2018 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(BLDG#4 – CONNECTOR ADDITION)

(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)

(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: __Cooper Academy – Additions & Renovations – Building #4 (Connector)___
Address: _____849 Mial St., Clayton, NC ________________________________Zip Code 27520
Owner/Authorized Agent: __Brooks Moore _Phone # (919) 934-2021 __ E-Mail: brooksmoore@johnston.k12.nc.us__
Owned By: ☒ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☒ City_Clayton NC__ ☐ County________ ☐ State

CONTACT: Boomerang Design Duane Hutchins (919) 573-6400 dhutchins@thinkboomerang.com

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	Boomerang Design, PA	Angela Easterday	9248	(919) 573-6400	info@thinkboomerang.com
Civil	CLH Design, PA	Keith Downing	1047	(919) 319-6716	kdowning@clhdesignpa.com
Electrical	PDC Engineers, PA	Tom Butkovich	024651	(919) 790-9989	tbutkovich@pdcengineers.com
Fire Alarm	PDC Engineers, PA	Tom Butkovich	024651	(919) 790-9989	tbutkovich@pdcengineers.com
Plumbing	PDC Engineers, PA	Steve Campbell	025020	(919) 790-9989	scampbell@pdcengineers.com
Mechanical	PDC Engineers, PA	Steve Campbell	025020	(919) 790-9989	scampbell@pdcengineers.com
Sprinkler-Standpipe	PDC Engineers, PA	Steve Campbell	025020	(919) 790-9989	scampbell@pdcengineers.com
Structural	Lynch Mykins, PC	Stephen N Sparks	053114	(919) 782-1833	nsparks@lynchmykins.com
Retaining Walls >5' High	Lynch Mykins, PC	Stephen N Sparks	053114	(919) 782-1833	nsparks@lynchmykins.com
Other	____________	____________	____________	(___)______	____________

(“Others” should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC CODE FOR: ☐ New Construction ☒ Addition ☐ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core
☐ Phased Construction – Shell/Core
☐ Renovation

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

CONSTRUCTED:(date) _1999______**ORIGINAL OCCUPANCY(S)** (Ch. 3):___Educational (E)__
RENOVATED: (date) __________**CURRENT OCCUPANCY(S)** (Ch. 3):_Educational (E)___
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
(check all that apply) ☐ 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 (Primary) **Flood Hazard Area:** ☒ No ☐ Yes
Special Inspections Required: ☐ No ☒ Yes

Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	RENO/ALTER (SQ.FT)	SUB-TOTAL
6th Floor	N/A	N/A	N/A	N/A
5th Floor	N/A	N/A	N/A	N/A
4th Floor	N/A	N/A	N/A	N/A
3rd Floor	N/A	N/A	N/A	N/A
2nd Floor	N/A	N/A	N/A	N/A
Mezzanine	N/A	N/A	N/A	N/A
First Flr	17,006	465	N/A	17,471
Ground Flr	N/A	N/A	N/A	N/A
TOTAL	17,006 (1)	465 SQ FT		17,471 SQ FT

ALLOWABLE AREA

Primary Occupancy Classification: SELECT ONE
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
☐ 1-2 Condition ☐ 1 ☐ 2
☐ 1-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ 1-4
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 ☐

Accessory Occupancy Classification(s): _None______________________
Incidental Uses (Table 509): ____None______________
Special Uses (Chapter 4 – List Code Sections): NC Section 430 (NC Public School)
Special Provisions: (Chapter 5 – List Code Sections): _N/A____________________________
Mixed Occupancy: ☒ No ☐ Yes Separation: _N/A___ 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.

