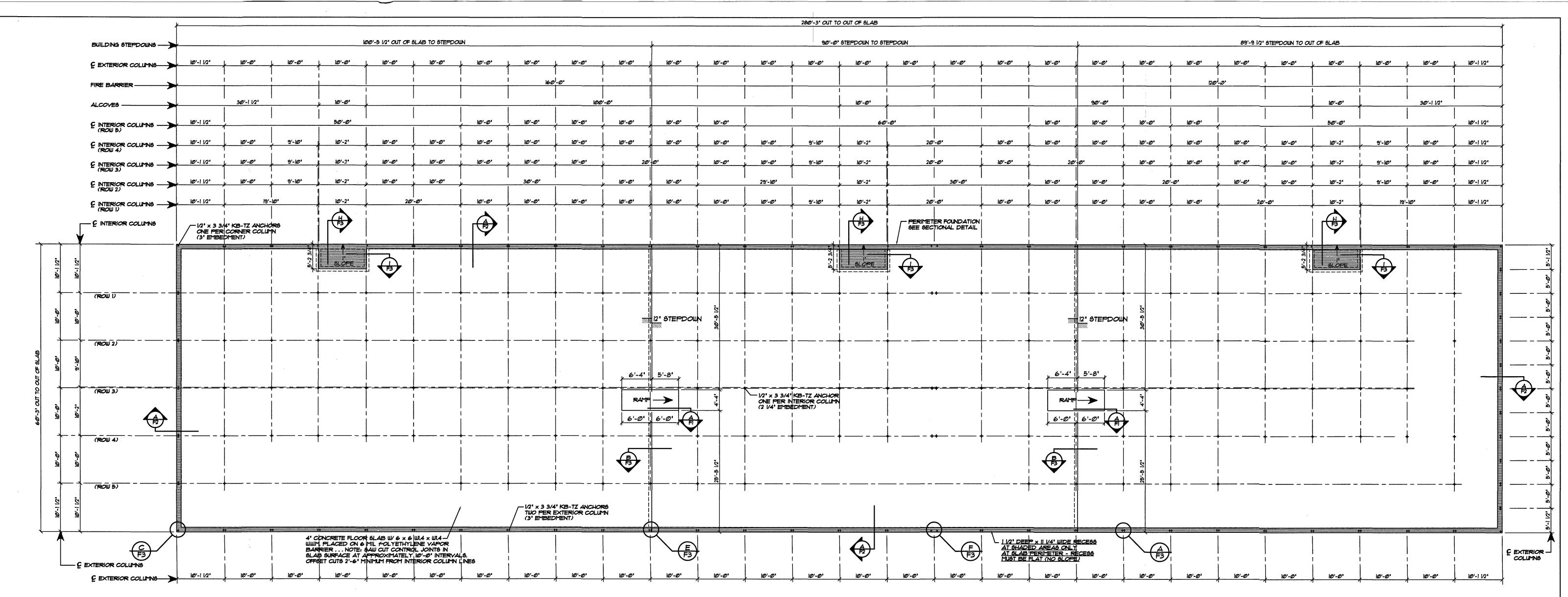
### LEGEND:

- METAL STUD TRACK (3 5/8" x 1 1/4" LEG x 18ga) FASTEN TO EACH METAL STUD WITH 2 EACH #10 x 5/8" SDF PER FLANGE
- 2 EACH METAL STUD AT EACH ROOF BEAM LOCATION SIMILAR TO C/601X.
- 3 DH-1 DOUBLE CEE BOXED HEADER 6' (SEE ERC602X)
- 1 EACH METAL STUD (3 5/8" x 1 5/8" x 18ga)
- (3) METAL STUD TRACK ABOVE HEADER (3 5/8" x 1 1/4" x 18ga) FASTEN TO EACH METAL STUD WITH 2 EACH #10 x 5/8" SDF PER FLANGE FASTEN TO TOP OF DH-1 WITH 2 EACH #12 x 7/8" SDF AT 12" O.C.
- 6 STRAP BRACING FOR BLOCKING (SEE DETAIL "A" ON ERC63IX)
- METAL STUD TRACK (6" x | 1/4" LEG x 18ga) FASTEN TO EACH METAL STUD WITH 2 EACH #10 x 5/8" SDF PER FLANGE
- (6' x 2' x 16ga)
- 9 METAL STUD TRACK ABOVE HEADER (6" x 1 1/4" x 18ga) FASTEN TO EACH METAL STUD WITH 2 EACH #10 x 5/8" SDF PER FLANGE FASTEN TO TOP OF DH-1 WITH 2 EACH #12 x 7/8" SDF AT 12" O.C.

B FRAMING ELEVATION ENDWALL , BUILDING "2"

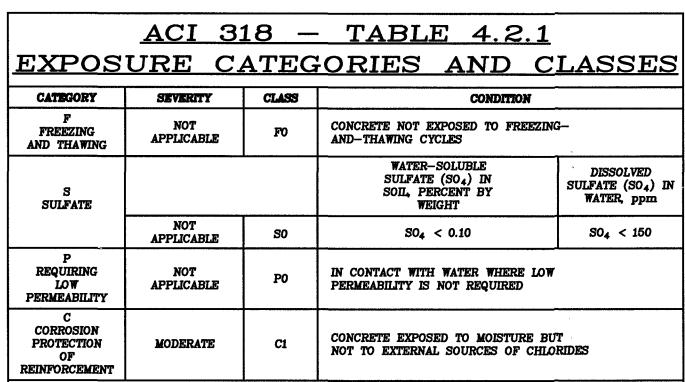
(S5A) SCALE: 1/4" = 1'-0' (NOTE: VERIFY ALL ROUGH OPENING LOCATIONS AND SIZES)

*****************			Ī	DATE:		PROJECT NAME:		
ALIMAN CARO				10/28/19			UNIVERSITY STORAGE	
CONTROL STORY				DRAWN BY:  K. MACLAY	BETCO	PROJECT ADDRESS:	COATS, NORTH CAROLINA	
SEAL 027355				SCALE: AS NOTED		OWNER:	TTL COATS, LLC	PROJECT NO.:
1 1 1 02/300				APPROVED BY:	228 COMMERCE BLVD.		THE COATS, LLC	NC19185  DRAWING NUMBER:
MOINEER FRANKE	·				STATESVILLE, NC 28625 (800) 654-7813		ELEVATIONS & NOTES	S5A of 5
1 - graning Guinn	REVISIONS	DATE	BY		(000) 004-7015	·	BUILDING "2"	DOA D



# FOUNDATION PLAN ... BUILDING "1"

SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS . . . OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.



NOTE: ABOVE REPRESENTS "ASSUMED" CONDITIONS BY ENGINEER. IF CONTRACTOR KNOWS OR HAS REASON TO BELIEVE OTHERWISE, ENGINEER SHALL BE NOTIFIED IN WRITING PRIOR TO CONSTRUCTION.

REFERENCE ACI 318 — TABLE 4.3.1 FOR REQUIREMENTS FOR CONCRETE BY EXPOSURE CLASS.



NOTE: KB-TZ ANCHORS ARE PROVIDED BY BETCO. EMBEDDED ANCHOR BOLTS IN SLAB ARE NOT RECUIRED BY BUYER

NOTE TO OWNER / CONTRACTOR:

DO NOT CUT SAW JOINTS ALONG COLUMN LINES.

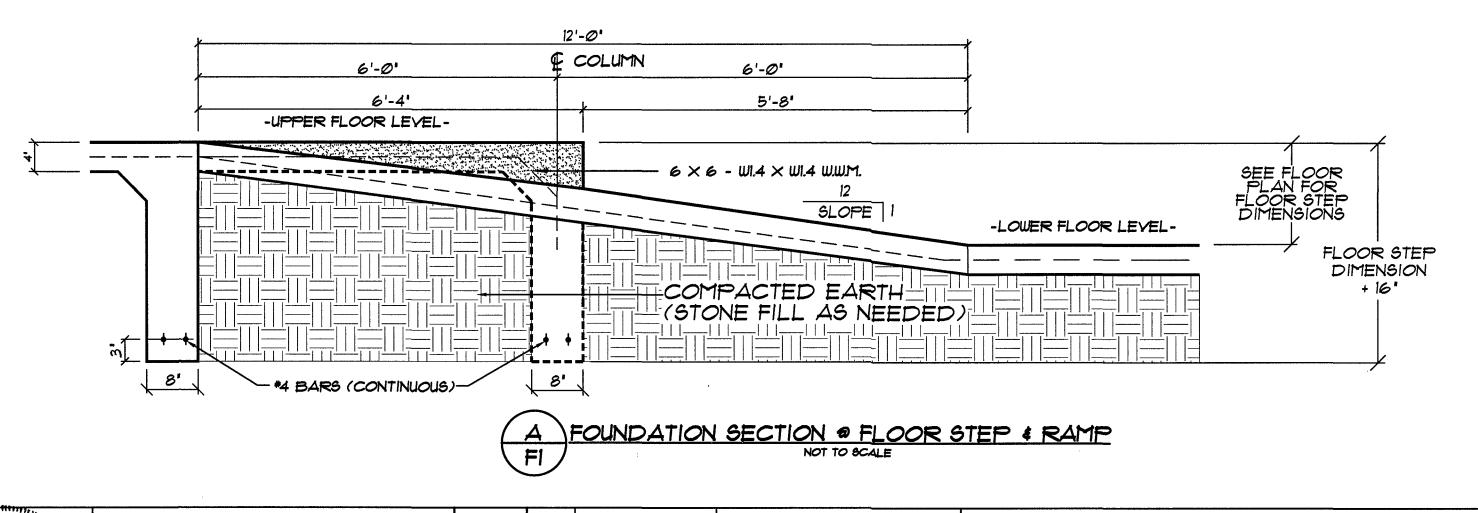
DOING SO WILL REDUCE THE STRUCTURAL CAPACITY

OF THE BUILDING ANCHORAGE TO THE CONCRETE AND

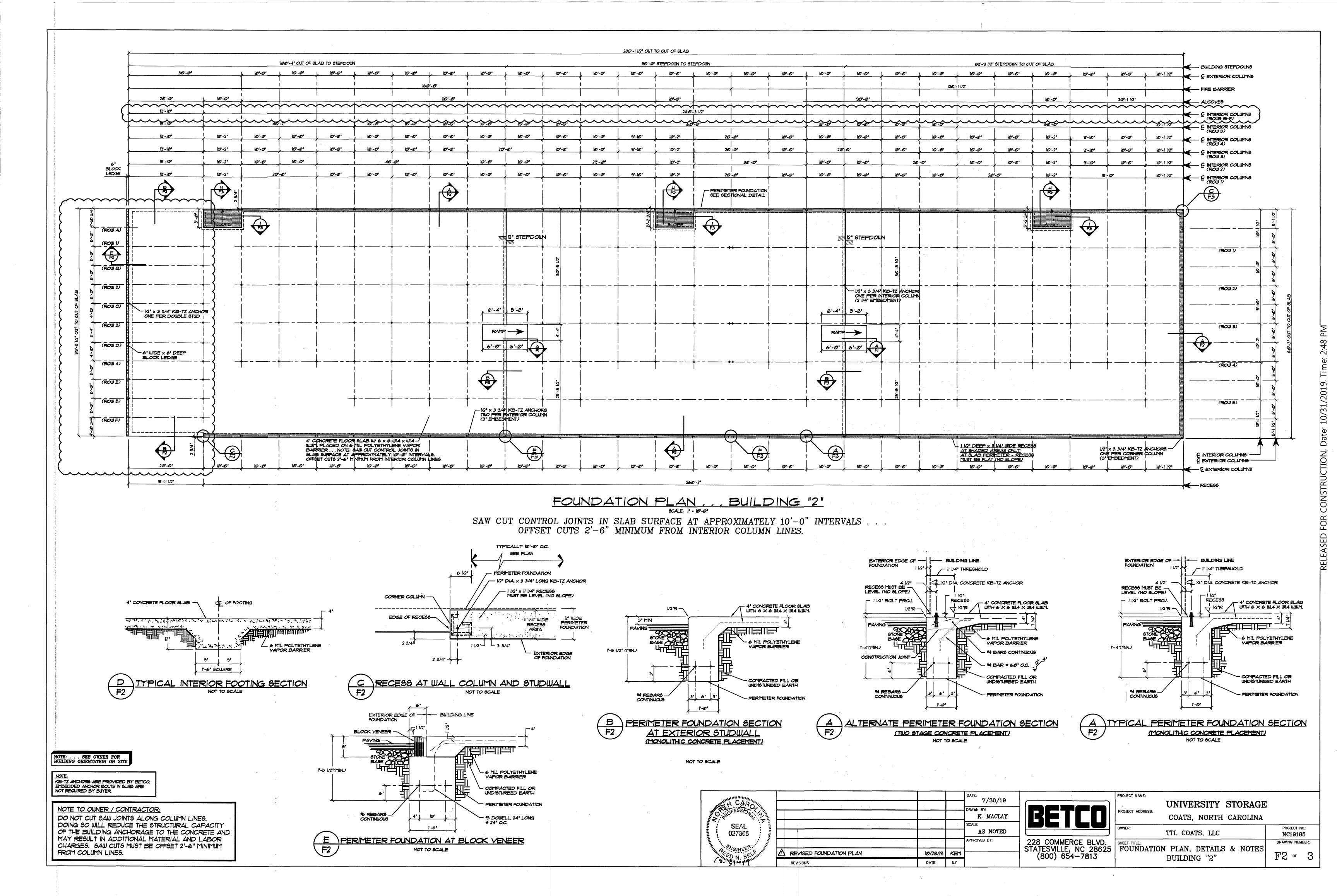
MAY RESULT IN ADDITIONAL MATERIAL AND LABOR

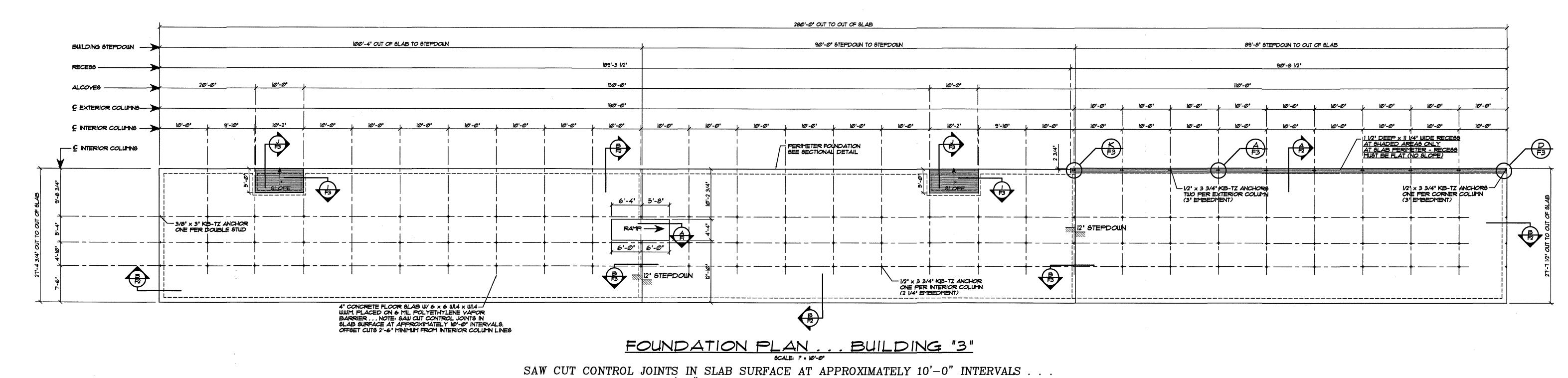
CHARGES. SAW CUTS MUST BE OFFSET 2'-6" MINIMUM

FROM COLUMN LINES.

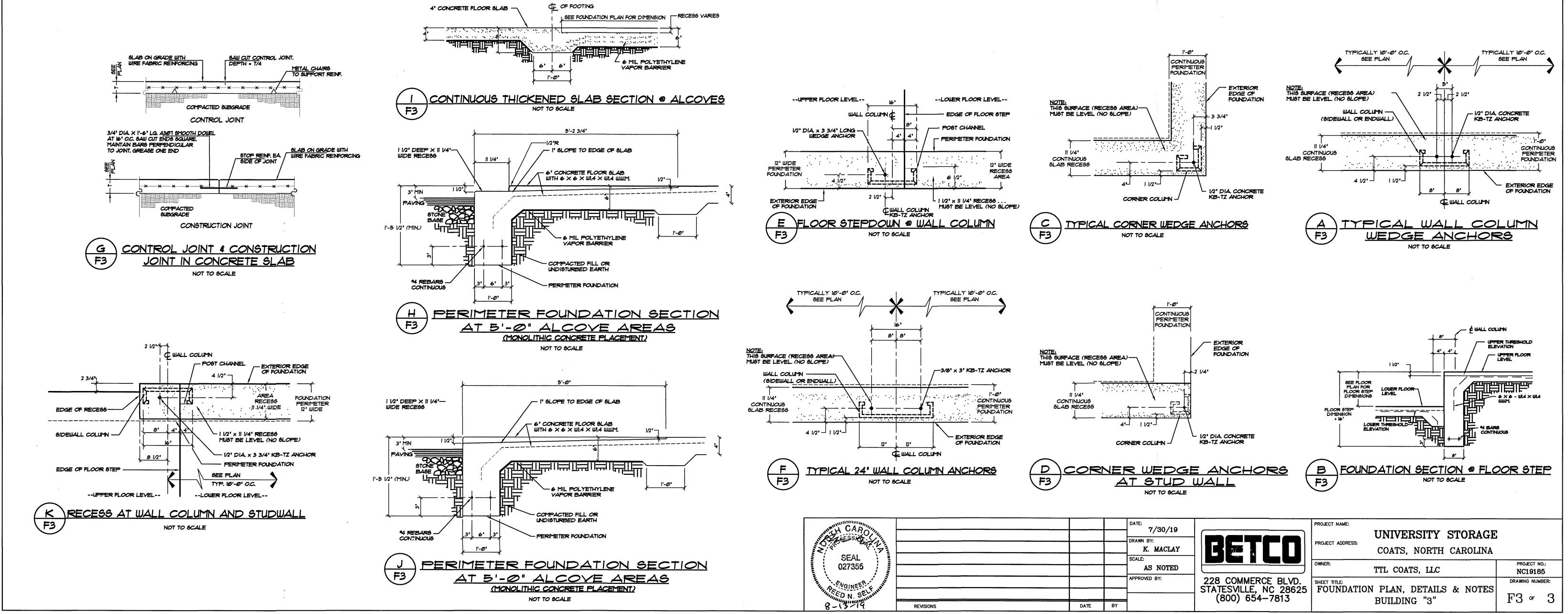


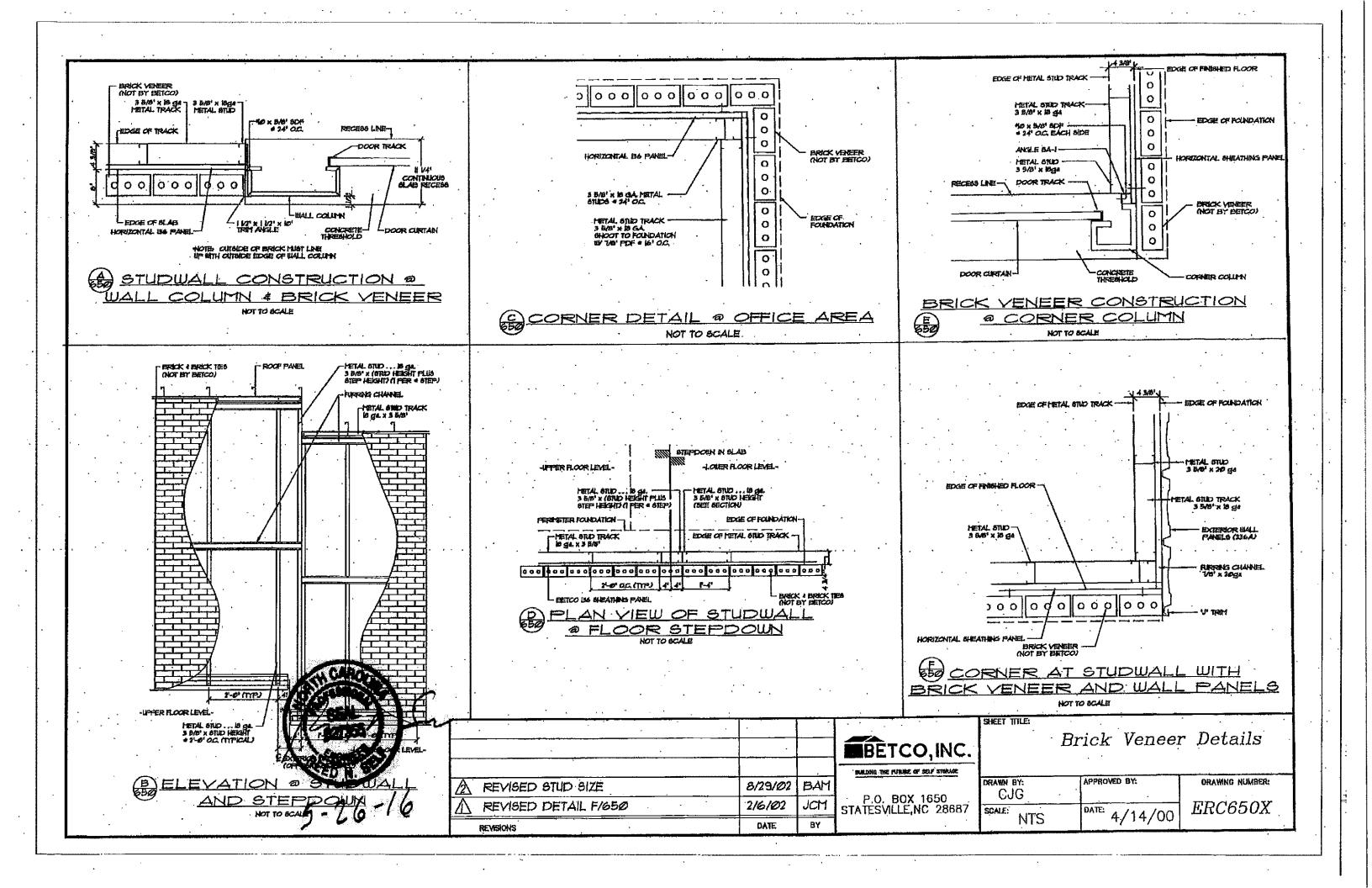
SEAL 027355  SCALE:  AS NOTED  AS NOTED  APPROVED BY:  COATS, NORTH CAROLINA  PROJECT NO.:  NC19185  DRAWING NUMBER:  STATESVILLE, NC 28625  STATESVILLE, NC 28625  TUCOATS, NORTH CAROLINA  PROJECT NO.:  NC19185			FI.	;	NOT TO SCALE		
AS NOTED  OWNER:  TTL COATS, LLC  PROJECT NO.:  NC19185				7/30/19 DRAWN BY:   K. MACLAY	BETCO	UNIVERSITY STORAGE PROJECT ADDRESS:	
STATESVILLE, NC 28625 FOUNDATION PLAN, DETAIL & NOTES (800) 654-7813 F1 F1 F 3				AS NOTED	228 COMMERCE BLVD	TTL COATS, LLC	NC19185
B-13-19 REVISIONS DATE BY	R-13-16	DATE	DV.		STATESVILLE, NC 28625 (800) 654-7813	FOUNDATION PLAN, DETAIL & NOTES BUILDING "1"	T4 0





OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.





