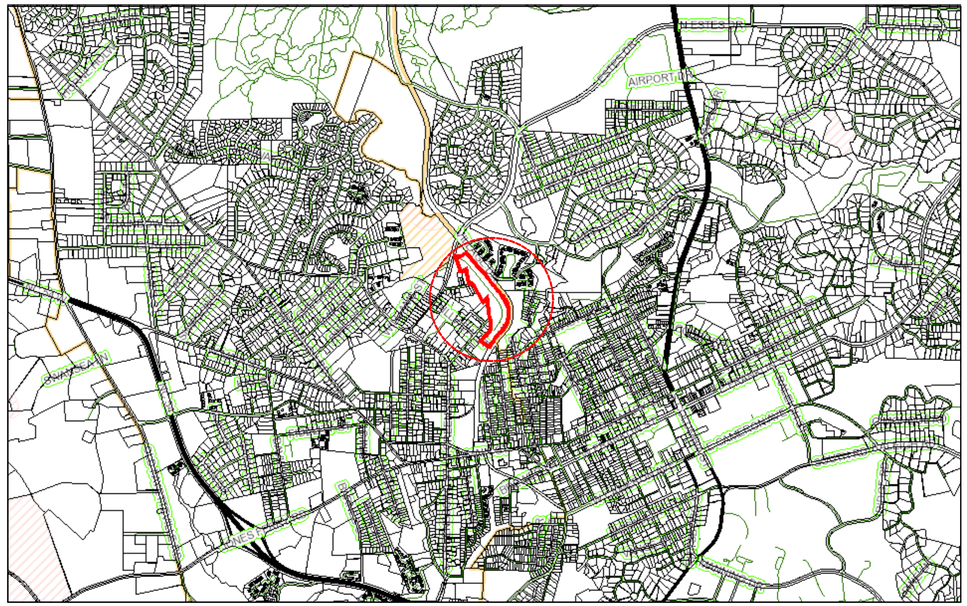
ESTES PARK MAINTENANCE WORKSHOP

ESTES PARK APARTMENTS

CARRBORO SUBMITTAL

APRIL 28, 2022

DRAWING INDEX



VICINITY MAP

PROPERTY INFORMATION

PARCEL IDENTIFICATION:	9778996233
PARCEL ADDRESS:	306 Estes Drive Extension Carrboro, North Carolina 27510
OWNER:	North Estes LLC c/o General Services Corporation 2922 Hathaway Road Richmond, Virginia 23225
OWNERSHIP TYPE:	Multi-family Residential
DEED INFORMATION:	Book 5342, Page 507

ARCHITECT

JON PAUL YOUNG, II, AIA

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PME ENGINEER

TO BE DESIGNED BY TRADE CONTRACTOR
AS DESIGN BUILD

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Firm License - P-1378

Estes Park

Maintenance Workshop

306 Estes Drive Extension
Apartment 11-H
Carrboro, North Carolina 27510

No.	Description	Date

Project number	2126402
Date	04/27/2022
Drawn by	JMC
Checked by	JMC
Scale	

Seal

COVER SHEET

C0.01

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APPENDIX B
2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT ONE AND TWO-FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project: Estes Park Maintenance Workshop
Address: 306 Estes Drive Extension, Carrboro, NC 27510 Zip Code 27705
Owner or Auth. Agent: James Michael Czar, PE Phone # (919) 241-8745 Email jczar@sarmiran.com
Owned By: ☐ City/County ☒ Private ☐ State
Code Enforcement Jurisdiction: ☒ City Carrboro ☐ County ☐ State

CONTACT: James Czar

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	EMAIL
Architectural	DTW Architects and Planners	Paul Young	11388	(919) 317-4020	pyoung@dtwarch.com
Civil				(000) 000-0000	
Electrical				(000) 000-0000	
Fire Alarm				(000) 000-0000	
Plumbing				(000) 000-0000	
Mechanical				(000) 000-0000	
Spr.-Stand.				(000) 000-0000	
Structural	Sarmiran	James Czar	029015	(919) 241-8745	jczar@sarmiran.com
Ret. Walls >5' High				(000) 000-0000	
Other				(000) 000-0000	

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

2018 BUILDING CODE: ☒ New Building ☐ Shell/Core ☐ 1st Time Interior Completions ☐ Addition ☐ Phased Construction-Shell Core

2018 NC EXISTING BUILDING CODE: (check all that apply) ☐ Prescriptive ☐ Alteration - Lvl 1 ☐ Historic Property ☐ Repair ☐ Alteration - Lvl 2 ☐ Change of Use ☐ Chapter 14 ☐ Alteration - Lvl 3

CONSTRUCTED: (date)_____ CURRENT USE(S): (Ch. 3): _____
RENOVATED: (date)_____ PROPOSED USE(S): (Ch. 3): _____
OCCUPANCY CATEGORY (Table 1604.5): Current: _____ Proposed: II

BASIC BUILDING DATA

Construction Type: (check all that apply) ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A ☐ I-B ☐ II-B ☐ III-B ☒ V-B
Sprinklers: ☒ No ☐ Partial ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Primary Fire District: ☒ No ☐ Yes Flood Hazard Area: ☒ No ☐ Yes
Special Inspections Required: ☒ No ☐ Yes

GROSS BUILDING AREA TABLE

FLOOR	EXISTING (SQ FT)	RENOVATED (SQ FT)	NEW (SQ FT)	SUB-TOTAL
6th Floor				
5th Floor				
4th Floor				
3rd Floor				
2nd Floor				
Mezzanine				
1st Floor			1,350	
Basement				
TOTAL			1,350	

ALLOWABLE AREA

Primary Occupancy Classification (s):

Assembly	☐ A-1	☐ A-2	☐ A-3	☐ A-4	☐ A-5
Business	☒				
Educational	☐				
Factory	☐ F-1 Moderate	☐ F-2 Low			
Hazardous	☐ H-1 Detonate	☐ H-2 Deflagrate	☐ H-3 Combust	☐ H-4 Health	☐ H-5 HPM
Institutional	☐ I-1	☐ I-2	☐ I-3	☐ I-4	
I-3 Condition	☐ 1	☐ 2			
I-2 Condition	☐ 1	☐ 2			
I-3 Condition	☐ 1	☐ 2	☐ H-3 Combust	☐ H-4 Health	☐ H-5 HPM
Mercantile	☐				
Residential	☐ R-1	☐ R-2	☐ R-3	☐ R-4	
Storage	☐ S-1 Moderate	☐ S-2 Low	☐ High-piled	☐ Parking Garage	
	☐ Open	☐ Enclosed	☐ Repair Garage		
Utility and Misc.	☐				

Accessory Occupancies Classification(s): _____
Incidental Uses (Table 509): _____
This separation is not exempt as a Non-separated Use (see exceptions).
Special Uses (Chapter 4 - List Code Sections): _____
Special Provisions (Chapter 5 - List Code Sections): _____
Mix Occupancy: ☒ No ☐ Yes Separation: _____ Hr. Exception: _____

☐ Non-separated Use (508.3)

☐ Separated Use (508.4)--See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

$$\_\_\_\_ + \_\_\_\_ \leq 1.00$$

NOT APPLICABLE

STORY NO.	DESCRIPTION AND USE	(A) BLDG. AREA PER STORY (ACTUAL)	TABLE 506.2 ALLOWABLE AREA [1, 2, 4]	(C) AREA FOR FRONTAGE INCREASE [1, 5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED [2, 3]

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)
2. Unlimited area applicable under conditions of Sections 507.
3. Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
4. The maximum area of open parking garages must comply with Table 406.5.4. 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)	40'	17'-10"	
Building Height in Stories (Table 504.4)	2[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							
Bearing walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior							
North							
East							
West							
South							
Interior walls and partitions							
Floor construction Including supporting beams and joists							
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof construction Including supporting beams and joists							
Roof Ceiling Assembly							
Columns Supporting Roof							
Shafts Enclosures - Exit							
Shafts Enclosures - Other							
Corridor Separation							
Occupancy/Fire Barrier Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/ Sleeping Unit Separation							
Incidental Use Separation							

*Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

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

LIFE SAFETY SYSTEM REQUIREMENTS

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

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: A1.01

- ☐ 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 occupancy load calculations (Table 1004.1.2)
- ☒ Occupant loads for each area
- ☒ Exit access travel distances (1017)
- ☐ Common path of travel distances [Table 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

NOT APPLICABLE

ACCESSIBLE PARKING (SECTION 1106)

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

SEE SITE PLAN

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE		WATER CLOSETS Male	WATER CLOSETS Female	WATER CLOSETS Unisex	URINALS	LAVATORIES Male	LAVATORIES Female	LAVATORIES Unisex	SHOWERS /TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE	EXISTING										
	NEW			1				1			
	REQUIRED			1				1			

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, ICC, 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 versus the annual energy cost for the proposed design.

Existing building envelope complies with code: ☐ (If checked, the remainder of this section is not applicable.)
Exempt Building: ☐ Provide code or statutory reference: _____
Climate Zone: ☐ 3A ☒ 4A ☐ 5A
Method of Compliance:
Energy Code: ☐ Performance ☒ Prescriptive
ASHRAE 90.1: ☐ Performance ☐ Prescriptive
Other: ☐ Performance (specify source) _____

THERMAL ENVELOPE: (Prescriptive method only)

Roof/Ceiling Assembly (each assembly)
Description of assembly: Wood trusses, fiber cement panels, R-42 batt insulation
U-Value of total assembly: .023
R-Value of insulation: R-42
Skylights in each assembly: None
U-Value of skylight: _____
Total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly: 4" face brick, air space, 2" rigid insulation, sheathing, 2x4 wood studs, R-15 batt insulation, 1/2" gypsum
U-Value of total assembly: .060
R-Value of insulation: R-15 plus R-10 continuous
Openings (windows or doors with glazing): _____
U-Value of assembly: .32
Solar heat gain coefficient: .25
Projection factor: PF < .25
Door R-Values: .50

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: 5" concrete slab, vapor barrier, crushed stone
U-Value of total assembly: "F" Factor - 0.520
R-Value of insulation: R-15
Horizontal/vertical requirement: Vertical to top of footing
Slab heated: No

STRUCTURAL DESIGN

DESIGN LOADS:
Importance Factors: Wind (I_W) _____ Snow (I_S) _____ Seismic (I_E) _____
Live Loads: Roof _____ psf Mezzanine _____ psf Floor _____ psf
Ground Snow Load: _____ psf
Wind Load: Basic Wind Speed _____ mph (ASCE-7) Exposure Category _____

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5): ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S _____ %g S_1 _____ %g
Site Classification (ASCE 7): ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system: (check one)
☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Analysis Procedure: ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☐ No
Seismic base shear: Vx = _____ Vy = _____

LATERAL DESIGN CONTROL: ☐ Earthquake ☐ Wind

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

SEE STRUCTURAL DRAWINGS

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 _____

SEE MECHANICAL DRAWINGS

ELECTRICAL SUMMARY

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 the fixture
Total wattage per fixture
Total interior wattage specified vs. allowed
Total exterior wattage specified vs. allowed

Additional Prescriptive Compliance
- ☐ 506.2.1 More Efficient Mechanical Equipment
- ☐ 506.2.2 Reduced Lighting Power Density
- ☐ 506.2.3 Energy Recovery Ventilation Systems
- ☐ 506.2.4 Higher Efficiency Service Water Heating
- ☐ 506.2.5 On-site Supply of Renewable Energy
- ☐ 506.2.6 Automatic Daylighting Control Systems

SEE ELECTRICAL DRAWINGS

ABBREVIATIONS

@	at	LAM.	laminate
ALT.	alternate	LAV.	lavatory
ALUM.	aluminum	LTL.	lintel
APPR.	approximate	LT. WT.	light weight
BD.	board	MAG.	magnetic
BLDG.	building	MAS.	masonry
B.U.R.	built up roof	MAX.	maximum
C.J.	control joint	MECH.	mechanical
CLG.	ceiling	MIN.	minimum
CLR.	clear	M.O.	masonry opening
C.M.U.	concrete masonry unit	M.R.	moisture resistant
COL.	column	M.T.	metal threshold
CONC.	concrete	MTL. or MET.	metal
CONT.	continuous	N.I.C.	not in contract
CONTR.	contractor	N.T.S.	not to scale
C.T.	ceramic tile	O.C.	on center
DIM.	dimension	OPN'G.	opening
DN.	down	OPP.	opposite
DS.	downspout	PART'N.	partition
DWG.	drawing	PL.	plate
EA.	each	PLYW'D.	plywood
E.J.	expansion joint	PREFIN.	pre-finish
EL. or ELEV.	elevation	PT.	point
ELEC.	electrical	PWR.	power
EQ.	equal	R.A.G.	return air grill
E.W.C.	electric water cooler	R.D.	roof drain
EXIST.	existing	REF.	reference
EXP.	expansion	REINF.	reinforced
F.D.	floor drain	REQ'D.	required
FIN.	finish	RM.	room
FL.	floor	RW. L.	rainwater leader
F.O.B.	face of brick	SIM.	similar
F.O.C.	face of concrete	S. STL.	stainless steel
F.O.M.	face of masonry	STL.	steel
GA.	gauge	STRUCT.	structural
GALV.	galvanized	SUSP.	suspended
G.B.	grab bar	TH'LD.	threshold
GL.	glass	TYP.	typical
GYP.	gypsum	V.C.T.	vinyl composition tile
H.M.	hollow metal	V.I.F.	verify in field
HT.	height	V.W.C.	vinyl wall covering
INSUL.	insulation	WD.	wood
INV.	invert	W/	with
JT.	joint		