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

______________ + ______________ + …… = ______ ≤ 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]
First Floor	Group E	17,471 SF	12,000 SF (per 1996 existing NC force)	9,388 (per 1996 existing NC code)	21,388 sf

[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 = not calculated
b. Total Building Perimeter = ___not calculated__ (P)
c. Ratio (F/P) = _not calculated (F/P)
d. W = Minimum width of public way = not calculated (W)
e. Percent of frontage increase I_f = 100 [F/P - 0.25] x W/30 = not calculated (%)

[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 area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55 ft.	22 ft	504.3
Building Height in Stories (Table 504.4)	2	1	504.4

[1] Provide code reference if the “Show 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

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	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
Bearing Walls	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
Exterior	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
North	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
East	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
West	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
South	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
Interior	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
Nonbearing Walls and Partitions Exterior walls	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
North	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
East	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
West	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
South	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
Interior walls and partitions	>30FT	0 HR	N/A	N/A	N/A	N/A	N/A
Floor Construction Including supporting beams and joists	--	0 HR	N/A	N/A	N/A	N/A	N/A
Floor Ceiling Assembly	--	0 HR	N/A	N/A	N/A	N/A	N/A
Column Supporting Floors	--	0 HR	N/A	N/A	N/A	N/A	N/A
Roof Construction, including supporting beams and joists	--	0 HR	N/A	N/A	N/A	N/A	N/A
Roof Ceiling Assembly	--	0 HR	N/A	Sheet G103	P728	Sheet G103	N/A
Column Supporting Roof	--	0 HR	N/A	N/A	N/A	N/A	N/A
Shaft Enclosures - Exit	--	0 HR	N/A	N/A	N/A	N/A	N/A
Shaft Enclosures - Other	--	0 HR.	N/A	N/A	N/A	N/A	N/A
Corridor Separation	--	0 HR	N/A	N/A	N/A	N/A	N/A
Occupancy/Fire Barrier Separation	--	N/A	N/A	N/A	N/A	N/A	N/A
Party/Fire Wall Separation	SEE PLANS	1&2 HR.	RW.02	See G103	U905	Sheet G103	N/A
Smoke Barrier Separation	--	N/A	N/A	N/A	N/A	N/A	N/A
Smoke Partition	--	N/A	N/A	N/A	N/A	N/A	N/A
Tenant/Dwelling Unit/ Sleeping Unit Separation	--	N/A	N/A	N/A	N/A	N/A	N/A
Incidental Use Separation	--	N/A	N/A	N/A	N/A	N/A	N/A

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET FROM PERPERTY LINES)	DEGREES OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
N/A (1)	N/A	N/A	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 #: ___Sheet G108A________ (1)
☒ 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 & 2006.3.2(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 and supporting construction for a fire barrier/fire partition/smoke barrier.
☒ 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

Section/Table/Note	Title

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
See Civil Sheet C000 (Table)	--	--	--	--	--	--
For Calculations & UDO req'mts	--	--	--	--	--	--
TOTAL						

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

NOTE TO REVIEWER: THIS CONNECTOR ADDITION DOES NOT ADD CLASSROOM, LAB, OR OFFICE OCCUPANT LOAD (CIRCA 1996 NCBC); SO EXISTING PLUMBING LOADS AND COUNTS TO REMAIN

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	6	6	2	--	6	6	2	--	--	--
	NEW	--	--		--	--	--		--	--	--
	REQ'D	--	--			--	--		--	--	--

SPECIAL APPROVALS

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

NCDOI, DPI, Johnston County Inspections and The Town of Clayton

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the **North Carolina Energy Conservation 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 (Existing, 1996 NCBC; Addition, 2018 NCBC)

Exempt Building: ☒ No ☐ Yes (Provide Code or Statutory reference): ____________________

Climate Zone: ☒ 3A ☐ 4A ☐ 5A

Method of Compliance: Energy Code ☐ Performance ☒ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
(If “Other” specify source here) ____________________

THERMAL ENVELOPE (Prescriptive method only) SEE SHEET G103 FOR TYICAL ASSEMBLIES

Roof/ceiling Assembly (each assembly)
Description of assembly: ___RA.31; PVC Membrane Roof over c.i. insulation___
U-Value of total assembly: ___0.0388___
R-Value of insulation: ___R-25 ci___
Skylights in each assembly: ___N/A____
U-Value of skylight: ___N/A____
Total square footage of skylights in each assembly: __N/A____

