2018 Appendix B

Building Code Summary for all Commercial Projects
(Except 1 and 2-Family Dwellings and Townhouses)

LIBRARY RENOVATION - JORDAN HALL

Name of Project: LIBRARY RENOVATION - JORDAN HALL
Address: 2800 FAUCETTE DRIVE,NCSU, RALEIGH, NC 27695
Proposed Use: N/A   Zip Code:
Owner/Authorized Agent: Laura L. Zaytoun, RA   Phone #: 919.515.8049   E-Mail: llzaytou@ncsu.edu
Owned By: ☐ City/County ☐ Private ■ State
Code Enforcement Jurisdiction: ☐ City ☐ County ■ State

LEAD DESIGN PROFESSIONAL: Watson Tate Savory, Inc.

Designer	Firm	Name	License #	Telephone #	E-Mail
Architecural	Watson Tate Savory	Jana Hartenstine	9484	704-749-5181	jhartenstine@watsontatesavory.com
Civil	CLH Design	Steve Miller	022625	919-291-7377	smiller@clhdesignpa.com
Electrical	Optima Engineering	Amanda E. Andrassy	039108	704-338-1292	abrooks@optimapa.com
Fire Protection	Optima Engineering	Christopher Cain Cook	039771	704-338-1292	ccook@optimapa.com
Plumbing	Optima Engineering	Christopher Cain Cook	039771	704-338-1292	ccook@optimapa.com
Mechanical	Optima Engineering	Evan C. Connell	045488	704-338-1292	econnell@optimapa.com
Sprinkler-Standpipe	Optima Engineering	Christopher Cain Cook	039771	704-338-1292	ccook@optimapa.com
Structural	Lynch Mykins Structural Engineers	Gregory S. Adams	047993	984-222-1488	gadams@lynchmykins.com
Retaining Walls >5' High	-	-	-	-	-
Telecom Designer	-	-	-	-	-
Other					

2018 NC BUILDING CODE: ☐ New Building ☐ Addition ■ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
☐ Phased Construction - Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE EXISTING: ☐ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use

CONSTRUCTED: (date) 1986   **CURRENT OCCUPANCY(S) (Ch. 3):** B
RENOVATED: (date) 2007   **PROPOSED OCCUPANCY(S) (Ch. 3):** B

RISK CATEGORY (Table 1604.5):
Current: ☐ I ☐ II ■ III ☐ IV
Proposed: ☐ I ☐ II ■ III ☐ IV

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A / ■ I-B ☐ II-B ☐ III-B ☐ 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 Flood Hazard Area: ■ No ☐ Yes
Special Inspections Required: ■ No ☐ Yes Contact the local inspection jurisdiction for possible additional procedures and requirements

GROSS BUILDING AREA TABLE

Floor	Existing (Sq.Ft.)	New (Sq.Ft.)	Subtotal (Sq.Ft.)
Level 6	10,438 SF	0 SF	10,438 SF
Level 5	19,122 SF	0 SF	19,122 SF
Level 4	19,125 SF	0 SF	19,125 SF
Level 3	19,121 SF	0 SF	19,121 SF
Level 2	19,154 SF	0 SF	19,154 SF
Level 1	19,980 SF	0 SF	19,980 SF
Lower Level	8,130 SF	0 SF	8,130 SF
TOTAL			116,667 GSF

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 Condition ☐ 1 ☐ 2
☐ I-2 Condition ☐ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
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 ☐

NOTE: BUILDING CLASSIFIED AS A-3 FOR MOST RESTRICTIVE TYPE FOR NON-SEPARATED MIXED-USE OCCUPANCY.

Accessory Occupancies Classification(s): BUSINESS, STORAGE
Incidental Uses (Table 509):
Special Uses (Chapter 4 - List Code Sections): --
Special Provisions: (Chapter 5 - List Code Sections):

Mixed Occupancy: ☐ No ■ Yes   Separation: 0 Hr.   Exception: ---

■ 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.

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

______ + ______ + ... = ______ ≤ 1.00

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

[1] Frontage area increases from Section 506.3 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 = Mimimum width of public way = ____ (W)
e. Percent of frontage increase I_f = 100[F/P - 0.25] x W/30 = ____ (%)

N/A

[2] Unlimited area applicable under conditions of Section 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.
[5] Frontage increase is based on the unsprinklered areavalue in Table 506.2

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE[1]
Building Height in Feet (Table 504.3)[2]	180'	115'	
Building Height in Stories (Table 504.4)[3]	EXISTING UNCHANGED		

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum Height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS
Life Safety Plan Sheet #, if Provided G1.01

