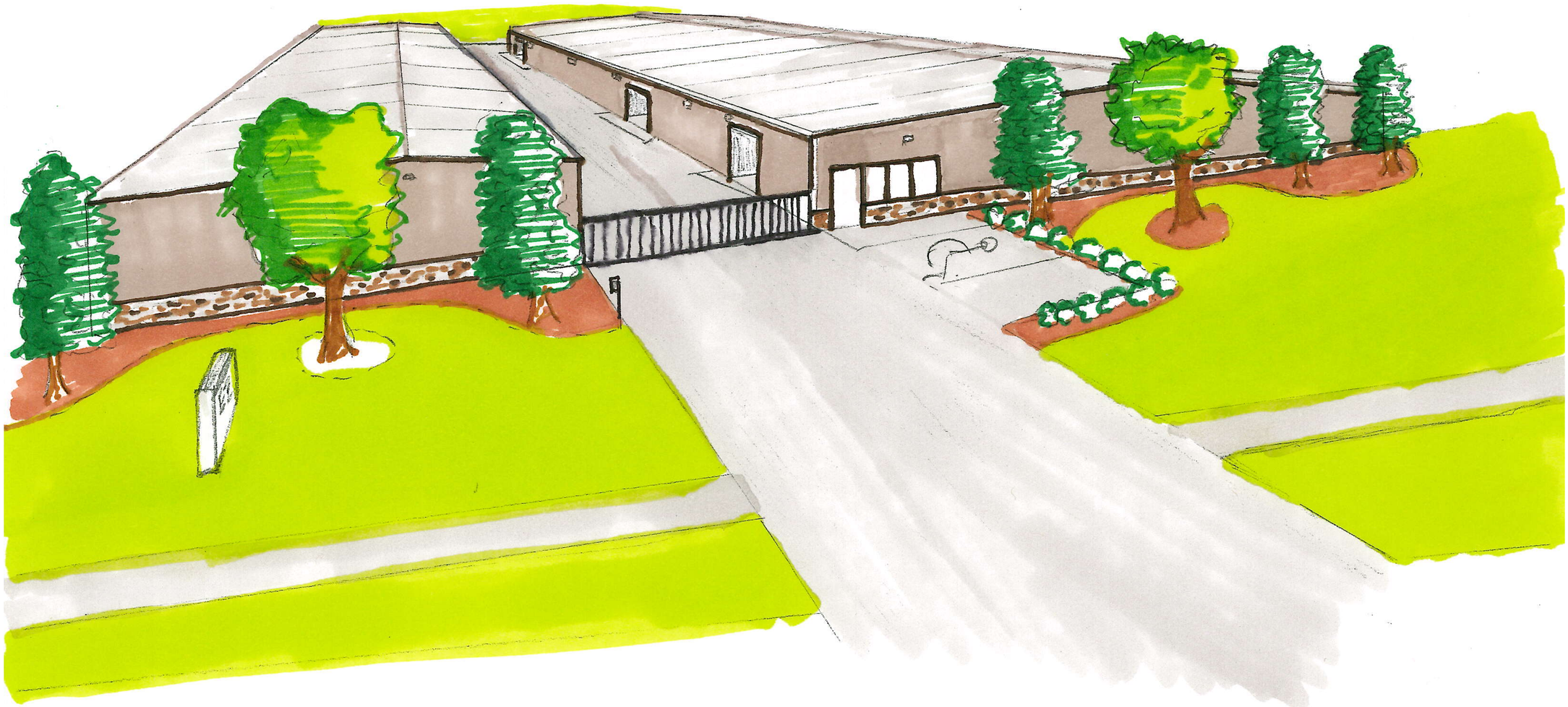


2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: EZ Storage
Address: Lillington, NC Zip Code: 27546
Owner/Authorized Agent: Josh Smith Phone # (919) 818-2582 E-Mail:
Owned By: Private
Code Enforcement Jurisdiction: Select one

CONTACT: _____

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				(___)___	
Civil				(___)___	
Electrical				(___)___	
Fire Alarm				(___)___	
Plumbing				(___)___	
Mechanical				(___)___	
Sprinkler-Standpipe				(___)___	
Structural	Betco	Self	27355	(704)872-2999	reeds@betcoinc.com
Retaining Walls >5' High				(___)___	
Other				(___)___	

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

2018 NC BUILDING CODE: New Building

2018 NC EXISTING BUILDING CODE: N/A N/A N/A
CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): _____
RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S)** (Ch. 3): _____

OCCUPANCY CATEGORY (Table 1604.5): **Current:** N/A **Proposed:** I

BASIC BUILDING DATA
Construction Type: II-B
Sprinklers: N/A N/A
Standpipes: N/A
Primary Fire District: Select one **Flood Hazard Area:** Select one
Special Inspections Required: No

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
Building 1		9800	9800
Building 2		24000	24000
TOTAL		33800	33800

ALLOWABLE AREA

Primary Occupancy Classification(s): Storage - S-1 N/A N/A N/A N/A N/A
Accessory Occupancy Classification(s): _____

North	N/A						
East	N/A						
West	N/A						
South	N/A						
Interior walls and partitions	N/A						
Floor Construction including supporting beams and joists	N/A						
Floor Ceiling Assembly	N/A						
Columns Supporting Floors							
Roof Construction, including supporting beams and joists		NC					
Roof Ceiling Assembly	N/A						
Columns Supporting Roof	N/A						
Shaft Enclosures - Exit	N/A						
Shaft Enclosures - Other	N/A						
Corridor Separation	N/A						
Occupancy/Fire Barrier Separation		3 hr 3 hr		CS3 CS4	U419 U426		
Party/Fire Wall Separation	N/A						
Smoke Barrier Separation	N/A						
Smoke Partition	N/A						
Tenant/Dwelling Unit/ Sleeping Unit Separation	N/A						
Incidental Use Separation	N/A						

* Indicate section number permitting reduction NC=Non-combustible

PERCENTAGE OF WALL OPENING CALCULATIONS

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

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: Select one
Exit Signs: Select one
Fire Alarm: Select one
Smoke Detection Systems: Select one
Carbon Monoxide Detection: Select one

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

- ☐ Fire and/or smoke rated wall locations (Chapter 7)
- ☐ Assumed and real property line locations (if not on the site plan)
- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)

Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections): _____
Special Provisions: (Chapter 5 – List Code Sections): _____
Mixed Occupancy: No Separation: Select one Exception: _____

Select one

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

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
Bldg 1	S-1	5250	17500	0	17500
Bldg 2	S-1	7000	17500	0	17500

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____(F)
b. Total Building Perimeter = _____(P)
c. Ratio (F/P) = _____(F/P)
d. W = Minimum width of public way = _____(W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30 =$ _____(%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55 ft	9.33 ft	
Building Height in Stories (Table 504.4)	2	1	

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses		NC					
Bearing Walls							
Exterior	>= 10 ft						
North	>= 10 ft						
East	>= 10 ft						
West	>= 10 ft						
South	>= 10 ft						
Interior							
Nonbearing Walls and Partitions Exterior walls	N/A						

- ☐ Occupant loads for each area
- ☐ Exit access travel distances (1017)
- ☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- ☐ Dead end lengths (1020.4)
- ☐ Clear exit widths for each exit door
- ☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- ☐ Actual occupant load for each exit door
- ☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- ☐ Location of doors with panic hardware (1010.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
- ☐ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1030)
- ☐ The square footage of each fire area (202)
- ☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

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

ACCESSIBLE PARKING
(SECTION 1106)

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

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

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

SPECIAL APPROVALS

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

ENERGY SUMMARY

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

Existing building envelope complies with code: Select one

Exempt Building: Yes Provide code or statutory reference: N.C.G.S 143-138

Climate Zone: Select one

Method of Compliance: Select one
(If "Other" specify source here)_____

THERMAL ENVELOPE (Prescriptive method only)

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

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

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

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

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

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

DESIGN LOADS:

Importance Factors: Snow (Is) 0.80
Seismic (Ie) 1.0

Live Loads: Roof 20 psf
Mezzanine N/A psf
Floor 125 psf

Ground Snow Load: 15 psf

Wind Load: Design Wind Speed V(ultimate)= 117 mph (ASCE 7-10)
Exposure Category B
Wind Base Shear (MWFRS): Bldg 1; Vx= 28.6 k Vy= 73.8 k
Bldg 2; Vx=38.2 k Vy=98.4 k

SEISMIC DESIGN CATEGORY: C
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) I
Spectral Response Acceleration S_s =18.4 %g S_1 =8.6 %g

Site Classification (ASCE 7) D
Data Source: Presumptive
Basic structural system Building Frame
Seismic Base Shear: Bldg 1; Vx=1.372 k Vy=1.372 k
Bldg 2; Vx=3.360 k Vy=3.360 k

Analysis Procedure: Equivalent Lateral Force
Architectural, Mechanical, Components anchored? Yes

LATERAL DESIGN CONTROL: Wind

SOIL BEARING CAPACITIES:
Presumptive Bearing Capacity 3000 psf
Pile size, type, and capacity _____

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

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

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

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason.: _____
Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

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

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Select one

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

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

EZ STORAGE

LILLINGTON, NORTH CAROLINA

WIND LOAD DESIGN DATA:

ULTIMATE DESIGN WIND SPEED (V_{ULT}): 117 MPH
NOMINAL DESIGN WIND SPEED (V_{ASD}): 91 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_S): 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": 1.372^K
  BUILDING "2": 3.360^K
- RESPONSE MODIFICATION FACTOR (R): 7.0
- SEISMIC RESPONSE COEFFICIENT (C_S): 0.028
- MAPPED SPECTRAL RESPONSE ACCELERATION
  (S_S): 18.4% G
  (S_1): 8.6% G
- SPECTRAL RESPONSE COEFFICIENTS
  (S_{DS}): 19.6% G
  (S_{D1}): 13.8% G

BUILDING DATA :

BUILDING DESCRIPTION :

SINGLE STORY METAL BUILDINGS BOLTED TO CONCRETE SLAB FOUNDATIONS.

BUILDING SIZE :

BUILDING "1"	35' x 280'	=	9,800 sq. ft.	9'-4" EAVE HEIGHT
BUILDING "2"	100' x 240'	=	24,000 sq. ft.	9'-4" EAVE HEIGHT
	TOTAL	=	33,800 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 :

NC23260

SUBMITTED TO :

EZ SELF STORAGE, LLC.
ATTN: JOSH SMITH
1601 ST. McNEILL STREET
LILLINGTON, NORTH CAROLINA 27546

PHONE: (919)-818-2582

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	X	ERC619X		ERC750X	
ERC016X	X	ERC201X	X	ERC500X		ERC620X		ERC751X	
ERC100X		ERC202X		ERC505X	X	ERC621X		ERC752X	
ERC105X		ERC203X	X	ERC506X	X	ERC622X		ERC753X	
ERC106X		ERC204X		ERC515X		ERC623X		ERC754X	
ERC110X	X	ERC206X		ERC600X	X	ERC624X		ERC800X	
ERC112X	X	ERC207X		ERC601X	X	ERC625X		ERC900X	
ERC115NXT		ERC208X	X	ERC602X	X	ERC629X		ERC901X	
ERC125NXT		ERC209X		ERC603X		ERC630X	X	ERC902X	
ERC130X	X	ERC250X	X	ERC604X		ERC631X	X	ERC903X	
ERC150X		ERC250XFHP		ERC605X		ERC650X		ERC904X	
ERC151X		ERC251X		ERC606X		ERC651X		ERC905X	
ERC152X		ERC251XFHP		ERC607X		ERC652X		ERC907X	
ERC153X		ERC252	X	ERC608X		ERC700X	X	ERC908X	
ERC154X		ERC252NXT		ERC609X		ERC710X		ERC910X	
ERC155X		ERC253X		ERC610X		ERC711X		ERC911X	
ERC175X		ERC254X	X	ERC611X		ERC712X		ERC912X	
ERC176X		ERC255X		ERC612X		ERC713X		ERC913X	
ERC177X		ERC256X		ERC613X		ERC720X		ERC914X	
ERC178X		ERC257X		ERC614X		ERC725X		ERC915X	
ERC179X		ERC258X		ERC615X		ERC730X		ERC916X	
ERC180X		ERC302X(INS)		ERC616X		ERC731X		ERC917X	
ERC181X		ERC302NXT		ERC617X		ERC731XFHP		ERC918X	
ERC182X		ERC410XFL	X	ERC618X		ERC732X		ERC919X	
ERC183X		ERC411X		ERC618XALT	X	ERC732XFHP			

SCHEDULE OF DRAWINGS

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED N. SELF 1-22-24

BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

GENERAL NOTES:

1. CONCRETE FOUNDATIONS AND FLOOR SLAB ARE TO BE SUPPLIED AND INSTALLED BY OTHERS. WEDGE ANCHORS FOR INTERIOR AND EXTERIOR FOOTINGS SUPPLIED AND INSTALLED BY BETCO.
2. EXTERIOR OPENINGS, NOT DESIGNED AS DOOR LOCATIONS, TO BE COMPLETED USING EXTERIOR WALL PANELS FURNISHED BY BETCO.
3. USE DOW 791 SILICONE CAULK AND 1" WIDE BUTYL RUBBER TAPE SEALANT FOR ROOF INSULATION. USE DOW 799 SILICONE CAULK AT DOWNSPOUT TO GUTTER JOINT.
4. INTERIOR PARTITIONS PERPENDICULAR TO ROOF BEAM(S) MUST BE COMPLETED BEFORE ROOF PANELS ARE INSTALLED. USE PARTITION FRAMING TO PLUMB AND SQUARE COLUMNS AND HEADER SECTIONS. CHECK BUILDING WIDTH TOP OF COLUMNS PRIOR TO ROOF INSTALLATION.
5. THOROUGHLY SWEEP ROOF PANELS FOLLOWING INSTALLATION TO REMOVE METAL DRILLINGS.
6. THIS DESIGN IS BASED ON USING ONLY METAL BUILDING COMPONENTS WHICH ARE PROPRIETARY TO BETCO. FURTHERMORE, THE PROFESSIONAL ENGINEER'S SEAL IS INVALID UNLESS ONLY BETCO METAL BUILDING COMPONENTS ARE UTILIZED.
7. METAL STUDS (IF APPLICABLE) MAY REQUIRE FIELD CUTTING DEPENDING UPON THE EAVE HEIGHT OF THE STRUCTURE.
8. UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.
9. THESE DRAWINGS ARE THE PROPERTY OF BETCO, INC. AND MAY NTO BE USED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN CONSENT OF BETCO, INC.
10. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.
11. THE GENERAL CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL SLEEVES, PADS, DEPRESSIONS, OPENINGS, ETC. AS REQUESTED BY THE VARIOUS TRADES.

FOUNDATIONS:

1. THE FOUNDATION DESIGN IS BASED ON A PRESUMED ALLOWABLE SOIL BEARING PRESSURE OF 3,000 PSF.
2. IF FOOTING ELEVATIONS SHOWN OCCUR IN A DISTURBED, UNSTABLE, OR UNSUITABLE SOIL, THE ENGINEER SHALL BE NOTIFIED.
3. TOP OF FOOTING ELEVATIONS SHOWN ON THE DRAWINGS ARE TO BE DETERMINED BY THE CONTRACTOR IN THE FIELD IN ACCORDANCE WITH THE GUIDELINES SET FORTH IN THE DRAWINGS AND SPECIFICATIONS.
4. FILL MATERIAL SHALL BE FREE OF ROOTS, WOOD, OR OTHER ORGANIC MATERIAL AND COMPLY WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. MATERIALS USED FOR FILL UNDER FOOTINGS AND WITHIN BUILDING LIMITS SHALL BE TESTED AND APPROVED FOR USE BY THE GEOTECHNICAL TESTING AGENCY.
5. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
6. FOUNDATION WALLS THAT RETAIN EARTH SHALL BE BRACED AGAINST BACKFILL PRESSURES UNTIL FLOOR SLABS AT TOP AND BOTTOM ARE IN PLACE.
7. FOUNDATION WALLS OR GRADE BEAMS HAVING EARTH PLACED ON EACH SIDE SHALL HAVE BOTH SIDES FILLED SIMULTANEOUSLY TO MAINTAIN A COMMON ELEVATION.
8. DO NOT PLACE CONCRETE IN ANY EXCAVATION CONTAINING ICE, FROST, FROZEN GROUND, OR FREE WATER. FROZEN SUBGRADES MUST BE THAWED AND RECOMPACTED PRIOR TO PLACING CONCRETE.
9. EARTH-FORMED FOOTINGS SHALL CONFORM TO THE SHAPE, LINES, AND DIMENSIONS AS SHOWN ON THE FOUNDATION PLAN. ALL WATER SHALL BE REMOVED BEFORE DEPOSITING CONCRETE.
10. BEFORE PLACING CONCRETE, ALL EMBEDDED ITEMS SHALL BE PROPERLY LOCATED, ACCURATELY POSITIONED, AND SECURELY MAINTAINED IN PLACE.
11. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION, AND ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
12. PERIMETER FOUNDATION MUST NOT EXCEED 1/4" ELEVATION VARIATION ALONG ANY 50' DISTANCE.
13. PERIMETER FOUNDATION TO EXTEND BELOW FROST LINE. VERIFY REQUIRED DEPTH WITH LOCAL BUILDING OFFICIALS PRIOR TO PROCEEDING WITH FOUNDATION WORK AND NOTIFY ENGINEER OF DEVIATION FROM DRAWING.
14. THE AMERICAN CONCRETE INSTITUTE (ACI) DOES NOT RECOGNIZE FIBERMESH AS A SUBSTITUTE FOR WIRE MESH REINFORCED CONCRETE WHEN SUBJECTED TO TENSILE STRESS.
15. SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS. OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60 (Fy = 60,000 PSI).
2. FIELD BENDING OF CONCRETE REINFORCING STEEL IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
3. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH ACI SP-66 'ACI DETAILING MANUAL-1995' AND THE 'CRSI MANUAL OF STANDARD PRACTICE', LATEST EDITION.
4. PLACE REINFORCEMENT AND TIES IN GROUT SPACES PRIOR TO GROUTING.
5. CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE UNLESS NOTED OTHERWISE:
   - A. FOOTING AND GRADE BEAMS IN GROUND CONTACT ... 3 INCHES
   - B. BEAMS AND COLUMNS ... 2 INCHES
   - C. SLABS, WALLS, AND JOISTS ... 3/4 INCH (NOT EXPOSED TO EARTH/LIQUID/WEATHER)
   - D. SLABS ON GRADE ... 2 INCHES FROM TOP
   - D. FORMED SURFACES IN GROUND CONTACT ... 2 INCHES
6. DEVELOPMENT LENGTHS AND LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI 318-14 CHAPTER 12 AND AS INDICATED ON THE DRAWINGS. WHERE SPLICES ARE NOT CALLED OUT ON THE DRAWINGS, USE CLASS "B", BUT IN NO CASE SHALL ANY SPLICE BE LESS THAN 12 INCHES. FOR BARS AS INDICATED BELOW THE BASIC DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY THE FACTORS AS INDICATED FOR TENSION OR COMPRESSION AND THEN ROUNDED UP TO THE NEAREST WHOLE INCH. THE FACTORS INDICATED BELOW ARE CUMULATIVE FOR EACH OF THE CONDITIONS APPLICABLE.
7. WELDED WIRE MAT/FABRIC SHALL CONFORM TO ASTM A184 AND A185 RESPECTIVELY AND BE LAPPED 1'-0" AT ALL SPLICES.
8. ALL REINFORCING TERMINATING AT THE TOPS OF COLUMNS AND PILASTERS SHALL BE HOOKED UNLESS OTHERWISE NOTED.
9. SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING, AND PLACEMENT OF CONCRETE REINFORCEMENT. COMPLY WITH ACI DETAILING MANUAL (SP-66) SHOWING BAR SCHEDULES, STIRRUP SPACING, DIAGRAMS OF BENT BARS, ARRANGEMENT OF CONCRETE REINFORCEMENT. INCLUDE SPECIAL REINFORCEMENT REQUIRED AT OPENINGS THROUGH CONCRETE STRUCTURES. INCLUDE ALL ACCESSORIES SPECIFIED / REQUIRED TO SUPPORT REINFORCING.
10. SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMISSION. DRAWINGS SHALL BEAR THE CONTRACTOR'S APPROVAL STAMP ACCEPTING RESPONSIBILITY FOR DIMENSIONS, QUANTITIES, AND COORDINATION WITH THE OTHER TRADES.
11. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER AND TESTING AGENCY A MINIMUM OF 48 HOURS PRIOR TO ALL CONCRETE POURS IN ORDER TO PERMIT REINFORCING STEEL REVIEW AS REQUIRED BY THE INSPECTION SCHEDULE.
12. REINFORCING IN ALL CONTINUOUS STRIP FOOTINGS SHALL HAVE CORNER BARS OR DOWELS. PROVIDE AT ALL CORNERS AND INTERSECTIONS.