### EXIT REQUIREMENTS:

		NUMB	ER AND ARRAN	IGEMENTS OF I	EXITS				
FLOOR, ROOM OR SPACE DESIGNATION	MINI NO. OF	MUM <sup>2</sup> EXITS	TRAVEL DIS	TANCE	ARRANGEMENT MEANS OF EGRESS 1,3 (SECTION 1016-1021)				
<b>3</b> , 1, <b>3</b>	REQ'D.	SHOWN ON PLANS	ALLOWABLE TRAVEL DISTANCE (TABLE 1017.2)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS			
S-1	2	3	200'	105'-6"	131'-8"	215'-5"			
		·							
-			1	·	1				

1. CORRIDOR DEAD ENDS (SECTION 1020.4)

2. BUILDINGS WITH SINGLE EXITS (TABLE 1006.3.2(2)), SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (TABLE 1006.2.1) 3. COMMON PATH OF TRAVEL (SECTION 1029.8)

			EXIT	WIDTH					
USE GROUP OR SPACE DESCRIPTION	(a)	(b)		(с	)		EXIT WID	TH (in)	
SI NOE BESSMI NON	AREA <sup>1</sup> SQ. FT.	OCCUPANT I	CALCULATED OCCUPANT LOAD	EGRESS PER OC (TABLE		REQUIRE (SECTION (a/t	D WIDTH N 1005.1) D) x c	ACTUAL SHOW PL/	N ON
		(TABLE 1004.1.2)	(a/b)	STAIR	LEVEL	STAIR	LEVEL	STAIR	LEVEL
S-1	8275	500 GROSS	17	N/A	.2	N/A	3.4"	N/A	144"
				***************************************					

1. SEE TABLE 1004.1.2 TO DETERMINE WHETHER NET OR GROSS AREA IS APPLICABLE SEE DEFINITION "AREA, GROSS" AND "AREA, NET" (SECTION 1002, DEFINED IN CHAPTER 2)

- 2. MINIMUM STAIRWAY WIDTH (SECTION 1011.2); MIN. CORRIDOR WIDTH (SECTION 1020.2); MIN. DOOR WIDTH (SECTION 1010.1.1)
- 3. MINIMUM WIDTH OF EXIT PASSAGEWAY (SECTION 1024)
- 4. SEE SECTION 1005.6 FOR CONVERGING EXITS.
- 5. THE LOSS OF ONE MEANS OF EGRESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50% OF THE TOTAL REQUIRED (SECTION 1005.5)
- 6. ASSEMBLY OCCUPANCIES (SECTION 1029)

LIFE SAFETY PLAN REQUIREMENTS:

FIRE AND/OR SMOKE RATED WALL LOCATIONS (CHAPTER 7) - SEE NOTE 1

ASSUMED AND REAL PROPERTY LINE LOCATIONS - SEE NOTE 2 EXTERIOR WALL OPENING AREA WITH RESPECT TO DISTANCE TO ASSUMED PROPERTY LINES (705.8) - SEE NOTE 3

OCCUPANCY TYPES FOR EACH AREA AS IT RELATES TO OCCUPANT LOAD CALCULATION (TABLE 1004.1.2)

OCCUPANT LOADS FOR EACH AREA

EXIT ACCESS TRAVEL DISTANCES (1017) COMMON PATH OF TRAVEL DISTANCES (1006.2.1 & 1006.3.2(1))

☑ DEAD END LENGTHS (1020.4) - SEE NOTE 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. SEE NOTE 5 LOCATION OF DOORS WITH PANIC HARDWARE (1008.1.10) - SEE NOTE 6

☑ LOCATION OF DOORS WITH DELAYED EGRESS LOCKS AND AND THE AMOUNT OF DELAY (1008.1.9.7) - SEE NOTE 7

☑ LOCATION OF DOORS WITH ELECTROMAGNETIC EGRESS LOCKS (1008.1.9.8) — SEE NOTE 7

☑ LOCATION OF DOORS EQUIPPED WITH HOLD-OPEN DEVICES - SEE NOTE 7 ☑ LOCATION OF EMERGENCY ESCAPE WINDOWS (1029) - SEE NOTE 7

☑ THE SQUARE FOOTAGE OF EACH FIRE AREA (902) — SEE NOTE 8

THE SQUARE FOOTAGE OF EACH SMOKE COMPARTMENT (407.5) - SEE NOTE 9

INOTE ANY CODE EXCEPTIONS OR TABLE NOTES THAT MAY HAVE BEEN UTILIZED REGARDING THE ITEMS ABOVE

LIFE SAFETY PLAN NOTES:

1. SEE LEGEND FOR RATED WALLS.

2. ASSUMED PROPERTY LINE = 12'; REAL PROPERTY LINES >80'. 3. ASSUMED PROPERTY LINES = >12' UNLIMITED; NCSBC 705.8.1 EXCEPTION 2

4. NO DEAD ENDS OVER 20'; 20' ALLOWED. 5. NO RATING REQUIRED THIS STRUCTURE.

PANIC HARDWARE NOT REQUIRED. NO DELAYED EGRESS LOCKS, ELECTROMAGNETIC LOCKS, HOLD OPEN DEVICES, OR EMERGENCY ESCAPE WINDOWS

8. FIRE AREAS DO NOT EXCEED CODE ALLOWANCE 9. BUILDING MEETS CODE REQUIREMENTS WITHOUT SUBDIVISION INTO SMOKE COMPARTMENTS; NO SMOKE COMPARTMENTS

MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE BASED ON EGRESS WIDTH (1005.1)

1 47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 5 PEOPLE CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

 $|2\rangle$  47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PEOPLE CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PERSON CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

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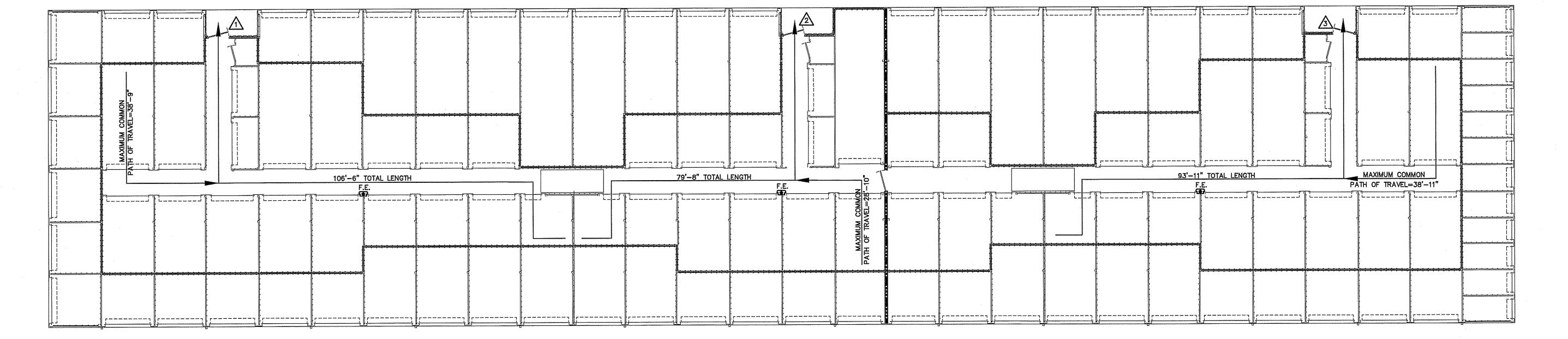
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JOB NO. 19-08

3 HOUR FIRE BARRIER



LIFE SAFETY PLAN BUILDING "1" SCALE: 1" = 10'-0"

AREA/ROOM/SPACE DESIGNATIONS USED ON LIFE SAFETY PLANS ARE EXCLUSIVE TO LIFE SAFETY PLAN ONLY, AND ARE NOT INDICATIVE OF ANY ACTUAL SPACE DESIGNATIONS USED ELSEWHERE.

LEGEND

FIRE EXTINGUISHER AND CABINET CLASS ABC 10 POUNDS

NOTE: EXIT REQUIREMENTS CALCULATED ONLY FOR CONDITIONED AREAS. ALL OTHER AREAS HAVE DIRECT EXIT TO EXTERIOR.

LEGEND

OUTSIDE AIR REQUIREMENTS GENERAL NOTES: BUILDING "1" 144 CFM AHU-1 144 CFM AHU-2 217 CFM AHU-3

RUN ALL DUCTWORK TIGHT TO CEILING INSULATION.

2 FASTEN ALL CONDENSATE LINES TO WALLS OR CEILINGS WHERE APPLICABLE.

7-DAY PROGRAMMABLE T'STAT WITH LOCKING COVER. PROVIDE & INSTALL PROTECTIVE 6"
CONCRETE-FILLED PIPE BOLLARDS, TWO PER
HEAT PUMP OR AS SHOWN ON PLAN.

5 PROVIDE AND INSTALL CONCRETE SPLASH BLOCK, ONE PER 3 HEAT PUMPS MIN.

**GENERAL NOTE:** 

FOR ALL HVAC EQUIPMENT.

6 UNIT IN EVENT OF CONDENSATE OVERFLOW.

MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES

VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

**KEY NOTES:** 

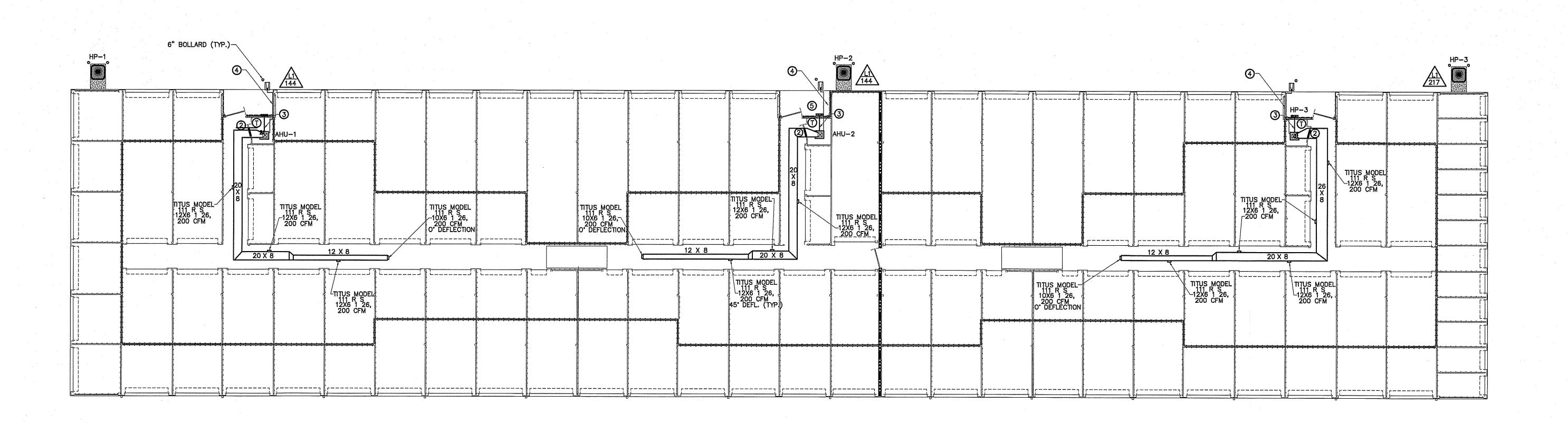
10" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

2 16" X 16" TRANSFER GRILL INSTALLED IN DOOR (TYPICAL) 3 8" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

(4) 3/4" CONDENSATE FROM EACH AIR HANDLING UNIT TO SPLASH BLOCK

(5) COORDINATE OUTSIDE AIR LOUVER LOCATION WITH ELECTRICAL SERVICE EQUIPMENT

MECHANICAL SYMBOL LEGEND SINGLE LINE DOUBLE LINE DOUBLE LINE **DESCRIPTION** SINGLE LINE SINGLE LINE **DESCRIPTION** DOUBLE LINE **DESCRIPTION** VOLUME CONTROL DAMPER (TYP) SUPPLY AIR CEILING DIFFUSER, (1-WAY) (2-WAY) (3-WAY) (4-WAY) ELECT. DUCT INSERT ARROW INDICATES DIRECTION TAKE OFF TO SUPPLY AIR REGISTER WITH EXT. INSUL. DUCTWORK -CEILING DIFFUSER HEATER WITH CONTROL PANEL OF BLOW & ACTIVE DIFFUSER FLEXIBLE DUCTWORK (15' MAX.) AHU W/FLEXIBLE CONNECTION (1) CUSHION HEAD @ BRANCH (2) CUSHION HEAD IS EQUAL TO 1-1/2 BRANCH TAKEOFF FROM MAIN TRUNK DUCT ONE SIDED REDUCING TRANSITION AT SUPPLY AND RETURN DUCT WIDTH OF THE BRANCH DUCT OR OR DIFFUSER RUNOUT WITH EXT. INSUL. DUCTWORK DIFFUSER RUNOUT F.D.=FIRE DAMPER KEY NOTE F.D.(1-1/2) END CAP R.A. OR EXHAUST DUCT TURNS DOWN @ 90 DEGS. (1-1/2)=RATED FOR 1-1/2 HRS. MANUAL VOLUME CONTROL DAMPER W/ DUCT SMOKE DETECTOR CFM-DIFFUSER, REGISTER OR GRILLE (SEE SCHEDULE) RETURN AIR OR EXHAUST GRILLE QUADRANT LOCKING DEVICE DOOR SIZE | DUCT HEIGHT 8X8 | 10" EXHAUST FAN ACCESS DOOR TWO SIDED TRANSITION TWO SIDED TRANSITION



MECHANICAL HVAC PLAN BUILDING "1" SCALE: 1" = 10' - 0"

VERIFY ALL RATINGS OF ALL WALLS WITH METAL BUILDING COMPANY BEFORE BEGINNING CONSTRUCTION

LEGEND ---- 3 HOUR FIRE BARRIER

SHEET NO. M-1 OF 2

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REVISIONS

		·					AIR	HAN	DLER	UNIT										SPLIT
				OUTSIDE			REF	LINES		HTR	COOL	_ING Y (MBH)	HEA <sup>-</sup> CAPACIT	ΠNG Υ (MBH)	HSPF	MIN. CIRC.	M.O.C.P.	MARK	MANUF.	MODE
AHU NO.	MANUFACTURER MODEL	VOLTAGE	E.S.P.	AIR (CFM)	CFM	UNIT FLA	GAS	LIQ.	SEER	KW (240)	TOTAL	SENS.	HIGH	LOW	погг	AMPACITI				
AHU-1,2	RHEEM RH1T-2417STAN	240/1ø/60	.46	*	800	31.6	3/4	3/8	15.5	7.2	24.0	17.9	22.0	13.5	9.0	40	40	HP-1,2	RHEEM	RP1524BJ1
AHU-3	RHEEM RH1T-3617STAN	240/1¢/60	.46	*	1200	34.1	3/4	3/8	15.0	7.2	35.6	26.4	33.8	22.2	9.0	43	45	HP-3	RHEEM	RP1536AJ1

\* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS \*\* PROVIDE OUTDOOR THERMOSTAT TO LOCK OUT SUPPLEMENTAL ELECTRIC HEAT AT OUTDOOR TEMPERATURES ABOVE 40 F.

	SPLIT SYSTEM HEAT PUMP UNITS												
MARK	MANUF.	MODEL	VOLTAGE	# COMP.	MIN. CIRC. AMPACITY	M.O.C.P.	UNIT FLA.	ACCESSORIES					
HP-1,2	RHEEM	RP1524BJ1	240/1/60	1	15	25	11.6	EXCLUDE 8,18					
HP3	RHEEM	RP1536AJ1	240/1/60	1	23	35	18.2	EXCLUDE 8,18					

ACCESSORIES I TIME-DELAY RELAY

5 TXV

2 CYCLE PROTECTOR 3 EVAPORATOR FREEZE PROTECTOR 4 ISOLATION RELAY

7 LIQUID SOLENOID VALVE 8 LOW-AMBIENT CONTROLLER 9 FILTER DRIER (LIQUID LINE)

10 OUTDOOR T'STAT TO LOCK OUT AUX. HT. (SET @ 40° F ADJ) 11 LOW PRESSURE CONTROL

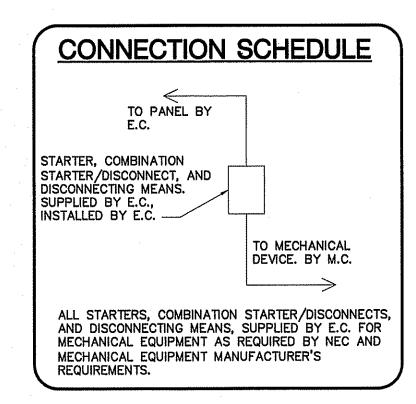
13 DISCHARGE LINE MUFFLER 14 SUCTION AND LIQUID LINE SHUT OFF VALVES 15 THERMOSTAT (SEE NOTE) 16 SUPPORT FEET

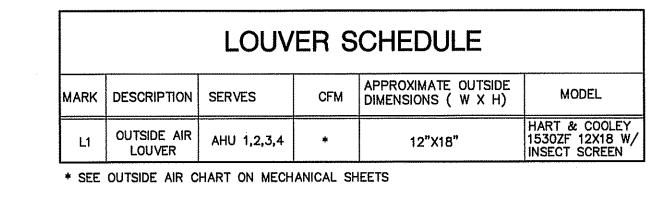
6 HIGH PRESSURE SWITCH

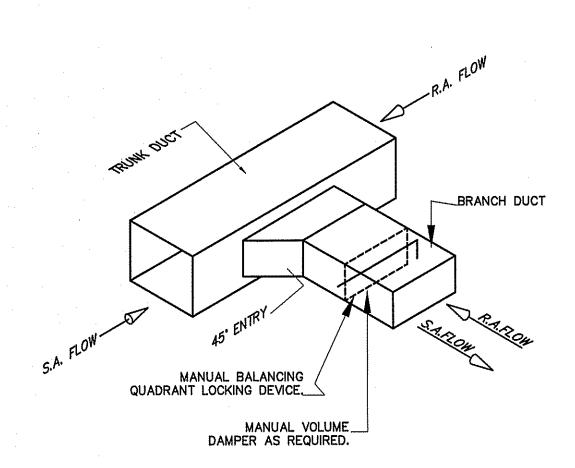
12 CRANKCASE HEATER

17 COIL GUARDS
18 HUMIDISTAT
COOLING CAPACITY © 80 DEG. F DB/67 DEG WB AIR ENTERING INDOOR UNIT & 95 DEG. F DB AIR ENTERING OUTDOOR UNIT HEATING CAPACITY: HIGH TEMP = 70 DEG F DB INDOOR EAT & 47 DEG F DB/43 DEG F WB AIR ENTERING OUTDOOR UNIT LOW TEMP = 70 DEG F DB INDOOR EAT & 17 DEG F DB/15 DEG F WB ENTERING OUTDOOR UNIT

T-STAT: THE NUMBER OF STAGES OF HEATING/COOLING SHALL MATCH THE NUMBER OF STAGES OF HEAT AVAILABLE IN THE HPIU OR THE NUMBER OF STAGES OF COOLING AVAILABLE IN THE HPOU. PROVIDE WITH T-STAT; 7 DAY PROGRAMMABLE, DIGITAL.



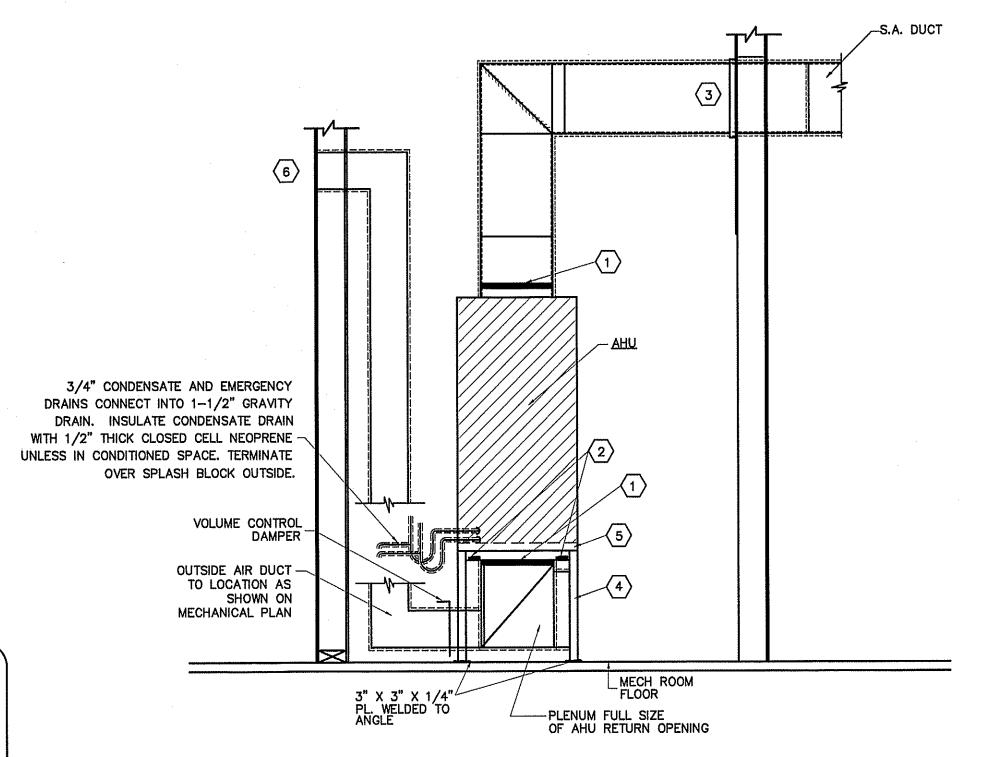




#### BRANCH DUCT TAKE-OFF DETAIL NOT TO SCALE

#### MECHANICAL NOTES (GENERAL)

- 1. DUCTWORK LAYOUTS ARE SCHEMATIC. ALL RISES, DROPS, OFFSETS, AND TRANSITIONS REQUIRED BUT ARE NOT SHOWN SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- 2. DUCTWORK SHALL BE GALVANIZED STEEL AND SHALL BE CONSTRUCTED IN COMPLIANCE WITH SMACNA STANDARDS FOR LOW VELOCITY DUCTWORK. DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. FLEXIBLE RUNOUTS SHALL NOT EXCEED 15' AND SHALL NOT BE USED TO FORM ELBOWS. CONNECTIONS FROM RECTANGULAR TO ROUND DUCT SHALL BE MADE WITH MANUFACTURED 45 DEG. LATERAL TAPS.
- 3. ALL DUCTWORK SHALL BE SEALED AIR TIGHT WITH SEALING COMPOUND.
- 4. ALL ELBOWS IN DUCTWORK SHALL BE RADIUS ELBOWS, UNLESS NOTED OTHERWISE. WHERE SQUARE ELBOWS ARE SHOWN, INSTALL TURNING VANES. DUCT SIZES SHOWN ARE NET INTERIOR DIMENSIONS.
- 5. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO INSTALLATION OF ANY OF HIS PIPING, DUCTWORK, OR EQUIPMENT.
- 6. THE MECHANICAL CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE MECHANICAL PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION OF THE MECHANICAL SYSTEMS AND REVIEW ANY CONFLICTS THAT ARE NOTED WITH THE ENGINEER.
- 7. IT WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ENSURE THAT ITEMS TO BE FURNISHED UNDER HIS CONTRACT WILL FIT THE SPACE AVAILABLE. HE SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS AND SHALL FURNISH AND INSTALL SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE AND INTENT MEANING OF THE PLANS AND SPECIFICATIONS. HE SHALL PROVIDE THE ENGINEER SCALED DRAWINGS OF ALL MECHANICAL DRAWINGS.
- 8. ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.
- 9. PROVIDE FACTORY OR FIELD INSTALLED DRAIN PANS UNDER ALL COOLING COIL UNITS. INSTALL DRAIN PAN FLOAT TO SHUT DOWN UNIT FAN IN EVENT THAT CONDENSATE BEGINS TO FILL EMERGENCY DRAIN PAN. RUN ALL CONDENSATE DRAIN LINES TO APPROPRIATE DRAIN.



#### TYPICAL DETAIL AT FLOOR MOUNTED AHU NOT TO SCALE

5 1" PLEATED FILTER

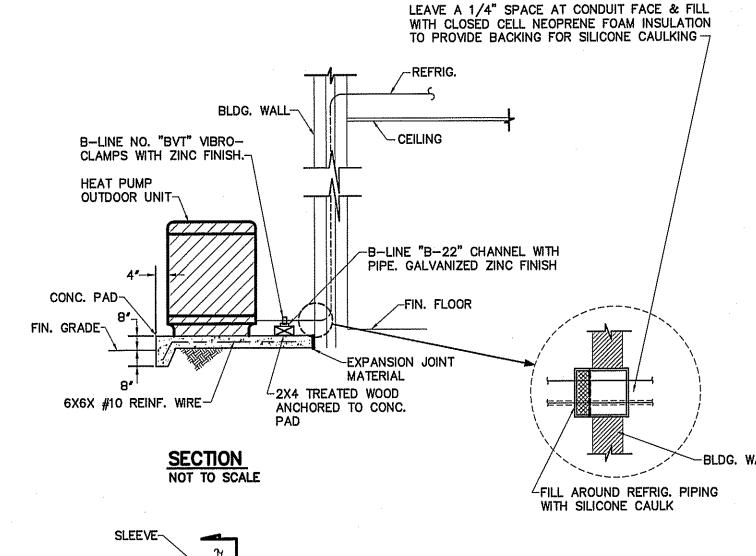
#### NOTES:

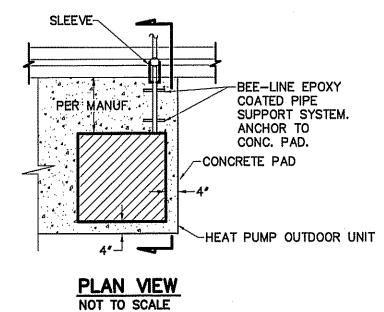
- 1 FLEXIBLE CONNECTION
- 2 NEOPRENE-IN-SHEAR VIBRATION ISOLATORS
- 6 OUTSIDE AIR LOUVER, RAIN PROOF, SIZE FOR 0.06 CFM/SF OF CONDITIONED SPACE.
- 4 1-1/2" X 1-1/2" X 3/16" ANGLE HPIU SUPPORT STAND WITH ALL WELDED CONSTRUCTION. PAINT WITH 1 COAT OF PRIMER AND FINISH WITH (2) COATS GRAY HIGH

GLOSS MACHINE ENAMEL, MARTIN SENOUR OR EQUAL.

3 SHEET METAL COLLAR AT WALL PENETRATION

PROVIDE PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM.