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		2	-	-	-	-	-
Bearing Walls		2	-	-	-	-	-
Exterior		2	-	-	-	-	-
North		-	-	-	-	-	-
East		-	-	-	-	-	-
West		-	-	-	-	-	-
South		-	-	-	-	-	-
Interior		-	-	-	-	-	-
Nonbearing walls and partitions		0	-		-		-
Exterior Walls		0	-	-	-	-	-
North		0	-	-	-	-	-
East		0	-	-	-	-	-
West		0	-	-	-	-	-
South		0	-	-	-	-	-
**Interior Walls and Partitions		0	-	-	-	-	-
Floor construction including supporting beams and joists		2	-	D6/G201 E4.02		UL-F-A-1135 NOTE / C-AJ-8056	-
Floor Ceiling Assembly		-	-	D1/G200	AER-09038	-	-
Columns Supporting Floors		2			(EXISTING)		
Roof construction including supporting beams and joists		1			(EXISTING)		
Roof Ceiling Assembly		2	-	-	-	-	-
Columns Supporting Roof		1					
Shafts Exits - Exit		2	-	A1/G200	UL-411	-	-
Shafts Enclosures - Other		2	-	D1/G200	AER 09038	-	
Corridor Separation		N/A		-	-	-	-
Occupancy/ Fire Barrier Separation		N/A	-	E/4.02	-	NOTE / W-L-[illegible] W-L-8004 W-L-8013 W-L-1085	-
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

1) SEE 220532 FIRESTOPPING FOR PLUMBING SYSTEMS FOR PERFORMANCE SPEC. REGARDING PIPING PENETRATIONS AT EXIST. 2-HR. RATED FLOORS.

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 (%)
	N/A		

LIFE SAFETY SYSTEM REQUIREMENTS
Emergency Lighting ☐ No ■ Yes
Exit Signs ☐ No ■ Yes
Fire Alarm ☐ No ■ Yes
Smoke Detection Systems ☐ No ■ Yes ☐ Partial ---
Carbon Monoxide Detection ☐ No ■ Yes

LIFE SAFETY PLAN REQUIREMENTS
Life Safety Plan Sheet #: G001, G002
■ 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 types for each area as it relates to occupant load calculation (Table 1004.1.2)
■ Occupant loads for each area
■ Exit access travel distances (1017)
■ Common path of travel distances (1006.2.1 & 1006.3.2(1))
■ Dead end lengths (1020.4)
■ 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
			N/A				

ACCESSIBLE PARKING (Section 1106)

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
			N/A			
TOTAL						

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				N/A						
	REQUIRED										

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 vs annual energy cost for the proposed design.

EXISTING BUILDING ENVELOPE COMPLIES WITH CODE: ☐ No ☐ Yes (The remainder of this section is not applicable)
EXEMPT BUILDING: ☐ No ☐ Yes (Provide code or statutory reference): N/A
CLIMATE ZONE: ☐ 3A ☐ 4A ☐ 5A
METHOD OF COMPLIANCE:
Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive

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:

STRUCTURAL DESIGN
DESIGN LOADS
Importance Factors:
Snow (I_s) N/A
Seismic (I_e) N/A
Live Loads: Roof N/A psf; Mezzanine 0 psf; Floor 100 psf
Ground Snow Load: N/A psf
Wind Load: Ultimate Wind Speed N/A mph (ASCE-7); Exposure Category N/A

SEISMIC DESIGN CATEGORY ☐ A ☒ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Risk 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: ☐ 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 = ____ V_y = ____
Analysis Procedure: ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☒ No

LATERAL DESIGN CONTROL: Earthquake ____ Wind ____ N/A

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) N/A psf
Presumptive Bearing Capacity 5000 psf
Pile size, type, and capacity N/A

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:
Heat output of unit:
Cooling output of unit:
Boiler
Total boiler output. If oversized, state reason:
Chiller
Total chiller capacity. If oversized, state reason:
List equipment efficiencies:

SEE MECH. DWGS.

ELECTRICAL SUMMARY
ELECTRICAL SYSTEM AND EQUIPMENT
METHOD OF COMPLIANCE:
Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive

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

SEE ELEC. DWGS.

ARCHITECTURE
INTERIORS
PLANNING

WTS
WATSON TATE SAVORY

NC STATE UNIVERSITY

LIBRARY RENOVATION - JORDAN HALL
N.C. STATE UNIVERSITY
RALEIGH, NC

JANA GOTTLIEB HARTENSTINE REGISTERED ARCHITECT 9484 NORTH CAROLINA CHARLOTTE, NC 08.24.2020
WATSON TATE SAVORY INC. REGISTERED ARCHITECTURAL CORPORATION 52701 NORTH CAROLINA CHARLOTTE, NC

ISSUE DATE: 08.24 2020
PHASE: BID SET

#	DATE	REVISION

CODE
INFORMATION

19-20653
STATE PROJECT NO.
NCSU #201920018
A/E PROJECT NO.
058
NCSU FACILITIES NO.
G000
SHEET

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