CONSTRUCTION AND SAFETY:

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS, AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT THE SAME AGAINST INJURY, DAMAGE, OR LOSS.
3. MEANS AND METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS ARE SOLELY THE CONTRACTOR'S RESPONSIBILITY.
4. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE DRAWINGS OF OTHER CONSULTANTS AND TRADES. THE CONTRACTOR SHALL COORDINATE THE VARIOUS REQUIREMENTS.
5. NO OPENINGS NOR ANY CHANGES IN SIZE, DIMENSION, OR LOCATION SHALL BE MADE IN ANY STRUCTURAL ELEMENTS WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME.
7. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER, CLEARLY AND EXPLICITLY IN WRITING, OF ANY DEVIATION OR SUBSTITUTION OF REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONTRACTOR IS NOT RELIEVED OF ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS BY VIRTUE OF THE STRUCTURAL ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC. UNLESS THE CONTRACTOR HAS CLEARLY AND EXPLICITLY INFORMED THE STRUCTURAL ENGINEER IN WRITING OF ANY DEVIATIONS OR SUBSTITUTIONS AT TIME OF SUBMISSION, AND THE STRUCTURAL ENGINEER HAS GIVEN WRITTEN APPROVAL FOR THE SPECIFIC DEVIATIONS OR SUBSTITUTIONS.
9. ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS, OR AMBIGUITIES IN THE DRAWINGS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER. CORRECTIONS OR WRITTEN INTERPRETATIONS SHALL BE ISSUED BEFORE AFFECTED WORK MAY PROCEED.
10. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH NEW WORK IN AREAS AFFECTED BY THE EXISTING CONDITIONS. STRUCTURAL ENGINEER SHALL BE INFORMED IN WRITING OF CONFLICTS BETWEEN EXISTING AND PROPOSED NEW CONSTRUCTION.
11. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE STRUCTURAL DRAWING OR BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION, OR OTHER DRAWINGS OR INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH AFFECTED WORK.
12. DO NOT SCALE THESE DRAWINGS. USE THE DIMENSIONS SHOWN.

CONCRETE:

1. SUBMIT WRITTEN REPORTS OF EACH PROPOSED CONCRETE DESIGN MIX NOT LESS THAN 15 DAYS PRIOR TO THE START OF WORK. DESIGN MIXES PREPARED MORE THAN TWELVE (12) MONTHS PRIOR TO THE DATE THE SUBMITTAL ARE NOT PERMITTED.
2. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT A.C.I. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-14).
3. ALL CONCRETE SHALL BE TESTED BY AN INDEPENDENT TESTING AGENCY FOR STANDARD PARAMETERS (SLUMP, COMPRESSIVE STRENGTH, ETC.). TWO COPIES OF ALL REPORTS SHALL BE SUBMITTED TO THE ENGINEER / ARCHITECT.
4. ALL NORMAL WEIGHT CONCRETE SHALL HAVE ASTM C-33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3,000 PSI AT 28 DAYS MINIMUM FOR FOUNDATIONS AND SLABS-ON-GRADE. ALL CONCRETE FOR FLOOR SLABS ON METAL DECK FORMS SHALL BE NORMAL WEIGHT CONCRETE WITH COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
5. MIX DESIGNS, INCLUDING WATER CEMENT RATIOS AND SLUMPS, SHALL BE PREPARED IN ACCORDANCE WITH MOST CURRENT ACI 301 CHAPTER 3, EXCEPT WHERE NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS. CEMENT SHALL CONFORM TO ASTM C 150 TYPE I OR AT CONTRACTOR'S OPTION AND ASTM C 595 TYPE IP WHERE FLY ASH IS PERMITTED. NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF AND LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C 330 AGGREGATE. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED IN ANY CONCRETE.

   AGGREGATE SIZES SHALL BE:
   - I. FORMED CONCRETE ELEMENTS, U.N.O. ... #67 STONE (3/4" MAX)
   - II. GRADE SLABS AND EARTH FORMED ELEMENTS ... #57 STONE (1" MAX)
   - III. COARSE MASONRY GROUT REQUIRED ... #67 STONE (3/4" MAX)
   - IV. FINE MASONRY GROUT REQUIRED ... #8 STONE (3/8" MAX)
6. WATER REDUCING ADMIXTURE SHALL BE USED IN ALL CONCRETE.
7. AIR ENTRAINING ADMIXTURE IN ACCORDANCE WITH ACI 301-84 TABLE 3.4.1 SHALL BE USED IN ALL CONCRETE EXPOSED TO FREEZING AND THAWING DURING CONSTRUCTION OR SERVICE CONDITIONS.
8. WATER/CEMENT RATIO SHALL NOT EXCEED 0.45 FOR ANY CONCRETE SUBJECTED TO FREEZING/THAWING.
9. ALL PUMPED CONCRETE SHALL HAVE A WATER/CEMENT RATIO LESS THAN 0.45 AND SHALL CONTAIN A HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER).
10. IN NO CASE SHALL A WATER/CEMENT RATIOS EXCEED THE FOLLOWING:
    - I. ALL FOUNDATION CONCRETE f'c = 3,000 PSI ... .055 MAX W/C RATIO
    - II. EXTERIOR PAVING CONCRETE f'c = 3,500 PSI ... .050 MAX W/C RATIO
    - III. ALL EXPOSED C.I.P. WATER TABLE, PIERS, ETC. f'c = 3,500 PSI ... .045 MAX W/C RATIO
    - IV. SLABS ON GRADE f'c = 3,000 PSI ... .045 MAX W/C RATIO
11. LIQUID MEMBRANE CURING COMPOUND WITH A MINIMUM 30% SOLIDS CONTENT SHALL BE APPLIED WITHIN TWO (2) HOURS AFTER COMPLETION OF FINISHING ALL CONCRETE FLATWORK AND WALLS, U.N.O., OTHER THAN FOOTINGS AND GRADE BEAMS.
12. FLOORS IN AREAS RECEIVING QUARRY TILE, CERAMIC TILE, AND LIQUID FLOOR HARDENER SHALL BE CURED WITH DISSIPATING LIQUID MEMBRANE CURING COMPOUND OR WET CURED BY USE OF MOISTURE RETAINING COVER. DISSIPATING CURING COMPOUND SHALL BE THOROUGHLY BROOMED AND WASHED OFF PRIOR TO APPLICATION OF FLOOR FINISH.
13. USE A NON-CORROSIVE, NON-CHLORIDE ACCELERATING ADMIXTURE IN CONCRETE EXPOSED TO TEMPERATURES BELOW 40 DEGREES. UNIFORMLY HEAT THE WATER AND AGGREGATES TO A TEMPERATURE OF NOT LESS THAN 50 DEGREES. PLACE AND CURE CONCRETE IN ACCORDANCE WITH ACI 306.
14. ALL CONSTRUCTION JOINTS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURAL UNLESS THEIR ELIMINATION IS APPROVED BY THE STRUCTURAL ENGINEER.
15. REINFORCING IN ALL ABUTTING CONCRETE, INCLUDING FOOTINGS, SHALL BE CONTINUOUS THROUGH OR AROUND ALL CORNERS OR INTERSECTIONS. DOWELS OR SPLICES SHALL BE EQUAL IN SIZE AND SPACING TO THE REINFORCING IN THE ABUTTING MEMBERS.
16. REFER TO ARCHITECTURAL DRAWINGS FOR DOOR AND WINDOW OPENINGS, DRIPS, REGLETS, WASHES, MASONRY ANCHORS, BRICK LEDGE ELEVATIONS, SLAB DEPRESSIONS, AND MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.
17. FORMS FOR ROUND COLUMNS SHALL BE ONE PIECE FIBERGLASS FORM TO PRODUCE SMOOTH FINISH ON EXPOSED COLUMNS.
18. REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES. WHERE FINISH IS NOT SPECIFIED, CONFORM TO REQUIREMENTS OF ACI 301.
19. BASE PLATES, ANCHOR RODS, SUPPORT ANGLES, AND OTHER STEEL EXPOSED TO EARTH OR GRANULAR FILL SHALL BE COVERED WITH A MINIMUM OF 3" OF CONCRETE.
20. FINISHING TOLERANCE SHALL BE WITHIN CLASS B IN ACCORDANCE WITH ACI 301 AND CONSIDERATION SHALL BE GIVEN TO SEQUENCING OF CONCRETE PLACEMENT TO FACILITATE CONTROL OF FINISH ELEVATIONS.
21. NON-SHRINK GROUT SHALL BE PREMIXED, NON-CORROSIVE, NON-METALLIC, NON-STAINING, CONTAINING SILICA SANDS, PORTLAND CEMENT, SHRINKAGE COMPENSATING AND WATER REDUCING AGENTS. PRODUCTS SHALL ONLY REQUIRE THE ADDITION OF WATER. MINIMUM COMPRESSIVE STRENGTH SHALL BE 5,000 PSI AFTER ONE DAY AND 7,000 PSI AFTER 28 DAYS. GROUT SHALL BE FREE OF GAS PRODUCING OR AIR RELEASING AND OXIDIZING AGENTS AND CONTAIN NON-CORROSIVE IRON, ALUMINUM, OR GYPSUM.
22. PROVIDE CONCRETE GROUT - NOT MORTAR - FOR REINFORCING MASONRY LINTEL, AND BOND BEAMS WHERE INDICATED ON DRAWINGS OR AS SCHEDULED.
23. TOLERANCE FOR ANCHOR ROADS AND OTHER EMBEDDED ITEMS SHALL BE PER THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) CODE OF STANDARD PRACTICE SECTION 7.5.
24. UNLESS OTHERWISE SHOWN IN THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4" CHAMFERS AT ALL COLUMN, WALL, SLAB, OR BEAM EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED STRUCTURE.

RELEASED FOR CONSTRUCTION DATE: 1/3/2024 TIME: 10:50 AM

BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REBA N. SELF

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: BUILDING NOTES
DRAWING NUMBER: CS2 OF 5

UL Product iQ™

BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

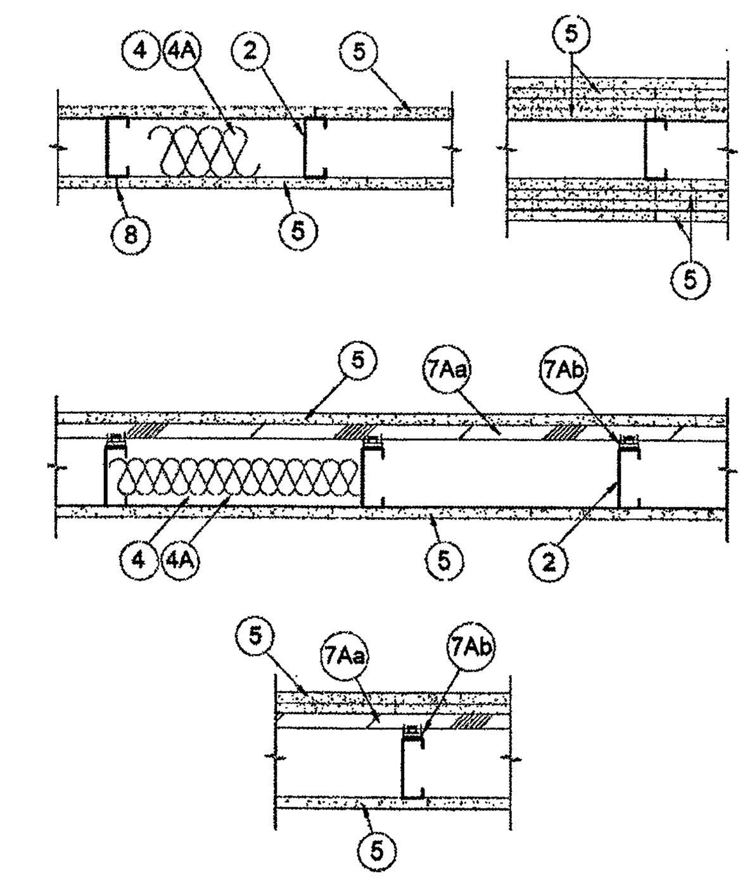
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U419

December 10, 2020

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 4 & 5 through 5J)

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners** — (Not Shown) — For use with Item 2 — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ Track

CRACO MFG INC — SmartTrack25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

FUSION BUILDING PRODUCTS — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1B. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. **Framing Members* — Floor and Ceiling Runners** — (Not Shown) — In lieu of Item 1 — Channel shaped, attached to floor and ceiling with fasteners 24 in. OC max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1D. **Floor and Ceiling Runners** — (Not Shown) — For use with Item 2A — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. **Framing Members* — Floor and Ceiling Runners** — (Not Shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1F. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
SUPER STUD BUILDING PRODUCTS — The Edge

1G. **Framing Members* — Floor and Ceiling Runner** — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.
STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners** — (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.018 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

FUSION BUILDING PRODUCTS — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. **Framing Members* — Floor and Ceiling Runners** — (Not Shown, As an alternate to Item 1) — For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
TELLING INDUSTRIES L L C — TRUE-TRACK™

1J. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

1K. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1L. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min. 3-1/2 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RESCUE METAL FRAMING, L L C — AlphaTRAK

1M. **Framing Members* — Floor and Ceiling Runners** — Not Shown — As an alternate to Item 1 — For use with Item 2O, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Wall Track

1N. **Framing Members* — Floor and Ceiling Runners** — Not Shown — As an alternate to Item 1 — For use with Item 2P, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Track

1O. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2Q, proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track

2. **Steel Studs** — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Steel Studs** — (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J or Type ULIX) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. **Framing Members* - Steel Studs** — (As an alternate to Item 2, For use with Items 5C, 5I or Type ULIX) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™

CRACO MFG INC — SmartStud25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

FUSION BUILDING PRODUCTS — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

2C. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2D. **Framing Members* — Steel Studs** — In lieu of Item 2 — Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2E. **Framing Members* — Steel Studs** — (Not Shown, As an alternate to Item 2) — For use with Items 5F or 5G or 5I or Type ULIX only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2F. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.
SUPER STUD BUILDING PRODUCTS — The Edge

2G. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.
STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members* — Steel Studs** — (Not Shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
TELLING INDUSTRIES L L C — TRUE-STUD™

2I. **Framing Members* — Steel Studs** —

2J. **Framing Members* — Metal Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights

2K. **Framing Members* — Steel Studs** — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut

3/8 to 3/4 in. less than assembly height.
EB METAL INC — NITROSTUD

2L. **Framing Members* — Steel Studs** — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
OLMAR SUPPLY INC — PRIMESTUD

2M. **Framing Members* — Steel Studs** — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2N. **Framing Members*— Steel Studs** — As an alternate to Item 2 — proprietary channel shaped steel studs, min depth 3-1/2 in. and as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in length than assembly height.
RESCUE METAL FRAMING, L L C — AlphaSTUD

2O. **Framing Members* — Steel Studs** — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Lipped Wall Stud

2P. **Framing Members* — Steel Studs** — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, min 25 MSG galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Stud

2Q. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1O, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X

3. **Wood Structural Panel Sheathing** — (Optional, For use with Item 5 Only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets*** — (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4A. **Batts and Blankets*** — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Fiber, Sprayed*** — (Optional, for use with Type ULIX) Where insulation is required - Spray applied granulated mineral fiber material. The fiber is applied with adhesive at a minimum density of 4.0 pcf to completely fill the wall cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Gypsum Board*** — Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) with Type ULIX need not be staggered. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Items 2, 2C, 2D, 2F, 2G, 2O	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4)
1	3-1/2	1 layer, 5/8 in. thick	Optional
1	2-1/2	1 layer, 1/2 in. thick	1-1/2 in.
1	1-5/8	1 layer, 3/4 in. thick	Optional
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
2	3-1/2	1 layer, 3/4 in. thick	3 in.
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	2 layers, 3/4 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional
4	2-1/2	2 layers, 3/4 in. thick	2 in.

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — 1/2 in. thick Type C and 5/8 in. thick Type SCX

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, **Steel Framing Members***, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. **Gypsum Board*** — (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.
CGC INC — Type SHX.

UNITED STATES GYPSUM CO — Type FRX-G, SHX.

USG MEXICO S A DE C V — Type SHX.

5B. **Gypsum Board*** — (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. **Gypsum Board*** — (For Use With Item 2B) — Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.
CGC INC — Type SCX, ULIX.

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type SCX

UNITED STATES GYPSUM CO — Type SCX, SGX, ULIX.

USG BORAL DRYWALL SFZ LLC — Type SCX

USG MEXICO S A DE C V — Type SCX

5D. **Gypsum Board*** — (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.
CGC INC — Type USGX

UNITED STATES GYPSUM CO — Type USGX

USG BORAL DRYWALL SFZ LLC — Type USGX

USG MEXICO S A DE C V — Type USGX

5E. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5F. **Gypsum Board*** — (As an alternate to Item 5) — For use with Items 1E and 2E and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.
THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type SCX

UNITED STATES GYPSUM CO — 5/8 in. thick Type SCX, SGX, ULIX

USG BORAL DRYWALL SFZ LLC — 5/8 in. thick Type SCX, SGX

5G. **Gypsum Board*** — (As an alternate to Item 5) — For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, In. Item 2E	No. of Layers & Thickness of Panel	Min Thkns of Insulation (Item 4)
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX or 3/4 in. thick Types IP-X3 or ULTRACODE

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — 1/2 in. thick Types C and 5/8 in. thick SCX

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, , FRX-G, IP-AR, IP-X2, IPC-AR, ULIX; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE

5H. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2A (not to be used with Item 3) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

5I. **Gypsum Board*** — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.
CGC INC — Type ULIX, ULX

UNITED STATES GYPSUM CO — Type ULIX, ULX

USG MEXICO S A DE C V — Type ULX

5J. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

6. **Fasteners** — (Not Shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Single layer system with Type ULIX:** 1 in. long, spaced 12 in. OC in the field and perimeter, when panels are applied horizontally or vertically. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. **Three-layer systems:** First layer-

1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Furring Channels** — (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A.

7A. **Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

7B. **Framing Members*** — (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

7C. **Framing Members*** — (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ca) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
PLITEQ INC — Type GENIECLIP

7D. **Steel Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of

No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

7E. **Steel Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Eb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7F. **Steel Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 1S x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5. Not for use with Item 5A and 5E.

b. **Steel Framing Members*** — Used to attach resilient channels (Item 7Fa) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7G. **Framing Members*** — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. or 1-1/2 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members*** — Used to attach furring channels (Item 7Ga) to studs (Item 2). Clips spaced max. 48 in. OC. Clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

8. **Joint Tape and Compound** — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

9. **Siding, Brick or Stucco** — (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

10. **Caulking and Sealants*** — (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.
UNITED STATES GYPSUM CO — Type AS

11. **Lead Batten Strips** — (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

11A. **Lead Batten Strips** — (Not Shown, For Use With Item 5H) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

12. **Lead Discs or Tabs** — (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

12A. **Lead Discs** — (Not Shown, for use with Item 5H) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

13. **Lead Batten Strips** — (Not Shown, For Use With Item 5E) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.

14. **Lead Tabs** — (Not Shown, For Use With Item 5E) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

15. **Barrier Mesh** — (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically, using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 5) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur as butt joints at the framing members and secured using the Barrier Mesh Clips or occur in between framing members as overlapping joints secured using 18 SWG wire ties spaced a maximum 12 in. on center.
CLARKDIETRICH BUILDING SYSTEMS — Barrier Mesh, Barrier Mesh Clips

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2020-12-10

BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED N. SELF

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: UL SPECIFICATIONS
DRAWING NUMBER: CS3 OF 5

RELEASED FOR CONSTRUCTION DATE: 1/3/2024 TIME: 10:52 AM

UL Product iQ™

BXUV.U426

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

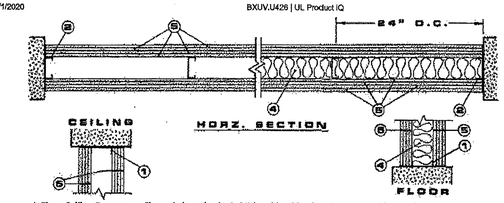
Design No. U426

October 13, 2020

Bearing Wall Rating — 3 HR.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor Ceiling Runners —** Channel-shaped, min. 3-1/2 in. wide with min 1-1/2 in. legs, fabricated from min No. 20 MSG (0.0329 in., min bare metal thickness) corrosion resistant steel. Attached to floor and ceiling with steel fasteners spaced not greater than 24 in. OC.

