FIRE STATION #3

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: **Replacement of Fire Station 3**
Address: **2995 North Liberty St., Winston-Salem, NC** Zip Code **27105**
Proposed Use **Fire Station, R-2**
Owner/Authorized Agent: **Robert Prestwood** Phone # **(336) 747-6985** E-Mail: **robertp@cityofws.org**
Owned By: X City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: X City **Winston-Salem** ☐ County________ ☐ State

LEAD DESIGN PROFESSIONAL: William Brake

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	EBA Architects	Bill Brake	6527	(336) 725-1361	bbrake@ebaarchitects.com
Civil	Civil Designs	Steve Causey	19701	(336) 971-1154	scausey@allied-engserv.com
Electrical	Eng. Design	Brad Wynne	35026	(919) 851-8481	bwynne@engineereddesigns.com
Fire Alarm	Eng. Design	Brad Wynne	35026	(919) 851-8481	bwynne@engineereddesigns.com
Plumbing	Eng. Design	Ginger Scoggins	17352	(919) 851-8481	gscoggins@engineereddesigns.com
Mechanical	Eng. Design	Beth Gorney	50045	(919) 851-8481	bgorney@engineereddesigns.com
Sprink/Standpipe	Eng. Design	Ginger Scoggins	17352	(919) 851-8481	gscoggins@engineereddesigns.com
Structural	SKA Consulting	Susan Webb	40416	(336) 855-0993	svwebb@skaeng.com NA
Retaining Walls >5' High NA				( )	
Other				( )	

2018 EDITION OF NC CODE FOR: X New Construction ☐ Addition ☐ Upfit
EXISTING: ☐ Reconstruction ☐ Alteration ☐ Repair ☐ Renovation
CONSTRUCTED: (date) NA **ORIGINAL USE(S)** (Ch. 3): **NA**
RENOVATED: (date) NA **CURRENT USE(S)** (Ch. 3): **NA**
PROPOSED USE(S) (Ch. 3): **NA**

BASIC BUILDING DATA
Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A X II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
△1 **Sprinklers:** ☐ No ☐ Partial X NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: X No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: X No ☐ Yes (Primary) Flood Hazard Area: X No ☐ Yes
Building Height: (feet) **24'-4"**
Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
6th Floor	NA	NA	NA
Penthouses	NA	NA	NA
4th Floor	NA	NA	NA
3rd Floor	NA	NA	NA
2nd Floor	NA	NA	NA
1st Floor	NA	12,472 w/alternate	12,472 w/alternate
Basement	NA	NA	NA
TOTAL	NA	12,472 w/alternate	12,472 w/alternate

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 X 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 X
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 X S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Incidental Uses (Table 508.2.5):
☐ 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
X 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 X 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 415 ☐ 416 ☐ 417 ☐ 418 ☐ 419 X 420 ☐ 421 ☐ 422 ☐ 423 ☐ 424 ☐ 425 ☐ 426
Special Provisions: ☐ 509.2 ☐ 509.3 ☐ 509.4 ☐ 509.5 ☐ 509.6 ☐ 509.7 ☐ 509.8 ☐ 509.9

Primary Occupancy Classification(s): R-2
Accessory Occupancy Classification(s):S-1, B
Incidental Uses (Table 509): **Laundry**
Special Uses (Chapter 4 -- List Code Sections): 420
Special Provisions: (Chapter 5 -- List Code Sections): ____________
Mixed Occupancy: NON-Separated Separation: **2-Hr.** Exception: ____________

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

≤ 1.00
≤ 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) ALLOWABLE AREA/STORY OR UNLIMITED[2]	
First (R-2)	R-2	7,049	64,000	NA		64,000	
First (S-1)	S-1	5,037	NA	NA		NA	
First (B)	B	386	NA	NA		NA	
TOTAL		12,472					

[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)
e. Percent of frontage increase I_f = 100 [1940/1940 - 0.25] x 30/30 =
f. [2] Unlimited area applicable under conditions of Section 507.
g. [3] Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
h. [4] The maximum area of open parking garages must comply with Table 406.5.4.
i. [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) [2]	60	24' 4"	
Building Height in Stories (Table 504.4) [3]	4	1	