SYMBOLS AND NOTATIONS

NAME / AREA NAME / AREA NUMBER
DOOR TYPE OR NUMBER
DRAWING NUMBER / SHEET NUMBER
ELEVATION NUMBER & DIRECTION OF VIEW / SHEET NUMBER
SECTION NUMBER & DIRECTION OF VIEW / SHEET NUMBER
DETAIL NUMBER / SHEET NUMBER
COLUMN LINE NUMBER
EQUIPMENT TYPE OR NUMBER
CASEWORK TYPE OR NUMBER

CONCRETE MASONRY
BRICK
CONCRETE
PLYWOOD
FINISH WOOD
BATT INSULATION
RIGID INSULATION
PLASTER, GYP. BD.
EARTH

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Project number	2126402
Date	04/27/2022
Drawn by	JPY
Checked by	JPY
Scale	

Seal

2022-04-28

APPENDIX B

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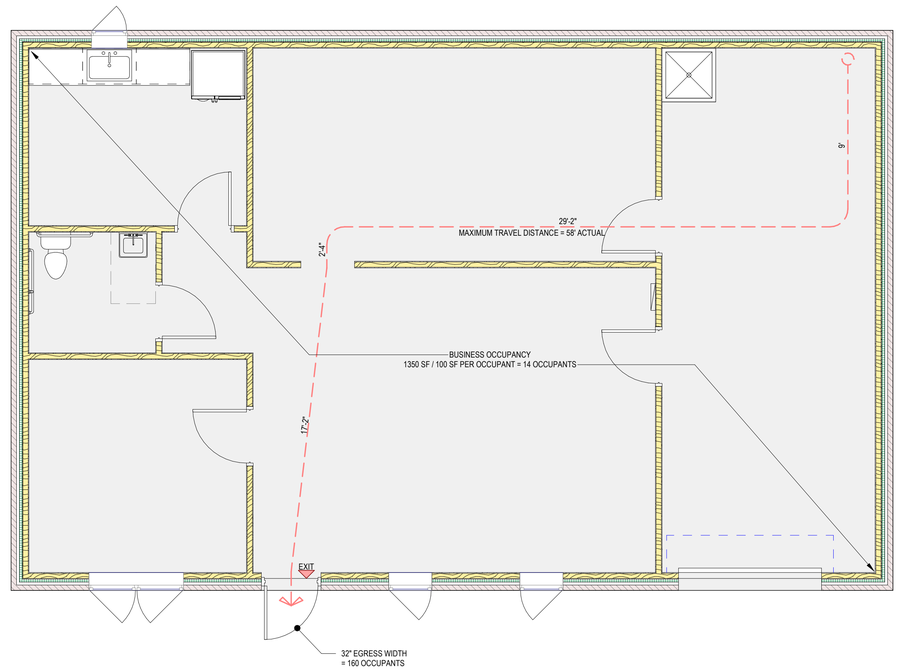

LIFE SAFETY PLAN

1/4" = 1'-0"

NOTES

1. PER NCSBC TABLE 1006.3.2(2) THE BUILDING IS PERMITTED TO HAVE ONE EXIT.
2. PER NCSBC TABLE 1006.3.2(2) THE MAXIMUM ALLOWED COMMON PATH OF EGRESS IS 75 FEET.

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Drawn by	JMC
Checked by	JPY
Scale	1/4" = 1'-0"

Seal

2022-04-28

LIFE SAFETY PLAN

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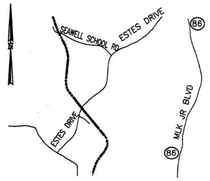
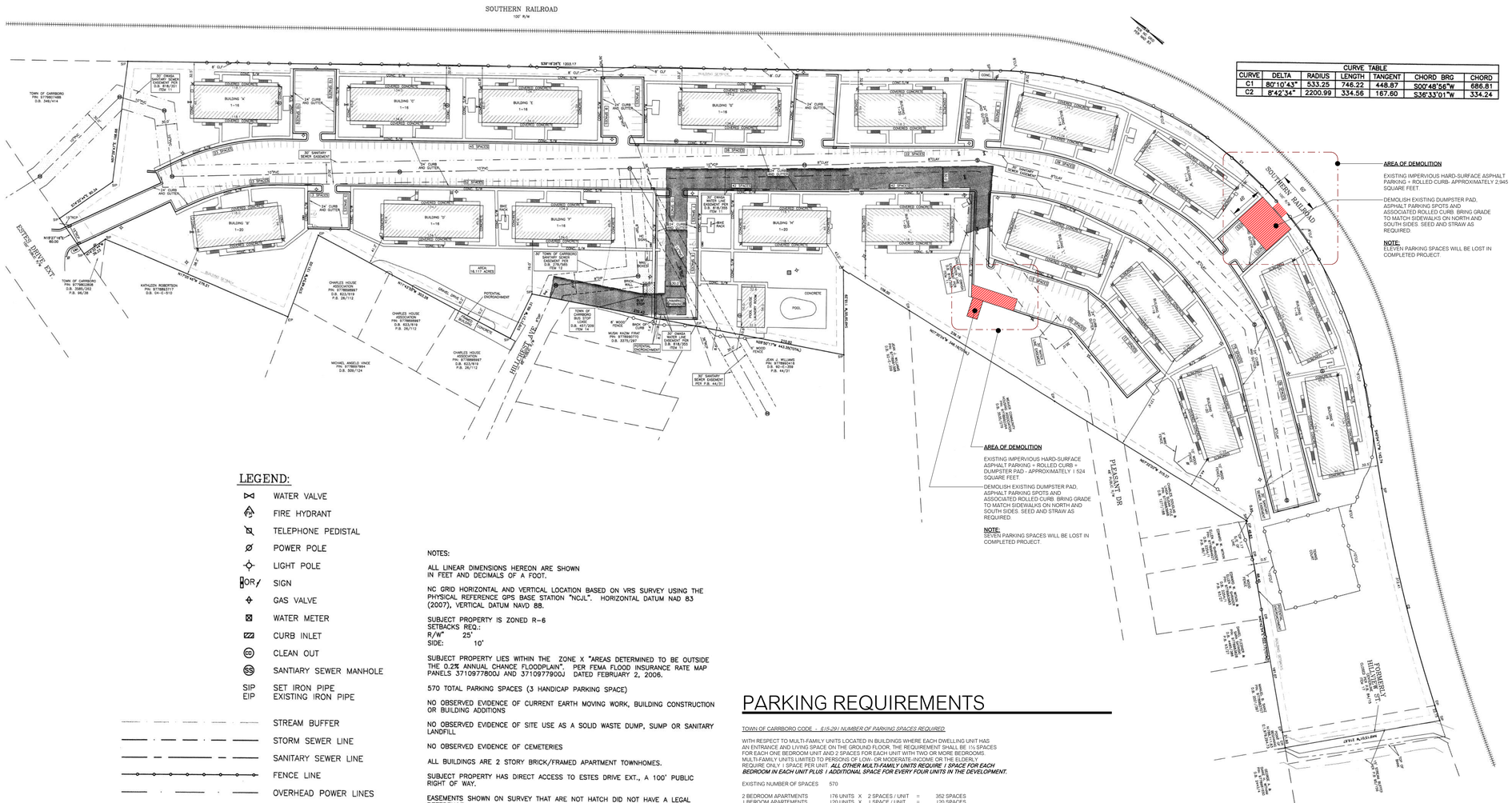


VICINITY MAP



CURVE TABLE						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD BRG	CHORD
C1	80°10'43"	533.25	746.22	448.87	S00°48'56"W	686.81
C2	8°42'34"	2200.99	334.56	167.60	S36°33'01"W	334.24

LEGEND:

- WATER VALVE
- FIRE HYDRANT
- TELEPHONE PEDISTAL
- POWER POLE
- LIGHT POLE
- SIGN
- GAS VALVE
- WATER METER
- CURB INLET
- CLEAN OUT
- SANTIARY SEWER MANHOLE
- SIP SET IRON PIPE
- EIP EXISTING IRON PIPE
- STREAM BUFFER
- STORM SEWER LINE
- SANITARY SEWER LINE
- FENCE LINE
- OVERHEAD POWER LINES
- BUILDING SETBACKS
- SANITARY SEWER EASEMENT
- TOP OF BANK

NOTES:

ALL LINEAR DIMENSIONS HEREON ARE SHOWN IN FEET AND DECIMALS OF A FOOT.

NC GRID HORIZONTAL AND VERTICAL LOCATION BASED ON VRS SURVEY USING THE PHYSICAL REFERENCE GPS BASE STATION "NCJL". HORIZONTAL DATUM NAD 83 (2007), VERTICAL DATUM NAVD 88.

SUBJECT PROPERTY IS ZONED R-6
SETBACKS REQ.:
R/W" 25'
SIDE: 10'

SUBJECT PROPERTY LIES WITHIN THE ZONE X "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN". PER FEMA FLOOD INSURANCE RATE MAP PANELS 3710977800J AND 3710977900J DATED FEBRUARY 2, 2006.

570 TOTAL PARKING SPACES (3 HANDICAP PARKING SPACE)

NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS

NO OBSERVED EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL

NO OBSERVED EVIDENCE OF CEMETERIES

ALL BUILDINGS ARE 2 STORY BRICK/FRAMED APARTMENT TOWNHOMES.

SUBJECT PROPERTY HAS DIRECT ACCESS TO ESTES DRIVE EXT., A 100' PUBLIC RIGHT OF WAY.

EASEMENTS SHOWN ON SURVEY THAT ARE NOT HATCH DID NOT HAVE A LEGAL REFERENCE.

THE PROPERTY SHOWN ON THE SURVEY IS THE SAME AS THE PROPERTY DESCRIBED IN THE TITLE INSURANCE COMMITMENT ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY DATED DECEMBER 15, 2011 FILE NO. 11-1613.

A SANITARY SEWER EASEMENT SHOWN ON P.B. 44/31 IS SHOWN ON THE SURVEY.

PARKING REQUIREMENTS

TOWN OF CARRBORO CODE - *§15-29 / NUMBER OF PARKING SPACES REQUIRED*

WITH RESPECT TO MULTI-FAMILY UNITS LOCATED IN BUILDINGS WHERE EACH DWELLING UNIT HAS AN ENTRANCE AND LIVING SPACE ON THE GROUND FLOOR, THE REQUIREMENT SHALL BE 1½ SPACES FOR EACH ONE BEDROOM UNIT AND 2 SPACES FOR EACH UNIT WITH TWO OR MORE BEDROOMS. MULTI-FAMILY UNITS LIMITED TO PERSONS OF LOW- OR MODERATE-INCOME OR THE ELDERLY REQUIRE ONLY 1 SPACE PER UNIT. ***ALL OTHER MULTI-FAMILY UNITS REQUIRE 1 SPACE FOR EACH BEDROOM IN EACH UNIT PLUS 1 ADDITIONAL SPACE FOR EVERY FOUR UNITS IN THE DEVELOPMENT.***

EXISTING NUMBER OF SPACES	570				
2 BEDROOM APARTMENTS	176 UNITS	X	2 SPACES / UNIT	=	352 SPACES
1 BEDROOM APARTEMENTS	120 UNITS	X	1 SPACE / UNIT	=	120 SPACES
TOTAL UNITS	296 UNITS	X	1 SPACE / 4 UNITS	=	74 SPACES
TOTAL REQUIRED SPACES					**546 SPACES**

EXISTING SURPLUS OF SPACES = 570 SPACES - 546 SPACES = 24 SPACES
SPACES TO BE LOST WITH PROPOSED IMPROVEMENT = 18 SPACES
PROPOSED SURPLUS OF SPACES = 6 SPACES

SITE PLAN - DEMOLITION

1" = 80'-0"
NOTES:

1. SURVEY DRAWINGS PREPARED BY TRIANGLE SURVEYORS, INCORPORATED ON A SURVEY PREPARED FEBRUARY 15, 2012. ALL RIGHTS RETAINED BY SURVEY AUTHOR.
2. DEMOLISH ASPHALT AND ROLLED CURB TO ALLOW INSTALLATION OF WORKSHOP STRUCTURE.
3. IF CONSTRUCTION IS DELAYED FROM DEMOLITION, SEED WITH TURF TO MATCH ADJACENT AND PROTECT WITH STRAW UNTIL TURF IS ESTABLISHED.
4. NO CANOPY TREES WILL BE DEMOLISHED IN THIS PROJECT. VOLUNTEER TREES WITH CALIPER LESS THAN 4" MAY BE REMOVED FOR WORKSHOP ADDITION.
5. CHANGE IN IMPERVIOUS SURFACE
   - IMPERVIOUS SURFACE DEMOLISHED =4469 SF
   - PERVIOUS SURFACE INSTALLED AT COMPLETION = 1550 SF + =745 SF + =410 SF = =2705 SF
   - NET REDUCTION IN IMPERVIOUS SURFACE = 1764 SF

0' 40' 80' 160' 320'

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Estes Park

Maintenance Workshop

306 Estes Drive Extension
Apartment 11-H
Carrboro, North Carolina 27510

No.	Description	Date

Project number	2126402
Date	04/27/2022
Drawn by	JMC
Checked by	DEC
Scale	1" = 80'-0"