2. **Steel Studs —** Corrosion protected steel studs, min. 3-1/2 in. wide min No. 20 MSG (0.0329 in., min bare metal thickness) steel. Studs shall be designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer and shall meet the requirements of all applicable local code agencies. The max stud spacing shall not exceed 24 in. OC. Studs attached to floor and ceiling runners with 1/2 in. long Type S-12 pan head or 5/8 in. long Type S-12 low profile head, self-drilling, self-tapping steel screws on both sides of studs.

3. **Lateral Support Members —** (Not shown) — Where required for lateral support of studs, support may be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Batts and Blankets* —** (Optional) — Mineral wool insulation, partially or completely filling stud cavity.
ROCKWOOL — Type AFB, min. density 1.8 pcf / 28.8 kg/m³

THERMAFIBER INC — Type SAFB, SAFB FF.

4A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — INS735, INS745, INS750LD for use with wet or dry application. INS765LD and INS773LD are to be used for dry application only.

4B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

4C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

4D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft³.
APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

5. **Gypsum Board —** 1/2 in. thick, 4 ft. wide. Four layers of wallboard to be used. Inner layers to be applied vertically with joints centered over studs. Outer layer may be applied vertically or horizontally. First layer fastened to each stud with 1 in. long Type S-12, steel screw. Second layer fastened to each stud through the first layer with 1-5/8 in. long, Type S-12, steel screws. Third layer fastened to each stud through the first and second layers with 2-1/4 in. long, Type S-12, steel screws. Fourth layer fastened to each stud through the first, second and third layers with 2-5/8 in. long, Type S-12, steel screws. First, second and third layer screws shall be installed with a maximum spacing of 48 in. OC vertically. Fourth layer vertically installed wallboard attached with screws spaced 12 in. OC vertically. Fourth layer horizontal board end shall be centered over and secured to the stud with screws spaced 1/2 in. from end joint and 12 in. OC vertically. Board end joints shall be staggered. At board side joints all screws shall be located 1/2 in. from the longitudinal joints. Horizontal applied fourth layer also secured to the second and third layers with 1-1/2 in. long, Type G, steel screws located midway between studs and 1 in. from the longitudinal joint. Joints in each layer of wallboard to be staggered from the joints in the adjacent layer and on opposite sides of studs.
AMERICAN GYPSUM CO — Types AG-C

CABOT MANUFACTURING ULC — Type C

CERTAINTEED GYPSUM INC — Type C

CGC INC — Types C, IP-X2, IPC-AR.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A.

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C.

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C, FSMR-C.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C.

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR.

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR.

5A. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick. Four layers installed as described in Item 5, with fourth layer screw length increased by 1/4 in.
CGC INC — Type ULIX.

NATIONAL GYPSUM CO — Type FSMR-C.

UNITED STATES GYPSUM CO — Type ULIX

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2020-10-13

BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED N. SELF
1-3-2024

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: UL SPECIFICATIONS
DRAWING NUMBER: CS4 OF 5

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

Name of Project: EZ Storage
Address: Lillington, NC Zip Code: 27546
Owner/Authorized Agent: Josh Smith Phone # (919) 818-2582 E-Mail:
Owned By: Private
Code Enforcement Jurisdiction: Select one

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				(___)___	
Civil				(___)___	
Electrical				(___)___	
Fire Alarm				(___)___	
Plumbing				(___)___	
Mechanical				(___)___	
Sprinkler-Standpipe				(___)___	
Structural	Betco	Self	27355	(704)872-2999	needs@betcoinc.com
Retaining Walls >5' High				(___)___	
Other				(___)___	

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

2018 NC BUILDING CODE: New Building

2018 NC EXISTING BUILDING CODE: N/A N/A N/A
CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S) (Ch. 3):** _____
RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S) (Ch. 3):** _____
OCCUPANCY CATEGORY (Table 1604.5): **Current:** N/A **Proposed:** I

BASIC BUILDING DATA
Construction Type: II-B
Sprinklers: N/A N/A
Standpipes: N/A
Primary Fire District: Select one **Flood Hazard Area:** Select one
Special Inspections Required: No

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
Building 1		9800	9800
Building 2		24000	24000
TOTAL		33800	33800

ALLOWABLE AREA

Primary Occupancy Classification(s): Storage - S-1 N/A N/A N/A N/A N/A
Accessory Occupancy Classification(s): _____

Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections): _____
Special Provisions: (Chapter 5 – List Code Sections): _____
Mixed Occupancy: No Separation: Select one Exception: _____

Select one

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

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,2]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[3,5]
Bldg 1	S-1	5250	17500	0	17500
Bldg 2	S-1	7000	17500	0	17500

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (P)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30 =$ _____ (%)

[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.5)	55 ft	9.33 ft	
Building Height in Stories (Table 504.4)	2	1	

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses		NC					
Bearing Walls							
Exterior	>= 10 ft						
North	>= 10 ft						
East	>= 10 ft						
West	>= 10 ft						
South	>= 10 ft						
Interior							
Nonbearing Walls and Partitions Exterior walls	N/A						

North	N/A					
East	N/A					
West	N/A					
South	N/A					
Interior walls and partitions	N/A					
Floor Construction including supporting beams and joists	N/A					
Floor Ceiling Assembly	N/A					
Columns Supporting Floors						
Roof Construction, including supporting beams and joists		NC				
Roof Ceiling Assembly	N/A					
Columns Supporting Roof	N/A					
Shaft Enclosures - Exit	N/A					
Shaft Enclosures - Other	N/A					
Corridor Separation	N/A					
Occupancy/Fire Barrier Separation		3 hr 3 hr		CS3 CS4	U419 U426	
Party/Fire Wall Separation	N/A					
Smoke Barrier Separation	N/A					
Smoke Partition	N/A					
Tenant/Dwelling Unit/ Sleeping Unit Separation	N/A					
Incidental Use Separation	N/A					

* Indicate section number permitting reduction NC=Non-combustible

PERCENTAGE OF WALL OPENING CALCULATIONS

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

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: Select one
Exit Signs: Select one
Fire Alarm: Select one
Smoke Detection Systems: Select one
Carbon Monoxide Detection: Select one

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

- ☐ Fire and/or smoke rated wall locations (Chapter 7)
- ☐ Assumed and real property line locations (if not on the site plan)
- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)

- ☐ Occupant loads for each area
- ☐ Exit access travel distances (1017)
- ☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- ☐ Dead end lengths (1020.4)
- ☐ Clear exit widths for each exit door
- ☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- ☐ Actual occupant load for each exit door
- ☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- ☐ Location of doors with panic hardware (1010.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
- ☐ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1030)
- ☐ The square footage of each fire area (202)
- ☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

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

ACCESSIBLE PARKING
(SECTION 1106)

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

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

	USE	WATER CLOSETS			URINALS	LAVATORIES			SHOWERS /TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX		REGULAR	ACCESSIBLE
STAGE	EXIST'G										
	NEW										
	REQ'D										

SPECIAL APPROVALS

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

_____

_____

ENERGY SUMMARY

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

Existing building envelope complies with code: Select one

Exempt Building: Yes Provide code or statutory reference: N.C.G.S 143-138

Climate Zone: Select one

Method of Compliance: Select one
(If "Other" specify source here)_____

THERMAL ENVELOPE (Prescriptive method only)

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

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

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

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

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

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

DESIGN LOADS:

Importance Factors: Snow (I_S) 0.80
Seismic (I_E) 1.0

Live Loads: Roof 20 psf
Mezzanine N/A psf
Floor 125 psf

Ground Snow Load: 15 psf

Wind Load: Design Wind Speed V(ultimate)= 117 mph (ASCE 7-10)
Exposure Category B
Wind Base Shear (MWFRS): Bldg 1; Vx= 28.6 k Vy= 73.8 k
Bldg 2; Vx=38.2 k Vy=98.4 k

SEISMIC DESIGN CATEGORY: C
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) I
Spectral Response Acceleration S_S =18.4 %g S_1 =8.6 %g
Site Classification (ASCE 7) D
Data Source: Presumptive
Basic structural system Building Frame
Seismic Base Shear: Bldg 1; Vx=1.372 k Vy=1.372 k
Bldg 2; Vx=3.360 k Vy=3.360 k

Analysis Procedure: Equivalent Lateral Force
Architectural, Mechanical, Components anchored? Yes

LATERAL DESIGN CONTROL: Wind

SOIL BEARING CAPACITIES:
Presumptive Bearing Capacity 3000 psf
File size, type, and capacity _____

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

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

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

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason.: _____
Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

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

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Select one

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

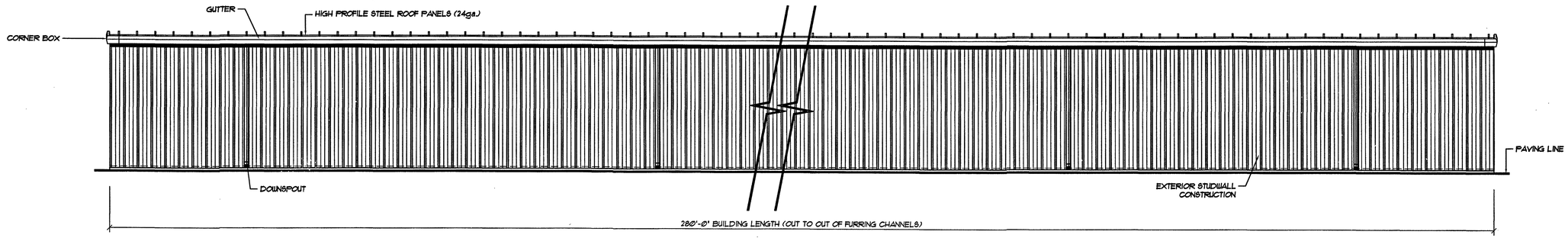
Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
- ☐ C406.2 More Efficient HVAC Equipment Performance
- ☐ C406.3 Reduced Lighting Power Density
- ☐ C406.4 Enhanced Digital Lighting Controls
- ☐ C406.5 On-Site Renewable Energy
- ☐ C406.6 Dedicated Outdoor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

REVISIONS	DATE	BY

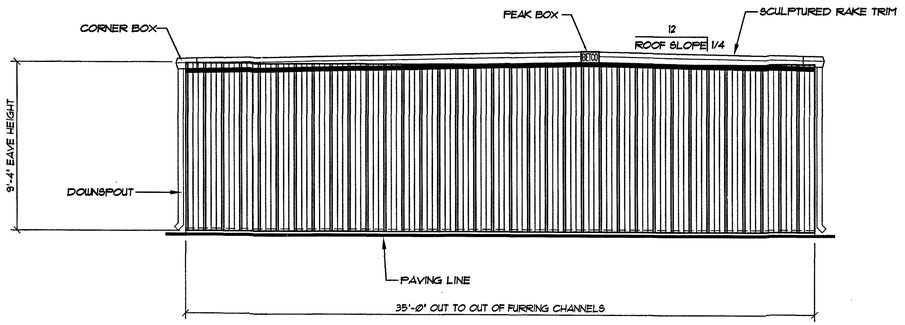
DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: APPENDIX B
DRAWING NUMBER: CS5 OF 5



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



B/S1 ENDWALL ELEVATION . . . BUILDING "1"
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

BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED N. SELF 1-2-2024

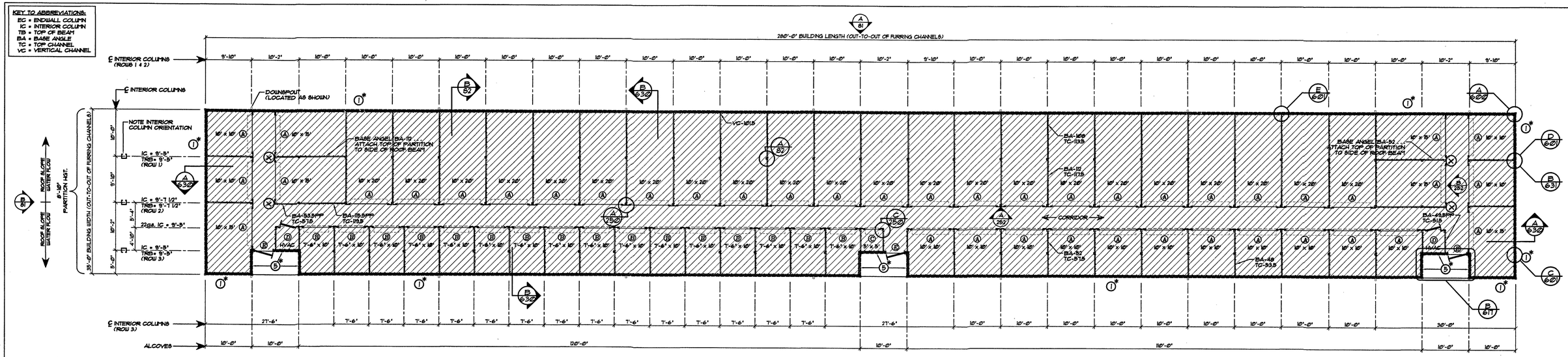
REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

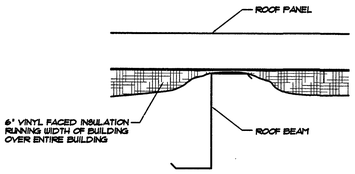
PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: ELEVATIONS & NOTES BUILDING "1"
DRAWING NUMBER: S1 OF 4

KEY TO ABBREVIATIONS:
EC = ENDWALL COLUMN
IC = INTERIOR COLUMN
TB = TOP OF BEAM
BA = BASE ANGLE
TC = TOP CHANNEL
VC = VERTICAL CHANNEL



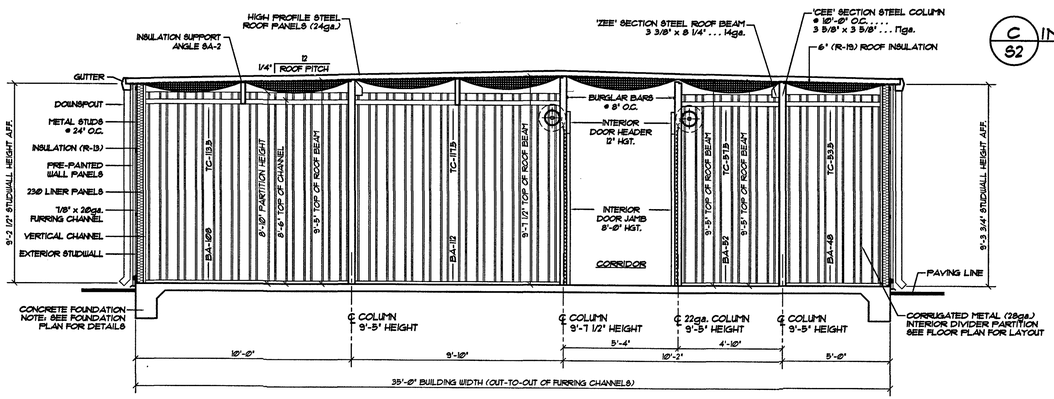
FLOOR PLAN . . . BUILDING "1"

SCALE: 1" = 10'-0"



① EXTERIOR STUDWALL CONSTRUCTION @ FLAT SLAB:
-3 5/8" x 1 5/8" FLANGE METAL STUDS @ 24" O.C. - 18ga.
-3 5/8" CONTINUOUS CEILING TRACK - 18ga.
-3 5/8" CONTINUOUS FLOOR TRACK - 18ga.
(SECURE FLOOR TRACK w/ 3/8" x 3" KB-TZ2 ANCHORS (2" MIN. EMBEDMENT) @ 36" O.C. MAX.)
-2 ROWS CONTINUOUS 20 Ga. FURRING CHANNELS
-PRE-PAINTED EXTERIOR 236A WALL PANELS
-WALL PANEL BASE SUPPORT
-DRIP CAP (PTB0120)
*-4" THICK FIBERGLASS INSULATION
*-4 MIL POLYETHYLENE VAPOR BARRIER
*-23@ LINER PANELS @ INTERIOR (ATTACH EACH PANEL TO BASE & TOP TRACK WITH 4 EACH #10 x 5/8" SDF'S)
*-J-TRIM @ TOP OF LINER PANELS

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.



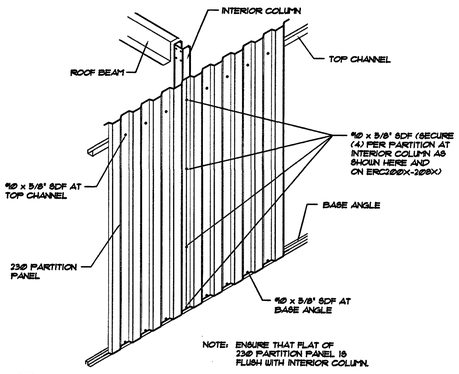
B / S2 35'-0" WIDE CROSS SECTION . . . BUILDING "1"

SCALE: 3" = 10'-0"

C / S2 INSULATION @ ROOF BEAM

NOT TO SCALE

⑤ EXTERIOR STUDWALL CONSTRUCTION @ ALCOVE:
-3 5/8" METAL STUDS @ 24" O.C. - 18ga
-3 5/8" CONTINUOUS FLOOR & CEILING TRACK - 18ga. - FASTEN w/ 3/8" x 3" KB-TZ2 ANCHOR (2" MIN. EMBEDDMENT) @ 36" O.C. MAX
-3 ROWS CONTINUOUS 20ga. FURRING CHANNELS
-PRE-PAINTED EXTERIOR 236A WALL PANELS
-DRIP CAP (PTB0232)
* -4" (R-13) THICK FIBERGLASS INSULATION
* -4 MIL POLYETHYLENE VAPOR BARRIER
* -J-TRIM @ TOP OF LINER PANELS
* -23@ LINER PANELS @ INTERIOR (ATTACH EACH PANEL TO BASE & TOP w/(4) EACH #10 x 5/8" SDF'S)
-BLOCK STUDS AT MID-HEIGHT AS SHOWN IN ERC631X



A / S2 PARTITION ATTACHMENT @ INTERIOR COLUMNS

NOT TO SCALE

JAMB	ROLL-UP HEADER
8'-0"	12"

LEGEND:
⊗ 22ga. INTERIOR COLUMN
(——) 22ga. INTERIOR DOOR STRUCTURE
CLIMATE CONTROL

DOOR SCHEDULE

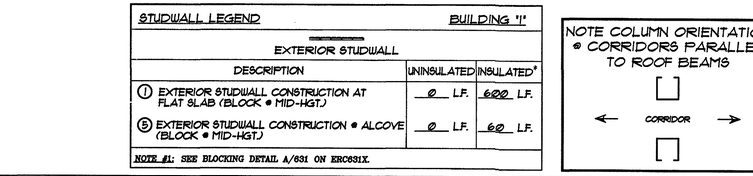
ID	DOOR SIZE	TYPE
(A)	8'-0" x 7'-0"	INTERIOR ROLL-UP
(B)	5'-6" x 7'-0"	INTERIOR ROLL-UP
(C)	3'-0" x 7'-0"	INTERIOR ROLL-UP
(D)	3'-0" x 7'-0"	INTERIOR SWING W/ LOUVER
(E)	4'-0" x 7'-0" (4070-2-G) (SEE ERC254X)	1/2 GLASS PERSONNEL

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

STUDWALL LEGEND	BUILDING "1"	
EXTERIOR STUDWALL		
DESCRIPTION	UNINSULATED	INSULATED*
① EXTERIOR STUDWALL CONSTRUCTION AT FLAT SLAB (BLOCK @ MID-HGT.)	0 L.F.	600 L.F.
⑤ EXTERIOR STUDWALL CONSTRUCTION @ ALCOVE (BLOCK @ MID-HGT.)	0 L.F.	60 L.F.

NOTE #1: SEE BLOCKING DETAIL A/631 ON ERC631X.