[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

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							
Bearing Walls							
Exterior							
2-hr CMU							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Interior walls and partitions							
2-hr CMU							
1-hr CMU							
Elevator Equipment							
Floor Construction Including supporting beams and joists							
Roof Construction							
Boiler Room							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy Separation		2-HR	2-HR	Sht LS-1	UL#U905	CAJ1004	
Dwelling Unit Separation		½ HR	½ HR	Sht LS-1	UL#U432	CAJ1004	
Smoke Barrier Separation							
Tenant Separation							
Incidental Use Separation							

* Indicate section number permitting reduction
****UL DETAILS ARE INDICATED ON SHEET LS-1**

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: ☐ No X Yes
Exit Signs: ☐ No X Yes
Fire Alarm: ☐ No X Yes
Smoke Detection Systems: ☐ No X Yes ☐ Partial ________
Panic Hardware: ☐ No X Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: **LS-1**

X 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
X Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
X Occupant loads for each area
X Exit access travel distances (1016)
X Common path of travel distances (1014.3 & 1028.8)
☐ Dead end lengths (1018.4)
X Clear exit widths for each exit door
X Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
X 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)

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
NA							

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
Lot	11	20		NA	1	1
TOTAL	11	20		NA	1	

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

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			8				8	6		
	REQ'D			2				2	2		

SPECIAL APPROVALS

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

△1 **Please see Structural Drawings for Special Inspections requirements.**

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: Zone 4

Method of Compliance: Select one
(If "Other" specify source here) **PRESCRIPTIVE**

THERMAL ENVELOPE (Prescriptive method only)

Roof/ceiling Assembly (each assembly)
Description of assembly: **metal deck/5" polyiso/PVC membrane**
U-Value of total assembly: **0.26**
R-Value of insulation: **36**
Skylights in each assembly: **NA**
U-Value of skylight: **NA**
total square footage of skylights in each assembly: **NA**

Exterior Walls (each assembly)
Description of assembly: **4" brick/2" air/2" closed-cell foam/12"CMU**
U-Value of total assembly: **0.622**
R-Value of insulation: **12.5**
Openings (windows or doors with glazing)
U-Value of assembly: **0.61**
Solar heat gain coefficient: **0.55**
projection factor: **0**
Door R-Values: **11**

Walls below grade (each assembly)
Description of assembly: **NA**
U-Value of total assembly: **NA**
R-Value of insulation: **NA**

Floors over unconditioned space (each assembly)
Description of assembly: **NA**
U-Value of total assembly: **NA**
R-Value of insulation: **NA**

Floors slab on grade
Description of assembly: **concrete slab/vapor barrier/3" perim. Insul/stone**
U-Value of total assembly: **0.62**
R-Value of insulation: **15**
Horizontal/vertical requirement: **NA**
slab heated: **NA**

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) 1.2
Seismic (I_E) 1.5

Live Loads: Roof 20 psf
Mezzanine NA
Floor 100 psf

Ground Snow Load: 15 psf

Wind Load: Ultimate Wind Speed 120 mph (ASCE-7)
Exposure Category C

SEISMIC DESIGN CATEGORY: Select one
Provide the following Seismic Design Parameters: △1
Risk Category (Table 1604.5) IV
Spectral Response Acceleration S_S 0.149 %g S_1 0.067 %g
Site Classification (ASCE 7) D
Data Source: Select one
Basic structural system Masonry shear walls
Analysis Procedure: Equivalent lateral force
Architectural, Mechanical, Components anchored? NA

LATERAL DESIGN CONTROL: Select one

SOIL BEARING CAPACITIES:
3000 psf
Pile size, type, and capacity NA

Please see Structural Drawings for Special Inspections requirements.

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(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: ____________

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City of Winston-Salem
FIRE STATION 3
WINSTON-SALEM • NORTH CAROLINA

WILLIAM E. BRAKE — REGISTERED ARCHITECT — 6527 — NORTH CAROLINA — WINSTON-SALEM, N.C.
02-12-21
△1 REVISED 3-17-21

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