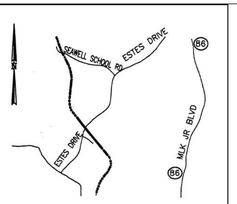
Seal

NORTH CAROLINA PROFESSIONAL 029015 ENGINEER JAMES MICHAEL CEAR

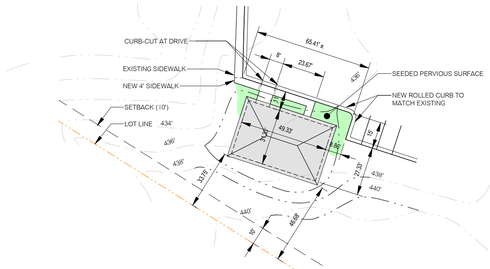
2022-04-28

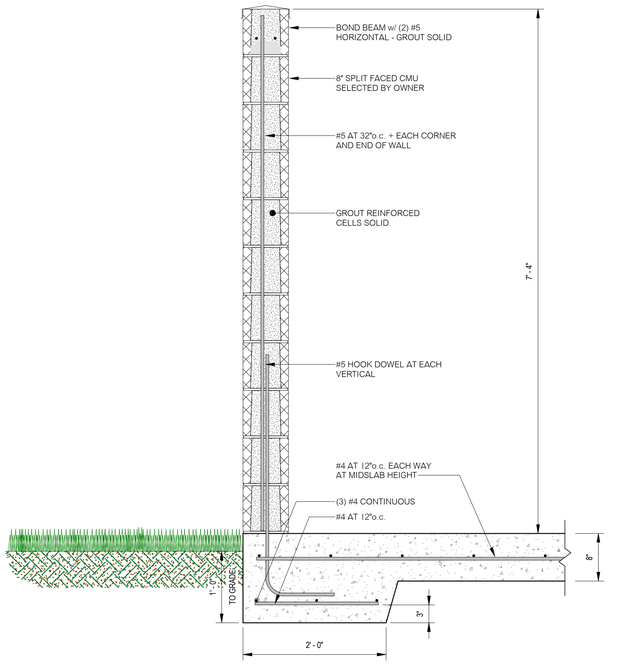
SITE PLAN - DEMOLITION

C1.01

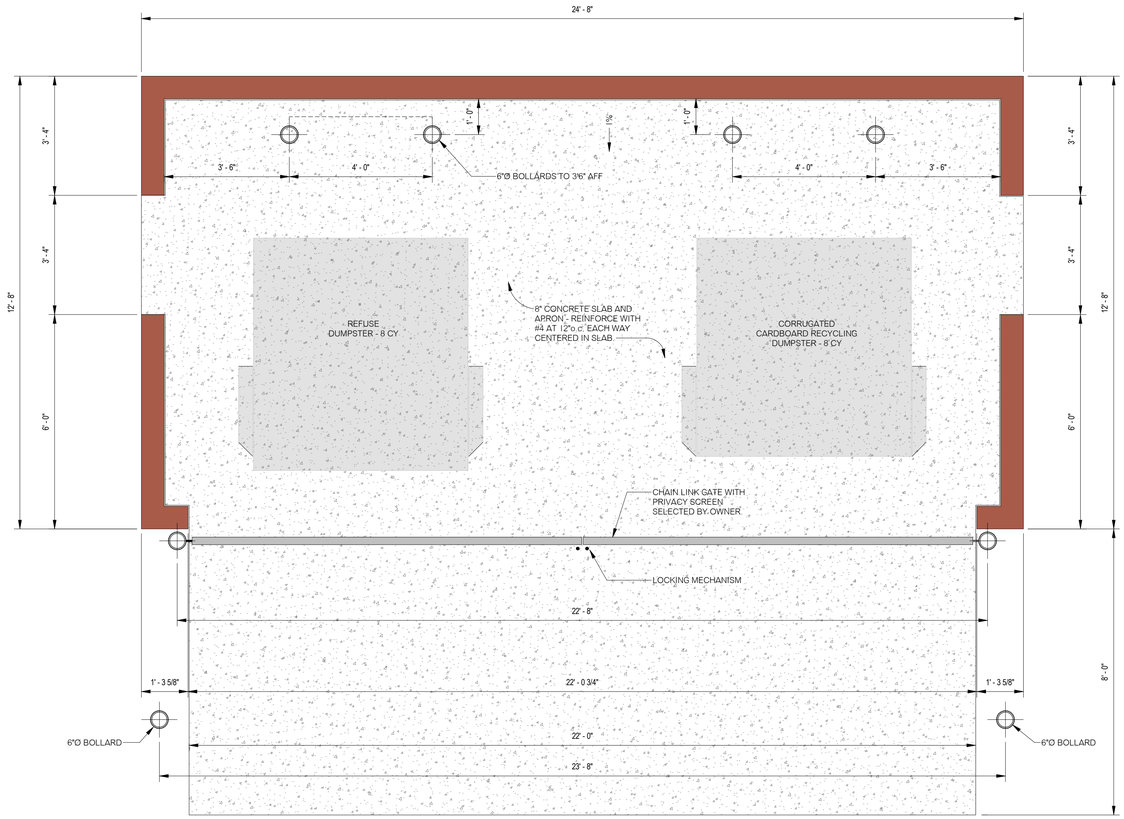


VICINITY MAP





1 DUMPSTER ENCLOSURE - WALL
C1.03 1" = 1'-0"



NOTES:

1. ALL CONCRETE TO BE MINIMUM OF 4500 PSI CYLINDER BREAK AT 28 DAYS AND MAXIMUM W/C RATION OF 0.45.
2. OWNER SHALL SELECT SPLIT FACED PATTERN.
3. OWNER TO SELECT OPAQUE DOOR SCREENING.
4. MINIMUM SOIL BEARING CAPACITY TO BE 1500 PSF.
5. CONTINUE TURNDOWN TO A MINIMUM OF 12" BELOW ADJACENT GRADE.

A DUMPSTER ENCLOSURE
C1.03 1/2" = 1'-0"

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Scale	As indicated

Seal

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029015 JAMES MICHAEL CZAR

2022-04-28

DUMPSTER ENCLOSURE

C1.03

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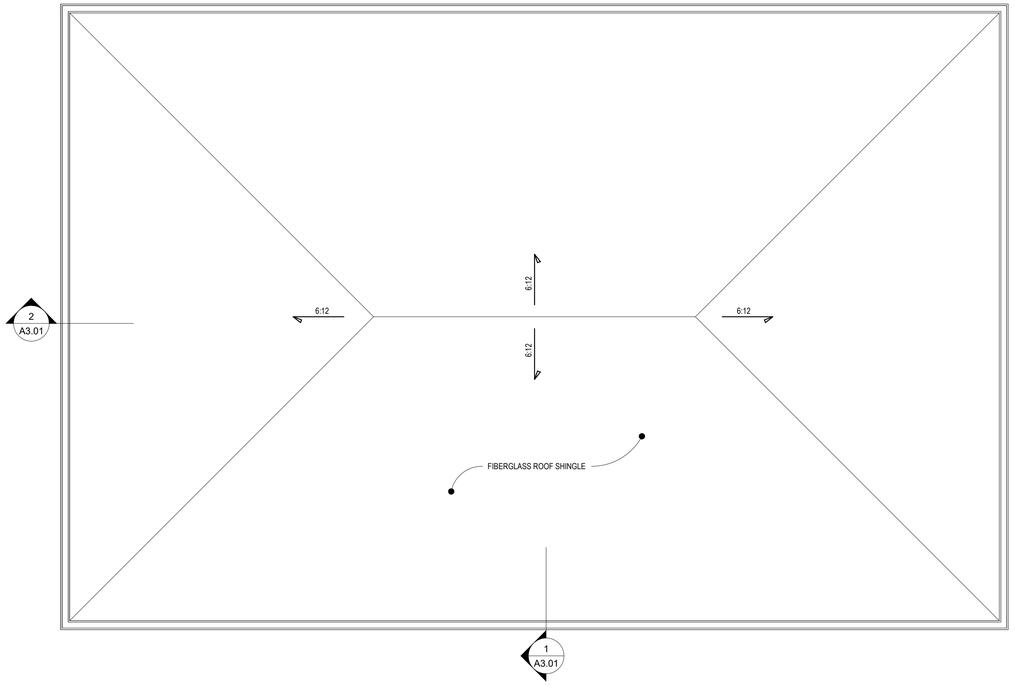
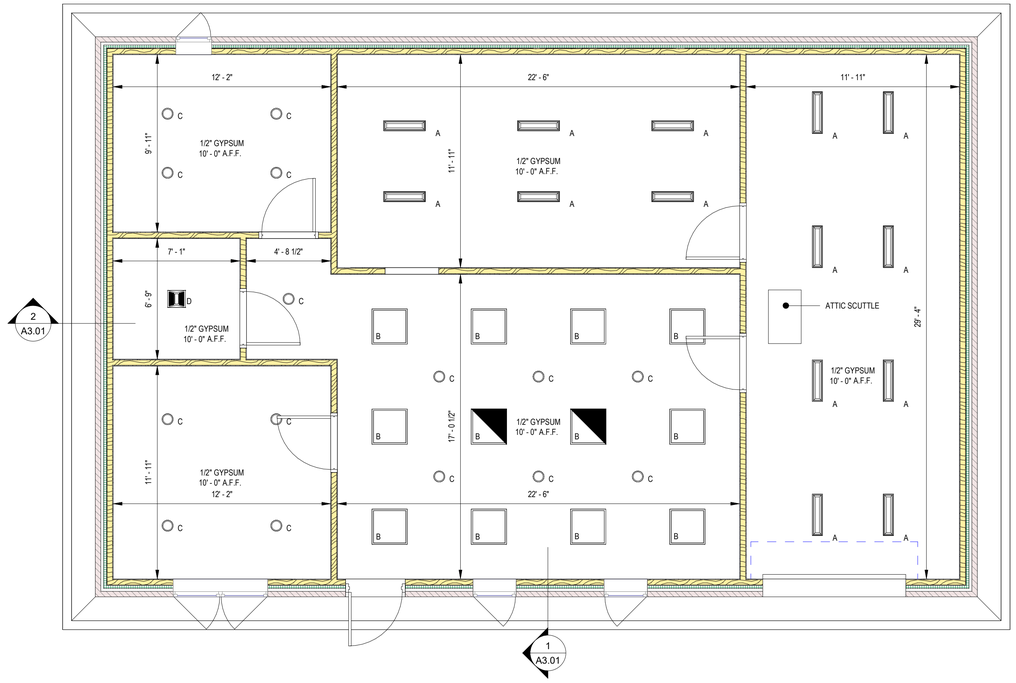


C ROOF PLAN
A1.01 1/4" = 1'-0"



B REFLECTED CEILING PLAN
A1.01 1/4" = 1'-0"

Lighting Fixture Schedule

Type Mark	Manufacturer	Type	Wattage	Temperature
A	Columbia Lighting	LXEM2-35LW-RFP-EDU	21 W	3500 K
B	Acuity Brands Lighting	CPANL 2x2 24/33/44LM 35K - 24LM	19 W	3500 K
C	Acuity Brands Lighting	LDN6 35/25 LW6AR LS	17 W	3500 K
D	Broan-NuTone	AE50110DCL	5 W	3500 K

Notes:
1. Lighting shown is basis of design. Electrical Contractor may propose alternatives subject to review using following criteria.
   A. All areas to be illuminated to 40 ± 2 foot candles except workshop. Illumination intensity measured at 2.5' AFF.
   B. Workshop to be illuminated to 50 ± 2 foot candles. Illumination intensity measured at 2.5' AFF.
   C. Workshop to contain main illumination flat panel LEDs and recessed can lights for night time illumination.
   D. Workshop nigh time illumination shall be 10 ± 2 foot candles. Illumination intensity measured at 2.5' AFF.
   E. Switch workshop flat panel and recessed lighting separately.
   F. Provide battery backup on a minimum of two central flat panel fixtures in workshop.
2. All lighting fixtures are to be dimmable, switchable LED.