NOTE COLUMN ORIENTATION @ CORRIDORS PARALLEL TO ROOF BEAMS



BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED W. BELL

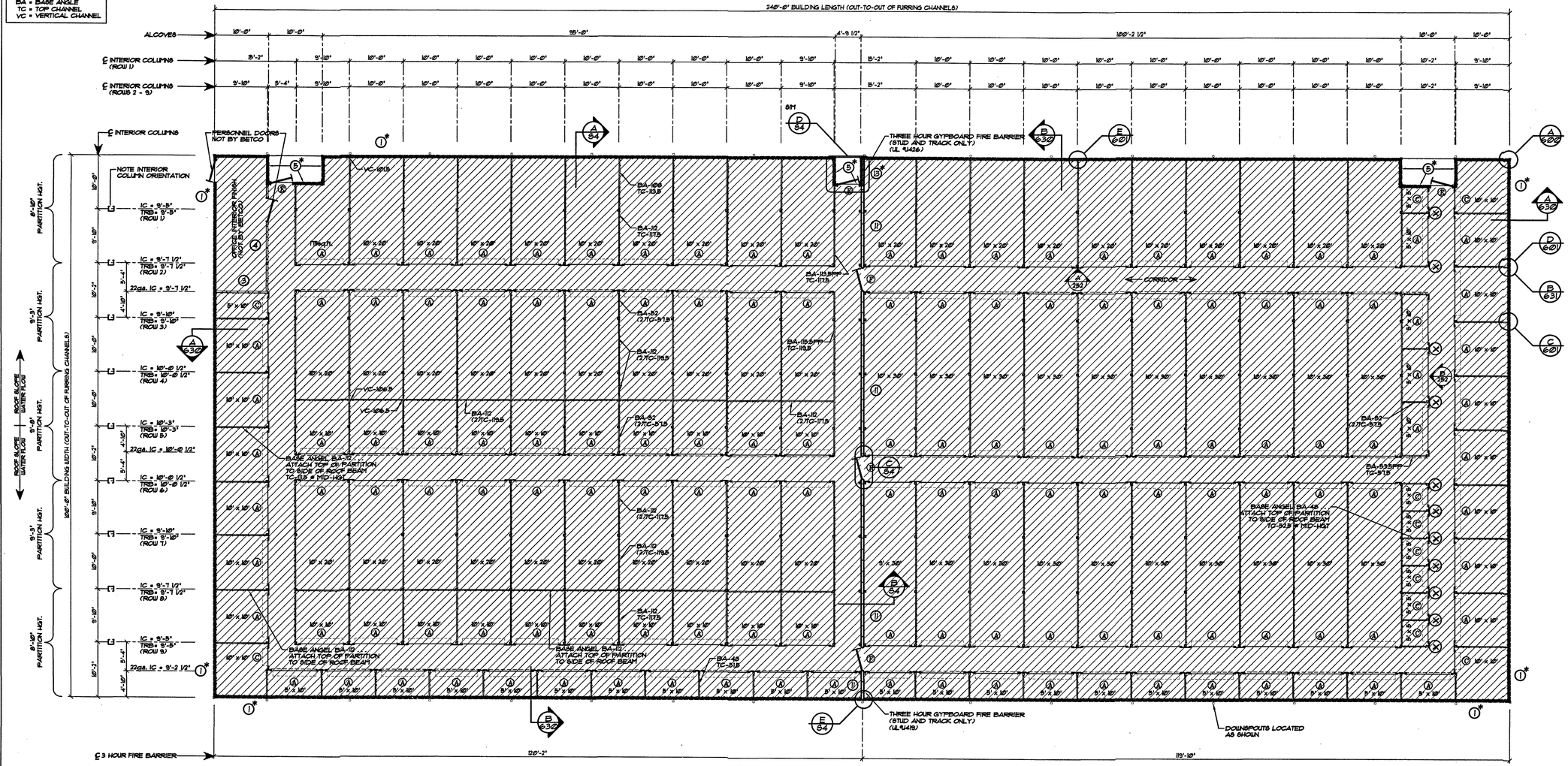
REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23280
SHEET TITLE: FLOOR PLAN, CROSS SECTION, DETAILS & NOTES - BUILDING "1"
DRAWING NUMBER: S2 OF 4

KEY TO ABBREVIATIONS:
EC = ENDWALL COLUMN
IC = INTERIOR COLUMN
TB = TOP OF BEAM
BA = BASE ANGLE
TC = TOP CHANNEL
VC = VERTICAL CHANNEL



FLOOR PLAN . . . BUILDING "2"

SCALE: 1" = 10'-0"

① EXTERIOR STUDWALL CONSTRUCTION @ FLAT SLAB:
-3 5/8" x 1 5/8" FLANGE METAL STUDS @ 24" O.C. - 18ga.
-3 5/8" CONTINUOUS CEILING TRACK - 18ga.
-3 5/8" CONTINUOUS FLOOR TRACK - 18ga.
(SECURE FLOOR TRACK w/ 3/8" x 3" KB-TZ2 ANCHORS (2" MIN. EMBEDMENT) @ 36" O.C. MAX)
-2 ROWS CONTINUOUS 20 Ga. FURRING CHANNELS
-PRE-PAINTED EXTERIOR 236A WALL PANELS
-WALL PANEL BASE SUPPORT
-DRIP CAP (#TB0012D)
*-4" THICK FIBERGLASS INSULATION
*-4 MIL POLYETHYLENE VAPOR BARRIER
*-236 LINER PANELS @ INTERIOR (ATTACH EACH PANEL TO BASE & TOP TRACK WITH 4 EACH #10 x 5/8" SDFs)
*-J-TRIM @ TOP OF LINER PANELS

③ INSULATED LOAD BEARING STUDWALL :
-3 5/8" METAL STUDS @ 24" O.C. - 20ga
-3 5/8" CONTINUOUS FLOOR AND CEILING TRACK - 18ga. - FASTEN w/ 3/8" x 3" WEDGE ANCHOR (2" MIN. EMBEDMENT) @ 36" O.C. MAX
*-J-TRIM AT TOP OF LINER PANELS
*-236 LINER PANELS @ STORAGE SIDE ONLY (ATTACH EACH -BLOCK STUDS AT MID-HEIGHT, AS SHOWN IN ERC631X

④ INSULATED NON-LOAD BEARING STUDWALL :
-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 7/8" FDFs @ 24" O.C.)
*-J-TRIM AT TOP OF LINER PANELS
*-236 LINER PANELS @ STORAGE SIDE ONLY (ATTACH EACH PANEL AT BASE AND TOP w/ (4) EACH #10 SDFs)

⑤ EXTERIOR STUDWALL CONSTRUCTION @ ALCOVE:
-3 5/8" METAL STUDS @ 24" O.C. - 18ga
-3 5/8" CONTINUOUS FLOOR & CEILING TRACK - 18ga. - FASTEN w/ 3/8" x 3" KB-TZ2 ANCHOR (2" MIN. EMBEDMENT) @ 36" O.C. MAX
-3 ROWS CONTINUOUS 20ga. FURRING CHANNELS
-PRE-PAINTED EXTERIOR 236A WALL PANELS
-DRIP CAP (#TB0032)
* -4" (R-13) THICK FIBERGLASS INSULATION
* -4 MIL POLYETHYLENE VAPOR BARRIER
* -J-TRIM @ TOP OF LINER PANELS
* -236 LINER PANELS @ INTERIOR (ATTACH EACH PANEL TO BASE & TOP w/(4) EACH #10 x 5/8" SDFS)
-BLOCK STUDS AT MID-HEIGHT AS SHOWN IN ERC631X

⑬ FIRE RESISTANT PARTITION . . . 3 HOUR RATED UL # U426 . . . (LOAD BEARING) (SEE SHEET CS4)
-3 5/8" METAL STUDS @ 24" O.C. - 20ga.
-3 5/8" CONTINUOUS FLOOR and CEILING TRACK - 18ga (TOP TRACK MUST FOLLOW SLOPE OF ROOF DECK)
(SECURE BOTTOM TRACK W/ 3/8" x 3" KB-TZ2 ANCHORS @ 36" O.C. MAXIMUM)
-1/2" GYPSUM BOARD (X-RATED) 4 LAYERS EACH SIDE IT MUST BE PLACED SUCH THAT ALL JOINTS ARE VERTICAL (NOT BY BETCO).
-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.
-3 ROWS 20ga. FURRING CHANNELS
-DRIP CAP (#TB0032)
-236A PREPAINTED PANELS
*-4" (R-13) THICK FIBERGLASS INSULATION
*-4 MIL POLYETHYLENE VAPOR BARRIER

⑪ FIRE RESISTANT PARTITION . . . 3 HOUR RATED UL # U419 . . . (NON-LOAD BEARING) (SEE SHEET CS3)
-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" FDF'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.

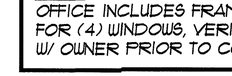
GENERAL STUDWALL CONSTRUCTION:
A) -ATTACH STUDS W/ #10 x 5/8" SDFS EACH SIDE OF TRACK (4 PER STUD)
B) -WALLS MUST EXTEND FROM ROOF TO FLOOR DECK AND INTO WALL COLUMN CAVITY.
C) -TOP TRACK MUST FOLLOW SLOPE OF ROOF LINE.

NOTES:
--- ROOF TO BE INSTALLED WITH R-19
--- 3 5/8" STUD WALLS TO BE INSTALLED WITH R-13 (MIN.) FIBERGLASS INSULATION COVERED WITH METAL LINER PANELS.
--- 4" x 5" KICK-OUT DOWNSPOUTS ARE INCLUDED.
--- CORRIDOR WIDTH WILL BE A MINIMUM OF APPROXIMATELY 5'6" 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 ERC1208X - ERC1208X.
--- INTERIOR DOOR JAMBS INCLUDE PARTITION CLOSURE ANGLES.
--- NOTE FOR ALL EXTERIOR STUDWALLS: (SECURE FLOOR TRACK w/ 3/8" x 3" KB-TZ2 ANCHORS (2" MIN. EMBEDMENT) @ 36" O.C. MAXIMUM).

NOTE:
OFFICE INCLUDES FRAMED OPENINGS FOR (4) WINDOWS, VERIFY LOCATIONS W/ OWNER PRIOR TO CONSTRUCTION

NOTE:
15 FOOT ROOF BEAMS ARE 3' x 10' I 12ga.

NOTE COLUMN ORIENTATION @ CORRIDORS PARALLEL TO ROOF BEAMS



DOOR SCHEDULE

ID	DOOR SIZE	TYPE
(A)	8'-0" x 7'-0"	INTERIOR ROLL-UP
(B)	5'-6" x 7'-0"	INTERIOR ROLL-UP
(C)	3'-0" x 7'-0"	INTERIOR ROLL-UP
(D)	3'-0" x 7'-0"	INTERIOR SWING W/ LOUVER
(E)	4'-0" x 7'-0" (4070-2-G) (SEE ERC254X)	1/2 GLASS PERSONNEL
(F)	4'-0" x 7'-0" (4070-1-A) (SEE ERC254X)	A-LABEL FIRE DOOR

JAMB	ROLL-UP HEADER
8'-0"	12"

LEGEND:
⊗ 22ga. INTERIOR COLUMN
⟷ 22ga. INTERIOR DOOR STRUCTURE
CLIMATE CONTROL

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

STUDWALL LEGEND	BUILDING "2"
INTERIOR STUDWALL	EXTERIOR STUDWALL

DESCRIPTION	UNINSULATED	INSULATED *
① EXTERIOR STUDWALL CONSTRUCTION @ FLAT SLAB (BLOCK @ MID-HGT.)	0 L.F.	655 L.F.
⑤ LOAD BEARING INTERIOR STUDWALL (BLOCK @ MID-HGT.)	10 L.F.	0 L.F.
④ NON-LOAD BEARING INTERIOR STUDWALL	20 L.F.	0 L.F.
⑤ EXTERIOR STUDWALL CONSTRUCTION @ ALCOVE (BLOCK @ MID-HGT.)	0 L.F.	50 L.F.
⑪ NON-LOAD BEARING INTERIOR STUDWALL 3 HOUR FIRE BARRIER (UL#U419)	95 L.F.	0 L.F.
⑬ NON-LOAD BEARING INTERIOR STUDWALL 3 HOUR FIRE BARRIER (UL#U426)	0 L.F.	5 L.F.

NOTE #1: SEE BLOCKING DETAIL ON A/631X

BETCO, Inc.
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Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED N. SELF

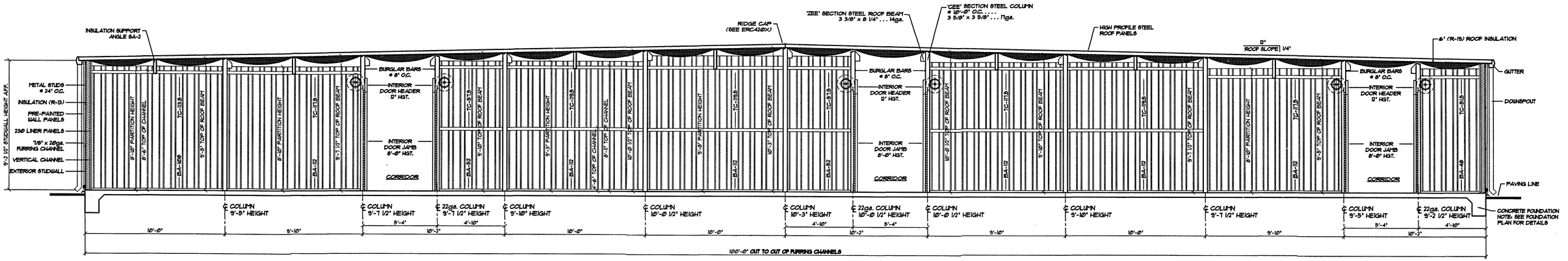
REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

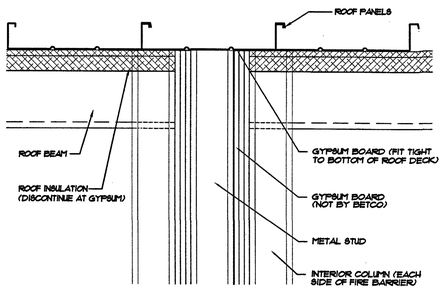
PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: FLOOR PLAN & NOTES - BUILDING "2"
DRAWING NUMBER: S3 OF 4

RELEASED FOR CONSTRUCTION DATE: 1/3/2024 TIME: 10:54 AM

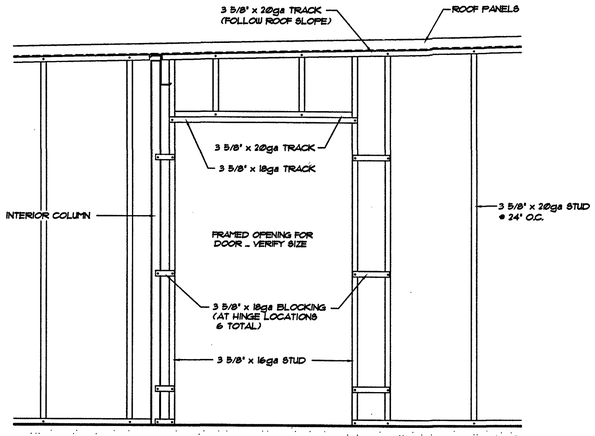


A / S4 100'-0" WIDE CROSS SECTION . . . BUILDING "2"

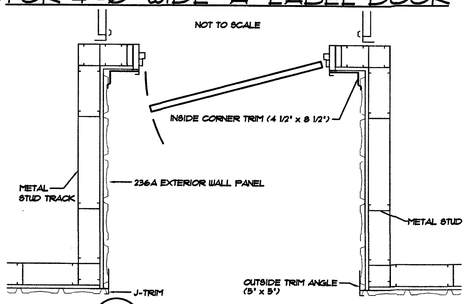
SCALE : 3" = 10'-0"



B / S4 SECTION AT 3 HOUR FIRE BARRIER

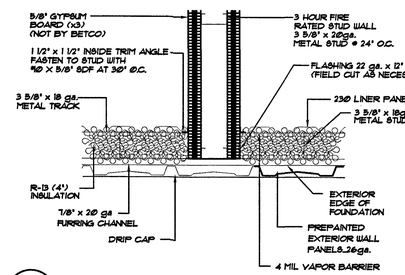


C / S4 INTERIOR DOOR FRAMING DETAIL FOR 4'-0" WIDE "A" LABEL DOOR



D / S4 TRIM AT ALCOVE

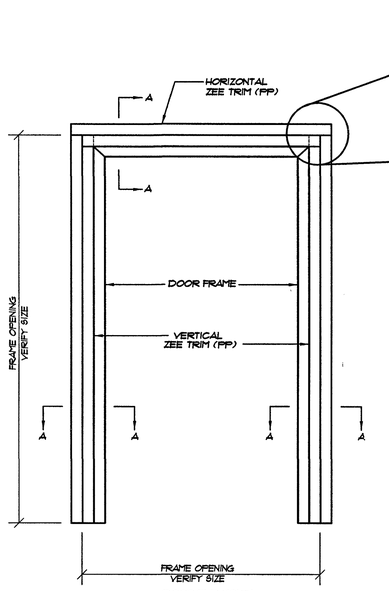
NOT TO SCALE

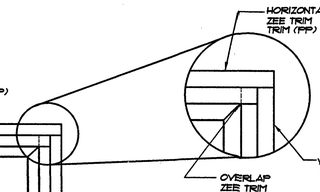


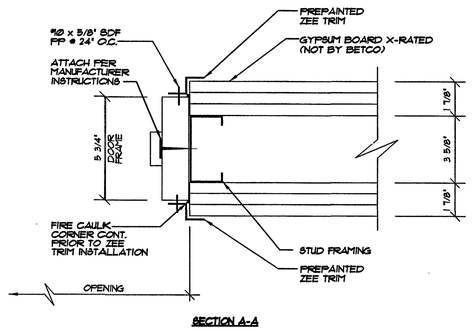
E / S4 3 HOUR FIRE BARRIER AT INSULATED EXTERIOR STUDWALL

NOT TO SCALE

NOTE:
ROUGH OPENING SHALL BE 4" WIDER THAN DOOR WIDTH AND 2" TALLER THAN DOOR HEIGHT, BASED ON A 2" DOOR FRAME. VERIFY ALL SIZES REQUIRED FOR PURCHASED DOOR PRIOR TO CONSTRUCTION.







3 HOUR FIRE RATED DOOR INSTALLATION DETAIL

RELEASED FOR CONSTRUCTION DATE: 1/3/2024 TIME: 10:54 AM

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228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027355 REED N. SEAY

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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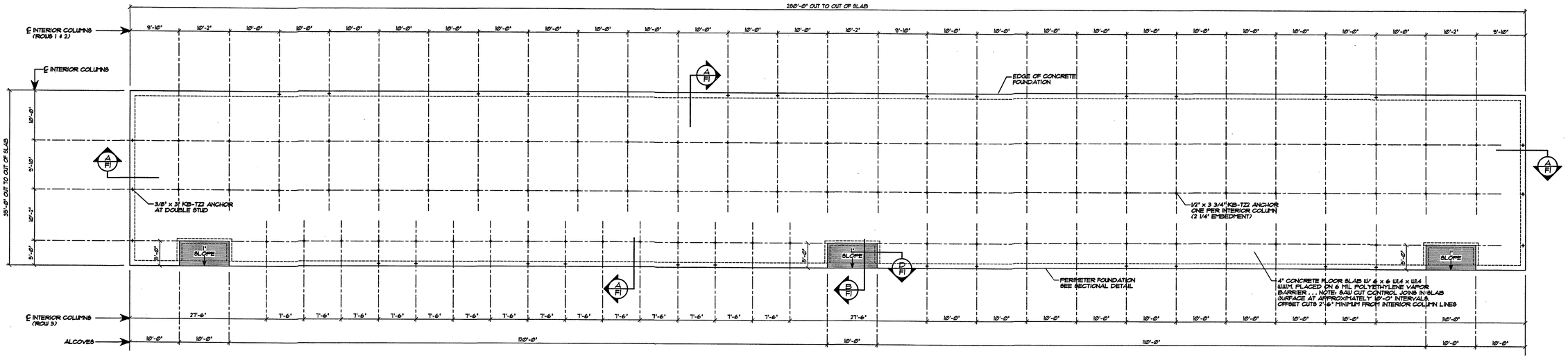
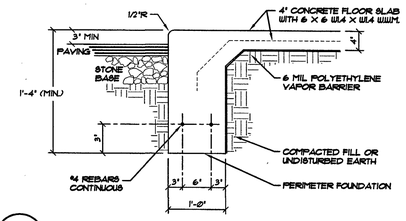
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800)654-7813

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: CROSS SECTION, DETAILS & NOTES - BUILDING "2"
DRAWING NUMBER: S4 OF 4

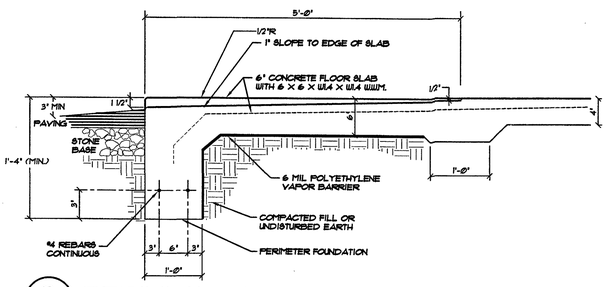


FOUNDATION PLAN . . . BUILDING "1"

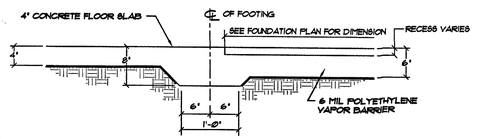
SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS . . . OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.