## DETAIL-TYPICAL HEAT PUMP OUTDOOR UNIT

NOT TO SCALE

**METHOD OF COMPLIANCE:** PRESCRIPTIVE 

ENERGY COST BUDGET THERMAL ZONE 4A - HARNETT COUNTY, NC

WINTER DRY BULB 16 DEG. F. SUMMER DRY BULB 93 DEG. F. **INTERIOR DESIGN CONDITIONS** 

WINTER DRY BULB 49 DEG. F. SUMMER DRY BULB 80 DEG. F.

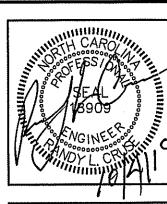
RELATIVE HUMIDITY 55% BUILDING HEATING LOAD 50.5 MBH

BUILDING COOLING LOAD 7.0 TONS MECHANICAL SPACE CONDITIONING SYSTEM

UNITARY DESCRIPTION OF UNIT: SPLIT SYSTEM HEAT PUMP HEATING EFFICIENTCY: 15.5 SEER COOLING EFFICIENCY: 9.0 HSPF SIZE CATEGORY OF UNIT: < 65,000 BTUH

BOILER --- NOT APPLICABLE IN THIS PROJECT CHILLER—NOT APPLICABLE IN THIS PROJECT

LIST EQUIPMENT EFFICIENCIES



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SHEET NO.

