2012 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: NCDOT Lumberton Equipment Shop
Address: 872 NC Highway 711, Lumberton, North Carolina Zip Code 28360
Proposed Use: Equipment Maintenance Shop
Owner/Authorized Agent: NCDOT Phone # (919) 707 - 4550 E-Mail mdgibson1@ncdot.gov
Owned By: ☐ City/County ☐ Private ☒ State
Code Enforcement Jurisdiction: ☐ City ☐ County ☒ State

LEAD DESIGN PROFESSIONAL: Mark D. Gibson

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	NCDOT	Mark D. Gibson	5121	(919)707-4550	mdgibson1@ncdot.gov
Civil	B&F Consulting	Amber Farrelly	27445	(919)389-8102	amber.farrelly@bandfconsulting.com
Electrical	Devita & Assoc.	Mary W. Humiston	19586	(704)335-0396	kimh@devitainc.com
Fire Alarm	Devita & Assoc.	Mary W. Humiston	19586	(704)335-0396	kimh@devitainc.com
Plumbing	Devita & Assoc.	William L. Aldridge	27919	(704)335-0396	baldridge@devitainc.com
Mechanical	Devita & Assoc.	William L. Aldridge	27919	(704)335-0396	baldridge@devitainc.com
Sprinkler System	Devita & Assoc.	William L. Aldridge	27919	(704)335-0396	baldridge@devitainc.com
Structural	NCDOT	Michael Mountcastle	17326	(919)707-4547	mdmountcastle@ncdot.gov
Retaining Walls >5' High				( )	
Other				( )	

2012 EDITION OF NC CODE FOR: ☒ New Construction ☐ Addition ☐ Upfit
EXISTING: ☐ Reconstruction ☐ Alteration ☐ Repair ☐ Renovation
CONSTRUCTED: (date) ____ **ORIGINAL USE(S)** (Ch. 3): ____
RENOVATED: (date) ____ **CURRENT USE(S)** (Ch. 3): ____
PROPOSED USE(S) (Ch. 3): ____

BASIC BUILDING DATA
Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A ☒ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
Sprinklers: ☐ No ☒ Partial ☐ Yes ☒ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☒ No ☐ Yes (Primary) **Flood Hazard Area:** ☒ No ☐ Yes
Building Height: (feet) 27'-6"
Gross Building Area:

FLOOR	EXISTING (SQ FT)	RENOVATED (SQ FT)	SUB-TOTAL
6th Floor			
5th Floor			
4th Floor			
3rd Floor			
2nd Floor			
Mezzanine		1,815	1,815
1st Floor		15,140	15,140
Basement			
TOTAL		16,955	16,955

ALLOWABLE AREA

Occupancy:
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 ☐ 3 ☐ 4 ☐ 5
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 Miscellaneous ☐

Accessory Occupancies:
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 ☐ 3 ☐ 4 ☐ 5
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 Miscellaneous ☐

Incidental Uses (Table 508.2.5): N/A
☐ Furnace room where any piece of equipment is over 400,000 Btu per hour input
☐ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
☐ Refrigerant machine room
☐ Hydrogen cutoff rooms, not classified as Group H
☐ Incinerator rooms
☐ Paint shops, not classified as Group H, located in occupancies other than Group F
☐ Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
☐ Laundry rooms over 100 square feet
☐ Group I-3 cells equipped with padded surfaces
☐ Group I-2 waste and linen collection rooms
☐ Waste and linen collection rooms over 100 square feet
☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
☐ Rooms containing fire pumps
☐ Group I-2 storage rooms over 100 square feet
☐ Group I-2 commercial kitchens
☐ Group I-2 laundries equal to or less than 100 square feet
☐ Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: ☐ 402 ☐ 403 ☐ 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 415 ☐ 416 ☐ 417 ☐ 418 ☐ 419 ☐ 420 ☐ 421 ☐ 422 ☐ 423 ☐ 424 ☐ 425 ☐ 426 ☐ 427
Special Provisions: ☐ 509.2 ☐ 509.3 ☐ 509.4 ☐ 509.5 ☐ 509.6 ☐ 509.7 ☐ 509.8 ☐ 509.9
Mixed Occupancy: ☐ No ☒ Yes Separation: ___ Hrs. Exception: ____
☐ Incidental Use Separation (508.2.5)
This separation is not exempt as a Non-Separated Use (see exceptions).