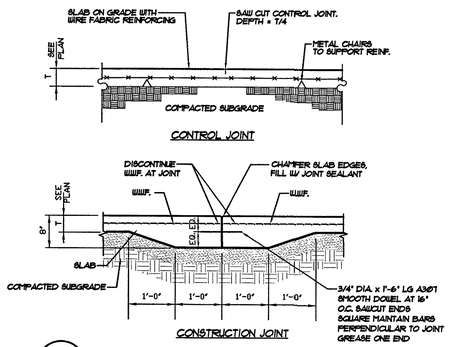
A/FI PERIMETER FOUNDATION SECTION AT EXTERIOR STUDWALL (MONOLITHIC CONCRETE PLACEMENT)
NOT TO SCALE



B/FI PERIMETER FOUNDATION SECTION AT 5'-0" & 10'-0" ALCOVE AREAS (MONOLITHIC CONCRETE PLACEMENT)
NOT TO SCALE



D/FI CONTINUOUS THICKENED SLAB SECTION @ ALCOVES
NOT TO SCALE



C/FI CONTROL JOINT & CONSTRUCTION JOINT IN CONCRETE SLAB

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

NOTE: KB-TZ2 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.

ACI 318 — TABLE 19.3.1.1
EXPOSURE CATEGORIES AND CLASSES

CATEGORY	SEVERITY	CLASS	CONDITION	
F FREEZING AND THAWING	NOT APPLICABLE	F0	CONCRETE NOT EXPOSED TO FREEZING-AND-THAWING CYCLES	
S SULFATE			WATER-SOLUBLE SULFATE (SO_4) IN SOIL, PERCENT BY WEIGHT	DISSOLVED SULFATE (SO_4) IN WATER, ppm
	NOT APPLICABLE	S0	SO_4 < 0.10	SO_4 < 150
W REQUIRING LOW PERMEABILITY	NOT APPLICABLE	W0	CONCRETE DRY IN SERVICE, CONCRETE IN CONTACT WITH WATER AND LOW PERMEABILITY IS NOT REQUIRED	
C CORROSION PROTECTION OF REINFORCEMENT	MODERATE	C1	CONCRETE EXPOSED TO MOISTURE BUT NOT TO EXTERNAL SOURCES OF CHLORIDES	

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

REFERENCE ACI 318-14 — TABLE 19.3.1.1 FOR REQUIREMENTS FOR CONCRETE BY EXPOSURE CLASS.

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Limited Engineering License # D-0140

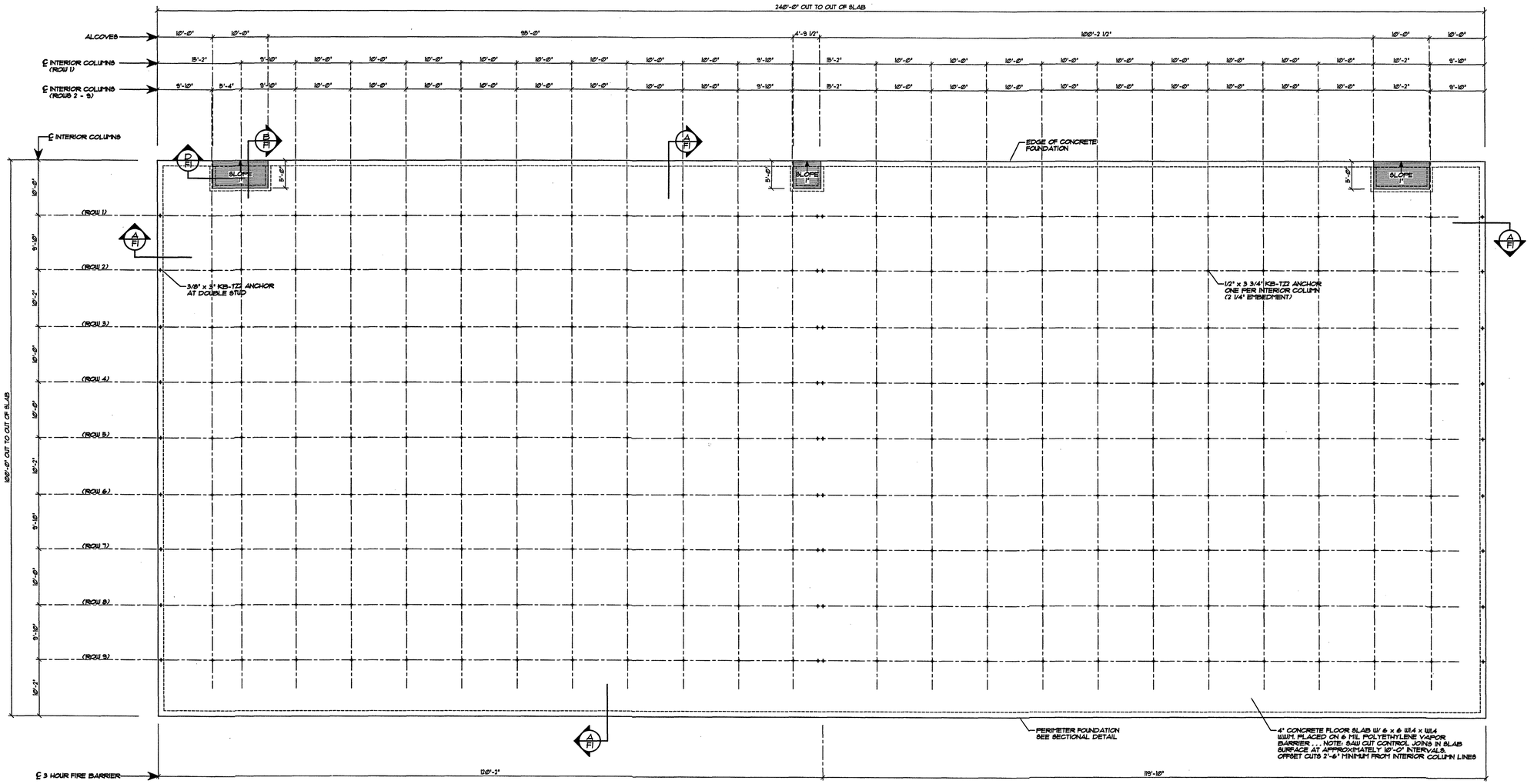
NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER REED N. SELF

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: FOUNDATION PLAN, DETAILS, & NOTES — BUILDING "1"
DRAWING NUMBER: F1 OF 2



FOUNDATION PLAN . . . BUILDING "2"

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-TZ2 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.

BETCO, Inc.
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Statesville, NC 28625
Limited Engineering License # D-0140

NORTH CAROLINA PROFESSIONAL SEAL 027355 ENGINEER READY N. SELF

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: R. KEATH
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: NC23260
SHEET TITLE: FOUNDATION PLAN & NOTES BUILDING "2"
DRAWING NUMBER: F2 OF 2

A

ROOM
MOUNTING FLUSH
FED FROM UTILITY
NOTE

VOLTS 208Y/120V 3P 4W
BUS AMPS 400
NEUTRAL 100%

AIC 10,000
MAIN BKR MLO
LUGS STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/1	LIGHTING	0.782			2	60/2	AHU-1	4.43		
3	20/1	LIGHTING		0.431		4	|			4.43	
5	20/1	RECEPTACLE			1.08	6	50/2	HP-1			2.61
7	20/1	RECEPTACLE	0.36			8	|		2.61		
9	20/1	RECEPTACLE		0.18		10	60/2	AHU-6		4.43	
11	20/1	RECEPTACLE			0.36	12	|				4.43
13	20/1	RECEPTACLE	1.08			14	40/2	HP-6	2.17		
15	20/1	FACU RECEPTACLE **		0.18		16	|			2.17	
17	20/1	SPACE			0	18	20/1	SPACE			0
19	20/1	SPACE	0			20	20/1	SPACE	0		
21	20/1	SPACE		0		22	20/1	SPACE		0	
23	20/1	SPACE			0	24	20/1	SPACE			0
25	20/1	SPACE	0			26	20/1	SPACE	0		
27	20/1	SPACE		0		28	20/1	SPACE		0	
29	20/1	SPACE			0	30	20/1	SPACE			0
31	20/1	SPACE	0			32	20/1	SPACE	0		
33	20/1	SPACE		0		34	20/1	SPACE		0	
35	20/1	SPACE			0	36	20/1	SPACE			0
37	20/1	SPACE	0			38	225/3	PANEL B	24.3		
39	20/1	SPACE		0		40	|			25.1	
41	20/1	SPACE			0	42	|				22.6
								TOTAL CONNECTED KVA BY PHASE	35.7	36.9	31.1

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	3.96	4.95	(125%)	RECEPTACLES	11	10.5	(50%>10)
LARGEST MOTOR	4.64	1.16	(25%)	HEATING	88.7	88.7	(100%)
MOTORS	0.054	0.054	(100%)	COOLING	41.5	0	(0%)
				TOTAL LOAD		105	
				BALANCED 3-PHASE LOAD		292 A	

**LOCKABLE IN THE "ON" POSITION

B

ROOM
MOUNTING FLUSH
FED FROM A
NOTE

VOLTS 208Y/120V 3P 4W
BUS AMPS 225
NEUTRAL 100%

AIC 10,000
MAIN BKR 225
LUGS STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/1	EF1, LIGHTING	0.187			2	60/2	AHU-2	4.43		
3	20/1	LIGHTING		1.17		4	|			4.43	
5	20/1	LIGHTING			1.02	6	50/2	HP-2			2.61
7	20/1	LIGHTING	0.429			8	|		2.61		
9	20/1	RECEPTACLE		0.54		10	60/2	AHU-3		4.43	
11	20/1	RECEPTACLE			0.18	12	|				4.43
13	20/1	RECEPTACLE	0.18			14	50/2	HP-3	2.61		
15	20/1	RECEPTACLE		0.36		16	|			2.61	
17	20/1	RECEPTACLE			0.18	18	60/2	AHU-4			4.43
19	20/1	RECEPTACLE	0.9			20	|		4.43		
21	20/1	RECEPTACLE		0.9		22	50/2	HP-4		2.61	
23	20/1	RECEPTACLE			0.9	24	|				2.61
25	20/1	RECEPTACLE	0.9			26	60/2	AHU-5	4.43		
27	20/1	RECEPTACLE		0.9		28	|			4.43	
29	20/1	RECEPTACLE			0.9	30	50/2	HP-5			2.61
31	20/1	RECEPTACLE	0.54			32	|		2.61		
33	20/1	RECEPTACLE		0.18		34	40/2	PHP-1		2.56	
35	20/1	FACU RECEPTACLE**			0.18	36	|				2.56
37	20/1	SPACE	0			38	20/1	SPACE	0		
39	20/1	SPACE		0		40	20/1	SPACE		0	
41	20/1	SPACE			0	42	20/1	SPACE			0
								TOTAL CONNECTED KVA BY PHASE	24.3	25.1	22.6

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	2.75	3.44	(125%)	RECEPTACLES	7.74	7.74	(50%>10)
LARGEST MOTOR	4.64	1.16	(25%)	HEATING	61.4	61.4	(100%)
MOTORS	0.054	0.054	(100%)	COOLING	28.6	0	(0%)
				TOTAL LOAD		73.8	
				BALANCED 3-PHASE LOAD		205 A	

**LOCKABLE IN THE "ON" POSITION

1. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY FOR SERVICE. A COMPLETE AND WORKING SYSTEM IS REQUIRED FOR COMPLIANCE WITH THESE DOCUMENTS. DETERMINE THE POINT OF CONNECTION TO THE UTILITY WITH THE UTILITY REPRESENTATIVE AND PROVIDE ACCORDINGLY FOR A COMPLETE WORKING SYSTEM.

2. ANY POWER DISRUPTIONS SHALL BE COORDINATED WITH THE OWNER 10 WORKING DAYS PRIOR TO ANY SHUTDOWN. PROVIDE AN MOP FOR APPROVAL BY THE ENGINEER/ARCHITECT.

3. WIRE AND CABLE SHALL BE INSULATED, TYPE THWN OR THHN, 600 VOLTS, WITH COPPER CONDUCTORS. CONDUCTOR SIZES NO. 8 AWG AND LARGER MAY BE STRANDED. CONDUCTORS SIZES NO. 10 AWG AND SMALLER MAY BE SOLID OR STRANDED. NO ROMEX PERMITTED.

4. EMT SHALL BE GALVANIZED STEEL TUBING, 1/2-INCH MINIMUM SIZE, EQUAL TO ELECTRUNITE BRAND OR APPROVED AND USED ONLY WITH HEXAGONAL ALL STEEL COMPRESSION FITTINGS.

5. PLASTIC CONDUIT SHALL BE RIGID, 3/4-INCH MINIMUM NON-METALLIC, HEAVY DUTY, HIGH IMPACT, SCH. 40 POLYVINYLCHLORIDE (PVC), TYPE I WILL BE USED FOR CONCRETE ENCASEMENT. FITTINGS SHALL BE THE SAME MATERIALS AND MANUFACTURER AS THE PLASTIC CONDUIT.

6. FLEXIBLE METAL CONDUIT SHALL BE 1/2- INCH MINIMUM SINGLE STRIP, STEEL, HOT DIPPED GALVANIZED INSIDE AND OUTSIDE, MAXIMUM LENGTH 72 INCHES FOR LIGHTING AND 36" FOR MOTORS. FLEXIBLE METAL CONDUIT SHALL BE LIQUIDTIGHT OR WATERTIGHT WITH PVC JACKET WHERE USED IN DAMP, WET OR OUTSIDE AREAS, AND LIQUIDTIGHT OR WATERTIGHT CONNECTORS SHALL BE USED.

7. NO RECEPTACLES OR TEL. OUTLETS TO BE MOUNTED BACK TO BACK, KEEP AT LEAST 2 INCHES BETWEEN RECEPTACLES AND TEL. OUTLETS.

8. ALL CONDUCTOR SHALL BE COPPER WITH A MINIMUM SIZE OF #12 AWG EXCEPT FOR FIRE ALARM. THESE CONDUCTORS SHOULD COMPLY WITH NFPA.

9. CONTRACTOR SHALL ALIGN FIXTURES, SMOKE DETECTORS, CEILING DIFFUSERS ETC. AS REQUIRED TO PROVIDE A UNIFORM PRESENTATION. AT NO TIME WILL AN IONIZATION DETECTOR BE LOCATED WITHIN 3'-0" OF A SUPPLY OR RETURN AIR GRILLE.

10. CIRCUIT BREAKERS AND WIRE ARE SIZED FOR SPECIFIC EQUIPMENT. BEFORE ORDERING WIRE, BREAKERS AND CONDUIT FOR THIS PROJECT THE CONTRACTOR SHALL COORDINATE WITH THE OTHER CONTRACTORS ON THE JOB AND VERIFY THE ELECTRICAL DATA FOR THE EQUIPMENT WHICH WILL ACTUALLY BE INSTALLED. NOTIFY ENGINEER OR ARCHITECT OF ANY DISCREPANCES.

11. ALL CONDUIT TERMINATING IN THE CEILING CAVITIES IS TO BE LABELED.

12. ALL CONDUIT SHALL BE COLOR CODED WITH 1/2" WIDE TAPE, 10'-0" ON CENTER IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE.

13. THE MOUNTING HEIGHTS AND LOCATIONS OF ALL WALL MOUNTED OUTLETS AND JUNCTION BOXES SHALL BE REVIEWED AND COORDINATED WITH THE ARCHITECT AND OWNER, PRIOR TO INSTALLATION, FOR USE WITH ACTUAL EQUIPMENT.

14. EACH CONTRACTOR WILL PROVIDE HIS OWN SUPPORT OF ALL DEVICES AND EQUIPMENT PROVIDED BY HIM AND SHALL SUPPORT SUCH EQUIPMENT PER APPROVED GOVERNING CODES OR PER APPROVAL OF THE ENGINEER/ARCHITECT. UNACCEPTABLE WORKMANSHIP OR MATERIALS SHALL REPLACED AT THE REQUEST OF THE ENGINEER/ARCHITECT AT THE CONTRACTORS EXPENSE.

15. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR FLOOR PLAN DIMENSIONS.

16. THE CONTRACTOR SHALL COORDINATE ANY AND ALL WORK WITH OTHER TRADES INVOLVED IN THIS PROJECT PRIOR TO THE INSTALLATION OF HIS EQUIPMENT, SO AS TO AVOID CONFLICTS DURING CONSTRUCTION AND ALLOW FOR OPTIMUM WORKING SPACE AND MAINTENANCE.

17. ALL FUSES DISCONNECT SWITCHES AND BREAKER SIZES SHOWN FOR MECHANICAL EQUIPMENT SHALL BE VERIFIED BEFORE PURCHASE AND INSTALLATION OF SAID EQUIPMENT WITH THE EQUIPMENT SUPPLIER AND MECHANICAL CONTRACTOR.

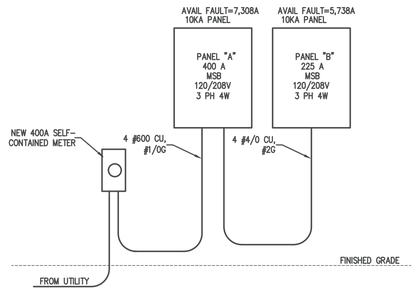
18. WHERE EQUIPMENT PENETRATES EXTERIOR WALL OR ROOF THEY SHALL BE PROPERLY SEALED WITH METHODS APPROVED BY THE ARCHITECT/ENGINEER.

19. ALL WORK IS TO BE DONE IN STRICT COMPLIANCE WITH THE LATEST VERSION OF THE NEC AND APPLICABLE STATE CODES

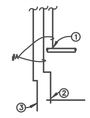
20. RECESSED FIXTURES INSTALLED IN RATED ASSEMBLIES SHALL BE INSTALLED WITH AN ENCLOSURE SO AS TO MAINTAIN THE RATING OF ASSEMBLY

1/E1 ELECTRICAL NOTES
N.T.S.

AVAILABLE FAULT CALCULATIONS
1 50' RUN OF 4 #600 TO
50KVA TRANSFORMER 1.613%Z
7,642A AT METER



2/E1 ELECTRIC RISER
N.T.S.



TYPICAL GROUNDING AT EACH DISCONNECT

GROUNDING ELECTRODE DETAILS

GROUNDING ELECTRODE CONDUCTORS SHALL BE #6 BARE COPPER. OTHER MATERIAL AND INSTALLATION PER NEC

1. CONNECT TO METALIC WATER PIPE AS REQ'D.
2. #A COPPER GROUND PLACED TO BLDG STEEL
3. 3/4"x10' LONG COPPER CLAD GROUNDING ROD W/ #6 COPPER GROUND.