	ELECTRICAL LEGEND										
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION						
#	QUAD RECEPTACLE	\$3M	MOTION DETECTING 3-WAY SWITCH (4-WAY SWITCH) WITH TIMER	N/L	UNSWITCHED FIXTURE						
Ф	DUPLEX RECEPTACLE	~~	UNSWITCHED BRANCH CIRCUIT		FUSED DISCONNECT SWITCH						
T	TIMECLOCK FOR WALLPACKS	Y	120/208 VOLT CIRCUIT	Ch	CEILING MOUNTED FUSED DISCONNECT SWITCH						
Ф	CEILING MOUNTED DUPLEX RECEPTACLE	\$ <sub>M</sub>	MOTION DETECTING SINGLE-POLE SWITCH	4	DATA/PHONE OUTLET						
	FLUORESCENT FIXTURE	. 🛇	'EXIT' LIGHT FIXTURE, TYPE 'EX'	IJ	JUNCTION BOX						
~~~	SWITCHED BRANCH CIRCUIT	<b>L</b>	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	\$	SINGLE POLE SWITCH OR TIMER AS APPLICABLE						

TOTAL WATTS USED

6,613

6,613

TOTAL WATTS LEFT OVER

4,475

4,475

LIGHTING DATA FOR NC ENERGY CODE

WATTS PER FT<sup>2</sup> ALLOWED

0.66

AREA FT 2

16,800

16,800

AREA USE

STORAGE

TOTAL

TOTAL WATTS ALLOWED

11,088

11,088

	NOTE:
1.	VERIFY LOCATION OF LIGHTS & RECEPTACLES WITH OWNER BEFORE CONSTRUCTION.
2.	COORDINATE LOCATION OF 8' STRIP LIGHTS IN CORRIDOR WITH DUCT WORK WHERE APPLICABLE
3.	ALL LED LIGHTS IN CORRIDORS TO BE MOUNTED ON THE WALLS WHERE APPLICABLE.
4.	ALL HALLWAYS SWITCHES TO BE ON MOTION SENSORS OR SWITCHED AS INDICATED AND ON TIMERS OF 30 MINUTES. ALL UNIT SWITCHES TO BE ON TIMER OF 30 MINUTES WITH NO HOLD MECHANISMS.
5.	VERIFY NIGHT LIGHTS AND PERMANENT BURN FIXTURES WITH OWNER BEFORE WIRING.

	LIGHT FIXTURE SCHEDULE  RK DESCRIPTION MANUFACTURER CATALOG NUMBER LAMPS BALLASTS WATTAGE REMARKS												
MARK	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	BALLASTS	WATTAGE	REMARKS						
À	8' LED STRIPLIGHT	LITHONIA	CDS L96 MVOLT DM 40K 80CRI WH	LED		77							
В	LED WALL PACKS	LITHONIA	TWR1 LED 3 50K MVOLT ON TIMER	18 LEDS	LED	58.4							
С	COMPACT FLUORESCENT FIXTURE WITH WIRE GUARD	DAYBRITE	VIN100I12-PG	1-13W SELF BALLAST		17	WITH WIRE GUARD						
D	3" LED RECESSED DOWNLIGHT	ACULUX	AX3 D G4 12LM 35K 80CRI 50D GZ1 120 ICAT 3DP CS SF WET	LED		11.0	TO BE ON PHOTOCELL						
EM	EMERGENCY LIGHT WITH BATTERY BACKUP	LITHONIA	ELM2L	LED									
EX	LED TYPE EXIT LIGHT WITH BATTERY BACKUP	LITHONIA	ELM2L										
EM2	EMERGENCY LIGHT REMOTE WEATHERHEAD(S)	MCPHILBEN	CR2CSWA										

TAL CAROLLING SELECTION OF LICENSES OF CONTROL OF LICENSES OF CONTROL OF CONT		
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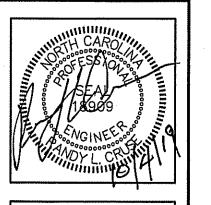
SHEET NO. E-1 OF 3

LEGEND

---- 3 HOUR FIRE BARRIER

F#10 B	F#10 B	-#10 B
EX STATE OF THE PROPERTY OF TH		EM2  C. SISMEX  B A3
#10  EM SEX N/L EM	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	FIXTURE TYPE "A" TYPICAL #10

ELECTRICAL LEGEND										
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION					
#	QUAD RECEPTACLE	\$3M	MOTION DETECTING 3-WAY SWITCH (4-WAY SWITCH) WITH TIMER	N/L	UNSWITCHED FIXTURE					
Ф	DUPLEX RECEPTACLE	~~	UNSWITCHED BRANCH CIRCUIT		FUSED DISCONNECT SWITCH					
団	TIMECLOCK	Y - X	120/208 VOLT CIRCUIT	<u>[</u> ]	CEILING MOUNTED FUSED DISCONNECT SWITCH					
<b>#</b>	CEILING MOUNTED DUPLEX RECEPTACLE	\$ <sub>M</sub>	MOTION DETECTING SINGLE-POLE SWITCH	4	DATA/PHONE OUTLET					
	FLUORESCENT FIXTURE	8	'EXIT' LIGHT FIXTURE, TYPE 'EX'	IJ	JUNCTION BOX					
~~	SWITCHED BRANCH CIRCUIT	Ç	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	\$	SINGLE POLE SWITCH OR TIMER AS APPLICABLE					



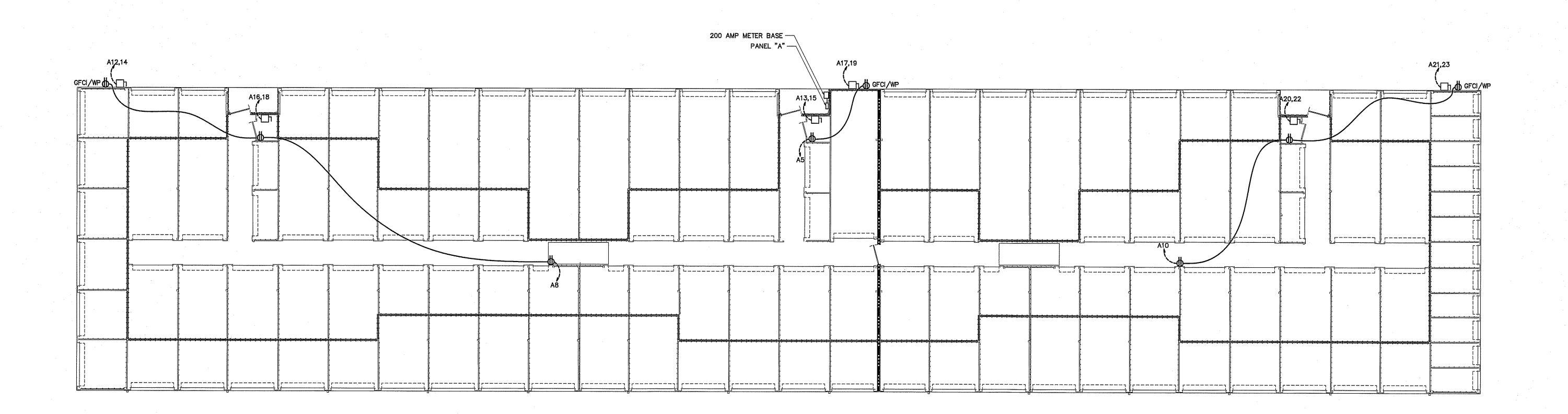
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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-08

LEGEND



ELECTRICAL LIGHTING PLAN BUILDING "1"
SCALE: 1" = 10'-0"

#### **ELECTRICAL NOTES (GENERAL)**

- . THE ELECTRICAL INSTALLATION, EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL, AS A MINIMUM, BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), ALL APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL CODES, LAWS, AND ORDINANCES, AND RULINGS OF THE INSPECTION AUTHORITIES HAVING JURISDICTION. ALL FEES, PERMITS, ETC., ASSOCIATED WITH THE ELECTRICAL WORK SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- 2. THE DRAWINGS GENERALLY INDICATE THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, BOXES, FITTINGS, AND SPECIALTIES WHICH MAY BE REQUIRED FOR A COMPLETE INSTALLATION. ALL SUCH ITEMS REQUIRED TO COMPLETE THE INSTALLATION ACCORDING TO INDUSTRY ACCEPTED PRACTICES SHALL BE INCLUDED IN THE BID.
- 3. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND LISTED AND LABELED BY UNDERWRITERS LABORATORIES, INC.
- 4. ALL PENETRATIONS OF FIRE WALLS SHALL BE SEALED WITH APPROVED SEALING MATERIALS TO MAINTAIN THE FIRE RATING OF THE WALLS. 5. THE CONTRACTOR SHALL VERIFY WIRE AND FUSE/CIRCUIT BREAKER SIZING FOR ALL MECHANICAL EQUIPMENT PRIOR TO PURCHASING MATERIALS AND INSTALLING BRANCH CIRCUITS.
- 6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO AVOID INTERFERENCES AND CONFLICTS. APPARENT INTERFERENCES OR CONFLICTS SHALL BE REPORTED TO THE PRIME CONTRACTOR AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK IN
- 7. THE ELECTRICAL CONTRACTOR SHALL CONNECT BRANCH CIRCUITS TO THE MAIN LINE TERMINALS OF EQUIPMENT FURNISHED BY OTHER CONTRACTORS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY NECESSARY SWITCHES, DISCONNECTS, OR OVERCURRENT PROTECTION AHEAD OF SUCH EQUIPMENT.
- 8. RACEWAYS ARE SHOWN SCHEMATICALLY AND MAY BE REROUTED IN THE FIELD. THEY SHALL BE INSTALLED AT RIGHT ANGLES TO OR PARALLEL WITH BUILDING LINES. THEY SHALL BE RUN CONCEALED WITHIN WALLS OR BUILDING STRUCTURES WHEREVER POSSIBLE.
- 9. ALL RACEWAYS, EQUIPMENT, ETC., ABOVE A SUSPENDED CEILING SHALL BE MOUNTED A MINIMUM OF 18" ABOVE THE CEILING SO AS NOT TO BLOCK ANY TILE OR FIXTURE ACCESS.
- 10. THE MINIMUM ALLOWABLE SIZE FOR ANY CONDUIT, IMC, OR EMT SHALL BE 1/2" AND MAY BE USED FOR 2#12 WIRE SWITCHLEGS ONLY. A SWITCHLEG SHALL BE DEFINED AS THE RUN OF CONDUIT FROM THE SWITCH OUTLET BOX TO THE FIRST OUTLET BEING SWITCHED.
- 11. FULL WEIGHT GALVANIZED RIGID STEEL CONDUIT SHALL BE USED IN THE FOLLOWING AREAS:
- A. ON THE EXTERIOR OF THE BUILDING OR ROOF,
- B. VERTICAL DROPS WHERE THE CONDUIT CANNOT BE ANCHORED TO WALLS OR OTHER SUPPORT STRUCTURES,
- C. WHERE SUBJECT TO MECHANICAL DAMAGE.
- 12. ALL WIRE AND CABLE SHALL BE COPPER AND HAVE 600 VOLT THHN-THWN INSULATION. ALUMINUM WIRING SHALL NOT BE PERMITTED.
- 13. THE MINIMUM WIRE SIZE SHALL BE #12 AWG EXCEPT FOR CONTROL WIRING, WHICH MAY BE #14 AWG. CONTROL WIRING SHALL USE STRANDED CONDUCTORS UNLESS OTHERWISE NOTED.
- 14. ALL METAL RACEWAY SYSTEMS SHALL BE MADE ELECTRICALLY CONTINUOUS. THE RACEWAY SYSTEM SHALL NOT BE THE SOLE GROUNDING METHOD. AN INSULATED COPPER GROUNDING CONDUCTOR SHALL BE INSTALLED FOR ALL FEEDERS AND BRANCH CIRCUITS. AT RECEPTACLES, A GREEN GROUND CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL OF THE RECEPTACLE.
- 15. THE ELECTRICAL CONTRACTOR SHALL COORDINATE FUSE AND DISCONNECT SWITCH SIZES WITH THE MECHANICAL EQUIPMENT SUPPLIER PRIOR TO PURCHASE AND INSTALLATION OF BRANCH CIRCUIT EQUIPMENT. IF EQUIPMENT SIZING CHANGES FROM DESIGN SIZES, CIRCUITS SHALL BE RESIZED ACCORDINGLY.
- 16. LIGHT FIXTURES FOR INSTALLATION IN A SUSPENDED CEILING SHALL BE SECURELY FASTENED TO THE CEILING SUSPENSION SYSTEM IN A MANNER TO PREVENT FIXTURES FROM FALLING. IN ADDITION, 16 GAGE WIRE HANGERS SHALL BE FASTENED TO THE FOUR CORNERS OF THE
- 17. CONNECTIONS TO FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE MADE WITH FLEXIBLE METAL CONDUIT TO ALLOW THE FIXTURE TO BE LIFTED OUT OF THE GRID AND MOVED TO AN ADJACENT GRID LOCATION.
- 18. BREAKERS SUPPLYING HVAC OR REFRIGERATION EQUIPMENT SHALL BE HACR TYPE.
- 19. 3/4" CONDUIT IS MINIMUM ALLOWABLE SIZE EXCEPT AS INDICATED IN #10. CONDUIT FILL NOT TO EXCEED 40% AS PERMITTED BY THE NATIONAL ELECTRIC CODE.
- 20. ALL CONDUCTORS TO BE INSTALLED IN CONDUIT (EXCEPT WHERE ROMEX IS INSTALLED). EMT FITTINGS TO BE COMPRESSION TYPE, INSULATED THROAT. 21. NOT USED
- 22. DATA, SECURITY, THEATRICAL, AND VIDEO SYSTEMS TO BE PROVIDED BY OWNER. ROUGH—IN OF OUTLETS AND CONDUIT WILL BE BY CONTRACTOR AS SHOWN ON DRAWINGS.
- 23. NOT USED 24. NO. 10 CU AWG CONDUCTORS SHALL BE USED FOR 20 AMP BRANCH CIRCUIT HOMERUNS EXCEEDING 50 FT. TO THE JUNCTION POINT. 20 AMP BRANCH CIRCUIT WIRING SHALL BE NO. 10 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 100 FEET TOTAL LENGTH. 20 AMP BRANCH CIRCUIT WIRING SHALL BE NO. 8 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 200 FEET TOTAL LENGTH. 20 AMP BRANCH CIRCUIT WIRING SHALL BE NO. 6 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 400 FEET TOTAL LENGTH.
- 20 AMP BRANCH CIRCUIT SHALL BE NOT EXCEED 500' FEET IN TOTAL LENGTH. (UNLESS MARKED OTHERWISE) 25. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET. SPLICES WILL NOT BE MADE EXCEPT WITHIN ACCESSIBLE OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS.
- 26. MAKE CONDUCTOR LENGTHS FOR PARALLEL CIRCUITS EQUAL.
- 27. INSTALL TELEPHONE OUTLETS WITH 3/4" EMPTY CONDUIT AND PULL CORD. STUB OUT ABOVE CEILING. PHONE SYSTEM INSTALLED BY OWNER. 28. ALL CONDUIT WITHOUT CONDUCTORS SHALL HAVE NYLON PULLCORDS INSTALLED.
- 29. THE CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION, AND REVIEW ANY CONFLICTS THAT ARE NOTED WITH THE ENGINEER.
- 30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES FOR PERMITS AND INSPECTIONS. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR
- ELECTRIC UTILITY CONNECTION FEES AND LINE EXTENSION FEES. 31. ELECTRICAL CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION WHICH DEVELOPS OBJECTIONABLE NOISES SHALL BE MADE FROM THE CONDUIT
- SYSTEM WITH SHORT LENGTHS OF FLEXIBLE "LIQUID-TITE" CONDUIT. 32. ALL WRE TERMINATIONS AND EQUIPMENT TO BE RATED FOR 75° C MINIMUM.
- 33. ELECTRICAL CONTRACTOR TO MAINTAIN 2' OF SEPARATION ON RECEPTACLES ON OPPOSITE SIDES OF ANY FIRE RATED WALL PER 2017 N.E.C. 300.21.
- 34. WRING TO DISCONNECT SWITCH AND DISCONNECT SWITCH SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, WIRING FROM THE DISCONNECT TO THE EQUIPMENT SHALL BE BY THE MECHANICAL CONTRACTOR.

#### **ELECTRICAL SYSTEM AND EQUIPMENT** METHOD OF COMPLIANCE:

ENERGY CODE:	PRESCRIPTIVE	X	PERFORMANCE	
ASHRAE 90.1:	PRESCRIPTIVE		PERFORMANCE	

REFER TO DRAWINGS FOR RISER DIAGRAM AND PANEL SCHEDULES

LIGHTING SCHEDULE		
LAMP TYPE REQUIRED IN FIXTURE:	SEE	SCHEDULE
NUMBER OF LAMPS IN FIXTURE:		
BALLASTS TYPE USED IN FIXTURE:		
NUMBER OF BALLASTS IN FIXTURE:		
TOTAL WATTAGE PER FIXTURE:		
TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED:		
TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED	:	
ADDITIONAL PRESCRIPTIVE COMPLIANCE		

Applitolate Lifeonia Liae com riviace	
506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT	
506.2.2 REDUCED LIGHTING POWER DENSITY	(X)
506.2.3 ENERGY RECOVERY VENTILATION SYSTEMS	

- 506.2.4 HIGHER EFFICENCY SERVICE WATER HEATING
- 506.2.5 ON−SITE SUPPLY OF RENEWABLE ENERGY □ 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS □

	FEEDER SCH	EDULE	
UNIT	FEEDERS	FUSED DISCONNECT	CONDUI
AHU'S 1,2,3	2#8 CU, 1#10 CU GND	60	3/4"
HEAT PUMPS 1,2,3	2#12 CU, 1#12 CU GND	30	3/4"
HEAT PUMP 3	2#10 CU, 1#12 CU GND	30	3/4"

	FEEDER SCH	EDULE	
UNIT	FEEDERS	FUSED DISCONNECT	CONDUIT
AHU'S 1,2,3	2#8 CU, 1#10 CU GND	60	3/4"
HEAT PUMPS 1,2,3	2#12 CU, 1#12 CU GND	30	3/4"
HEAT PUMP 3	2#10 CU, 1#12 CU GND	30	3/4"

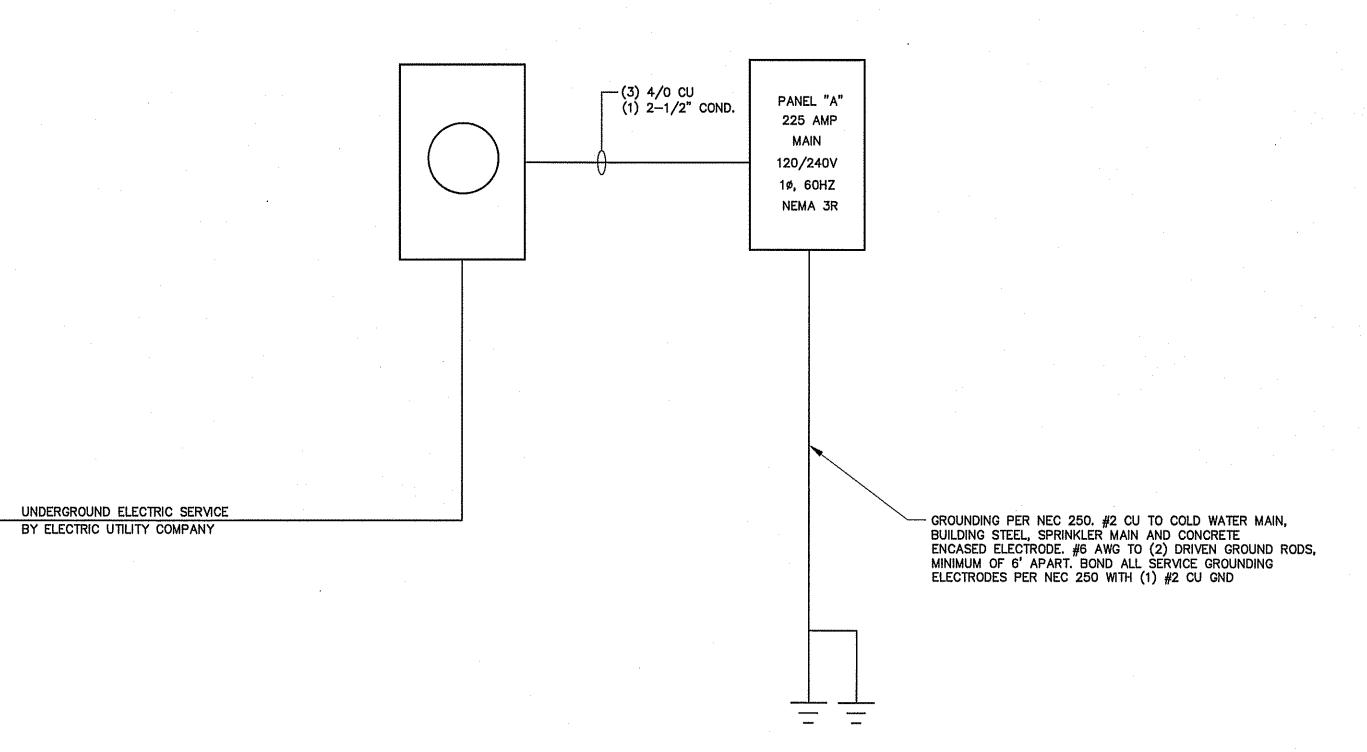
ELECTRICAL LOAD CALCULATIONS	
16800 SQUARE FEET	<u>VA</u>
NONCONTINUOUS LOADS:	
8 RECEPTACLES @ 180 VA EA. 1ST 10000	1440 1440
REMAINDER @ 50%	0
TOTAL	1440
CONTINUOUS LOADS:	
GENERAL LIGHTING LOAD VA/SQ. FT.	4000
16800 SQ. FT. 0.25 4200 x 1.25	4200 5250
AIR HANDLER UNIT	23352
HEAT PUMPS	9936
EQUIPMENT:	0
25% OF LARGEST MOTOR	1092
GRAND TOTAL	41070
171 AMPS @ 120/240V, 1ø, 60HZ	

VERIFY AIC RATING & LUG SPACE WITH UTILITY COMPANY BEFORE ORDERING PANELS.

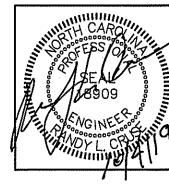
PANEL: "A" SCHEDULE:	MANUFACTURER:	SQ. D. NO. OF SPACES 42
VOLTS: 120/240 AMPS: 2		<del></del>
ENCLOSURE: NEMA 3R	): 1 SHORT (	CIRCUIT RATING: 22,000
MAIN S MLC: TOP FEED: BOTT	OM FEED: 🗵 COPPER BUS: 🗵	GROUND BAR KIT: 🗆 NEUTRAL BAR KIT:

L1	L2	CIRC	POLE	TRF	ASSIGNMENT	1	ī	7	ASSIGNMENT	NE NE	POLE	CIRCL	L1	L2
4.4	> <	1	1	20	WALLPACKS	C	,		CORRIDOR LIGHTS LEFT SIDE	20	1	2	7.2	><
$\supset$	4.4	3	1	20	WALLPACKS			0	CORRIDOR LIGHTS RIGHT SIDE	20	1	4	$\geq$	8.6
3.0	> <	5	1	20	UNITS #2 CONV. RECEPTS.	С	,		LEFT 10X20/10X30 UNIT LTS.	20	1	6	9.8	$\geq \leq$
$\supset$	7.7	7	1	20	RT. 10X20/10X30 UNIT LTS.			0	LEFT SIDE RECEPTACLES	20	1	8	$\supset <$	4.5
9.6	$\supset \subset$	9	1	20	LEFT SIDE 10X15 UNIT LIGHT	SC	,		RIGHT SIDE RECEPTACLES	20	1	10	4.5	><
	7.0	11	1	20	RT. SIDE 10X15 UNIT LIGHTS			0	HP-1	25	2	12	$\geq$	11.6
31.6	><	13	2	40	AHU-2	C						14	11.6	$\geq \leq$
$\supset$	31.6	15						0	AHU1	40	2	16	$\geq$	31.6
11.6	$\supset <$	17	2	25	HP-2	C	7					18	31.6	$>\!\!<$
$\supset$	11.6	19						0	AHU-3	45	2	20	$\geq <$	34.1
18.2	$\supset$	21	2	35	HP-3	С	,					22	34.1	$>\!\!<$
	18.2	23						0	CORRIDOR LIGHTS CENTER	20	1	24	><	5.3
X	$\supset \subset$	25	1	20	SPARE	С	,		SPARE	20	1	26	Х	$\triangleright \triangleleft$
	X	27	1	20	SPARE			0	SPARE	20	1	28	$\geq$	Х
Х	><	29	1	20	SPARE	C	7		SPARE	20	1	30	Х	><
$\supset \subset$	X	31	1	20	SPARE			o.	SPARE	20	1	32	$\geq$	X
Х	$\supset <$	33	1	20	SPARE	С	,		SPARE	20	1	34	Х	><
$\supset$	Х	35	1	20	SPARE			0	SPARE	20	1	36	$\geq <$	X
X	$\geq$	37	1	20	SPARE	С	,		SPARE	20	1	38	Х	$\boxtimes$
	Х	39	1	20	SPARE			0	SPARE	20	1	40	$\geq$	Х
Х	$\supset$	41	1	20	SPARE	C	,		SPARE	20	1	42	Х	$\supset \subset$

L1 = 177.2 AL2 = 176.2 A



ELECTRICAL RISER DIAGRAM
NOT TO SCALE



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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-08

SHEET NO.

EXIT REQUIREMENTS:

		NOWR	EK AND AKKAN	IGEMENTS OF I	EXIIS		
FLOOR, ROOM OR SPACE DESIGNATION	MIN NO. O	MUM <sup>2</sup> EXITS	TRAVEL DIS	TANCE	ARRANGEME EGRESS 1,3 (SE	NT MEANS OF ECTION 1016-102	<u>21)</u>
	REQ'D.	SHOWN ON PLANS	ALLOWABLE TRAVEL DISTANCE (TABLE 1017.2)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS	
S-1	2	3	200'	106'-6"	131'-8"	215'-5"	
OFFICE	1	2	100'	47'-8"	N/A	N/A	

CORRIDOR DEAD ENDS (SECTION 1020.4)

2. BUILDINGS WITH SINGLE EXITS (TABLE 1006.3.2(2)), SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (TABLE 1006.2.1) 3. COMMON PATH OF TRAVEL (SECTION 1029.8)

EVIT WIDTH

			EXII	MIDIH						
USE GROUP OR SPACE DESCRIPTION	(a)	(p)		(c)	)	EXIT WIDTH (in)				
	AREA OCCUPANT OCCUPA		CALCULATED OCCUPANT LOAD	ANT   FER OCCUPANT		REQUIRED WIDTH ACTUAL (SECTION 1005.1) SHOW			L WIDTH WN ON .ANS	
		1004.1.2)	(a/b)	STAIR	LEVEL	STAIR	LEVEL	STAIR	LEVEL	
S-1	8270	500 GROSS	17	N/A	.2	N/A	3.4"	N/A	144"	