Exterior Walls (each assembly)
Description of assembly: __EW.01 AND EW.01A; Brick over 8” CMU w/ c.i. insulation__
U-Value of total assembly: __0.09099___
R-Value of insulation: __7.6 ci___
Openings (windows or doors with glazing)
U-Value of assembly: ___.27 SUM & .29 WIN _____
Solar heat gain coefficient: ___.25____
Projection factor: ___N/A_____
Door R-Values: ___1.42_____

Description of assembly: __EW.02 AND EW.02A; Brick over 12” CMU w/ c.i. insulation___
U-Value of total assembly: __0.090992___
R-Value of insulation: __7.6 ci___
Openings (windows or doors with glazing)
U-Value of assembly: ___N/A_____
Solar heat gain coefficient: ___N/A_____
Projection factor: ___N/A_____
Door R-Values: ___N/A_____

Walls below grade (each assembly)
Description of assembly: EW.05 (Grouted CMU or Concrete w/ foundation c.i. insulation)
U-Value of total assembly: _0.106_____
R-Value of insulation: 7.6 c.i.

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: 4” concrete slab on grade
U-Value of total assembly: N/A
R-Value of insulation: Not Required in Zone 3A
Horizontal/Vertical requirement: N/A
Slab Heated: No

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

DESIGN LOADS:

Importance Factors: Snow (I_S) 1.1
Seismic (I_E) 1.25

Live Loads: Roof 20 psf
Mezzanine 150 psf
Floor 40 psf (Reference General Notes for Other Loading)

Ground Snow Load: 15 psf

Wind Load: Ultimate Wind Speed 115 mph (ASCE-7)
Exposure Category B

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 0.165 %g S_1 0.076 %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
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) PROVIDED IN PROJECT MANUAL
Bearing capacity 3000 psi (1)
Pile size, type, and capacity N/A

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

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: 10 DEGREES
summer dry bulb: 94.1 DEGREES

Interior design conditions
winter dry bulb: 68 DEGREES
summer dry bulb: 74 DEGREES (1)
relative humidity: 55%

Building heating load: 1,500,000 BTU/h

Building cooling load: 100 tons (1)

Mechanical Spacing Conditioning System
Unitary
description of unit: REFER TO SCHEDULES
heating efficiency: REFER TO SCHEDULES
cooling efficiency: REFER TO SCHEDULES
size category of unit: REFER TO SCHEDULES
Boiler
Size category. If oversized, state reason.: N/A
Chiller
Size category. If oversized, state reason.: N/A

List equipment efficiencies: REFER TO SCHEDULES

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

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

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

Lighting schedule (each fixture type)
lamp type required in fixture ALL LEDs – SEE FIXTURE SCHEDULE ON SHEET E801
number of lamps in fixture ALL LEDs – SEE FIXTURE SCHEDULE ON SHEET E801
ballast type used in the fixture ALL LEDs – SEE FIXTURE SCHEDULE ON SHEET E801
number of ballasts in fixture ALL LEDs – SEE FIXTURE SCHEDULE ON SHEET E801
total wattage per fixture SEE FIXTURE SCHEDULE ON SHEET E801
total interior wattage specified vs. allowed (whole building or by space)
total exterior wattage specified vs. allowed SEE ELECTRICAL DWGs

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient Mechanical Equipment
☒ 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

boomerang DESIGN
rethink, repurpose, results

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NORTH CAROLINA REGISTERED ARCHITECTURAL CORPORATION 50277 NORTH CAROLINA BOOMERANG DESIGN, P.A.

COOPER ACADEMY A & R
PROJECT TITLE

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3. DO NOT SCALE OFF DIMENSIONS.

REVISIONS (X)

NO.	DATE	DESCRIPTION
1	02/27/2024	ADDENDUM 2

BID SET
BID SET

2307
BOOMERANG DESIGN PROJECT NUMBER

02.07.2024
DRAWING RELEASE DATE

CODE DATA & SUMMARY SHEET - BLDG #4
SHEET TITLE

G102.2
SHEET

2/27/2024 11:46:54 AM