



Reviewed For Code Compliance By:

D. Banks Wallace

Chief Deputy Fire Marshal

11/12/2019 8:05:37 AM

UNIVERSITY STORAGE

COATS, NORTH CAROLINA

SUBMITTED TO :

TTL COATS, LLC
 ATTN: MICHAEL SMITH
 165 SOMMERVILLE PARK ROAD
 RALEIGH, NORTH CAROLINA 27603

PHONE: (910) 890-3256

WIND LOAD DESIGN DATA:
 ULTIMATE DESIGN WIND SPEED (V_{ULT}): 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 (P_g): 15 PSF
 FLAT-ROOF SNOW LOAD (P_f): 12.1 PSF
 SNOW EXPOSURE FACTOR (C_e): 1.2
 SNOW LOAD IMPORTANCE FACTOR (I): 0.8
 THERMAL FACTOR (C_t): 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": 2.268K
 - BUILDING "2": 2.268K
 - BUILDING "3": 1.040K
- RESPONSE MODIFICATION FACTOR (R): 7.0
- SEISMIC RESPONSE COEFFICIENT (C_s): 0.027
- MAPPED SPECTRAL RESPONSE ACCELERATION (S_s): 17.7% G (S_1): 8.4% G
- SPECTRAL RESPONSE COEFFICIENTS (S_{D1}): 13.4% G

BUILDING DATA :

BUILDING DESCRIPTION :
 SINGLE STORY METAL BUILDINGS BOLTED TO CONCRETE SLAB FOUNDATIONS.

BUILDING SIZE :

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

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 : 20 psf
 FLOOR LIVE LOADING: 125 psf
 USE GROUP: S-1
 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.

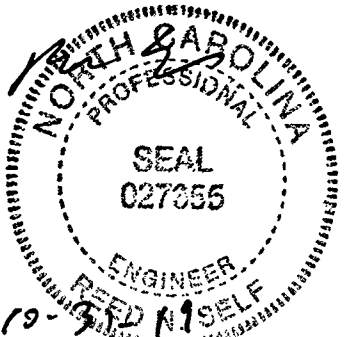
PROJECT NUMBER :
 NC19185

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

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	ERC200X	ERC420X	ERC619X	ERC752X
ERC016X	ERC201X	ERC500X	ERC620X	ERC753X
ERC100X	ERC202X	ERC505X	ERC621X	ERC754X
ERC105X	ERC203X	ERC506X	ERC622X	ERC800X
ERC106X	ERC204X	ERC515X	ERC623X	ERC900X
ERC110X	ERC206X	ERC600X	ERC624X	ERC901X
ERC112X	ERC207X	ERC601X	ERC625X	ERC902X
ERC115X	ERC208X	ERC602X	ERC626X	ERC903X
ERC120X	ERC209X	ERC603X	ERC630X	ERC904X
ERC130X	ERC250X	ERC604X	ERC631X	ERC905X
ERC150X	ERC250XPH	ERC605X	ERC650X	ERC907X
ERC151X	ERC251X	ERC606X	ERC700X	ERC908X
ERC152X	ERC251XPH	ERC607X	ERC710X	ERC910X
ERC153X	ERC252X	ERC608X	ERC711X	ERC911X
ERC154X	ERC251XPH	ERC609X	ERC712X	ERC912X
ERC155X	ERC253X	ERC610X	ERC713X	ERC913X
ERC175X	ERC254X	ERC611X	ERC720X	ERC914X
ERC176X	ERC255X	ERC612X	ERC725X	ERC915X
ERC177X	ERC256X	ERC613X	ERC730X	ERC916X
ERC178X	ERC257X	ERC614X	ERC731X	ERC917X
ERC179X	ERC258X	ERC615X	ERC731XPH	ERC918X
ERC180X	ERC302X	ERC616X	ERC732X	ERC919X
ERC181X	ERC302X(IN)	ERC617X	ERC732XPH	
ERC182X	ERC410XPL	ERC618X	ERC750X	
ERC183X	ERC411X	ERC618XAL	ERC751X	

SCHEDULE OF DRAWINGS	
DRAWING NO.	DESCRIPTION
CS1	COVER SHEET
CS2	BUILDING NOTES
CS3	APPENDIX B
S1	ELEVATIONS & NOTES
S2	FLOOR PLAN, DETAILS & NOTES
S3	FLOOR PLAN, DETAILS & NOTES
S4	FLOOR PLAN, DETAILS & NOTES
S5	CROSS SECTIONS
S6	FRAMING ELEVATIONS & NOTES
F1	FOUNDATION PLAN, DETAIL & NOTES
F2	FOUNDATION PLAN, DETAILS & NOTES
F3	FOUNDATION PLAN, DETAILS & NOTES



GENERAL NOTES:

- 1. CONCRETE FOUNDATIONS AND FLOOR SLABS ARE TO BE SUPPLIED AND INSTALLED BY OTHERS... WEDGE ANCHORS FOR INTERIOR AND EXTERIOR FOOTINGS SUPPLIED AND INSTALLED BY BETCO.

FOUNDATIONS:

- 1. 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.

REINFORCING STEEL:

- 1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60 (420 MPa).

CONSTRUCTION AND SAFETY:

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

CONCRETE:

- 1. SUBMIT WRITTEN REPORTS OF EACH PROPOSED CONCRETE DESIGN MIX NOT LESS THAN 15 DAYS PRIOR TO THE START OF WORK.

BLOCK VENEER - STEEL STUDWALLS:

- 1. AIR SPACE: a. 2 in (51 mm) MINIMUM AIR SPACE RECOMMENDED ± 1 in (25.4 mm) MINIMUM AIR SPACE REQUIRED.

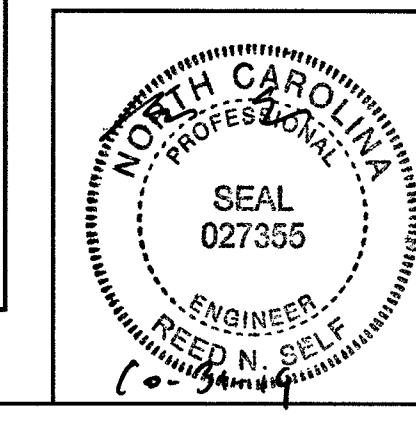
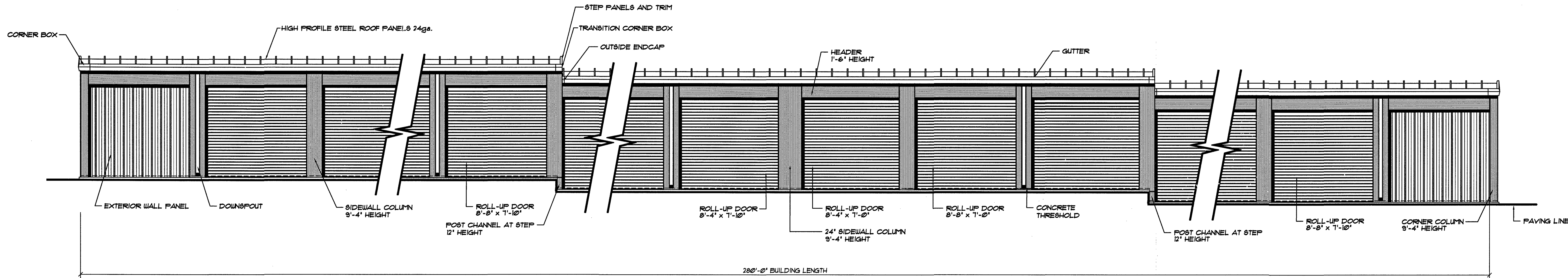
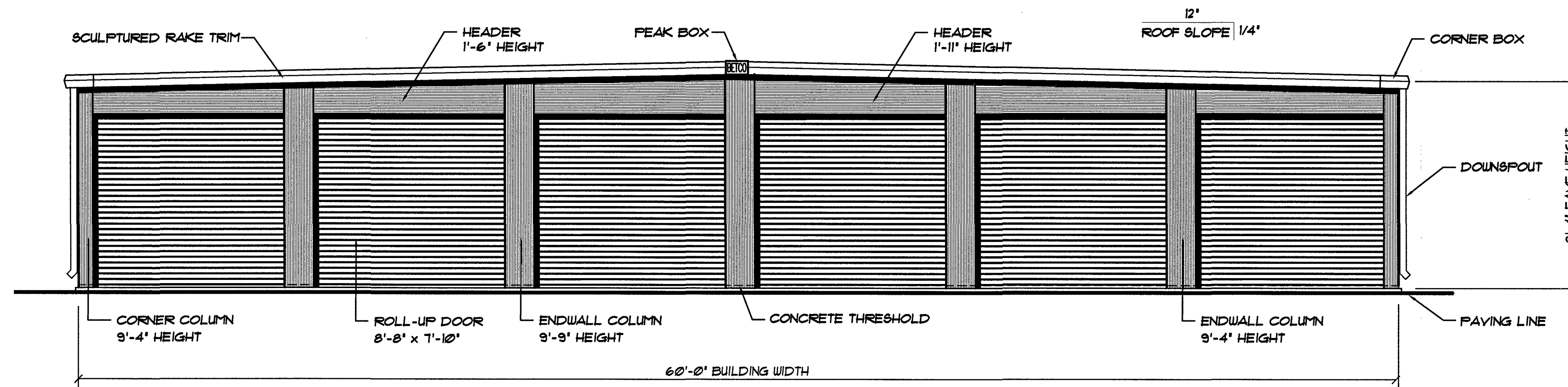


Table with columns for DATE, DRAWN BY, SCALE, APPROVED BY, and REVISIONS. Includes a date stamp of 7/30/19 and a signature of K. MacLay.

Project information for UNIVERSITY STORAGE, COATS, NORTH CAROLINA. Includes BETCO logo, address (228 COMMERCE BLVD., STATESVILLE, NC 28625), and drawing number CS2 of 3.



A SIDEWALL ELEVATION... BUILDING "1"
 S1 SCALE: 1/4" = 1'-0"

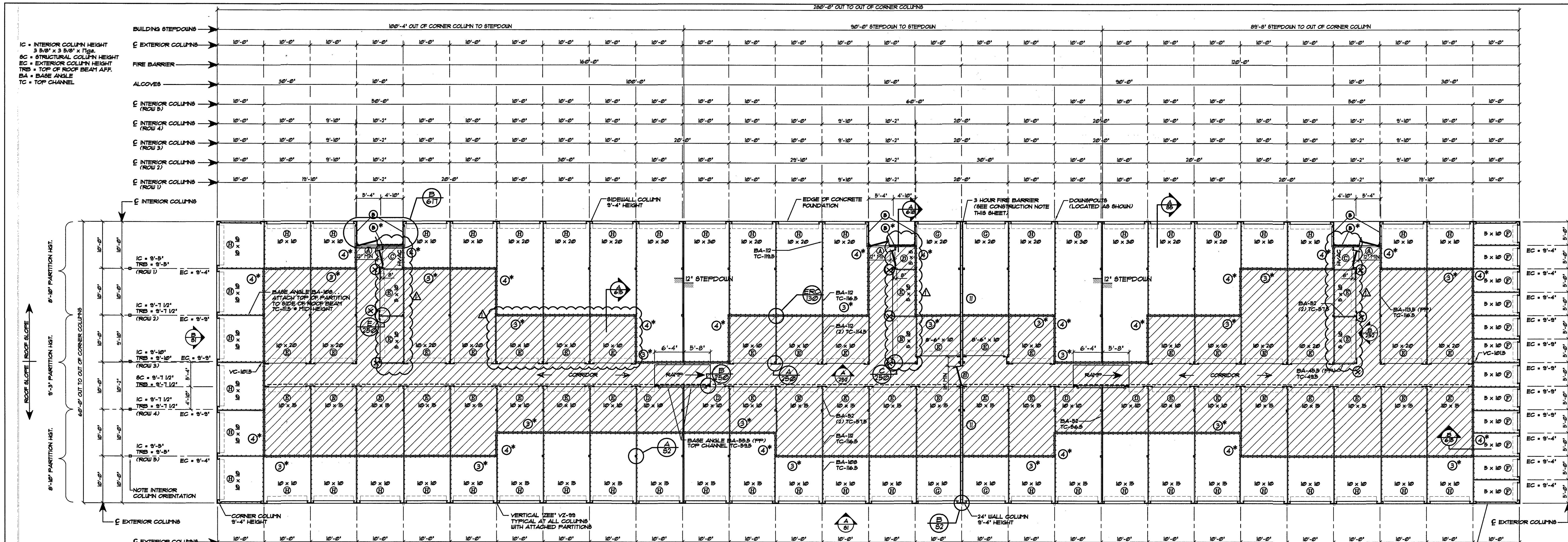


B ENDWALL ELEVATION... BUILDING "1"
 S1 SCALE: 1/4" = 1'-0"

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

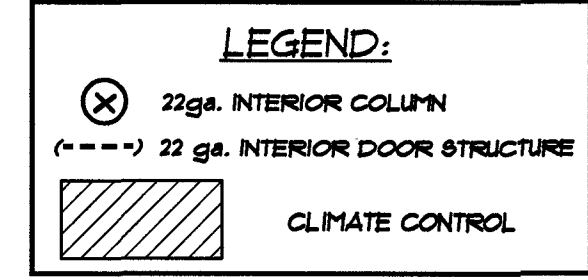
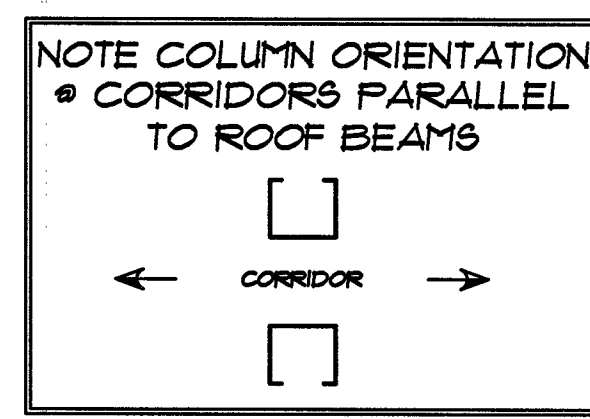
NOTE: . . . SEE OWNER FOR
 BUILDING ORIENTATION ON SITE

	DATE:	7/30/19		PROJECT NAME:	UNIVERSITY STORAGE
	DRAWN BY:	K. MACLAY		PROJECT ADDRESS:	COATS, NORTH CAROLINA
	SCALE:	AS NOTED		OWNER:	TTL COATS, LLC
	APPROVED BY:			PROJECT NO.:	NC19185
REVISIONS	DATE	BY	228 COMMERCE BLVD. STATESVILLE, NC 28625 (800)654-7813	SHEET TITLE:	ELEVATIONS & NOTES
				DRAWING NUMBER:	S1 of 5



FLOOR PLAN... BUILDING "1"
SCALE: 1" = 10'-0"

NOTE: BUILDING "1" IS PROVIDED W/ (6) ADJUSTABLE CONTROL JOINT COLUMNS, 9'-4" HEIGHT



NOTE: SEE ERC602X FOR EXTERIOR SWING DOOR FRAMING IN STUDWALL.

NOTES:

- 6" ROOF INSULATION (R-19) INCLUDED AT ENTIRETY OF BUILDING "1".
- 4" WALL INSULATION (R-13) INCLUDED AT STUD WALL OF BUILDINGS "1" - "3".
- 4" x 5" KICK-OUT DOWNSPOUTS ARE INCLUDED.
- CORRIDOR WIDTH WILL BE A MINIMUM OF APPROXIMATELY 56" FROM FACE TO FACE OF DOOR JAMBS.
- ATTACH ALL STUDS TO TRACKS WITH 10 x 5/8" SDF (4 PER STUD).
- BURGLAR BARS ARE PROVIDED ABOVE INTERIOR ROLL-UP DOORS AS REQUIRED.
- INTERIOR DOOR FRAMES AND PARTITIONS 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 - ERC200X.
- INTERIOR DOOR JAMBS INCLUDE PARTITION CLOSURE ANGLES.
- NOTE FOR INTERIOR BEARING STUDWALLS: (SECURE BOTTOM TRACK W/ 3/8" x 3" WEDGE ANCHORS (2' MIN. EMBEDMENT @ 30" O.C. MAXIMUM).
- NOTE FOR ALL EXTERIOR STUDWALLS: (SECURE FLOOR TRACK W/ 3/8" x 3" WEDGE ANCHORS (2' MIN. EMBEDMENT @ 30" O.C. MAXIMUM).

NOTE:
UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.

STUDWALL LEGEND BUILDING #1

DESCRIPTION	EXTERIOR STUDWALL	
	UNINSULATED	INSULATED*
③ INSULATED LOAD BEARING STUDWALL	N/A	430 L.F.
④ INSULATED NON-LOAD BEARING STUDWALL	N/A	210 L.F.
⑤ EXTERIOR STUDWALL CONSTRUCTION AT HVAC (BLOCK @ MID-HGT.)	30 L.F.	30 L.F.
⑥ FIRE BARRIER - 3 HOUR RATED (NON-LOAD BEARING)	60 L.F.	0 L.F.

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 #4: GYPSUM BOARD AND RELATED FINISH MATERIALS MAY NOT BE PROVIDED BY BETCO - VERIFY WITH CONTRACTOR.
NOTE #5: SEE BLOCKING DETAIL A/631 ON ERC631X

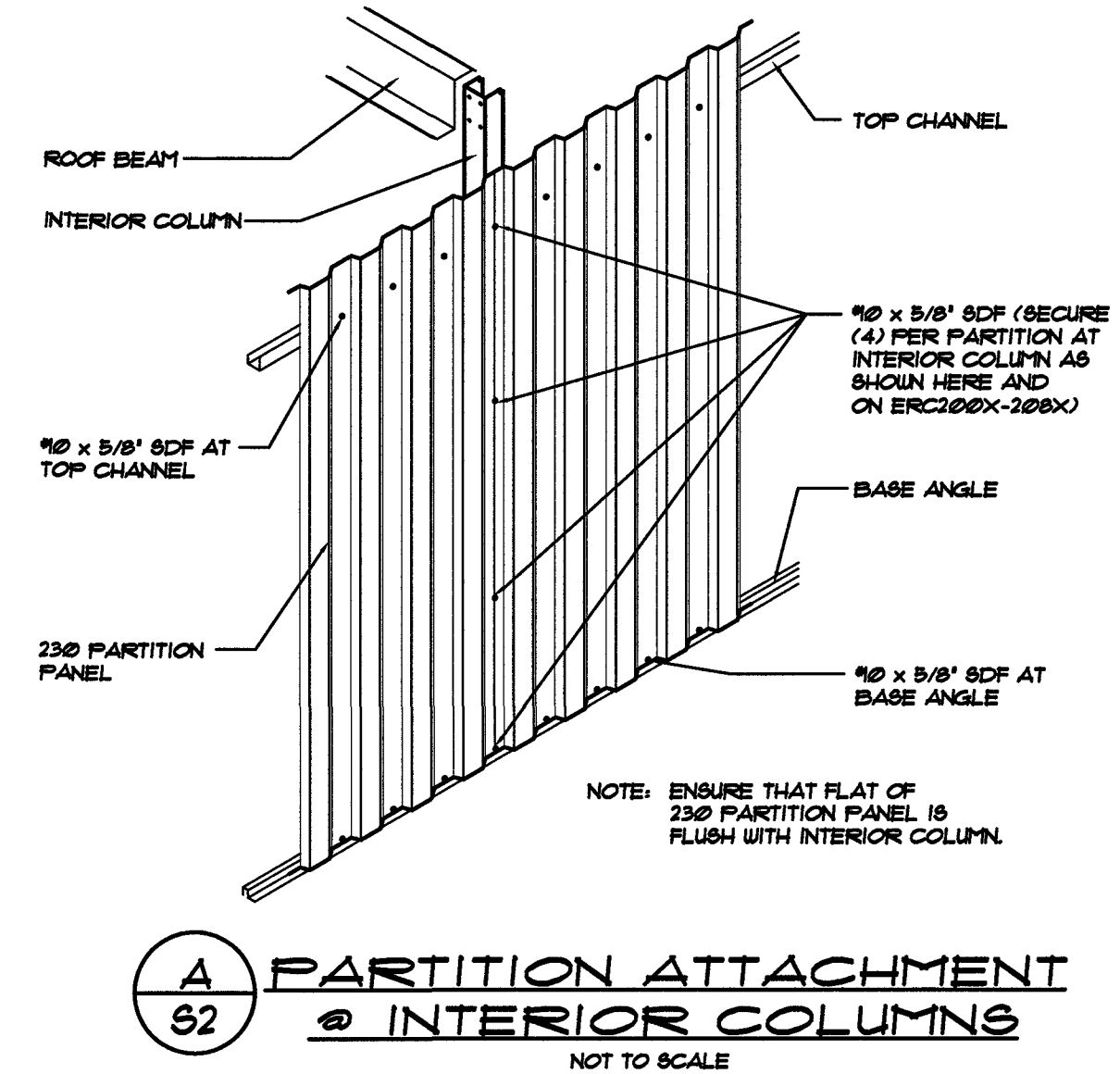
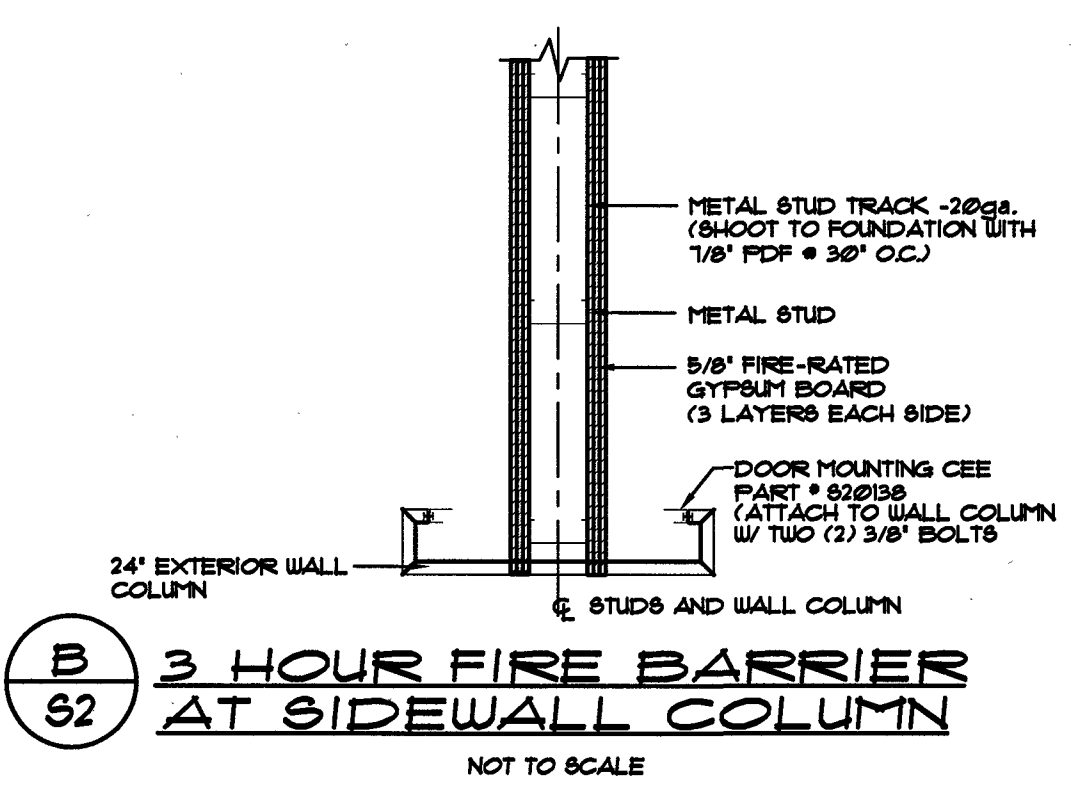
II. FIRE RESISTANT PARTITION... 3 HOUR RATED
UL * U419... (NON-LOAD BEARING) (SEE ERC 614X)

- 3 5/8" METAL STUDS @ 24" O.C. - 20ga.
- 3 5/8" CONTINUOUS FLOOR AND CEILING TRACK - 20ga (TOP TRACK MUST FOLLOW SLOPE OF ROOF DECK)
- (SECURE BOTTOM TRACK W/ 1/8" PDS'S AT 24" O.C.)
- 5/8" GYPSUM BOARD (X-RATED) 3 LAYERS EACH SIDE IT MUST BE PLACED SUCH THAT ALL JOINTS ARE VERTICAL.
- GYPSUM BOARD (NOT BY BETCO) SHALL BE ATTACHED TO STUDS, FLOOR AND CEILING TRACK USING TYPE "S" SELF-TAPPING SCREWS ALONG EDGES OF BOARD SPACED 8" O.C. AND 12" O.C. IN THE FIELD.
- VINYL OR CASE-IN, DRY OR PRE-MIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS SCREW-HEADS, PERFORATED PAPER TAPE, 2" WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS.

NOTE: GENERAL STUDWALL CONSTRUCTION:
A) - ATTACH STUDS W/ 10 X 5/8" SDF'S EACH SIDE OF TRACK (4 PER STUD).
B) - WALLS MUST EXTEND FROM ROOF TO FLOOR DECK AND INTO WALL COLUMN CAVITY.
C) - TOP TRACK MUST FOLLOW SLOPE OF ROOF LINE.

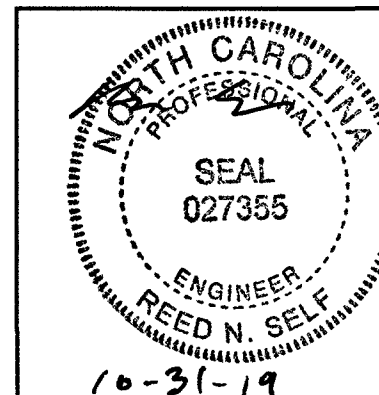
DOOR SCHEDULE

ID	DOOR SIZE	TYPE
①	4'-0" x 7'-0" (4070 - 2 - G) (ERC254X)	1/2 GLASS PERSONNEL
②	4'-0" x 7'-0" (4070 - 1 - A) (ERC254X)	"A" LABEL FIRE DOOR
③	3'-0" x 7'-0" w/ LOUVER	INTERIOR SWING
④	3'-0" x 7'-0"	INTERIOR ROLL-UP
⑤	8'-0" x 7'-0"	INTERIOR ROLL-UP
⑥	3'-8" x 7'-10"	EXTERIOR ROLL-UP
⑦	8'-4" x 7'-10"	EXTERIOR ROLL-UP
⑧	8'-8" x 7'-10"	EXTERIOR ROLL-UP



NOTE: BLOCK ALL LOAD-BEARING INTERIOR & EXTERIOR STUD WALLS AS SHOWN IN DETAIL A OF ERC631X

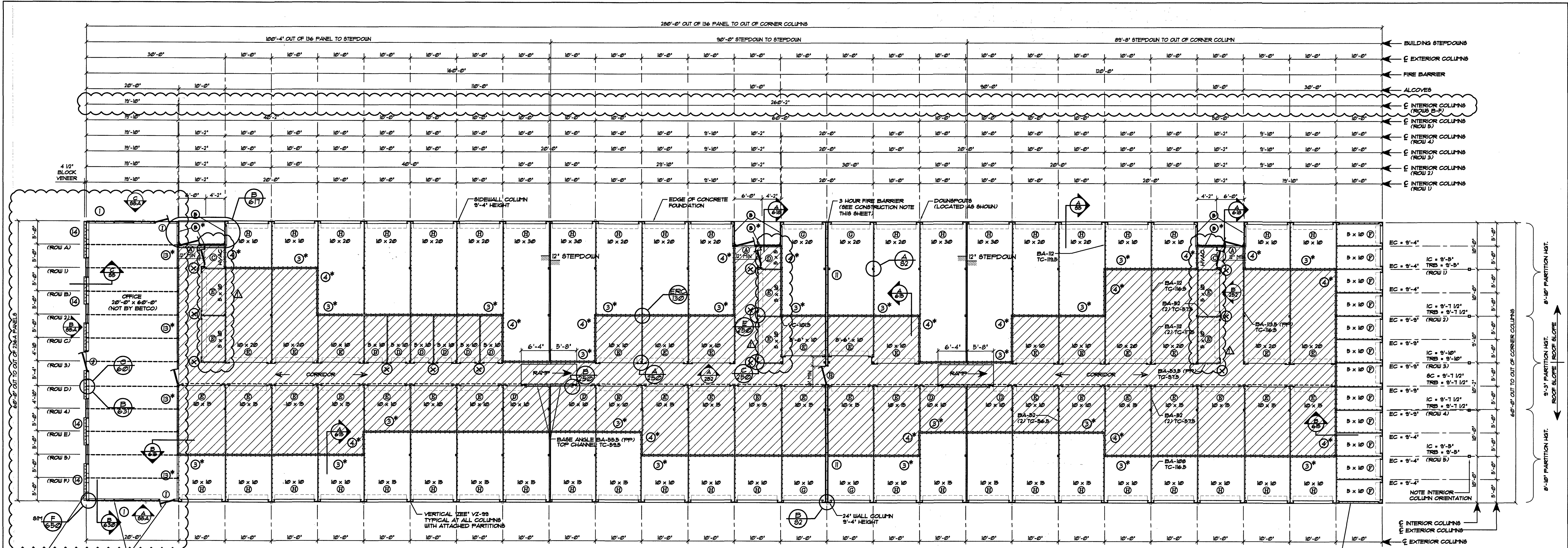
JAMB	ROLL-UP HEADER	SWING DOOR HEADER
8'-0"	12"	10 1/2"



DATE:	7/30/19
DRAWN BY:	K. MACLAY
SCALE:	AS NOTED
APPROVED BY:	
REVISIONS:	
DATE:	10/28/19
BY:	KEM

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

PROJECT NAME: UNIVERSITY STORAGE
COATS, NORTH CAROLINA
OWNER: TTL COATS, LLC
PROJECT NO.: NC19185
SHEET TITLE: FLOOR PLAN, DETAILS & NOTES
BUILDING "1"
DRAWING NUMBER: S2 of 5



FLOOR PLAN... BUILDING "2"

SCALE: 1" = 10'-0"

NOTE: BUILDING "2" IS PROVIDED WITH (6) ADJUSTABLE CONTROL JOINT COLUMNS. 9'-4" HEIGHT

NOTE: INTERIOR FINISH AT OFFICE IS NOT BY BETCO. ALL INSULATION AND RELATED MATERIALS AT OFFICE WALLS IS NOT BY BETCO.

NOTE:
UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.

STUDY WALL LEGEND	BUILDING #2	
	INTERIOR STUDY WALL	EXTERIOR STUDY WALL
DESCRIPTION	UNINSULATED	INSULATED*
1 EXTERIOR STUDY WALL CONSTRUCTION AT FLAT SLAB (BLOCK + MID-HGT.) (USE 18ga STUDS)	40 L.F.	0 L.F.
3 INSULATED LOAD BEARING STUDY WALL	N/A	192 L.F.
4 INSULATED NON-LOAD BEARING STUDY WALL	N/A	170 L.F.
5 EXTERIOR STUDY WALL CONSTRUCTION AT HVAC (BLOCK + MID-HGT.)	25 L.F.	35 L.F.
11 FIRE BARRIER - 3 HOUR RATED (NON-LOAD BEARING)	60 L.F.	0 L.F.
12 NON-LOAD BEARING STUDY WALL	55 L.F.	N/A
14 PARAPET STUDY WALL w/ BLOCK VENEER	60 L.F.	N/A

NOTE #1: SEE ERC610X FOR COMPLETE STUDY WALL CONSTRUCTION DETAILS.
NOTE #2: * = INSULATED (SEE ERC610X) - COORDINATE WITH FLOOR PLAN. (NOTE WALLS #3 AND #4 ARE ALWAYS INSULATED)
NOTE #3: GYPSUM BOARD AND RELATED FINISH MATERIALS MAY NOT BE PROVIDED BY BETCO - VERIFY WITH CONTRACT.
NOTE #4: SEE BLOCKING DETAIL A/631 ON ERC631X

11 FIRE RESISTANT PARTITION... 3 HOUR RATED UL * U419... (NON-LOAD BEARING) (SEE ERC 614X)

- 3 5/8" METAL STUDS @ 24" O.C. - 20ga.
- 3 5/8" CONTINUOUS FLOOR AND CEILING TRACK - 20ga (TOP TRACK MUST FOLLOW SLOPE OF ROOF DECK) (SECURE BOTTOM TRACK W/ 1/8" PDF'S AT 24" O.C.)
- 5/8" GYPSUM BOARD (X-RATED) 3 LAYERS EACH SIDE IT MUST BE PLACED SUCH THAT ALL JOINTS ARE VERTICAL.
- GYPSUM BOARD (NOT BY BETCO) SHALL BE ATTACHED TO STUDS, FLOOR AND CEILING TRACK USING TYPE "B" SELF-TAPPING SCREWS ALONG EDGES OF BOARD SPACED @ 12" O.C. IN THE FIELD.
- VINYL OR CASE-IN-DRY OR FIBERGLASS JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS SCREW-HEADS PERFORATED OVER ALL JOINTS.

NOTE: GENERAL STUDY WALL CONSTRUCTION:
A) - ATTACH STUDS W/ 1/8" X 5/8" SDF'S EACH SIDE OF TRACK (4 PER STUD)
B) - WALLS MUST EXTEND FROM ROOF TO FLOOR DECK AND INTO WALL COLUMN CAVITY.
C) - TOP TRACK MUST FOLLOW SLOPE OF ROOF LINE.

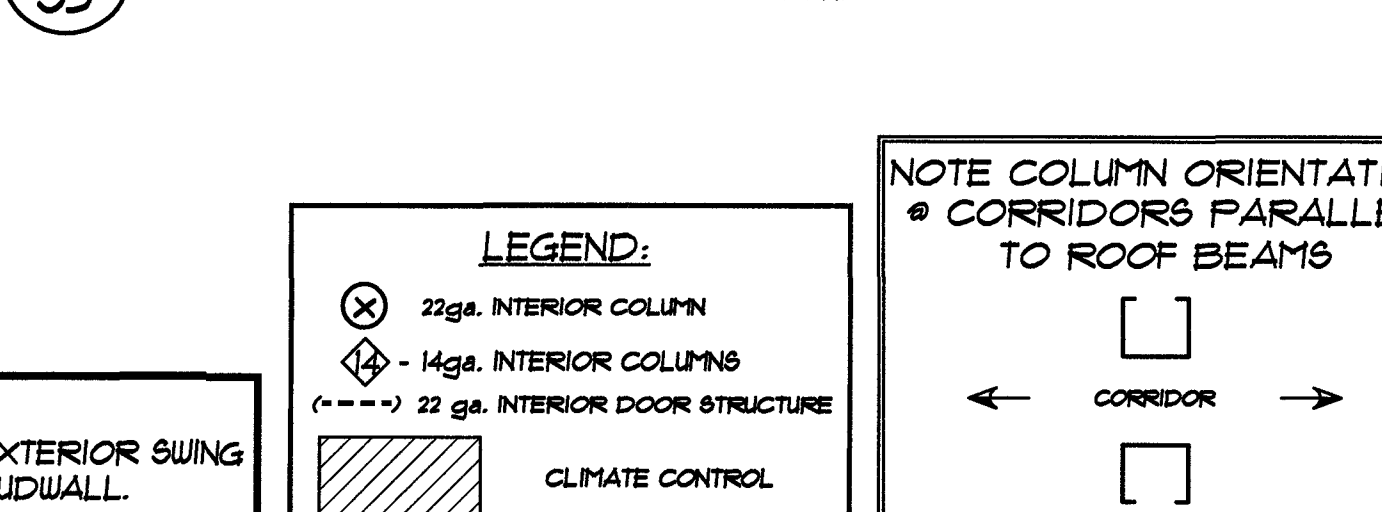
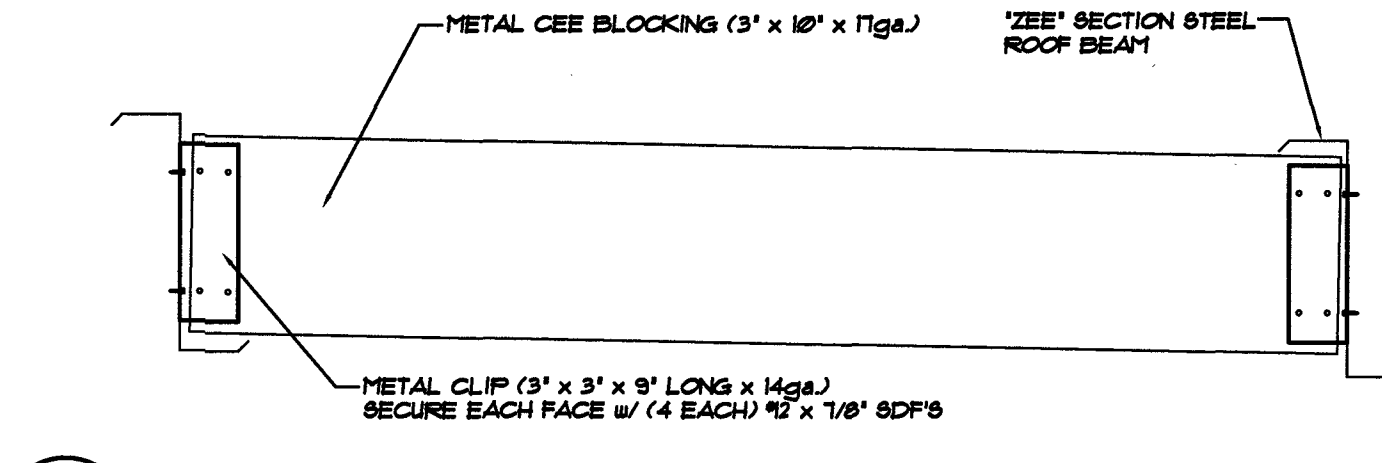
NOTE: 20FL. ROOF BEAMS ARE 3' x 12' x 12ga. ZEE'S.