OFFICE	1200	100 GROSS	12	N/A	.2	N/A	2.4"	N/A	70"	

1. SEE TABLE 1004.1.2 TO DETERMINE WHETHER NET OR GROSS AREA IS APPLICABLE SEE DEFINITION "AREA, GROSS" AND "AREA, NET" (SECTION 1002, DEFINED IN CHAPTER 2)

2. MINIMUM STAIRWAY WIDTH (SECTION 1011.2); MIN. CORRIDOR WIDTH (SECTION 1020.2); MIN. DOOR WIDTH (SECTION 1010.1.1)

3. MINIMUM WIDTH OF EXIT PASSAGEWAY (SECTION 1024)

4. SEE SECTION 1005.6 FOR CONVERGING EXITS.

5. THE LOSS OF ONE MEANS OF EGRESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50% OF THE TOTAL REQUIRED (SECTION 1005.5)

6. ASSEMBLY OCCUPANCIES (SECTION 1029)

LIFE SAFETY PLAN REQUIREMENTS:

☑ FIRE AND/OR SMOKE RATED WALL LOCATIONS (CHAPTER 7) - SEE NOTE 1

■ ASSUMED AND REAL PROPERTY LINE LOCATIONS - SEE NOTE 2

X EXTERIOR WALL OPENING AREA WITH RESPECT TO DISTANCE TO ASSUMED PROPERTY LINES (705.8) - SEE NOTE 3

OCCUPANCY TYPES FOR EACH AREA AS IT RELATES TO OCCUPANT LOAD CALCULATION (TABLE 1004.1.2)

OCCUPANT LOADS FOR EACH AREA ■ EXIT ACCESS TRAVEL DISTANCES (1017)

☑ COMMON PATH OF TRAVEL DISTANCES (1006.2.1 & 1006.3.2(1))

☑ DEAD END LENGTHS (1020.4) - SEE NOTE 4 CLEAR EXIT WIDTHS FOR EACH EXIT DOOR

MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE BASED ON EGRESS WIDTH (1005.3)

X ACTUAL OCCUPANT LOAD FOR EACH EXIT DOOR MA SEPARATE SCHEMATIC PLAN INDICATING WHERE FIRE RATED FLOOR/CEILING AND/OR ROOF STRUCTURE IS PROVIDED

FOR PURPOSES OF OCCUPANCY SEPARATION. SEE NOTE 5 ☑ LOCATION OF DOORS WITH PANIC HARDWARE (1008.1.10) - SEE NOTE 6

☑ LOCATION OF DOORS WITH DELAYED EGRESS LOCKS AND AND THE AMOUNT OF DELAY (1008.1.9.7) - SEE NOTE 7

☑ LOCATION OF DOORS WITH ELECTROMAGNETIC EGRESS LOCKS (1008.1.9.8) - SEE NOTE 7

☑ LOCATION OF DOORS EQUIPPED WITH HOLD-OPEN DEVICES - SEE NOTE 7 ■ LOCATION OF EMERGENCY ESCAPE WINDOWS (1029) - SEE NOTE 7

▼ THE SQUARE FOOTAGE OF EACH FIRE AREA (902) - SEE NOTE 8 THE SQUARE FOOTAGE OF EACH SMOKE COMPARTMENT (407.5) - SEE NOTE 9

INOTE ANY CODE EXCEPTIONS OR TABLE NOTES THAT MAY HAVE BEEN UTILIZED REGARDING THE ITEMS ABOVE

LIFE SAFETY PLAN NOTES:

1. SEE LEGEND FOR RATED WALLS.

2. ASSUMED 12' AND REAL PROPERTY LINES >80'. 3. ASSUMED PROPERTY LINES 12'; 705.8; EXC. 2 - UNLIMITED

NO DEAD ENDS OVER 20'; 20' ALLOWED.

5. NO RATING REQUIRED THIS STRUCTURE. PANIC HARDWARE NOT REQUIRED.

NO DELAYED EGRESS LOCKS, ELECTROMAGNETIC LOCKS, HOLD OPEN DEVICES, OR EMERGENCY ESCAPE WINDOWS 8. FIRE AREAS DO NOT EXCEED CODE ALLOWANCE

9. BUILDING MEETS CODE REQUIREMENTS WITHOUT SUBDIVISION INTO SMOKE COMPARTMENTS; NO SMOKE COMPARTMENTS

 $\sqrt{2}$  47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PEOPLE CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

CAPACITY OF EXIT.

EGRESS WIDTH (1005.1)

47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PERSON CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY

CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM

EACH EXIT DOOR CAN ACCOMMODATE BASED ON

1/1 47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS

CALCULATED OCCUPANCY PER EXIT = 5 PEOPLE

4 35" CLEAR WIDTH DIVIDED BY .2" = 175 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PERSON CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

 $\sqrt{5}$  35" CLEAR WIDTH DIVIDED BY .2" = 175 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PERSON CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

79'-8" TOTAL LENGTH 93'-11" TOTAL LENGTH PATH OF TRAVEL=38'-11 MAXIMUM COMMON
PATH OF TRAVEL=35'-6"

> LIFE SAFETY PLAN BUILDING 2" SCALE: 1" = 10'-0"

AREA/ROOM/SPACE DESIGNATIONS USED ON LIFE SAFETY PLANS ARE EXCLUSIVE TO LIFE SAFETY PLAN ONLY, AND ARE NOT INDICATIVE OF ANY ACTUAL SPACE DESIGNATIONS USED

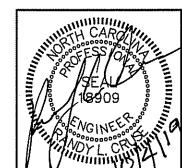
LEGEND

F.E. FIRE EXTINGUISHER AND CABINET CLASS ABC 10 POUNDS

NOTE: EXIT REQUIREMENTS CALCULATED ONLY FOR CONDITIONED AREAS. ALL OTHER AREAS HAVE DIRECT EXIT TO EXTERIOR.

LEGEND

3 HOUR FIRE BARRIER



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SHEET NO.

PLUMBING FIXTURE SCI	HEDULE	GENERAL PLUMBING NOTES	PLUMBING LEGEND	PLUMBING CALCULATIONS	THE CAROLLING
P-2 AMERICAN REGALYN 4869.008 WALL HUNG ENAMELED CAST IRON LAVATORY RIM © 31" A.F.F.  P-3 BOSCH TRONIC US7 7.2 KW POINT OF USE WATER HEATER	NOTES  WHITE 5311.012 SEAT  1340.227 FAUCET. PROVIDE W/BASKET DRAIN WITH ADA APPROVED PROTECTION FOR PIPING UNDERNEATH	<ol> <li>ALL WORK SHALL BE IN COMPLIANCE WITH APPLICABLE LOCAL, STATE, AND NATIONAL CODES.</li> <li>CONTRACTORS SHALL COORDINATE PIPING WITH ALL OTHER TRADES.</li> <li>CONTRACTOR SHALL REFER TO ARCHITECTURAL/STRUCTURAL DRAWINGS FOR DIMENSIONS.</li> <li>CONTRACTOR SHALL FURNISH AND INSTALL DIELECTRIC UNIONS AT ALL CONNECTIONS BETWEEN DISSIMILAR METALS.</li> <li>CONTRACTOR SHALL FURNISH AND INSTALL ESCUTCHEONS AND COVER PLATES AT ALL FINISHED WALLS, CEILINGS AND FLOOR OPENINGS.</li> </ol>	DESCRIPTION SYMBOL  COLD WATER CW  HOT WATER HW  COLD WATER (FILTERED)	TIEM	SHALL
* VERIFY ALL FIXTURES WITH OWNER BEFORE PURCHASE OR INSTALLATION	P-2	6. PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH STATE AND LOCAL CODE. (REFER TO SPECIFICATIONS.)  7. ALL PIPING SHALL BE TESTED FOR LEAKS. IF ANY LEAKS ARE DETECTED THE PIPING SHALL BE REPAIRED, RESOLDERED OR REPLACED AND RETESTED.  8. ALL SOLDER SHALL BE OF THE LEAD FREE TYPE.  9. WATER HEATER SHALL BE SUPPLIED WITH FACTORY INSTALLED T&P VALVES AND SHALL HAVE UNIONS AND ISOLATION VALVES.  10. DOMESTIC WATER SUPPLY PIPING SHALL BE COPPER OR CPVC. PEX IS ALLOWED WHERE PERMITTED BY CODE.  11. WASTE AND VENT PIPING SHALL BE SCH. 40 PVC OR HEAVY DUTY CAST IRON UNDER TRAFFIC AREAS.  12. INSTALL THERMOSTATICALLY CONTROLLED MIXING VALVES AS NEEDED TO ENSURE HOT WATER TEMPERATURE TO ALL HAND WASHING LOCATIONS DOES NOT EXCEED 110°F.  13. ALL FLOOR DRAINS & HUB DRAINS SHALL BE PROVIDED WITH TRAP PRIMER EXCEPT FLOOR DRAINS IN TOLLETS WHERE HOSE BIBS ARE PROVIDED.  14. HOT WATER PIPING SHALL BE INSULATED WITH 1" THICK FIBROUS GLASS INSULATION. COLD WATER PIPING SHALL BE INSULATED WITH 1/2" FIBROUS GLASS INSULATION. VAPOR BARRIER SHALL BE APPLIED TO EACH.  17. MIN 19" MAX  18. SEWER MATERIAL AND  18. SEWER MATERIAL AND  19. SEWER MATERIAL AND  19. SEWER MATERIAL AND  10. SEWER MATERIAL AND  10. SEWER MATERIAL AND  11. SEWER MATERIAL AND  11. SEWER MATERIAL AND  12. SEWER MATERIAL AND  13. SEWER MATERIAL AND  14. DETERMINED TO SECURITY WHERE RECOURS OF CAST IRON OR PVC LONG SWEEP 1/4 BEND. (USE REDUCING TYPE WHERE RECOURS)	RECIRCULATED WATER  VENT PIPING  VENT PIPING  NEW  LEXISTING  W  CLEAN OUT IN GRADE  CLEAN OUT IN GRADE  FLOOR CLEAN OUT  NON FREEZE HOSE BIBB  HITH NFHB  FLOOR DRAIN  CHECK VALVE  BALL VALVE  BALL VALVE  SHUT-OFF VALVE  TIXTURE DESIGNATION  P  MOUNTING HEIGHT  MH  POINT OF CONNECTION  NEW  SHOCK ABSORBER  W/BALL VALVE SHUT-OFF  ASA SIZE PER MANUF.  RECOMMENDATIONS  CHANGE IN PIPE SIZE  COLD WATER TO BUILDING  SEE SUPPLY PIPING  PLAN FOR SIZING	PLUMBING CONNECTION SCHEDULE  FIXTURE C.W. H.W. WASTE VENT  FLUSH TANK WATER CLOSET 3/8" - 3" 2"  LAVATORY 1/2" 1/2" 2" 1 1/2"  C.O.I.C. 2"V 2"V 2"V 4"W P-1 0 3"VTR 3"W  F.C.O.O.O.O.O.O.O.O.O.O.O.O.O.O.O.O.O.O.	UNIVERSITY STORAGE BUILDING #2 ORANGE STREET COATS, NC
	18" MIN.  A2" MIN.  WW #85  WW #81  A2" MIN.  WW #85  B"MIN.  INSULATION OR BAFFILE		DOUBLE CHECK VALVE  FINE MESH STRAINER  FUNNEL DRAIN WITH AIR GAP ROUTE TO SPLASH BLOCK ON EXTERIOR OF BUILDING  AIL—WATER SERVICE ENTRANCE  REQUIRED		A. 414 EAST EDGERTON STREET Dunn, North Carolina 28334 PH: (910) 892-4429 FAX: (910) 892-5162
	RESTROOM AC SCALE: 1/2" = 1'-0"	SPACE  CESSIBILITY DETAILS  TO SEWER	P-2 2"V 2"V 2"V 3"VTR 1-1/2"V P-1 4"W F.c.o.		THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH THESE DRAWINGS, DESIGNS, AND DESIGN CONCEPTS PRESENTED REMAIN THE PROPERTY OF THE ENGINEER. PUBLISH OR DUPLICATION THE DRAWINGS OR DESIGNS ONLY WITH THE WRITTEN PERMISSION OF THE ENGINEER.  © COPY RIGHT
SUPPLY PIPING PLAI  SCALE: 1/4" = 1'-0"		WASTE & NOT TO SCALE	VENT RISER DIAGRAM	WASTE & VENT PIPING PLAN SCALE: 1/4" = 1'-0"	DATE 10/04/19 DRAWN BY BAM JOB NO. 19-24 SHEET NO. P-1 OF 1

OUTSIDE AIR REQUIREMENTS	
BUILDING "2"	GENE
STORAGE - 0.06 CFM/SF X 7,900 SF = 474 CFM OUTSIDE AIR REQUIRED.	1 RUN INSU
146 CFM AHU-2 109 CFM AHU-3 219 CFM AHU-4	2 FAS

ERAL NOTES: IN ALL DUCTWORK TIGHT TO CEILING SULATION.

STEN ALL CONDENSATE LINES TO WALLS OR LILINGS WHERE APPLICABLE. 7-DAY PROGRAMMABLE TSTAT WITH LOCKING COVER.

PROVIDE & INSTALL PROTECTIVE 6"
CONCRETE-FILLED PIPE BOLLARDS, TWO PER
HEAT PUMP OR AS SHOWN ON PLAN.

5 PROVIDE AND INSTALL CONCRETE SPLASH BLOCK, ONE PER 3 HEAT PUMPS MIN.

6 UNIT IN EVENT OF CONDENSATE OVERFLOW.

VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

**GENERAL NOTE:** 

MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FOR ALL HVAC EQUIPMENT.

		MECHANICA	L SYMBOL LEGEND	
SINGLE LINE	DOUBLE LINE DESCRIPTION	SINGLE LINE DOUBLE LINE DESCRIPTION	SINGLE LINE DOUBLE LINE DESCRIPTION	
-	TAKE OFF TO SUPPLY AIR REGISTER WITH EXT. INSUL. DUCTWORK	VOLUME CONTROL DAMPER (TYP)  CEILING DIFFUSER  FLEXIBLE DUCTWORK (15' MAX.)	SUPPLY AIR CEILING DIFFUSER, ARROW INDICATES DIRECTION OF BLOW & ACTIVE DIFFUSER SIDES	ELECT. DUCT INSERT HEATER WITH CONTROL PANEL
<u> </u>	BRANCH TAKEOFF FROM MAIN TRUNK DUCT WITH EXT. INSUL. DUCTWORK	ONE SIDED REDUCING TRANSITION	(1)CUSHION HEAD ® BRANCH (2)CUSHION HEAD IS EQUAL TO 1-1/2 OR DIFFUSER RUNOUT WIDTH OF THE BRANCH DUCT OR DIFFUSER RUNOUT	AHU W/FLEXIBLE CONNECTION AT SUPPLY AND RETURN DUCT
-	END CAP	F.D.(1-1/2) F.D.=FIRE DAMPER (1-1/2)=RATED FOR 1-1/2 HRS.	R.A. OR EXHAUST DUCT TURNS DOWN @ 90 DEGS.	KEY NOTE
<b>■ © o</b> R <b>© -</b>	O OR OD DUCT SMOKE DETECTOR	RETURN AIR OR EXHAUST GRILLE	MANUAL VOLUME CONTROL DAMPER W/ QUADRANT LOCKING DEVICE	MARK CFM-DIFFUSER, REGISTER OR GRILLE (SEE SCHEDULE)
A.D	ACCESS DOOR   DOOR SIZE   DUCT HEIGHT   8X8   10"   10X10   12"   12X12   14" & LARGER	Two sided transition	TWO SIDED TRANSITION	⑤ ■ EXHAUST FAN

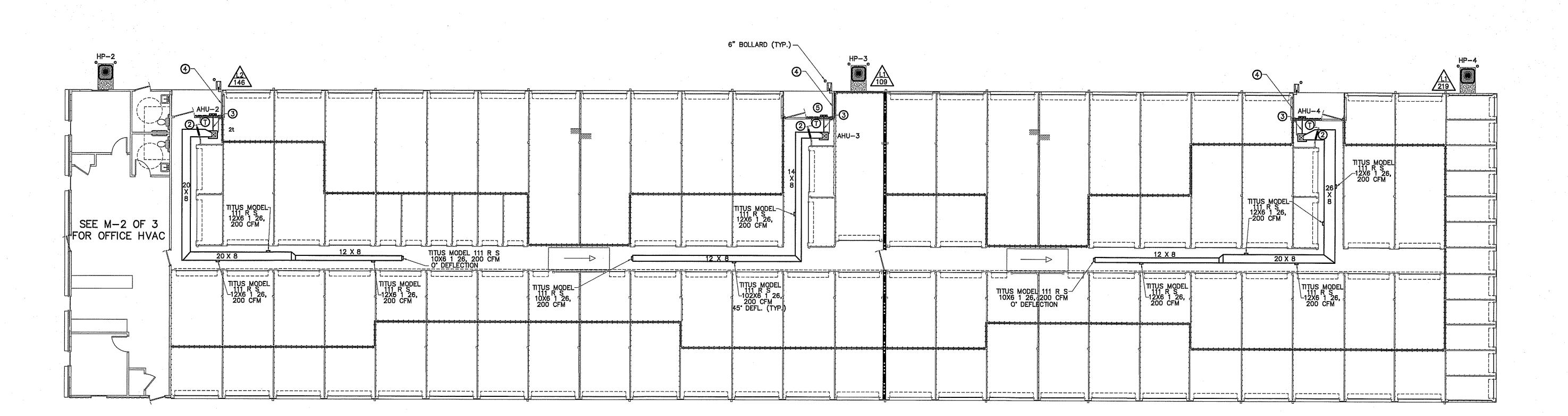
### **KEY NOTES:**

1) 10" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

2 16" X 16" TRANSFER GRILL INSTALLED IN DOOR (TYPICAL) 38" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

4 3/4" CONDENSATE FROM EACH AIR HANDLING UNIT TO SPLASH BLOCK

5 COORDINATE OUTSIDE AIR LOUVER LOCATION WITH ELECTRICAL SERVICE EQUIPMENT



MECHANICAL HVAC PLAN BUILDING "2"

SCALE: 1" = 10'-0"

LEGEND

**REVISIONS** 

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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-24

SHEET NO. M-1 OF 3 OUTSIDE AIR REQUIREMENTS

OFFICE - 0.06 CFM/SF X 1200 SF = 72 CFM 5 PEOPLE X 5 CFM/PERSON = 25 CFM 97 CFM FOR OFFICE AHU 1. GENERAL NOTES:

- RUN ALL DUCTWORK TIGHT TO CEILING INSULATION.
- 2 FASTEN ALL CONDENSATE LINES TO WALLS OR CEILINGS WHERE APPLICABLE.
- 3 7-DAY PROGRAMMABLE T'STAT WITH LOCKING COVER.
- PROVIDE & INSTALL PROTECTIVE 6"
  CONCRETE—FILLED PIPE BOLLARDS, TWO PER
  HEAT PUMP OR AS SHOWN ON PLAN.
- 5 PROVIDE AND INSTALL CONCRETE SPLASH BLOCK, ONE PER 3 HEAT PUMPS MIN.
- (6) INSTALL FLOAT SWITCH IN AUXILIARY PAN TO STOP UNIT IN EVENT OF CONDENSATE OVERFLOW.

#### NOTE

VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

#### **GENERAL NOTE:**

MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FOR ALL HVAC EQUIPMENT.

### **KEY NOTES:**

10" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

2 16" X 16" TRANSFER GRILLE, INSTALLED IN DOOR (TYPICAL)

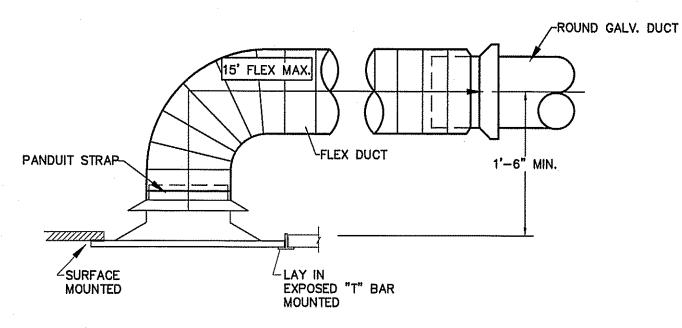
3 8" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

4 3/4" CONDENSATE FROM EACH AIR HANDLING UNIT

TO SPLASH BLOCK.

(5) 18" X 8" TRANSFER GRILLE, INSTALLED ABOVE DOOR

6 18" X 18" TRANSFER GRILLE, INSTALLED IN DOOR



DIFFUSER DETAIL NOT TO SCALE

#### OFFICE

METHOD OF COMPLIANCE:

PRESCRIPTIVE 

ENERGY COST BUDGET

THERMAL ZONE 4A - HARNETT COUNTY, NC

WINTER DRY BULB 16 DEG. F.

SUMMER DRY BULB 93 DEG. F.

#### INTERIOR DESIGN CONDITIONS

WINTER DRY BULB 65 DEG. F.

SUMMER DRY BULB 80 DEG. F.

RELATIVE HUMIDITY 55%

BUILDING HEATING LOAD 17.3 MBH

BUILDING COOLING LOAD 3.0 TONS

MECHANICAL SPACE CONDITIONING SYSTEM
UNITARY

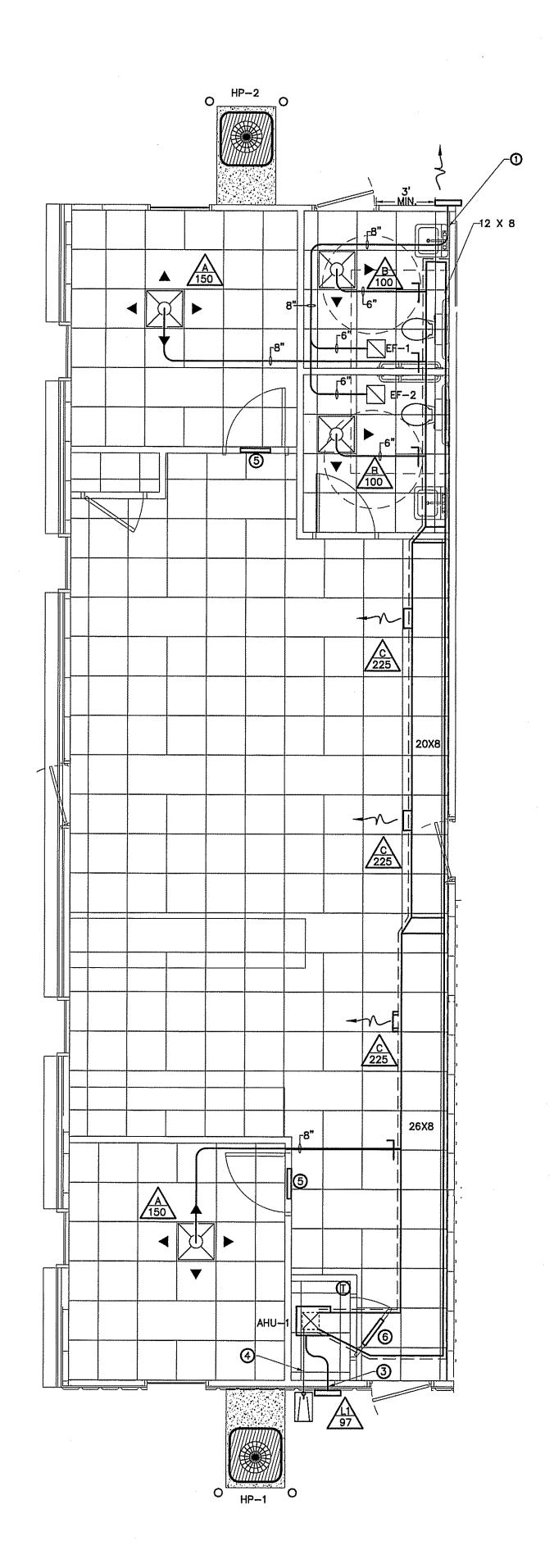
ARY
DESCRIPTION OF UNIT: <u>SPLIT SYSTEM HEAT PUMP</u>

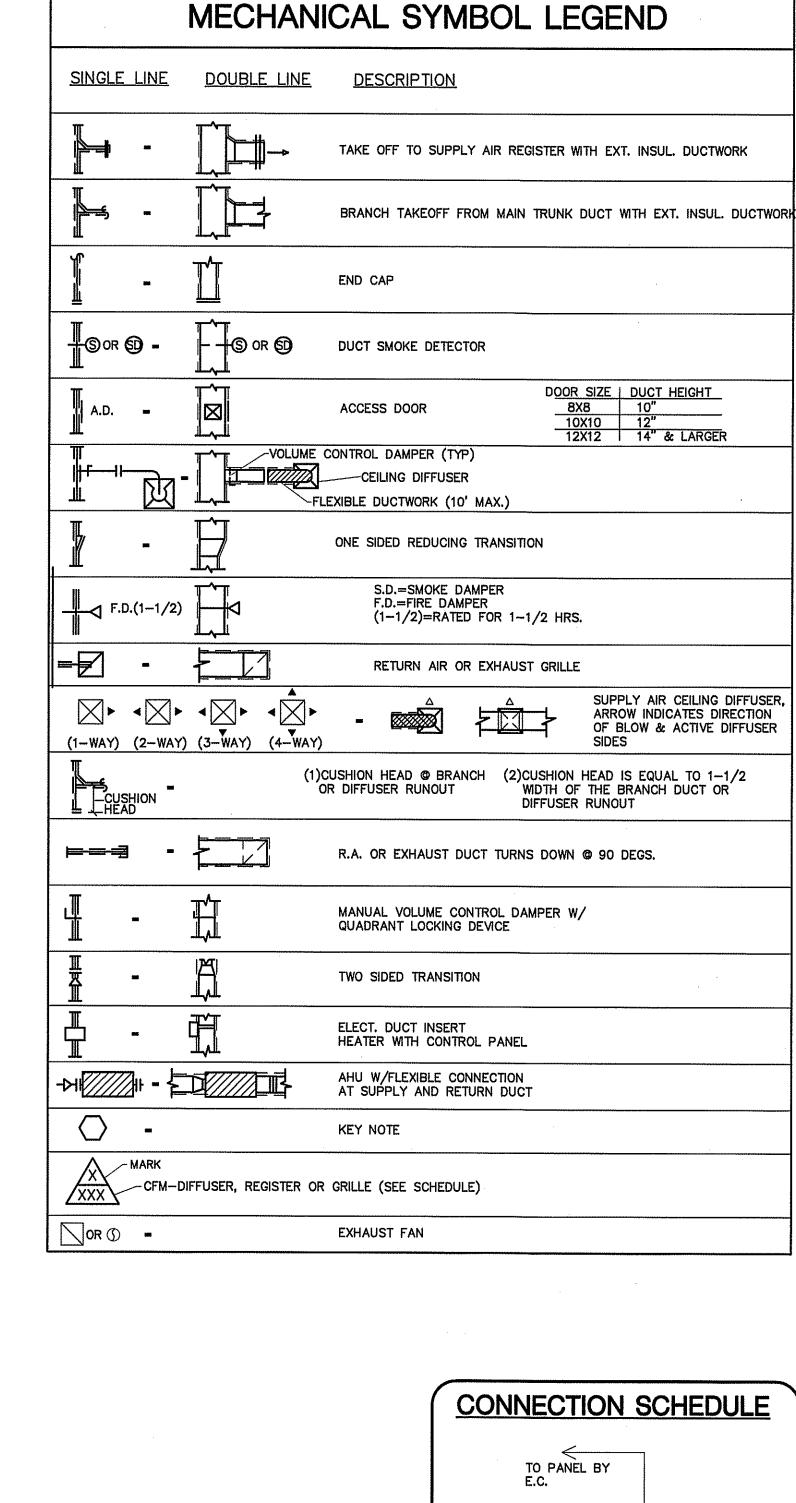
HEATING EFFICIENTCY: 15.0 SEER
COOLING EFFICIENCY: 9.0 HSPF

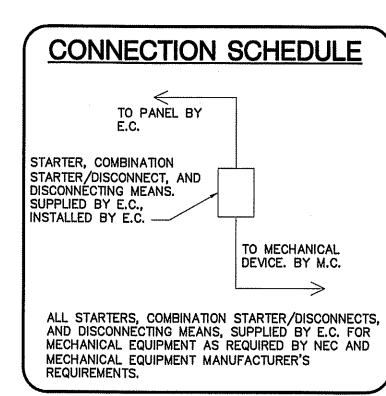
SIZE CATEGORY OF UNIT: < 65,000 BTUH

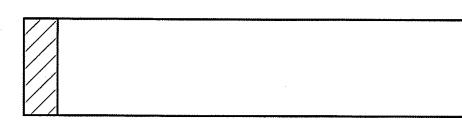
BOILER — NOT APPLICABLE IN THIS PROJECT CHILLER—NOT APPLICABLE IN THIS PROJECT

LIST EQUIPMENT EFFICIENCIES

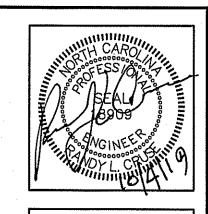








KEY PLAN



INIVERSITY STORAGE BULDING #2

REVISIONS NO.

Cruse
And
Associates, P.A.

HITERIER NOTE RECEIVED STREET
Dunn, North Carolina 28334
PH: (910) 892-4429

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DATE 10/04/19
DRAWN BY BAM
JOB NO. 19-24

SHEET NO. M-2 OF 3

MECHANICAL HVAC PLAN BUILDING "2"

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

								AIR I	-IANE	DLER	UNIT										SPLIT SY	YSTEM HE	AT PUM	IP UNITS			
AHU NO.	MANUFACTURER	MODEL	VOLTAGE	E.S.P.	OUTSIDE	CEM	UNIT FLA	REF L	INES	SEER	HTR KW	COOL CAPACITY	ING ' (MBH)	HEAT CAPACIT	ING Y (MBH)	HSPF	MIN. CIRC. AMPACITY	M.O.C.P.	MARK	MANUF.	MODEL	VOLTAGE	# COMP.	MIN. CIRC.	M.O.C.P.	UNIT	ACCESSORIES
		****			AIR (CFM)	OI IW		GAS	LIQ.		(240)	TOTAL	SENS.	HIGH	Low	HOFF	AWITAOTT					702,7,02		AMPACIT		FLA.	
AHU-3	RHEEM	RH1T-2417STAN	240/1ø/60	.46	*	600	31.6	3/4	3/8	16.0	7.2	18.5	14.5	15.7	9.1	9.0	40	40	HP-3	RHEEM	RP1518BJ1	240/1/60	1	12	15	9.7	EXCLUDE 8,18
AHU-2	RHEEM	RH1T-2417STAN	240/1ø/60	.46	*	800	31.6	3/4	3/8	15.5	7.2	24.0	17.9	22.0	13.5	9.0	40	40	HP-2	RHEEM	RP1524BJ1	240/1/60	1	15	25	11.6	EXCLUDE 8,18
AHU-1,4	RHEEM	RH1T-3617STAN	240/1ø/60	.46	*	1200	34.1	3/4	3/8	15.0	7.2	35.6	26.4	33.8	22.2	9.0	43	45	HP-1,4	RHEEM	RP1536AJ1	240/1/60	1	23	35	18.2	EXCLUDE 8,18

\* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS \*\* PROVIDE OUTDOOR THERMOSTAT TO LOCK OUT SUPPLEMENTAL ELECTRIC HEAT AT OUTDOOR TEMPERATURES ABOVE 40 F.

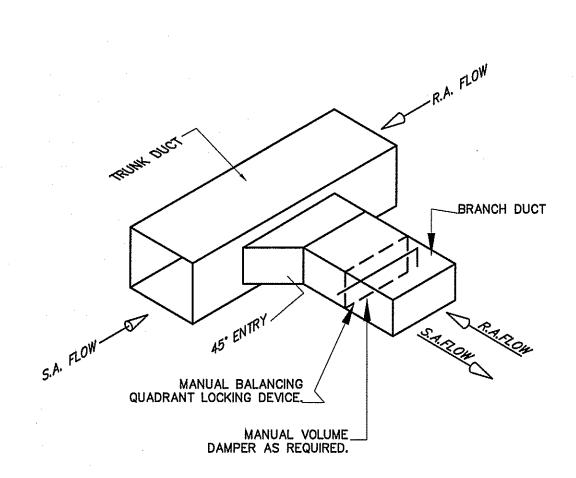
				REGIST	TER, GRILL	_E, & DIFF(	JSER SCHED	ULE*	
MARK	DESCRIPTION	MAX. NC	NECK	BORDER TYPE	MATERIAL	FINISH	MANUFACTURER	MODEL NUMBER	ACCESSORIES / NOTES
Α	DIFFUSER-4-WAY	30	9"X9"	LAY-IN	STEEL	WHITE	TITUS	TDC 9X9 3 26 4	SQ-TO-RND
В	DIFFUSER-2-WAY	30	6"X6"	LAY-IN	STEEL	WHITE	TITUS	TDC 6X6 3 26 2	SQ-TO-RND
С	SIDEWALL	30	12"X6"	SURFACE	STEEL	WHITE	TITUS	111 RS	22.5" DEFL.

\* VERIFY CEILING TYPE BEFORE ORDERING, NARROW TEE REQUIREMENTS, PLASTER FRAMES ETC. TO BE INCLUDED WITH DIFFUSERS AT NO ADDITIONAL COST TO OWNER

			EXHAUS	TFA	N SCH	IEDULE				