☒ Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
☐ Separated Use (508.4) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

Actual Area of Occupancy A / Allowable Area of Occupancy A + *Actual Area of Occupancy B / Allowable Area of Occupancy B* ≤ 1

____ + ____ + ... = ____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503[5] AREA	(C) AREA FOR FRONTAGE INCREASE[1]	(D) AREA FOR SPRINKLER INCREASE[2]	(E) ALLOWABLE AREA OR UNLIMITED[3]	(F) MAXIMUM BUILDING AREA[4]
1	S-1	13,037 SF	17,500 SF	13,125 SF	35,000 SF	UL[3]	UL[3]
1	B	2,103 SF	23,000 SF	17,250 SF	46,000 SF	UL[3]	
MEZZANINE	S-1	1,815 SF	---	---	---	---	

[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 = 463 (F)
b. Total Building Perimeter = 463 (P)
c. Ratio (F/P) = 1.0 (F/P)
d. W = Minimum width of public way = >30' (W)
e. Percent of frontage increase $I_f = 100\,[F/P - 0.25] \times W/30$ = 75 (%)
[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building I_s = 200 percent
b. Single story building I_s = 300 percent
[3] Unlimited area applicable under conditions of Section 507.
[4] Maximum Building Area = total number of stories in the building x E (506.4).
[5] The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type II-B		Type II-B	T. 503
Building Height in Feet	55'	Feet = H + 20' = 75'	27'-4"	T. 503
Building Height in Stories	2	Stories + 1 = 3	1	T. 503

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses	>30'	0		1&3/A7, 1&3/A8	N/A	N/A	N/A
Bearing Walls							
Exterior							
North	>30'	0					
East	>30'	0					
West							
South	>30'	0					
Interior	>30'	0					
Nonbearing Walls and Partitions							
Exterior walls	>30'	0					
North							
East							
West							
South							
Interior walls and partitions	>30'	0					
Floor Construction Including supporting beams and joists	>30'	0					
Roof Construction Including supporting beams and joists	>30'	0					
Shaft Enclosures - Exit	N/A						
Shaft Enclosures - Other	N/A						
Corridor Separation	N/A						
Occupancy Separation	N/A						
Party/Fire Wall Separation	N/A						
Smoke Barrier Separation	N/A						
Tenant Separation	N/A						
Incidental Use Separation	N/A						

* Indicate section number permitting reduction

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☐ No ☒ Yes
Smoke Detection Systems: ☐ No ☐ Yes ☒ Partial ____
Panic Hardware: ☐ No ☒ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G3
☐ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☐ Existing structures within 30' of the proposed building
☒ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
☒ Occupant loads for each area
☒ Exit access travel distances (1016)
☒ Common path of travel distances (1014.3 & 1028.8)
☒ Dead end lengths (1018.4)
☒ Clear exit widths for each exit door
☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
☒ 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 (1008.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
☐ Location of doors with electromagnetic egress locks (1008.1.9.8)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1029)
☐ The square footage of each fire area (902)
☐ The square footage of each smoke compartment (407.4)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS (SECTION 1107) NOT APPLICABLE

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) SEE DRAWING C2.2

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

STRUCTURAL DESIGN

DESIGN LOADS:
Importance Factors: Wind (I_W) 1.0; Snow (I_S) 1.0; Seismic (I_E) 1.0
Live Loads: Roof 20 psf; Mezzanine 125 psf; Floor 100 psf
Ground Snow Load: 10 psf
Wind Load: Basic Wind Speed 105 mph (ASCE-7); Exposure Category B; Wind Base Shears (for MWFRS) Vx = 49.4k Vy = 102.1k