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
C	3'-0" x 7'-0" w/ LOUVER	INTERIOR SWING
D	3'-0" x 7'-0"	INTERIOR ROLL-UP
E	8'-0" x 7'-0"	INTERIOR ROLL-UP
F	3'-8" x 7'-10"	EXTERIOR ROLL-UP
G	8'-4" x 7'-10"	EXTERIOR ROLL-UP
H	8'-8" x 7'-10"	EXTERIOR ROLL-UP
I	3'-0" x 7'-0"	EXTERIOR SWING
J	4'-0" x 7'-0"	EXTERIOR SWING

13 INSULATED NON-LOAD BEARING STUDY WALL:
- 3 5/8" METAL STUDS @ 24" O.C. - 20ga
- 3 5/8" CONTINUOUS FLOOR AND CEILING TRACK - 20ga (ATTACH BASE TRACK TO CONCRETE FLOOR SLAB WITH 1/8" PDF'S @ 24" O.C.)
- J-TRIM AT TOP OF LINER PANELS TO ROOF FURLING
- 20G LINER PANELS @ STORAGE SIDE (ATTACH EACH PANEL AT BASE AND TOP W/ (4) EACH 1/8" SDF'S)

14 EXTERIOR STUDY WALL CONSTRUCTION - BLOCK VENEER:
- 4" x 2" FLANGE METAL STUDS @ 24" O.C. - 18ga
- 6" CONTINUOUS FLOOR AND CEILING TRACK - 18 ga. (SECURE FLOOR TRACK W/ 3/8" x 3" WEDGE ANCHORS @ 30" O.C.)
- DOUBLE STUD AT ENDWALL (TYPICAL AT ALL ROOF BEAM LOCATIONS)
- 6" THICK FIBERGLASS INSULATION
- 4 MIL POLYETHYLENE VAPOR BARRIER
- 1/2" PANELS @ EXTERIOR (NOT BY BETCO)
- BLOCK VENEER AND BLOCK TIES NOT BY BETCO
- BLOCK STUDS AT THIRD POINTS AS SHOWN ON ERC630X

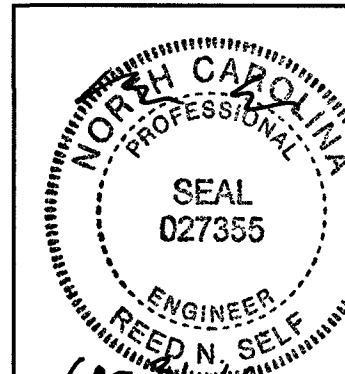
A ROOF BEAM BLOCKING DETAIL



- NOTES:**
- 6" ROOF INSULATION (R-19) INCLUDED AT ENTIRETY OF BUILDING "2".
 - 4" WALL INSULATION (R-19) INCLUDED AT STUD WALL OF BUILDINGS "1" - "3".
 - 4" x 5" KICK-OUT DOWNSPOUTS ARE INCLUDED.
 - CORRIDOR WIDTH WILL BE A MINIMUM OF APPROXIMATELY 56" FROM FACE TO FACE OF DOOR JAMBS.
 - ATTACH ALL STUDS TO TRACKS WITH #10 x 5/8" SDF (4 PER STUD).
 - BURGLAR BARS ARE PROVIDED ABOVE INTERIOR ROLL-UP DOORS AS REQUIRED.
 - INTERIOR DOOR FRAMES AND PARTITIONS 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 - ERC200X.
 - INTERIOR DOOR JAMBS INCLUDE PARTITION CLOSURE ANGLES.
 - NOTE FOR INTERIOR BEARING STUDY WALLS: (SECURE BOTTOM TRACK W/ 3/8" x 3" WEDGE ANCHORS (2" MIN. EMBEDDMENT @ 30" O.C. MAXIMUM))
 - NOTE FOR ALL EXTERIOR STUDY WALLS: (SECURE FLOOR TRACK W/ 3/8" x 3" WEDGE ANCHORS (2" MIN. EMBEDDMENT @ 30" O.C. MAXIMUM))

JAMB	ROLL-UP HEADER	SWING DOOR HEADER
8'-0"	12'	10 1/2'

NOTE: BLOCK ALL LOAD-BEARING INTERIOR & EXTERIOR STUD WALLS AS SHOWN IN DETAIL A OF ERC631X.



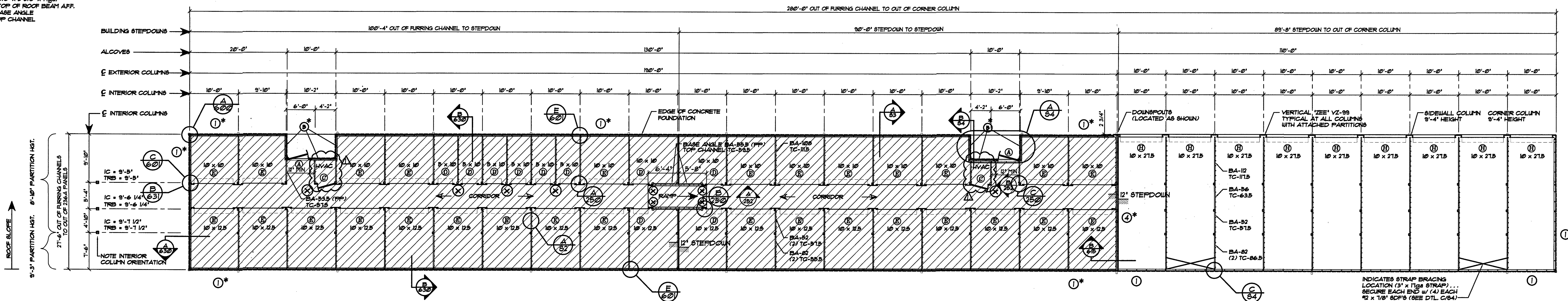
REVISIONS	DATE	BY
UNIT MIX OFFICE CHANGE	10/28/19	KEM

DATE: 7/30/19
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

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

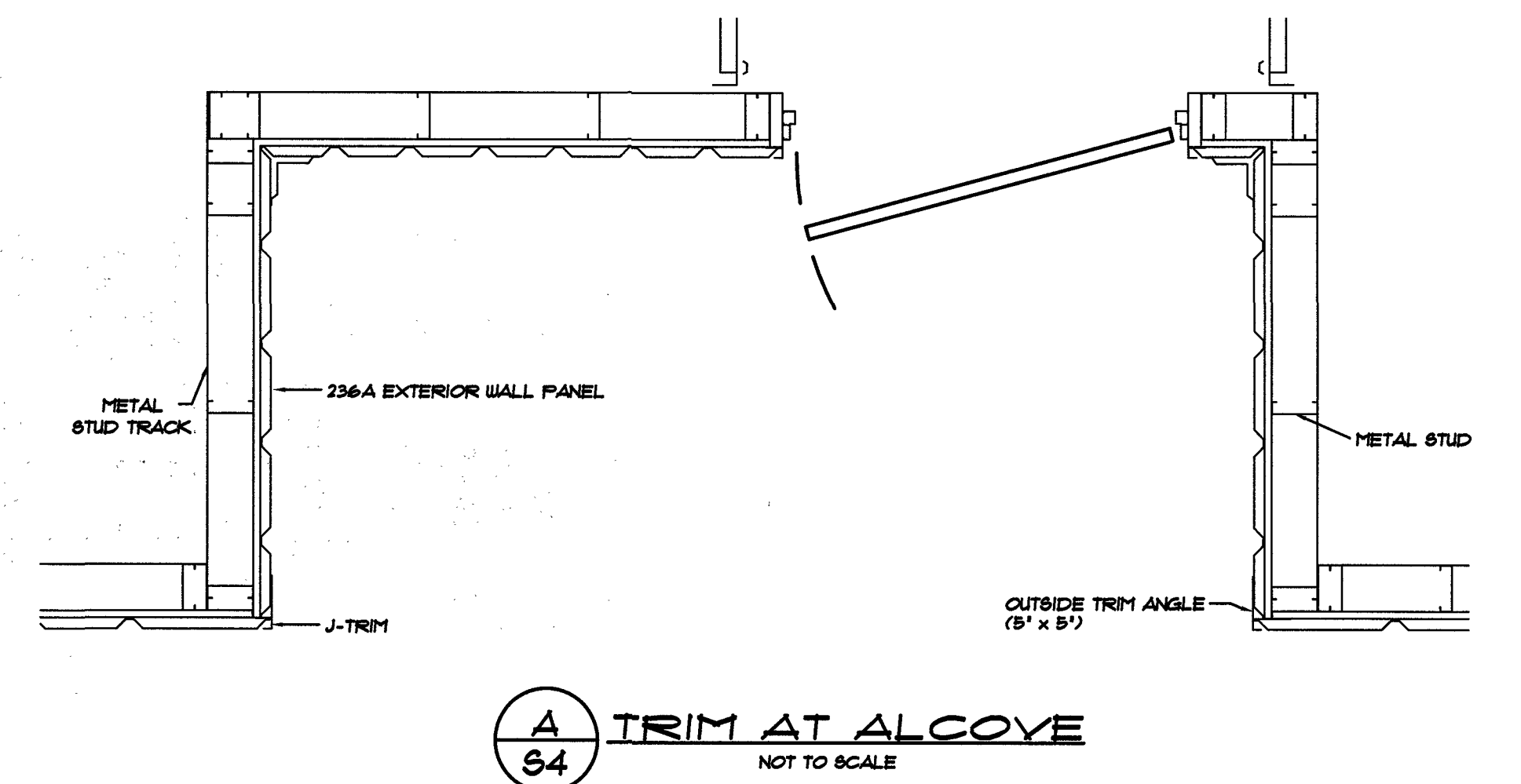
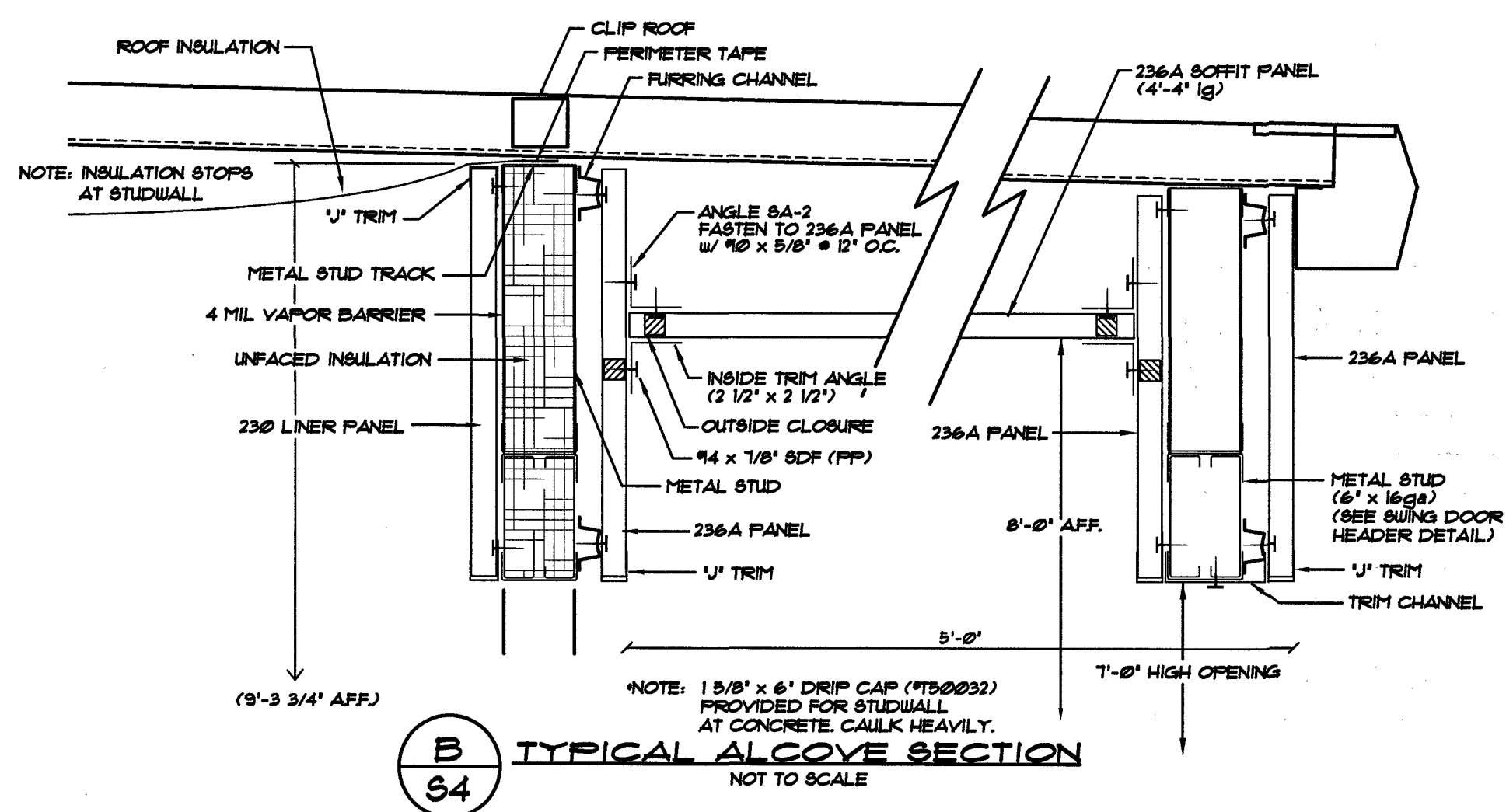
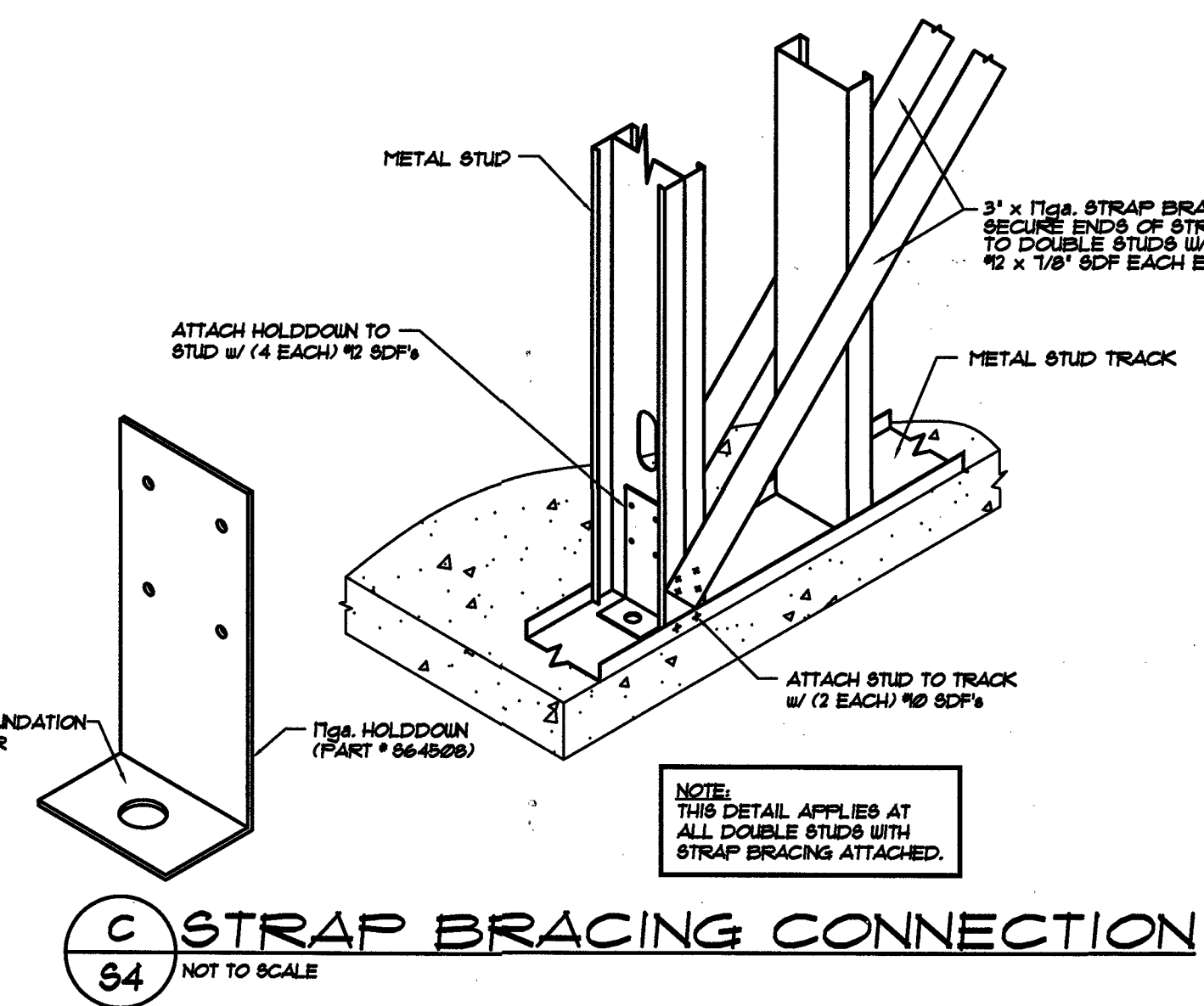
PROJECT NAME: UNIVERSITY STORAGE
PROJECT ADDRESS: COATS, NORTH CAROLINA
OWNER: TTL COATS, LLC
PROJECT NO.: NC19185
SHEET TITLE: FLOOR PLAN, DETAIL & NOTES
BUILDING "2"
DRAWING NUMBER: S3 OF 5

IC = INTERIOR COLUMN HEIGHT
 3 5/8" x 3 5/8" x 11ga.
 TRB = TOP OF ROOF BEAM AFF.
 BA = BASE ANGLE
 TC = TOP CHANNEL



FLOOR PLAN... BUILDING "3"
 SCALE: 1" = 10'-0"

NOTE: BUILDING "3" IS PROVIDED W/(L) ADJUSTABLE CONTROL JOINT COLUMNS. 8'-4" HEIGHT



NOTES:

- 6" ROOF INSULATION (R-19) INCLUDED AT ENTIRETY OF BUILDING '3'.
- 4" WALL INSULATION (R-13) INCLUDED AT STUD WALL OF BUILDINGS '1' - '3'.
- 4" x 5" KICK-OUT DOWNSPOUTS ARE INCLUDED.
- CORRIDOR WIDTH WILL BE A MINIMUM OF APPROXIMATELY 56" FROM FACE TO FACE OF DOOR JAMBS.
- ATTACH ALL STUDS TO TRACKS WITH #10 x 5/8" SDF (4 PER STUD).
- BURGLAR BARS ARE PROVIDED ABOVE INTERIOR ROLL-UP DOORS AS REQUIRED.
- INTERIOR DOOR FRAMES AND PARTITIONS 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 - ERC200X.
- INTERIOR DOOR JAMBS INCLUDE PARTITION CLOSURE ANGLES.
- NOTE FOR INTERIOR BEARING STUDWALLS: (SECURE BOTTOM TRACK W/ 3/8" x 3" WEDGE ANCHORS (2" MIN. EMBEDMENT) @ 30" O.C. MAXIMUM)
- NOTE FOR ALL EXTERIOR STUDWALLS: (SECURE FLOOR TRACK W/ 3/8" x 3" WEDGE ANCHORS (2" MIN. EMBEDMENT) @ 30" O.C. MAXIMUM)

NOTE:
 UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.

STUDWALL LEGEND BUILDING #1

DESCRIPTION	EXTERIOR STUDWALL	
	UNINSULATED	INSULATED*
① EXTERIOR STUDWALL CONSTRUCTION AT FLAT SLAB (BLOCK @ MID-HGT.)	1175 L.F.	3875 L.F.
② INSULATED NON-LOAD BEARING STUDWALL	N/A	275 L.F.
③ EXTERIOR STUDWALL CONSTRUCTION AT HVAC (BLOCK @ MID-HGT.)	N/A	40 L.F.

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: GYPSUM BOARD AND RELATED FINISH MATERIALS MAY NOT BE PROVIDED BY BETCO - VERIFY WITH CONTRACT.
 NOTE #4: SEE BLOCKING DETAIL A/631 ON ERC631X

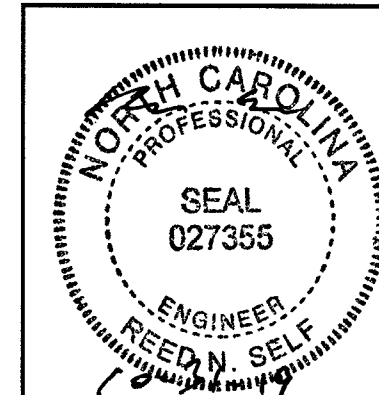
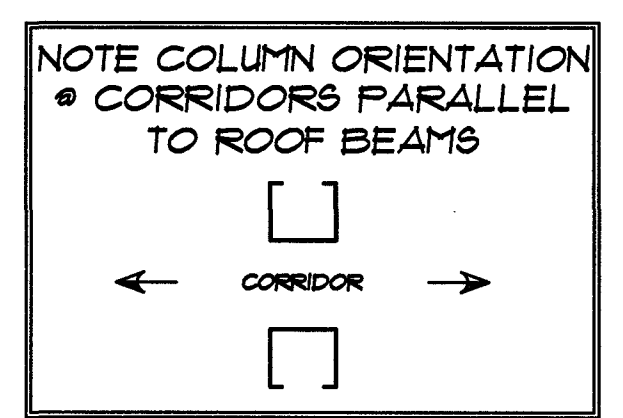
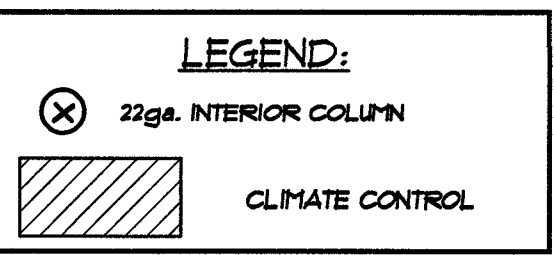
DOOR SCHEDULE

ID	DOOR SIZE	TYPE
④	4'-0" x 7'-0" (4070 - 2 - G) (ERC254X)	1/2 GLASS PERSONNEL
⑤	4'-0" x 7'-0" (4070 - 1 - A) (ERC254X)	"A" LABEL FIRE DOOR
⑥	3'-0" x 7'-0" w/LOUVER	INTERIOR SWING
⑦	3'-0" x 7'-0"	INTERIOR ROLL-UP
⑧	8'-0" x 7'-0"	INTERIOR ROLL-UP
⑨	3'-8" x 7'-10"	EXTERIOR ROLL-UP
⑩	8'-4" x 7'-10"	EXTERIOR ROLL-UP
⑪	8'-8" x 7'-10"	EXTERIOR ROLL-UP

NOTE: BLOCK ALL LOAD-BEARING INTERIOR & EXTERIOR STUD WALLS AS SHOWN IN DETAIL A OF ERC631X.

JAMB	ROLL-UP HEADER	SWING DOOR HEADER
8'-0"	12"	10 1/2"

NOTE: SEE ERC602X FOR EXTERIOR SWING DOOR FRAMING IN STUDWALL.



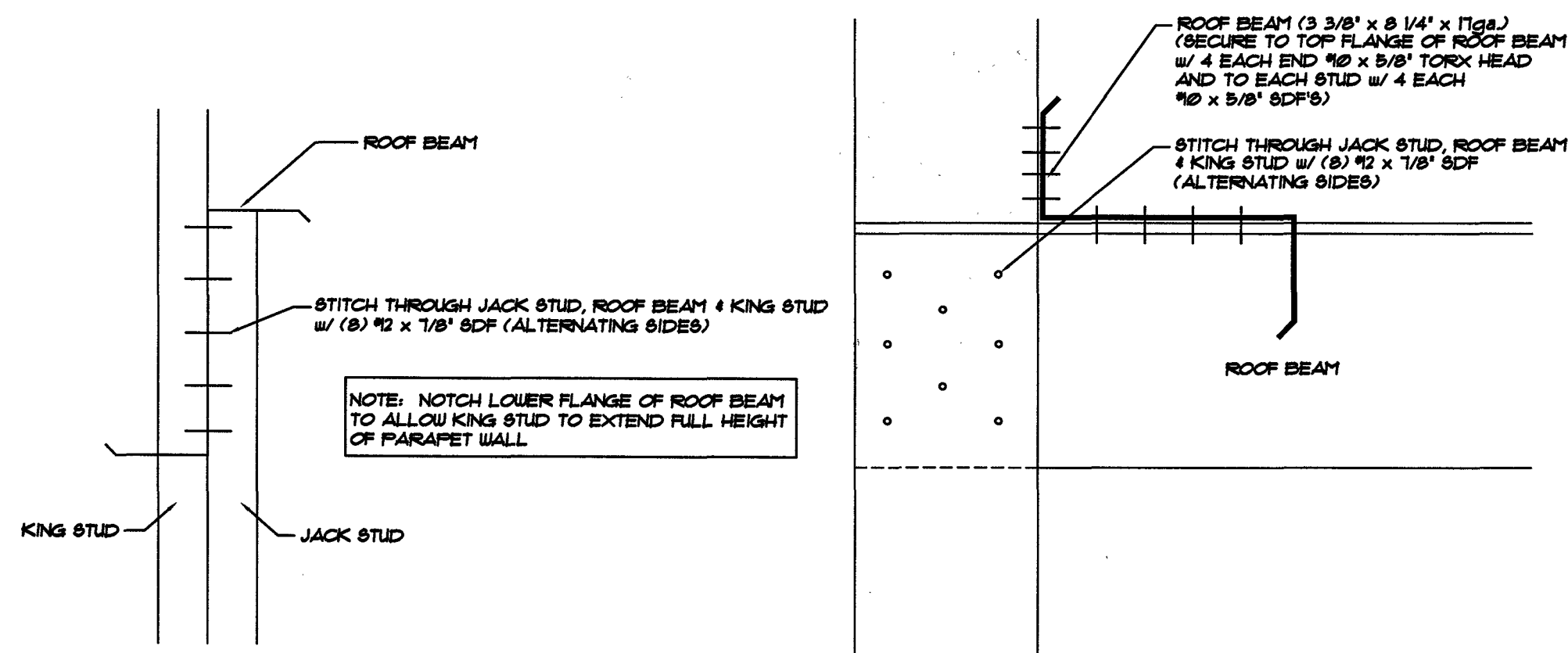
REVISIONS	DATE	BY
Δ UNIT MIX CHANGE	10/28/19	KEM

DATE: 7/30/19
 DRAWN BY: K. MACLAY
 SCALE: AS NOTED
 APPROVED BY:

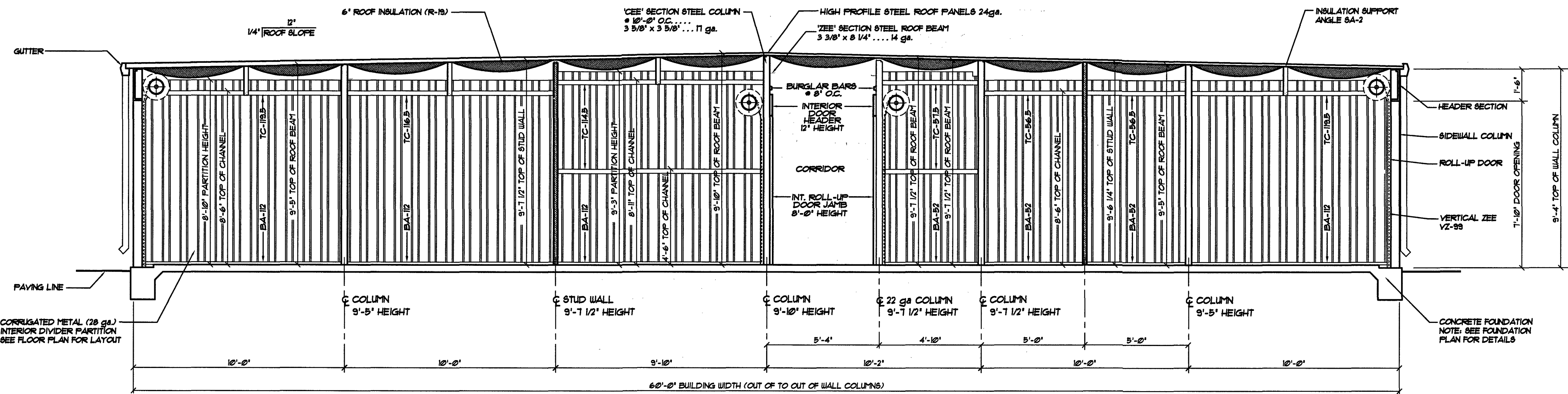
BETCO
 228 COMMERCE BLVD.
 STATESVILLE, NC 28625
 (800) 654-7813

PROJECT NAME: UNIVERSITY STORAGE
 COATS, NORTH CAROLINA
 OWNER: TTL COATS, LLC
 SHEET TITLE: FLOOR PLAN, DETAILS & NOTES
 BUILDING "3"

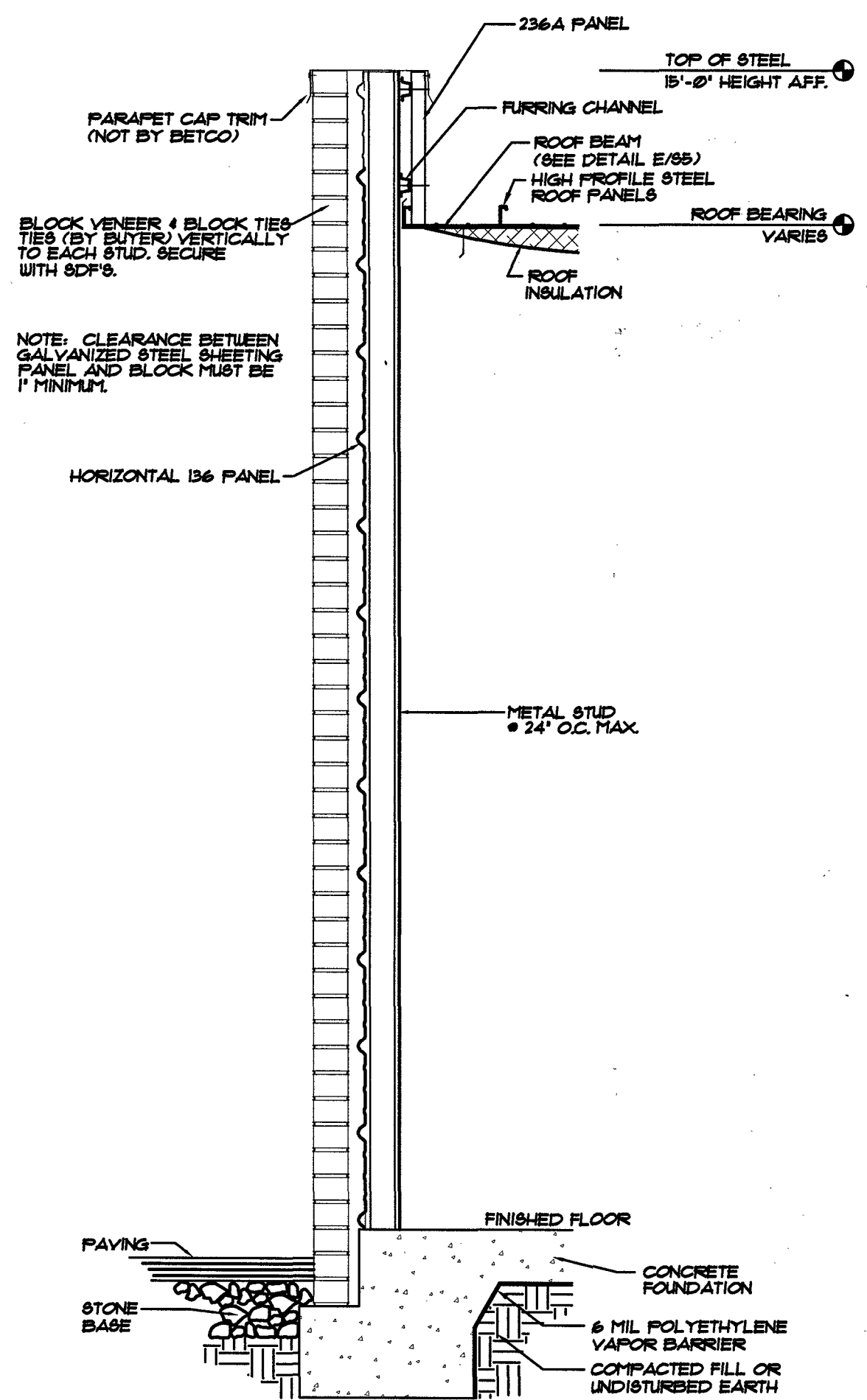
PROJECT NO.: NC19185
 DRAWING NUMBER: S4 of 5



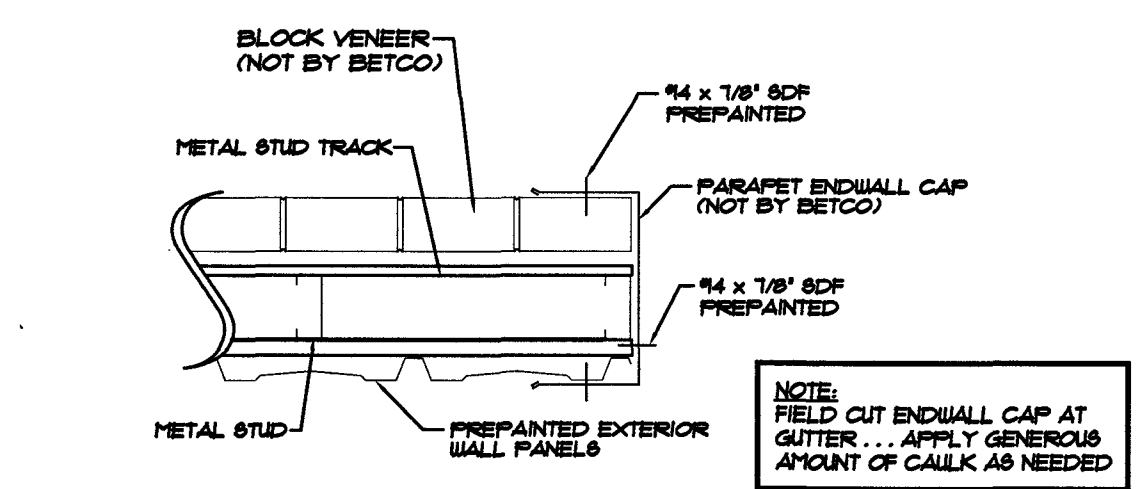
E DETAIL AT ROOF BEAM TIE IN TO PARAPET WALL
SCALE: 3/8" = 1'-0"



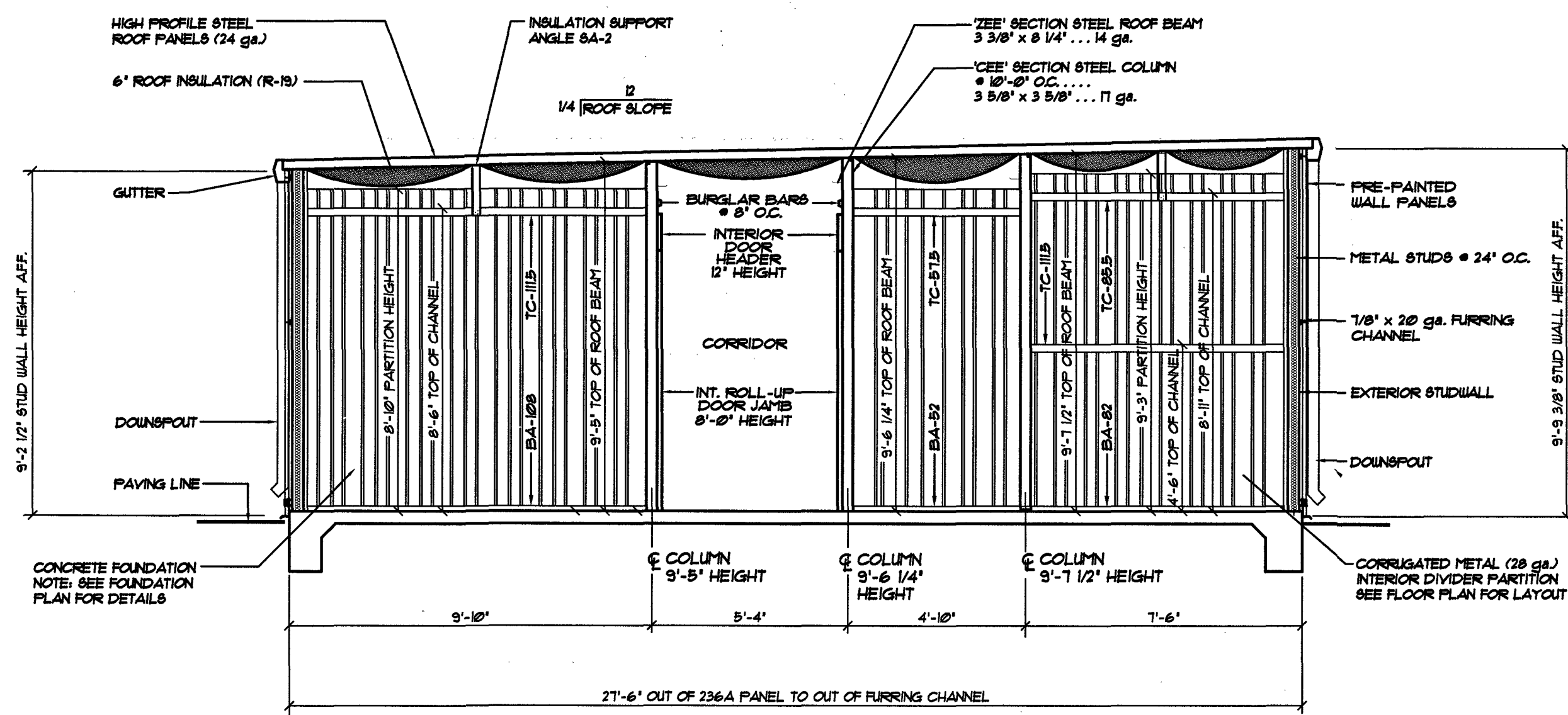
A 60'-0" WIDE CROSS SECTION... BUILDINGS "1" & "2"
SCALE: 3/8" = 1'-0"



