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

Name of Project: Cedar Ridge High School Classroom Wing Addition
Address: 1125 New Grady Brown School Road, Hillsborough, NC   Zip Code 27278
Proposed Use: New High School Classrooms
Owner/Authorized Agent: Sara Pitts   Phone: (919) 732-8126   E-Mail: sara.pitts@orange.k12.nc.us
Owned By: ☒ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☐ City ☒ County: Orange ☐ State

LEAD DESIGN PROFESSIONAL: Kenneth E. Redfoot, AIA, CRA Associates, Inc

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	CRA Associates, Inc.	Ken Redfoot, AIA	6565	(919) 401-8586	kredfoot@cra-ae.com
Civil	CRA Associates, Inc.	Mike Baranowsky, PE	13350	(919) 401-8586	
Electrical	RNM Consulting Engineers	Jason S. Denton, PE	35223	(828) 492-0677	
Fire Alarm	RNM Consulting Engineers	Jason S. Denton, PE	35223	(828) 492-0677	
Plumbing	RNM Consulting Engineers	Jeffrey Powell, PE	25989	(828) 492-0677	
Mechanical	RNM Consulting Engineers	Mark McDowell, PE	24539	(828) 492-0677	
Fire Protection	RNM Consulting Engineers	Jeffrey Powell, PE	25989	(828) 492-0677	
Structural	LHC Structural Engineers, Inc.	Robert Lasater, PE	14526	(919) 832-5587	
Retaining Walls >5' High					
Other					

2018 NC BUILDING CODE: Addition

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

OCCUPANCY CATEGORY (Table 1604.5): **Current:** III **Proposed:** III

BASIC BUILDING DATA
Construction Type: II-B
Sprinklers: Yes NFPA 13
Standpipes: No
Primary Fire District: No **Flood Hazard Area:** No
Special Inspections Required: Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor		22,838	22,838
1st Floor		24,124	24,124
Basement		n/a	n/a
TOTAL		46,962	46,962

ALLOWABLE AREA

Primary Occupancy Classification(s): EducationalN/A N/A N/A N/A N/A
Accessory Occupancy Classification(s): Assembly A-3
Incidental Uses (Table 509): Laboratories in Group E

2018 NC Administrative Code and Policies

Special Uses (Chapter 4 – List Code Sections): ________
Special Provisions: (Chapter 5 – List Code Sections): ________
Mixed Occupancy: No Separation: Select one Exception: ________
Non-Separated Use (508.3)
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 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	First Floor	24,124	43,500	10,585	54,085
2	Second Floor	22,838	43,500	10,585	54,085

[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 = 770'-0" (F)
b. Total Building Perimeter = 788'-0" (P)
c. Ratio (F/P) = 1.00 (F/P)
d. W = Minimum width of public way = 30'-0" (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30 = 73$ (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE[1]
Building Height in Feet (Table 504.3)	75	35'-0"	
Building Height in Stories (Table 504.4)	3	2	

[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		0					
Bearing Walls							
Exterior							
North		N/A					
East		N/A					
West		N/A					
South		N/A					
Interior		0					
Nonbearing Walls and Partitions		0					
Exterior walls							
North		N/A					
East		N/A					
West		N/A					
South		N/A					
Interior walls and partitions		N/A					
Floor Construction Including supporting beams and joists		0					
Floor Ceiling Assembly		0					
Columns Supporting Floors		0					
Roof Construction, including supporting beams and joists		0					
Roof Ceiling Assembly		0					
Columns Supporting Roof		0					
Shaft Enclosures - Exit		1	1-hour	4/A0.2	U. L. U905	See MEP dwgs.	
Shaft Enclosures - Other		1	1-hour	4/A0.2	U. L. U905	See MEP dwgs.	
Corridor Separation		0					
Occupancy/Fire Barrier Separation		N/A					
Party/Fire Wall Separation		3	3-hour	4/A0.2	U. L. U905	See MEP dwgs.	
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

2018 NC Administrative Code and Policies

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
Exit Signs: Yes
Fire Alarm: Yes
Smoke Detection Systems: Yes
Carbon Monoxide Detection: No

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet A0.2
☒ Fire and/or smoke rated wall locations (Chapter 7)
☒ Assumed and real property line locations (if not on the site plan)
☒ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☒ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
☒ Occupant loads for each area
☒ Exit access travel distances (1017)
☒ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
☒ Clear exit widths for each exit door
☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☒ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☒ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☒ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

2018 NC Administrative Code and Policies

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

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

ACCESSIBLE PARKING
(SEE SHEET C2.x FOR PARKING SUMMARY)

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						

PLUMBING FIXTURE REQUIREMENTS
(SEE SHEET A0.1 FOR TABLES)

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

SPECIAL APPROVALS

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

2018 NC Administrative Code and Policies

ENERGY SUMMARY

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

Existing building envelope complies with code: Select one

Exempt Building: Select one Provide code or statutory reference:

Climate Zone: 4A

Method of Compliance: Energy Code - Prescriptive
(If "Other" specify source here)________

THERMAL ENVELOPE

Roof/ceiling Assembly (each assembly)
Steep Sloped Roof Assembly: Metal roofing over 6" rigid roof insulation over 1 ½" steel roof deck
U-Value of total assembly: 0.028
R-Value of insulation: 36.0