A=#3 CU "A"
A=#4 CU "B"

Aug 21, 2025

NORTH CAROLINA PROFESSIONAL SEAL 20193 ENGINEER CHRISTOPHER S. LOCKLEAR

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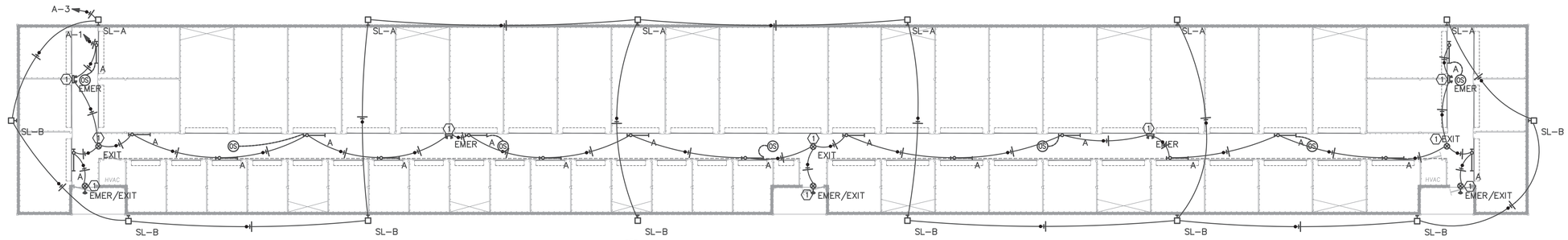
License No: C-2059

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: ELECTRICAL DETAILS
DRAWING NUMBER: E1



1 / E2 BUILDING 1 LIGHTING PLAN
3/32" – 1'

OS BRYANT (HUBBELL) MSD1000W1 OR EQUAL WALL SWITCH OCCUPANCY SENSOR
DUAL (ULTRASONIC AND PASSIVE INFRARED) TECHNOLOGY
1,000 SQUARE FOOT COVERAGE
800W INCANDESCENT, 1000W FLUORESCENT AT 120V AC
1 UNSWITCHED LEG OF CIRCUIT TO BATT. PACK, SWITCHED LEG TO NORMAL LED DRIVER

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT WATTS	VOLTS	NOTE 1
A		(1) 41.8W (80) 4000K CCT, 80 CRI LEDS	4' LED STRIP FIXTURE, WALL MOUNTED	ELECTRONIC	WALL	COOPER LIGHTING SOLUTIONS – METALUX (FORMERLY EATON), 4SLSTP4040DD–120V	41.8	120V 1P 2W	5000 LUMENS
B		(1) 41.8W (80) 4000K CCT, 80 CRI LEDS	4' LED STRIP FIXTURE, CEILING MOUNTED	ELECTRONIC	CEILING	COOPER LIGHTING SOLUTIONS – METALUX (FORMERLY EATON), 4SLSTP4040DD–120V	41.8	120V 1P 2W	5000 LUMENS
EMER		(2) 1.5W LED	EMER. LIGHT W/1.5 HR NI–CAD BATTERY	ELECTRONIC	WALL/CEILING	LITHONIA ELM2–LED	3	120V 1P 2W	
EMER/EXIT		(2) 1.5W LED	COMBINATION EXIT/EMERGENCY UNIT WITH 90 MINUTE BATTERY AND MATCHING LED OUTDOOR REMOTE HEADS	ELECTRONIC	WALL/CEILING	HUBBELL CCRRC CORD	4	120V 1P 2W	
EXIT		(1) 2W LED	LED EXIT LIGHT WITH 90 MINUTE BATTERY	ELECTRONIC	WALL/CEILING	HUBBELL CER	2	120V 1P 2W	
SL–A		(1) 31.9W EATON LED 4000K	LED WALL PACK	ELECTRONIC	WALL	COOPER LIGHTING SOLUTIONS – STREETWORKS (FORMERLY EATON), WKP4BLEDEDFC–7040	31.9	120V 1P 2W	ELECTRONIC DRIVER
SL–B		(1) 29.9W N/A	LED WALL PACK	ELECTRONIC	WALL	Progress Lighting, PMOWP–1–30W–4000K	29.9	120V 1P 2W	ELECTRONIC DRIVER

APPENDIX B 2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

ELECTRICAL DESIGN

ELECTRICAL SYSTEM AND EQUIPMENT

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

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture — SEE LUMINAIRE SCHEDULE
total wattage per fixture
3010/19599 total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Prescriptive Compliance
☐ 506.2.1 More Efficient HVAC 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

May 07, 2025

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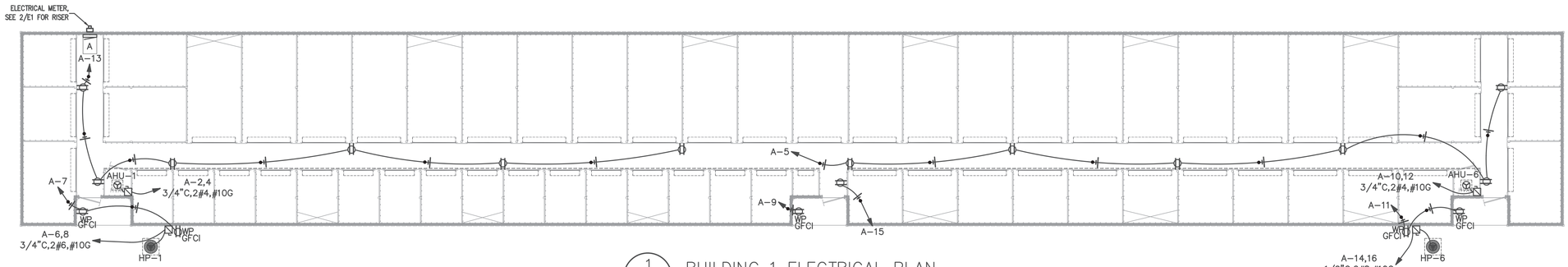
REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024–170
SHEET TITLE: LIGHTING PLAN
DRAWING NUMBER: E2



1 / E3 BUILDING 1 ELECTRICAL PLAN

3/32" – 1'

Aug 21, 2025

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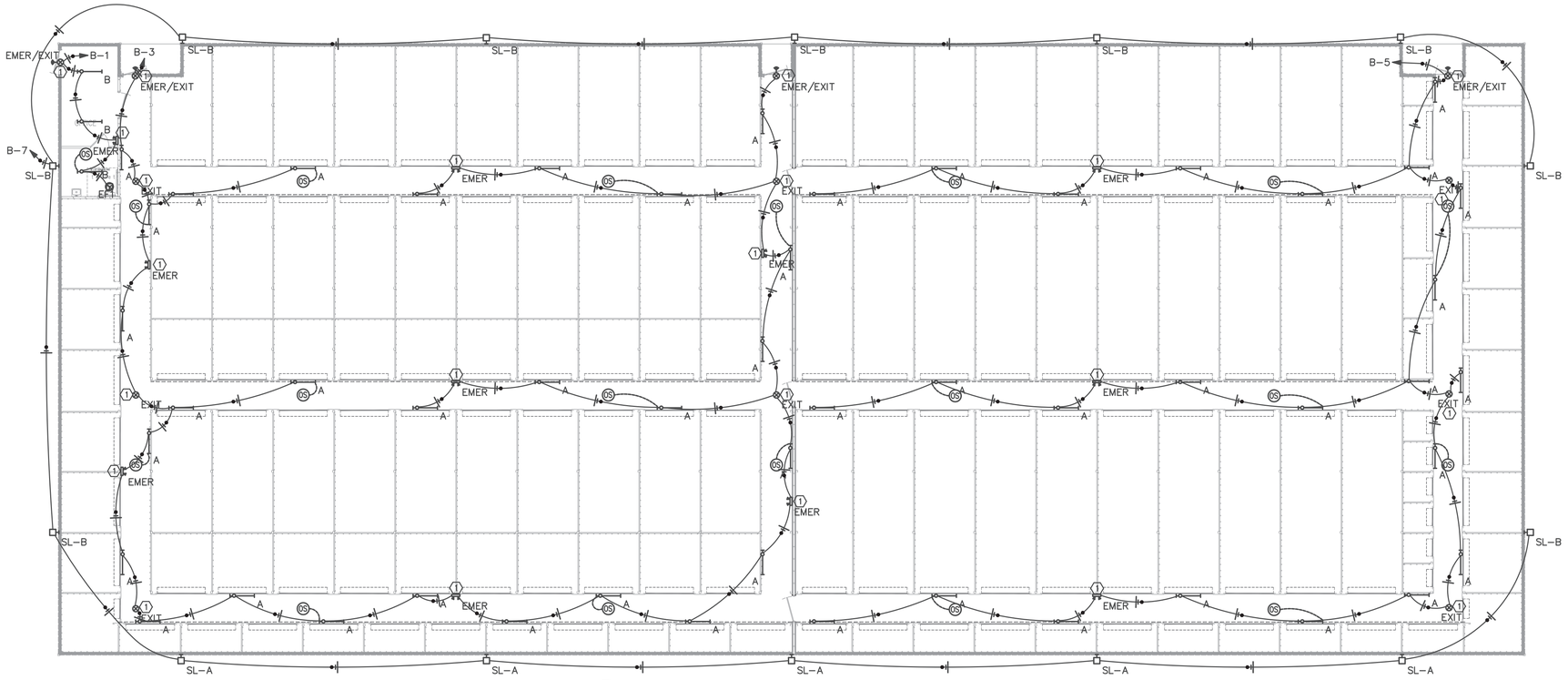
PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: ELECTRICAL PLAN
DRAWING NUMBER: E 3



1 E4 BUILDING 2 LIGHTING PLAN
3/32" = 1'

DS BRYANT (HUBBELL) MSD1000WI OR EQUAL WALL SWITCH OCCUPANCY SENSOR
DUAL (ULTRASONIC AND PASSIVE INFRARED) TECHNOLOGY
1,000 SQUARE FOOT COVERAGE
800W INCANDESCENT, 1000W FLUORESCENT AT 120V AC

1 UNSWITCHED LEG OF CIRCUIT TO BATT. PACK, SWITCHED LEG TO NORMAL LED DRIVER

May 07, 2025

NORTH CAROLINA PROFESSIONAL SEAL 20163 ENGINEER CHRISTOPHER S. LOCKLEAR

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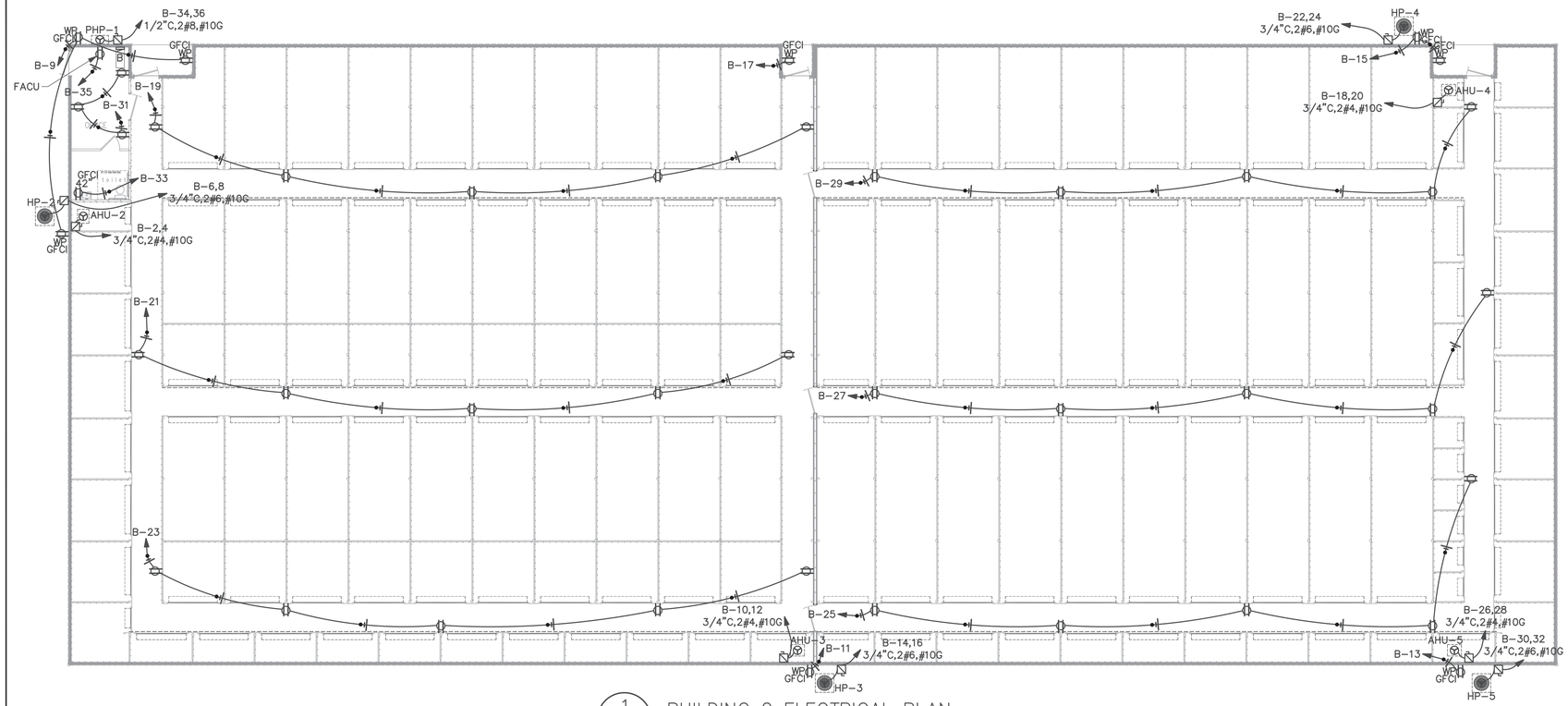
REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: LIGHTING PLAN
DRAWING NUMBER: E4



1
E5

BUILDING 2 ELECTRICAL PLAN

3/32" – 1'

Aug 21, 2025

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DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
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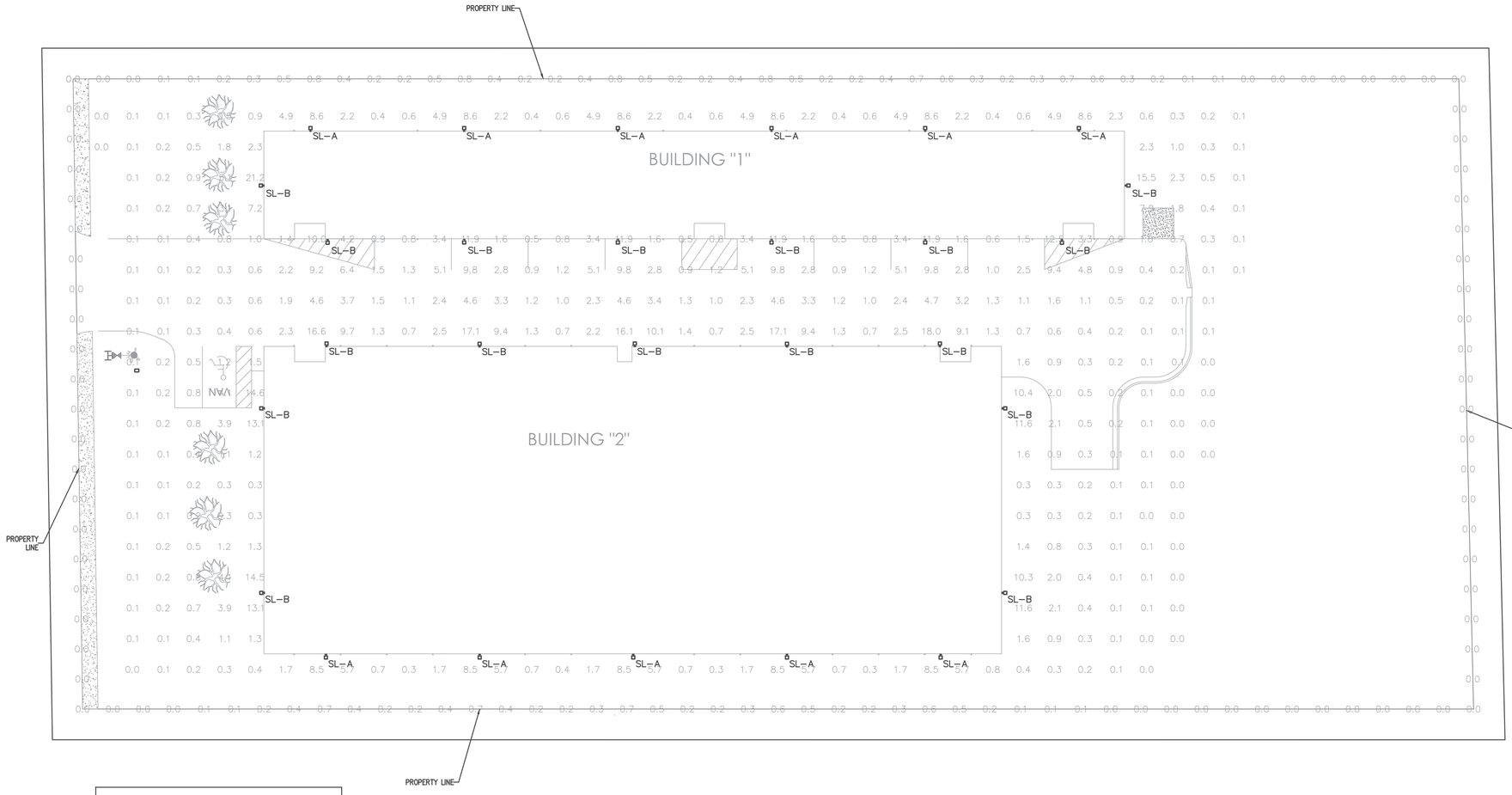
BETCO
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800)654-7813

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: ELECTRICAL PLAN
DRAWING NUMBER: E5



1 / E6 SITE LIGHTING PLAN
1" – 20'

GENERAL PHOTOMETRIC SCHEDULE

AVERAGE FOOT–CANDLES	2.44
MAXIMUM FOOT–CANDLES	21.2
MINIMUM FOOT–CANDLES	0.0
MINIMUM TO MAXIMUM FC RATIO	0.00
MAXIMUM TO MINIMUM FC RATIO	900.19
AVERAGE TO MINIMUM FC RATIO	103.64

PROPERTY LINE PHOTOMETRIC SCHEDULE

AVERAGE FOOT–CANDLES	0.18
MAXIMUM FOOT–CANDLES	0.8
MINIMUM FOOT–CANDLES	0.0
MINIMUM TO MAXIMUM FC RATIO	0.00
MAXIMUM TO MINIMUM FC RATIO	751.69
AVERAGE TO MINIMUM FC RATIO	162.51

Streetworks

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

DESCRIPTION

The Streetworks Wal-Pak Series of wall luminaires provides traditional architectural style with high performance energy efficient illumination. Rugged die-cast aluminum construction, stainless steel hardware along with a sealed and gasketed optical compartment make the Wal-Pak virtually impenetrable to contaminants. IP66 Rated. UL and cUL wet location listed. The Wal-Pak wall luminaire is ideal for pathway illumination, building entrances, vehicle ramps, schools, tunnels, stairways and loading cocks.

SPECIFICATION FEATURES

Housing
Rugged one-piece die-cast aluminum housing and hinged, removable die-cast aluminum door. One-piece silicone gasket seals the optical chamber. UL 1598 wet location listed and IP66 ingress protection rated. Not recommended for car wash applications.

Electrical
LED driver and related electrical components are hard mounted to the die-cast housing for optimal heat sinking and operating efficiency. Wiring is extended through a silicone gasket at the back of the housing. Three 1/2" threaded conduit entry points allow for thru-branch wiring. LED thermal mainagement system incorporates both conduction and natural convection to transfer heat rapidly away from LED source. Integral LED electronic driver incorporates internal fusing designed to withstand a 6kV surge test and is Class 2 rated for 120-277V with an operating temperature of -40° to 55°C. Wal-Pak LED systems maintain greater than 93% of the initial light output after 72,000 hours of operation.

Optical
Highly reflective anodized aluminum reflectors provide high efficiency illumination. Optical assemblies include impact resistant borosilicate refractive glass, and full cutoff IESNA compliant configurations. Patented, solid state LED luminaires are thermally optimized with three lumen packages.

Door Assembly
Single point, captive stainless steel hardware secures the removable hinged door allowing for ease of installation and maintenance. Door assembly is hinged at the bottom for easy removal and installation.

Finish
Finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard color is bronze. Additional colors available in white, grey, bronze, black, dark platinum and graphite metallic. Consult your lighting representitive at Cooper Lighting Solutions for a complete selection of standard colors. Options to meet Buy American and other domestic preference requirements.

Efficiency Standards Notice
Select luminaires are manufactured to USA and California efficiency regulations.