Window Schedule

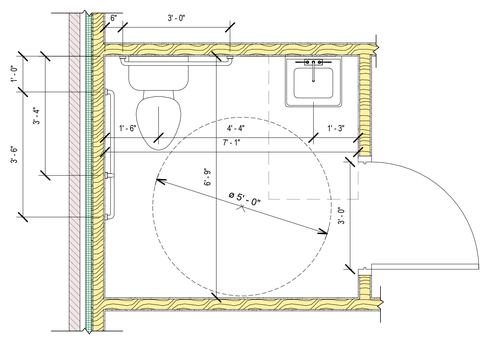
Type Mark	Sill Height	Width	Height	Comments
01	4' - 0"	2' - 0"	4' - 0"	Owner Select
02	2' - 8"	5' - 3 1/2"	4' - 8"	Owner Select
03	2' - 8"	2' - 5"	4' - 8"	Owner Select
04	2' - 8"	2' - 5"	4' - 8"	Owner Select

Door Schedule

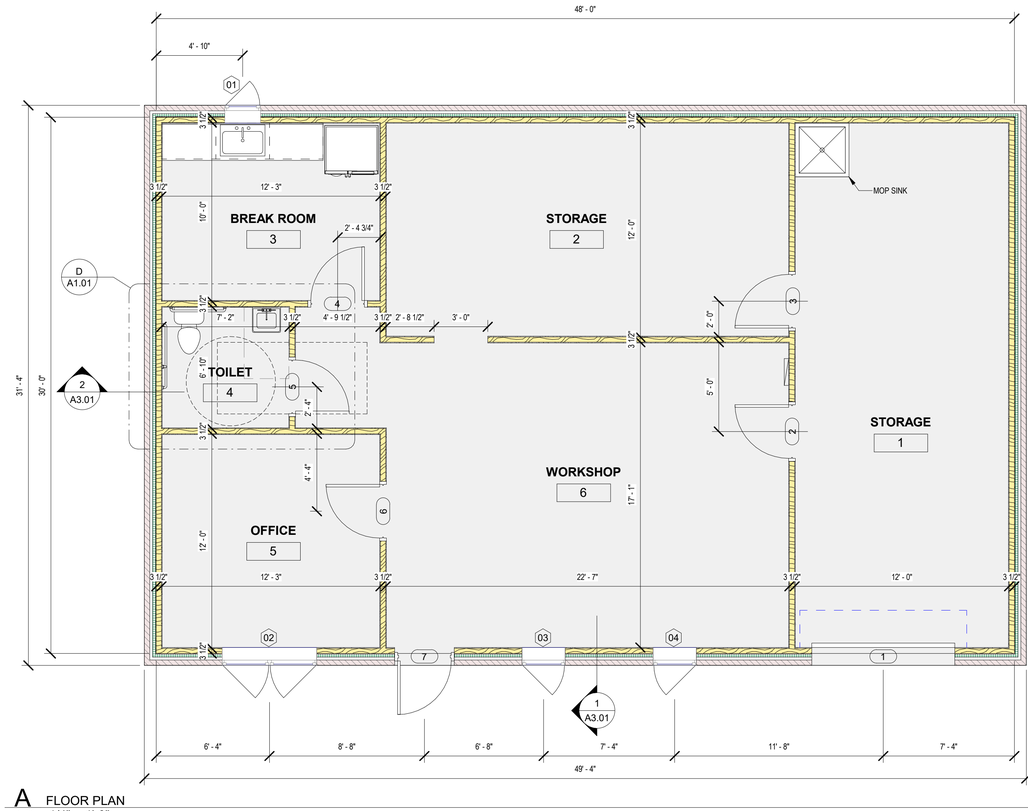
Mark	Height	Width	Description
1	7' - 0"	8' - 0"	
2	7' - 0"	3' - 0"	
3	7' - 0"	3' - 0"	
4	7' - 0"	3' - 0"	
5	7' - 0"	3' - 0"	
6	7' - 0"	3' - 0"	
7	7' - 0"	3' - 0"	

Room Schedule

Number	Area	Floor Finish	Wall Finish	Ceiling Finish
1	349.6 SF	Sealed Concrete	Paint	Paint
2	268.7 SF	Sealed Concrete	Paint	Paint
3	120.7 SF	VCT	Paint	Paint
4	47.8 SF	VCT	Paint	Paint
5	145.0 SF	Carpet	Paint	Paint
6	417.6 SF	Sealed Concrete	Paint	Paint
	1349.3 SF			



D TOILET BLOWUP
A1.01 1/2" = 1'-0"



A FLOOR PLAN
A1.01 1/4" = 1'-0"

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DTW
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3333 Durham-Chapel Hill Blvd
Suite D-100
Durham, NC 27707
919.317.4020

No.	Description	Date

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Seal

2022-04-28

ARCHITECTURAL PLANS

A1.01

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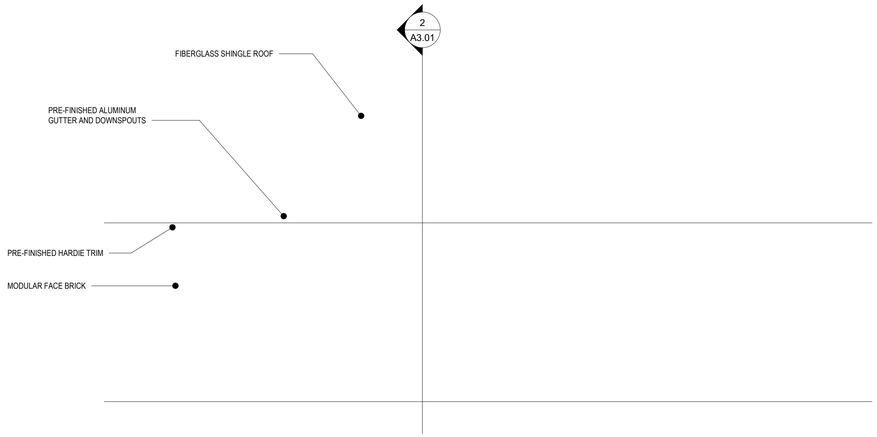
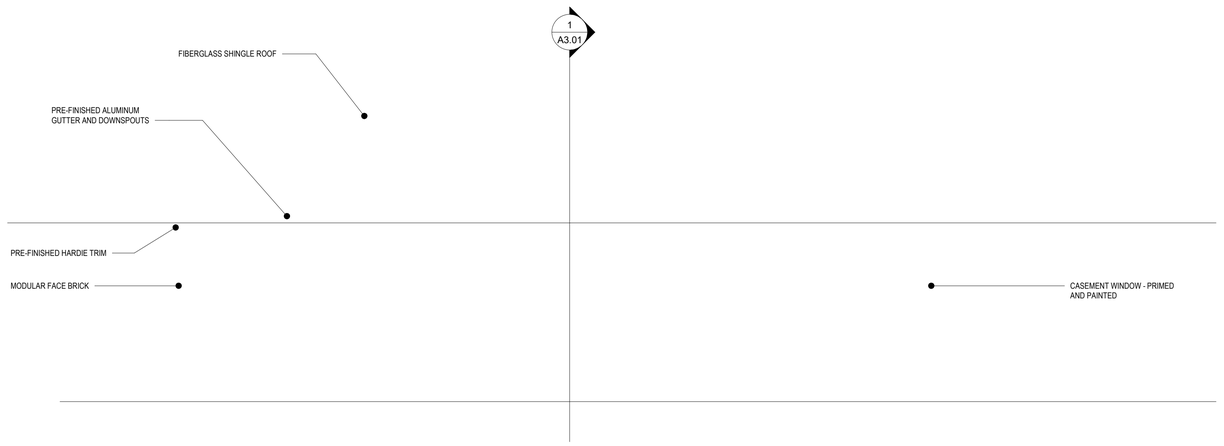
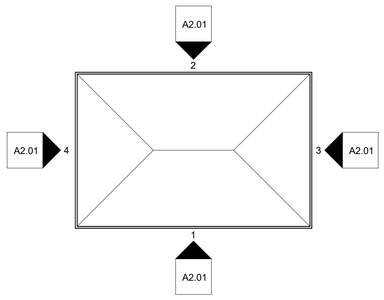
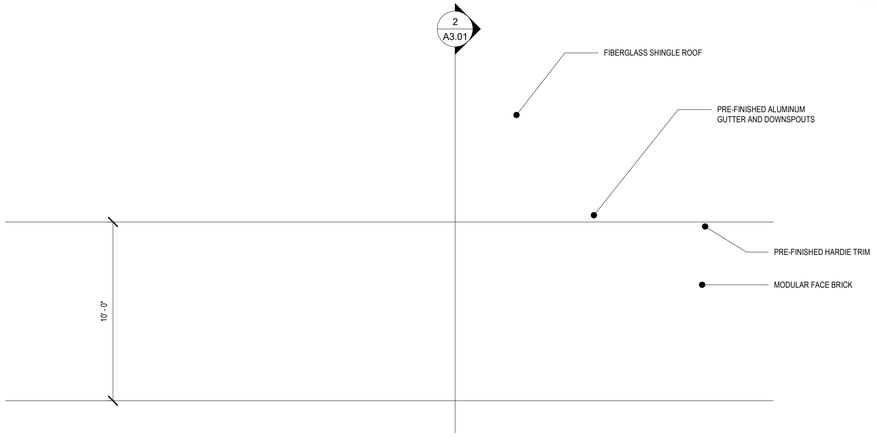


4 LEFT ELEVATION
A2.01 1/4" = 1'-0"

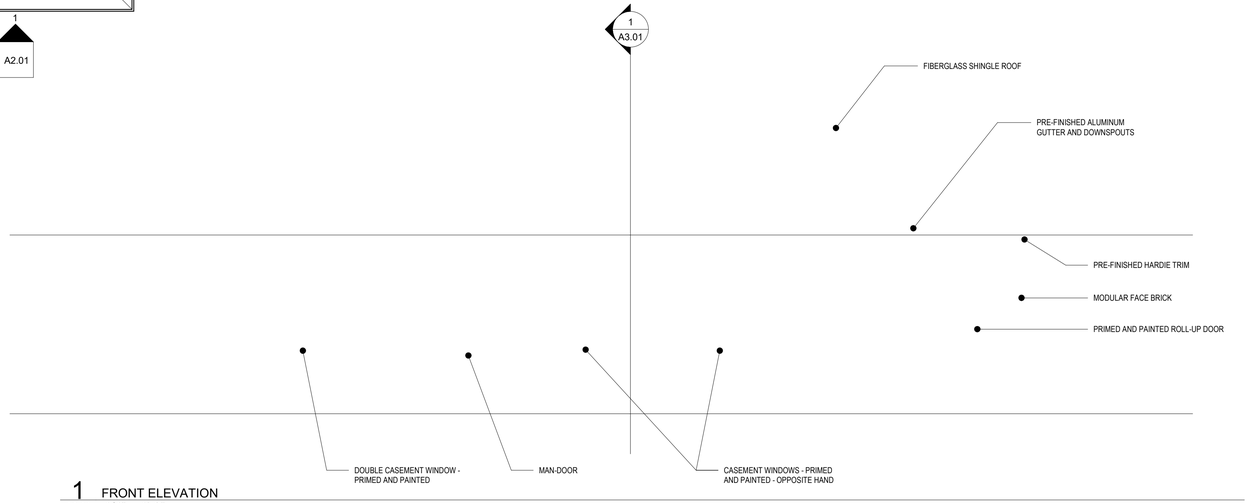


2 REAR ELEVATION
A2.01 1/4" = 1'-0"





3 RIGHT ELEVATION
A2.01 1/4" = 1'-0"



1 FRONT ELEVATION
A2.01 1/4" = 1'-0"

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BUILDING ELEVATIONS

A2.01

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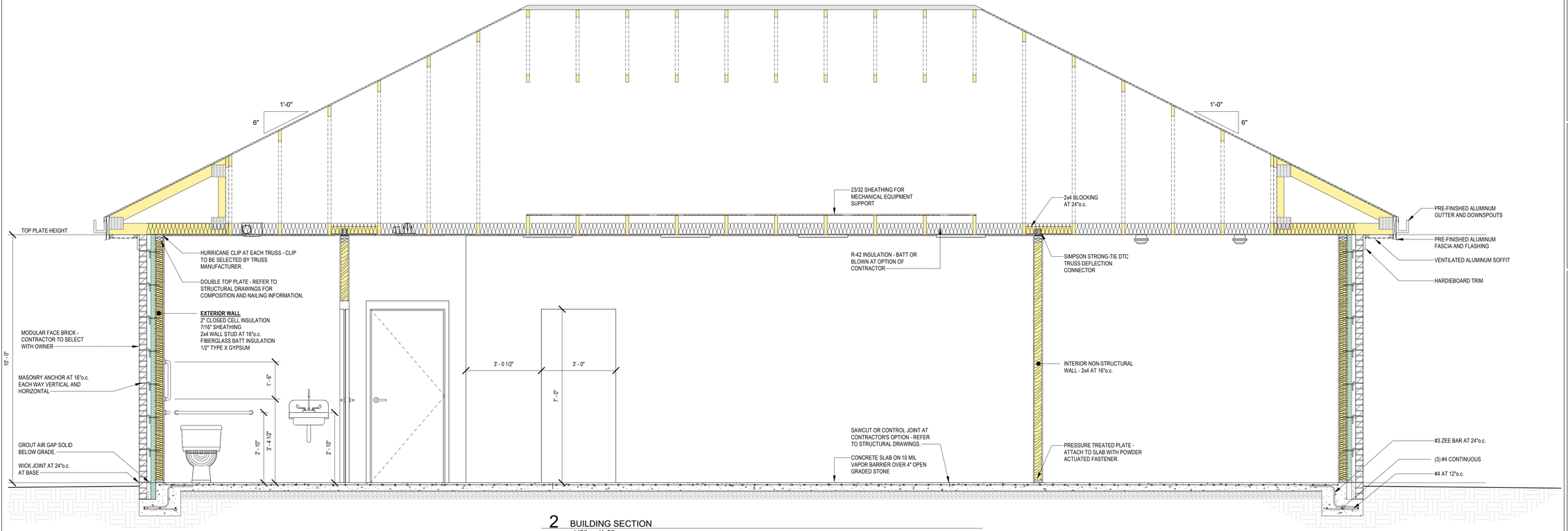
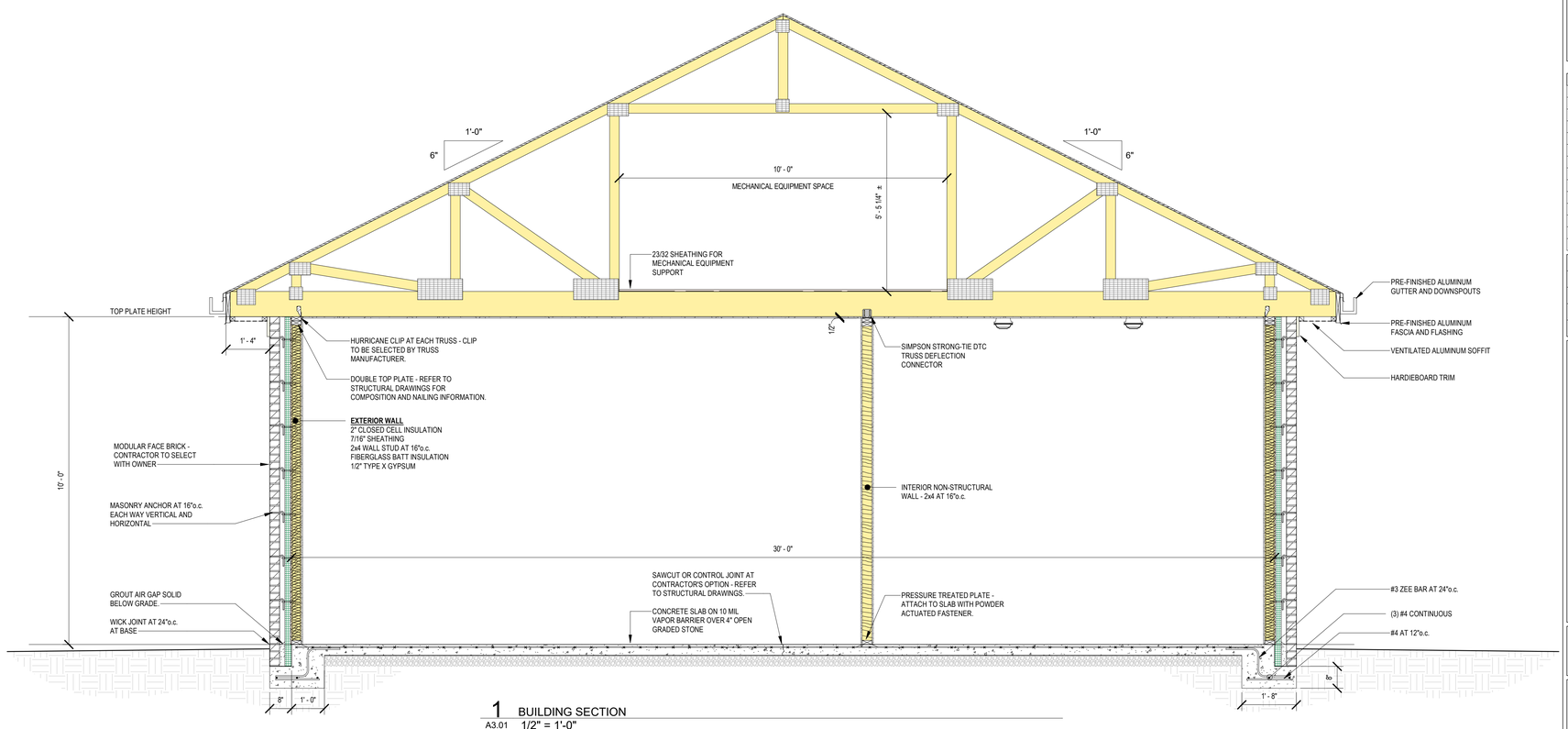


2 BUILDING SECTION
A3.01 1/2" = 1'-0"



1 BUILDING SECTION
A3.01 1/2" = 1'-0"

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Scale	1/2" = 1'-0"

Seal

2022-04-28

BUILDING SECTIONS

A3.01

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Design Criteria

Jurisdictional Code	North Carolina State Building Code—2018
Concrete Design Code	ACI 318-14, Building Code & Commentary
Concrete Design Method	Equivalent Rectangular Stress Block
Masonry Design Code	ACI 530 & ACI 530.1
Masonry Design Method	Allowable Stress Design
Steel Design Code	AISC Steel Construction Manual, 13th Edition
Steel Design Method	Elastic Analysis, Plastic Design

Live Loads

	Uniform Load	Concentrated Load
Residential Occupancy		
Dwelling Units	40 psf	
Roof Occupancy	Uniform Load	Concentrated Load
All Surfaces Subject to Workers		300
Awnings & Canopies (Fabric)	5 psf	
Awnings & Canopies (Non-Fabric)	20 psf	
Ordinary Flat, Pitched, or Curved Roof	20 psf	Note 1
Primary Member Over General Occupancy		300
Special Occupancies		
Stairs & Exit Ways	100 psf	Note 3, 300
Stair Handrails	50 plf	200
Sidewalks (Pedestrian Only)	100 psf	
Yards & Terraces (Pedestrian Only)	100 psf	
Yards & Terraces (Vehicle Accessible)	250 psf	Note 2, 8000

Notes
1. Where uniform roof live loads are reduced to less than 20 lb/ft^2 in accordance with Section 4.8.2 and are applied to the design of structural members arranged so as to create continuity, the reduced roof live load will be applied to adjacent spans or to alternate spans, whichever produces the greatest unfavorable load effect.
2. The concentrated wheel load will be applied on an area of 4.5 in. by 4.5 in. (114 mm by 114 mm).
3. Minimum concentrated load on stair treads (on area of 2 in. by 2 in. [50 mm by 50 mm]) is to be applied nonconcurrent with the uniform load.

Theoretical Dead Loads

1. Roof Construction	Asphalt Shingles	2 psf
General Areas	Felt or Membrane	1 psf
	Sheathing, 19/32"	2 psf
	Truss Framing	3 psf
	6" Batt Insulation	1 psf
	1/2" Gypsum Ceiling	5 psf
		14 psf

Roof Snow Loads

Ground Snow Load, P_g	15 psf
Terrain Category	B
Flat Roof Snow Load, P_f	15 psf
Snow Exposure Category, C_e	1.0
Snow Load Importance Factor, I	1.0
Thermal Factor, C_t	1.0
Rain on Snow Load	Not Required

Wind Design Data

Basic Wind Speed	115 mph
Wind Importance Factor, I	1.0
Occupancy Category	II
Wind Exposure	B
Internal Pressure Coefficient	±0.18
Wind Base Shear, X	10.8 Kips
Wind Base Shear, Y	15.2 Kips
Components and Cladding	30 PSF

Earthquake Design Data

Seismic Importance Factor, I	1.0
Occupancy Category	II
Mapped Spectral Response Acceleration, S_S	15.0% g
Mapped Spectral Response Acceleration, S_1	7.5% g
Site Class	D
Spectral Response Coefficient, S_{DS}	16.0% g
Spectral Response Coefficient, S_{D1}	12.0% g
Seismic Design Category	B
Basic Seismic Force Resisting System, X	Light Framed Shear Walls
Basic Seismic Force Resisting System, Y	Light Framed Shear Walls
Design Base Shear, X	1.0 Kips
Design Base Shear, Y	1.0 Kips
Seismic Response Coefficient, C_S, X	0.025
Seismic Response Coefficient, C_S, Y	0.025
Response Modification Factor, R, X	6 1/2
Response Modification Factor, R, Y	6 1/2
Overstrength Factor, Ω_o, X	3
Overstrength Factor, Ω_o, Y	3
Deflection Amplification Factor, C_d, X	4
Deflection Amplification Factor, C_d, Y	4
Redundancy Factor, ρ, X	1.0
Redundancy Factor, ρ, Y	1.0
Analysis Procedure Used	Equivalent Lateral Force

Use of Drawings

1. The drawings that follow these general notes were prepared solely for the project under contract. These drawings may not be used for any other project in any form.
2. These drawings are instruments of service between the Owner and the Structural Engineer of Record. The ownership of the drawings remains with the author of the drawings.
3. The project Owner is granted limited use of the drawings during construction. The Owner may reproduce the drawings as required to disseminate information to the Contractor.
4. Details are not cut at every location. Where similar conditions exist, similar details will be employed by the Contractor.
5. These drawings have been electronically signed and sealed. It is the belief of the Engineer of Record that the electronic signature is in keeping with the laws of the State of North Carolina. If signed and sealed, hardcopies are preferred by the Jurisdictional Authority, please contact the Engineer of Record.

General Notes

1. The structural drawings are to be used in conjunction with architectural, civil, mechanical and electrical drawings.
2. The contractor will coordinate between all trades. Conflicts between the structural drawings and the drawings of others will be brought to the attention of the architect and the structural engineer in a timely fashion that permits clarifications without effecting the construction schedule.
3. These drawings along with any specifications issued constitute the contract design documents for this project. Any discrepancy between the two will be brought to the attention of the architect or structural engineer for clarification. For estimating purposes the contractor will assume the more costly alternative. No materials may be ordered, and no work may proceed until the discrepancy is resolved by the design professional.
4. Alternates or substitutions to structural materials or design are at the sole discretion of the licensed structural engineer of record. Any modification must be approved in the manner set forth in the project manual.
5. All standards referenced within these documents are to be the editions referenced in Chapter Thirty-five of the North Carolina State Building Code.
6. Structural members, including beams, columns, joists, trusses, walls, slabs and bracing elements, are designed for the final design loads given on this sheet. The contractor is responsible for all temporary shoring and bracing. Shoring is to be designed to preclude the overstressing any structural element (as required at any stage of construction) until completion of this project.
7. The contractor is solely responsible for on-site safety. At a minimum, the contractor is to research and implement all safety regulations in force in the jurisdiction of this project. Prior to the commencement of work, the contractor will bring to the attention of the structural engineer any structural detail that would produce an unusually unsafe condition.
8. Details shown on these drawings are provided to add clarity to the plans and specifications. Similar conditions on plan require the use of similar details whether explicitly cut or not. Details designated as typical may sometimes be included in a drawing set if there is a likelihood that the detail will be necessary in the course of construction.

Foundations & Slabs Cast Against Grade

1. All foundations have been designed on presumptive permissible code loads in accord with the North Carolina State Building Code.
2. The primary building structure is designed to be supported on spread footings with an allowable net soil bearing pressure of 2000 psf.
3. Footings will be placed on undisturbed soils or compacted fill material. If soil at the scheduled footing elevation is of questionable bearing value, the architect and structural engineer are to be notified immediately. Lower footing elevations if required by architect to reach soil capable of providing the net soil bearing pressure.
4. Slabs cast against grade have been designed for a subgrade modulus of 100 pci.
5. All slabs cast against grade will be placed over 4 inches of #57 stone subbase. The top layer of subbase will be choked with a well graded modified stone. Vapor barrier, if required, will be placed on the top layer of subbase.
6. At excavations exceeding a depth of five feet the contractor is to provide sheeting and shoring or will lay back the cut at a slope approved by the on-site geotechnical engineer.
7. All excavations will be adequately dewatered before placement of concrete.

Soil Retaining Structures

1. All soil retaining structures have been designed on presumptive soil properties found in Chapters 16 and 18 of the North Carolina State Building Code, 2018 Edition.
2. Design values for soils are as follows.

Unit Weight of Soil, γ	115 pcf
Coefficient of Passive Pressure, K_p	1.33
Coefficient of Active Pressure, K_a	0.40
Coefficient of At-Rest Pressure, K_o	0.50
Coefficient of Sliding Resistance	0.25
Friction Angle, δ	40

3. All walls below grade on this project rely upon support from the first floor. Backfilling against these walls prior to the installation of the first floor framing will require temporary bracing.
4. Backfilling against soil retaining structures will be done using hand operated equipment. Heavy equipment is not permitted within a horizontal distance equal to the depth of the wall from the top of the footings to the level of grade.
5. At a minimum the backfill placed within 1 foot of a soil retaining structure will be made up of un-graded, free draining stone material.
6. The soil retaining structures have not been designed to resist hydrostatic loads. Foundation drains must be present to remove ground water.
7. Align bars in interior and exterior reinforcing mats to the maximum extent possible.
8. Splice horizontal reinforcing steel in the exterior face of the wall at the midpoint between vertical framing elements, such as intersecting walls or columns, using a Class "A" splice.

Concrete

1. All concrete work will comply with the Specifications for Structural Concrete for Buildings, ACI-301 and the Building Code Requirements for Structural Concrete, ACI-318 (editions in force).
2. Concrete mixture designs are referenced in the material notes. For each design a submittal will be made by the contractor as outlined in the specifications.
3. All reinforcing steel is to be tied to prevent displacement during concrete placement. Tack welding of reinforcement steel is prohibited.
4. The contractor will submit a complete list of accessories and placing details with shop drawings.
5. All reinforcing steel is to be continuous. Lap bars 40 diameters for bars #6 and smaller or 48 diameters for bars #7 and larger at splice unless noted otherwise on schedules or details.
6. The location of all lap splices will be shown on shop drawings.
7. No concrete element may be cored to place through items (ie pipes, electrical lines, etc.). All through items penetrating horizontal surfaces are to be placed in schedule 40, steel, pipe sleeves of a diameter sufficient to accommodate the through item. At penetrations in the vertical plane of elements, the pipe sleeve diameter will be increased by an amount to provide 1 1/2" clear dimension around the through item.
8. Refer to architectural drawings for all waterproofing of concrete below grade.
9. No horizontal construction joints are permitted in concrete elements. Locate vertical construction joints at the middle third of spans. Provide 2x4, continuous, beveled keyways at slabs (one minimum) and 2x8 beveled keyway at beams. Submit proposed construction joint locations to the architect and structural engineer for approval.
10. All intersecting beams, walls, and footings will have corner bars. Refer to typical details.
11. Reinforcing steel cast into concrete elements will follow ACI recommendations for edge clearances. The most common occurrences are herein summarized.

Concrete Cast Against and Continuously Exposed to Earth,	All Bar Sizes	3"
Concrete Cast Against a Formed Surface and Exposed to Earth,	#5 or Lesser	1 1/2"
Concrete Cast Against a Formed Surface and Exposed to Earth,	#6 or Greater	2"
Concrete Not Exposed to Earth or Weather, Slabs	All Bar Sizes	3/4"
Concrete Not Exposed to Earth or Weather, Walls	All Bar Sizes	3/4"
Concrete Not Exposed to Earth or Weather, Beams	#5 or Lesser	1 1/2"
Concrete Not Exposed to Earth or Weather, Beams	#6 or Greater	2"
Concrete Not Exposed to Earth or Weather, Columns	Stirrups	1 1/2"

12. Where concrete is placed using a pump, no grout materials used to prime the pump may be included in the finished structure.

Solid Sawn & Laminated Lumber

1. All lumber will be visually graded, Spruce-Pine-Fir, seasoned and with 17% maximum moisture content, unless noted differently on the drawings and in accordance with the following minimum grade requirements:

Studs	No1 / No2
Joists	No1 / No 2
Beams (2"-4" thick)	No1 / No 2
Posts	No1 / No 2
Plate Stock	No1 / No 2

2. Grades will be determined in accordance with AFPA grading rules agency.
3. All connector types refer to Simpson Strong-Tie specifications. Any change, modification or substitution must be approved by the Engineer of Record prior to construction.
4. Brace stud walls until all plywood decking, roof trusses, and shear panels are in place
5. Use pressure treated wood with alkaline copper quat (ACG) or copper azole (CBA) for all exposed lumber and with ACQ, CBA or sodium borates (SBX for sill plates in contact with concrete). All fasteners in contact with pressure treated wood will be hot-dip galvanized per ASTM A153. All connectors in contact with pressure treated wood will be hot-dip galvanized per ASTM A653 and made from class G185 sheet with 1.85 ounces minimum of zinc coating per square foot.
6. Refer to shear wall schedule for sill plate anchorage at all shear walls. Shear walls will be as designated on plans.
7. Anchorage of sill plates at load-bearing and non-load-bearing walls that have not been designated as shear walls will be with 1/2"Ø, ASTM A307 grade anchor bolts at 48" o.c. maximum with 7" minimum embedment, unless noted otherwise.

   Exception:
   Sill plates at interior load-bearing and non-load-bearing walls that have not been designated as shear walls may alternatively be anchored with Hilti DS 72 P10 powder actuated fasteners at 18" o.c. maximum spacing. Provide two (2) additional Hilti DS 72 P10 powder actuated fasteners at each end of the wall, typical.
8. Install beams with crown up.
9. The number of wall studs at bearing points of 2x member beams will match the number of members in the beam, unless noted otherwise. All engineered lumber beams (LVL, LSL, PSL, & Glulam) will have a three stud minimum bearing, unless noted otherwise. The centerline of the beam will be the centerline of the supporting wall studs.
10. All timber framing connections will be made with joist hangers, tie downs, framing anchors, post caps, etc., unless noted otherwise.
11. Double ply 2x members and double ply 2x with plywood plate beams will be spiked together w/ 12d at 12" top and bottom of beam. Double ply microlam and triple ply-2x beams and wider will be bolted together with 1/2"Ø lag bolts in 5/16"Ø pilot holes or 1/2"Ø through bolts in 9/16"Ø holes. 2'-6" o.c. maximum at top and bottom, staggered.
12. When nailing is not shown in plans or in nailing schedule, nail according to Table 2304.9.1, 2012 International Building Code as adopted by the State of North Carolina.
13. Unless wood columns/stud packs have been called out at header beam ends in the framing plans, all wall openings will be framed according to the information in the king and jamb schedule. All wood columns/stud packs will be continuous to slab on grade, typical. All king studs will be continuous to slab on grade, typical.
14. All free-standing wood columns and/or wood stud packs will have a Simpson Strong-Tie PB, PBS, CB, CBS OR LCB type post base. Contractor to coordinate type and size with scheduled wood column and/or stud pack.

Sheathing

1. All sheathing will be plywood or OSB. All plywood sheathing, diaphragms, and shear wall panels will conform to US Product Standard PS-1-07 with exterior glue. All OSB sheathing, diaphragms, and shear wall panels will conform to US Product standard PS-2-04.
2. Sheathing sheets will be laid with long dimension perpendicular to the supporting framing.
3. Wall sheathing will be 7/16" exterior grade (Index 24/16), UNO in shear wall schedule. All wall sheathing except at shear walls will be fastened with 8d nails at 6"oc at all edges and 8d nails at 12"oc in panel field. Provide 2x4 blocking at all panel edges in shear walls. Shear wall nailing patterns will be as indicated in shear wall schedule.
4. Wood roof sheathing will be 19/32" exterior grade (Index 48/24) and will be fastened with 8d nails at 6"oc at all edges and 8d nails at 12"oc in panel field. Provide 2x4 blocking or clips at midspan and at all panel edges.
5. Plywood floor sheathing will be 23/32" Exposure 1 Tongue & Groove (Index 48/24) and will be fastened with 10d nails at 6"oc at all edges and 8d nails at 12"oc in panel field.

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No.	Description	Date

Project number	2126402
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Drawn by	JMC
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Scale	

Seal

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029015 JAMES MICHAEL CZAR

2022-04-28

STRUCTURAL NOTES & VALUES

S0.01

Wood Trusses

1. Prefabricated roof truss manufacturer will submit calculations and truss layout or framing plans to secure approvals from the Building Department prior to erection.

2. Submit shop drawings for all trusses. Shop drawings will indicate placing of all framing members showing type, size, number, location and spacing. They will also indicate supplemental bracing, splices, bridging, accessories and details required for proper installation. Shop drawings submitted must be prepared under the supervision of and sealed by a Professional Engineer licensed in the state in which the project is located. Additionally include the following.
    1. Stress reduction factors used for plates.
    2. Top and bottom chord design loads in plf
    3. Size, gage, and exact location by dimension of plates.
    4. Lumber species and grades used.
    5. Seal and signature of truss company engineer in responsible charge on all truss engineered sheets or drawings.
    6. Name and trademark of plate manufacturer and truss fabricator as well as project name and location.
    7. Uniform, lateral, and concentrated load requirements and noted on plans and/or corresponding details.
    8. All truss connection hardware requirements.
    9. Allowable loads for stress grade lumber and plates as allowed by and ICBO including ICBO report number

3. Truss manufacturer will provide a truss layout plan indicating all trusses with piece marks and dimensions. This drawing will be sealed by the truss engineer. The seal will only attest to the performance of the trusses, their connections to one and other (girder trusses, multi-ply, piggy-back, valley, etc) and that all noted design loads have been accounted for in the design of the trusses. It is not the intent that the truss engineer be responsible for load path below the bearing elevation unless changes to the truss layout are made relative to the contract documents.

4. All lumber and its fastenings will conform to the National Design Specification for Wood Construction, latest edition, by the American Forest and Paper Association. Conform to applicable provisions of TPI Design Specifications for Metal Plate Connected Wood Trusses (latest edition).

5. All truss connector plates will be manufactured from ASTM A446-72 grade a galvanized steel of no less than 20 gage thickness with a minimum yield of 33,000 psi and an ultimate tensile strength of 45,000 psi. Connector plate gages will be as required by manufacturers design calculations.

6. Truss chords and webs will be Douglas Fir or Southern Pine, PS 20, graded to NFPA rules:
    1. Maximum moisture content - 17%
    2. Minimum grade of chord - No. 2
    3. Minimum grade of web members - No. 3

7. Design will consider loads indicated as well as all mechanical equipment and ceiling soffit construction shown on the architectural drawings.

8. Truss design loads will be as required on the design drawings. Refer to truss diagrams.

9. Truss supplier will calculate uplift loads based on the wind load criteria listed in these general notes. At a minimum the net wind uplift load will be 15 psf.

10. All trusses will be designed for the actual dead load plus live load (specified above). Maximum deflection due to live load only will not exceed l/480. Maximum deflection due to total load will not exceed l/240.

11. Roof slope will be 1/4" per foot or greater after long term deflection occurs.

12. All trusses and connections will be designed by the supplier's engineer. Submit calculations for all trusses and their connections. Calculations will include all design loads, maximum axial tension and compression in truss members, calculated maximum deflections and span-to-deflection ratios for live and total loads, and reaction forces and directions, including maximum uplift reaction forces.

13. All trusses will be braced to prevent rotation and to provide lateral stability. Shop drawings will indicate all lateral bridging required, and all bridging will be supplied by the contractor.

14. Truss shop drawings will include permanent individual truss member restraint requirements clearly noted on the layout drawing.

15. All bracing material will be a minimum 2x4 SPF No 2 or better anchored with at least (2) 16d nails at each truss.

16. If permanent truss restraint/bracing for top, bottom and web members are not detailed on the truss layout drawings, then bracing will be in accordance with BCSI-B3 or BCSI-B7 for parallel chord trusses.

17. Temporary bracing, where required, will be provided until the erection is complete.

18. Field repair of damaged trusses must be approved in writing by the truss engineer and engineer of record.

19. All roof truss bearing walls will have metal fasteners to resist uplift forces as noted on roof gross uplift pressure diagram.

20. Truss supplier is to provide plan and procedures for installing, securing and bracing of all trusses. The contractor will provide adequate temporary bracing for the trusses during erection.

21. Truss supplier will provide truss blocks capable of transferring lateral loads as noted on plans and/or details.

22. Approved truss plans will be available on job site during times of inspection.

23. Truss manufacturer to coordinate with mechanical / plumbing drawings for additional concentrated loads due to domestic water and sprinkler pipe supports.

24. Truss manufacturer will coordinate truss layout with mech/plumbing drawings to allow all pipes and ducts adequate space for proper installation. The manufacturer will coordinate the web member configuration with the mechanical drawings and architectural drawings such that adequate opening is provided for any mechanical units and ducts and access catwalks.

27. Trusses will be spaced as shown on the plans. Lesser spacing may be used if required by the truss designer. Actual truss spacing will be used to determine uniform loads per foot. Roof trusses will be designed for applicable wind load at the project site with the dead load shown above, in accordance with the combinations and pressure and suction factors indicated in the applicable building code. Uplift indicated is only a minimum.

28. All truss framing connections to walls, girder trusses, ledgers, beams or other supports will be made with joist hangers, tie downs, framing anchors, post caps, or other appropriate means. The connections will be designed and specified by the truss designer/manufacturer and shown on the shop drawings submitted for review.

29. All headers, bearing walls and posts shown on the plans will be used for bearing in design of the floor and roof trusses. Modification by the truss designer/manufacturer of truss framing direction or bearing element locations shown on the structural drawings will not be permitted unless previously approved in writing by the engineer of record. Such changes may result in additional modifications to the structural drawings that may have a schedule or cost impact on the project.

30. Where draft stops are required by the architectural drawing, provide a minimum of 2x4 verticals at 24" on center between truss top and bottom chords and web members, as required, for draft stop nailing.

Nailing

1. All nails listed below shall comply with the following dimensional requirements:

Nail Property Table

Nail Type	Property	Penny Weight				
		6d	8d	10d	12d	16d
Common	Length	2.000"	2.500"	3.000"	3.250"	3.500"
	Diameter	0.133"	0.131"	0.148"	0.148"	0.162"
	Head	0.226"	0.281"	0.312"	0.312"	0.344"
Annular	Length	2.000"	2.500"	3.000"	3.250"	3.500"
	Diameter	0.133"	0.131"	0.148"	0.148"	0.162"
	Head	0.226"	0.281"	0.312"	0.312"	0.344"
Box	Length	2.000"	2.500"	3.000"	3.250"	3.500"
	Diameter	0.099"	0.113"	0.128"	0.128"	0.135"
	Head	0.266"	0.297"	0.312"	0.312"	0.344"
Sinker	Length	1.375"	2.375"	2.875""	3.125"	3.250"
	Diameter	0.092"	0.113"	0.120"	0.135"	0.148"
	Head	0.234"	0.266"	0.281"	0.312"	0.341"

Fastening Schedule

Joining Elements	Fastener	Count or Spacing	Connection
Band Joist to Sill or Top Plate	8d Common	6" o.c.	Toe Nail
Joist to Band Joist	16d Common	3	Face Nail
Joist to Sill or Girder	8d Common	3	Toe Nail
Bridging to Joist Ledger Strip, Each Joist	8d Common	2	Toe Nail
	16d Common	3	
Subfloor ≤ 1x6 to Joist	8d Common	2	Face Nail
Subfloor > 1x6 to Joist	8d Common	3	Face Nail
Subfloor = 2" to Joist or Girder	16d Common	2	Blind or Face Nail
Sole Plate to Joist or Blocking	16d Common	16" o.c.	Face Nail
Top or Sole Plate to Stud	16d Common	2	End Nail
Stud to Sole Plate	8d Common	4	Toe Nail
Doubled Studs	16d Common	24" o.c.	Face Nail
Doubled Top Plates	16d Common	16" o.c.	Face Nail
Top Plates, Lap and Intersections	10d Common	3	Face Nail
Top Plates, Lap and Intersections (Alternate)	16d Common	2	Face Nail
Continuous Header, Two Pieces, Each Edge	16d Common	16" o.c.	Face Nail
Ceiling Joists to Plate	8d Common	3	Toe Nail
Continuous Header to Stud	8d Common	4	Toe Nail
Ceiling Joists, Laps Over Partitions	16d Common	3	Face Nail
Ceiling Joists, Laps Over Partitions (Alternate)	10d Common	4	Face Nail
Ceiling Joists to Parallel Rafters	16d Common	3	Face Nail
Ceiling Joists to Parallel Rafters,	10d Common	4	Face Nail
Rafter to Plate	8d Common	3	Toe Nail
1 inch Brace to Each Stud and Plate	8d Common	2	Face Nail
Sheathing ≤ 1x8 to Each Bearing	8d Common	3	Face Nail
Sheathing > 1x8 to Each Bearing	8d Common	3	Face Nail
Built-up Corner Studs	16d Common	24" o.c.	Face Nail
Built-up Girders and Beams of Three Members	20d Common	32" o.c.T&B, Staggered	Face Nail
Planks, 2", Each Bearing Location	16d Common	2	Face Nail
Studs to Sole Plate	16d Common	2	End Nail

Wood Structural Panel Subflooring

15/32", 1/2", 7/16"	6d Common	6" o.c. Edges, 12" o.c. Field
	6d Annular	6" o.c. Edges, 12" o.c. Field
	6d Spiral	6" o.c. Edges, 12" o.c. Field
19/32" - 3/4"	8d Common	6" o.c. Edges, 12" o.c. Field
	6d Annular	6" o.c. Edges, 12" o.c. Field
	6d Spiral	6" o.c. Edges, 12" o.c. Field
1", 1 1/8"	10d Common or	6" o.c. Edges, 12" o.c. Field
	8d Annular	6" o.c. Edges, 12" o.c. Field
	8d Spiral	6" o.c. Edges, 12" o.c. Field

Materials

1. Soil Fill
    - Subbase — 57 Stone
    - CLSM — 150psi Maximum Strength

2. Concrete
    - Spread Footings — Normal Weight 3000 psi
    - Slab-on-Grade — Normal Weight 4500 psi
    - Suspended Slab — Normal Weight 4500 psi

3. Concrete Reinforcing
    - General Reinforcing — ASTM A615, Gr 60
    - Welded Wire Reinforcing — ASTM A185, In Flat Sheets

4. Masonry Construction
    - Concrete Masonry Units — ASTM C90, 3.5 ksi, LW
    - Masonry Mortar — ASTM C270, Type S
    - Masonry Grout — ASTM C476, 3ksi, Fine
    - Joint Reinforcing — ASTM A951

5. Steel Shapes
    - Angles — ASTM A36, Fy = 36ksi
    - Plates & Bars (General) — ASTM A36, Fy = 36ksi
    - Hollow Structural Sections (Rectangular) — ASTM A500, Gr C, Fy = 50ksi

6. Steel Connectors
    - Anchor Rods — ASTM F1554, Gr 55, Weldable

7. Engineered Wood Products

    Versa-Lam 2.0 3100 (LVL): F_b* 3,100 psi
    - F_v 285 psi
    - E 2.0 E 6 psi
    - F_t 2,150 psi
    - $F_{c\perp}$ 750 psi
    - $F_{c\parallel}$ 3,000 psi

Abbreviations

ACI	American Concrete Institute
AFF	Above Finished Floor
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Constructions
AR	Anchor Rod
ARCH	Architect, Architectural
ASTM	American Society of Testing and Materials
AWS	American Welding Society
B	Bottom
BLDG	Building
BM	Beam
BOT	Bottom
BRG	Bearing
C/C	Center to Center
CIP	Cast-in-Place
CJ	Control Joint
CL	Center Line
CLR	Clear
CMU	Concrete Masonry Units
COL	Column
CONC	Concrete
CONST	Construction
CONT	Continuous
D	Deep
DET	Detail
DIA, Ø	Diameter
DIM	Dimension
DWG	Drawing
EA	Each
EE	Each End
EF	Each Face
ES	Each Side
EW	Each Way
EJ	Expansion Joint
ELEV	Elevation
EMBED	Embedment
EoD	Edge of Deck
EoS	Edge of Slab
EQ	Equal
EX	Existing
EXP	Expansion
FND	Foundation
FS	Far Side
FT	Foot or Feet
FTG	Footing
GA	Gage
GALV	Galvanized
GB	Grade Beam
H	Height or Horizontal
HORIZ	Horizontal
ID	Inside Diameter
IN	Inch or Inches
INFO	Information
INT	Interior
JT	Joint
LB, #	Pound or Pounds
LLV	Long Leg Vertical
LW	Lightweight
MANUF	Manufacturer
MAT	Material
MAX	Maximum
MC	Moment Connection
MECH	Mechanical
MEP	Mechanical, Electrical, and Plumbing
MIN	Minimum
MISC	Miscellaneous
NIC	Not in Contract
NOM	Nominal
NS	Near Side
NTS	Not to Scale
OC	On Center
OD	Outside Diameter
OH	Opposite Hand
O/O	Out to Out
PC	Pilecap
PCI	Precast Concrete Institute
PSF	Pounds Per Square Foot
PSI	Pounds Per Square Inch
R	Radius
RD	Roof Deck
REINF	Reinforcing or Reinforcement
SCH	Schedule
SIM	Similar
SOG	Slab-on-Grade
T	Top
ToS	Top of Steel
ToSL	Top of Slab
TYP	Typical
VIF	Verify in Field
W/	With
WWR	Welded Wire Reinforcement

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Estes Park

Maintenance Workshop

306 Estes Drive Extension
Apartment 11-H
Carrboro, North Carolina 27510

No.	Description	Date

Project number	2126402
Date	04/27/2022
Drawn by	JMC
Checked by	JMC
Scale	

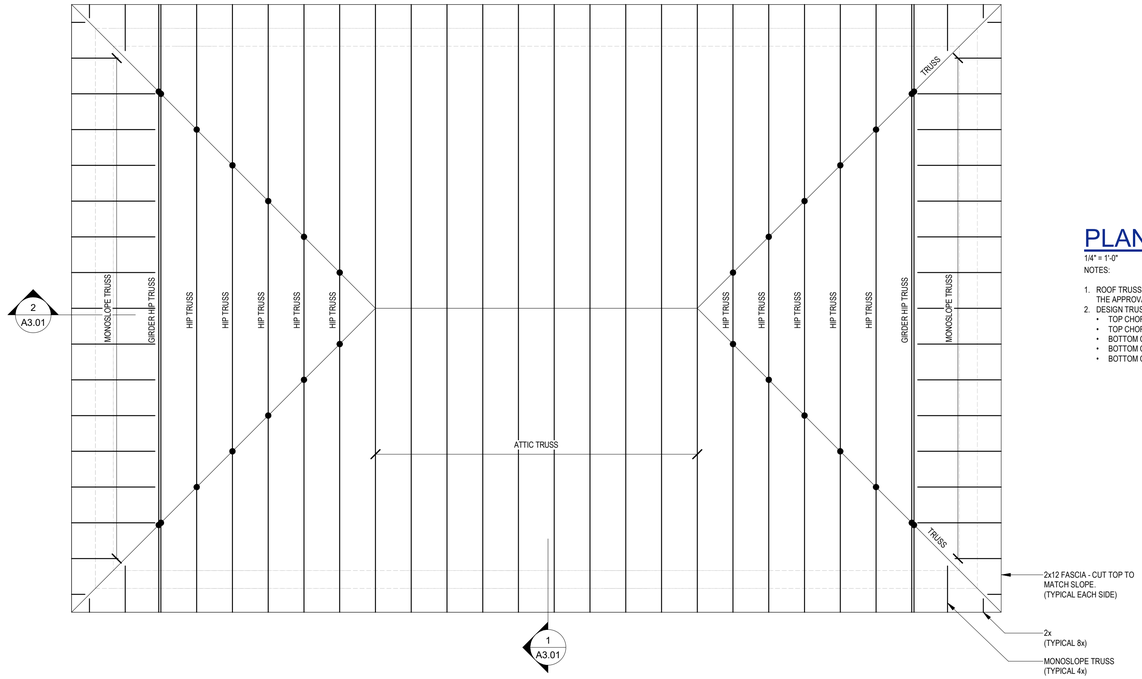
Seal

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029015 JAMES MICHAEL CAIN

2022-04-28

STRUCTURAL NOTES & VALUES

S0.02



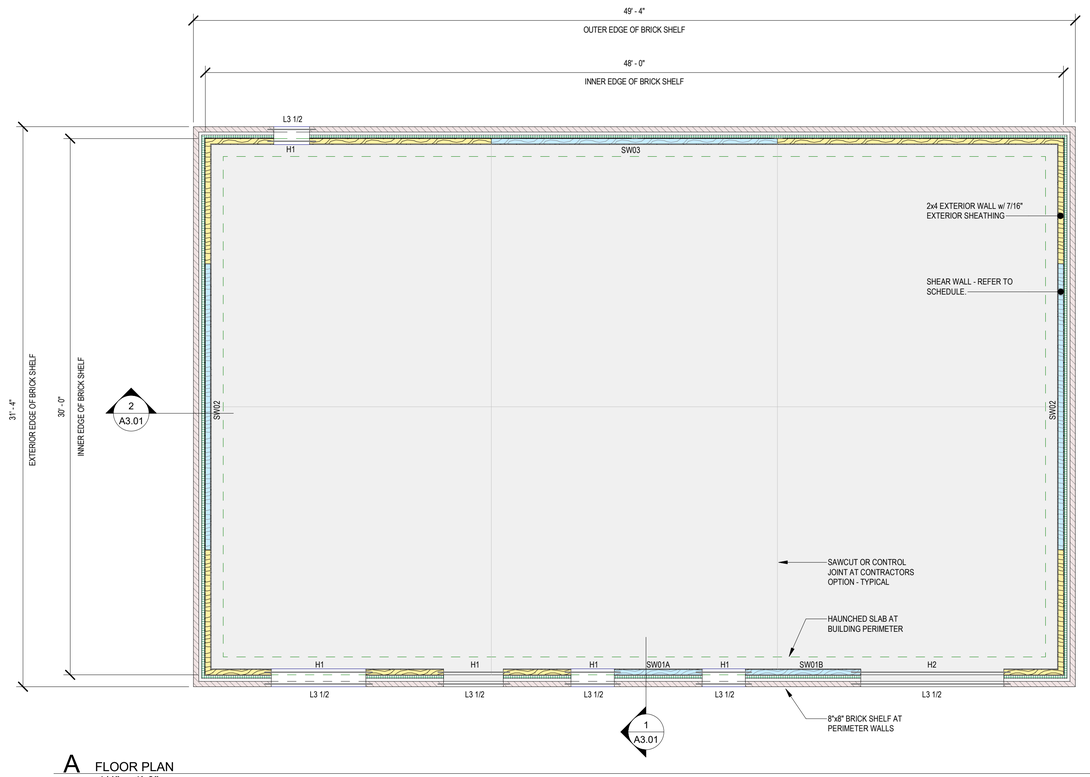
B TRUSS LAYOUT PLAN
S1.01 1/4" = 1'-0"

PLAN - ROOF LEVEL TRUSS LAYOUT

1/4" = 1'-0"

NOTES:

1. ROOF TRUSS LAYOUT IS DIAGRAMATIC. TRUSS SUPPLIER MAY ALTER TRUSS LAYOUT WITH THE APPROVAL OF THE DESIGN ENGINEER.
2. DESIGN TRUSSES FOR THE FOLLOWING LOADS.
   - TOP CHORD DL = 15 PSF
   - TOP CHORD LL = 20 PSF
   - BOTTOM CHORD DL = 10 PSF
   - BOTTOM CHORD LL = 20 PSF
   - BOTTOM CHORD LL = 50 PSF (AT ATTIC PORTION OF ATTIC TRUSSES)



A FLOOR PLAN
S1.01 1/4" = 1'-0"

PLAN - FIRST FLOOR LEVEL

1/4" = 1'-0"

NOTES:

1. SLAB-ON-GROUND IS TO BE 5" NORMAL WEIGHT CONCRETE OVER 10MIL VAPOR BARRIER ON 4" #57 STONE. REINFORCE WITH 6x6-2.1x2.1 WWR AT MID/SLAB DEPTH.
2. ALL DIMENSIONAL LUMBER IS TO BE SPF No1/No2 OR BETTER.
3. REFER TO SHEAR WALL SCHEDULE FOR SHEAR WALL INFORMATION. SHEAR WALLS MAY BE PLACED ALONG PERIMETER WALLS AT DISCRETION OF CONTRACTOR.
4. L3 1/2 ON PLAN DENOTES L3 1/2x3 1/2x1/4.
5. Hx ON PLAN DENOTES A WOOD HEADER. REFER TO TYPICAL DETAILS ON S6.01.

SHEAR WALL SCHEDULE - WAREHOUSE

MARK	SHEATHING	NAILING INFORMATION			END FRAMING INFORMATION			SILL BOLT	LENGTH (MIN)	NOTES
		SIZE	EDGE	FIELD	CHORD	HOLD DOWN	DETAIL			
SW01A	7/16 (1) SIDE	8d	6"o.c.	12"o.c.	(2) 2x4	DTT2Z-SDS2.5	7/S6.01	5/8"Ø AT 32"	4'-1"	5/8"Ø ANCHOR, Fy 50, 5" EMBEDMENT
SW01B	7/16 (1) SIDE	8d	6"o.c.	12"o.c.	(2) 2x4	DTT2Z-SDS2.5	7/S6.01	5/8"Ø AT 32"	6'-5"	5/8"Ø ANCHOR, Fy 50, 5" EMBEDMENT
SW02	7/16 (1) SIDE	8d	6"o.c.	12"o.c.	(2) 2x4	DTT4	7/S6.01	5/8"Ø AT 32"	16'-0"	5/8"Ø ANCHOR, Fy 50, 6 1/2" EMBEDMENT
SW03	7/16 (1) SIDE	8d	6"o.c.	12"o.c.	(2) 2x4	DTT2Z-SDS2.5	7/S6.01	5/8"Ø AT 32"	16'-0"	5/8"Ø ANCHOR, Fy 50, 5" EMBEDMENT

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Seal

NORTH CAROLINA PROFESSIONAL ENGINEER JAMES MICHAEL CARR 029015

2022-04-28

STRUCTURAL PLANS

S1.01

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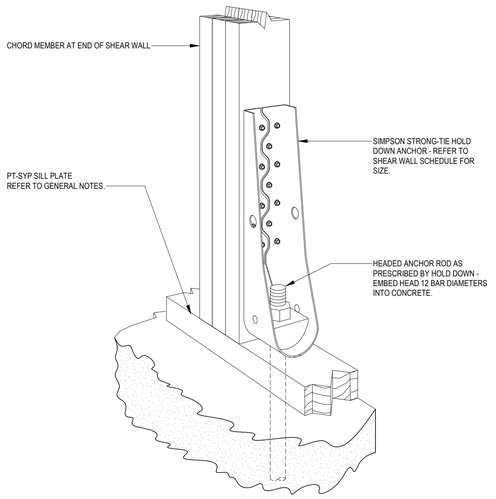
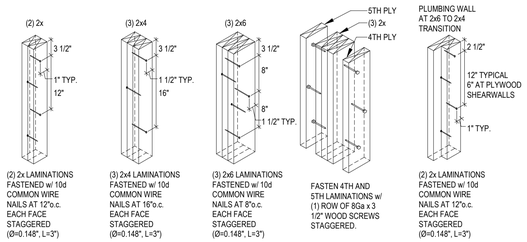
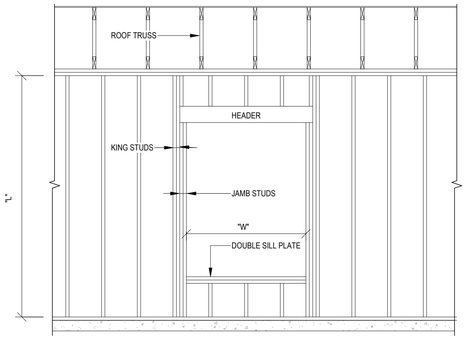


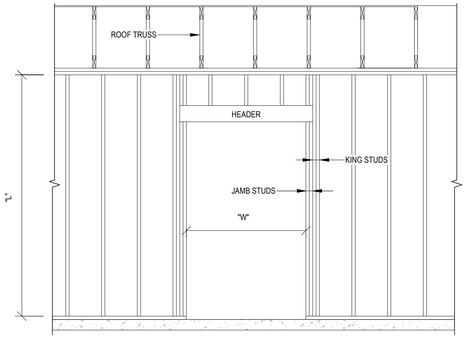
7 S6.09/01
S6.01 1 1/2" = 1'-0"



NOTE:
1. ALL POSTS, BUILT-UP STUD COLUMNS AND STUD PACKS MUST ALIGN FLOOR-TO-FLOOR WITH SOLID BLOCKING AT FLOOR CAVITY AND CONTINUE TO FOUNDATION OR BEAM SUPPORT

4 BUILT UP POSTS OR COLUMNS
S6.01 3/4" = 1'-0"



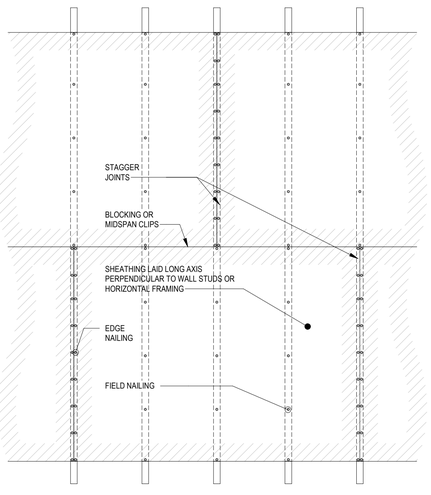


MAXIMUM WIDTH		3'-6"		5'-6"		9'-6"		12'-6"	
FLOOR LEVEL**		INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR
1 STORY BUILDING									
1	JAMB STUDS	(1) 2x4	(1) 2x4	(2) 2x4	(1) 2x4	(2) 2x4	(2) 2x4	(2) 2x4	(2) 2x4
	KING STUDS	(2) 2x4	(1) 2x4	(2) 2x4	(1) 2x4	(2) 2x4	(3) 2x4	(2) 2x4	(3) 2x4

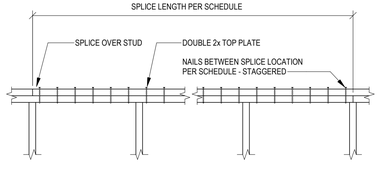
NOTES:

1. ** DENOTES QUANTITY OF LEVELS OF WOOD FRAMING ABOVE THE CONCRETE OR STEEL SUPPORT.
2. CRIPPLE STUDS SHALL BE PLACED BELOW JACK STUDS WITHIN THE FLOOR CAVITY. QUANTITY OF CRIPPLE STUDS SHALL MATCH QUANTITY OF JACK AND KING STUDS ABOVE.
3. USE 2x6 STUDS WHERE 2x6 POSTS. 3-PLY HEADERS OR 2x6 JAMB/KING STUDS ARE INDICATED.
4. WHERE COLUMNS ARE INDICATED AT HEADER SUPPORTS IN PLAN, PROVIDE QUANTITY OF KING STUDS INDICATED IN TABLE FOR OPENING SIZE.
5. SCHEDULES APPLY TO WALL OPENINGS INCLUDING DOORS, WINDOWS AND CASED OPENINGS ONLY. FLUSH BEAM SUPPORT POSTS SHALL BE CALLED OUT IN PLAN OR AS INDICATED.
6. WHERE MULTIPLE ADJACENT WINDOW OPENINGS ARE REQUIRED IN THE EXTERIOR WALL (DOUBLE OR TRIPLE WINDOWS), PROVIDE JAMB STUDS PER THE TOTAL OPENING WIDTH BETWEEN JAMB STUD PACKS. PROVIDE KING STUDS PER THE TOTAL OPENING WITH BETWEEN THE KING STUDS.

2 HEADER SUPPORT DIAGRAM
S6.01 3/8" = 1'-0"



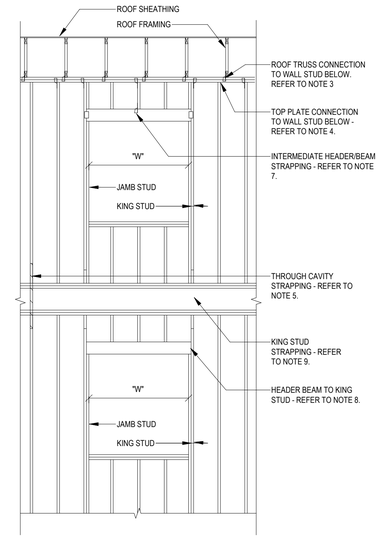
6 SHEATHING NAILING DETAIL
S6.01 3/4" = 1'-0"



LENGTH OF WALL (BETWEEN CORNERS)	SPLICE LENGTH (MINIMUM)	NAILS ALONG SPLICE LENGTH
OVER 30'	4'-0"	18-16d
OVER 20'	2'-8"	10-16d
OVER 10'	1'-4"	6-16d
LESS THAN 10'	1'-4"	4-16d

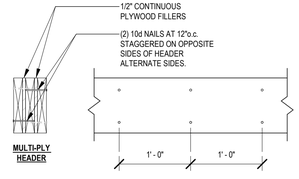
NOTES:
1. DO NOT SPLICE TOP PLATES WITHIN 6'-0" OF ENDS OF PLYWOOD SHEAR WALLS.
2. THIS DETAIL APPLIES AT ALL EXTERIOR WALLS AND INTERIOR SHEARWALLS.

5 TOP PLATE SPLICE
S6.01 3/4" = 1'-0"



NOTES:
1. REFER TO S1.01 FOR ROOF TRUSS FRAMING PLANS.
2. ALL ROOF TRUSSES ARE TO BE MECHANICALLY FASTENED AT ALL BEARING POINTS AND STUD FRAMING BELOW ACCORDING TO THE FOLLOWING CRITERIA.
   A. ATTACH ROOF TRUSSES TO TOP PLATE WITH (1) SIMPSON H2.5a HURRICANE TIE.
   B. ATTACH ROOF TRUSSES WITHIN THE "s" WIND ZONE OF THE BUILDING TO TOP PLATE WITH (2) SIMPSON MTS 12 HURRICANE TIES.
3. TOP PLATES ARE TO BE MECHANICALLY FASTENED TO A FULL HEIGHT WALL STUD WITH (1) SIMPSON TSP TIE (STAGGER EACH FACE OF TOP PLATE) AT EACH STUD IN ROOF BEARING WALL. THIS CONNECTION WILL ALSO BE PROVIDED AT KING STUDS ON EACH SIDE OF ALL OPENINGS AND AT INTERMEDIATE CRIPPLE STUDS ABOVE HEADER BEAMS AS REQUIRED.
4. PROVIDE CS16 STRAPPING AT 24"o.c. THROUGH ALL LEVEL FLOOR CAVITIES. ALIGN WITH TIES SHOWN IN NOTE 4. AT FOUNDATION PROVIDE SIMPSON H8 TIE TO SILL PLATE.
5. ATTACH ALL HEADER BEAMS TO KING STUDS WITH (4) 10d TOE NAILS AT EACH END OF HEADER. SPACE NAILS AT 3"o.c. MINIMUM.
6. PROVIDE INTERMEDIATE STRAPPING OF HEADER BEAM TO CRIPPLE STUD ABOVE (AT ROOF FRAMING LEVEL ONLY) ACCORDING TO THE FOLLOWING CRITERIA.
   A. WHERE W ≤ 4'-0", PROVIDE (1) H2.5A AT MID-SPAN.
   B. WHERE 4'-0" < W ≤ 6'-0", PROVIDE (2) H2.5A AT MID-SPAN.
   C. WHERE 6'-0" < W ≤ 9'-0", PROVIDE (2) H2.5A AT THIRD POINTS (4 TIES TOTALS).
7. PROVIDE CONNECTIONS BETWEEN HEADER BEAMS AND KING STUDS ACCORDING TO THE FOLLOWING CRITERIA.
   A. WHERE W ≤ 4'-0", PROVIDE (1) LTP4 AT EACH SUPPORT
   B. WHERE 4'-0" < W ≤ 6'-0", PROVIDE (2) LTP4 AT EACH SUPPORT
   C. WHERE 6'-0" < W ≤ 9'-0", PROVIDE (2) HTP37Z AT EACH SUPPORT.
8. PROVIDE STRAPPING BETWEEN KING STUDS PASSING THROUGH SEVERAL FLOORS ACCORDING TO THE FOLLOWING CRITERIA.
   A. WHERE W ≤ 4'-0", PROVIDE (1) CS16 STRAPS AT THE UPPER TWO FLOOR LEVELS
   B. WHERE 4'-0" < W ≤ 6'-0", PROVIDE CS16 STRAP AT THE UPPER TWO FLOOR LEVELS AND
   C. (1) CS14 STRAP AT TWO LOWER FLOOR LEVELS
   D. WHERE 6'-0" < W ≤ 9'-0", PROVIDE CS16 STRAP AT UPPER TWO FLOOR LEVELS AND
   E. (1) CS14 STRAP AT TWO LOWER FLOOR LEVELS

3 HEADER CONNECTION DIAGRAM
S6.01 3/4" = 1'-0"



BEAM/HEADER MARK	MATERIAL TYPE	NO. OF PLIES	MEMBER OR SIZE
H1	SPF No1 / No2	2	2x10
H2	VERSA-LAM®	2	1 3/4 x 9 1/4

NOTES:

1. DIMENSION LUMBER SHALL BE SPF. SOUTHERN SPF IS NOT ACCEPTABLE.
2. REFER TO GENERAL NOTES FOR VERSA-LAM® (LVL) PROPERTIES.

1 HEADER SCHEDULE
S6.01 1" = 1'-0"

ŠARMIRAN
Sarmiran, PLLC
PO Box 1378
Hillsborough NC 27278

919 241-8745 v
919 241-8747 f

Firm License - P-1378

Estes Park

Maintenance Workshop

306 Estes Drive Extension
Apartment 11-H
Carrboro, North Carolina 27510

No.	Description	Date

Project number	2126402
Date	04/27/2022
Drawn by	JMC
Checked by	JMC
Scale	As indicated

Seal

2022-04-28

TYPICAL DETAILS - WOOD

S6.01

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