Exterior Walls (each assembly)
Exterior Masonry Wall: Exterior brick veneer with minimum 1" air space with 2 ½" spray foam cavity insulation on ½" glass-mat sheathing on 6" steel studs @ 16" o.c. (with R-13 batt insulation) with 5/8" interior gypsum board.
U-Value of total assembly: 0.035
R-Value of insulation: 28.5
Openings
U-Value of glazing assembly: 0.31 maximum
Solar Heat Gain Coefficient: 0.25 maximum
Door R-Values: 4.5 or better

Walls below grade (each assembly)
Basement Wall: 3" XPS cavity insulation on concrete masonry walls
R-Value of insulation: 15.0

Floors slab on grade
Description of assembly: Exterior brick veneer with 3" XPS cavity insulation on concrete masonry
R-Value of insulation: 15.0
Slab Heated: No.

2018 NC Administrative Code and Policies

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN (SEE SHEET S0.1)
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:

Importance Factors: Snow (I_s) Select one
Seismic (I_E) Select one

Live Loads: Roof ________ psf
Mezzanine ________ psf
Floor ________ psf

Ground Snow Load: ________ psf

Wind Load: Basic Wind Speed ________ mph (ASCE-7)
Exposure Category Select one

SEISMIC DESIGN CATEGORY: Select one
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) Select one
Spectral Response Acceleration S_s ________ %g S_1 ________ %g
Site Classification (ASCE 7) Select one
Data Source: Select one
Basic structural system Select one
Analysis Procedure: Select one
Architectural, Mechanical, Components anchored? Select one

LATERAL DESIGN CONTROL: Select one

SOIL BEARING CAPACITIES:
Select one ________ psf
Pile size, type, and capacity ________

2018 NC Administrative Code and Policies

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN (SEE SHEET M0.1)
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: ________
summer dry bulb: ________

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

Building heating load: ________

Building cooling load: ________

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

List equipment efficiencies: ________

2018 NC Administrative Code and Policies

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN (SEE SHEET E0.1)
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Select one

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

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

2018 NC Administrative Code and Policies

2018 NC Plumbing Code - Plumbing Fixture Calculations - Classrooms

NCPC TABLE 403.1 USE GROUP	NO. OF PERSONS	MALE FEMALE RATIO	NO. OF MALES	NO. OF FEMALES	MALE WC	MALE UR NCPC 419.2	MALE LAV	FEMALE WC	FEMALE UR	FEMALE LAV	SHWRS & TUBS	DRINK FOUNT
Educational	825	50/50	412.5	412.5	13.75		4.125	16.5	NA	4.125	NA	8.25
	REQUIRED FIXTURES FOR MALES ⟹				14	0	4					
	REQUIRED FIXTURES FOR FEMALES ⟹							17	NA	4		
	REQUIRED FIXTURES FOR ALL ⟹										NA	8
SPACE/ROOM					MALE WC	MALE UR NCPC 419.2	MALE LAV	FEMALE WC	FEMALE UR	FEMALE LAV	SHWRS & TUBS	DRINK FOUNT
Toilet Rooms J108, J116, J120					3		3					
Toilet Rooms J107, J117, J121								3		3		
Men J122					2	3	2					4
Women J123								6		3		
Toilet Rooms J207, J217, J222					3		3					
Toilet Rooms J208, J218, J223								3		3		
Men J224					2	3	2					4
Women J225								6		3		
	PROVIDED FIXTURES FOR MALES ⟹				10	6	10					
	PROVIDED FIXTURES FOR FEMALES ⟹							18	0	12		
	PROVIDED FIXTURES FOR ALL ⟹										0	8

2018 NC Plumbing Code - Occupancy Calculations - Classrooms

NUMBER OF SPACES/ROOMS	SPACE/ROOM	ROOM AREA (GSF)	ROOM AREA (NSF)	NUMBER OF OCCUPANTS PER CLASSROOM	2008 NCPC TABLE 403.1 CLASSIFICATION AND USE GROUP	NCBC TABLE 1004.1.2 USE CATEGORY	OCCUPANT LOAD FACTOR (SF/PERSON) GROSS	OCCUPANT LOAD FACTOR (SF/PERSON) NET	NO. OF FIXED SEATS	NO. OF PEOPLE
	FIRST FLOOR									
12	Classrooms in Area J			33	Educational	Classroom				396
	SECOND FLOOR									
13	Classrooms in Area J			33	Educational	Classroom				429
					Educational					825
					TOTAL OCCUPANTS					825

Note! The occupancy calculations below are based on Section 2902.6 of the North Carolina State Building Code.

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CRA ASSOCIATES, INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 72 NORTH CAROLINA CHAPEL HILL, N.C.
KENNETH E. REDFOOT REGISTERED ARCHITECT 6565 NORTH CAROLINA CHAPEL HILL, N.C.
4/25/2019

Cedar Ridge High School
Classroom Addition
Orange County Schools
1125 New Grady Brown School Road
Hillsborough, North Carolina

no. revisions

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Code Information Sheet

sheet A0.1

project no. 1716

date 4/25/19

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