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 40.7 %g S_1 12.6 %g
Site Classification (Table 1613.5.2) ☐ 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
Seismic base shear: V_X = 125.4k V_Y = 81.5k
Analysis Procedure: ☐ Simplified ☒ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☒

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) 2000 psf SEE SPECIFICATIONS
Presumptive Bearing capacity ____ psf FOR TEST REPORT
Pile size, type, and capacity ____

SPECIAL INSPECTIONS REQUIRED: ☐ Yes ☒ No

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	SHOWERS/TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
S-1	EXISTING	0	0	0	0	0	0	0	0
	NEW	1	1	2	1	1	1	1	1
	REQUIRED	1	1	0	1	1	0	1	1

SPECIAL APPROVALS N/A

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 vs annual energy cost for the proposed design.

Climate Zone: ☒ 3 ☐ 4 ☐ 5

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

THERMAL ENVELOPE

Roof/ceiling Assembly (each assembly)
Description of assembly: Metal roof on steel purlins w/ fiberglass insulation
U-Value of total assembly: 0.0368
R-Value of insulation: 25
Skylights in each assembly: NONE
U-Value of skylight: ____
total square footage of skylights in each assembly: 0

Exterior Walls (each assembly) - Type I
Description of assembly: 20" CMU cavity wall with 2" rigid insulation & 2" air space
U-Value of total assembly: 0.076
R-Value of insulation: 10.0
Openings (windows or doors with glazing)
U-Value of assembly: 0.455
Solar heat gain coefficient: 0.23
projection factor: 0.91
Door R-Values: 2.5

Exterior Walls (each assembly) - Type II
Description of assembly: 12" CMU with vermiculite filled cells
U-Value of total assembly: 0.105
R-Value of insulation: 9.5
Openings (windows or doors with glazing)
U-Value of assembly: 0.455
Solar heat gain coefficient: 0.23
projection factor: N/A
Door R-Values: 2.5

Exterior Walls (each assembly) - Type III
Description of assembly: Metal wall panels w/ fiberglass blanket insulation
U-Value of total assembly: 0.0368
R-Value of insulation: 25
Openings (windows or doors with glazing)
U-Value of assembly: ____
Solar heat gain coefficient: N/A
projection factor: N/A
Door R-Values: N/A

Walls below grade (each assembly)
Description of assembly: N/A
U-Value of total assembly: N/A
R-Value of insulation: ____

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

Floors slab on grade
Description of assembly: Poured-in-place concrete over vapor barrier on 2" rigid insulation.
U-Value of total assembly: 0.73
R-Value of insulation: R-10
Horizontal/vertical requirement: 16"
slab heated: NO

MECHANICAL SUMMARY SEE MECHANICAL DRAWINGS

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: ____

ELECTRICAL SUMMARY SEE ELECTRICAL DRAWINGS

ELECTRICAL SYSTEM AND EQUIPMENT

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

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in 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 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

BIDDING DOCUMENTS

SEAL: MARK DOUGLAS GIBSON, REGISTERED ARCHITECT, 12-16-17, 5121

DESIGNED BY: FACILITIES DESIGN ARCHITECTS & ENGINEERS
FACILITIES MANAGEMENT DIVISION, NCDOT
1 SOUTH WILMINGTON STREET
RALEIGH, NORTH CAROLINA 27601
PHONE 919/707-4540 FAX 919/715-0399

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSULTANT:

DRAWING TITLE / DISCRIPTION: BUILDING CODE SUMMARY

PROJECT TITLE: LUMBERTON EQUIPMENT SHOP
NCDOT HIGHWAY DIVISION 6
872 NC 711 HIGHWAY
LUMBERTON, NORTH CAROLINA 28360

STATE CONSTRUCTION ID.# 16-12916-01A

ASSET NUMBER: CO.# SITE.# BLDG.# 78 - 06 - 00

REVISIONS NO.	DATE

DATE ISSUED: 12/15/2017
DRAWN BY: CLS
CHECKED BY: MDG
SHEET NO. G2

Order Plans @ WWW.LDILine.com