MARK	1441/5	MODEL	TVDE	CEA 4	EXTERNAL S.P.	ALIDO	ELECTR	ICAL		NOTES
MARK	MAKE	MODEL	TYPE	CFM	IN (W.G.)	AMPS	VOLT	PH	HZ	NOTES
EF-1,2	GREENHECK	SP-A90	CEILING FAN	70	.125	.34	115	1ø	60	WC-8 WALL CAP

	LOUVER SCHEDULE										
MARK	DESCRIPTION	SERVES	CFM	APPROXIMATE OUTSIDE DIMENSIONS ( W X H)	MODEL						
L1	OUTSIDE AIR LOUVER	AHU 2,3	*	12"X18"	HART & COOLEY 1530ZF 12X18 W/ INSECT SCREEN						

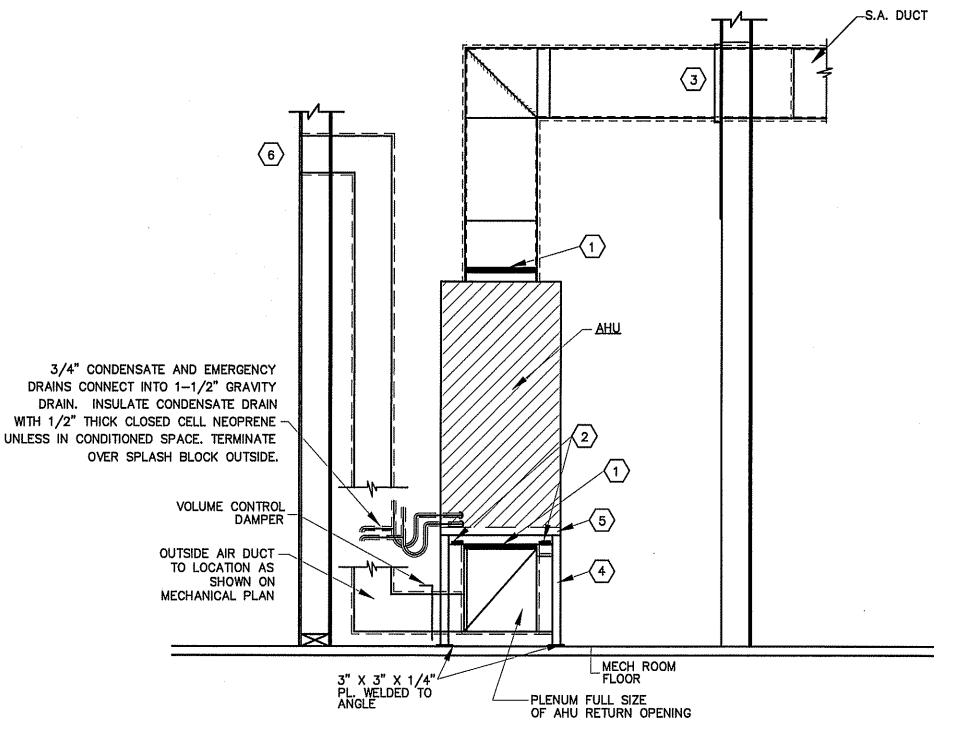
\* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS



#### BRANCH DUCT TAKE-OFF DETAIL NOT TO SCALE

#### MECHANICAL NOTES (GENERAL)

- 1. DUCTWORK LAYOUTS ARE SCHEMATIC. ALL RISES, DROPS, OFFSETS, AND TRANSITIONS REQUIRED BUT ARE NOT SHOWN SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- 2. DUCTWORK SHALL BE GALVANIZED STEEL AND SHALL BE CONSTRUCTED IN COMPLIANCE WITH SMACNA STANDARDS FOR LOW VELOCITY DUCTWORK. DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. FLEXIBLE RUNOUTS SHALL NOT EXCEED 15' AND SHALL NOT BE USED TO FORM ELBOWS. CONNECTIONS FROM RECTANGULAR TO ROUND DUCT SHALL BE MADE WITH MANUFACTURED 45 DEG. LATERAL TAPS.
- 3. ALL DUCTWORK SHALL BE SEALED AIR TIGHT WITH SEALING COMPOUND.
- 4. ALL ELBOWS IN DUCTWORK SHALL BE RADIUS ELBOWS, UNLESS NOTED OTHERWISE. WHERE SQUARE ELBOWS ARE SHOWN, INSTALL TURNING VANES. DUCT SIZES SHOWN ARE NET INTERIOR DIMENSIONS.
- 5. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO INSTALLATION OF ANY OF HIS PIPING, DUCTWORK, OR EQUIPMENT.
- 6. THE MECHANICAL CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE MECHANICAL PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION OF THE MECHANICAL SYSTEMS AND REVIEW ANY CONFLICTS THAT ARE NOTED WITH THE ENGINEER.
- 7. IT WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ENSURE THAT ITEMS TO BE FURNISHED UNDER HIS CONTRACT WILL FIT THE SPACE AVAILABLE. HE SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS AND SHALL FURNISH AND INSTALL SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE AND INTENT MEANING OF THE PLANS AND SPECIFICATIONS. HE SHALL PROVIDE THE ENGINEER SCALED DRAWINGS OF ALL MECHANICAL DRAWINGS. 8. ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.
- 9. PROVIDE FACTORY OR FIELD INSTALLED DRAIN PANS UNDER ALL COOLING COIL UNITS. INSTALL DRAIN PAN FLOAT TO SHUT DOWN UNIT FAN IN EVENT THAT CONDENSATE BEGINS TO FILL EMERGENCY DRAIN PAN. RUN ALL CONDENSATE DRAIN LINES TO APPROPRIATE DRAIN.

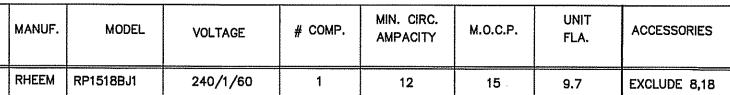


### TYPICAL DETAIL AT FLOOR MOUNTED AHU NOT TO SCALE

#### NOTES:

- 1 FLEXIBLE CONNECTION
- 5 1" PLEATED FILTER
- 2 NEOPRENE-IN-SHEAR VIBRATION ISOLATORS
- 3 SHEET METAL COLLAR AT WALL PENETRATION
- 6 OUTSIDE AIR LOUVER, RAIN PROOF, SIZE FOR 0.06 CFM/SF OF CONDITIONED SPACE.
- 4 1-1/2" X 1-1/2" X 3/16" ANGLE HPIU SUPPORT STAND WITH ALL WELDED CONSTRUCTION. PAINT WITH 1 COAT OF PRIMER AND FINISH WITH (2) COATS GRAY HIGH GLOSS MACHINE ENAMEL, MARTIN SENOUR OR EQUAL.

PROVIDE PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM.



CYCLE PROTECTOR 8 LOW-AMBIENT CONTROLLER 3 EVAPORATOR FREEZE PROTECTOR 9 FILTER DRIER (LIQUID LINE) 4 ISOLATION RELAY 10 OUTDOOR T'STÀT TO LOCK OUT AUX. HT. (SET @ 40° F ADJ) 11 LOW PRESSURE CONTROL

7 LIQUID SOLENOID VALVE

ACCESSORIES

5 TXV

1 TIME-DELAY RELAY

6 HIGH PRESSURE SWITCH 12 CRANKCASE HEATER 18 HUMIDISTAT
COOLING CAPACITY © 80 DEG. F DB/67 DEG WB AIR ENTERING INDOOR UNIT & 95 DEG. F DB AIR ENTERING OUTDOOR UNIT
HEATING CAPACITY: HIGH TEMP = 70 DEG F DB INDOOR EAT & 47 DEG F DB/43 DEG F WB AIR ENTERING OUTDOOR UNIT LOW TEMP = 70 DEG F DB INDOOR EAT & 17 DEG F DB/15 DEG F WB ENTERING OUTDOOR UNIT

T-STAT: THE NUMBER OF STAGES OF HEATING/COOLING SHALL MATCH THE NUMBER OF STAGES OF HEAT AVAILABLE IN THE HPIU OR THE NUMBER OF STAGES OF COOLING AVAILABLE IN THE HPOU. PROVIDE WITH T-STAT: 7 DAY PROGRAMMABLE, DIGITAL.

> LEAVE A 1/4" SPACE AT CONDUIT FACE & FILL WITH CLOSED CELL NEOPRENE FOAM INSULATION TO PROVIDE BACKING FOR SILICONE CAULKING B-LINE NO. "BVT" VIBRO-CLAMPS WITH ZINC FINISH.-OUTDOOR UNIT-∠B-LINE "B-22" CHANNEL WITH PIPE. GALVANIZED ZINC FINISH -EXPANSION JOINT MATERIAL <sup>L</sup>2X4 TREATED WOOD 6X6X #10 REINF. WIRE-ANCHORED TO CONC. <sup>∠</sup>FILL AROUND REFRIG. PIPING WITH SILICONE CAULK

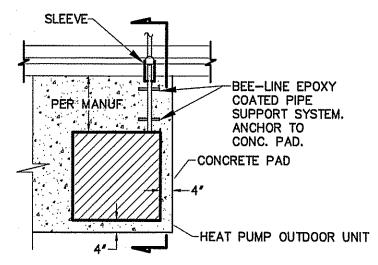
13 DISCHARGE LINE MUFFLER

14 SUCTION AND LIQUID LINE

SHUT OFF VALVES

16 SUPPORT FEET

15 THERMOSTAT (SEE NOTE)



## DETAIL-TYPICAL HEAT PUMP OUTDOOR UNIT

PLAN VIEW NOT TO SCALE

NOT TO SCALE

METHOD OF COMPLIANCE: PRESCRIPTIVE MERGY COST BUDGET

THERMAL ZONE 4A - HARNETT COUNTY, NC

WINTER DRY BULB 16 DEG. F.

SUMMER DRY BULB 93 DEG. F.

INTERIOR DESIGN CONDITIONS WINTER DRY BULB 49 DEG. F.

SUMMER DRY BULB 80 DEG. F.

RELATIVE HUMIDITY 55%

BUILDING HEATING LOAD 82.2 MBH BUILDING COOLING LOAD 6.5 TONS

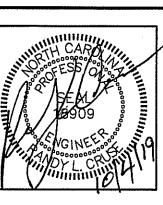
MECHANICAL SPACE CONDITIONING SYSTEM

DESCRIPTION OF UNIT: SPLIT SYSTEM HEAT PUMP HEATING EFFICIENTCY: 15.5 SEER COOLING EFFICIENCY: 9.0 HSPF

BOILER --- NOT APPLICABLE IN THIS PROJECT CHILLER—NOT APPLICABLE IN THIS PROJECT

SIZE CATEGORY OF UNIT: < 65,000 BTUH

LIST EQUIPMENT EFFICIENCIES



REVISIONS

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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-24

SHEET NO. M-3 OF 3

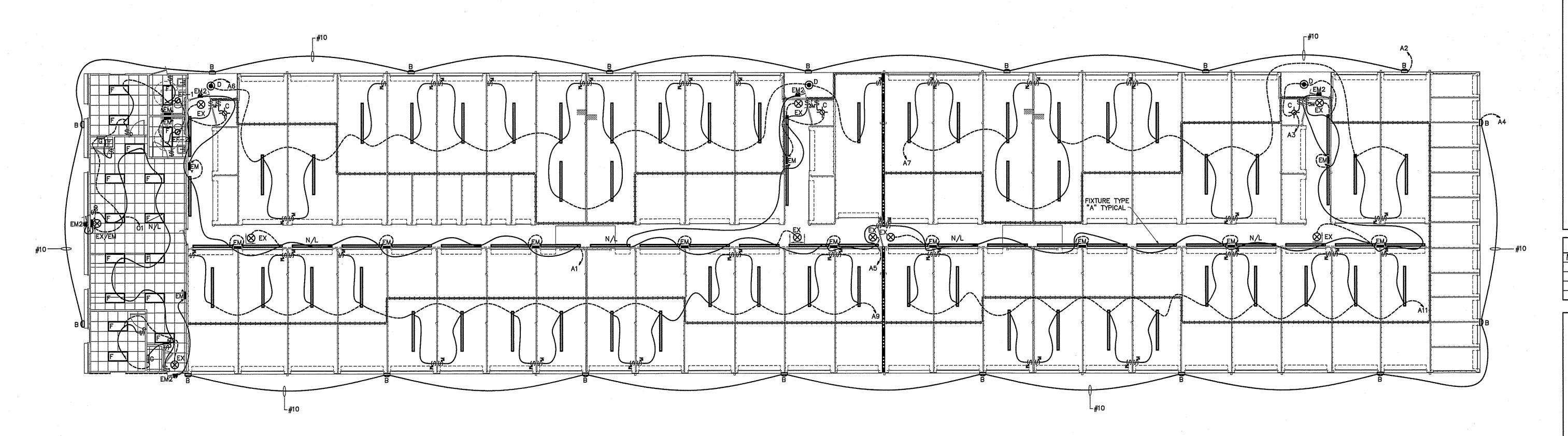
		ELI	ECTRICAL LEGEND		
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION
#	QUAD RECEPTACLE	\$3(4)	MOTION DETECTING 3-WAY SWITCH (4-WAY SWITCH) WITH TIMER	N/L	UNSWITCHED FIXTURE
Ф	DUPLEX RECEPTACLE	~~	UNSWITCHED BRANCH CIRCUIT		FUSED DISCONNECT SWITCH
T	TIMECLOCK	7	120/208 VOLT CIRCUIT	Ch	CEILING MOUNTED FUSED DISCONNECT SWITCH
ф	CEILING MOUNTED DUPLEX RECEPTACLE	\$м	MOTION DETECTING SINGLE-POLE SWITCH	٥	DATA/PHONE OUTLET
	FLUORESCENT FIXTURE	8	'EXIT' LIGHT FIXTURE, TYPE 'EX'	IJ	JUNCTION BOX
~~	SWITCHED BRANCH CIRCUIT	¢	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	\$	SINGLE POLE SWITCH OR TIMER AS APPLICABLE

$\bigcap$	NOTE:
1.	VERIFY LOCATION OF LIGHTS & RECEPTACLES WITH OWNER BEFORE CONSTRUCTION.
2.	COORDINATE LOCATION OF 8' STRIP LIGHTS IN CORRIDOR WITH DUCT WORK WHERE APPLICABLE.
3.	ALL LED LIGHTS IN CORRIDORS TO BE MOUNTED ON THE WALLS WHERE APPLICABLE.
4.	ALL HALLWAYS SWITCHES TO BE ON MOTION SENSORS OR SWITCHED AS INDICATED AND ON TIMERS OF 30 MINUTES. ALL UNIT SWITCHES TO BE ON TIMER OF 30 MINUTES WITH NO HOLD MECHANISMS.
5.	VERIFY NIGHT LIGHTS AND PERMANENT BURN FIXTURES WITH OWNER BEFORE WIRING.

			LIGHT FIXTURE SCHEDULE	_			
MARK	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	BALLASTS	WATTAGE	REMARKS
Α	8' LED STRIPLIGHT	LITHONIA	CDS L96 MVOLT DM 40K 80CRI WH	LED		77	
В	LED WALL PACKS	LITHONIA	TWR1 LED 3 50K MVOLT ON TIMER	18 LEDS	LED	58.4	ON TIMER
С	COMPACT FLUORESCENT FIXTURE WITH WIRE GUARD	DAYBRITE	VIN100l12-PG	1-13W SELF BALLAST		17	WITH WIRE GUARD
D	3" LED RECESSED DOWNLIGHT	ACULUX	AX3 D G4 12LM 35K 80CRI 50D GZ1 120 ICAT 3DP CS SF WET	LED		11.0	TO BE ON PHOTOCELL
F	2X4 FLAT PANEL LED LIGHT	ACULUX	EPANL 2X4 4000LM 80CRI 35K MIN10 MVOLT	LED		38	NLTAIR2 OPTION FOR N/L FIX.
G	LED CLOSET LIGHT	LITHONIA	FMMCL 18 840	LED		14	CEILING OR SIDEWALL MOUNTED
EM	EMERGENCY LIGHT WITH BATTERY BACKUP	LITHONIA	ELM2L	LED			
EX	LED TYPE EXIT LIGHT WITH BATTERY BACKUP	LITHONIA	ELM2L				
EM2	EMERGENCY LIGHT REMOTE WEATHERHEAD(S)	MCPHILBEN	CR2CSWA				

NEWOTE WEATHERINEAD(3		[		L	
* ALL FIXTURE SELECTIONS TO BE	: VERIFIED BY OWNER BI	EFORE PURCHASE. * **	SIGN LETTERING TO BE	ON TIMECLOCK	OR PHOTOCE

	LIGHTING DATA FOR NC ENERGY CODE										
AREA USE	AREA FT <sup>2</sup>	WATTS PER FT <sup>2</sup> ALLOWED	TOTAL WATTS ALLOWED	TOTAL WATTS USED	TOTAL WATTS LEFT OVER						
STORAGE	15,600	0.58	9,048	6,348	2,700						
OFFICE	1,200	1.11	1332	636	696						
TOTAL	16,800		10,380	6,984	3,396						



ELECTRICAL LIGHTING PLAN BUILDING "2"

SCALE: 1" = 10'-0"

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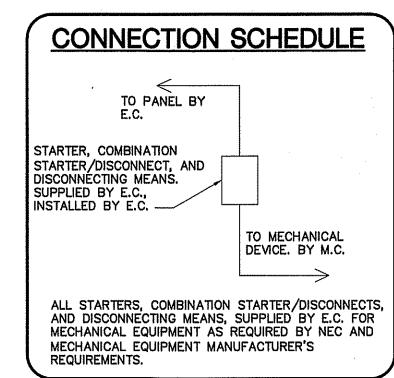
LEGEND

3 HOUR FIRE BARRIER

SHEET NO. E-1 OF 3

		ELI	ECTRICAL LEGEND		
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION
#	QUAD RECEPTACLE	\$3(4)	MOTION DETECTING 3-WAY SWITCH (4-WAY SWITCH) WITH TIMER		UNSWITCHED FIXTURE
Ф	DUPLEX RECEPTACLE	~~	UNSWITCHED BRANCH CIRCUIT		FUSED DISCONNECT SWITCH
	TIMECLOCK	٧ -	120/208 VOLT CIRCUIT		CEILING MOUNTED FUSED DISCONNECT SWITCH
Ф	CEILING MOUNTED DUPLEX RECEPTACLE	\$_	MOTION DETECTING SINGLE-POLE SWITCH	7	DATA/PHONE OUTLET
	FLUORESCENT FIXTURE	8	'EXIT' LIGHT FIXTURE, TYPE 'EX'	J	JUNCTION BOX
~	SWITCHED BRANCH CIRCUIT	Ç	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)		SINGLE POLE SWITCH OR TIMER AS APPLICABLE

VERIFY ALL PHONE/DATA OUTLETS WITH OWNER BEFORE BEGINNING CONSTRUCTION.



GFCI/WP-PANEL "A"-FIELD VERIFY LOCATION BEFORE—/ INSTALLATION

ELECTRICAL POWER PLAN BUILDING "2"
SCALE: 1" = 10'-0"

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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-24

SHEET NO.

LEGEND

#### **ELECTRICAL NOTES (GENERAL)**

1. THE ELECTRICAL INSTALLATION, EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL, AS A MINIMUM, BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), ALL APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL CODES, LAWS, AND ORDINANCES, AND RULINGS OF THE INSPECTION AUTHORITIES HAVING JURISDICTION. ALL FEES, PERMITS, ETC., ASSOCIATED WITH THE ELECTRICAL WORK SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

2. THE DRAWINGS GENERALLY INDICATE THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, BOXES, FITTINGS, AND SPECIALTIES WHICH MAY BE REQUIRED FOR A COMPLETE INSTALLATION. ALL SUCH ITEMS REQUIRED TO COMPLETE THE INSTALLATION ACCORDING TO INDUSTRY ACCEPTED PRACTICES SHALL BE INCLUDED IN THE BID.

- 3. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND LISTED AND LABELED BY UNDERWRITERS LABORATORIES, INC.
- 4. ALL PENETRATIONS OF FIRE WALLS SHALL BE SEALED WITH APPROVED SEALING MATERIALS TO MAINTAIN THE FIRE RATING OF THE WALLS.

5. THE CONTRACTOR SHALL VERIFY WIRE AND FUSE/CIRCUIT BREAKER SIZING FOR ALL MECHANICAL EQUIPMENT PRIOR TO PURCHASING MATERIALS AND INSTALLING BRANCH CIRCUITS.

6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO AVOID INTERFERENCES AND CONFLICTS. APPARENT INTERFERENCES OR CONFLICTS SHALL BE REPORTED TO THE PRIME CONTRACTOR AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK IN

7. THE ELECTRICAL CONTRACTOR SHALL CONNECT BRANCH CIRCUITS TO THE MAIN LINE TERMINALS OF EQUIPMENT FURNISHED BY OTHER CONTRACTORS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY NECESSARY SWITCHES, DISCONNECTS, OR OVERCURRENT PROTECTION AHEAD OF SUCH EQUIPMENT.

8. RACEWAYS ARE SHOWN SCHEMATICALLY AND MAY BE REROUTED IN THE FIELD. THEY SHALL BE INSTALLED AT RIGHT ANGLES TO OR PARALLEL WITH BUILDING LINES. THEY SHALL BE RUN CONCEALED WITHIN WALLS OR BUILDING STRUCTURES WHEREVER POSSIBLE.

9. ALL RACEWAYS, EQUIPMENT, ETC., ABOVE A SUSPENDED CEILING SHALL BE MOUNTED A MINIMUM OF 18" ABOVE THE CEILING SO AS NOT TO BLOCK ANY TILE OR FIXTURE ACCESS.

10. THE MINIMUM ALLOWABLE SIZE FOR ANY CONDUIT, IMC, OR EMT SHALL BE 1/2" AND MAY BE USED FOR 2#12 WIRE SWITCHLEGS ONLY. A SWITCHLEG SHALL BE DEFINED AS THE RUN OF CONDUIT FROM THE SWITCH OUTLET BOX TO THE FIRST OUTLET BEING SWITCHED.

11. FULL WEIGHT GALVANIZED RIGID STEEL CONDUIT SHALL BE USED IN THE FOLLOWING AREAS:

- A. ON THE EXTERIOR OF THE BUILDING OR ROOF,
- B. VERTICAL DROPS WHERE THE CONDUIT CANNOT BE ANCHORED TO WALLS OR OTHER SUPPORT STRUCTURES,
- C. WHERE SUBJECT TO MECHANICAL DAMAGE.

RESIZED ACCORDINGLY.

12. ALL WIRE AND CABLE SHALL BE COPPER AND HAVE 600 VOLT THHN-THWN INSULATION. ALUMINUM WIRING SHALL NOT BE PERMITTED.

13. THE MINIMUM WIRE SIZE SHALL BE #12 AWG EXCEPT FOR CONTROL WIRING, WHICH MAY BE #14 AWG. CONTROL WIRING SHALL USE STRANDED CONDUCTORS UNLESS OTHERWISE NOTED.

14. ALL METAL RACEWAY SYSTEMS SHALL BE MADE ELECTRICALLY CONTINUOUS. THE RACEWAY SYSTEM SHALL NOT BE THE SOLE GROUNDING METHOD. AN INSULATED COPPER GROUNDING CONDUCTOR SHALL BE INSTALLED FOR ALL FEEDERS AND BRANCH CIRCUITS. AT RECEPTACLES, A

GREEN GROUND CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL OF THE RECEPTACLE. 15. THE ELECTRICAL CONTRACTOR SHALL COORDINATE FUSE AND DISCONNECT SWITCH SIZES WITH THE MECHANICAL EQUIPMENT SUPPLIER PRIOR TO PURCHASE AND INSTALLATION OF BRANCH CIRCUIT EQUIPMENT. IF EQUIPMENT SIZING CHANGES FROM DESIGN SIZES, CIRCUITS SHALL BE

16. LIGHT FIXTURES FOR INSTALLATION IN A SUSPENDED CEILING SHALL BE SECURELY FASTENED TO THE CEILING SUSPENSION SYSTEM IN A MANNER TO PREVENT FIXTURES FROM FALLING. IN ADDITION, 16 GAGE WIRE HANGERS SHALL BE FASTENED TO THE FOUR CORNERS OF THE

17. CONNECTIONS TO FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE MADE WITH FLEXIBLE METAL CONDUIT TO ALLOW THE FIXTURE TO BE LIFTED OUT OF THE GRID AND MOVED TO AN ADJACENT GRID LOCATION.

18. BREAKERS SUPPLYING HVAC OR REFRIGERATION EQUIPMENT SHALL BE HACR TYPE.

19. 3/4" CONDUIT IS MINIMUM ALLOWABLE SIZE EXCEPT AS INDICATED IN #10. CONDUIT FILL NOT TO EXCEED 40% AS PERMITTED BY THE NATIONAL ELECTRIC CODE.

20. ALL CONDUCTORS TO BE INSTALLED IN CONDUIT (EXCEPT WHERE ROMEX IS INSTALLED). EMT FITTINGS TO BE COMPRESSION TYPE, INSULATED THROAT.

22. DATA, SECURITY, THEATRICAL, AND VIDEO SYSTEMS TO BE PROVIDED BY OWNER. ROUGH-IN OF OUTLETS AND CONDUIT WILL BE BY CONTRACTOR AS SHOWN ON DRAWINGS.

24. NO. 10 CU AWG CONDUCTORS SHALL BE USED FOR 20 AMP BRANCH CIRCUIT HOMERUNS EXCEEDING 50 FT. TO THE JUNCTION POINT. 20 AMP BRANCH CIRCUIT WRING SHALL BE NO. 10 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 100 FEET TOTAL LENGTH.

20 AMP BRANCH CIRCUIT WRING SHALL BE NO. 8 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 200 FEET TOTAL LENGTH. 20 AMP BRANCH CIRCUIT WRING SHALL BE NO. 6 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 400 FEET TOTAL LENGTH. 20 AMP BRANCH CIRCUIT SHALL BE NOT EXCEED 500' FEET IN TOTAL LENGTH. (UNLESS MARKED OTHERWISE)

25. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET. SPLICES WILL NOT BE MADE EXCEPT WITHIN ACCESSIBLE OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS.

26. MAKE CONDUCTOR LENGTHS FOR PARALLEL CIRCUITS EQUAL.

27. INSTALL TELEPHONE OUTLETS WITH 3/4" EMPTY CONDUIT AND PULL CORD. STUB OUT ABOVE CEILING. PHONE SYSTEM INSTALLED BY OWNER.

28. ALL CONDUIT WITHOUT CONDUCTORS SHALL HAVE NYLON PULLCORDS INSTALLED. 29. THE CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION, AND REVIEW

ANY CONFLICTS THAT ARE NOTED WITH THE ENGINEER. 30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES FOR PERMITS AND INSPECTIONS. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR

ELECTRIC UTILITY CONNECTION FEES AND LINE EXTENSION FEES.

31. ELECTRICAL CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION WHICH DEVELOPS OBJECTIONABLE NOISES SHALL BE MADE FROM THE CONDUIT SYSTEM WITH SHORT LENGTHS OF FLEXIBLE "LIQUID-TITE" CONDUIT.

PERFORMANCE

SEE SCHEDULE

32. ALL WRE TERMINATIONS AND EQUIPMENT TO BE RATED FOR 75° C MINIMUM.

33. ELECTRICAL CONTRACTOR TO MAINTAIN 2' OF SEPARATION ON RECEPTACLES ON OPPOSITE SIDES OF ANY FIRE RATED WALL PER 2017 N.E.C. 300.21.

34. WRING TO DISCONNECT SWITCH AND DISCONNECT SWITCH SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR. WRING FROM THE DISCONNECT TO THE EQUIPMENT SHALL BE BY THE MECHANICAL CONTRACTOR.

#### **ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE:**

ENERGY CODE: PRESCRIPTIVE X PRESCRIPTIVE ASHRAE 90.1:

PERFORMANCE

REFER TO DRAWINGS FOR RISER DIAGRAM AND PANEL SCHEDULES

#### LIGHTING SCHEDULE

LAMP TYPE REQUIRED IN FIXTURE:

NUMBER OF LAMPS IN FIXTURE: BALLASTS TYPE USED IN FIXTURE:

NUMBER OF BALLASTS IN FIXTURE:

TOTAL WATTAGE PER FIXTURE:

TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED:

TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED:

#### ADDITIONAL PRESCRIPTIVE COMPLIANCE

506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT

506.2.2 REDUCED LIGHTING POWER DENSITY

506.2.3 ENERGY RECOVERY VENTILATION SYSTEMS

506.2.4 HIGHER EFFICENCY SERVICE WATER HEATING □ 506.2.5 ON—SITE SUPPLY OF RENEWABLE ENERGY □

506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS □

OFFICE PANEL

MANUFACTURER: SQ. D

**ASSIGNMENT** 

POINT OF USE

POINT OF USE

OFFICE RECEPTACLES

LOBBY RECEPTACLES

COUNTER RECEPTACLES

TYPE: <u>"NQOD"</u>

MAIN: MAIN: MAIO: TOP FEED: BOTTOM FEED: M COPPER BUS: M GROUND BAR KIT: D NEUTRAL BAR KIT:

0

0

0

L1 = 137.3 /

L2 = 138.8 A

PANEL: O SCHEDULE:

ENCLOSURE: <u>NEMA 1</u> 0: 1

AMPS: 200

**ASSIGNMENT** 

OFFICE LIGHTS

AHU-1

CEILING RECEPTACLE

BUILDING SIGN

STREET SIGN

OFFICE RECEPTACLES

VOLTS: 120/240

6.0

10.0

BUILDING STEEL, SPRINKLER MAIN AND CONCRETE

ELECTRODES PER NEC 250 WITH (1) 1/0 CU GND

18.2 7

10.0 | 15 | 1 | 20

X 19 1 20

X 21 1 20

X 23 1 20

X 29 1 20

X 31 1 20

X 33 1 20

>< x 35 1 20

X 37 1 20

X 39 1 20

X 341 1 20

9 2 45

| 13 | 1 | 20 |

17 1 20

25 1 20

27 1 20

NO. OF SPACES 42 MOUNTING: <u>FLUSH</u> SHORT CIRCUIT RATING: 22.000

30 2 2 30.0

4 30.0

8 30.0

30 2 6 30.0

20 1 10 6.0

EXTERIOR RECEPTACLE | 20 | 1 | 14 | 1.5 |

20 1 12 6.0

20 1 16 4.5

| 20 | 1 | 18 | X | ><

20 1 26 X

20 1 32 X

20 1 32 ^ 20 1 34 X

20 1 38 X

20 1 42 X

VERIFY AIC RATING WITH UTILITY COMPANY BEFORE

ORDERING PANELS & EQUIPMENT.

X 33 1 20

X 35 1 20

X | >< | 37 | 1 | 20 |

X 39 1 20 |

X | >< | 41 | 1 | 20 |

PANEL: "A" SCHEDULE:\_ VOLTS: <u>120/240</u> AMPS: <u>225</u> ENCLOSURE: NEMA 3R · Ø: 1

SPARE

SPARE

SPARE

SPARE

SPARE

MANUFACTURER: SQ. D. NO. OF SPACES 42 TYPE: "NQOD"

MOUNTING: SURFACE SHORT CIRCUIT RATING: 10,000 MAIN: 🖾 MLC: 🗌 TOP FEED: 🗍 BOTTOM FEED: 🖾 COPPER BUS: 🖾 GROUND BAR KIT: 🗀 NEUTRAL BAR KIT: 🖯

SPARE

SPARE

SPARE

SPARE

SPARE

ASSIGNMENT 6.4 | 1 | 1 | 20 | CORRIDOR LIGHTS LEFT SIDE | 0 WALLPACKS 20 1 2 4.4 8.6 3 1 20 CORRIDOR LIGHTS RIGHT SIDE | 0 20 1 4 4.4 WALLPACKS 5.3 | 5 | 1 | 20 | CORRIDOR LIGHTS CENTER | 0 | | LEFT 10X20/10X30 UNIT LTS. | 20 | 1 | 6 | 9.2 | > 7.7 7 1 20 RT. 10X20/10X30 UNIT LTS. o LEFT SIDE RECEPTACLES 20 1 8 4.5 9.0 9 1 20 LEFT SIDE 10X15 UNIT LIGHTS 0 RIGHT SIDE RECEPTACLES 20 1 10 4.5 7.1 11 1 20 RT. SIDE 10X15 UNIT LIGHTS 25 2 12 11.6 31.6 13 2 40 14 11.6 31.6 | 15 40 2 16 31.6 9.7 | 17 | 2 | 15 | HP-3 18 31.6 0 9.7 | 19 | 35 2 20 X | >< | 21 | 1 | 20 | 22 | 18.2 | >> SPARE 0 X 23 1 20 >< 34.1 AHU-4 45 2 24 X 25 1 20 SPARE 0 26 | 34.1 | > X 27 1 20 O CENTER CONV. RECEPTACLES 20 1 28 SPARE X > 29 1 20 SPARE | 20 | 1 | 30 | X | > X | 31 | 1 | 20 | 20 1 32 X 20 1 34 X

> 0 L1 = 175.6 AL2 = 172.1 A

0

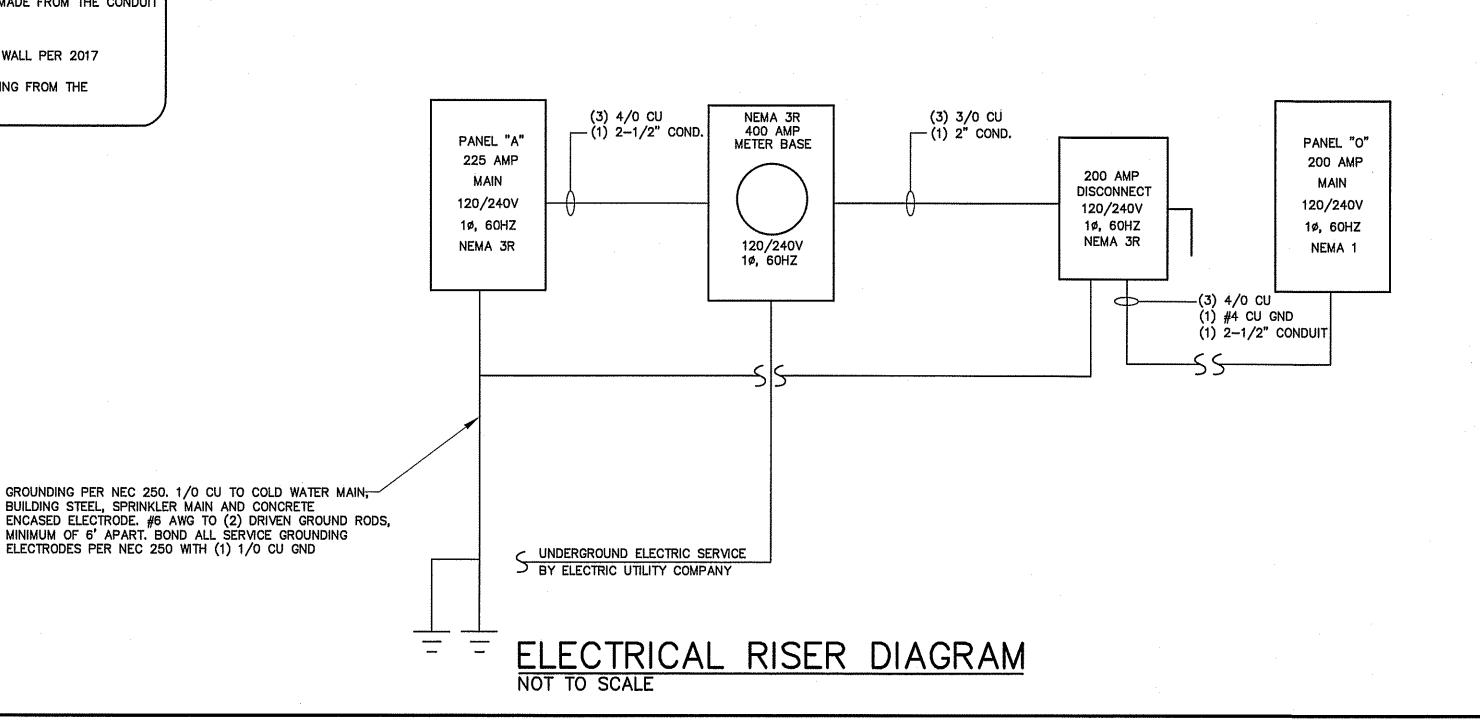
FEEDER SCHEDULE								
UNIT	FEEDERS	FUSED DISCONNECT	CONDUIT					
AHU'S 1,2,3,4	2#8 CU, 1#10 CU GND	60	3/4"					
HEAT PUMPS 2,3	2#12 CU, 1#12 CU GND	30	3/4"					
HEAT PUMPS 1,4	2#10 CU, 1#12 CU GND	60	3/4"					
POINT OF USE	2#10 CU, 1#10 CU GND	30	3/4"					

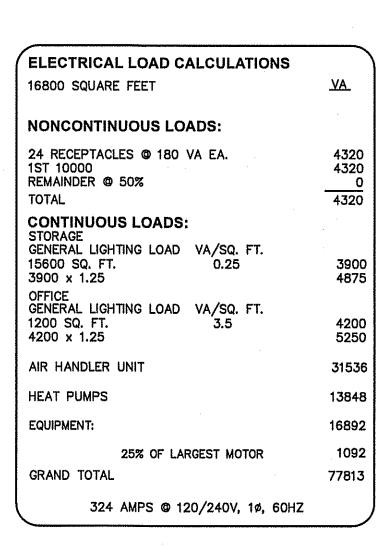
20 | 1 | 36 | X

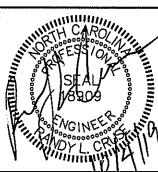
20 1 38 X

20 1 40 X

20 1 42 X







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SHEET NO.

**EXIT REQUIREMENTS:** 

			NUMB	ER AND ARRAN	IGEMENTS OF E	EXITS			
	FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM <sup>2</sup> NO. OF EXITS		TRAVEL DIS	1.	ARRANGEMENT MEANS OF EGRESS 1,3 (SECTION 1016-1021)			
		REQ'D.	SHOWN ON PLANS	ALLOWABLE TRAVEL DISTANCE (TABLE 1017.2)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS		
	S-1	2	2	200'	79'-10"	96'-0"	145'-0"		
			•						
-									

1. CORRIDOR DEAD ENDS (SECTION 1020.4)
2. BUILDINGS WITH SINGLE EXITS (TABLE 1006.3.2(2)), SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (TABLE 1006.2.1) 3. COMMON PATH OF TRAVEL (SECTION 1029.8)

EXIT	WIDTH

			EXIT	WIDTH					
USE GROUP OR SPACE DESCRIPTION	(a)	(b)	. :	(c)	)		EXIT WE	OTH (in)	
	AREA <sup>1</sup> SQ. FT.	AREA 1 PER OCCUPANT (TABLE	CALCULATED OCCUPANT LOAD	EGRESS PER OCC (TABLE		REQUIRE (SECTION (a/t	ED WIDTH N 1005.1) D) x c	ACTUAL SHOW PLA	N ON
		1004.1.2)	(a/b)	STAIR	LEVEL	STAIR	LEVEL	STAIR	LEVEL
S-1	5100	500 GROSS	11	N/A	.2	N/A	2.2"	N/A	94"
							:		

1. SEE TABLE 1004.1.2 TO DETERMINE WHETHER NET OR GROSS AREA IS APPLICABLE SEE DEFINITION "AREA, GROSS" AND "AREA, NET" (SECTION 1002, DEFINED IN CHAPTER 2)

2. MINIMUM STAIRWAY WIDTH (SECTION 1011.2); MIN. CORRIDOR WIDTH (SECTION 1020.2); MIN. DOOR WIDTH (SECTION 1010.1.1)

3. MINIMUM WIDTH OF EXIT PASSAGEWAY (SECTION 1024)

4. SEE SECTION 1005.6 FOR CONVERGING EXITS.

5. THE LOSS OF ONE MEANS OF EGRESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50% OF THE TOTAL REQUIRED (SECTION 1005.5)

6. ASSEMBLY OCCUPANCIES (SECTION 1029)

LIFE SAFETY PLAN REQUIREMENTS:

☑ FIRE AND/OR SMOKE RATED WALL LOCATIONS (CHAPTER 7) - SEE NOTE 1

☑ ASSUMED AND REAL PROPERTY LINE LOCATIONS — SEE NOTE 2 EXTERIOR WALL OPENING AREA WITH RESPECT TO DISTANCE TO ASSUMED PROPERTY LINES (705.8) - SEE NOTE 3

OCCUPANCY TYPES FOR EACH AREA AS IT RELATES TO OCCUPANT LOAD CALCULATION (TABLE 1004.1.2)

OCCUPANT LOADS FOR EACH AREA ■ EXIT ACCESS TRAVEL DISTANCES (1017)

COMMON PATH OF TRAVEL DISTANCES (1006.2.1 & 1006.3.2(1))

☑ DEAD END LENGTHS (1020.4) - SEE NOTE 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. SEE NOTE 5 ☑ LOCATION OF DOORS WITH PANIC HARDWARE (1008.1.10) — SEE NOTE 6

☑ LOCATION OF DOORS WITH DELAYED EGRESS LOCKS AND AND THE AMOUNT OF DELAY (1008.1.9.7) - SEE NOTE 7

☑ LOCATION OF DOORS WITH ELECTROMAGNETIC EGRESS LOCKS (1008.1.9.8) — SEE NOTE 7

☑ LOCATION OF DOORS EQUIPPED WITH HOLD-OPEN DEVICES - SEE NOTE 7 ☑ LOCATION OF EMERGENCY ESCAPE WINDOWS (1029) — SEE NOTE 7

☑ THE SQUARE FOOTAGE OF EACH FIRE AREA (902) — SEE NOTE 8

▼ THE SQUARE FOOTAGE OF EACH SMOKE COMPARTMENT (407.5) - SEE NOTE 9

□ NOTE ANY CODE EXCEPTIONS OR TABLE NOTES THAT MAY HAVE BEEN UTILIZED REGARDING THE ITEMS ABOVE

LIFE SAFETY PLAN NOTES:

 SEE LEGEND FOR RATED WALLS. 2. ASSUMED 12' AND REAL PROPERTY LINES >80'.

3. ASSUMED PROPERTY LINES 12'; 705.8; EXC. 2 - UNLIMITED

NO DEAD ENDS OVER 20'; 20' ALLOWED.
 NO RATING REQUIRED THIS STRUCTURE.

6. PANIC HARDWARE NOT REQUIRED.

7. NO DELAYED EGRESS LOCKS, ELECTROMAGNETIC LOCKS, HOLD OPEN DEVICES, OR EMERGENCY ESCAPE WINDOWS

8. FIRE AREAS DO NOT EXCEED CODE ALLOWANCE

9. BUILDING MEETS CODE REQUIREMENTS WITHOUT SUBDIVISION INTO SMOKE COMPARTMENTS; NO SMOKE COMPARTMENTS

MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE BASED ON EGRESS WIDTH (1005.1)

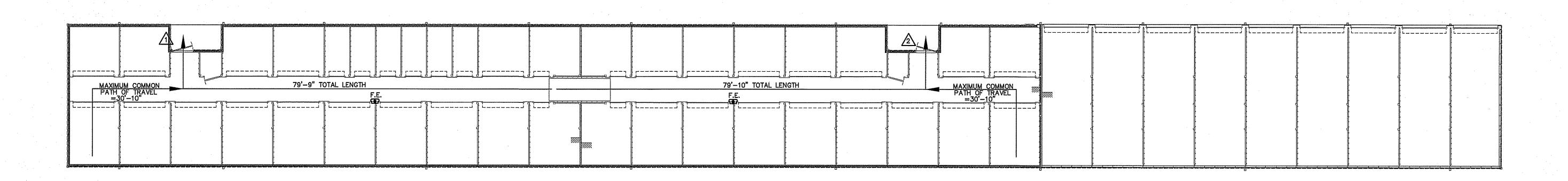
47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 5 PEOPLE CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

 $\sqrt{2}$  47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS CALCULATED OCCUPANCY PER EXIT = 6 PEOPLE CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

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LIFE SAFETY PLAN BUILDING 3"
SCALE: 1" = 10'-0"

AREA/ROOM/SPACE DESIGNATIONS USED ON LIFE SAFETY PLANS ARE EXCLUSIVE TO LIFE SAFETY PLAN ONLY, AND ARE NOT INDICATIVE OF ANY ACTUAL SPACE DESIGNATIONS USED ELSEWHERE.

LEGEND

F.E. FIRE EXTINGUISHER AND CABINET CLASS ABC 10 POUNDS

NOTE: EXIT REQUIREMENTS CALCULATED ONLY FOR CONDITIONED AREAS. ALL OTHER AREAS HAVE DIRECT EXIT TO EXTERIOR.

OUTSIDE AIR REQUIREMENTS BUILDING "3" STORAGE - 0.06 CFM/SF X 5,100 SF = 306 CFM OUTSIDE AIR REQUIRED. 184 CFM AHU-1 122 CFM AHU-2

VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

**KEY NOTES:** 

10" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL) 2 16" X 16" TRANSFER GRILL INSTALLED IN DOOR (TYPICAL)

3 8" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)

4 3/4" CONDENSATE FROM EACH AIR HANDLING UNIT TO SPLASH BLOCK 5 COORDINATE OUTSIDE AIR LOUVER LOCATION WITH ELECTRICAL SERVICE EQUIPMENT

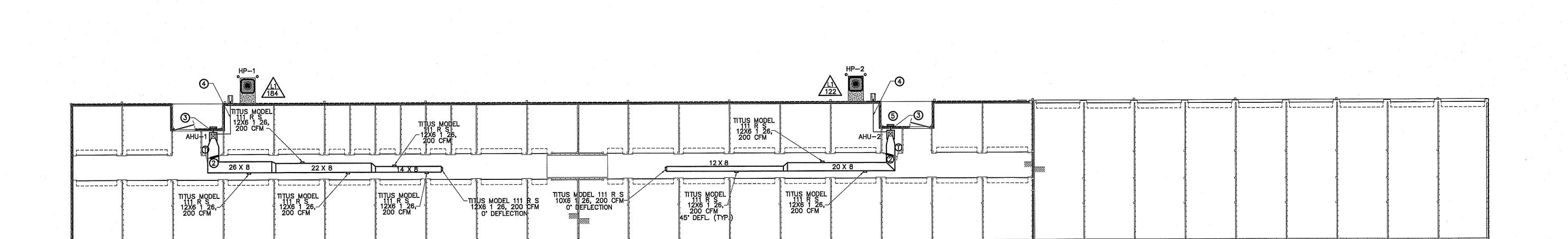
GENERAL NOTES:

- T RUN ALL DUCTWORK TIGHT TO CEILING INSULATION.
- FASTEN ALL CONDENSATE LINES TO WALLS OR CEILINGS WHERE APPLICABLE.
- 3 7-DAY PROGRAMMABLE T'STAT WITH LOCKING COVER.
- PROVIDE & INSTALL PROTECTIVE 6"
  CONCRETE-FILLED PIPE BOLLARDS, TWO PER
  HEAT PUMP OR AS SHOWN ON PLAN. 5 PROVIDE AND INSTALL CONCRETE SPLASH BLOCK, ONE PER 3 HEAT PUMPS MIN.
- install float switch in auxiliary pan to stop unit in event of condensate overflow.

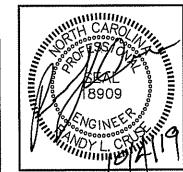
**GENERAL NOTE:** 

MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FOR ALL HVAC EQUIPMENT.

		MECHANIC	AL SYMBOL LEGEND	
SINGLE LINE	DOUBLE LINE DESCRIPTION	SINGLE LINE DOUBLE LINE DESCRIPTION	SINGLE LINE DOUBLE LINE DESCRIPTION	
-	TAKE OFF TO SUPPLY AIR REGISTER WITH EXT. INSUL. DUCTWORK	VOLUME CONTROL DAMPER (TYP)  CEILING DIFFUSER  FLEXIBLE DUCTWORK (15' MAX.)	SUPPLY AIR CEILING DIFFUSER, ARROW INDICATES DIRECTION OF BLOW & ACTIVE DIFFUSER SIDES	ELECT. DUCT INSERT HEATER WITH CONTROL PANEL
-	BRANCH TAKEOFF FROM MAIN TRUNK DUCT WITH EXT. INSUL. DUCTWORK	ONE SIDED REDUCING TRANSITIO	(1)CUSHION HEAD @ BRANCH (2)CUSHION HEAD IS EQUAL TO 1-1/2 OR DIFFUSER RUNOUT WIDTH OF THE BRANCH DUCT OR DIFFUSER RUNOUT	AHU W/FLEXIBLE CONNECTION AT SUPPLY AND RETURN DUCT
-	END CAP	F.D.(1-1/2) F.D.=FIRE DAMPER (1-1/2)=RATED FOR 1-1/2 HRS	R.A. OR EXHAUST DUCT TURNS DOWN © 90 DEGS.	KEY NOTE
0 OR 00 -	DUCT SMOKE DETECTOR	RETURN AIR OR EXHAUST GRILL	MANUAL VOLUME CONTROL DAMPER W/ QUADRANT LOCKING DEVICE	MARK  CFM-DIFFUSER, REGISTER OR GRILLE (SEE SCHEDULE)
A.D	ACCESS DOOR DOOR SIZE   DUCT HEIGHT   8X8   10"   10X10   12"   12X12   14" & LARGER	TWO SIDED TRANSITION	TWO SIDED TRANSITION	① = EXHAUST FAN



MECHANICAL HVAC PLAN BUILDING 3"
SCALE: 1" = 10'-0"



**REVISIONS** 

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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-25

LEGEND 3 HOUR FIRE BARRIER

SHEET NO. M-1 OF 2

						···		AIR H	IANE	LER	UNIT										SPLIT S	YSTEM HE	AT PUM	P UNITS			
AHU NO.	MANUFACTURER	MÖDEL	VOLTAGE	E.S.P.	OUTSIDE	CEM	UNIT FLA	REF LI	NES	SEER	HTR KW	COOL CAPACITY	ING (MBH)	HEAT CAPACIT	ING Y (MBH)	HSPF	MIN. CIRC. AMPACITY	M.O.C.P.	MARK	MANUF.	MODEL	VOLTAGE	# COMP.	MIN. CIRC. AMPACITY	M.O.C.P.	UNIT FLA.	ACCESSORIES
A110 140.	WANTO! ACTORER	WODEL	VOLINGE		AIR (CFM)	OI M		GAS	LIQ.	7	(240)	TOTAL	SENS.	HIGH	LOW												
AHU-2	RHEEM	RH1T-2417STAN	240/1ø/60	.46	*	800	31.6	3/4	3/8	15.5	7.2	24.0	17.9	22.0	13.5	9.0	40	40	HP-2	RHEEM	RP1524BJ1	240/1/60	1	15	25	11.6	EXCLUDE 8,18
 AHU—1	RHEEM	RH1T-3617STAN	240/1ø/60	.46	*	1200	34.1	3/4	3/8	15.0	7.2	35.6	26.4	33.8	22.2	9.0	43	45	HP-1	RHEEM	RP1536AJ1	240/1/60	1	23	35	18.2	EXCLUDE 8,18

\* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS

\*\* PROVIDE OUTDOOR THERMOSTAT TO LOCK OUT SUPPLEMENTAL ELECTRIC HEAT AT OUTDOOR TEMPERATURES ABOVE 40°F.

ACCESSORIES

5 TXV

1 TIME-DELAY RELAY
2 CYCLE PROTECTOR
3 EVAPORATOR FREEZE PROTECTOR
4 ISOLATION RELAY

6 HIGH PRESSURE SWITCH

8 LOW-AMBIENT CONTROLLER
9 FILTER DRIER (LIQUID LINE)
10 OUTDOOR T'STAT TO LOCK OUT AUX. HT. (SET @ 40° F ADJ)
11 LOW PRESSURE CONTROL

14 SUCTION AND LIQUID LINE
SHUT OFF VALVES
) 15 THERMOSTAT (SEE NOTE)
16 SUPPORT FEET
17 COIL GUARDS
18 HUMIDISTAT
RING OUTDOOR UNIT

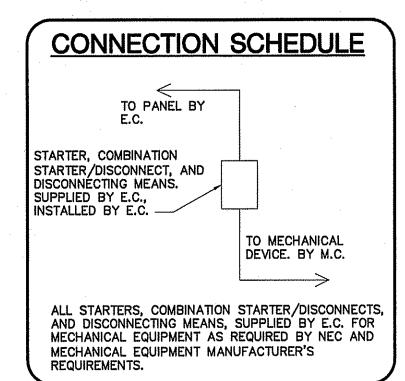
13 DISCHARGE LINE MUFFLER

COOLING CAPACITY © 80 DEG. F DB/67 DEG WB AIR ENTERING INDOOR UNIT & 95 DEG. F DB AIR ENTERING OUTDOOR UNIT HEATING CAPACITY: HIGH TEMP = 70 DEG F DB INDOOR EAT & 47 DEG F DB/43 DEG F WB AIR ENTERING OUTDOOR UNIT LOW TEMP = 70 DEG F DB INDOOR EAT & 17 DEG F DB/15 DEG F WB ENTERING OUTDOOR UNIT

7 LIQUID SOLENOID VALVE

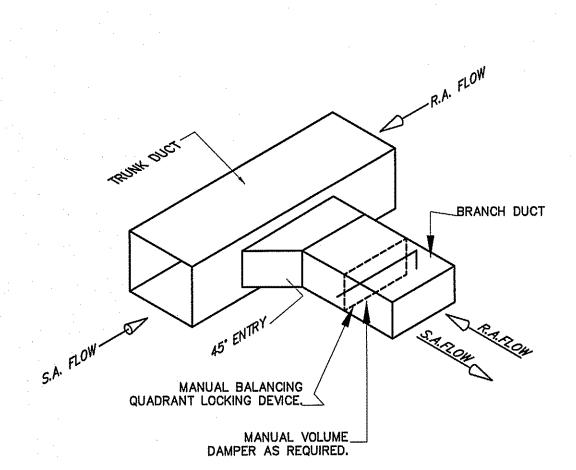
12 CRANKCASE HEATER

T-STAT: THE NUMBER OF STAGES OF HEATING/COOLING SHALL MATCH THE NUMBER OF STAGES OF HEAT AVAILABLE IN THE HPIU OR THE NUMBER OF STAGES OF COOLING AVAILABLE IN THE HPOU. PROVIDE WITH T-STAT; 7 DAY PROGRAMMABLE, DIGITAL.



		LOUV	ER S	CHEDULE	
MARK	DESCRIPTION	SERVES	CFM	APPROXIMATE OUTSIDE DIMENSIONS ( W X H)	MODEL
L1	OUTSIDE AIR LOUVER	AHU 1,2	*	12"X18"	HART & COOLEY 1530ZF 12X18 W/ INSECT SCREEN

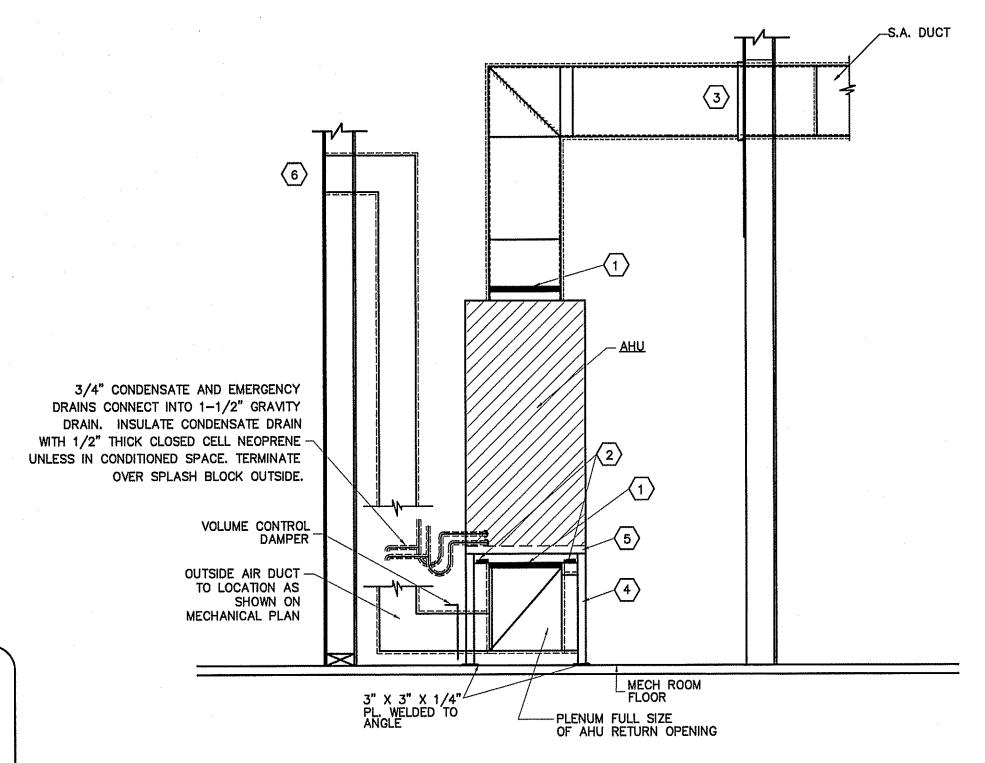
\* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS



# BRANCH DUCT TAKE-OFF DETAIL NOT TO SCALE

#### MECHANICAL NOTES (GENERAL)

- 1. DUCTWORK LAYOUTS ARE SCHEMATIC. ALL RISES, DROPS, OFFSETS, AND TRANSITIONS REQUIRED BUT ARE NOT SHOWN SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- 2. DUCTWORK SHALL BE GALVANIZED STEEL AND SHALL BE CONSTRUCTED IN COMPLIANCE WITH SMACNA STANDARDS FOR LOW VELOCITY DUCTWORK. DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. FLEXIBLE RUNOUTS SHALL NOT EXCEED 15' AND SHALL NOT BE USED TO FORM ELBOWS. CONNECTIONS FROM RECTANGULAR TO ROUND DUCT SHALL BE MADE WITH MANUFACTURED 45 DEG. LATERAL TAPS.
- 3. ALL DUCTWORK SHALL BE SEALED AIR TIGHT WITH SEALING COMPOUND.
- 4. ALL ELBOWS IN DUCTWORK SHALL BE RADIUS ELBOWS, UNLESS NOTED OTHERWISE. WHERE SQUARE ELBOWS ARE SHOWN, INSTALL TURNING VANES. DUCT SIZES SHOWN ARE NET INTERIOR DIMENSIONS.
- 5. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO INSTALLATION OF ANY OF HIS PIPING, DUCTWORK, OR EQUIPMENT.
- 6. THE MECHANICAL CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE MECHANICAL PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION OF THE MECHANICAL SYSTEMS AND REVIEW ANY CONFLICTS THAT ARE NOTED WITH THE ENGINEER.
- 7. IT WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ENSURE THAT ITEMS TO BE FURNISHED UNDER HIS CONTRACT WILL FIT THE SPACE AVAILABLE. HE SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS AND SHALL FURNISH AND INSTALL SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE AND INTENT MEANING OF THE PLANS AND SPECIFICATIONS. HE SHALL PROVIDE THE ENGINEER SCALED DRAWINGS OF ALL MECHANICAL DRAWINGS.
- 8. ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.
- 9. PROVIDE FACTORY OR FIELD INSTALLED DRAIN PANS UNDER ALL COOLING COIL UNITS. INSTALL DRAIN PAN FLOAT TO SHUT DOWN UNIT FAN IN EVENT THAT CONDENSATE BEGINS TO FILL EMERGENCY DRAIN PAN. RUN ALL CONDENSATE DRAIN LINES TO APPROPRIATE DRAIN.



# TYPICAL DETAIL AT FLOOR MOUNTED AHU

#### NOTES:

1 FLEXIBLE CONNECTION

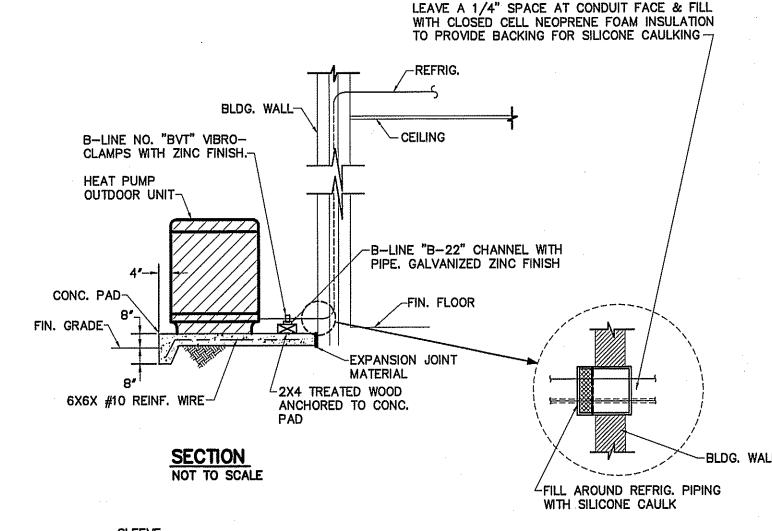
5 1" PLEATED FILTER

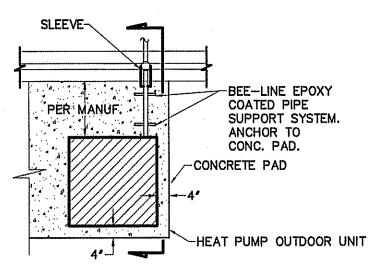
2 NEOPRENE-IN-SHEAR VIBRATION ISOLATORS

3 SHEET METAL COLLAR AT WALL PENETRATION

- OUTSIDE AIR LOUVER, RAIN PROOF, SIZE FOR 0.06 CFM/SF OF CONDITIONED SPACE.
- 4 1-1/2" X 1-1/2" X 3/16" ANGLE HPIU SUPPORT STAND WITH ALL WELDED CONSTRUCTION. PAINT WITH 1 COAT OF PRIMER AND FINISH WITH (2) COATS GRAY HIGH GLOSS MACHINE ENAMEL, MARTIN SENOUR OR EQUAL.

PROVIDE PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM.





### DETAIL-TYPICAL HEAT PUMP OUTDOOR UNIT

PLAN VIEW
NOT TO SCALE

NOT TO SCALE

METHOD OF COMPLIANCE:

PRESCRIPTIVE ☒ ENERGY COST BUDGET

THERMAL ZONE 4A - HARNETT COUNTY, NC

WINTER DRY BULB 16 DEG. F.

INTERIOR DESIGN CONDITIONS

WINTER DRY BULB 49 DEG. F.

SUMMER DRY BULB 93 DEG. F.

SUMMER DRY BULB 80 DEG. F.
RELATIVE HUMIDITY 55%

BUILDING HEATING LOAD 54.5 MBH

BUILDING COOLING LOAD 5 TONS

MECHANICAL SPACE CONDITIONING SYSTEM

UNITARY

DESCRIPTION OF UNIT: SPLIT SYSTEM HEAT PUMP
HEATING EFFICIENTSY: 15.5 SEER

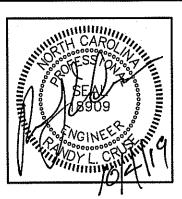
HEATING EFFICIENTCY: 15.5 SEER

COOLING EFFICIENCY: 9.0 HSPF

SIZE CATEGORY OF UNIT: < 65,000 BTUH

BOILER—NOT APPLICABLE IN THIS PROJECT CHILLER—NOT APPLICABLE IN THIS PROJECT

LIST EQUIPMENT EFFICIENCIES



ORANGE STREET COATS. NC

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And Associates, P.A.

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DATE 10/04/19
DRAWN BY BAM
JOB NO. 19-25

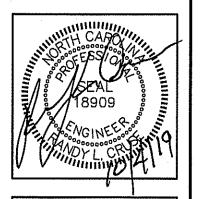
SHEET NO.

M-2 OF 2

		EL	ECTRICAL LEGEND		
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION
#	QUAD RECEPTACLE	\$3M	MOTION DETECTING 3-WAY SWITCH (4-WAY SWITCH) WITH TIMER	N/L	UNSWITCHED FIXTURE
Ф	DUPLEX RECEPTACLE	2-2	UNSWITCHED BRANCH CIRCUIT		FUSED DISCONNECT SWITCH
团	TIMECLOCK FOR WALLPACKS	Y	120/208 VOLT CIRCUIT	СЪ	CEILING MOUNTED FUSED DISCONNECT SWITCH
Ф	CEILING MOUNTED DUPLEX RECEPTACLE	\$_	MOTION DETECTING SINGLE-POLE SWITCH	٥	DATA/PHONE OUTLET
	FLUORESCENT FIXTURE	8	'EXIT' LIGHT FIXTURE, TYPE 'EX'	IJ	JUNCTION BOX
₹ <sup>~</sup> ~	SWITCHED BRANCH CIRCUIT	Ç	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	\$	SINGLE POLE SWITCH OR TIMER AS APPLICABLE

1.	NOTE: VERIFY LOCATION OF LIGHTS & RECEPTACLES WITH OWNER BEFORE CONSTRUCTION.
2.	COORDINATE LOCATION OF 8' STRIP LIGHTS IN CORRIDOR WITH DUCT WORK WHERE APPLICABLE.
3.	ALL LED LIGHTS IN CORRIDORS TO BE MOUNTED ON THE WALLS WHERE APPLICABLE.
4.	ALL HALLWAYS SWITCHES TO BE ON MOTION SENSORS OR SWITCHED AS INDICATED AND ON TIMERS OF 30 MINUTES. SWITCHES TO BE ON TIMER OF 30 MINUTES WITH NO HOLD MECHANISMS.
5.	VERIFY NIGHT LIGHTS AND PERMANENT BURN FIXTURES WITH OWNER BEFORE WIRING.

MARK	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	BALLASTS	WATTAGE	REMARKS
Α	8' LED STRIPLIGHT	LITHONIA	CDS L96 MVOLT DM 40K 80CRI WH	LED		77	
В	LED WALL PACKS	LITHONIA	TWR1 LED 3 50K MVOLT ON TIMER	18 LEDS	LED	58.4	ON TIMECLOCK
С	COMPACT FLUORESCENT FIXTURE WITH WIRE GUARD	DAYBRITE	VIN100l12-PG	1-13W SELF BALLAST		17	WITH WIRE GUARD
D	3" LED RECESSED DOWNLIGHT	ACULUX	AX3 D G4 12LM 35K 80CRI 50D GZ1 120 ICAT 3DP CS SF WET	LED		11.0	TO BE ON PHOTOCELL
EM	EMERGENCY LIGHT WITH BATTERY BACKUP	LITHONIA	ELM2L	LED			
EX	LED TYPE EXIT LIGHT WITH BATTERY BACKUP	LITHONIA	ELM2L				
EM2	EMERGENCY LIGHT REMOTE WEATHERHEAD(S)	MCPHILBEN	CR2CSWA				,



REVISIONS NO.

Associates, P.A.

Associates, P.A.

Associates P.A.

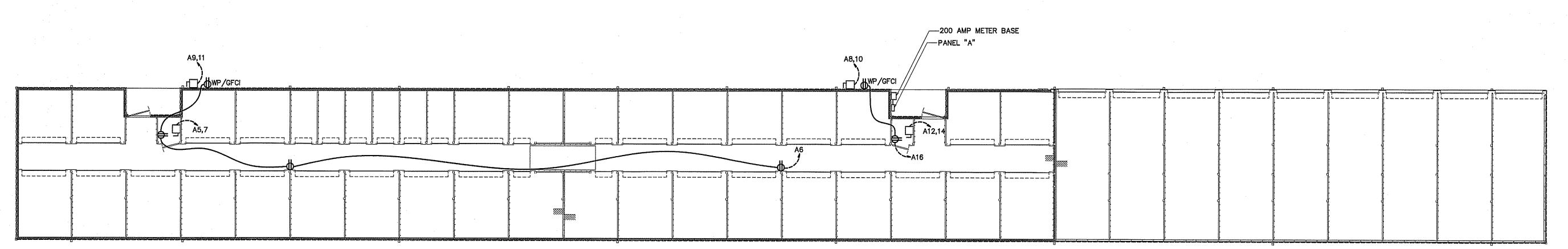
Alta rast edication STREET Dum, North Carolina 28334
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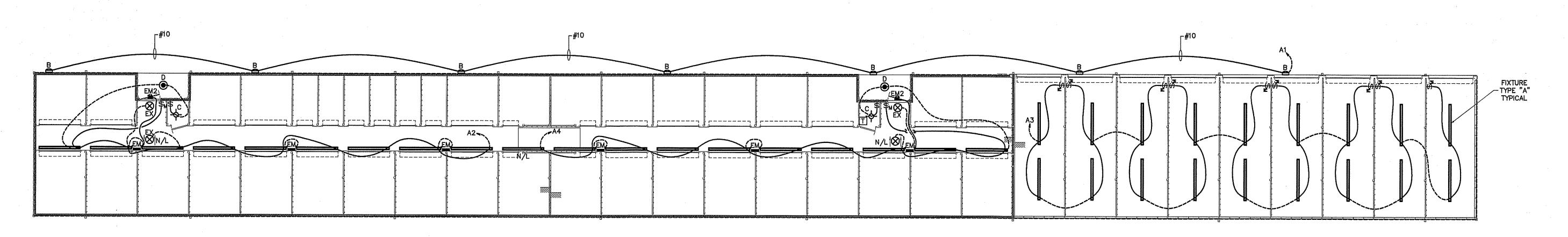
DATE 10/04/19
DRAWN BY BAM
JOB NO. 19-25

SHEET NO. E-1 OF 2

LIGHTING DATA FOR NC ENERGY CODE									
AREA USE	AREA FT <sup>2</sup>	WATTS PER FT <sup>2</sup> ALLOWED	TOTAL WATTS ALLOWED	TOTAL WATTS USED	TOTAL WATTS LEFT OVER				
STORAGE	7,700	0.66	5,082	2,849	2,233				
TOTAL	7,700	3-4-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	5,082	2,849	2,233				



ELECTRICAL POWER PLAN BUILDING 3"
SCALE: 1" = 10'-0"



ELECTRICAL LIGHTING PLAN BUILDING 3"
SCALE: 1" = 10'-0"

#### **ELECTRICAL NOTES (GENERAL)**

THE ELECTRICAL INSTALLATION, EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL, AS A MINIMUM, BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), ALL APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL CODES, LAWS, AND ORDINANCES, AND RULINGS OF THE INSPECTION AUTHORITIES HAVING JURISDICTION. ALL FEES, PERMITS, ETC., ASSOCIATED WITH THE ELECTRICAL WORK SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

2. THE DRAWINGS GENERALLY INDICATE THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, BOXES, FITTINGS, AND SPECIALTIES WHICH MAY BE REQUIRED FOR A COMPLETE INSTALLATION. ALL SUCH ITEMS REQUIRED TO COMPLETE THE INSTALLATION ACCORDING TO INDUSTRY ACCEPTED PRACTICES SHALL BE INCLUDED IN THE BID.

- 3. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND LISTED AND LABELED BY UNDERWRITERS LABORATORIES, INC.
- 4. ALL PENETRATIONS OF FIRE WALLS SHALL BE SEALED WITH APPROVED SEALING MATERIALS TO MAINTAIN THE FIRE RATING OF THE WALLS. 5. THE CONTRACTOR SHALL VERIFY WIRE AND FUSE/CIRCUIT BREAKER SIZING FOR ALL MECHANICAL EQUIPMENT PRIOR TO PURCHASING MATERIALS

AND INSTALLING BRANCH CIRCUITS.

6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO AVOID INTERFERENCES AND CONFLICTS. APPARENT INTERFERENCES OR CONFLICTS SHALL BE REPORTED TO THE PRIME CONTRACTOR AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK IN

7. THE ELECTRICAL CONTRACTOR SHALL CONNECT BRANCH CIRCUITS TO THE MAIN LINE TERMINALS OF EQUIPMENT FURNISHED BY OTHER CONTRACTORS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY NECESSARY SWITCHES, DISCONNECTS, OR OVERCURRENT PROTECTION AHEAD OF SUCH EQUIPMENT.

8. RACEWAYS ARE SHOWN SCHEMATICALLY AND MAY BE REROUTED IN THE FIELD. THEY SHALL BE INSTALLED AT RIGHT ANGLES TO OR PARALLEL WITH BUILDING LINES. THEY SHALL BE RUN CONCEALED WITHIN WALLS OR BUILDING STRUCTURES WHEREVER POSSIBLE.

9. ALL RACEWAYS, EQUIPMENT, ETC., ABOVE A SUSPENDED CEILING SHALL BE MOUNTED A MINIMUM OF 18" ABOVE THE CEILING SO AS NOT TO BLOCK ANY TILE OR FIXTURE ACCESS.

10. THE MINIMUM ALLOWABLE SIZE FOR ANY CONDUIT, IMC, OR EMT SHALL BE 1/2" AND MAY BE USED FOR 2#12 WIRE SWITCHLEGS ONLY. A SWITCHLEG SHALL BE DEFINED AS THE RUN OF CONDUIT FROM THE SWITCH OUTLET BOX TO THE FIRST OUTLET BEING SWITCHED.

11. FULL WEIGHT GALVANIZED RIGID STEEL CONDUIT SHALL BE USED IN THE FOLLOWING AREAS:

- A. ON THE EXTERIOR OF THE BUILDING OR ROOF,
- B. VERTICAL DROPS WHERE THE CONDUIT CANNOT BE ANCHORED TO WALLS OR OTHER SUPPORT
- C. WHERE SUBJECT TO MECHANICAL DAMAGE.

STRUCTURES,

12. ALL WIRE AND CABLE SHALL BE COPPER AND HAVE 600 VOLT THHN-THWN INSULATION. ALUMINUM WIRING SHALL NOT BE PERMITTED.

13. THE MINIMUM WIRE SIZE SHALL BE #12 AWG EXCEPT FOR CONTROL WIRING, WHICH MAY BE #14 AWG. CONTROL WIRING SHALL USE STRANDED CONDUCTORS UNLESS OTHERWISE NOTED.

14. ALL METAL RACEWAY SYSTEMS SHALL BE MADE ELECTRICALLY CONTINUOUS. THE RACEWAY SYSTEM SHALL NOT BE THE SOLE GROUNDING METHOD. AN INSULATED COPPER GROUNDING CONDUCTOR SHALL BE INSTALLED FOR ALL FEEDERS AND BRANCH CIRCUITS. AT RECEPTACLES, A GREEN GROUND CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL OF THE RECEPTACLE.

15. THE ELECTRICAL CONTRACTOR SHALL COORDINATE FUSE AND DISCONNECT SWITCH SIZES WITH THE MECHANICAL EQUIPMENT SUPPLIER PRIOR TO PURCHASE AND INSTALLATION OF BRANCH CIRCUIT EQUIPMENT. IF EQUIPMENT SIZING CHANGES FROM DESIGN SIZES, CIRCUITS SHALL BE

16. LIGHT FIXTURES FOR INSTALLATION IN A SUSPENDED CEILING SHALL BE SECURELY FASTENED TO THE CEILING SUSPENSION SYSTEM IN A MANNER TO PREVENT FIXTURES FROM FALLING. IN ADDITION, 16 GAGE WIRE HANGERS SHALL BE FASTENED TO THE FOUR CORNERS OF THE

17. CONNECTIONS TO FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE MADE WITH FLEXIBLE METAL CONDUIT TO ALLOW THE FIXTURE TO

BE LIFTED OUT OF THE GRID AND MOVED TO AN ADJACENT GRID LOCATION. 18. BREAKERS SUPPLYING HVAC OR REFRIGERATION EQUIPMENT SHALL BE HACR TYPE.

19. 3/4" CONDUIT IS MINIMUM ALLOWABLE SIZE EXCEPT AS INDICATED IN #10. CONDUIT FILL NOT TO EXCEED 40% AS PERMITTED BY THE

20. ALL CONDUCTORS TO BE INSTALLED IN CONDUIT (EXCEPT WHERE ROMEX IS INSTALLED). EMT FITTINGS TO BE COMPRESSION TYPE, INSULATED

22. DATA, SECURITY, THEATRICAL, AND VIDEO SYSTEMS TO BE PROVIDED BY OWNER. ROUGH-IN OF OUTLETS AND CONDUIT WILL BE BY CONTRACTOR AS SHOWN ON DRAWINGS.

- 24. NO. 10 CU AWG CONDUCTORS SHALL BE USED FOR 20 AMP BRANCH CIRCUIT HOMERUNS EXCEEDING 50 FT. TO THE JUNCTION POINT. 20 AMP BRANCH CIRCUIT WIRING SHALL BE NO. 10 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 100 FEET TOTAL LENGTH.
- 20 AMP BRANCH CIRCUIT WIRING SHALL BE NO. 8 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 200 FEET TOTAL LENGTH.
- 20 AMP BRANCH CIRCUIT WIRING SHALL BE NO. 6 CU AWG THROUGHOUT IF THE CIRCUIT IS LONGER THAN 400 FEET TOTAL LENGTH.
- 20 AMP BRANCH CIRCUIT SHALL BE NOT EXCEED 500' FEET IN TOTAL LENGTH. (UNLESS MARKED OTHERWISE)
- 25. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET. SPLICES WILL NOT BE MADE EXCEPT WITHIN ACCESSIBLE OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS.
- 26. MAKE CONDUCTOR LENGTHS FOR PARALLEL CIRCUITS EQUAL.
- 27. INSTALL TELEPHONE OUTLETS WITH 3/4" EMPTY CONDUIT AND PULL CORD. STUB OUT ABOVE CEILING. PHONE SYSTEM INSTALLED BY OWNER.
- 28. ALL CONDUIT WITHOUT CONDUCTORS SHALL HAVE NYLON PULLCORDS INSTALLED.
- 29. THE CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION, AND REVIEW
- ANY CONFLICTS THAT ARE NOTED WITH THE ENGINEER.
- ELECTRIC UTILITY CONNECTION FEES AND LINE EXTENSION FEES. 31. ELECTRICAL CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION WHICH DEVELOPS OBJECTIONABLE NOISES SHALL BE MADE FROM THE CONDUIT

30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES FOR PERMITS AND INSPECTIONS. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR

- SYSTEM WITH SHORT LENGTHS OF FLEXIBLE "LIQUID-TITE" CONDUIT. 32. ALL WIRE TERMINATIONS AND EQUIPMENT TO BE RATED FOR 75° C MINIMUM.
- 33. ELECTRICAL CONTRACTOR TO MAINTAIN 2' OF SEPARATION ON RECEPTACLES ON OPPOSITE SIDES OF ANY FIRE RATED WALL PER 2017
- 34. WIRING TO DISCONNECT SWITCH AND DISCONNECT SWITCH SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, WIRING FROM THE DISCONNECT TO THE EQUIPMENT SHALL BE BY THE MECHANICAL CONTRACTOR.

PERFORMANCE

#### **ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE:**

FNFRGY	CODE:	

PRESCRIPTIVE X

ASHRAE 90.1: PRESCRIPTIVE

PERFORMANCE

REFER TO DRAWINGS FOR RISER DIAGRAM AND PANEL SCHEDULES

#### LIGHTING SCHEDULE

LAMP TYPE REQUIRED IN FIXTURE:

SEE SCHEDULE

NUMBER OF LAMPS IN FIXTURE:

BALLASTS TYPE USED IN FIXTURE:

NUMBER OF BALLASTS IN FIXTURE:

TOTAL WATTAGE PER FIXTURE:

TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED: TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED:

ADDITIONAL PRESCRIPTIVE COMPLIANCE

506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT

506.2.2 REDUCED LIGHTING POWER DENSITY

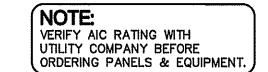
506.2.3 ENERGY RECOVERY VENTILATION SYSTEMS

506.2.4 HIGHER EFFICENCY SERVICE WATER HEATING □

506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY □ 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS □

FEEDER SCHEDULE							
UNIT	FEEDERS	FUSED DISCONNECT	CONDUIT				
AHU'S 1 & 2	2#8 CU, 1#10 CU GND	60	3/4"				
HEAT PUMPS 1 & 2	2#10 CU, 1#12 CU GND	30	3/4"				

ELECTRICAL LOAD CALCULATIONS 7700 SQUARE FEET	_VA_
NONCONTINUOUS LOADS:	
6 RECEPTACLES @ 180 VA EA. 1ST 10000 REMAINDER @ 50% TOTAL	1080 1080 0 1080
CONTINUOUS LOADS:	
GENERAL LIGHTING LOAD VA/SQ. FT. 7700 SQ. FT. 0.25 1925 x 1.25	1925 2406
AIR HANDLER UNIT	15768
HEAT PUMPS	7152
EQUIPMENT:	0
25% OF LARGEST MOTOR GRAND TOTAL	1092 27498
115 AMPS @ 120/240V, 1ø, 60HZ	

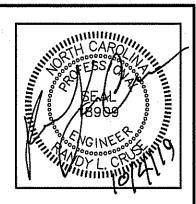


PANEL	<u>"A"</u>	SCHEDULE	E: N	VANUFA	CTUR
VOLTS:	120/240	<u>)</u> AMF	PS: <u>200</u>	TYPE	: <u>"NQ</u>
ENCLO	SURE:_	NEMA 3R ·	Ø: <u>1</u>		SHO
MAIN: 🖾	MLO:	TOP FEED: 🗆	BOTTOM FEED:	⊠ COPP	ER BUS:

	MANUFACTURER: SQ. D.	NO. OF SPACES 42
S: <u>200</u>	TYPE: "NQOD"	MOUNTING: SURFACE
Ø: <u>1</u>	SHORT CIRCU	IT RATING: <u>22,000</u>
BOTTOM FEED	R ☑ COPPER BUS: ☑ GROUND	BAR KIT: 🗆 NEJTRAL BAR KIT: 🗀

		III	S	_		PF	AS	E			_	S	ΙТ		
L1	L2	CIRCUIT	POLES	TRIP	ASSIGNMENT	.  =	6.1		ASSIGNMEN	T	TRIP	POLES	CIRCUIT	L1	L2
3.4	$\mathbb{X}$	1	1	20	WALLPACKS	0			CORRIDOR LIGHTS LEFT	SIDE	20	1	2	6.0	X
><	11.6	3	-	20	10X30 UNIT LIGHTS		C	>	CORRIDOR LIGHTS RIGHT	SIDE	20	1	4	X	6.7
34.1	X	5	2	45	AHU-1	0		I	HVAC/CORRIDOR RECEPT	ACLES	20	1	6	6.0	X
><	34.1	7					C	)	HP-2		25	2	8	$\times$	11.6
18.2	X	9	2	35	HP-1	0							10	11.6	$\geq$
> <	18.2	11					7	)	AHU-2		40	2	12	$\times$	31.6
Х	$\times$	13	1	20	SPARE	0							14	31.6	$\geq$
> <	Χ	15	1	20	SPARE	-	C	)	HP AND AHU #2 CONV.	RECS.	20	1	16	$\times$	3.0
X	$\times$	17	1	20	SPARE	0			SPARE		20	<b>Y***</b>	18	Х	$\geq$
> <	Х	19	1	20	SPARE		C	) [	SPARE		20	1	20	$\geq$	X
Х	> <	21	1	20	SPARE	0			SPARE		20	1	22	Х	$\geq$
$\geq <$	Х	23	1	20	SPARE		C	<b>)</b>	SPARE		20	1	24	$\geq$	X
X	$\geq \leq$	25	1	20	SPARE	0			SPARE		20	1	26	Х	$\geq$
$\geq \leq$	X	27	1	20	SPARE		9	)	SPARE		20	1	28	$\geq \leq$	Х
Χ	$\geq \leq$	29	1	20	SPARE	0			SPARE		20	1	30	Х	$\geq$
$\geq \leq$	Х	31	1	20	SPARE		9		SPARE		20	1	32	$\geq \leq$	Х
Х	$\geq \leq$	33	1	20	SPARE	0	L		SPARE		20	1	34	Х	$\geq$
$\geq \leq$	X	35	1	20	SPARE		(	)	SPARE		20	1	36	$\geq \leq$	Х
Х	$\geq \leq$	37	1	20	SPARE	0			SPARE		20	1	38	X	$\geq$
$\geq \leq$	X	39	1	20	SPARE		9	)	SPARE		20	1	40	$\geq$	Х
X	><	41	1	20	SPARE	0			SPARE		20	1	42	Х	>

L1 = 110.9 AL2 = 116.8 A

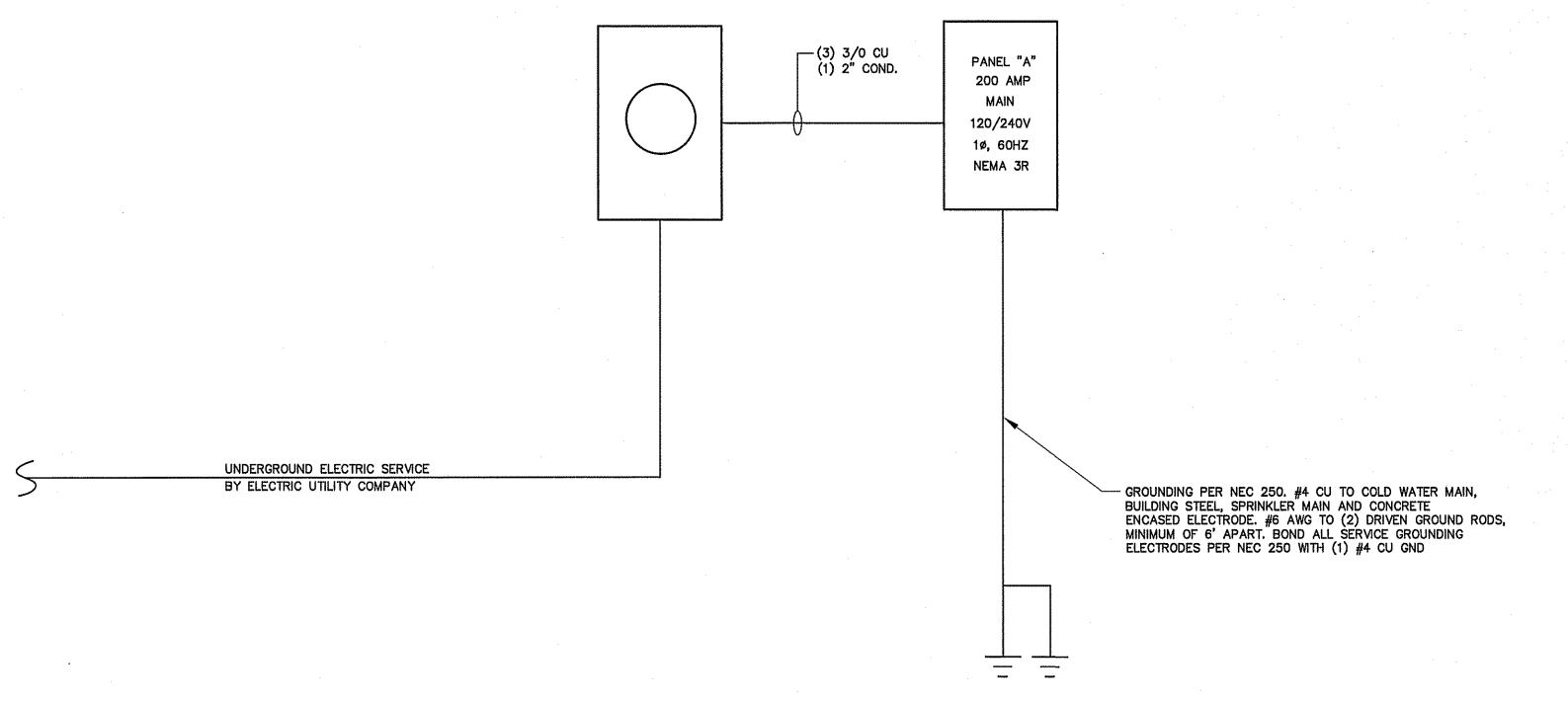


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DATE 10/04/19 DRAWN BY BAM JOB NO. 19-25

SHEET NO.



ELECTRICAL RISER DIAGRAM