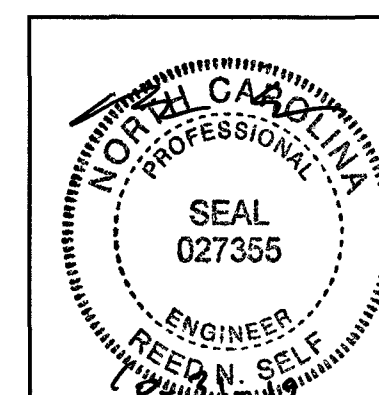
C SECTION AT EXTERIOR STUD WALL W/ VENEER
NOT TO SCALE



D ENDWALL CAP FLASHING @ PARAPET WALL
NOT TO SCALE



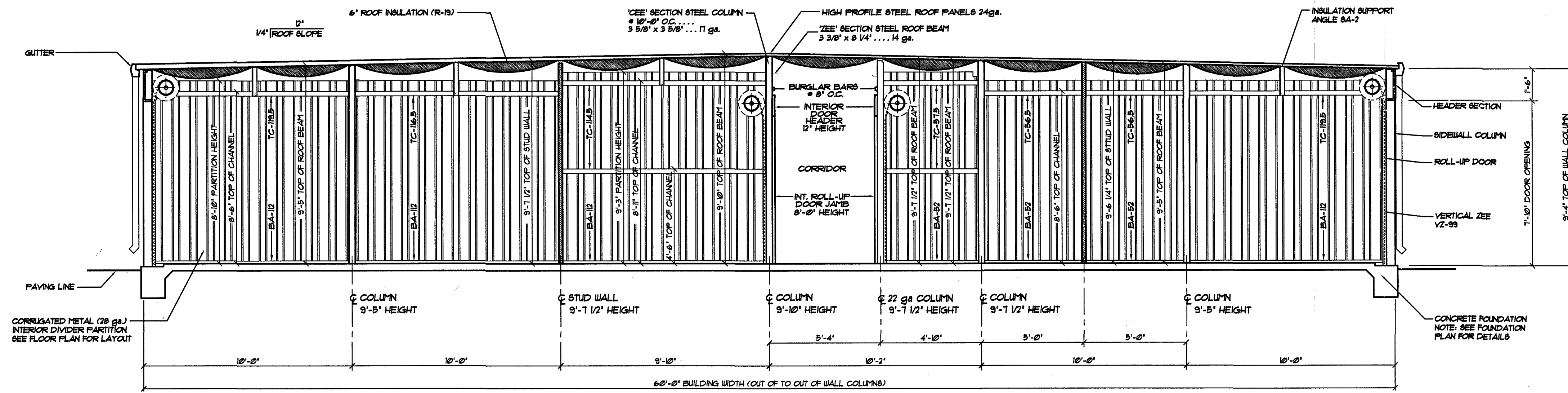
B 27'-6" WIDE CROSS SECTION... BUILDING "3"
SCALE: 3/8" = 1'-0"



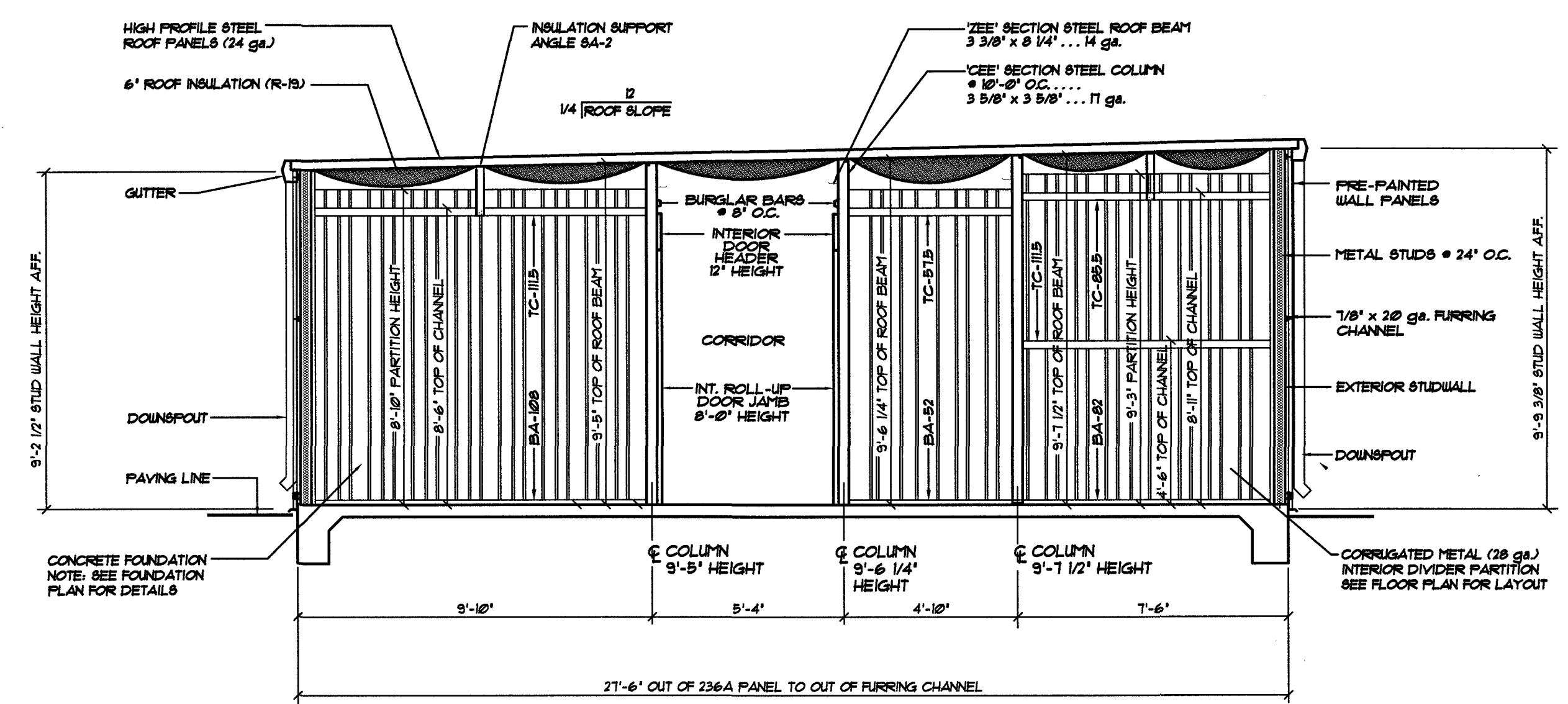
DATE:	7/25/19
DRAWN BY:	K. MACLAY
SCALE:	AS NOTED
APPROVED BY:	
ADDED DETAILS	10/28/19
REVISIONS	DATE BY

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STATESVILLE, NC 28625
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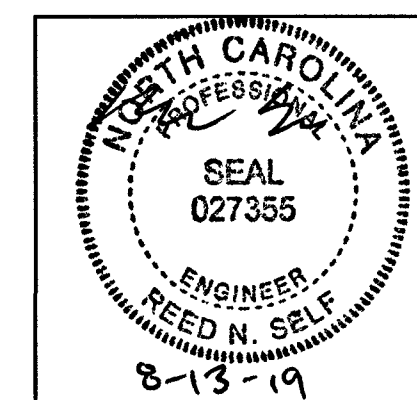
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PROJECT ADDRESS:	COATS, NORTH CAROLINA
OWNER:	TTL COATS, LLC
SHEET TITLE:	CROSS SECTIONS & DETAILS
PROJECT NO.:	NC19185
DRAWING NUMBER:	S5 of 5



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



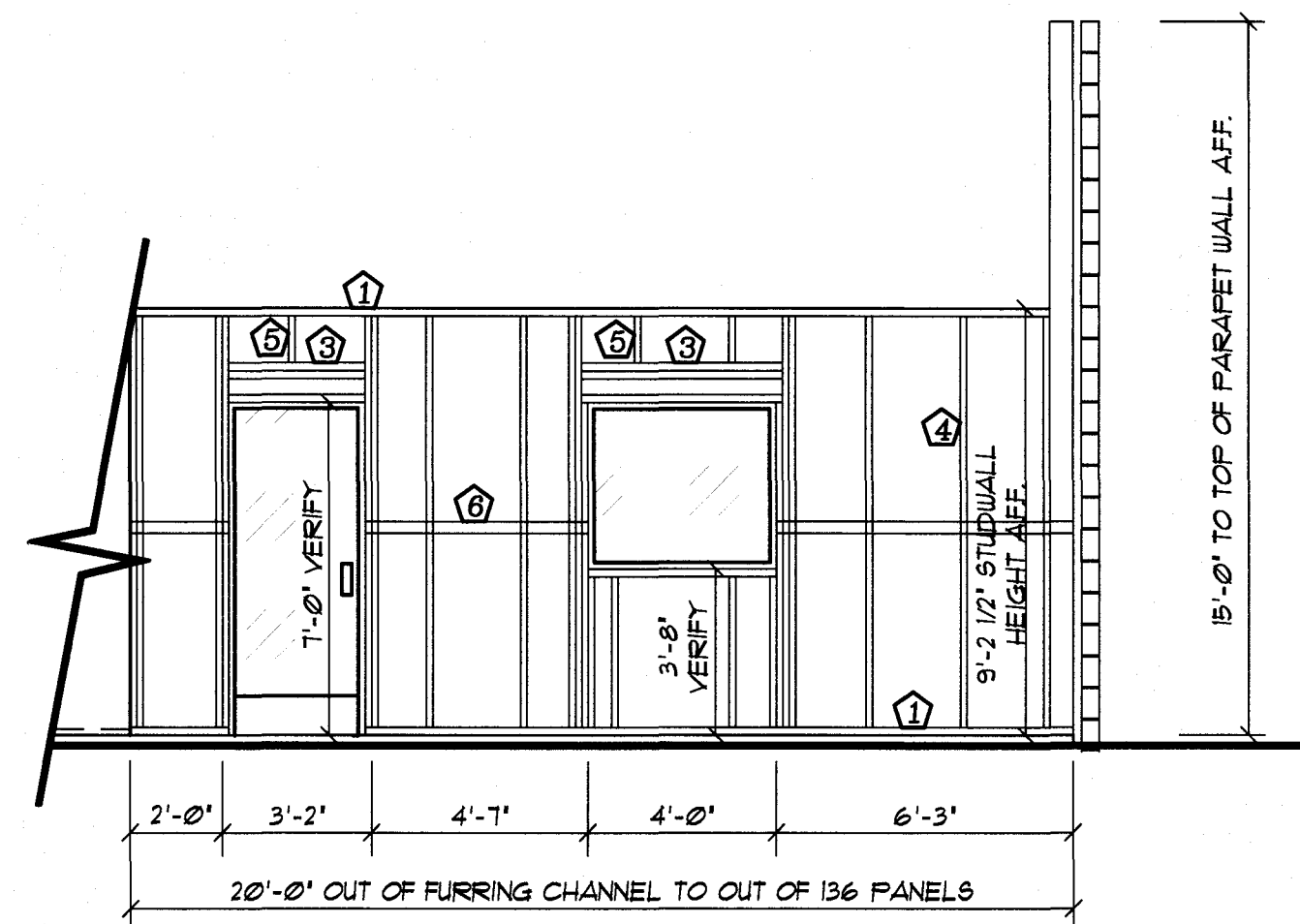
B 27'-6" WIDE CROSS SECTION ... BUILDING "3"
 S5 SCALE: 3/8" = 1'-0"



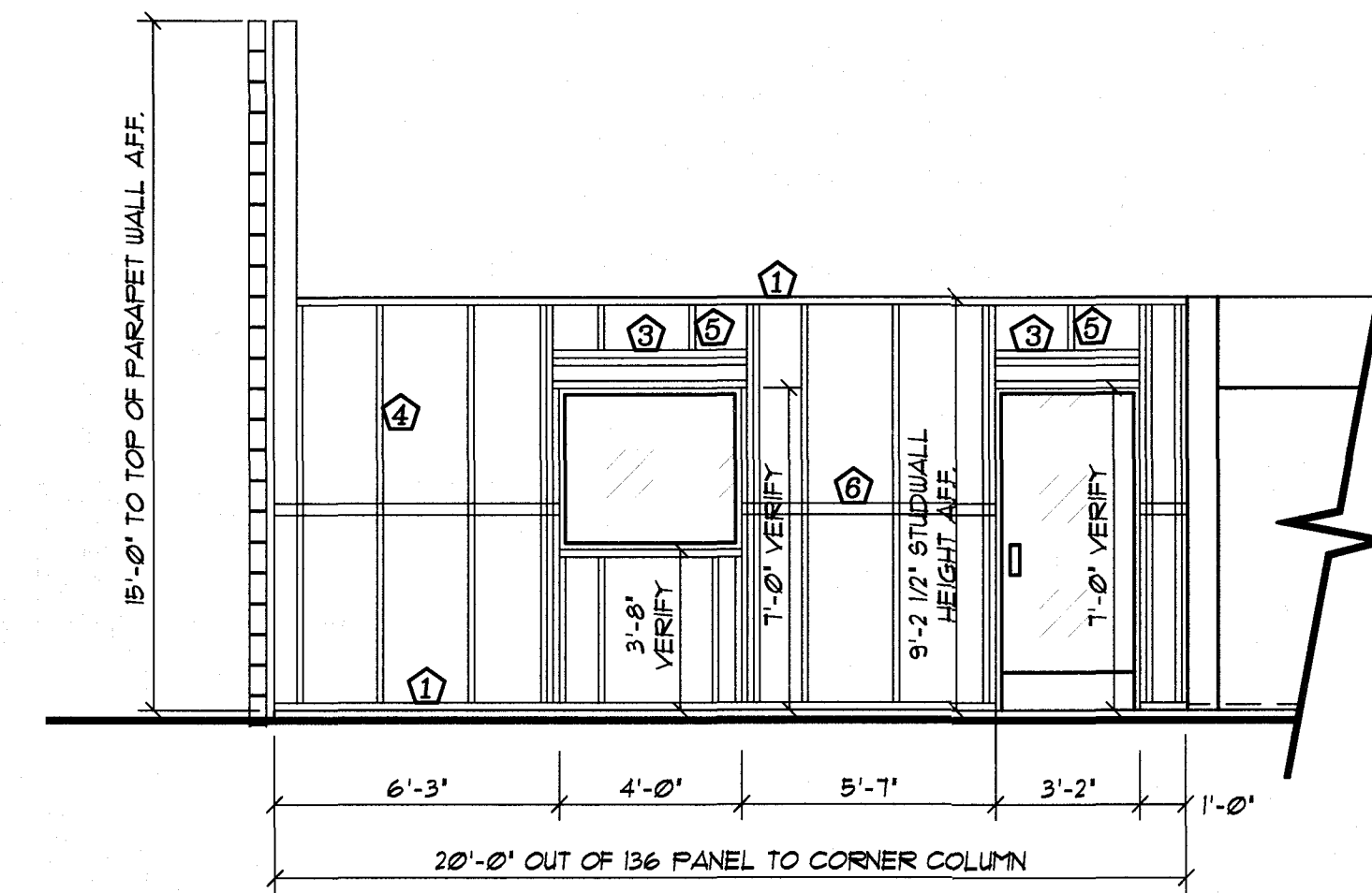
DATE:	7/25/19
DRAWN BY:	K. MACLAY
SCALE:	AS NOTED
APPROVED BY:	
REVISIONS:	
DATE:	BY:



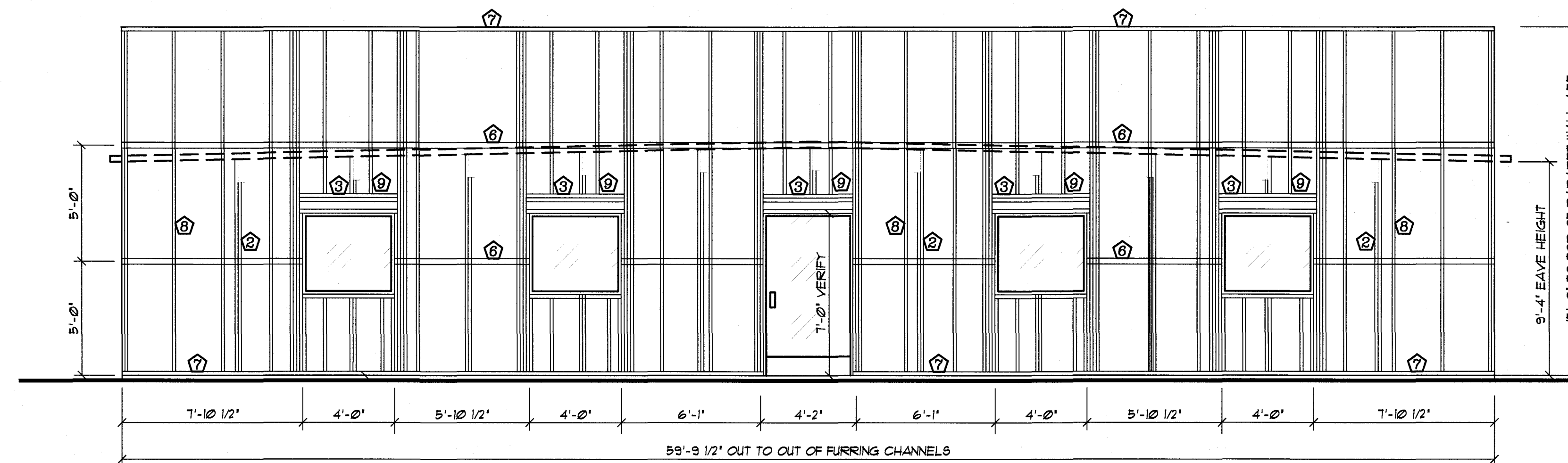
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PROJECT ADDRESS:	COATS, NORTH CAROLINA
OWNER:	TTL COATS, LLC
SHEET TITLE:	CROSS SECTIONS
PROJECT NO.:	NC19185
DRAWING NUMBER:	S5 OF 5



C FRAMING ELEVATION SIDEWALL . . . BUILDING "2"
 S5A SCALE: 1/4" = 1'-0" (NOTE: VERIFY ALL ROUGH OPENING LOCATIONS AND SIZES)



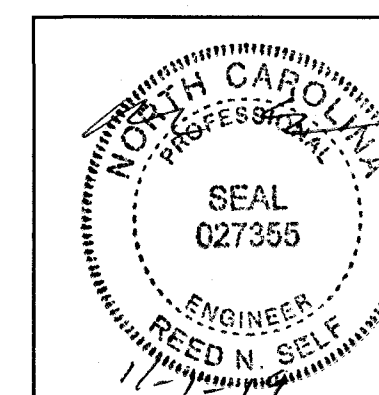
A FRAMING ELEVATION SIDEWALL . . . BUILDING "2"
 S5A SCALE: 1/4" = 1'-0" (NOTE: VERIFY ALL ROUGH OPENING LOCATIONS AND SIZES)



B FRAMING ELEVATION ENDWALL . . . BUILDING "2"
 S5A SCALE: 1/4" = 1'-0" (NOTE: VERIFY ALL ROUGH OPENING LOCATIONS AND SIZES)

LEGEND:

- ① 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 2 EACH - METAL STUD AT EACH ROOF BEAM LOCATION - SIMILAR TO C/6@1X
- ③ DH-1 - DOUBLE CEE BOXED HEADER - 6" (SEE ERC602X)
- ④ 1 EACH - METAL STUD (3 5/8" x 1 5/8" x 18ga)
- ⑤ METAL STUD TRACK ABOVE HEADER (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 - FASTEN TO TOP OF DH-1 WITH 2 EACH #2 x 7/8" SDF AT 12" O.C.
- ⑥ STRAP BRACING FOR BLOCKING (SEE DETAIL 'A' ON ERC631X)
- ⑦ METAL STUD TRACK (6" x 1 1/4" LEG x 18ga) FASTEN TO EACH METAL STUD WITH 2 EACH #10 x 5/8" SDF PER FLANGE
- ⑧ 1 EACH - METAL STUD (6" x 2" x 16ga)
- ⑨ METAL STUD TRACK ABOVE HEADER (6" x 1 1/4" LEG 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 #2 x 7/8" SDF AT 12" O.C.

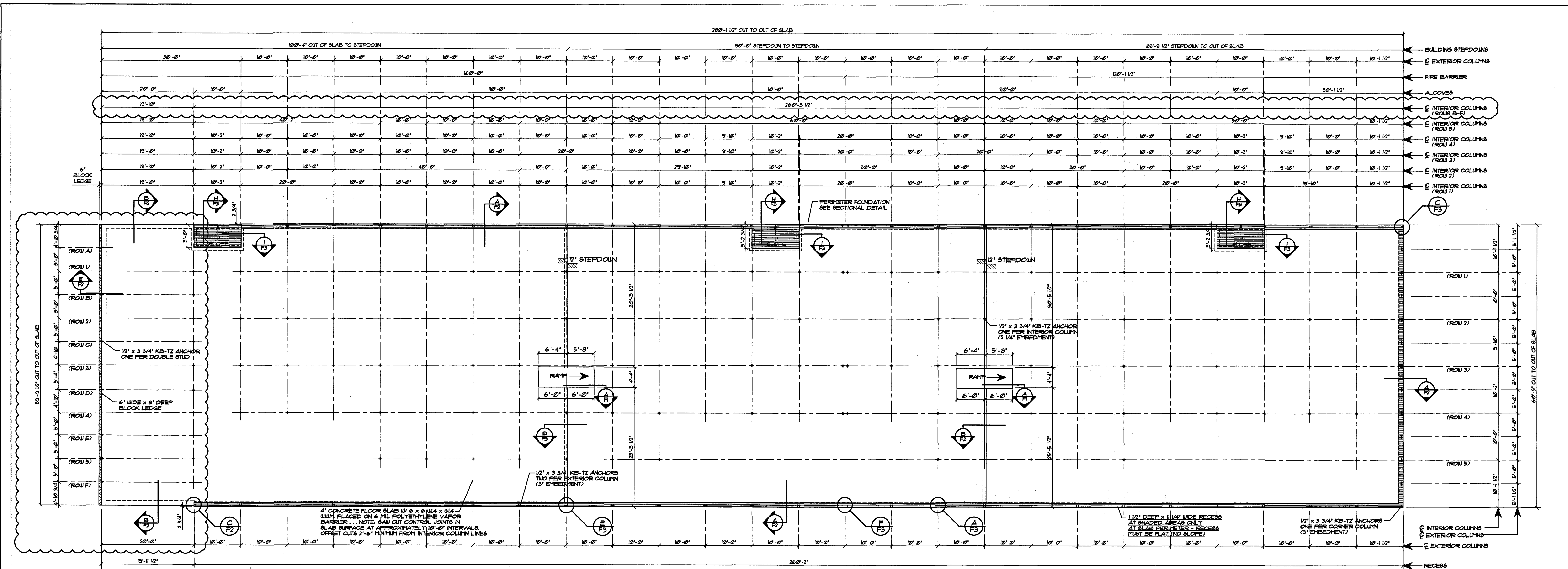


REVISIONS	DATE	BY

DATE: 10/28/19
 DRAWN BY: K. MACLAY
 SCALE: AS NOTED
 APPROVED BY:

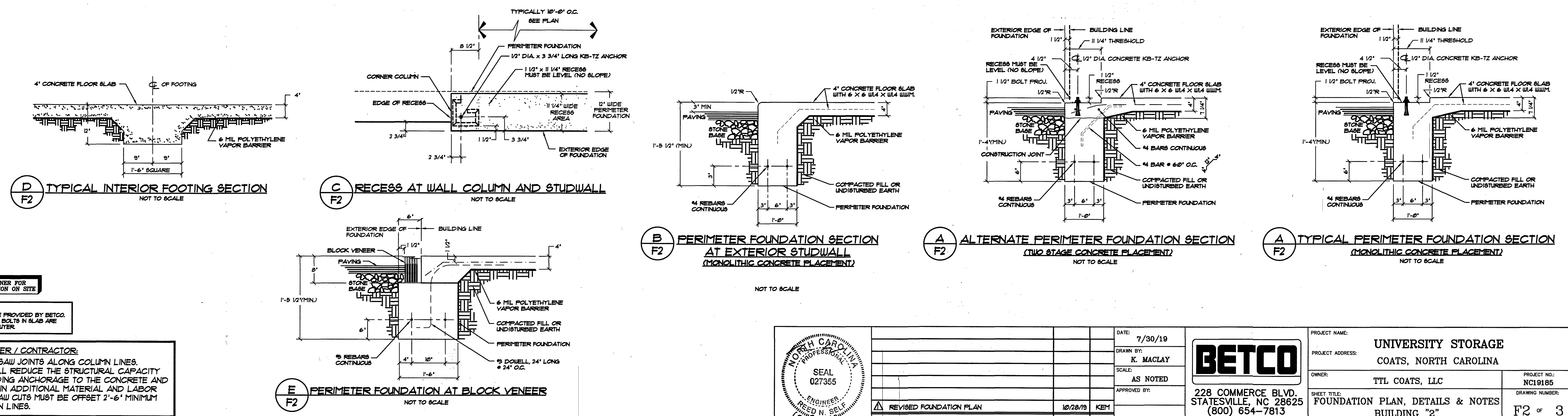
BETCO
 228 COMMERCE BLVD.
 STATESVILLE, NC 28625
 (800) 654-7813

PROJECT NAME: UNIVERSITY STORAGE	PROJECT NO.: NC19185
PROJECT ADDRESS: COATS, NORTH CAROLINA	DRAWING NUMBER: S5A OF 5
OWNER: TTL COATS, LLC	SHEET TITLE: FRAMING ELEVATIONS & NOTES BUILDING "2"



FOUNDATION PLAN... BUILDING "2"

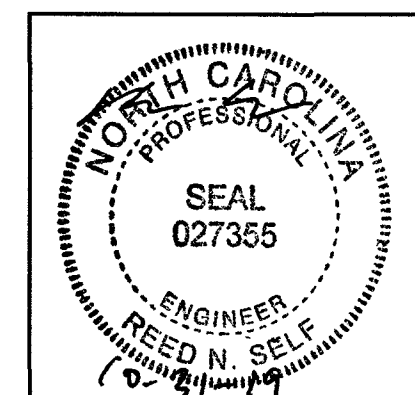
SCALE: 1" = 10'-0"
 SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS...
 OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.



NOTE: SEE OWNER FOR BUILDING ORIENTATION ON SITE

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

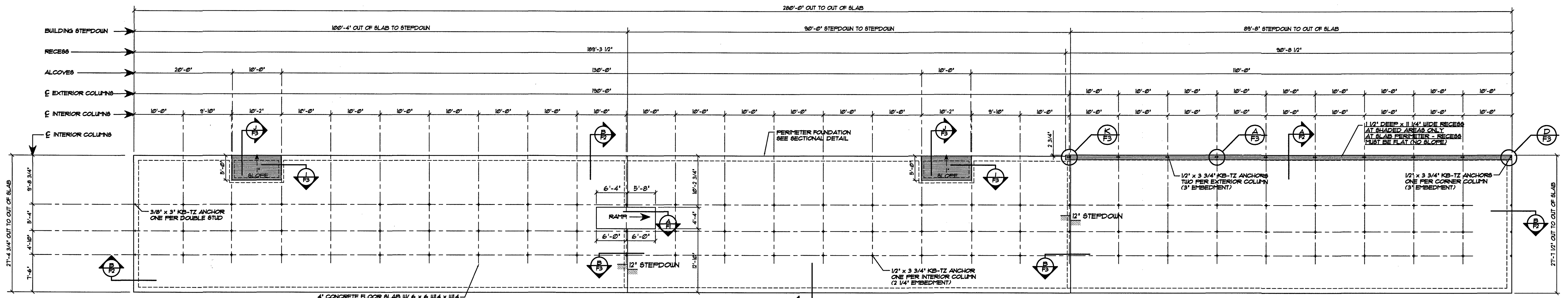
NOTE TO OWNER / CONTRACTOR:
 DO NOT CUT SAW JOINTS ALONG COLUMN LINES. DOING SO WILL REDUCE THE STRUCTURAL CAPACITY OF THE BUILDING ANCHORAGE TO THE CONCRETE AND MAY RESULT IN ADDITIONAL MATERIAL AND LABOR CHARGES. SAW CUTS MUST BE OFFSET 2'-6" MINIMUM FROM COLUMN LINES.



DATE:	7/30/19	
DRAWN BY:	K. MACLAY	
SCALE:	AS NOTED	
APPROVED BY:		
REVISIONS	DATE BY	
1	10/28/19	KEY

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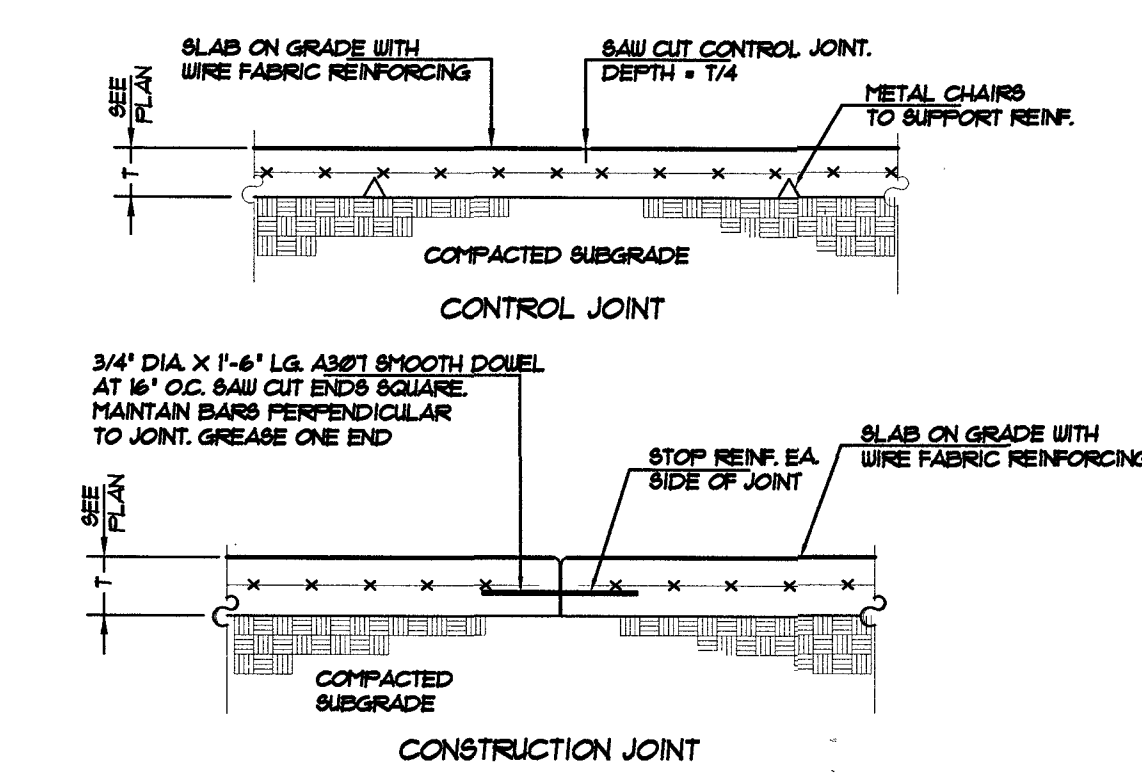
PROJECT NAME:	UNIVERSITY STORAGE
PROJECT ADDRESS:	COATS, NORTH CAROLINA
OWNER:	TTL COATS, LLC
SHEET TITLE:	FOUNDATION PLAN, DETAILS & NOTES BUILDING "2"
PROJECT NO.:	NC19185
DRAWING NUMBER:	F2 OF 3



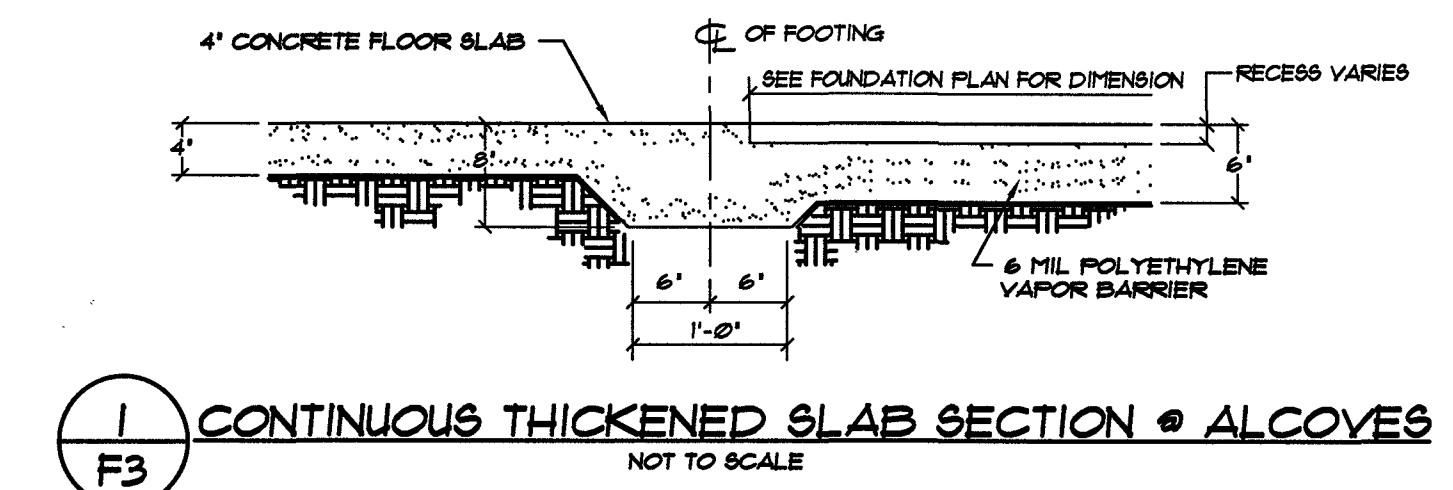
4" CONCRETE FLOOR SLAB W/ 6" X 6" W4 X W4 W/M PLACED ON 6 MIL POLYETHYLENE VAPOR BARRIER... NOTE: SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS. OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES

FOUNDATION PLAN... BUILDING "3"
SCALE: 1" = 10'-0"

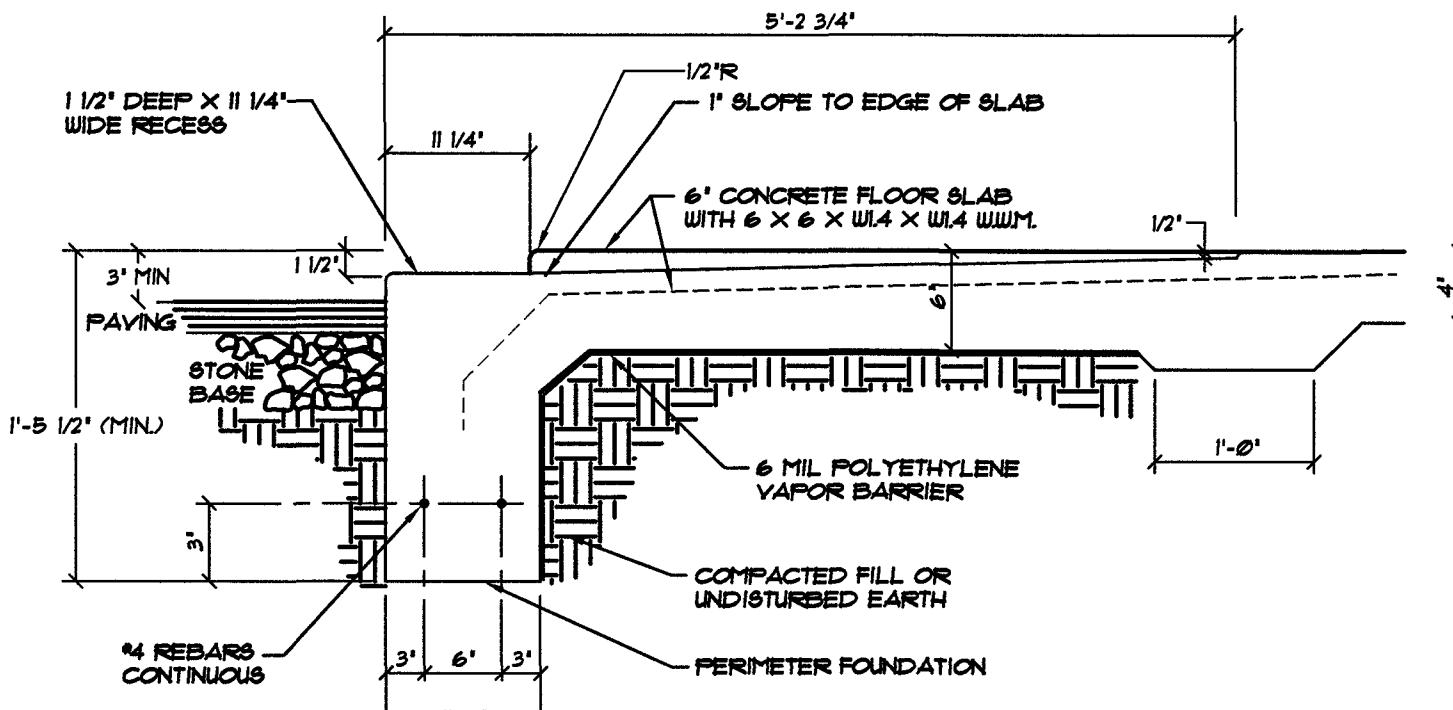
SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS... OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.



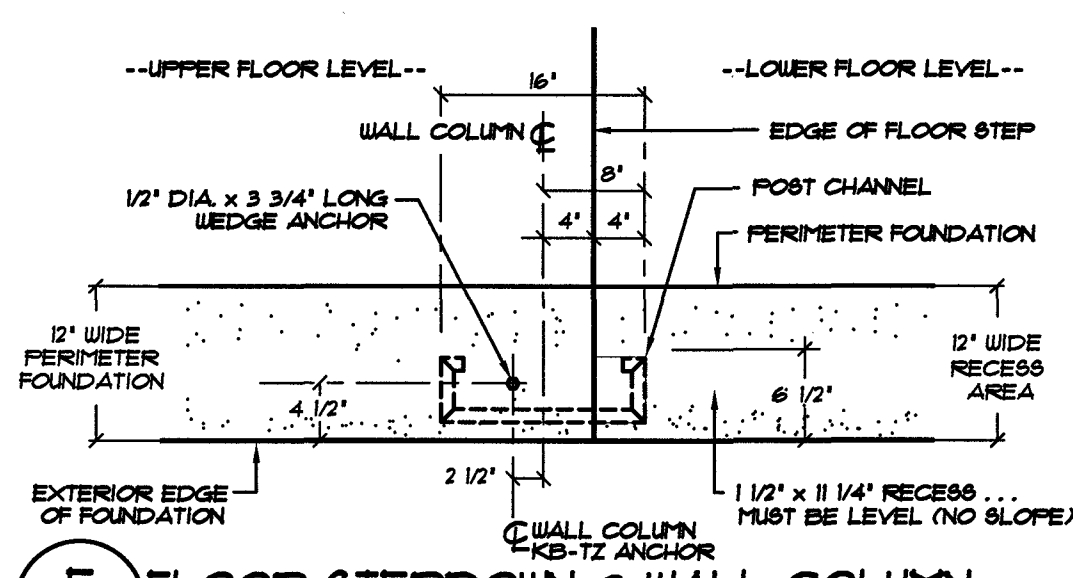
G CONTROL JOINT & CONSTRUCTION JOINT IN CONCRETE SLAB
NOT TO SCALE



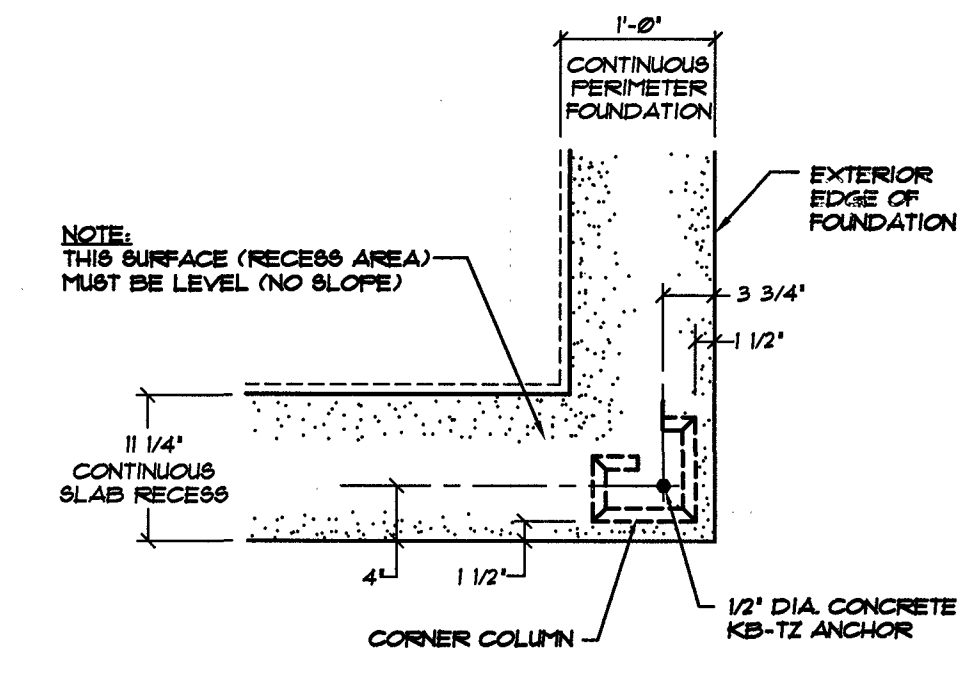
I CONTINUOUS THICKENED SLAB SECTION @ ALCOVES
NOT TO SCALE



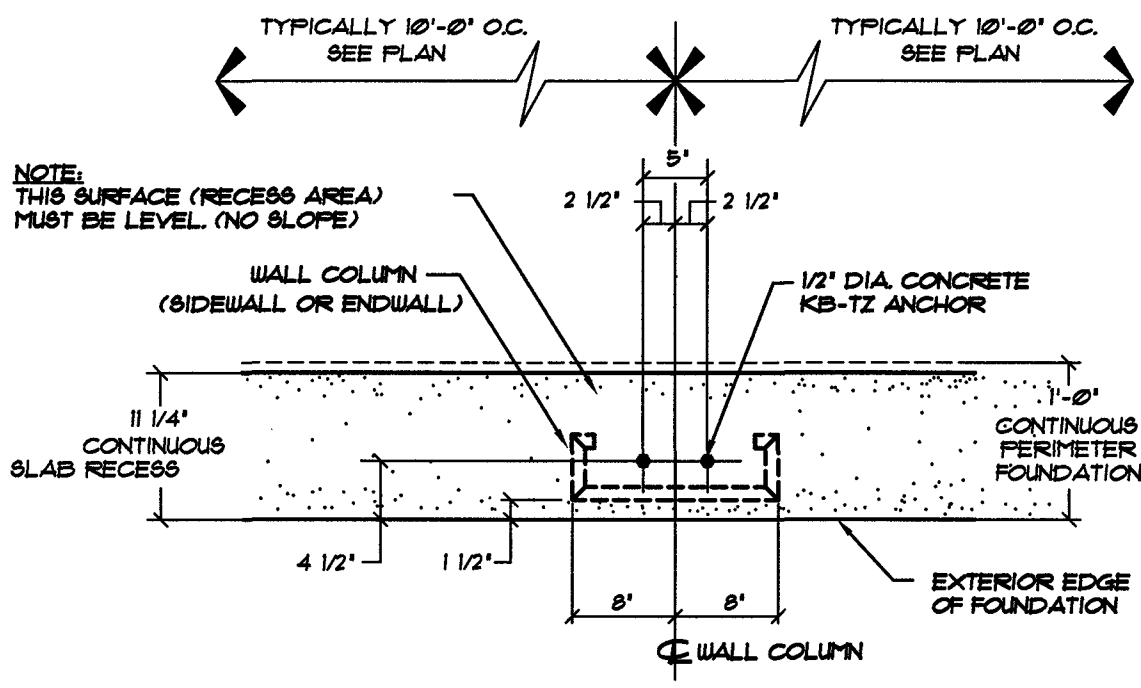
H PERIMETER FOUNDATION SECTION AT 5'-0" ALCOVE AREAS (MONOLITHIC CONCRETE PLACEMENT)
NOT TO SCALE



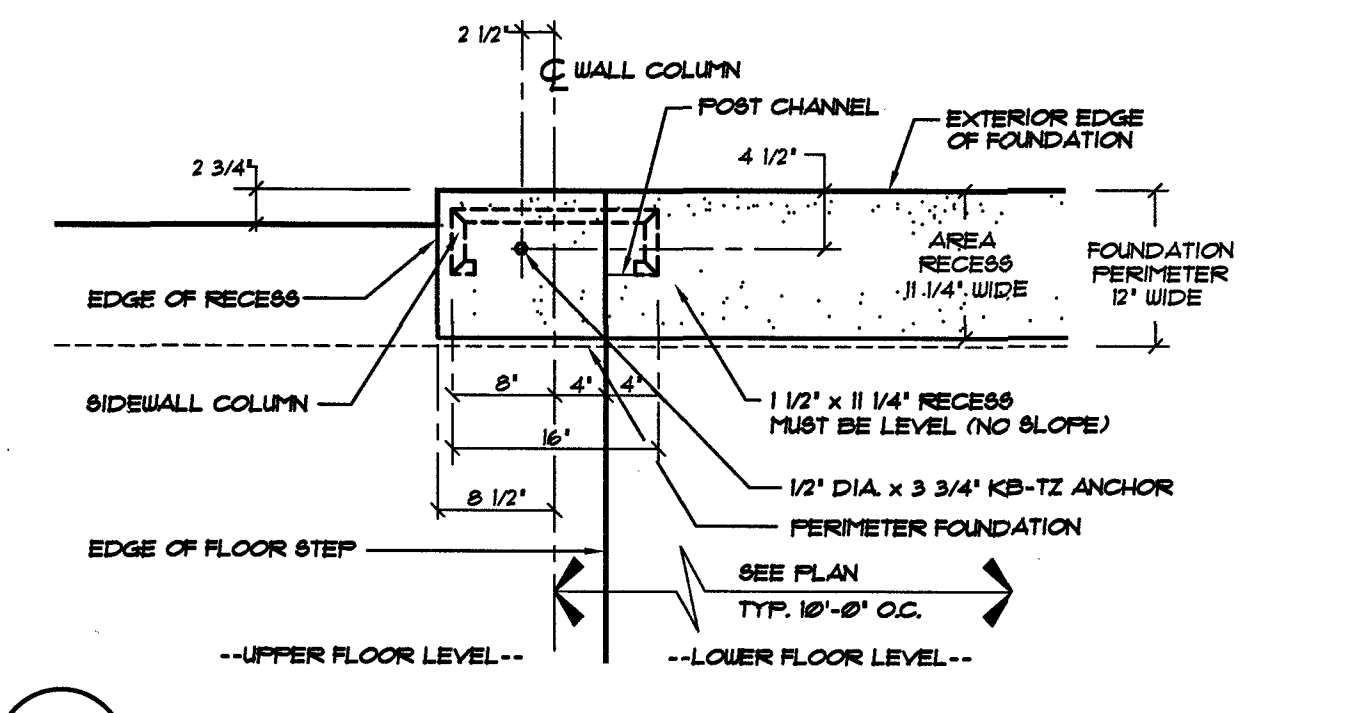
E FLOOR STEPDOWN @ WALL COLUMN
NOT TO SCALE



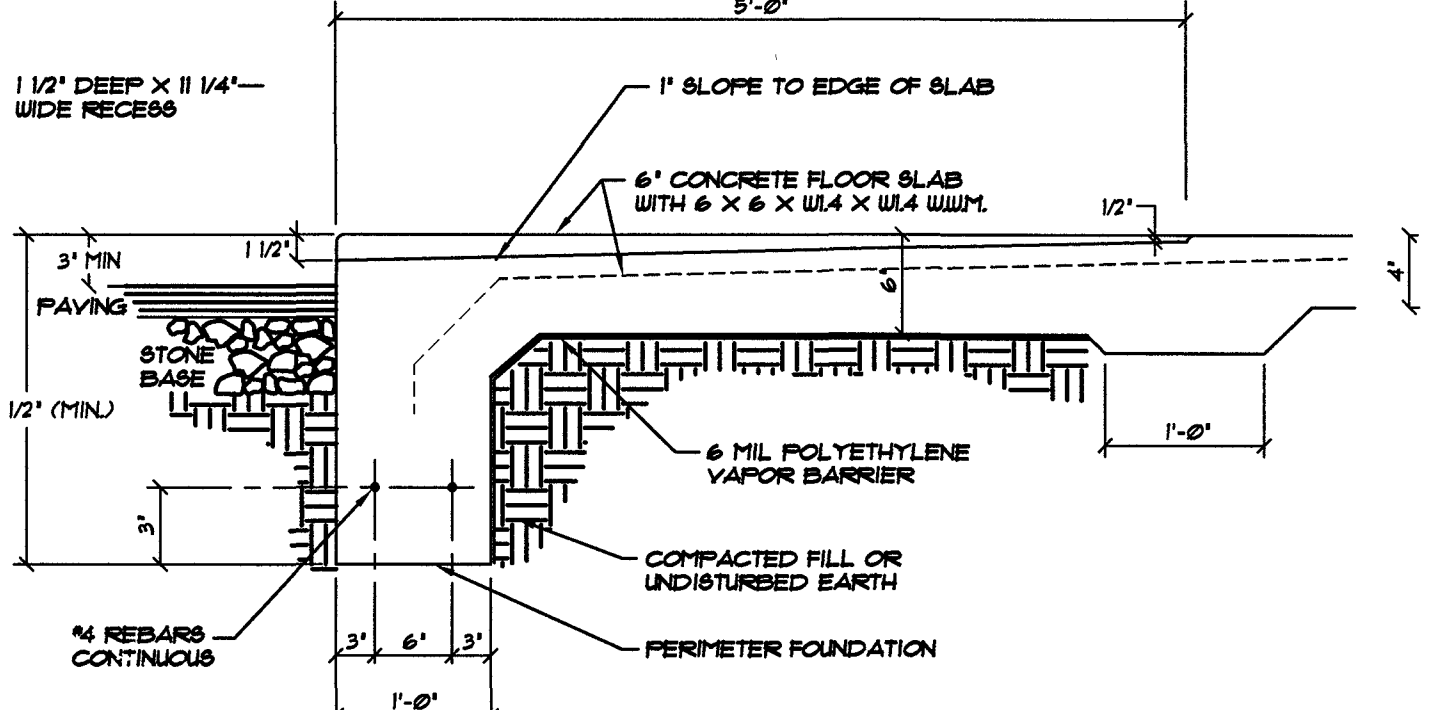
C TYPICAL CORNER WEDGE ANCHORS
NOT TO SCALE



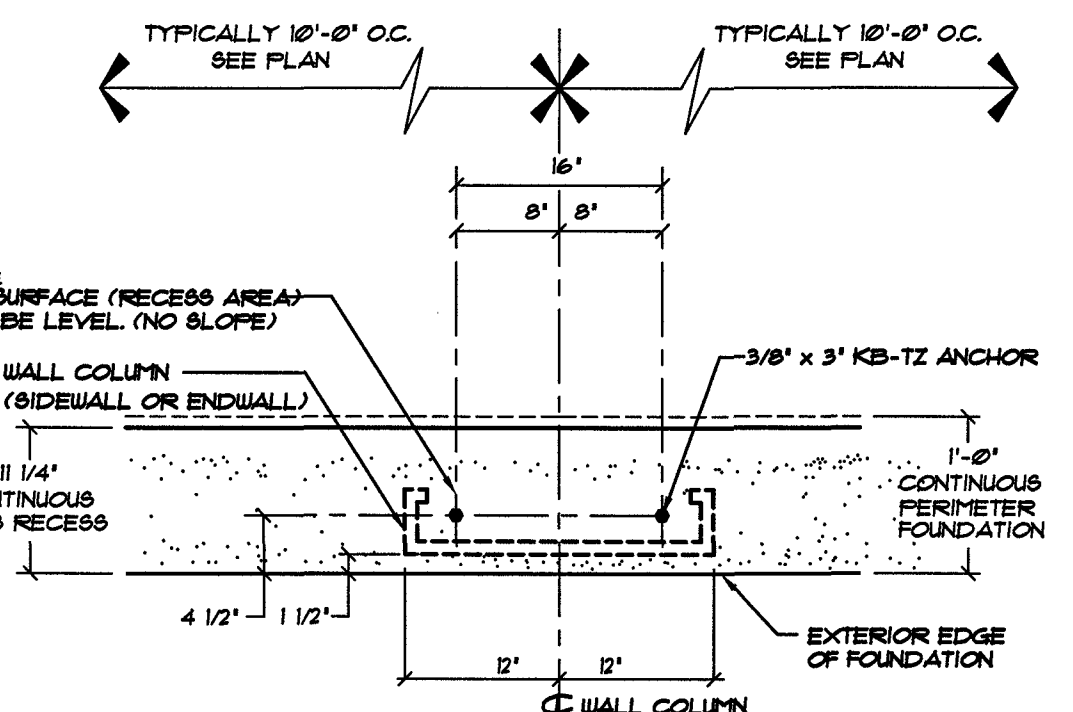
A TYPICAL WALL COLUMN WEDGE ANCHORS
NOT TO SCALE



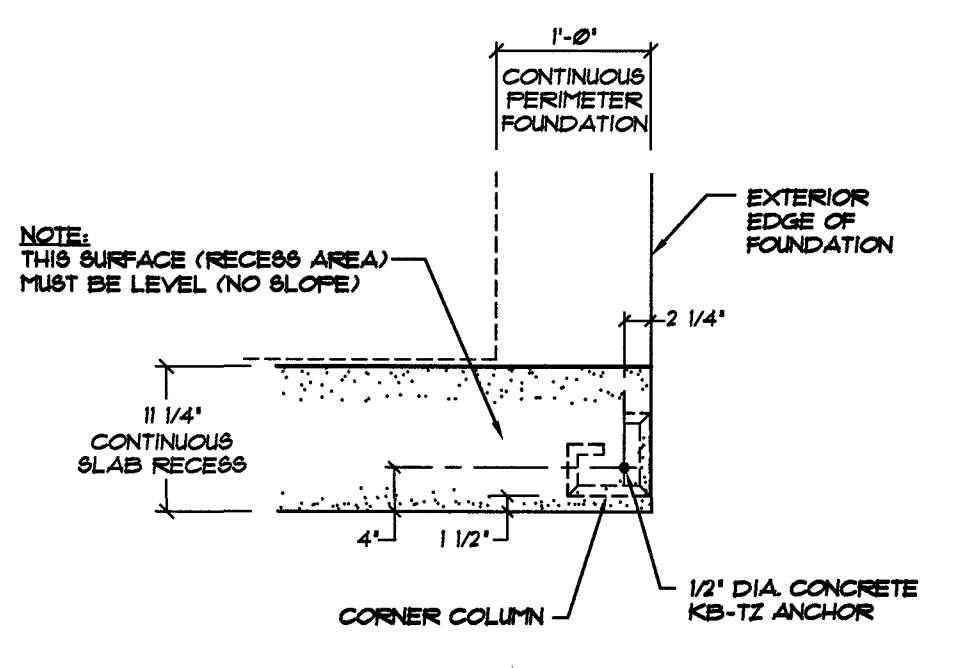
K RECESS AT WALL COLUMN AND STUDWALL
NOT TO SCALE



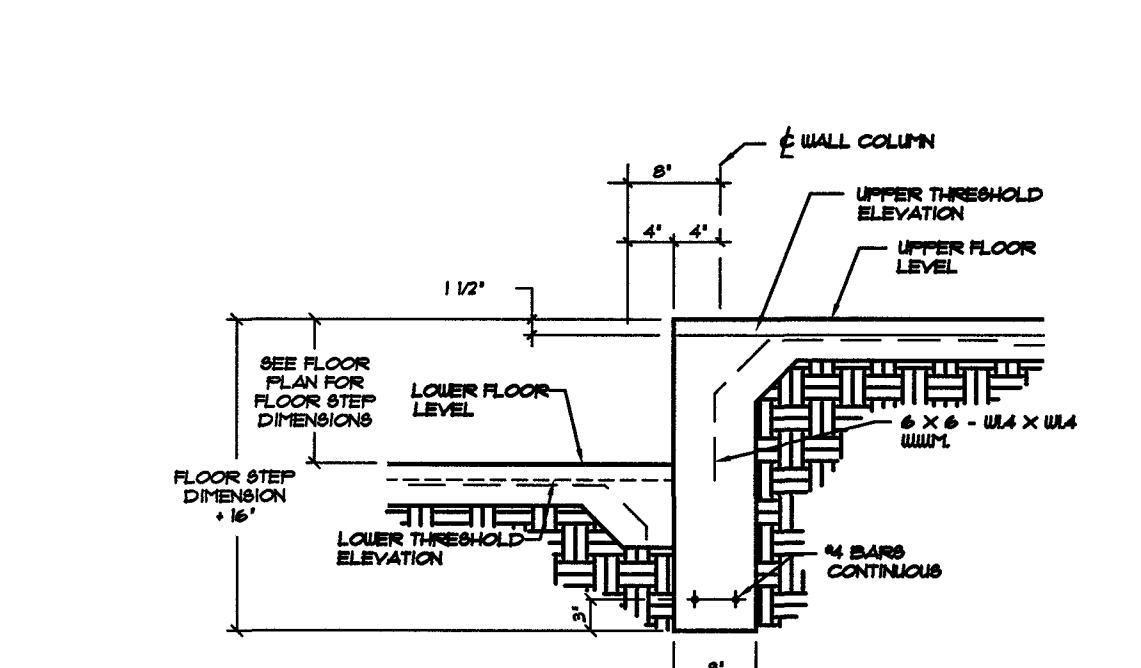
J PERIMETER FOUNDATION SECTION AT 5'-0" ALCOVE AREAS (MONOLITHIC CONCRETE PLACEMENT)
NOT TO SCALE



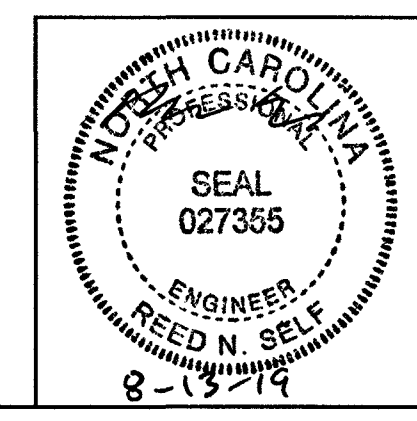
F TYPICAL 24" WALL COLUMN ANCHORS
NOT TO SCALE



D CORNER WEDGE ANCHORS AT STUD WALL
NOT TO SCALE



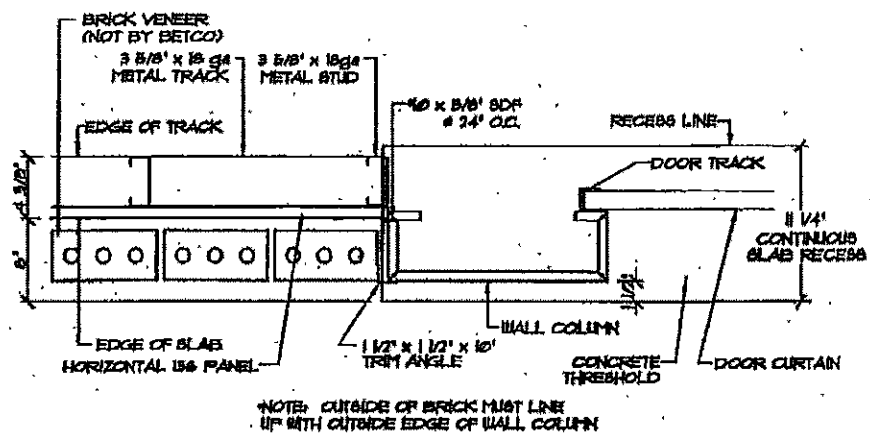
B FOUNDATION SECTION @ FLOOR STEP
NOT TO SCALE



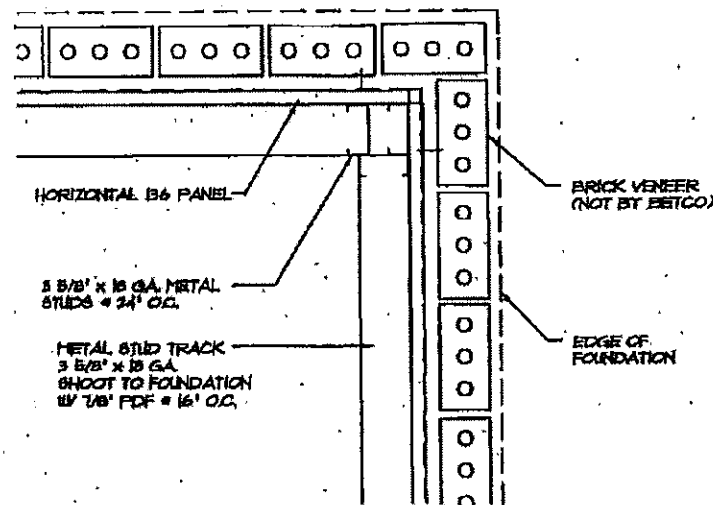
DATE:	7/30/19
DRAWN BY:	K. MACLAY
SCALE:	AS NOTED
APPROVED BY:	
REVISIONS:	
DATE:	BY:

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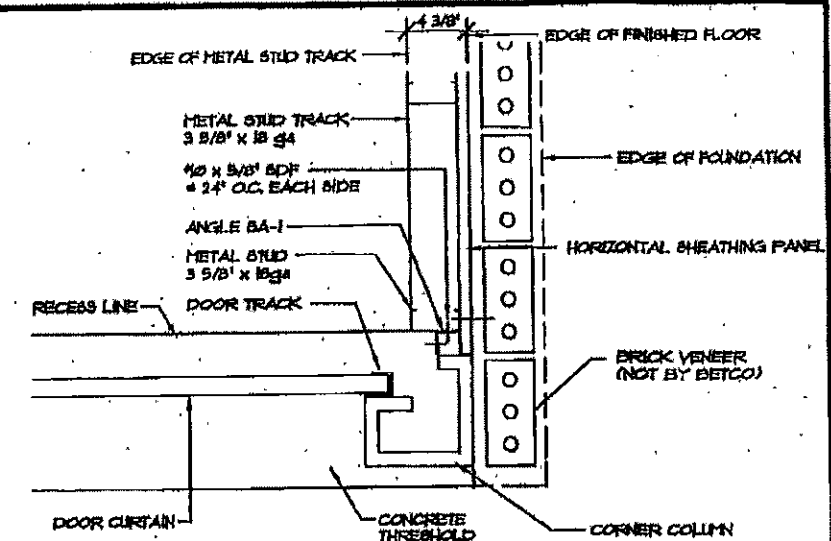
PROJECT NAME:	UNIVERSITY STORAGE	PROJECT NO.:	NC19185
PROJECT ADDRESS:	COATS, NORTH CAROLINA	DRAWING NUMBER:	F3 OF 3
OWNER:	TTL COATS, LLC		
SHEET TITLE:	FOUNDATION PLAN, DETAILS & NOTES		
	BUILDING "3"		



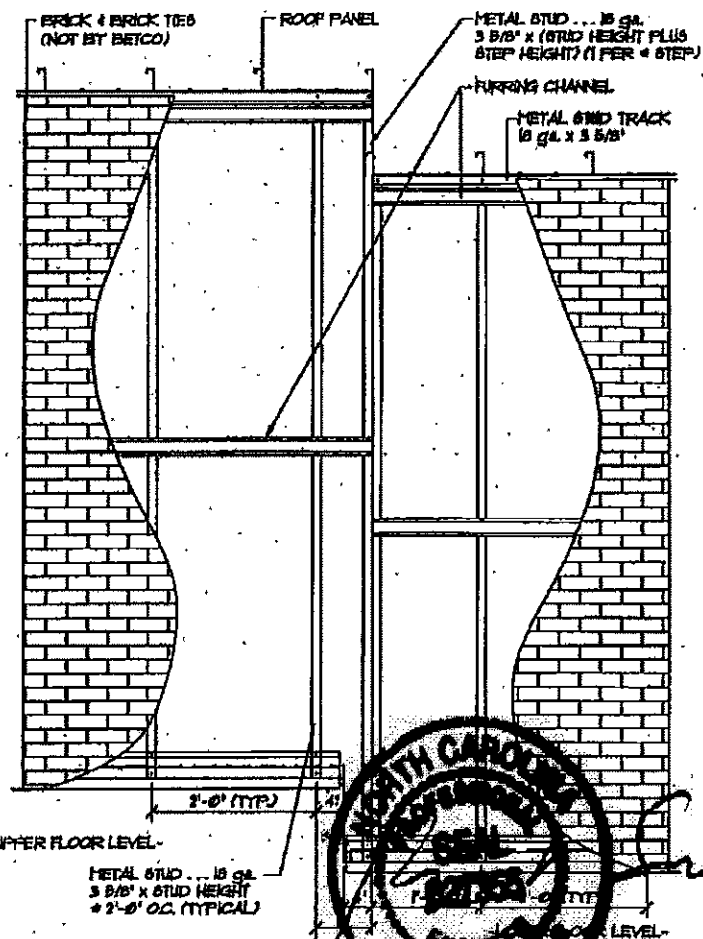
A STUDWALL CONSTRUCTION @ WALL COLUMN & BRICK VENEER
 NOT TO SCALE



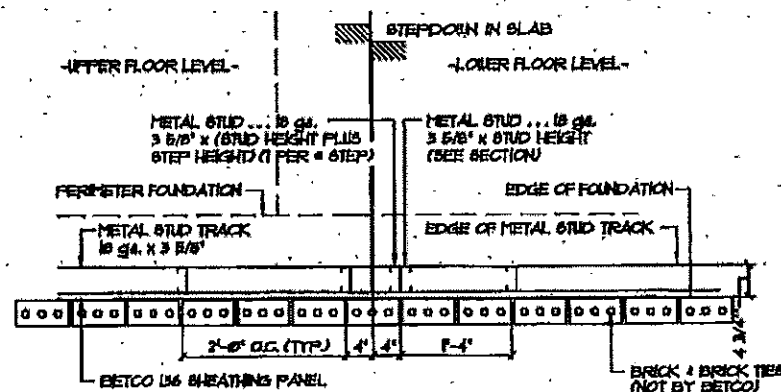
C CORNER DETAIL @ OFFICE AREA
 NOT TO SCALE



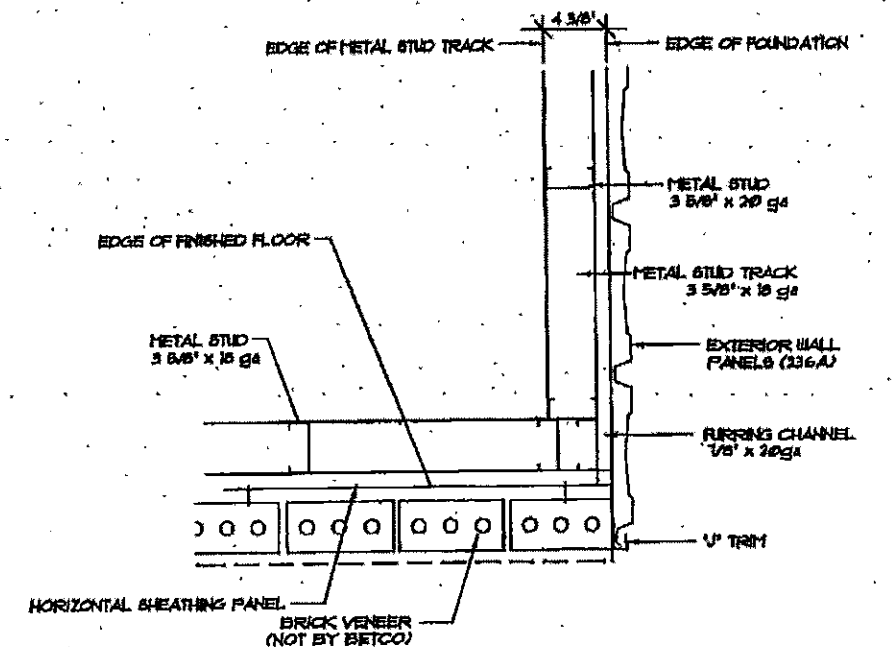
E BRICK VENEER CONSTRUCTION @ CORNER COLUMN
 NOT TO SCALE



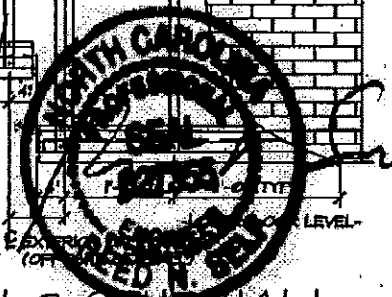
B ELEVATION @ STUDWALL AND STEPPDOWN
 NOT TO SCALE



D PLAN VIEW OF STUDWALL @ FLOOR STEPPDOWN
 NOT TO SCALE



F CORNER AT STUDWALL WITH BRICK VENEER AND WALL PANELS
 NOT TO SCALE



REVISIONS	DATE	BY
△ REVISED STUD SIZE	8/29/02	BAM
△ REVISED DETAIL F/650	2/6/02	JCM

BETCO, INC.
 BUILDING THE FUTURE OF SELF STORAGE
 P.O. BOX 1650
 STATESVILLE, NC 28687

SHEET TITLE: Brick Veneer Details		
DRAWN BY: CJG	APPROVED BY:	DRAWING NUMBER: ERC650X
SCALE: NTS	DATE: 4/14/00	

EXIT REQUIREMENTS:
NUMBER AND ARRANGEMENTS OF EXITS

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM NO. OF EXITS		TRAVEL DISTANCE		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	3	200'	105'-6"	131'-8"	215'-5"

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

EXIT WIDTH

USE GROUP OR SPACE DESCRIPTION	(a)		CALCULATED OCCUPANT LOAD (a/b)	(c)		EXIT WIDTH (in)			
	AREA ¹ SQ. FT.	AREA ¹ PER OCCUPANT (TABLE 1004.1.2)		EGRESS WIDTH PER OCCUPANT (TABLE 1005.1)	REQUIRED WIDTH (SECTION 1005.1) (a/b) x c	ACTUAL WIDTH SHOWN ON PLANS	STAIR LEVEL		
				STAIR LEVEL	STAIR LEVEL	STAIR LEVEL	STAIR LEVEL		
S-1	8275	500 GROSS	17	N/A	.2	N/A	3.4"	N/A	144"

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

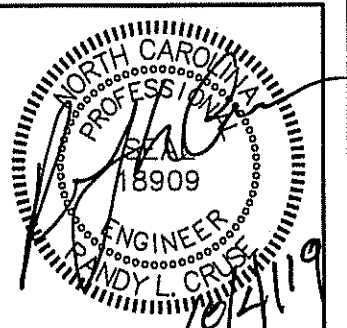
- SEE LEGEND FOR RATED WALLS.
- ASSUMED PROPERTY LINE = 12'; REAL PROPERTY LINES >80'.
- ASSUMED PROPERTY LINES = >12' UNLIMITED; NCSBC 705.8.1 EXCEPTION 2
- NO DEAD ENDS OVER 20'; 20' ALLOWED.
- NO RATING REQUIRED THIS STRUCTURE.
- PANIC HARDWARE NOT REQUIRED.
- NO DELAYED EGRESS LOCKS, ELECTROMAGNETIC LOCKS, HOLD OPEN DEVICES, OR EMERGENCY ESCAPE WINDOWS
- FIRE AREAS DO NOT EXCEED CODE ALLOWANCE
- 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)

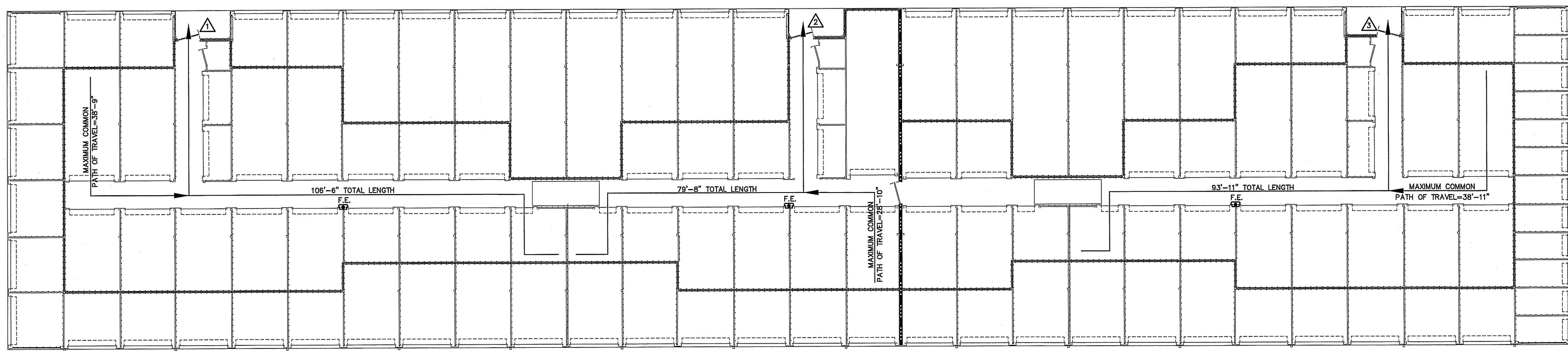
△ 47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS
CALCULATED OCCUPANCY PER EXIT = 5 PEOPLE
CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

△ 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.



UNIVERSITY STORAGE
BUILDING #1
ORANGE STREET COATS, NC



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

NOTE:
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.

LEGEND
----- 3 HOUR FIRE BARRIER

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SHEET NO.
LS-1 OF 1

OUTSIDE AIR REQUIREMENTS
 BUILDING "1"
 STORAGE - 0.06 CFM/SF X 8,420 SF =
 505 CFM OUTSIDE AIR REQUIRED.
 144 CFM AHU-1
 144 CFM AHU-2
 217 CFM AHU-3

- GENERAL NOTES:**
- 1 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.
 - 4 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.

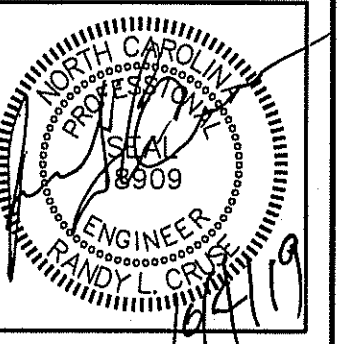
NOTE:
 VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

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)
- 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 NOTE:
 MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FOR ALL HVAC EQUIPMENT.

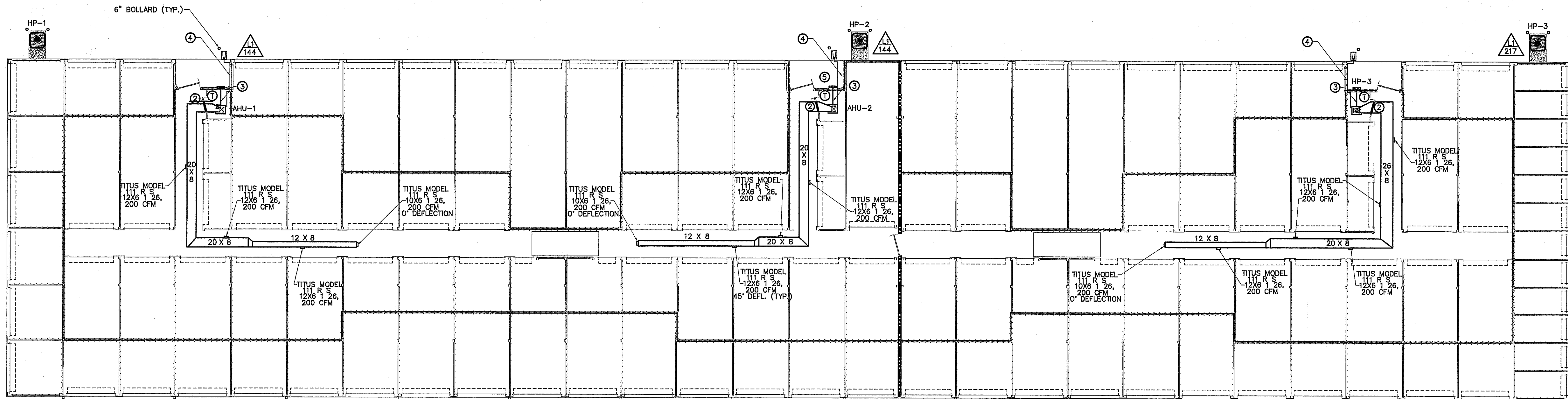
SINGLE LINE		DOUBLE LINE		DESCRIPTION	SINGLE LINE		DOUBLE LINE		DESCRIPTION	SINGLE LINE		DOUBLE LINE		DESCRIPTION		
	-			TAKE OFF TO SUPPLY AIR REGISTER WITH EXT. INSUL. DUCTWORK		-			VOLUME CONTROL DAMPER (TYP) CEILING DIFFUSER FLEXIBLE DUCTWORK (15' MAX.)		-			SUPPLY AIR CEILING DIFFUSER, ARROW INDICATES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



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

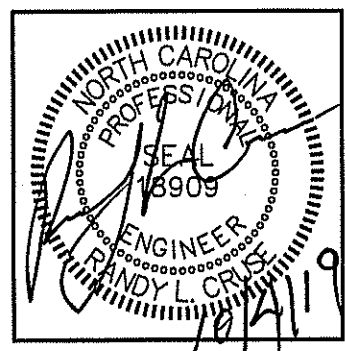
VERIFY ALL RATINGS OF ALL WALLS WITH METAL BUILDING COMPANY BEFORE BEGINNING CONSTRUCTION

LEGEND
 ----- 3 HOUR FIRE BARRIER

DATE 10/04/19
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 JOB NO. 19-08

SHEET NO.
M-1 OF 2

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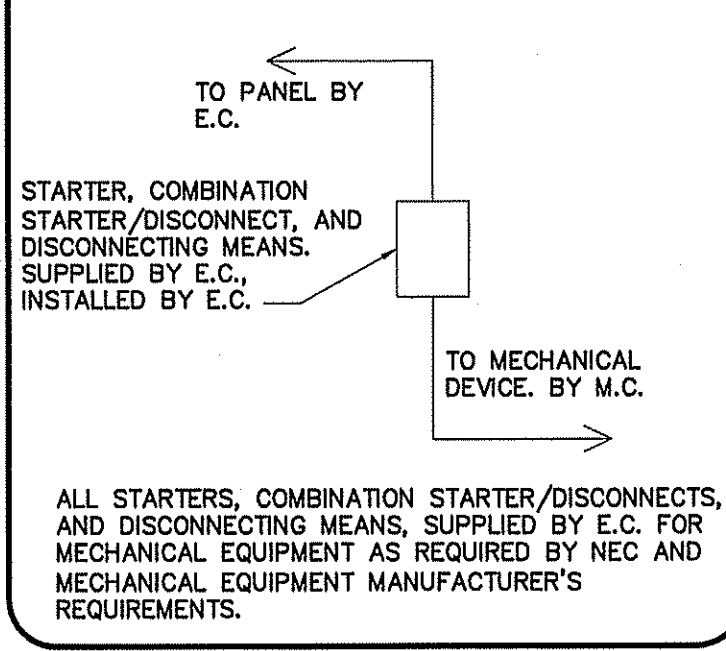
AIR HANDLER UNIT																		
AHU NO.	MANUFACTURER	MODEL	VOLTAGE	E.S.P.	OUTSIDE AIR (CFM)	CFM	UNIT FLA	REF LINES		SEER	HTR KW (240)	COOLING CAPACITY (MBH)		HEATING CAPACITY (MBH)		HSPF	MIN. CIRC. AMPACITY	M.O.C.P.
								GAS	LIQ.			TOTAL	SENS.	HIGH	LOW			
AHU-1,2	RHEEM	RH1T-2417STAN	240/1ϕ/60	.46	*	800	31.6	3/4	3/8	15.5	7.2	24.0	17.9	22.0	13.5	9.0	40	40
AHU-3	RHEEM	RH1T-3617STAN	240/1ϕ/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

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
HP-3	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
- | | | |
|-------------------------------|---|--|
| 1 TIME-DELAY RELAY | 7 LIQUID SOLENOID VALVE | 13 DISCHARGE LINE MUFFLER |
| 2 CYCLE PROTECTOR | 8 LOW-AMBIENT CONTROLLER | 14 SUCTION AND LIQUID LINE SHUT OFF VALVES |
| 3 EVAPORATOR FREEZE PROTECTOR | 9 FILTER DRIER (LIQUID LINE) | 15 THERMOSTAT (SEE NOTE) |
| 4 ISOLATION RELAY | 10 OUTDOOR T-STAT TO LOCK OUT AUX. HT. (SET @ 40° F ADJ.) | 16 SUPPORT FEET |
| 5 TXV | 11 LOW PRESSURE CONTROL | 17 COIL GUARDS |
| 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.

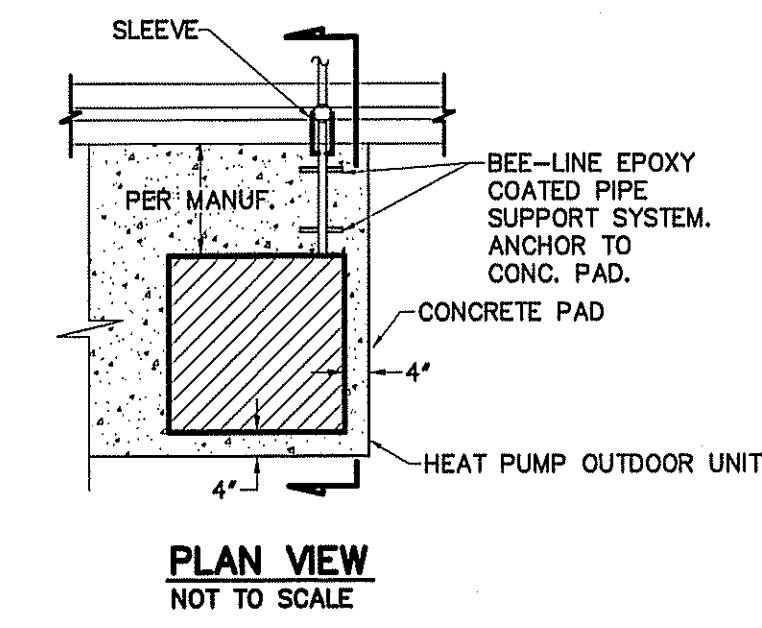
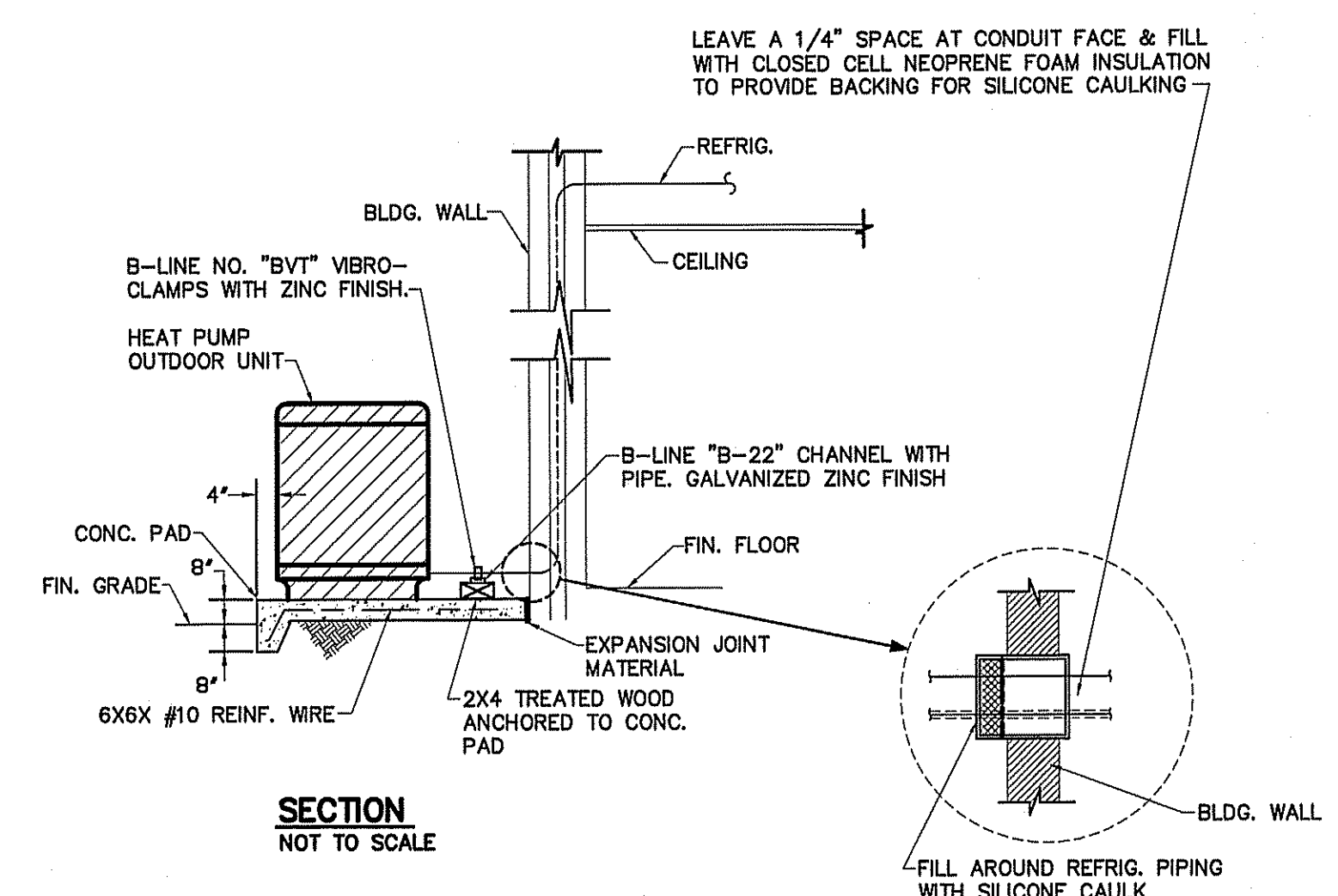
CONNECTION SCHEDULE



LOUVER SCHEDULE

MARK	DESCRIPTION	SERVES	CFM	APPROXIMATE OUTSIDE DIMENSIONS (W X H)	MODEL
L1	OUTSIDE AIR LOUVER	AHU 1,2,3,4	*	12"X18"	HART & COOLEY 1530ZF 12X18 W/ INSECT SCREEN

* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS



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

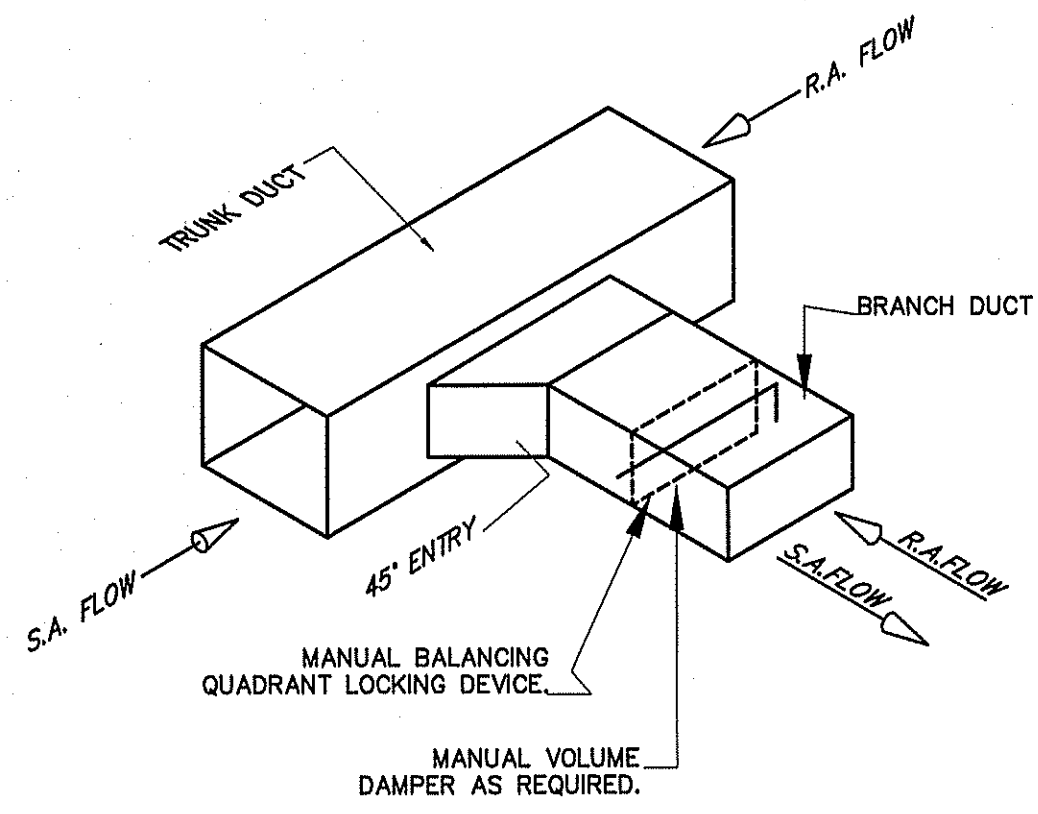
BUILDING COOLING LOAD 7.0 TONS

MECHANICAL SPACE CONDITIONING SYSTEM

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

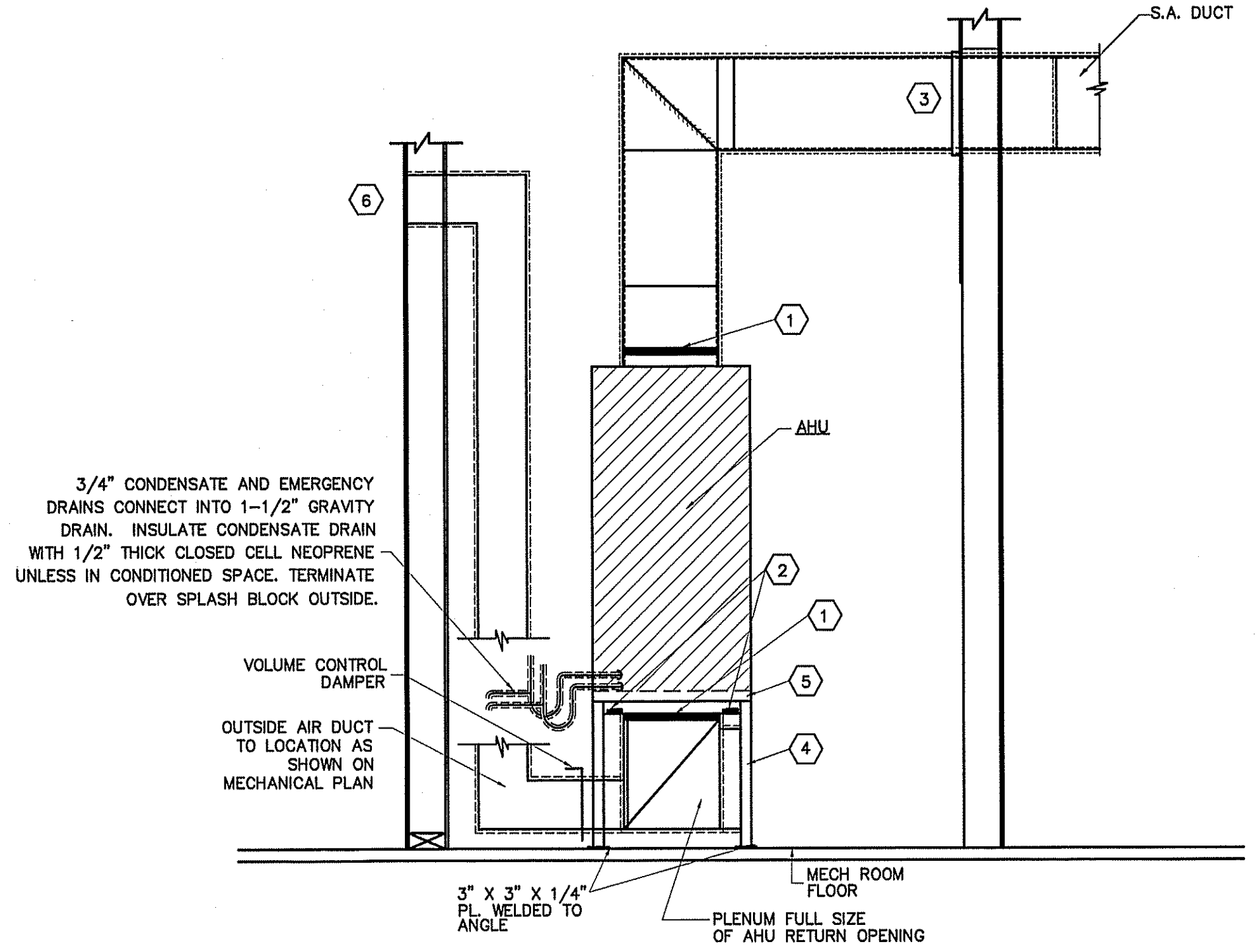
BOILER—NOT APPLICABLE IN THIS PROJECT
 CHILLER—NOT APPLICABLE IN THIS PROJECT

LIST EQUIPMENT EFFICIENCIES



BRANCH DUCT TAKE-OFF DETAIL

NOT TO SCALE



TYPICAL DETAIL AT FLOOR MOUNTED AHU

NOT TO SCALE

NOTES:

- ① FLEXIBLE CONNECTION
- ② NEOPRENE-IN-SHEAR VIBRATION ISOLATORS
- ③ SHEET METAL COLLAR AT WALL PENETRATION
- 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.
- ⑤ 1" PLEATED FILTER
- ⑥ OUTSIDE AIR LOUVER, RAIN PROOF, SIZE FOR 0.06 CFM/SF OF CONDITIONED SPACE.

PROVIDE PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM.

MECHANICAL NOTES (GENERAL)

- 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.
- 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.
- ALL DUCTWORK SHALL BE SEALED AIR TIGHT WITH SEALING COMPOUND.
- 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.
- THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO INSTALLATION OF ANY OF HIS PIPING, DUCTWORK, OR EQUIPMENT.
- 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.
- 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.
- ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.
- 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.

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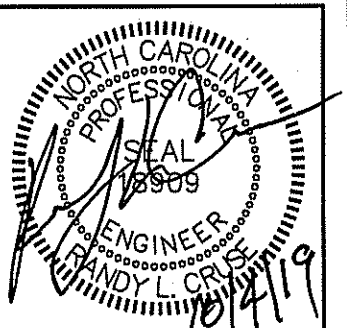
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SHEET NO.
 M-2 OF 2



ELECTRICAL LEGEND					
MARK	DESCRIPTION	MARK	DESCRIPTION	MARK	DESCRIPTION
⊕	QUAD RECEPTACLE	Ⓜ	MOTION DETECTING 3-WAY SWITCH (4-WAY SWITCH) WITH TIMER	N/L	UNSWITCHED FIXTURE
⊕	DUPLEX RECEPTACLE	↔	UNSWITCHED BRANCH CIRCUIT	□	FUSED DISCONNECT SWITCH
⊕	TIMECLOCK FOR WALLPACKS	↔	120/208 VOLT CIRCUIT	⊠	CEILING MOUNTED FUSED DISCONNECT SWITCH
⊕	CEILING MOUNTED DUPLEX RECEPTACLE	Ⓜ	MOTION DETECTING SINGLE-POLE SWITCH	◁	DATA/PHONE OUTLET
—	FLUORESCENT FIXTURE	⊗	'EXIT' LIGHT FIXTURE, TYPE 'EX'	⊠	JUNCTION BOX
↔	SWITCHED BRANCH CIRCUIT	⬇	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	Ⓢ	SINGLE POLE SWITCH OR TIMER AS APPLICABLE

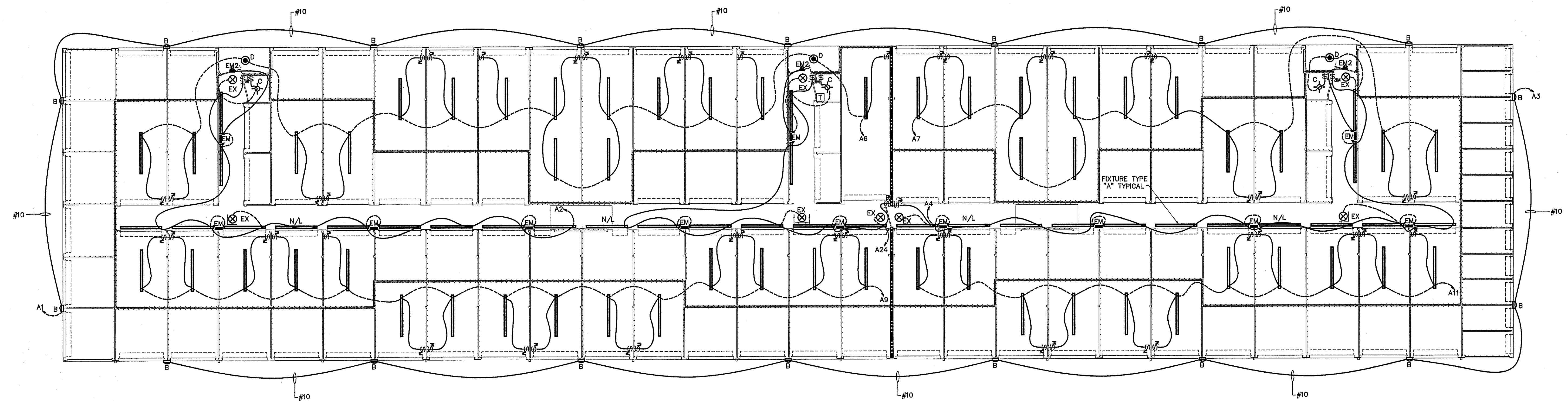
NOTE:

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
A	8' LED STRIPLIGHT	LITHONIA	CDS L96 MVOLT DM 40K 80CRI WH	LED		77
B	LED WALL PACKS	LITHONIA	TWR1 LED 3 50K MVOLT ON TIMER	18 LEDS	LED	58.4
C	COMPACT FLUORESCENT FIXTURE WITH WIRE GUARD	DAYBRITE	VN10012-PG	1-13W SELF BALLAST		17 WITH WIRE GUARD
D	3" LED RECESSED DOWNLIGHT	ACULUX	AX3 D G4 12LM 35K 80CRI 500 G21 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			

* ALL FIXTURE SELECTIONS TO BE VERIFIED BY OWNER BEFORE PURCHASE. ** SIGN LETTERING TO BE ON TIMECLOCK OR PHOTOCELL

LIGHTING DATA FOR NC ENERGY CODE					
AREA USE	AREA FT ²	WATTS PER FT ² ALLOWED	TOTAL WATTS ALLOWED	TOTAL WATTS USED	TOTAL WATTS LEFT OVER
STORAGE	16,800	0.66	11,088	6,613	4,475
TOTAL	16,800		11,088	6,613	4,475



UNIVERSITY STORAGE
 BUILDING #1
 ORANGE STREET COATS, NC

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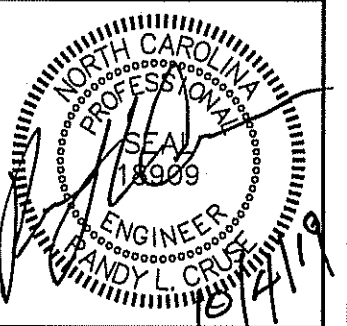
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E-1 OF 3

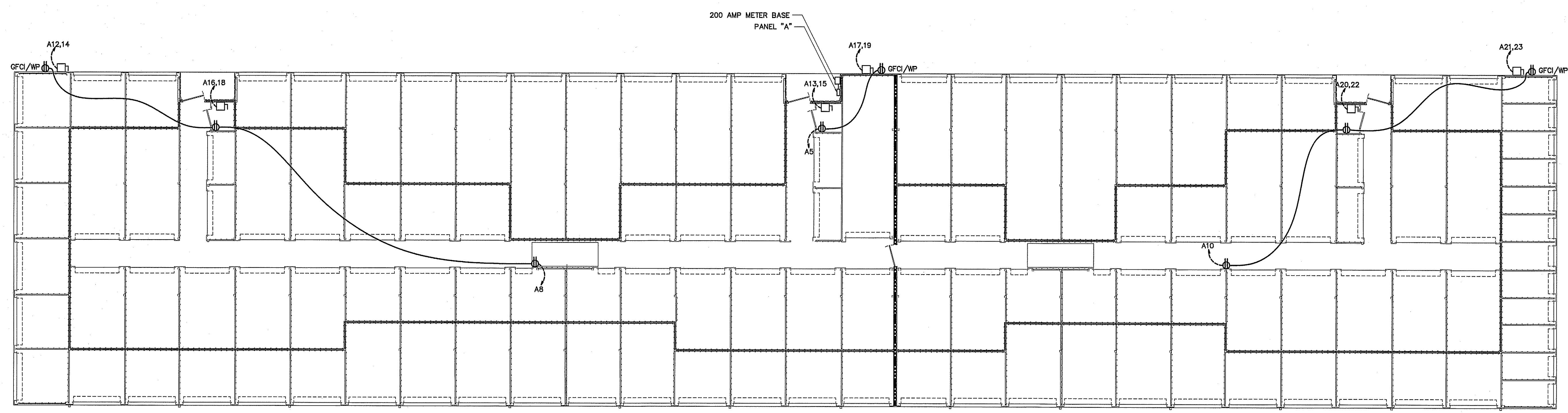
ELECTRICAL LIGHTING PLAN BUILDING "1"
 SCALE: 1" = 10'-0"

LEGEND
 - - - - - 3 HOUR FIRE BARRIER



UNIVERSITY STORAGE
 BUILDING #1
 ORANGE STREET COATS, NC

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



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

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SHEET NO.
E-2 OF 3

LEGEND
 ----- 3 HOUR FIRE BARRIER

**EXIT REQUIREMENTS:
NUMBER AND ARRANGEMENTS OF EXITS**

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM NO. OF EXITS		TRAVEL DISTANCE		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	3	200'	106'-8"	131'-8"	215'-5"
OFFICE	1	2	100'	47'-8"	N/A	N/A

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

EXIT WIDTH

USE GROUP OR SPACE DESCRIPTION	(a)		CALCULATED OCCUPANT LOAD (c/b)	(c)		EXIT WIDTH (IN)			
	AREA ¹ SQ. FT.	AREA ¹ PER OCCUPANT (TABLE 1004.1.2)		EGRESS WIDTH PER OCCUPANT (TABLE 1005.1)	REQUIRED WIDTH (SECTION 1005.1) (a/b) x c	ACTUAL WIDTH SHOWN ON PLANS			
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"

- 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)
- MINIMUM STAIRWAY WIDTH (SECTION 1011.2); MIN. CORRIDOR WIDTH (SECTION 1020.2); MIN. DOOR WIDTH (SECTION 1010.1.1)
- MINIMUM WIDTH OF EXIT PASSAGEWAY (SECTION 1024)
- SEE SECTION 1005.6 FOR CONVERGING EXITS.
- THE LOSS OF ONE MEANS OF EGRESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50% OF THE TOTAL REQUIRED (SECTION 1005.5)
- 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 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.
- ASSUMED 12' AND REAL PROPERTY LINES >80'.
- ASSUMED PROPERTY LINES 12' : 705.8; EXC. 2 - UNLIMITED
- NO DEAD ENDS OVER 20'; 20' ALLOWED.
- NO RATING REQUIRED THIS STRUCTURE.
- PANIC HARDWARE NOT REQUIRED.
- NO DELAYED EGRESS LOCKS, ELECTROMAGNETIC LOCKS, HOLD OPEN DEVICES, OR EMERGENCY ESCAPE WINDOWS
- FIRE AREAS DO NOT EXCEED CODE ALLOWANCE
- 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)

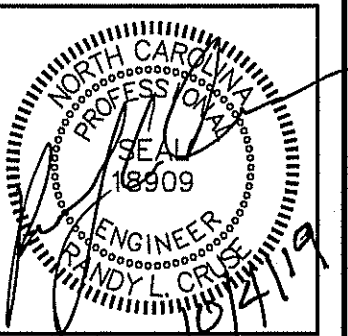
47" CLEAR WIDTH DIVIDED BY .2" = 235 OCCUPANTS
CALCULATED OCCUPANCY PER EXIT = 5 PEOPLE
CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

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.

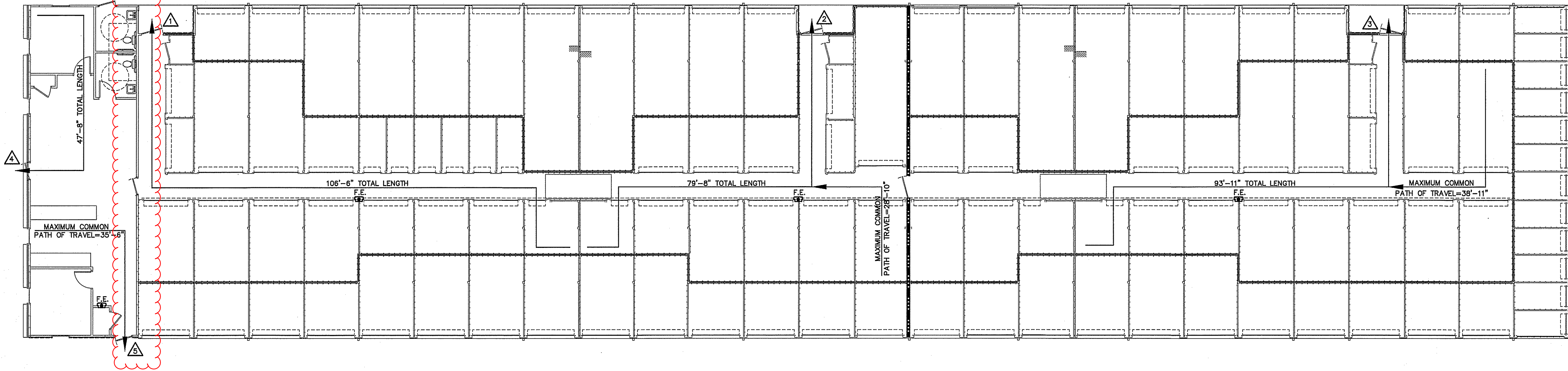
35" CLEAR WIDTH DIVIDED BY .2" = 175 OCCUPANTS
CALCULATED OCCUPANCY PER EXIT = 6 PERSON
CALCULATED OCCUPANCY DOES NOT EXCEED MAXIMUM CAPACITY OF EXIT.

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



UNIVERSITY STORAGE
BUILDING #2
ORANGE STREET COATS, NC

STORAGE AND BUSINESS SPACES MUST BE SEPARATED BY A 2-HR RATED WALL (NC BUILDING CODE TABLE 508.4)



LIFE SAFETY PLAN BUILDING 2"

SCALE: 1" = 10'-0"

NOTE:
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.

LEGEND
----- 3 HOUR FIRE BARRIER

REVISIONS

NO.	

Cruse And Associates, P.A.
414 EAST ROBERTSON STREET
Durham, North Carolina 27634
PHONE: (919) 286-5162
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DATE 10/04/19
DRAWN BY BAM
JOB NO. 19-24

SHEET NO.
LS-1 OF 1

PLUMBING FIXTURE SCHEDULE

MARK	MAKE	MODEL	DESCRIPTION	NOTES
P-1	AMERICAN STANDARD	CADET 2377.100	EL 1.6/PA 16.5" HC ELONGATED WATER CLOSET HC ACCESSIBLE, TANK TYPE	WHITE 5311.012 SEAT
P-2	AMERICAN STANDARD	REGALYN 4869.008	LAVATORY	1340.227 FAUCET. PROVIDE W/BASKET DRAIN WITH ADA APPROVED PROTECTION FOR PIPING UNDERNEATH
P-3	BOSCH	TRONIC US7	7.2 KW POINT OF USE WATER HEATER	
P-4	WOODFORD	MOD-65	HOSE BIB FREEZE PROOF	ANTI-SIPHONING WITH VACUUM BREAKER, SELF DRAINING.

* VERIFY ALL FIXTURES WITH OWNER BEFORE PURCHASE OR INSTALLATION

GENERAL PLUMBING NOTES

- ALL WORK SHALL BE IN COMPLIANCE WITH APPLICABLE LOCAL, STATE, AND NATIONAL CODES.
- CONTRACTORS SHALL COORDINATE PIPING WITH ALL OTHER TRADES.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL/STRUCTURAL DRAWINGS FOR DIMENSIONS.
- CONTRACTOR SHALL FURNISH AND INSTALL DIELECTRIC UNIONS AT ALL CONNECTIONS BETWEEN DISSIMILAR METALS.
- CONTRACTOR SHALL FURNISH AND INSTALL ESCUTCHEONS AND COVER PLATES AT ALL FINISHED WALLS, CEILINGS AND FLOOR OPENINGS.
- PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH STATE AND LOCAL CODE. (REFER TO SPECIFICATIONS.)
- ALL PIPING SHALL BE TESTED FOR LEAKS. IF ANY LEAKS ARE DETECTED THE PIPING SHALL BE REPAIRED, RESOLDERED OR REPLACED AND RETESTED.
- ALL SOLDER SHALL BE OF THE LEAD FREE TYPE.
- WATER HEATER SHALL BE SUPPLIED WITH FACTORY INSTALLED T&P VALVES AND SHALL HAVE UNIONS AND ISOLATION VALVES.
- DOMESTIC WATER SUPPLY PIPING SHALL BE COPPER OR CPVC. PEX IS ALLOWED WHERE PERMITTED BY CODE.
- WASTE AND VENT PIPING SHALL BE SCH. 40 PVC OR HEAVY DUTY CAST IRON UNDER TRAFFIC AREAS.
- INSTALL THERMOSTATICALLY CONTROLLED MIXING VALVES AS NEEDED TO ENSURE HOT WATER TEMPERATURE TO ALL HAND WASHING LOCATIONS DOES NOT EXCEED 110°F.
- ALL FLOOR DRAINS & HUB DRAINS SHALL BE PROVIDED WITH TRAP PRIMER EXCEPT FLOOR DRAINS IN TOILETS WHERE HOSE BIBS ARE PROVIDED.
- 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.

PLUMBING LEGEND

DESCRIPTION	SYMBOL
COLD WATER	— CW
HOT WATER	— HW
COLD WATER (FILTERED)	— L
RECIRCULATED WATER	— HWR
VENT PIPING	— V
WASTE PIPING	— W
CLEAN OUT IN GRADE	□ C.O.I.G.
FLOOR CLEAN OUT	○ F.C.O.
NON FREEZE HOSE BIB	— NFBH
FLOOR DRAIN	○ F.D.
CHECK VALVE	—
BALL VALVE	—
GATE VALVE	—
SHUT-OFF VALVE	—
DOUBLE CHECK VALVE	—
FIXTURE DESIGNATION	P--
MOUNTING HEIGHT	MH
POINT OF CONNECTION NEW TO EXISTING	—
FLOOR SINK	—
SHOCK ABSORBER W/BALL VALVE SHUT-OFF	— SA
CHANGE IN PIPE SIZE	—

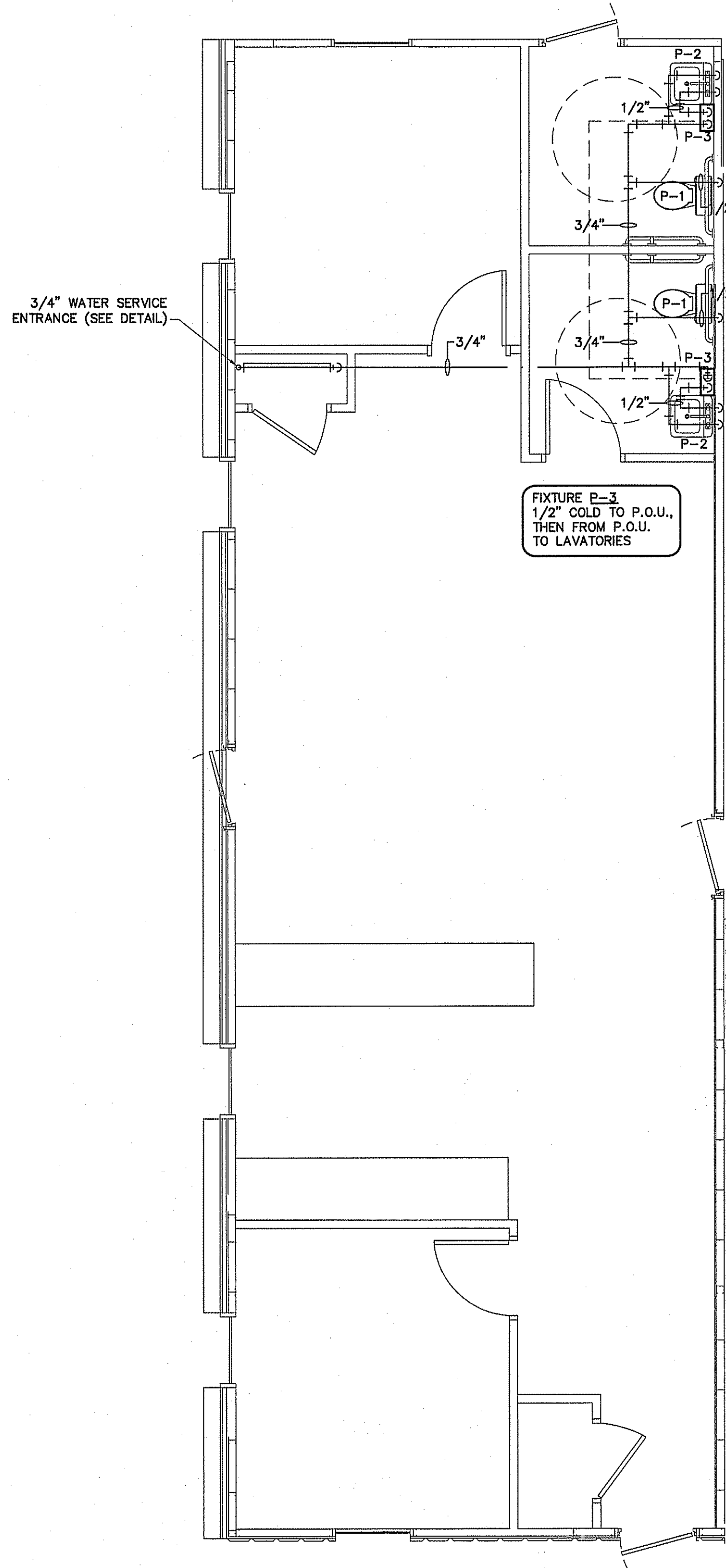
PLUMBING CALCULATIONS

ITEM	# OF	FIXTURE UNITS (EACH)			FIXTURE UNITS (TOTAL)			FIXTURE UNITS (WASTE)
		COLD	HOT	TOTAL	COLD	HOT	TOTAL	
FLUSH TANK WATER CLOSET	2	5.0	—	5.0	10.0	—	10.0	4/8
LAVATORY	2	1.5	1.5	2.0	3.0	3.0	4.0	1/2
TOTAL GPM = 17					13.0			10.0

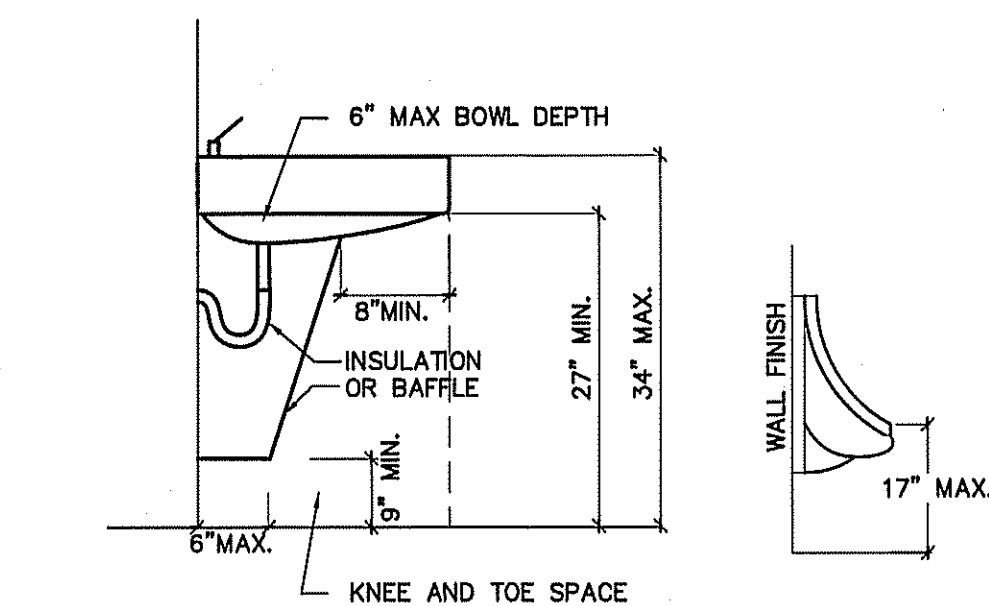
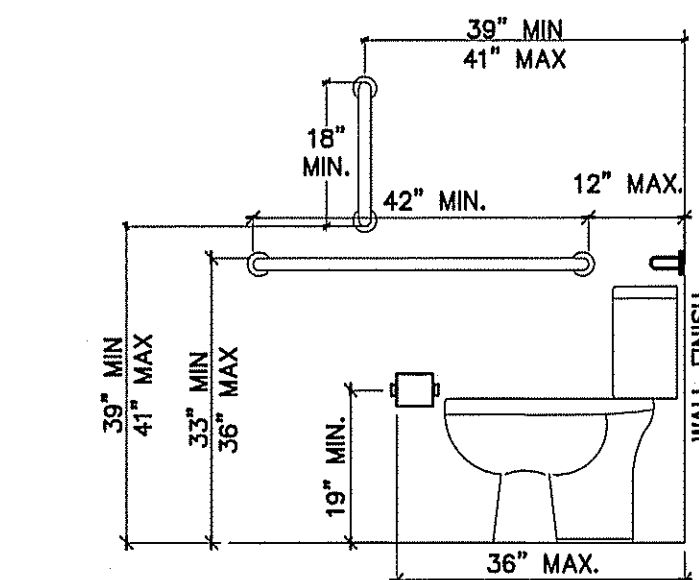
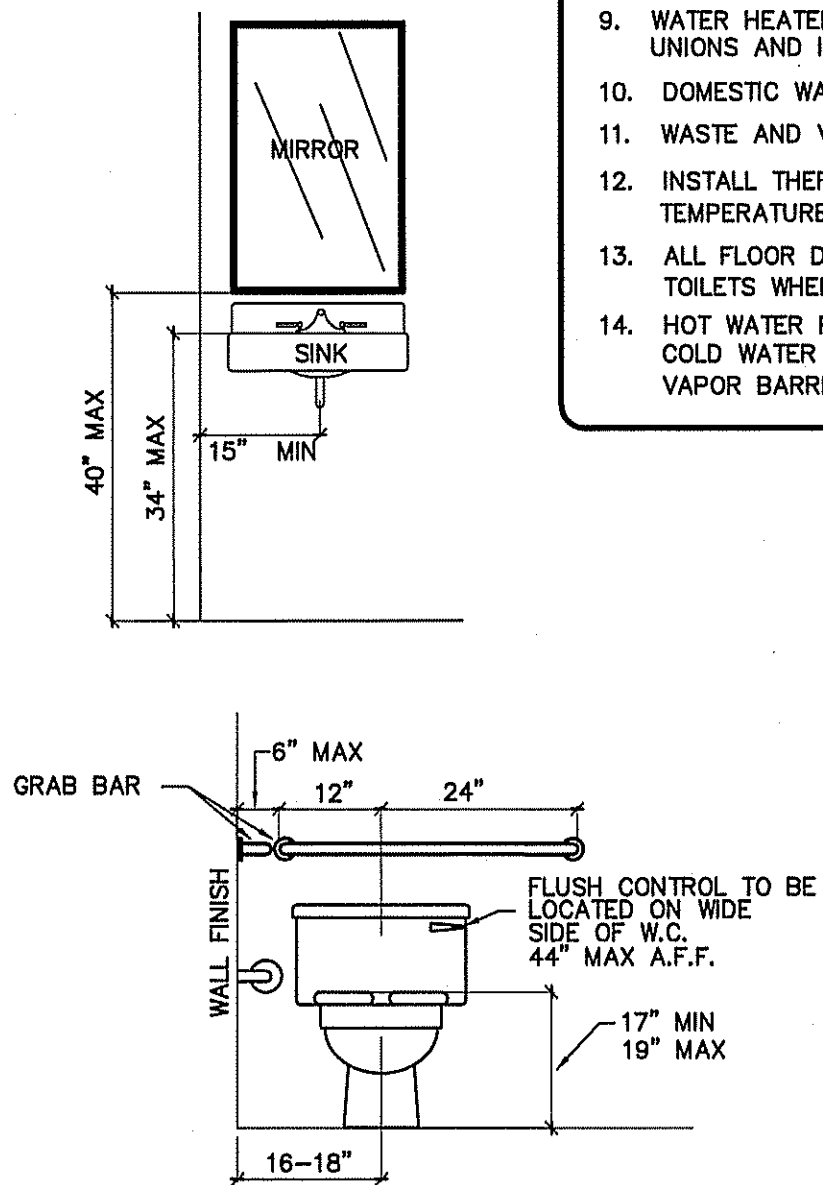
MINIMUM 3/4" WATER SUPPLY LINE REQUIRED

PLUMBING CONNECTION SCHEDULE

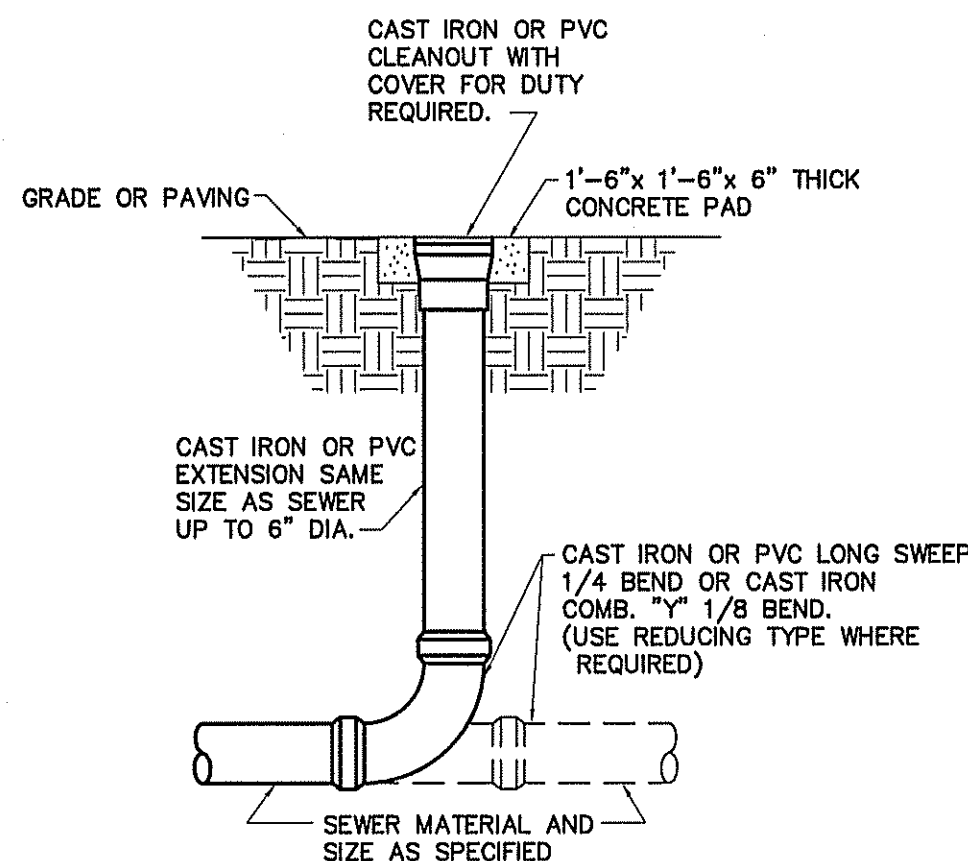
FIXTURE	C.W.	H.W.	WASTE	VENT
FLUSH TANK WATER CLOSET	3/8"	—	3"	2"
LAVATORY	1/2"	1/2"	2"	1 1/2"



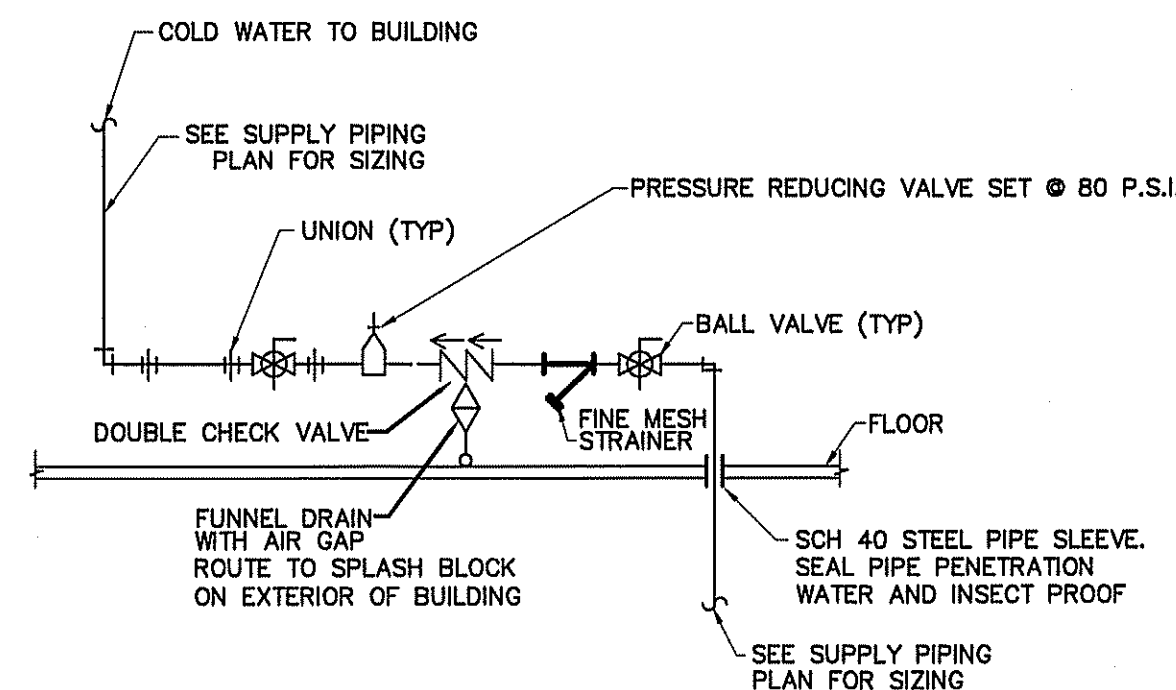
SUPPLY PIPING PLAN
SCALE: 1/4" = 1'-0"



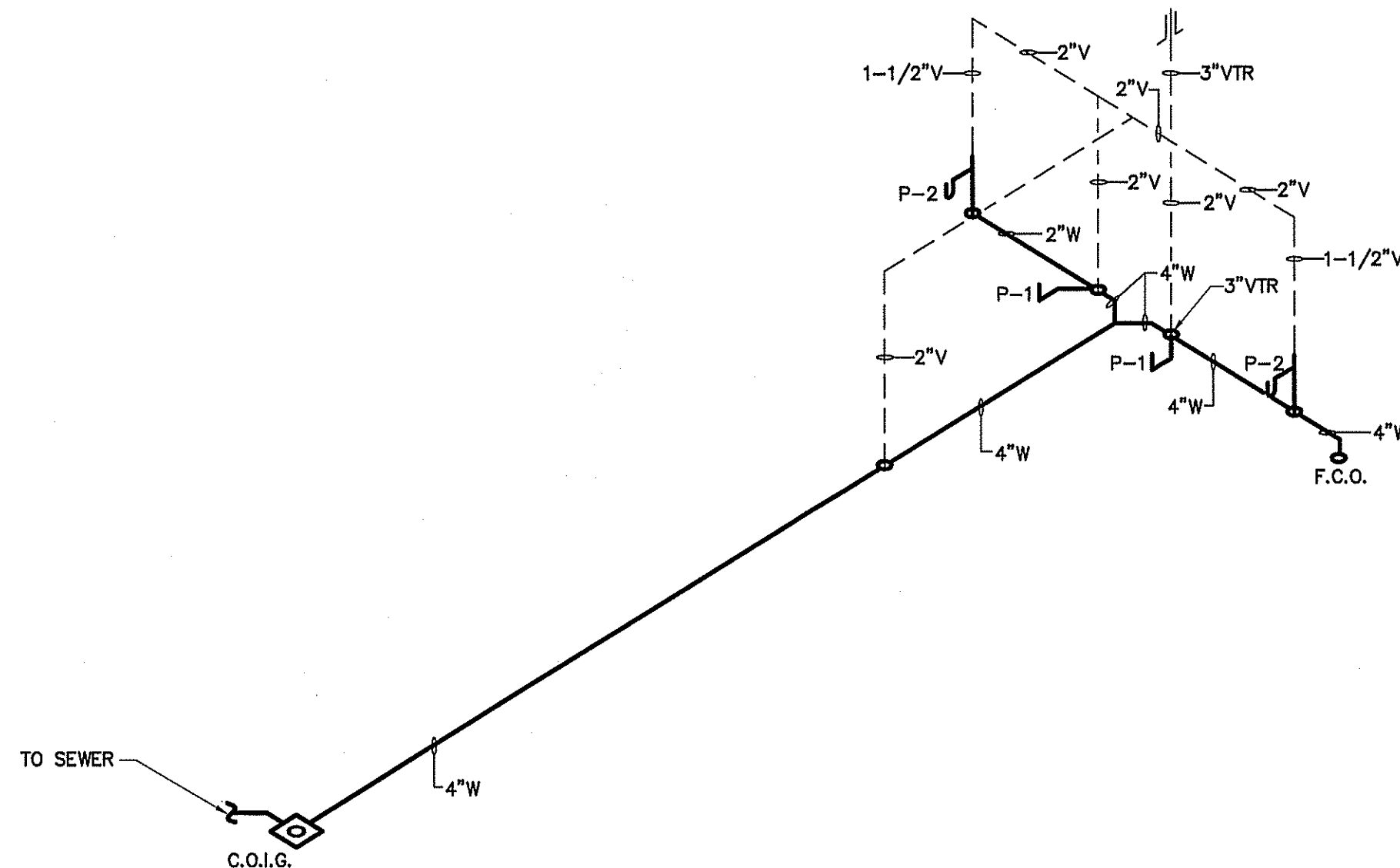
RESTROOM ACCESSIBILITY DETAILS
SCALE: 1/2" = 1'-0"



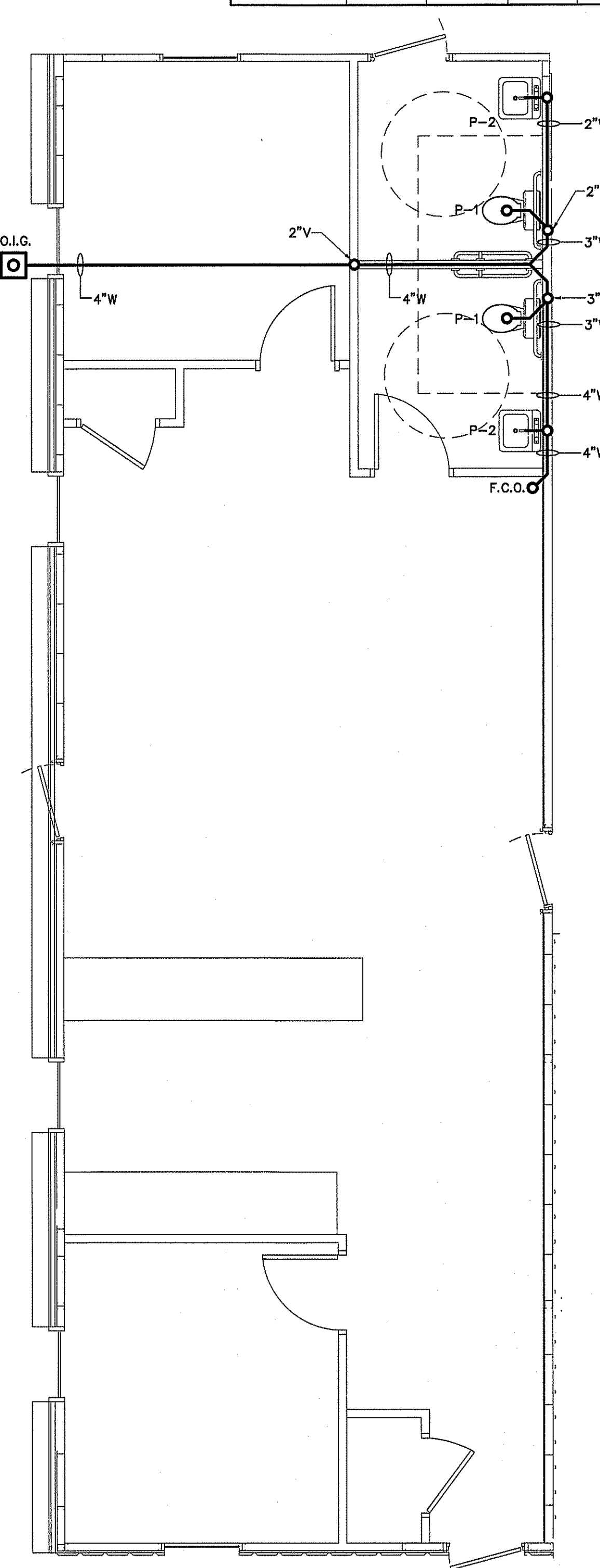
DETAIL—CLEAN OUT AT GRADE
NOT TO SCALE



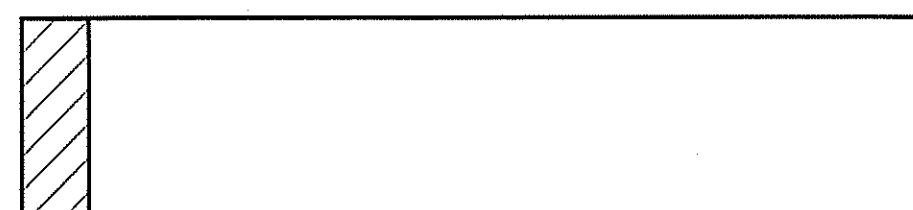
DETAIL—WATER SERVICE ENTRANCE AS REQUIRED
NOT TO SCALE



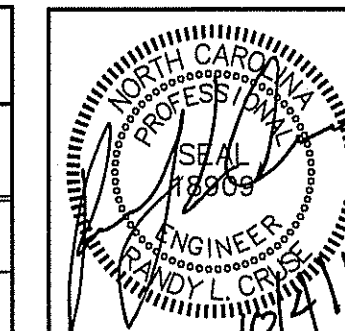
WASTE & VENT RISER DIAGRAM
NOT TO SCALE



WASTE & VENT PIPING PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN



UNIVERSITY STORAGE
BUILDING #2
ORANGE STREET COATS, NC

REVISIONS

NO.	DESCRIPTION

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

SHEET NO.
P-1 OF 1

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

- GENERAL NOTES:**
- 1 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.
 - 4 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.

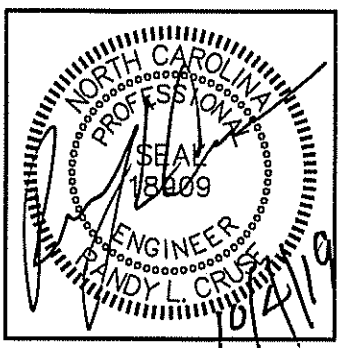
NOTE:
 VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

GENERAL NOTE:
 MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FOR ALL HVAC EQUIPMENT.

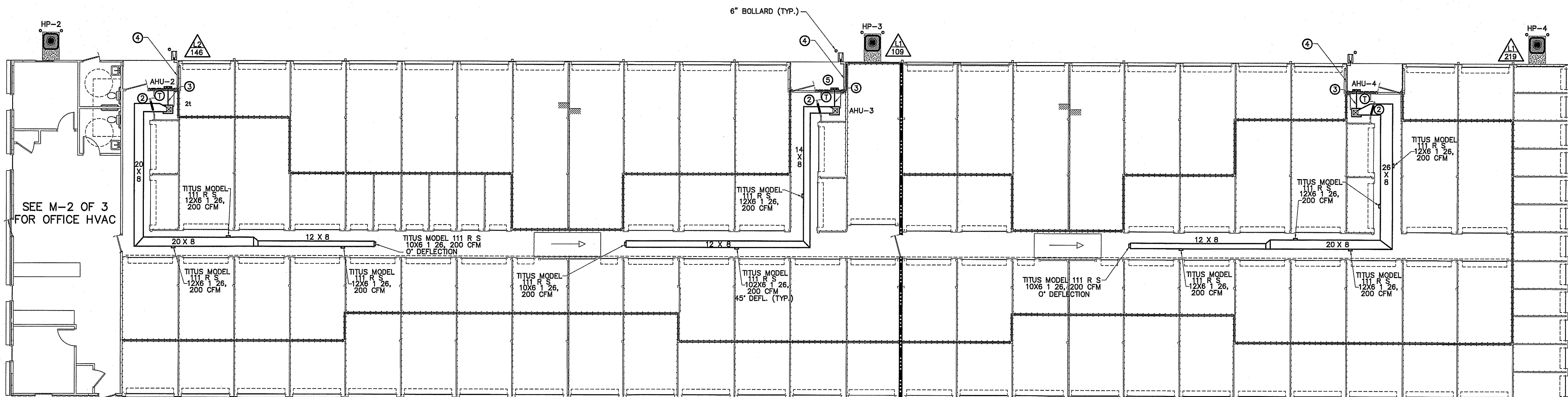
KEY NOTES:

- 1 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

SINGLE LINE		DOUBLE LINE		DESCRIPTION	SINGLE LINE		DOUBLE LINE		DESCRIPTION
				TAKE OFF TO SUPPLY AIR REGISTER WITH EXT. INSUL. DUCTWORK					CEILING DIFFUSER
				BRANCH TAKEOFF FROM MAIN TRUNK DUCT WITH EXT. INSUL. DUCTWORK					FLEXIBLE DUCTWORK (15' MAX.)
				END CAP					ONE SIDED REDUCING TRANSITION
				DUCT SMOKE DETECTOR					F.D.=FIRE DAMPER (1-1/2)-RATED FOR 1-1/2 HRS.
				ACCESS DOOR					RETURN AIR OR EXHAUST GRILLE
									MANUAL VOLUME CONTROL DAMPER W/ QUADRANT LOCKING DEVICE
									SUPPLY AIR CEILING DIFFUSER, ARROW INDICATES DIRECTION OF BLOW & ACTIVE DIFFUSER SIDES
									R.A. OR EXHAUST DUCT TURNS DOWN @ 90 DEGS.
									AHU W/FLEXIBLE CONNECTION AT SUPPLY AND RETURN DUCT
									KEY NOTE
									MARK XXX CFM-DIFFUSER, REGISTER OR GRILLE (SEE SCHEDULE)
									EXHAUST FAN



UNIVERSITY STORAGE
 BUILDING #2
 ORANGE STREET COATS, NC



MECHANICAL HVAC PLAN BUILDING "2"
 SCALE: 1" = 10'-0"

REVISIONS	
NO.	DESCRIPTION

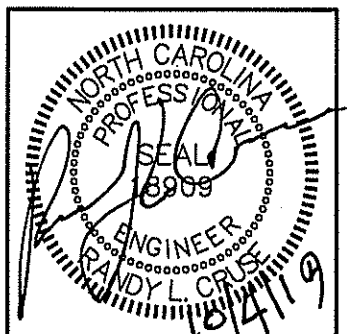
Cruse And Associates, P.A.
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 LICENSE NO. C-1721

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 JOB NO. 19-24

SHEET NO.
M-1 OF 3

LEGEND
 - - - - - 3 HOUR FIRE BARRIER



UNIVERSITY STORAGE
 BUILDING #2
 ORANGE STREET COATS, NC

REVISIONS	
NO.	

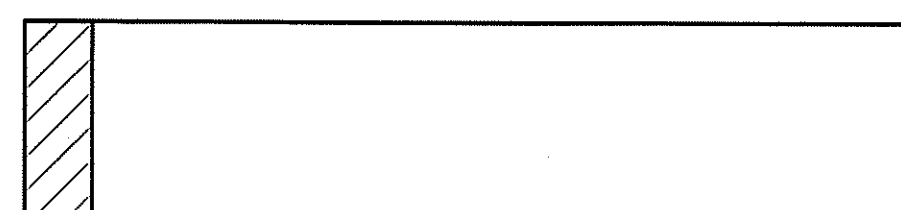
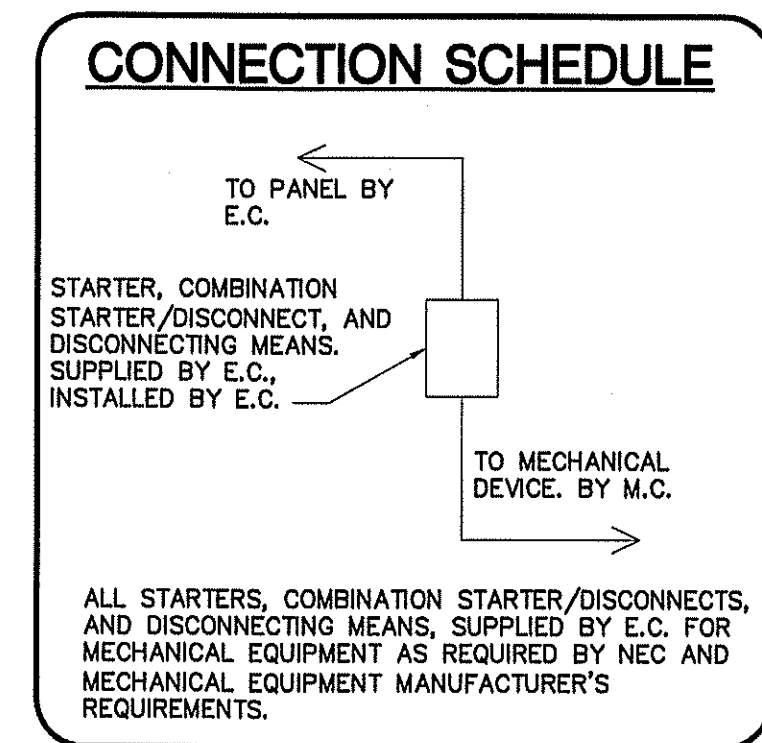
Cruse And Associates, P.A.
 414 EAST BROADWAY STREET
 RALEIGH, NC 27601
 TEL: (919) 882-4129
 FAX: (919) 882-5162
 LICENSE NO. C-1191

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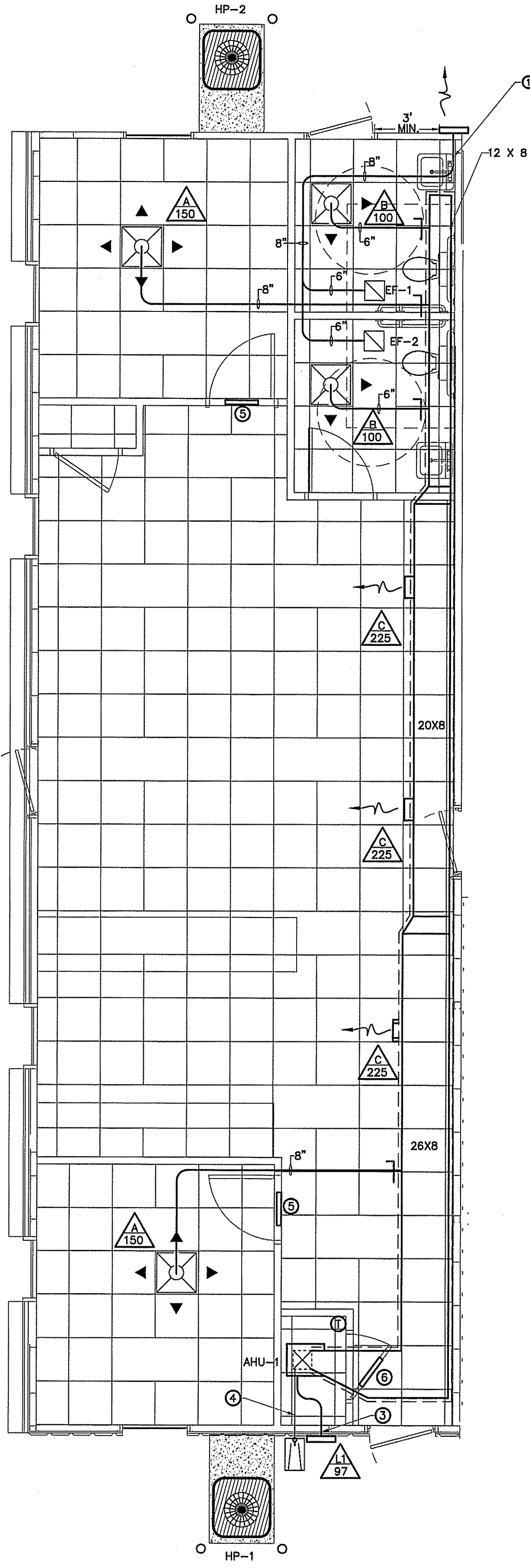
DATE 10/04/19
 DRAWN BY BAM
 JOB NO. 19-24

SHEET NO.
M-2 OF 3

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



KEY PLAN



MECHANICAL HVAC PLAN BUILDING "2"
 SCALE: 1/4" = 1'-0"

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.
 - 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.
 - 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.

NOTE:

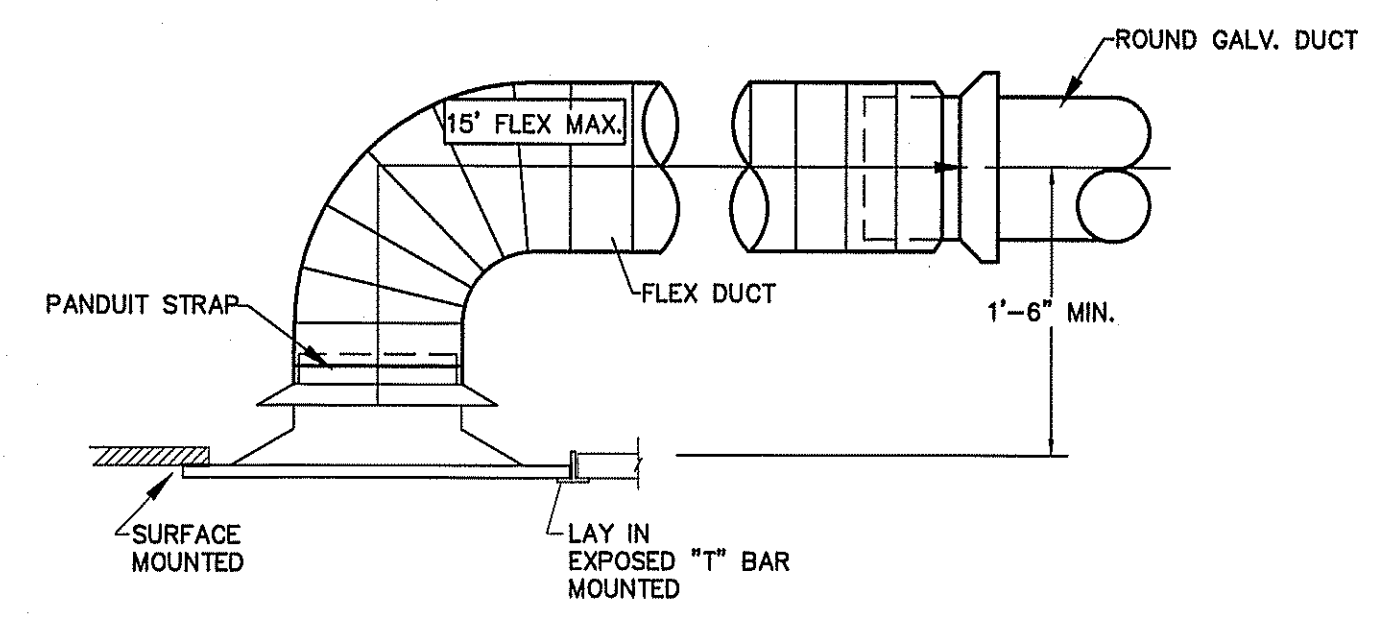
VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLING. FILTER ALL OUTSIDE AIR.

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)
- 16" X 16" TRANSFER GRILLE, INSTALLED IN DOOR (TYPICAL)
- 8" O.A. DUCT WITH VOLUME DAMPER FROM LOUVER TO AHU (TYPICAL)
- 3/4" CONDENSATE FROM EACH AIR HANDLING UNIT TO SPLASH BLOCK.
- 18" X 8" TRANSFER GRILLE, INSTALLED ABOVE DOOR
- 18" X 16" 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

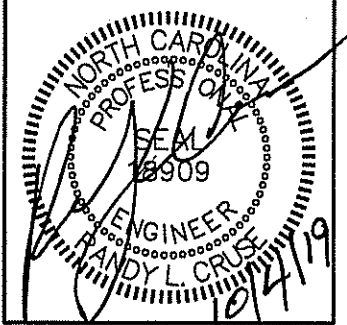
MECHANICAL SPACE CONDITIONING SYSTEM

UNITARY

DESCRIPTION OF UNIT: SPLIT SYSTEM HEAT PUMP
 HEATING EFFICIENCY: 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



UNIVERSITY STORAGE
 BUILDING #2
 ORANGE STREET COATS, NC

REVISIONS	
NO.	

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 DATE 10/04/19
 DRAWN BY BAM
 JOB NO. 19-24
 SHEET NO. M-3 OF 3

AIR HANDLER UNIT																		
AHU NO.	MANUFACTURER	MODEL	VOLTAGE	E.S.P.	OUTSIDE AIR (CFM)	CFM	UNIT FLA	REF LINES		SEER	HTR KW (240)	COOLING CAPACITY (MBH)		HEATING CAPACITY (MBH)		HSPF	MIN. CIRC. AMPACITY	M.O.C.P.
								GAS	LIQ.			TOTAL	SENS.	HIGH	LOW			
AHU-3	RHEEM	RH1T-2417STAN	240/1/60	.46	*	800	31.6	3/4	3/8	16.0	7.2	18.5	14.5	15.7	9.1	9.0	40	40
AHU-2	RHEEM	RH1T-2417STAN	240/1/60	.46	*	800	31.6	3/4	3/8	15.5	7.2	24.0	17.9	22.0	13.5	9.0	40	40
AHU-1,4	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

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

SPLIT SYSTEM HEAT PUMP UNITS								
MARK	MANUF.	MODEL	VOLTAGE	# COMP.	MIN. CIRC. AMPACITY	M.O.C.P.	UNIT FLA.	ACCESSORIES
HP-3	RHEEM	RP1518BJ1	240/1/60	1	12	15	9.7	EXCLUDE 8,18
HP-2	RHEEM	RP1524BJ1	240/1/60	1	15	25	11.6	EXCLUDE 8,18
HP-1,4	RHEEM	RP1536AJ1	240/1/60	1	23	35	18.2	EXCLUDE 8,18

ACCESSORIES
 1 TIME-DELAY RELAY
 2 CYCLE PROTECTOR
 3 EVAPORATOR FREEZE PROTECTOR
 4 ISOLATION RELAY
 5 TXV
 6 HIGH PRESSURE SWITCH
 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
 12 CRANKCASE HEATER
 13 DISCHARGE LINE MUFFLER
 14 SUCTION AND LIQUID LINE SHUT OFF VALVES
 15 THERMOSTAT (SEE NOTE)
 16 SUPPORT FEET
 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.

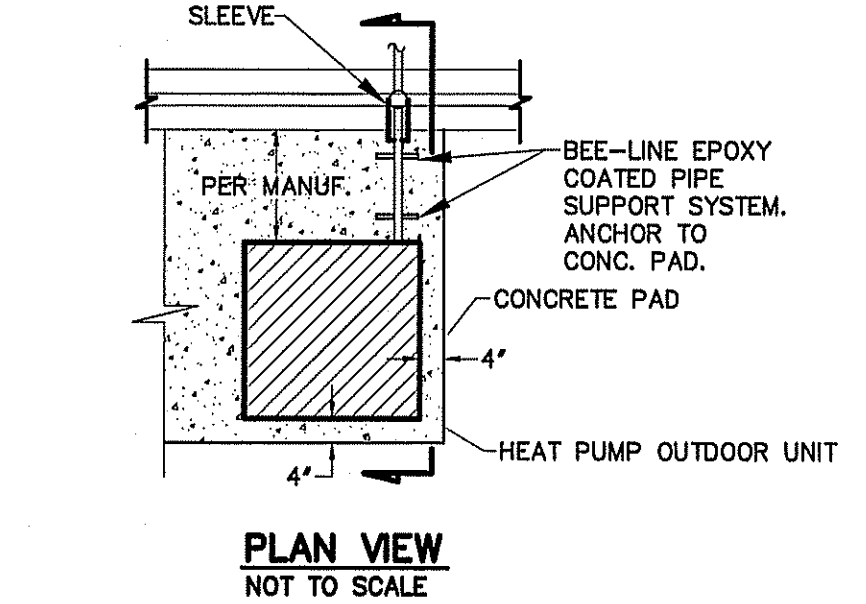
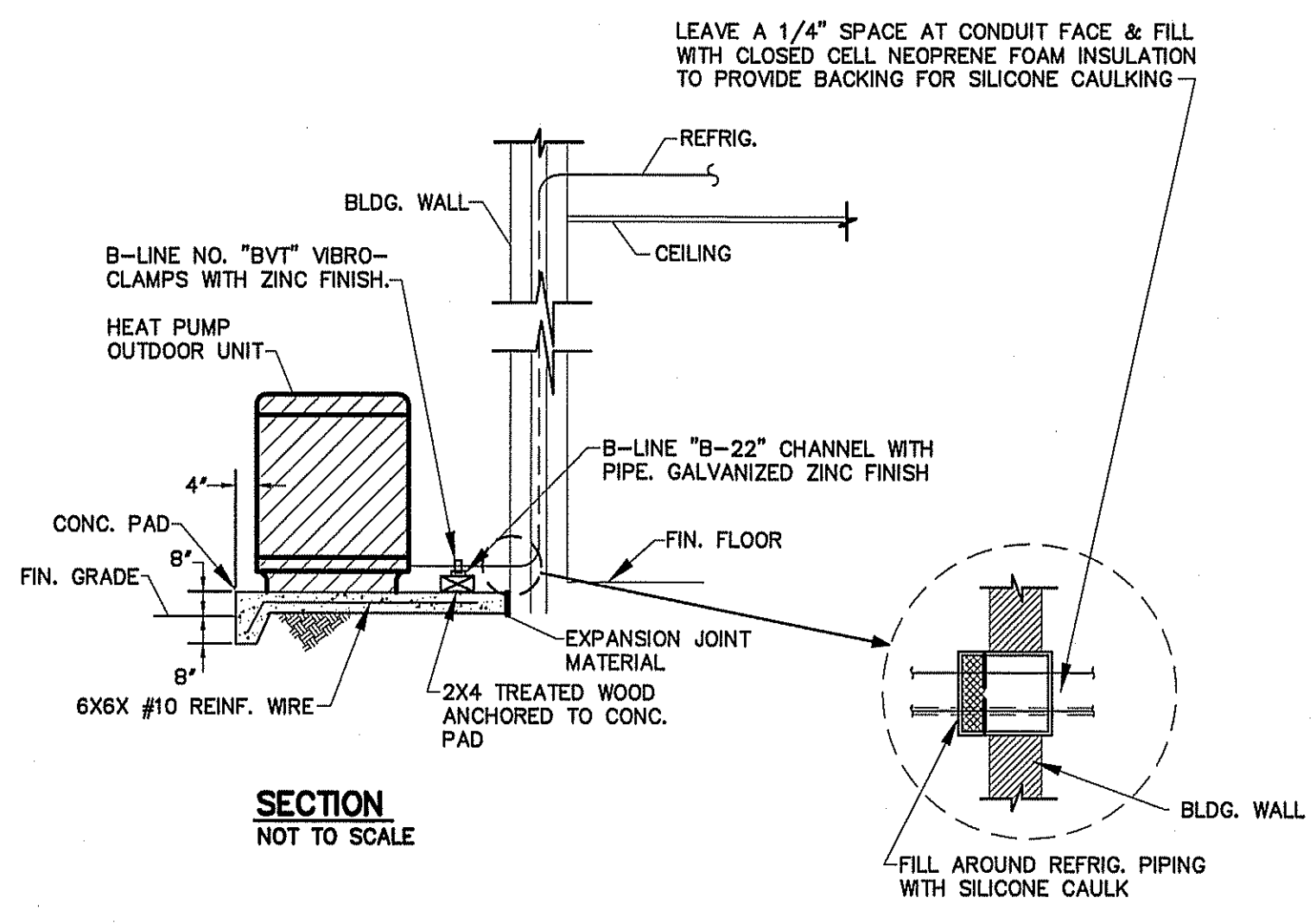
REGISTER, GRILLE, & DIFFUSER SCHEDULE*									
MARK	DESCRIPTION	MAX. NC	NECK	BORDER TYPE	MATERIAL	FINISH	MANUFACTURER	MODEL NUMBER	ACCESSORIES / NOTES
A	DIFFUSER-4-WAY	30	9"X9"	LAY-IN	STEEL	WHITE	TITUS	TDC 9X9 3 26 4	SQ-TO-RND
B	DIFFUSER-2-WAY	30	6"X6"	LAY-IN	STEEL	WHITE	TITUS	TDC 6X6 3 26 2	SQ-TO-RND
C	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

EXHAUST FAN SCHEDULE										
MARK	MAKE	MODEL	TYPE	CFM	EXTERNAL SIZ. IN (W.G.)	AMPS	ELECTRICAL			NOTES
							VOLT	PH	HZ	
EF-1,2	GREENHECK	SP-A90	CEILING FAN	70	.125	.34	115	1#	60	WC-8 WALL CAP

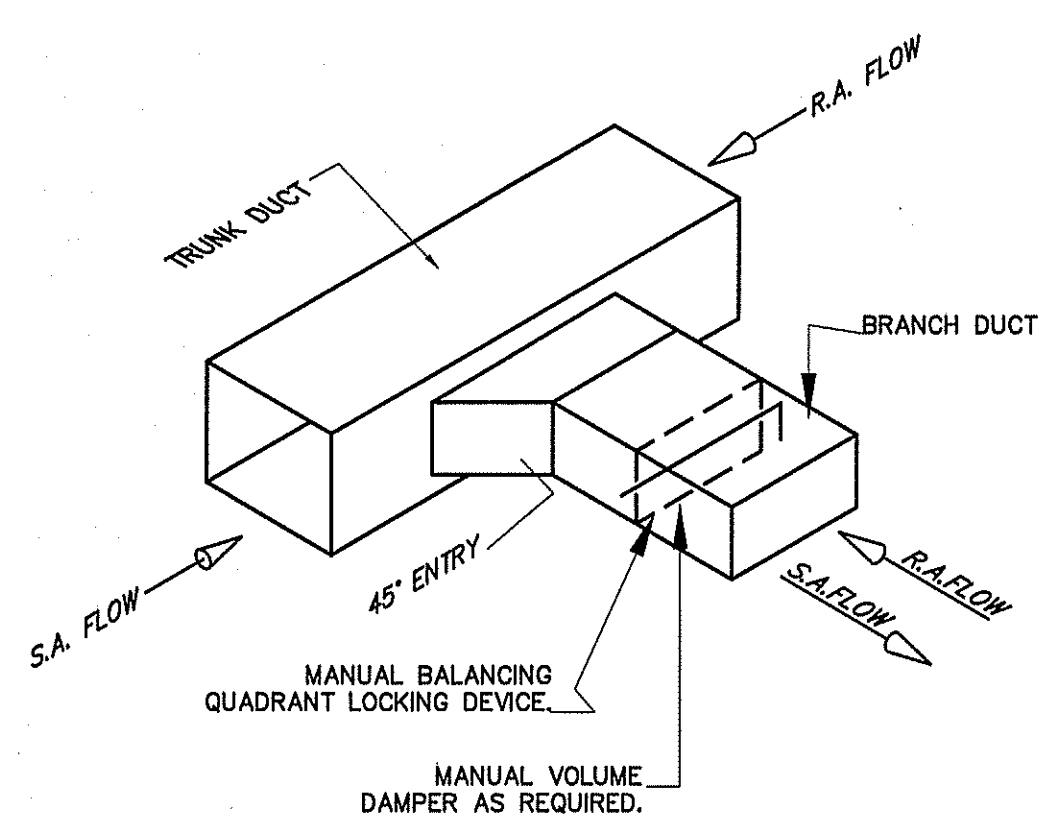
LOUVER SCHEDULE					
MARK	DESCRIPTION	SERVES	CFM	APPROXIMATE OUTSIDE DIMENSIONS (W X H)	MODEL
L1	OUTSIDE AIR LOUVER	AHU 2,3	*	12"X18"	HART & COOLEY 1530ZF 12X18 W/ INSECT SCREEN

* SEE OUTSIDE AIR CHART ON MECHANICAL SHEETS

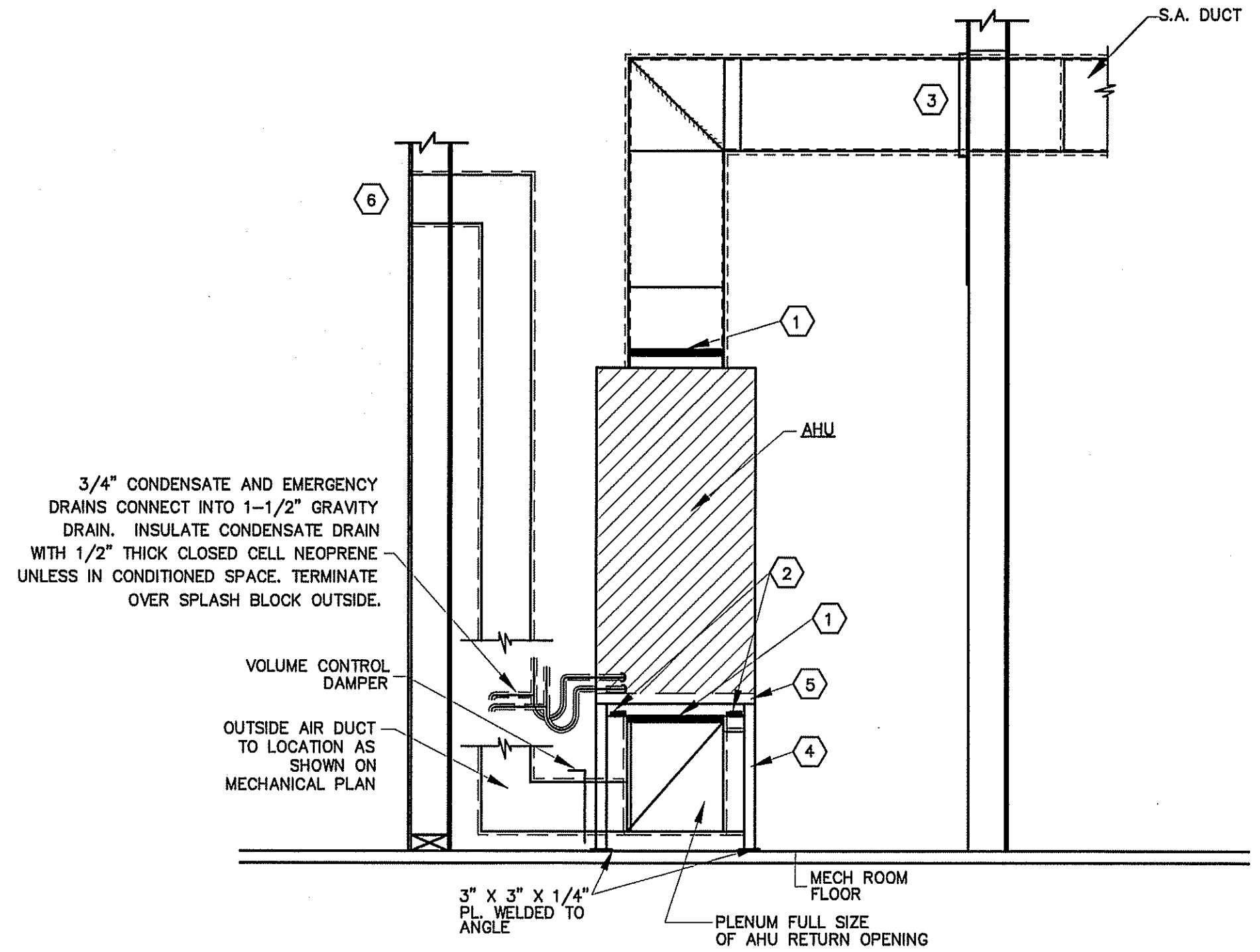


DETAIL-TYPICAL HEAT PUMP OUTDOOR UNIT
NOT TO SCALE

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 82.2 MBH
BUILDING COOLING LOAD 6.5 TONS
MECHANICAL SPACE CONDITIONING SYSTEM
 UNITARY
 DESCRIPTION OF UNIT: SPLIT SYSTEM HEAT PUMP
 HEATING EFFICIENCY: 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



BRANCH DUCT TAKE-OFF DETAIL
NOT TO SCALE



TYPICAL DETAIL AT FLOOR MOUNTED AHU
NOT TO SCALE

- NOTES:
- 1 FLEXIBLE CONNECTION
 - 2 NEOPRENE-IN-SHEAR VIBRATION ISOLATORS
 - 3 SHEET METAL COLLAR AT WALL PENETRATION
 - 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 SENOVR OR EQUAL.
 - 5 1" PLEATED FILTER
 - 6 OUTSIDE AIR LOUVER, RAIN PROOF, SIZE FOR 0.06 CFM/SF OF CONDITIONED SPACE.
- PROVIDE PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM.

MECHANICAL NOTES (GENERAL)

- 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.
- 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.
- ALL DUCTWORK SHALL BE SEALED AIR TIGHT WITH SEALING COMPOUND.
- 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.
- THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO INSTALLATION OF ANY OF HIS PIPING, DUCTWORK, OR EQUIPMENT.
- 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.
- 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.
- ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.
- 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.

ELECTRICAL 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
⊕	DUPLEX RECEPTACLE	↔	UNSWITCHED BRANCH CIRCUIT	⊠	FUSED DISCONNECT SWITCH
⊠	TIMECLOCK	↔	120/208 VOLT CIRCUIT	⊠	CEILING MOUNTED FUSED DISCONNECT SWITCH
⊕	CEILING MOUNTED DUPLEX RECEPTACLE	⊕ _M	MOTION DETECTING SINGLE-POLE SWITCH	◁	DATA/PHONE OUTLET
▭	FLUORESCENT FIXTURE	⊗	'EXIT' LIGHT FIXTURE, TYPE 'EX'	⊠	JUNCTION BOX
↔	SWITCHED BRANCH CIRCUIT	⊠	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	⊕	SINGLE POLE SWITCH OR TIMER AS APPLICABLE

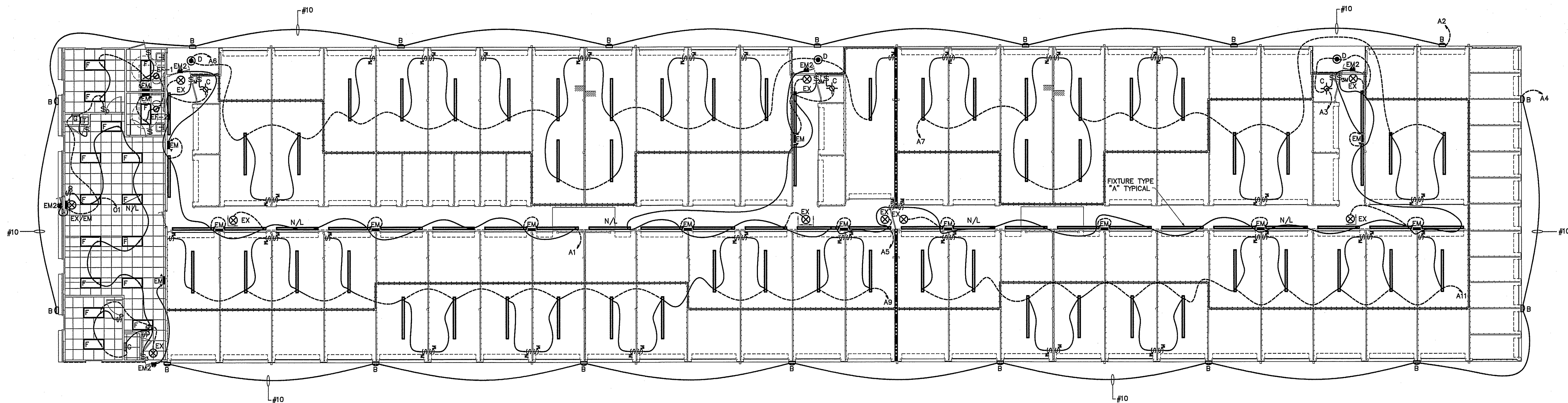
NOTE:

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.

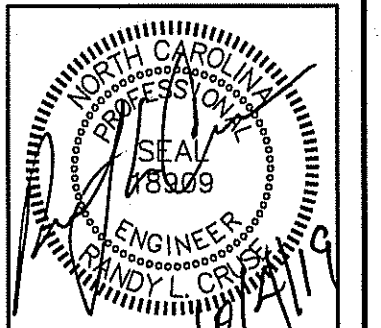
LIGHT FIXTURE SCHEDULE							
MARK	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	BALLASTS	WATTAGE	REMARKS
A	8' LED STRIPLIGHT	LITHONIA	CDS L96 MVOLT DM 40K 80CRI WH	LED		77	
B	LED WALL PACKS	LITHONIA	TWR1 LED 3 50K MVOLT ON TIMER	18 LEDS	LED	58.4	ON TIMER
C	COMPACT FLUORESCENT FIXTURE WITH WIRE GUARD	DAYBRITE	VN100H12-PG	1-13W SELF BALLAST		17	WITH WIRE GUARD
D	3" LED RECESSED DOWNLIGHT	ACULUX	AX3 D G4 12LM 35K 80CRI 50D G21 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				

* ALL FIXTURE SELECTIONS TO BE VERIFIED BY OWNER BEFORE PURCHASE. ** SIGN LETTERING TO BE ON TIMECLOCK OR PHOTOCELL

LIGHTING DATA FOR NC ENERGY CODE					
AREA USE	AREA FT ²	WATTS PER FT ² 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"



UNIVERSITY STORAGE
BUILDING #2
ORANGE STREET COATS, NC

REVISIONS	
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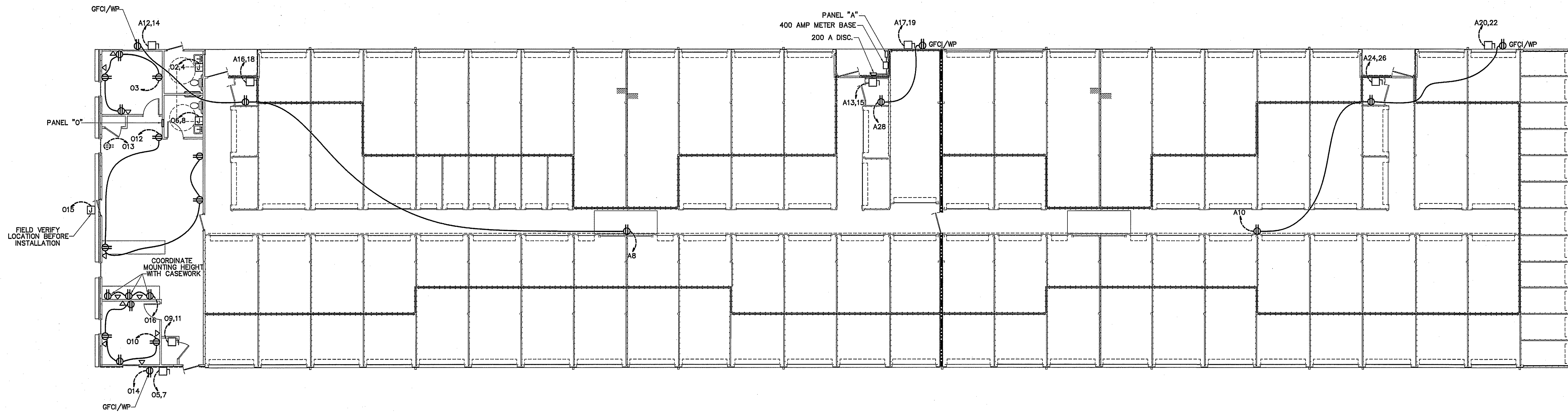
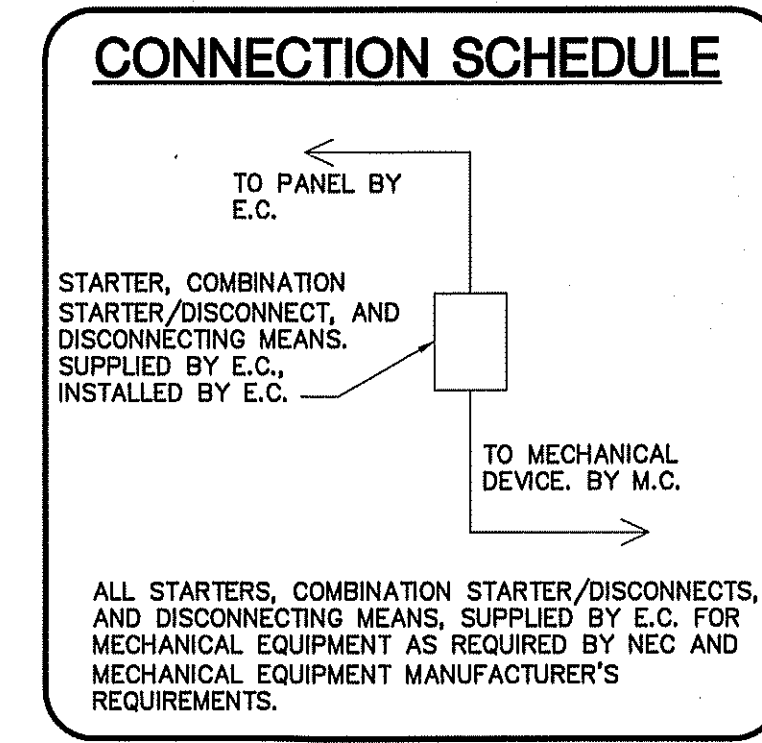
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LEGEND
----- 3 HOUR FIRE BARRIER

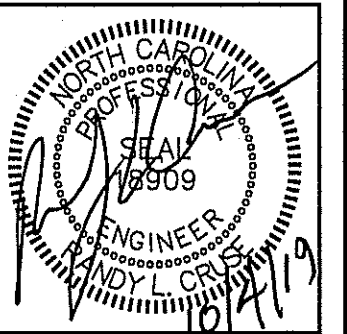
SHEET NO.
E-1 OF 3

ELECTRICAL 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
⊕	DUPLEX RECEPTACLE	↔	UNSWITCHED BRANCH CIRCUIT	□	FUSED DISCONNECT SWITCH
⊕	TIMECLOCK	↔	120/208 VOLT CIRCUIT	□	CEILING MOUNTED FUSED DISCONNECT SWITCH
⊕	CEILING MOUNTED DUPLEX RECEPTACLE	\$M	MOTION DETECTING SINGLE-POLE SWITCH	◁	DATA/PHONE OUTLET
—	FLUORESCENT FIXTURE	⊗	'EXIT' LIGHT FIXTURE, TYPE 'EX'	⊞	JUNCTION BOX
↔	SWITCHED BRANCH CIRCUIT	⬇	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL, MTD.)		SINGLE POLE SWITCH OR TIMER AS APPLICABLE

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



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



UNIVERSITY STORAGE
BUILDING #2
ORANGE STREET COATS, NC

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

SHEET NO.
E-2 OF 3

LEGEND
- - - - - 3 HOUR FIRE BARRIER

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.
- 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.
- ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND LISTED AND LABELED BY UNDERWRITERS LABORATORIES, INC.
- ALL PENETRATIONS OF FIRE WALLS SHALL BE SEALED WITH APPROVED SEALING MATERIALS TO MAINTAIN THE FIRE RATING OF THE WALLS.
- THE CONTRACTOR SHALL VERIFY WIRE AND FUSE/CIRCUIT BREAKER SIZING FOR ALL MECHANICAL EQUIPMENT PRIOR TO PURCHASING MATERIALS AND INSTALLING BRANCH CIRCUITS.
- 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 QUESTION.
- 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.
- 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.
- 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.
- 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.
- FULL WEIGHT GALVANIZED RIGID STEEL CONDUIT SHALL BE USED IN THE FOLLOWING AREAS:
 - ON THE EXTERIOR OF THE BUILDING OR ROOF,
 - VERTICAL DROPS WHERE THE CONDUIT CANNOT BE ANCHORED TO WALLS OR OTHER SUPPORT STRUCTURES,
 - WHERE SUBJECT TO MECHANICAL DAMAGE.
- ALL WIRE AND CABLE SHALL BE COPPER AND HAVE 600 VOLT THHN-THWN INSULATION. ALUMINUM WIRING SHALL NOT BE PERMITTED.
- 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.
- 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.
- 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.
- 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 FIXTURES.
- 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.
- BREAKERS SUPPLYING HVAC OR REFRIGERATION EQUIPMENT SHALL BE HACR TYPE.
- 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.
- ALL CONDUCTORS TO BE INSTALLED IN CONDUIT (EXCEPT WHERE ROMEX IS INSTALLED). EMT FITTINGS TO BE COMPRESSION TYPE, INSULATED THROAT.
- NOT USED
- 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.
- NOT USED
- 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)
- CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET. SPLICES WILL NOT BE MADE EXCEPT WITHIN ACCESSIBLE OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS.
- MAKE CONDUCTOR LENGTHS FOR PARALLEL CIRCUITS EQUAL.
- INSTALL TELEPHONE OUTLETS WITH 3/4" EMPTY CONDUIT AND PULL CORD. STUB OUT ABOVE CEILING. PHONE SYSTEM INSTALLED BY OWNER.
- ALL CONDUIT WITHOUT CONDUCTORS SHALL HAVE NYLON PULLCORDS INSTALLED.
- 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.
- 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.
- 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.
- ALL WIRE TERMINATIONS AND EQUIPMENT TO BE RATED FOR 75° C MINIMUM.
- ELECTRICAL CONTRACTOR TO MAINTAIN 2" OF SEPARATION ON RECEPTACLES ON OPPOSITE SIDES OF ANY FIRE RATED WALL PER 2017 N.E.C. 300.21.
- 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.

ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE:

ENERGY CODE: PRESCRIPTIVE 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

- 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 EFFICIENCY SERVICE WATER HEATING
- 506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY
- 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS

OFFICE PANEL

PANEL: 0 SCHEDULE: _____ MANUFACTURER: SO_D NO. OF SPACES 42
VOLTS: 120/240 AMPS: 200 TYPE: "NQOD" MOUNTING: FLUSH
ENCLOSURE: NEMA 1 0:1 SHORT CIRCUIT RATING: 22,000
MAIN M.L.C. TOP FEED: BOTTOM FEED: COPPER BUS GROUND BAR KIT: NEUTRAL BAR KIT:

L1	L2	CIRCUIT	POLES	TRIP	ASSIGNMENT	PHASE	ASSIGNMENT	TRIP	POLES	CIRCUIT	L1	L2
6.0		1	1	20	OFFICE LIGHTS	o	POINT OF USE	30	2	2	30.0	
	6.0	3	1	20	OFFICE RECEPTACLES	o		30	2	4		30.0
18.2		5	2	35	HP-1	o	POINT OF USE	30	2	6	30.0	
	18.2	7				o				8		30.0
34.1		9	2	45	AHU-1	o	OFFICE RECEPTACLES	20	1	10	6.0	
	34.1	11				o	LOBBY RECEPTACLES	20	1	12		6.0
1.5		13	1	20	CEILING RECEPTACLE	o	EXTERIOR RECEPTACLE	20	1	14	1.5	
	10.0	15	1	20	BUILDING SIGN	o	COUNTER RECEPTACLES	20	1	16		4.5
10.0		17	1	20	STREET SIGN	o		20	1	18	X	X
	X	19	1	20		o		20	1	20	X	X
X	X	21	1	20		o		20	1	22	X	X
X	X	23	1	20		o		20	1	24	X	X
X	X	25	1	20		o		20	1	26	X	X
X	X	27	1	20		o		20	1	28	X	X
X	X	29	1	20		o		20	1	30	X	X
X	X	31	1	20		o		20	1	32	X	X
X	X	33	1	20		o		20	1	34	X	X
X	X	35	1	20		o		20	1	36	X	X
X	X	37	1	20		o		20	1	38	X	X
X	X	39	1	20		o		20	1	40	X	X
X	X	41	1	20		o		20	1	42	X	X

L1 = 137.3 A
L2 = 138.8 A

NOTE:
VERIFY AIC RATING WITH UTILITY COMPANY BEFORE ORDERING PANELS & EQUIPMENT.

OFFICE PANEL

PANEL: A SCHEDULE: _____ MANUFACTURER: SO_D NO. OF SPACES 42
VOLTS: 120/240 AMPS: 225 TYPE: "NQOD" MOUNTING: SURFACE
ENCLOSURE: NEMA 3R 0:1 SHORT CIRCUIT RATING: 10,000
MAIN M.L.C. TOP FEED: BOTTOM FEED: COPPER BUS GROUND BAR KIT: NEUTRAL BAR KIT:

L1	L2	CIRCUIT	POLES	TRIP	ASSIGNMENT	PHASE	ASSIGNMENT	TRIP	POLES	CIRCUIT	L1	L2
6.4		1	1	20	CORRIDOR LIGHTS LEFT SIDE	o	WALLPACKS	20	1	2	4.4	
	8.6	3	1	20	CORRIDOR LIGHTS RIGHT SIDE	o	WALLPACKS	20	1	4		4.4
6.3		5	1	20	CORRIDOR LIGHTS CENTER	o	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	o	RIGHT SIDE RECEPTACLES	20	1	10	4.5	
	7.1	11	1	20	RT. SIDE 10X15 UNIT LIGHTS	o	HP-2	25	2	12		11.6
31.6		13	2	40	AHU-3	o				14	11.6	
	31.6	15				o	AHU-2	40	2	16		31.6
9.7		17	2	15	HP-3	o				18	31.6	
	9.7	19				o	HP-4	35	2	20		18.2
X	X	21	1	20	SPARE	o				22	18.2	
X	X	23	1	20	SPARE	o	AHU-4	45	2	24		34.1
X	X	25	1	20	SPARE	o				26	34.1	
X	X	27	1	20	SPARE	o	CENTER CONV. RECEPTACLES	20	1	28		3.0
X	X	29	1	20	SPARE	o	SPARE	20	1	30	X	X
X	X	31	1	20	SPARE	o	SPARE	20	1	32	X	X
X	X	33	1	20	SPARE	o	SPARE	20	1	34	X	X
X	X	35	1	20	SPARE	o	SPARE	20	1	36	X	X
X	X	37	1	20	SPARE	o	SPARE	20	1	38	X	X
X	X	39	1	20	SPARE	o	SPARE	20	1	40	X	X
X	X	41	1	20	SPARE	o	SPARE	20	1	42	X	X

L1 = 175.6 A
L2 = 172.1 A

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"

ELECTRICAL LOAD CALCULATIONS

16800 SQUARE FEET VA.

NONCONTINUOUS LOADS:

24 RECEPTACLES @ 180 VA EA. 4320
1ST 10000 4320
REMAINDER @ 50% 0
TOTAL 4320

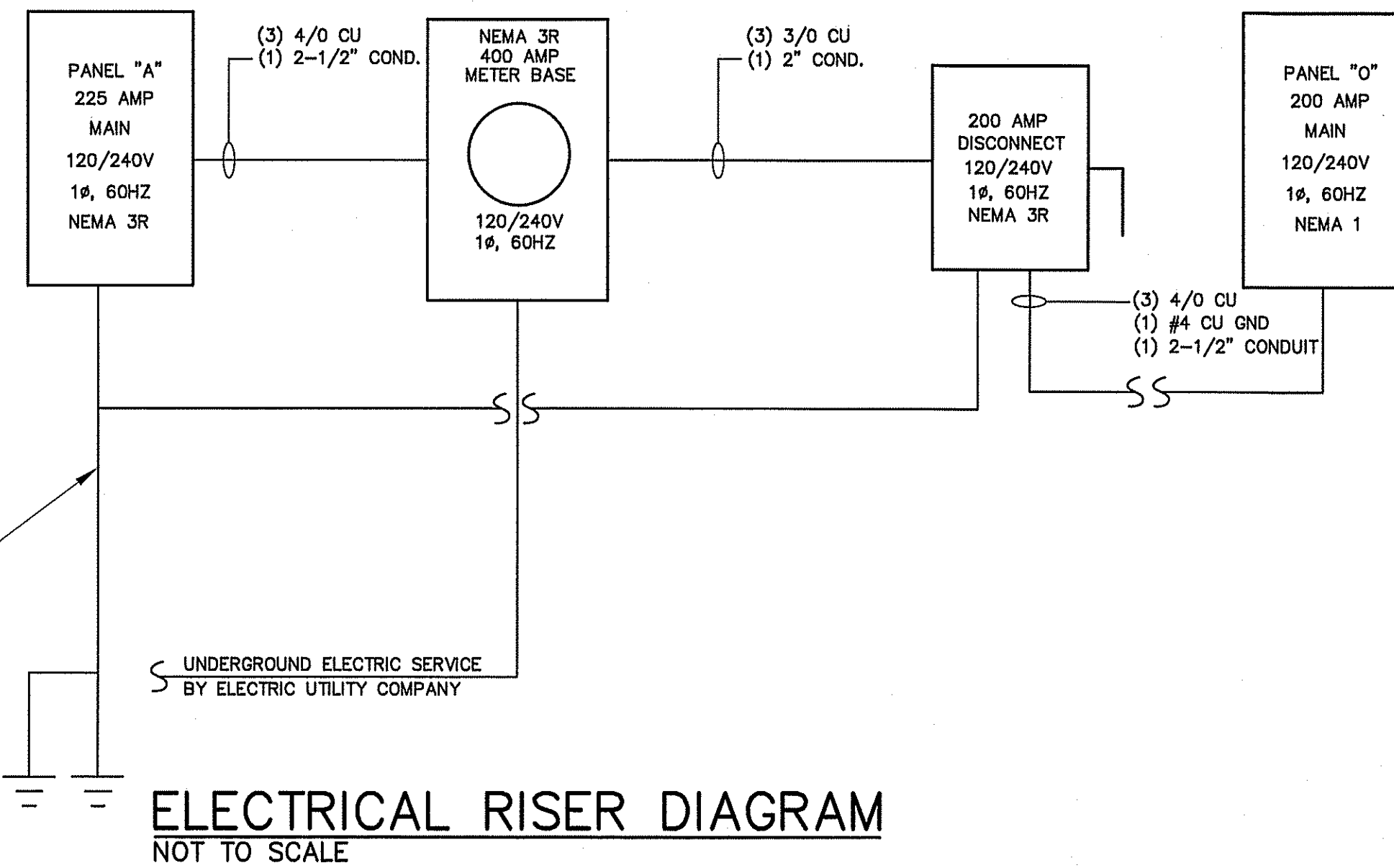
CONTINUOUS LOADS:

STORAGE
GENERAL LIGHTING LOAD VA/SQ. FT. 0.25 3900
15600 SQ. FT. 4875
3900 x 1.25

OFFICE
GENERAL LIGHTING LOAD VA/SQ. FT. 3.5 4200
1200 SQ. FT. 5250
4200 x 1.25

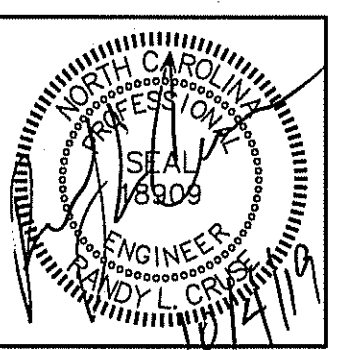
AIR HANDLER UNIT 31536
HEAT PUMPS 13848
EQUIPMENT: 16892
25% OF LARGEST MOTOR 1092
GRAND TOTAL 77813

324 AMPS @ 120/240V, 1#, 60HZ



GROUNDING PER NEC 250. 1/0 CU TO COLD WATER MAIN, BUILDING STEEL, SPRINKLER MAIN AND CONCRETE ENCASED ELECTRODE. #8 AWG TO (2) DRIVEN GROUND RODS, MINIMUM OF 6' APART. BOND ALL SERVICE GROUNDING ELECTRODES PER NEC 250 WITH (1) 1/0 CU GND

ELECTRICAL RISER DIAGRAM
NOT TO SCALE



UNIVERSITY STORAGE
BUILDING #2
ORANGE STREET COATS, NC

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SHEET NO.
E-3 OF 3

EXIT REQUIREMENTS:
NUMBER AND ARRANGEMENTS OF EXITS

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM ² NO. OF EXITS		TRAVEL DISTANCE		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"

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

EXIT WIDTH

USE GROUP OR SPACE DESCRIPTION	(a)		(b)	(c)		EXIT WIDTH (IN)			
	AREA ¹ SQ. FT.	AREA ¹ PER OCCUPANT (TABLE 1004.1.2)		EGRESS WIDTH PER OCCUPANT (TABLE 1005.1)	REQUIRED WIDTH (SECTION 1005.1) (c/b) x e	STAIR	LEVEL	STAIR	LEVEL
S-1	5100	500 GROSS	11	N/A	.2	N/A	2.2"	N/A	9"

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

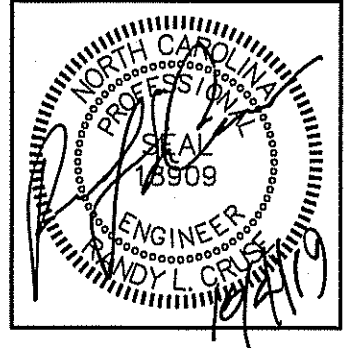
LIFE SAFETY PLAN NOTES:

- SEE LEGEND FOR RATED WALLS.
- ASSUMED 12' AND REAL PROPERTY LINES >80'
- ASSUMED PROPERTY LINES 12' ; 705.8; EXC. 2 - UNLIMITED
- NO DEAD ENDS OVER 20'; 20' ALLOWED.
- NO RATING REQUIRED THIS STRUCTURE.
- PANIC HARDWARE NOT REQUIRED.
- NO DELAYED EGRESS LOCKS, ELECTROMAGNETIC LOCKS, HOLD OPEN DEVICES, OR EMERGENCY ESCAPE WINDOWS
- FIRE AREAS DO NOT EXCEED CODE ALLOWANCE
- BUILDING MEETS CODE REQUIREMENTS WITHOUT SUBDIVISION INTO SMOKE COMPARTMENTS; NO SMOKE COMPARTMENTS

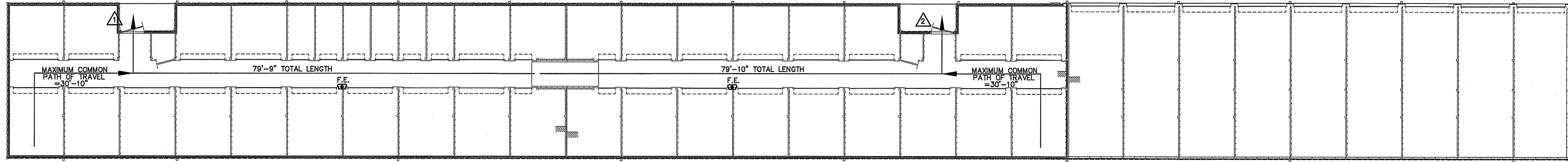
MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE BASED ON EGRESS WIDTH (1005.1)

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

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



UNIVERSITY STORAGE
BUILDING #3
ORANGE STREET COATS, NC



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

NOTE:
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.

REVISIONS

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SHEET NO.
LS-1 OF 1

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

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

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)
- 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:

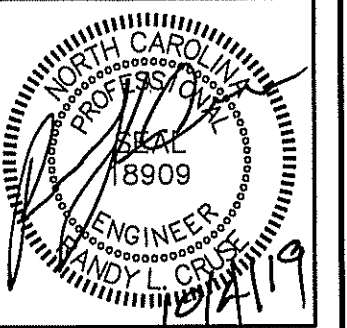
- ① RUN ALL DUCTWORK TIGHT TO CEILING INSULATION.
- ② FASTEN ALL CONDENSATE LINES TO WALLS OR CEILINGS WHERE APPLICABLE.
- ③ 7-DAY PROGRAMMABLE T'STAT WITH LOCKING COVER.
- ④ PROVIDE & INSTALL PROTECTIVE 6" CONCRETE-FILLED PIPE BOLLARDS, TWO PER HEAT PUMP OR AS SHOWN ON PLAN.
- ⑤ PROVIDE AND INSTALL CONCRETE SPLASH BLOCK, ONE PER 3 HEAT PUMPS MIN.
- ⑥ INSTALL FLOAT SWITCH IN AUXILIARY PAN TO STOP UNIT IN EVENT OF CONDENSATE OVERFLOW.

GENERAL NOTE:

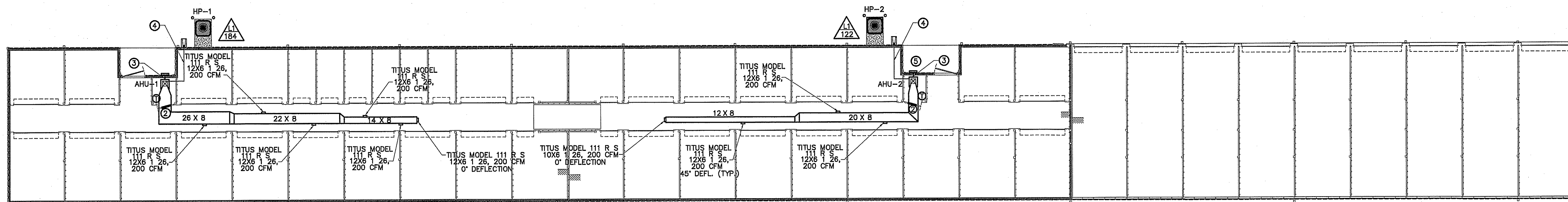
MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FOR ALL HVAC EQUIPMENT.

MECHANICAL 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)			SUPPLY AIR CEILING DIFFUSER, ARROW INDICATES DIRECTION OF BLOW & ACTIVE DIFFUSER SIDES
		BRANCH TAKEOFF FROM MAIN TRUNK DUCT WITH EXT. INSUL. DUCTWORK			CEILING DIFFUSER			FLEXIBLE DUCTWORK (15' MAX.)
		END CAP			ONE SIDED REDUCING TRANSITION			(1) CUSHION HEAD @ BRANCH (2) CUSHION HEAD IS EQUAL TO 1-1/2 WIDTH OF THE BRANCH DUCT OR DIFFUSER RUNOUT
		DUCT SMOKE DETECTOR			F.D.=FIRE DAMPER (1-1/2)=RATED FOR 1-1/2 HRS.			R.A. OR EXHAUST DUCT TURNS DOWN @ 90 DEGS.
		ACCESS DOOR			RETURN AIR OR EXHAUST GRILLE			MANUAL VOLUME CONTROL DAMPER W/ QUADRANT LOCKING DEVICE
		TWO SIDED TRANSITION			EXHAUST FAN			KEY NOTE
		DUCT SMOKE DETECTOR			DUCT SMOKE DETECTOR			MARK
		ACCESS DOOR			ACCESS DOOR			CFM-DIFFUSER, REGISTER OR GRILLE (SEE SCHEDULE)
		ACCESS DOOR			ACCESS DOOR			EXHAUST FAN



UNIVERSITY STORAGE
BUILDING #3
ORANGE STREET COATS, NC



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

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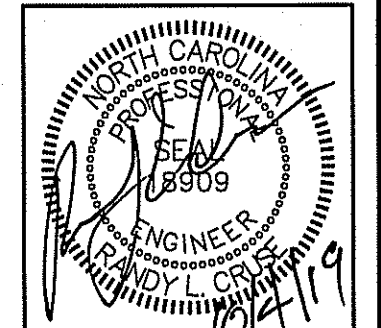
LEGEND
----- 3 HOUR FIRE BARRIER

SHEET NO.
M-1 OF 2

AIR HANDLER UNIT														SPLIT SYSTEM HEAT PUMP UNITS													
AHU NO.	MANUFACTURER	MODEL	VOLTAGE	E.S.P.	OUTSIDE AIR (CFM)	CFM	UNIT FLA	REF LINES		SEER	HTR KW (240)	COOLING CAPACITY (MBH)		HEATING CAPACITY (MBH)		HSPF	MIN. CIRC. AMPACITY	M.O.C.P.	MARK	MANUF.	MODEL	VOLTAGE	# COMP.	MIN. CIRC. AMPACITY	M.O.C.P.	UNIT FLA.	ACCESSORIES
								GAS	LIQ.			TOTAL	SENS.	HIGH	LOW												
AHU-2	RHEEM	RH1T-2417STAN	240/1#/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	RP1524BJI	240/1/60	1	15	25	11.6	EXCLUDE B,18
AHU-1	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-1	RHEEM	RP1536AJI	240/1/60	1	23	35	18.2	EXCLUDE B,18

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

- ACCESSORIES
- | | | |
|-------------------------------|--|--|
| 1 TIME-DELAY RELAY | 7 LIQUID SOLENOID VALVE | 13 DISCHARGE LINE MUFFLER |
| 2 CYCLE PROTECTOR | 8 LOW-AMBIENT CONTROLLER | 14 SUCTION AND LIQUID LINE SHUT OFF VALVES |
| 3 EVAPORATOR FREEZE PROTECTOR | 9 FILTER DRIER (LIQUID LINE) | 15 THERMOSTAT (SEE NOTE) |
| 4 ISOLATION RELAY | 10 OUTDOOR T-STAT TO LOCK OUT AUX. HT. (SET @ 40° F ADJ) | 16 SUPPORT FEET |
| 5 TAV | 11 LOW PRESSURE CONTROL | 17 COIL GUARDS |
| 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.



UNIVERSITY STORAGE
 BUILDING #3
 ORANGE STREET COATS, NC

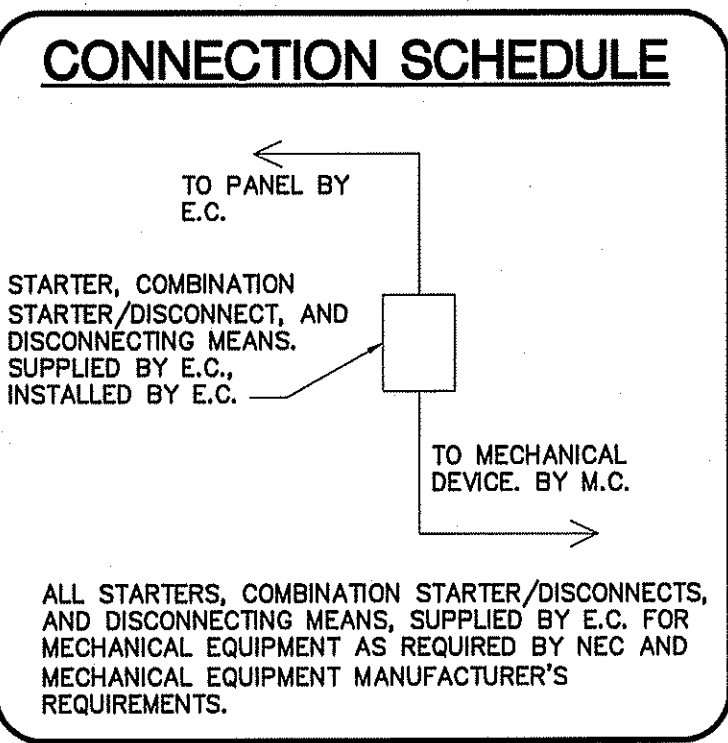
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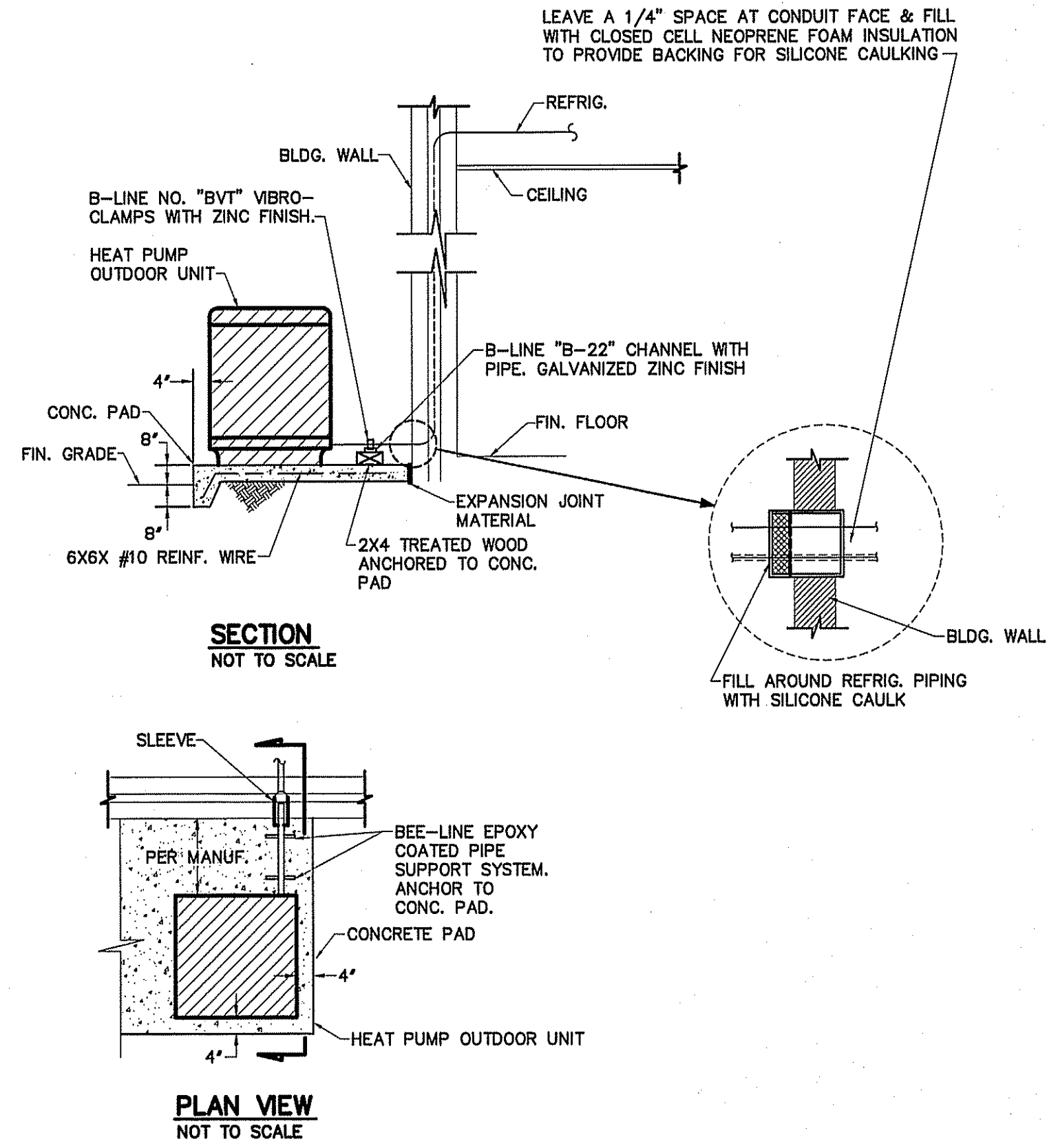
SHEET NO.
 M-2 OF 2



LOUVER SCHEDULE

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



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.

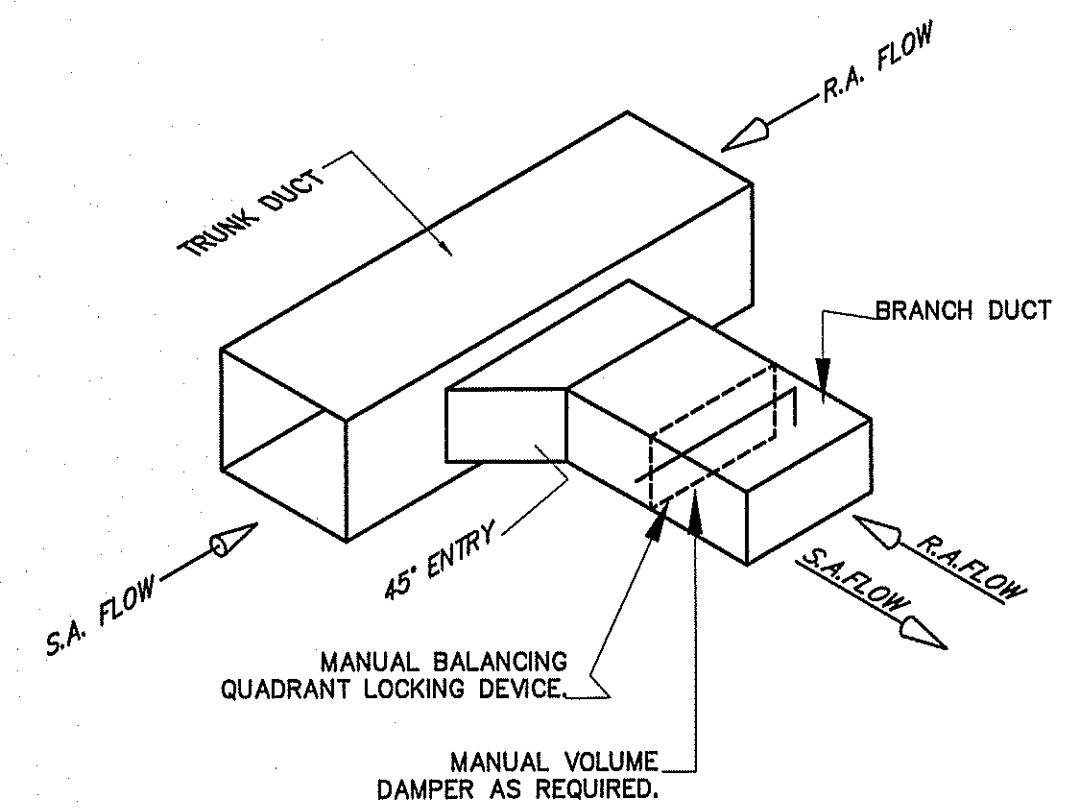
INTERIOR DESIGN CONDITIONS
 WINTER DRY BULB 49 DEG. F.
 SUMMER DRY BULB 80 DEG. F.
 RELATIVE HUMIDITY 55%

BUILDING HEATING LOAD 54.5 MBH
BUILDING COOLING LOAD 5 TONS
MECHANICAL SPACE CONDITIONING SYSTEM

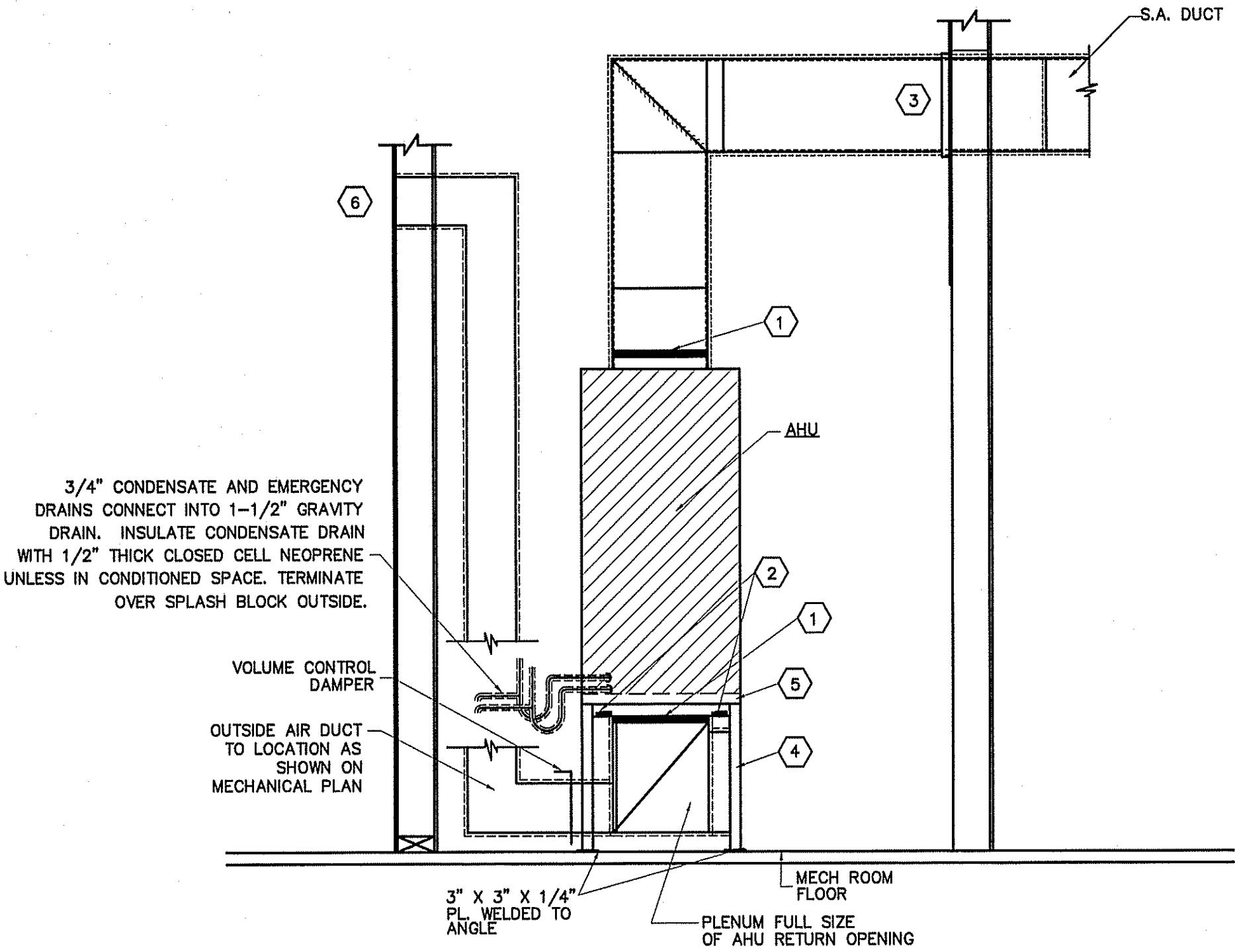
UNITARY
 DESCRIPTION OF UNIT: SPLIT SYSTEM HEAT PUMP
 HEATING EFFICIENCY: 15.5 SEER
 COOLING EFFICIENCY: 9.0 HSPF
 SIZE CATEGORY OF UNIT: < 65,000 BTUH

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

LIST EQUIPMENT EFFICIENCIES



BRANCH DUCT TAKE-OFF DETAIL
 NOT TO SCALE



TYPICAL DETAIL AT FLOOR MOUNTED AHU
 NOT TO SCALE

- NOTES:**
- | | |
|--|--|
| ① FLEXIBLE CONNECTION | ⑤ 1" PLEATED FILTER |
| ② NEOPRENE-IN-SHEAR VIBRATION ISOLATORS | ⑥ OUTSIDE AIR LOUVER, RAIN PROOF, SIZE FOR 0.06 CFM/SF OF CONDITIONED SPACE. |
| ③ SHEET METAL COLLAR AT WALL PENETRATION | |
| 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.

- MECHANICAL NOTES (GENERAL)**
- 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.
 - 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.
 - ALL DUCTWORK SHALL BE SEALED AIR TIGHT WITH SEALING COMPOUND.
 - 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.
 - THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO INSTALLATION OF ANY OF HIS PIPING, DUCTWORK, OR EQUIPMENT.
 - 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.
 - 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.
 - ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE.
 - 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.

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
⊕	DUPLEX RECEPTACLE	↔	UNSWITCHED BRANCH CIRCUIT	□	FUSED DISCONNECT SWITCH
T	TIMELOCK FOR WALLPACKS	↔	120/208 VOLT CIRCUIT	□	CEILING MOUNTED FUSED DISCONNECT SWITCH
⊕	CEILING MOUNTED DUPLEX RECEPTACLE	\$u	MOTION DETECTING SINGLE-POLE SWITCH	◁	DATA/PHONE OUTLET
▭	FLUORESCENT FIXTURE	⊗	'EXIT' LIGHT FIXTURE, TYPE 'EX'	□	JUNCTION BOX
↔	SWITCHED BRANCH CIRCUIT	⊕	BATTERY OPERATED EMERG. LT. (2-HEAD, WALL MTD.)	\$	SINGLE POLE SWITCH OR TIMER AS APPLICABLE

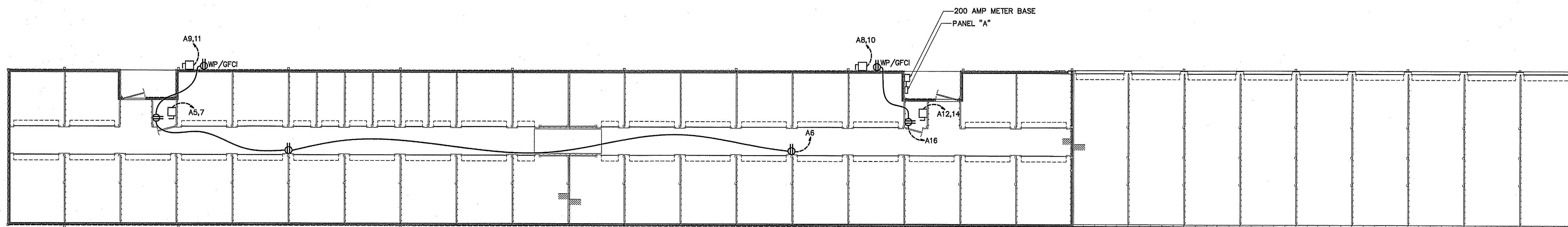
NOTE:

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. SWITCHES TO BE ON TIMER OF 30 MINUTES WITH NO HOLD MECHANISMS.
5. VERIFY NIGHT LIGHTS AND PERMANENT BURN FIXTURES WITH OWNER BEFORE WIRING.

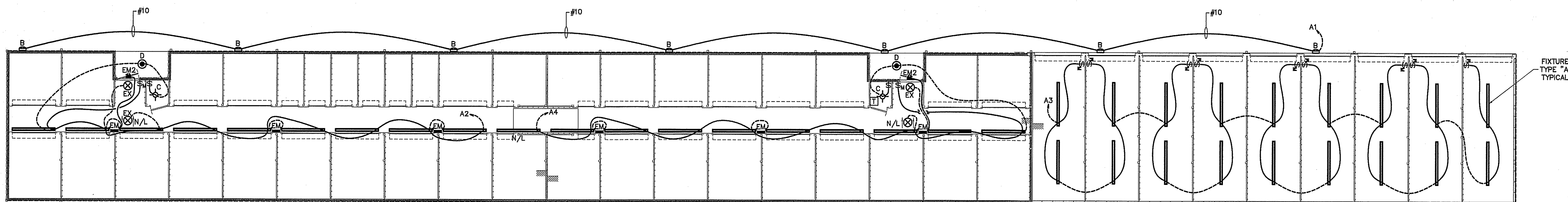
LIGHTING DATA FOR NC ENERGY CODE					
AREA USE	AREA FT ²	WATTS PER FT ² ALLOWED	TOTAL WATTS ALLOWED	TOTAL WATTS USED	TOTAL WATTS LEFT OVER
STORAGE	7,700	0.66	5,082	2,849	2,233
TOTAL	7,700		5,082	2,849	2,233

LIGHT FIXTURE SCHEDULE							
MARK	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	BALLASTS	WATTAGE	REMARKS
A	8' LED STRIPLIGHT	LITHONIA	CDS L96 MVOLT DM 40K 80CRI WH	LED		77	
B	LED WALL PACKS	LITHONIA	TWR1 LED 3 50K MVOLT ON TIMER	18 LEDS	LED	58.4	ON TIMELOCK
C	COMPACT FLUORESCENT FIXTURE WITH WIRE GUARD	DAYBRITE	VN10012-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	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				

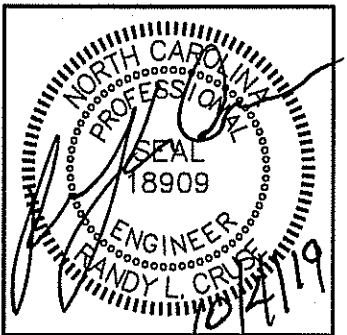
* ALL FIXTURE SELECTIONS TO BE VERIFIED BY OWNER BEFORE PURCHASE. ** SIGN LETTERING TO BE ON TIMELOCK OR PHOTOCELL



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



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



UNIVERSITY STORAGE
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DATE 10/04/19
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SHEET NO.
E-1 OF 2

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.
- 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.
- ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND LISTED AND LABELED BY UNDERWRITERS LABORATORIES, INC.
- ALL PENETRATIONS OF FIRE WALLS SHALL BE SEALED WITH APPROVED SEALING MATERIALS TO MAINTAIN THE FIRE RATING OF THE WALLS.
- THE CONTRACTOR SHALL VERIFY WIRE AND FUSE/CIRCUIT BREAKER SIZING FOR ALL MECHANICAL EQUIPMENT PRIOR TO PURCHASING MATERIALS AND INSTALLING BRANCH CIRCUITS.
- 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 QUESTION.
- 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.
- 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.
- 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.
- 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.
- FULL WEIGHT GALVANIZED RIGID STEEL CONDUIT SHALL BE USED IN THE FOLLOWING AREAS:
 - ON THE EXTERIOR OF THE BUILDING OR ROOF,
 - VERTICAL DROPS WHERE THE CONDUIT CANNOT BE ANCHORED TO WALLS OR OTHER SUPPORT STRUCTURES,
 - WHERE SUBJECT TO MECHANICAL DAMAGE.
- ALL WIRE AND CABLE SHALL BE COPPER AND HAVE 600 VOLT THHN-THWN INSULATION. ALUMINUM WIRING SHALL NOT BE PERMITTED.
- 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.
- 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.
- 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.
- 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 FIXTURES.
- 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.
- BREAKERS SUPPLYING HVAC OR REFRIGERATION EQUIPMENT SHALL BE HACR TYPE.
- 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.
- ALL CONDUCTORS TO BE INSTALLED IN CONDUIT (EXCEPT WHERE ROMEX IS INSTALLED). EMT FITTINGS TO BE COMPRESSION TYPE, INSULATED THROAT.
- NOT USED
- 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.
- NOT USED
- 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)
- CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET. SPLICES WILL NOT BE MADE EXCEPT WITHIN ACCESSIBLE OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS.
- MAKE CONDUCTOR LENGTHS FOR PARALLEL CIRCUITS EQUAL.
- INSTALL TELEPHONE OUTLETS WITH 3/4" EMPTY CONDUIT AND PULL CORD. STUB OUT ABOVE CEILING. PHONE SYSTEM INSTALLED BY OWNER.
- ALL CONDUIT WITHOUT CONDUCTORS SHALL HAVE NYLON PULLCORDS INSTALLED.
- 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.
- 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.
- 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.
- ALL WIRE TERMINATIONS AND EQUIPMENT TO BE RATED FOR 75° C MINIMUM.
- ELECTRICAL CONTRACTOR TO MAINTAIN 2" OF SEPARATION ON RECEPTACLES ON OPPOSITE SIDES OF ANY FIRE RATED WALL PER 2017 N.E.C. 300.21.
- 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.

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

NOTE:
VERIFY AIC RATING WITH UTILITY COMPANY BEFORE ORDERING PANELS & EQUIPMENT.

PANEL: "A" SCHEDULE: MANUFACTURER: SQ. D. NO. OF SPACES: 42
VOLTS: 120/240 AMPS: 200 TYPE: "NQD" MOUNTING: SURFACE
ENCLOSURE: NEMA 3R: 0:1 SHORT CIRCUIT RATING: 22000
MAIN: M.L.C. TOP FEED: BOTTOM FEED: COPPER BUS: GROUND BAR KIT: NEUTRAL BAR KIT:

L1	L2	CIRCUIT	POLES	TRIP	ASSIGNMENT	PHASE	ASSIGNMENT	TRIP	POLES	CIRCUIT	L1	L2
3.4	X	1	1	20	WALLPACKS	o	CORRIDOR LIGHTS LEFT SIDE	20	1	2	6.0	X
X	11.6	3	1	20	10X30 UNIT LIGHTS	o	CORRIDOR LIGHTS RIGHT SIDE	20	1	4	6.7	X
34.1	X	5	2	45	AHU-1	o	HVAC/CORRIDOR RECEPTACLES	20	1	6	6.0	X
X	34.1	7				o	HP-2	25	2	8	11.6	X
18.2	X	9	2	35	HP-1	o						
X	18.2	11				o	AHU-2	40	2	12	31.6	X
X	X	13	1	20	SPARE	o					14	31.6
X	X	15	1	20	SPARE	o	HP AND AHU #2 CONV. RECS.	20	1	16	X	3.0
X	X	17	1	20	SPARE	o	SPARE	20	1	18	X	X
X	X	19	1	20	SPARE	o	SPARE	20	1	20	X	X
X	X	21	1	20	SPARE	o	SPARE	20	1	22	X	X
X	X	23	1	20	SPARE	o	SPARE	20	1	24	X	X
X	X	25	1	20	SPARE	o	SPARE	20	1	26	X	X
X	X	27	1	20	SPARE	o	SPARE	20	1	28	X	X
X	X	29	1	20	SPARE	o	SPARE	20	1	30	X	X
X	X	31	1	20	SPARE	o	SPARE	20	1	32	X	X
X	X	33	1	20	SPARE	o	SPARE	20	1	34	X	X
X	X	35	1	20	SPARE	o	SPARE	20	1	36	X	X
X	X	37	1	20	SPARE	o	SPARE	20	1	38	X	X
X	X	39	1	20	SPARE	o	SPARE	20	1	40	X	X
X	X	41	1	20	SPARE	o	SPARE	20	1	42	X	X

L1 = 110.9 A
L2 = 116.8 A

ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE:

ENERGY CODE: PRESCRIPTIVE PERFORMANCE
ASHRAE 90.1: PRESCRIPTIVE PERFORMANCE

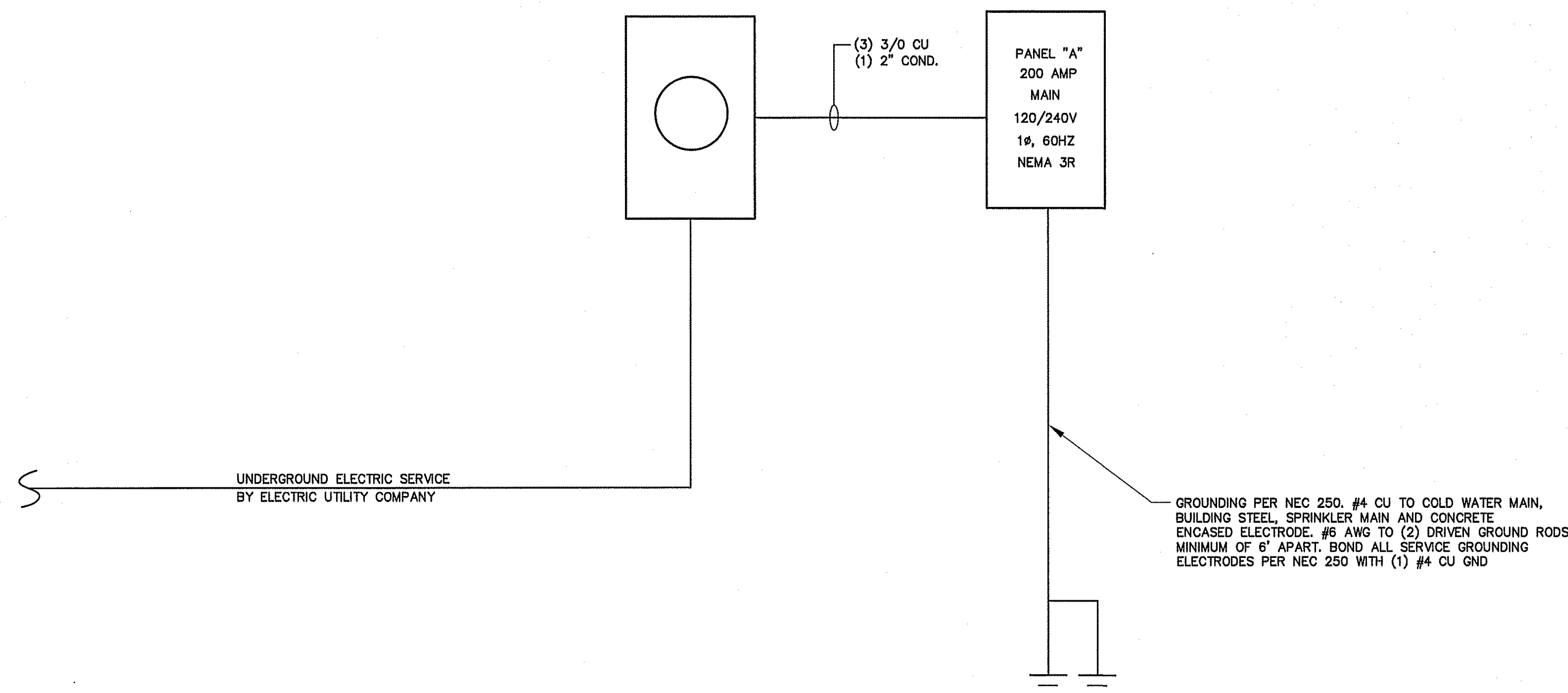
REFER TO DRAWINGS FOR RISER DIAGRAM AND PANEL SCHEDULES

LIGHTING SCHEDULE

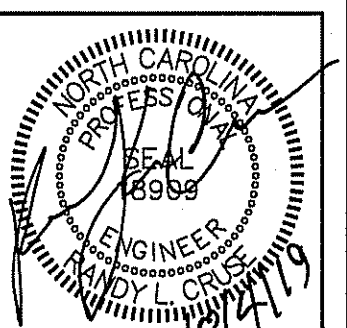
LAMP TYPE REQUIRED IN FIXTURE: SEE SCHEDULE
NUMBER OF LAMPS IN FIXTURE:
BALLASTS TYPE USED IN FIXTURE:
NUMBER OF BALLASTS IN FIXTURE:
TOTAL WATTAGE PER FIXTURE:
TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED:
TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED:

ADDITIONAL PRESCRIPTIVE COMPLIANCE

- 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 EFFICIENCY SERVICE WATER HEATING
- 506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY
- 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS



ELECTRICAL RISER DIAGRAM
NOT TO SCALE



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