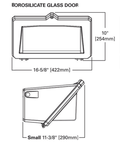
WKP WAL-PAK

27, 32 and 46W
LED

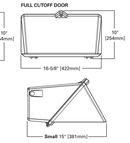
WALL MOUNT LUMINAIRE

DIMENSIONS

BOROSILICATE GLASS DOOR



FULL CUTOFF DOOR



CERTIFICATION DATA
UL and cUL Wet Location Listed
IP66 Rated
40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum
Title 20 Compliant
LM79 / LM80 Compliant

ENERGY DATA
120-277V 50/60Hz

SHIPPING DATA
Approximate Net Weight:
32-42 lbs. (15-19 kgs.)

TDS140416EN
March 8, 2016 4:36 PM

COOPER Lighting Solutions

2 / E6 FIXTURE SL–A CUT SHEET
NTS

PROGRESS LIGHTING

Project:
Fixture Type:
Location:
Contact:

Multifamily/Commercial

Wall Mounted • Wet Location Listed PROGRESS LED

Description:
LED Outdoor Commercial Glass Wall Pack - PMCWP

PMOWP-1-LS-CS-BZ

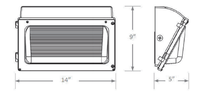
Specifications:

- Rugged die-cast aluminum housing
- Dark Bronze powder coat finish with glass lens
- CCT field selectable feature offers 3000K, 4000K and 5000K options
- Field selectable lumen range from 4,510 to 7,290 nominal lumens

Performance:

Input Power	51 W
Input Voltage	Universal 120-277 VAC
Input Frequency	50/60 Hz
Lumen/LPW (Delivered)	4,665/5850/7290/131 (LM-79)
Lumen selectable values based on 4000K selection	
CRI	80 CRI
Life (hours)	50000
EMI/RFI	FCC Part 15, Class A
Warranty	5-year Limited Warranty
Labels	cULus Wet Location Listed
Dimming	0-10VDC
Ingress Protection	IP65
Operating Temperature	-40 °C to 40 °C
THD	<20%
Power Factor	>0.90

Dimensions:



	Low Setting			Mid Setting			High Setting		
	3000K	4000K	5000K	3000K	4000K	5000K	3000K	4000K	5000K
Watts	30W	29W	30W	39W	38W	39W	51W	49W	51W
Lumens	4312	4668	4481	5415	5853	5618	6657	7290	6907
Efficacy	144	151	150	138	150	143	131	149	135

701 Millennium Blvd. Greenville, South Carolina 29607 www.progresslighting.com Rev. 08/23

3 / E6 FIXTURE SL–B CUT SHEET
NTS

May 07, 2025

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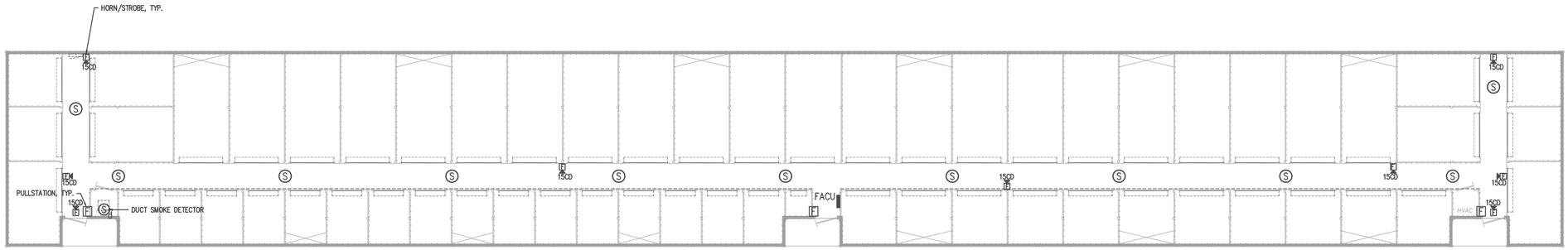
REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

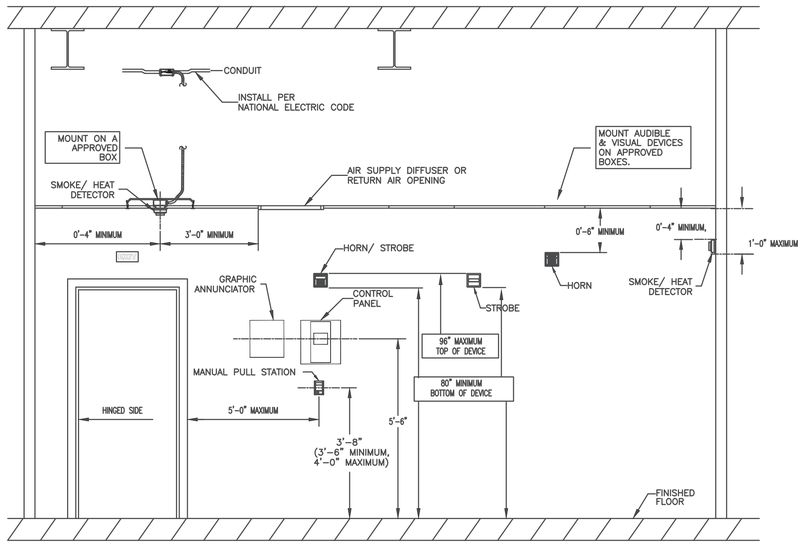
BETCO
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800)654-7813

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: SITE LIGHTING PLAN
DRAWING NUMBER: E6



1 FA1 FIRE ALARM PLAN
3/32" – 1'

NFPA 72 AND ADA DEVICE INSTALLATION REQUIREMENTS

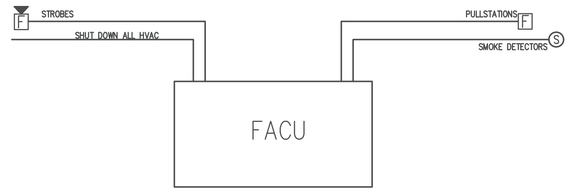


2 FA1 MOUNTING DETAILS
N.T.S

FIRE ALARM NOTES

1. FIRE ALARM CONTROL PANEL (FACP) SHALL BE FCI, NOTIFIER, FIRELITE OR EDWARDS SELF CONTAINED W/ DIGITAL COMMUNICATOR AND MODULES TO ACCOMPLISH THE FUNCTIONS SPECIFIED HEREIN. PANEL SHALL HAVE SEALED, MAINTENANCE-FREE, LEAD-CALCIUM BATTERY BACKUP WITH CAPACITY TO POWER DEVICES SHOWN FOR TIME REQUIRED. PROVIDE BATTERY AND VOLTAGE DROP CALCULATIONS. PANEL SHALL BE ADDRESSABLE SURFACE OR SEMI-RECESSED AS INDICATED. INSTALL LIGHTNING ARRESTORS AT CIRCUIT BREAKER IN PANEL SERVING FIRE ALARM. PROVIDE ADDITIONAL POWER EXTENDERS AS NEEDED TO POWER DEVICES SHOWN.
2. PULL STATIONS SHALL BE BY SYSTEM MANUFACTURER
3. AUDIO VISUAL HORN-STROBES, SHALL BE RED, WALL OR CEILING MOUNTED, ADJUSTABLE FOR CD SHOWN.
4. SPACE AND DUCT MOUNTED SMOKE DETECTORS SHALL BE BY SYSTEM MANUFACTURER.
5. CONDUCTORS, SIGNALING AND NOTIFICATION, SHALL BE COPPER TYPE FPLP UL LISTED FOR FIRE ALARM. PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL SPLICES AND TERMINATIONS FOR EACH CIRCUIT. IDENTIFICATION FOR ALL SPLICES SHALL INDICATE WHICH CONDUCTOR LEADS TO THE CONTROL PANEL. SYSTEM SHALL BE NFPA CLASS B WIRING.
6. NFPA 72 CERTIFICATION FOR SYSTEM SHALL BE PROVIDED FROM INSTALLER / SUPPLIER OF EQUIPMENT. PROVIDE INSTRUCTION MANUALS AND INSTRUCTION TO OWNER PERSONNEL.
7. A TEST DEMONSTRATION SHALL BE PROVIDED FOR BUILDING OFFICIALS AS REQUIRED TO PROVIDE A PERMITTED SYSTEM.
8. FIRE ALARM INSTALLER / SUPPLIER SHALL OBTAIN ALL PERMITS REQUIRED FOR CONSTRUCTION AND OCCUPANCY.

3 FA1 FIRE ALARM NOTES
N.T.S.



4 FA1 FIRE ALARM RISER
N.T.S.

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

INPUT/OUTPUT MATRIX

SYSTEM OUTPUTS

FACP ANNUNCIATION | NOTIFICATION | REQUIRED FIRE SAFETY CONTROL

	SYSTEM INPUTS	A: ACTUATE COMMON ALARM SIGNAL INDICATOR	B: ACTUATE AUDIBLE ALARM SIGNAL	C: ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	D: ACTUATE AUDIBLE SUPERVISORY SIGNAL	E: ACTUATE COMMON TROUBLE SIGNAL INDICATOR	F: ACTUATE AUDIBLE TROUBLE SIGNAL	G: ACTUATE ZONE OR DEVICE ADDRESS, ALARM INDICATOR	H: ACTUATE GENERAL EVACUATION SIGNAL	I: DISPLAY CHANGE OF STATUS	J: TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	K: TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	L: TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	M: RELEASE MAGNETICALLY HELD DOORS	N: RECALL ELEVATOR TO RECALL FLOOR	O: RECALL ELEVATOR TO ALTERNATE RECALL FLOOR	P: ACTUATE WARNING TO ELEVATOR CABS	Q: DELAYED REMOVAL OF POWER FROM ELEVATOR	R: CLOSE ALL SMOKE DAMPERS	S: UNLOCK EXITS AND CONTROL DOORS	T: SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	U: ACTUATE FLOOR PRESSURIZATION	V: ACTUATE STAIRWELL PRESSURIZATION	W: ACTUATE SMOKE EXHAUST	X: _	Y: _	
1	FIRE ALARM SYSTEM AC POWER FAILURE			●	●							●																1
2	FIRE ALARM SYSTEM LOW BATTERY					●	●						●															2
3	OPEN CIRCUIT					●	●						●															3
4	GROUND FAULT					●	●						●															4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●						●															5
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●						●								6
7	HVAC AIR DUCT SMOKE DETECTORS			●	●			●				●									●							7
8																												8
																												9
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	V	W		

Aug 21, 2025

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NORTH CAROLINA PROFESSIONAL SEAL 20093 ENGINEER CHRISTOPHER S. LOCKLEAR

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

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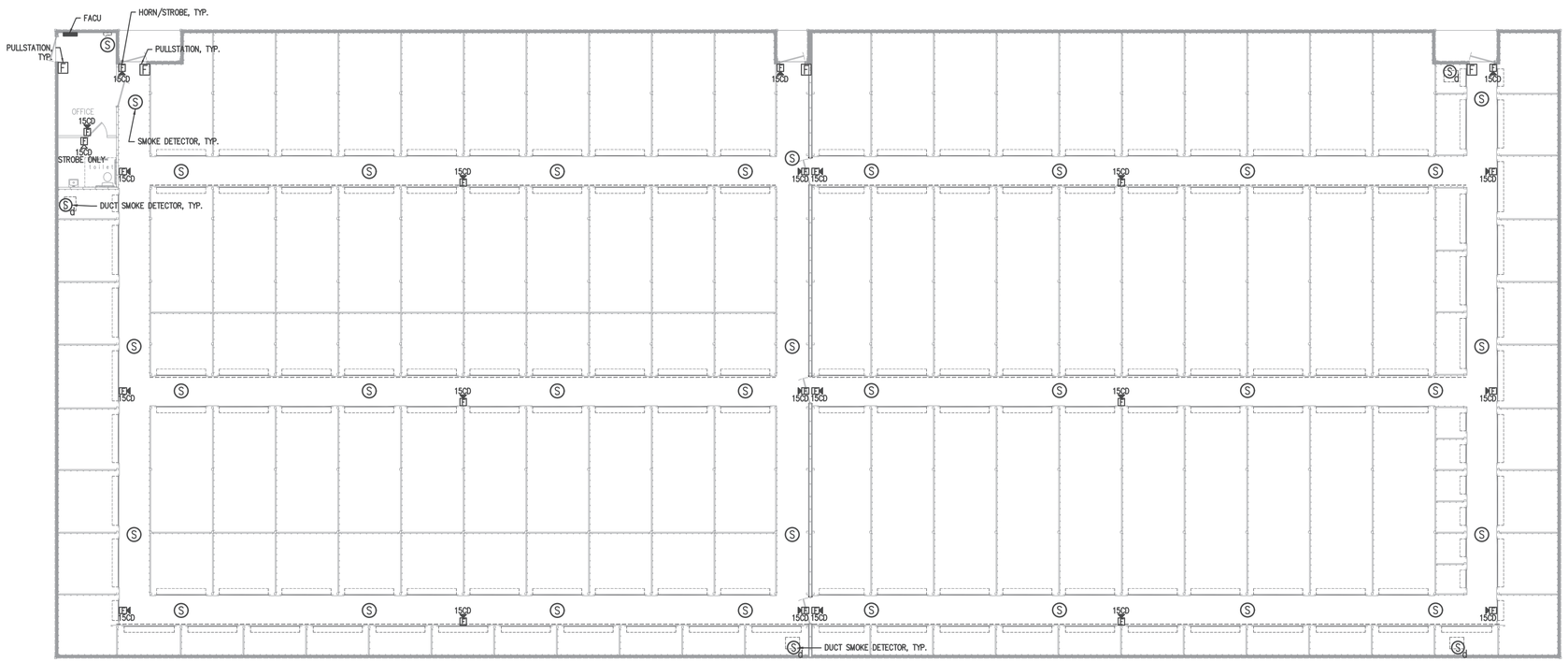
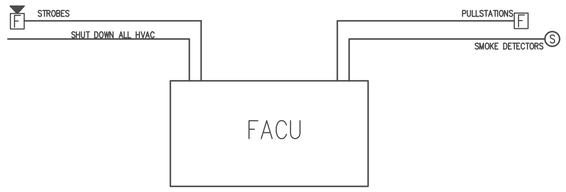
PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: FIRE ALARM PLAN
DRAWING NUMBER: FA1



1 FA2 BUILDING 2 FIRE ALARM PLAN
3/32" = 1'



2 FA2 FIRE ALARM RISER
N.T.S.

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

INPUT/OUTPUT MATRIX

SYSTEM OUTPUTS

FACP ANNUNCIATION | NOTIFICATION | REQUIRED FIRE SAFETY CONTROL

	SYSTEM INPUTS	A: ACTUATE COMMON ALARM SIGNAL INDICATOR	B: ACTUATE AUDIBLE ALARM SIGNAL	C: ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	D: ACTUATE AUDIBLE SUPERVISORY SIGNAL	E: ACTUATE COMMON TROUBLE SIGNAL INDICATOR	F: ACTUATE AUDIBLE TROUBLE SIGNAL	G: ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	H: ACTUATE GENERAL EVACUATION SIGNAL	I: DISPLAY CHANGE OF STATUS	J: TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	K: TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	L: TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	M: RELEASE MAGNETICALLY HELD DOORS	N: RECALL ELEVATOR TO RECALL FLOOR	O: RECALL ELEVATOR TO ALTERNATE RECALL FLOOR	P: ACTUATE WARNING TO ELEVATOR CABS	Q: DELAYED REMOVAL OF POWER FROM ELEVATOR	R: CLOSE ALL SMOKE DAMPERS	S: UNLOCK EXITS AND CONTROL DOORS	T: SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	U: ACTUATE FLOOR PRESSURIZATION	V: ACTUATE STAIRWELL PRESSURIZATION	W: ACTUATE SMOKE EXHAUST	X: _	Y: _	
1	FIRE ALARM SYSTEM AC POWER FAILURE			●	●						●																1
2	FIRE ALARM SYSTEM LOW BATTERY					●	●					●															2
3	OPEN CIRCUIT					●	●					●															3
4	GROUND FAULT					●	●					●															4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●					●															5
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●							●						6
7	HVAC AIR DUCT SMOKE DETECTORS			●	●			●				●										●					7
8																											8
																											9
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	V	W	

Aug 21, 2025

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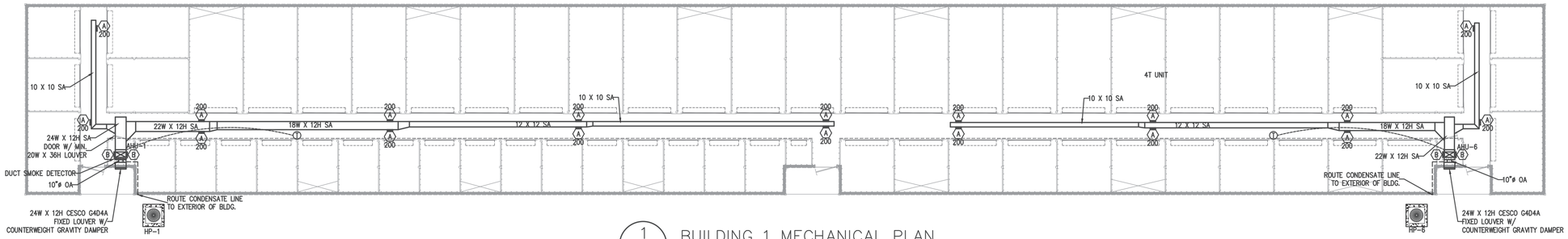
PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: FIRE ALARM PLAN
DRAWING NUMBER: FA2



1 / M1 BUILDING 1 MECHANICAL PLAN
3/32" = 1'

*2-STAGE UNITS ARE PREFERRED.
DOCUMENTATION FOR 2-STAGE UNITS IS NOT YET AVAILABLE FROM THE VENDOR.
PLEASE QUOTE 2-STAGE UNITS WHEN PRICING.

HEAT PUMP UNIT SCHEDULE

	OUTDOOR UNIT									CAPACITIES				
UNIT NO.	COMPRESSOR AMPS	NO. OF COMPR.	FAN AMPS	NO. OF FANS	UNIT VOLT	UNIT PHASE	MOCP	MCA	WIRE SIZE (DU. 75 C)	TOTAL COOLING	MIN. SEER	HEATING	MFG & MODEL	REMARKS
HP- 1-5	22.3	1	2.8	1	208	1	50	33	8	60,000	16.0	60,000	TRANE 5TWR4060A1	5 TON HEAT PUMP UNIT*
HP-6	18.1	1	2.8	1	208	1	40	25	8	48,000	16.0	48,000	TRANE 5TWR4048A1	4 TON HEAT PUMP UNIT*

FAN SCHEDULE

MARK	LOCATION	SERVICE	CFM	S.P.	WATTS	RPM	VOLT	PHASE	DRIVE	REMARKS
EF1	CEILING	TOILETS	70	.125"	54.3	900	120	1	DIRECT	CEILING MOUNTED FAN. PROVIDE W/B.D.D. AND WALL CAP GREENHECK SP-B80 OR EQ. 6"ø TO ROOF/WALL CAP

AIR HANDLING UNIT SCHEDULE

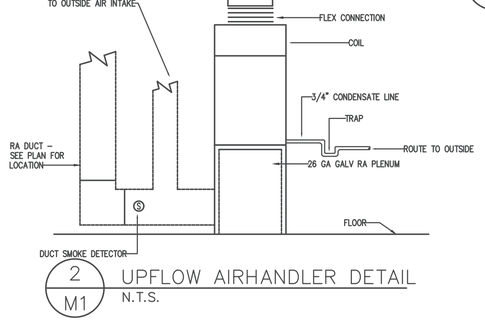
UNIT NO.	CFM	OA CFM	ESP IN WG	FAN MOTOR HP	VOLTS	PHASE	CYCLE	FLA	MCA	MOCP	MFG. & MODEL	REMARKS
AHU-1	2000	350	0.75	3/4	208	1	60	6.8	52	60	TRANE 5TEM6D06	3-5 TON VARIABLE SPEED AIR HANDLER WITH 7.20 KW STRIP HEAT
AHU- 2-5	2000	375	0.75	3/4	208	1	60	6.8	52	60	TRANE 5TEM6D06	3-5 TON VARIABLE SPEED AIR HANDLER WITH 7.20 KW STRIP HEAT
AHU-6	1600	250	0.75	3/4	208	1	60	6.8	52	60	TRANE 5TEM6D06	3-5 TON VARIABLE SPEED AIR HANDLER WITH 7.20 KW STRIP HEAT

DIFFUSER/RETURN SCHEDULE

MARK ON PLANS	CFM	AIR PATTERN	NECK SIZE	RUNOUT SIZE	REMARKS
(A)	200	SINGLE DEFLECTION	12 X 6	8"	PRICE SERIES 610 OFF WHITE, ALUM., SIDEWALL SUPPLY GRILLE
(B)		N/A	12 X 32	SEE PLAN	PRICE SERIES 630FF OFF WHITE, ALUM. SIDEWALL FILTER RETURN GRILLE

OUTSIDE AIR CALCULATION -NC 2018 MECHANICAL CODE (TABLE 403.3.1.1) Vbz = RpPz + RaAz

	OCCUPANCY TYPE:	SF (Az)	# OF OCCUPANTS PER 1000 SF	# OF OCCUPANTS (Pz)	O.A. CFM PER PERSON (Rp)	O.A CFM PER SqFt (Ra)	O.A. CFM REQUIRED (Vbz)	EXHAUST CFM REQUIRED
AHU-1, AHU-6	STORAGE	7879	0	0	0	0.06	**473**	**0**
	CORRIDOR	1517	0	0	0	0.06	**91**	**0**
	TOTAL CFM REQUIRED						**564**	**0**
	TOTAL CFM FURNISHED						**600**	**0**
AHU-2,3	STORAGE	9250	0	0	0	0.06	**555**	**0**
	CORRIDOR	2308	0	0	0	0.06	**138**	**0**
	TOTAL CFM REQUIRED						**693**	**0**
	TOTAL CFM FURNISHED						**750**	**0**
AHU-4,5	STORAGE	9854	0	0	0	0.06	**591**	**0**
	CORRIDOR	1892	0	0	0	0.06	**114**	**0**
	TOTAL CFM REQUIRED						**705**	**0**
	TOTAL CFM FURNISHED						**750**	**0**
PHP-1	OFFICE	156	5	0.8	5	0.06	**13**	**0**
	RESTROOM	73	0	0.0	0	0	**0**	**70**
	TOTAL CFM REQUIRED						**13**	**70**
	TOTAL CFM FURNISHED						**70**	**70**



2 / M1 UPFLOW AIRHANDLER DETAIL
N.T.S.

ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 NC MECHANICAL CODE.

ALL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL IN ACCORDANCE WITH ASHRAE & SMACNA. DUCT SIZES SHOWN ARE NET FREE AREA REQUIRED. ALL SUPPLY AND RETURN DUCTS AND FLEX SHALL BE INSULATED WITH MIN. R-8.0 INSULATION UNLESS OTHERWISE NOTED IN THE DRAWING.

ALL DUCTS SHALL BE AIR TIGHT, RIGID AND FREE FROM VIBRATION AND NOISE. ALL LAP JOINTS SHALL BE IN THE DIRECTION OF FLOW. VOLUME OR SPLITTER DAMPERS SHALL BE INSTALLED WHERE NECESSARY TO GUIDE AND CONTROL THE AIR FLOW. PROVIDE SHEET METAL SLEEVES AND COLLARS WHERE DUCTS PASS THROUGH WALLS.

STRUCTURAL MEMBERS OF THE BUILDING SHALL NOT BE CUT IN ANY MANNER FOR THE INSTALLATION OF ANY EQUIPMENT UNLESS PRIOR APPROVAL IS OBTAINED FROM THE ARCHITECT.

MECHANICAL CONTRACTOR TO CONFIRM BREAKER/DISCONNECT SIZES OF HIS EQUIPMENT WITH THE ELECTRICAL CONTRACTOR.

FURNISH AND INSTALL A DUCT MOUNTED SMOKE DETECTOR IN THE RETURN DUCT OF THE A/C UNIT IN ACCORDANCE WITH 2018 NC MECHANICAL CODE. THE DETECTOR SHALL BE WIRED TO SHUT DOWN THE FAN IN THE EVENT THE DETECTOR IS ACTIVATED. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL THE DUCT DETECTOR AND RUN THE NECESSARY CONTROL WIRING FROM THE DETECTOR TO HIS EQUIPMENT. SMOKE DETECTORS ARE ONLY REQUIRED FOR UNITS SUPPLYING 2000 CFM OR MORE.

MECHANICAL CONTRACTOR SHALL PROVIDE A TEST AND BALANCE REPORT SYSTEM COMPLIANCE STATEMENT REQUIRES A WRITTEN T&B REPORT. FINAL PROJECT SIGNOFF WILL BE DENIED WITHOUT THIS REPORT

MECHANICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS AND ROUTING OF ALL DUCTWORK WITH OTHER TRADES TO AVOID CONFLICTS.

ALL EQUIPMENT MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE OF DEFECTS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE WORK OR IN ACCORDANCE WITH THE PARTICULAR MANUFACTURER'S STANDARD GUARANTEE IF LONGER. ANY FAULTY MATERIAL OR WORKMANSHIP OR FAILURE OF ANY PART OF THE SYSTEM DURING NORMAL OPERATIONS UNDER THIS GUARANTEE SHALL BE CORRECTED WITHOUT COST TO THE OWNER.

ALL THERMOSTATS SHALL BE OF A PROGRAMMABLE TYPE.

BUILDING CONTRACTOR SHALL PROVIDE PERMANENT ACCESS TO ROOF STRUCTURE FOR ACCESS TO MECHANICAL EQUIPMENT WHEN ROOF STRUCTURE IS GREATER THAN 16'-0" HIGH.

3 / M1 HVAC NOTES
N.T.S.

APPENDIX B 2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

MECHANICAL DESIGN

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone4A

- winter dry bulb: 16°
- summer dry bulb: 94°

Interior design conditions

- winter dry bulb: 68°
- summer dry bulb: 80°
- relative humidity: 50%

Building heating load: 368,553

Building cooling load: 434,040

Mechanical Spacing Conditioning System

Binary

- description of unit: SPLIT SYS. HEAT PUMPS
- heating efficiency: 8.5 HSPF
- cooling efficiency: 16.0 SEER
- size category of unit: <65,000 BTU

- description of units: PACKAGED TERMINAL HEAT PUMP
- heating efficiency: 3.3 COP
- cooling efficiency: 11.0 EER
- size category of unit: ALL CATEGORIES

Boiler

Size category. If oversized, state reason.: _____

Chiller

Size category. If oversized, state reason.: _____

List equipment efficiencies: 16.0 SEER, 8.5 HSPF, 11.0 EER, 3.3 COP

SYSTEMS USING A2L REFRIGERANT SHALL BE LISTED TO UL STANDARD 60335-2-40, CURRENT EDITION.

PER EPA SNAP 23, SYSTEMS USING A2L REFRIGERANT SHALL HAVE PERMANENTLY AFFIXED MARKINGS AND LABELING TO INDICATE REFRIGERANT INSTALLED IN THE SYSTEM AND NOTICE OF LEAK DETECTION SYSTEM INSTALLED, AND SHALL HAVE SERVICE PORTS, PIPES, HOSES AND OTHER DEVICES THROUGH WHICH REFRIGERANT FLOWS TO BE MARKED IN RED.

SYSTEMS USING A2L REFRIGERANT CHARGE > 4.0 LBS SHALL HAVE INTEGRAL FACTORY INSTALLED REFRIGERANT LEAK DETECTION SYSTEM MOUNTED IN THE AIR HANDLING UNIT SECTION DOWNSTREAM OF THE EVAPORATOR COIL WITH INTERNAL CONTROLS TO AUTOMATICALLY UPON REFRIGERANT DETECTED, UNIT COMMANDS COMPRESSORS AND ELECTRIC HEAT (IF PRESENT) OFF, AND COMMANDS AIR HANDLING UNITS FAN TO MAXIMUM AIRFLOW FOR AIR CIRCULATION. ONCE REFRIGERANT HAS NOT BEEN DETECTED FOR A MINIMUM OF 5 MINUTES, UNIT SHALL RETURN TO NORMAL OPERATION.

FOR SYSTEMS USING A2L REFRIGERANT, IF RELEASABLE REFRIGERANT CHARGE IN THE SYSTEM EXCEEDS THE LEVELS ALLOWED IN ANSI/ASHRAE STANDARD 15 -2022 OR NEWER FOR THE EFFECTIVE DISPERSAL VOLUME, PROVIDE SAFETY ISOLATION VALVES IN BOTH REFRIGERANT LINES AS RELEASE MITIGATION CONTROLS. VALVES SHALL AUTOMATICALLY CLOSE UPON SIGNAL FROM THE UNIT INTEGRAL REFRIGERANT LEAK DETECTOR. VALVE LOCATIONS SHALL BE AS SUCH FOR RELEASABLE REFRIGERANT CHARGE TO BE LESS THAN THE LEVELS ALLOWED IN ANSI/ASHRAE STANDARD 15 -2022 OR NEWER FOR THE EFFECTIVE DISPERSAL VOLUME.

AS PART OF SUBMITTALS, PROVIDE CALCULATED RELEASABLE REFRIGERANT CHARGE FOR EACH SYSTEM, INCLUDING CONNECTING PIPING.

4 / M1 A2L REFRIGERANT NOTES
N.T.S.

PACKAGED TERMINAL HEAT PUMP SCHEDULE

UNIT NO.	TOTAL CFM	O.A. CFM	EXT. S.P.	EVAP. FAN AMPS	COMPRESSOR HP	NO. OF COMPR.	FAN AMPS	NO. OF FANS	UNIT MCA	UNIT MOCP	UNIT VOLT	UNIT PHASE	TOTAL KW	CAPACITIES GROSS COOLING	CAPACITIES MIN. EER	CAPACITIES HEATING OUTPUT	MFG & MODEL	REMARKS
PHP-1	600	70	0.5"	1.0	1/5	1	1.0	1	36	40	240	1	7.12	19,300	11.0	21,100	BARD W18HF-A04XXXXXX	1.5 TON PACKAGED UNIT W/ 4.0KW STRIP HEAT

May 07, 2025

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NORTH CAROLINA PROFESSIONAL SEAL 20183 ENGINEER CHRISTOPHER S. LOCKLEAR

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

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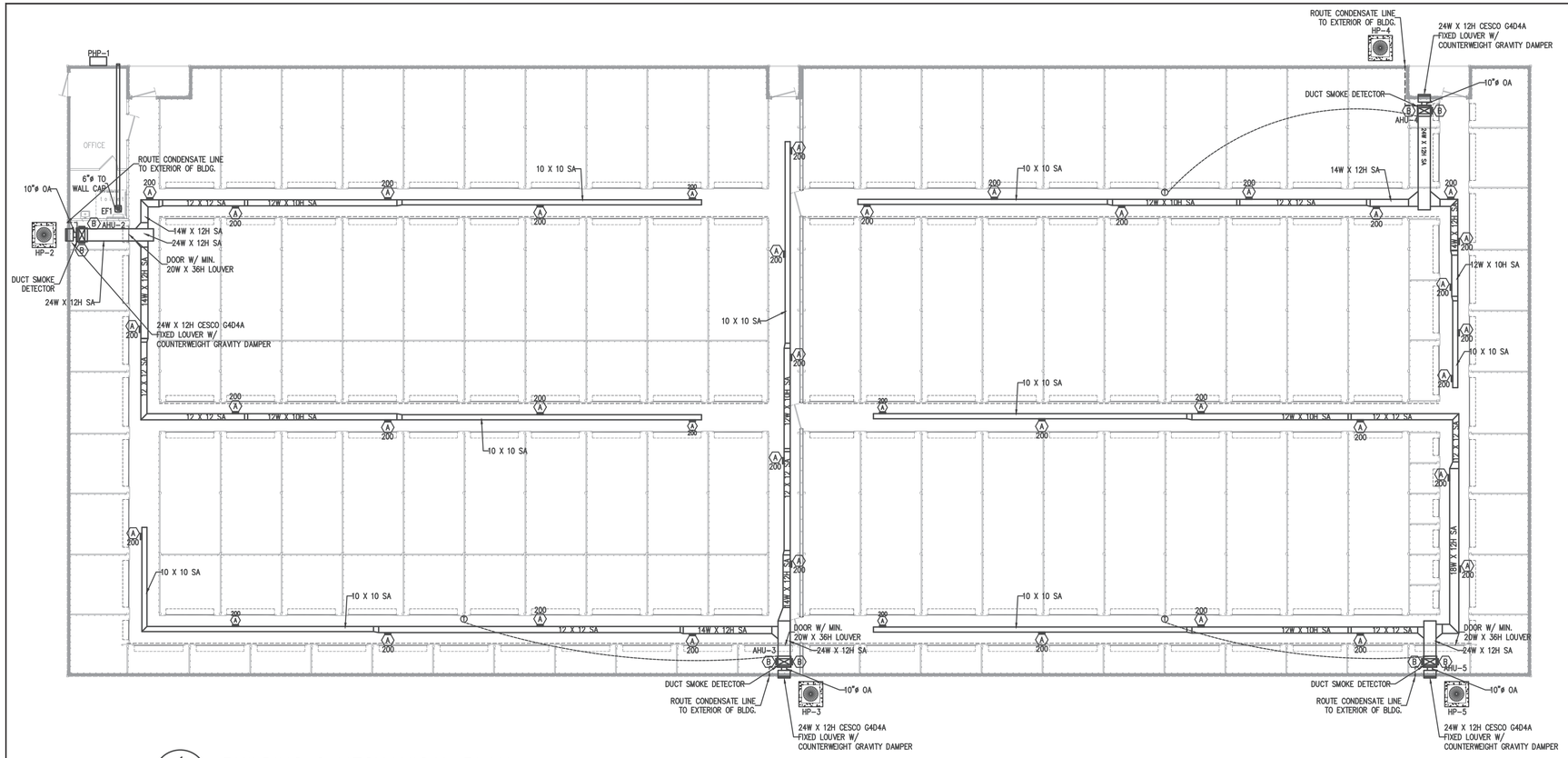
STATESVILLE, NC 28625
(800)654-7813

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: MECHANICAL PLAN
DRAWING NUMBER: M1



1 / M2 BUILDING 2 MECHANICAL PLAN
3/32" – 1'

May 07, 2025

NORTH CAROLINA PROFESSIONAL SEAL 20195 ENGINEER CHRISTOPHER S. LOCKLEAR

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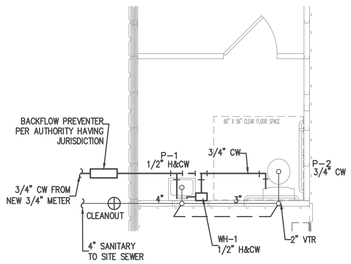
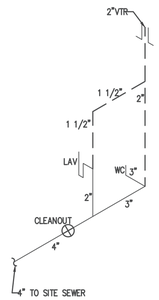
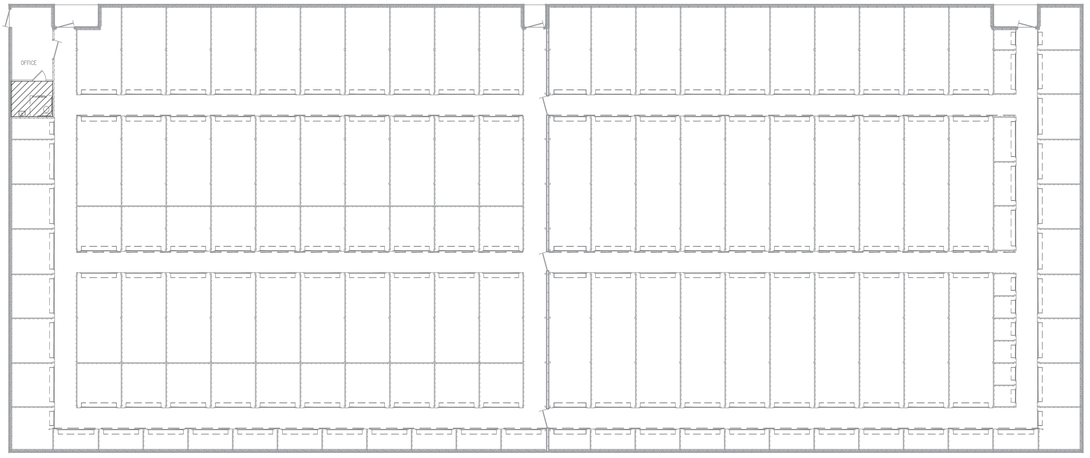
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE: MECHANICAL PLAN
DRAWING NUMBER: M2



1 P1 PLUMBING PLAN
N.T.S.



2 P1 WASTE RISER
N.T.S.



KEYPLAN

PLUMBING AREA OF WORK

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AS WELL AS ALL LOCAL AND OTHER APPLICABLE CODES.

ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN.

WATER LINES BELOW GRADE SHALL BE TYPE "K" COPPER (NO JOINTS BELOW GRADE) AND ABOVE GRADE TYPE "L" COPPER SUPPORTED AS REQUIRED AND SHALL BE HYDROSTATICALLY TESTED FOR TWO HOURS AT 100 PSI. ALL WATER PIPING AT WATER FIXTURES SHALL BE PROVIDED WITH 18" AIR CHAMBERS OR SHOCK ABSORBERS. STOPS SHALL BE PROVIDED ON HOT AND COLD WATER LINES. HOT WATER PIPING SHALL BE INSULATED WITH 1" CLOSED CELL RUBBER. THE ENTIRE WATER SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE
CPVC/PEX MAYBE SUBSTITUED FOR COPPER

SANITARY SEWER LINES SHALL BE PVC.

PROVIDE PRESSURE REDUCING VALVE IF STREET WATER EXCEEDS 80 PSI

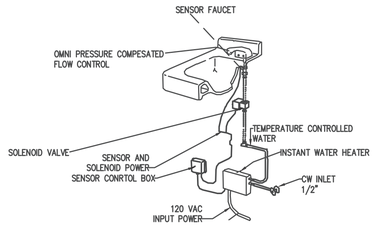
GAS PIPING WILL BE SCHEDULE 40 BLACK STEEL WITH BLACK MALLEABLE IRON SCREW-TYPE FITTINGS.

THE PLUMBING CONTRACTOR SHALL PROVIDE ALL OPENINGS REQUIRED FOR THE PLUMBING WORK AND SHALL INSTALL FIRE RATED SLEEVES WHEREVER PENETRATIONS OF RATED WALLS OR FLOORS ARE MADE. THE PATCHING SHALL BE BY THE PLUMBING CONTRACTOR. THE PLUMBING CONTRACTOR SHALL REVIEW ALL UTILITY SITE PLANS AND ARCHITECTURAL SITE PLANS FOR WORK BY OTHERS.

LOCATION OF UTILITIES (WASTE AND WATER LINES, MANHOLES ETC.) THAT ARE TO BE CONNECTED TO ARE ASSUMED. IT SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO VERIFY THESE LOCATIONS AND MAKE THE FINAL CONNECTION AS REQUIRED.

ALL FLOOR DRAINS SHALL BE PROVIDED WITH TRAP PRIMERS

3 P1 PLUMBING NOTES
N.T.S.



4 P1 INSTANT WATER HEATER SINGLE LAV DETAIL
N.T.S.

SYMBOL	MANUFACTURER	MODEL #	FIXTURE DESCRIPTION	ACCESSORIES	SUPPLY	WASTE	VENT	REMARKS
P-1	AMERICAN STD.	0321.026	LAVATORY, WALL-TYPE	AMERICAN STANDARD, 2385.400 FAUCET	1/2" H.W./C.W.	2"	2"	
P-2	AMERICAN STD.	2998.012	WATER CLOSET (TANK), FLOOR-TYPE HANDICAPPED	CHURCH 380TL, TOILET SEAT	3/4" C.W.	3"	2"	
WH-1	STATE	UPVS-18K 100	1.75KW ELEC. TANKLESS WATER HEATER	3/4" T & P RELIEF VALVE	1/2" H.W./C.W.	–	–	SEE PLAN FOR LOCATION

May 07, 2025

NORTH CAROLINA PROFESSIONAL SEAL 20193 ENGINEER CHRISTOPHER S. LOCKLEAR

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License No: C-2059

REVISIONS	DATE	BY

DATE: 11/10/2023
DRAWN BY: SLL
SCALE: AS NOTED
APPROVED BY:

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

PROJECT NAME: EZ STORAGE
PROJECT ADDRESS: LILLINGTON, NORTH CAROLINA
OWNER: EZ SELF STORAGE, LLC.
PROJECT NO.: 2024-170
SHEET TITLE:
DRAWING NUMBER: