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: DIVISION 11 EQUIPMENT SHOP OFFICE UPFIT
Address: 302 Statesville Road, N. WILKESBORO, Wilkes County Zip Code 27610
Proposed Use: BUSINESS
Owner/Authorized Agent: Facilities Management Division, NCDOT Phone # (919) 707-4540 E-Mail
Owned By: STATE OF NORTH CAROLINA ☐City/County ☐Private ☒State
Code Enforcement Jurisdiction: ☐City ☐County ☒State

LEAD DESIGN PROFESSIONAL: MARK D. GIBSON, RA

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	NCDOT	MARK D. GIBSON	5121	919-707-4550	mdgibson1@ncdot.gov
Civil					
Electrical	SUD ASSOCIATES, P.A	JOHN L. WATTERS	15491	919-493-5277	jlwatters@sudassociates.com
Fire Alarm	SUD ASSOCIATES, P.A	JOHN L. WATTERS	15491	919-493-5277	jlwatters@sudassociates.com
Plumbing					
Mechanical					
Sprinkler–Standpipe	----------	----------	----	----------	----------
Structural					
Retaining Walls >5' High					
Other					

2012 EDITION OF NC CODE FOR: ☐New Construction ☐Addition ☒Upfit
EXISTING: ☐Reconstruction ☐Alteration ☐Repair ☐Renovation
CONSTRUCTED: (date) 1990 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 ☐V ☐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)
Gross Building Area:

Floor	Existing(sq ft)	New(sq ft)	RENO/ALTER(SQ.FT)	Sub–Total
6th Floor				
5th Floor				
4th Floor				
3rd Floor				
2nd Floor				
Mezzanine				
1st Floor			4998	
Basement				
TOTAL				

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):
☐ 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 fixtures
☐ Group I–2 waste and linen collection rooms
☐ Waste and linen collection rooms over 10 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: _____ Hr. 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 occupancies 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 + Area of Occupancy B / Allowable Area of Occupancy B ≤ 1

_____ + _____ + ?? = _____ ≤ 1.00

NOT APPLICABLE TO THIS PROJECT

NOT APPLICABLE TO THIS PROJECT

NOT APPLICABLE TO THIS PROJECT

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503[3] AREA	(C) AREA FOR FRONTAGE INCREASE[1]	(D) AREA FOR SPRINKLER INCREASE[2]	(E) ALLOWABLE AREA OR UNLIMITED[4]	(F) MAXIMUM BUILDING AREA[5]
1	OFFICE	4998	23,000	–	–	–	23,000

[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 If = 100 [F/P – 0.25] x W/30 = _____ (%)

[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi–story building Is = 200 percent
b. Single story building Is = 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	YES	Type II–B	503
Building height in feet	55	Feet=H+20'= N/A		503
Building Height in Stories	3	Stories+1= N/A	1	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							
Bearing walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions Exterior Walls							
North							
East							
West							
South							
Interior Walls and partitions							
Floor construction including supporting beams and joist							
Roof construction including supporting beams and joists							
Shaft Enclosures–Exit							
Shaft Enclosures–Other							
Corridor Separation							
Occupancy Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Tenant Separation							
Incidental Use Separation							

* 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
Panic Hardware:	☐ NO	☒YES

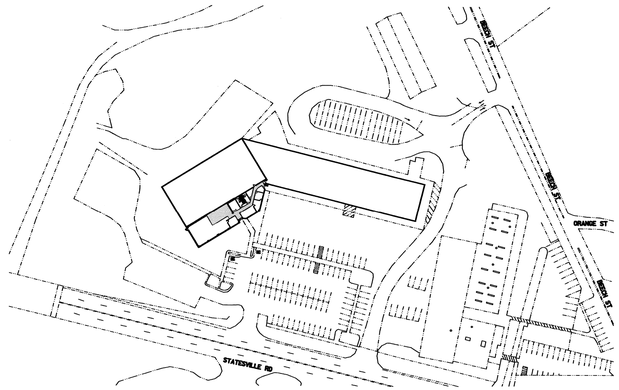
LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: A1

☐ 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 reduced scaled 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. (707.5.1, 709.4 &710.4).
☒ 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

DIVISION 11 EQUIPMENT SHOP OFFICE UPFIT
N. WILKESBORO, NORTH CAROLINA

ID#: 131002301A



AREA OF WORK

INDEX OF DRAWINGS

SYMBOLS

SILT FENCE
ELEVATION MARK
DRAINAGE / SLOPE ARROW
EXISTING CONTOURS
EXISTING ELEVATION
NEW CONTOURS
NEW ELEVATION
EXISTING TREE
FIRE EXTINGUISHER
RIGID INSULATION
BATT INSULATION / BLOWN
DRYWALL OR PLASTER
GRAVEL
UNDISTURBED EARTH
COMPACTED FILL
REVISION NUMBER
ELEVATION NUMBER
DRAWING SHEET NUMBER
DRAWING NUMBER
DRAWING SHEET REFERENCE NUMBER
BUILDING OR WALL SECTION NO.
DRAWING SHEET NUMBER
CMU
CONCRETE
STEEL
ROUGH CARPENTRY
FINISH CARPENTRY

ABBREVIATIONS & SYMBOLS

<	ANGLE	EA.	EACH	M.O.	MASONRY OPENING	STL.	STEEL
AL.	ALUMINUM	EW	EYE WASH	MAT.	MATERIAL	STG.	STORAGE
AB.	ANCHOR BOLT	ELEC.	ELECTRICAL	MAX.	MAXIMUM	S.A.C.	SUSPENDED ACOUSTICAL CEILING
APPROX.	APPROXIMATE	ELEV.	ELEVATION	MIN.	MINIMUM	T&G	TONGUE AND GROOVE
ARCH.	ARCHITECTURAL	EXIST.	EXISTING	MTD.	MOUNTED	T.O.F.	TOP OF FOOTING
@	AT	EWC	ELECTRIC WATER COOLER	MLDG.	MOULDING	T.O.J.	TOP OF JOIST
AVG.	AVERAGE	E/J	EXPANSION JOINT	N.T.S.	NOT TO SCALE	T.O.S.	TOP OF STEEL
BB	BACK TO BACK	EBC	EXTENDED BOTTOM CHORD	NO.	NUMBER	T.O.W.	TOP OF WALL
BSMT.	BASEMENT	EXT.	EXTERIOR	O.C.	ON CENTER	T.	TREAD
BRG.	BEARING	FFE	FINISH FLOOR ELEVATION (BLDG. REF.)	OPNG.	OPENING	TYP.	TYPICAL
BM.	BENCH MARK	FINFL.	FINISH FLOOR	PNL.	PANEL	UNFIN.	UNFINISHED
BLKG.	BLOCKING	F.E.	FIRE EXTINGUISHER	PLAM.LAM.	PLASTIC LAMINATE	U.O.N.	UNLESS OTHERWISE NOTED
BD.	BOARD	F.D.	FLOOR DRAIN	PL.	PLATE	VERT.	VERTICAL
BLDG.	BUILDING	FTG.	FOOTING	PLMB.	PLUMBING	W.W.M.	WELDED WIRE MESH
CH	CEILING HEIGHT	FRGWB	FIRE RATED GYPSUM WALLBOARD	PLY.WD.	PLYWOOD	W/	WITH
℄	CENTER LINE	GALV.	GALVANIZED	LB(#)	POUND	WD.	WOOD
CC	CENTER TO CENTER	GA.	GAUGE	PREFAB.	PREFABRICATED	F.C.	FIBER CEMENT
C.I.	CAST IRON	GL.	GLASS	P.S.I.	POUNDS PER SQUARE INCH	102	ROOM/SPACE NUMBER
COL.	COLUMN	GP.	GLAZED PAVER TILE	REQ'D	REQUIRED	B	WINDOW TYPE
CONC.	CONCRETE	GWB	GYPSUM SHEATHING	R.	RISER	2	DOOR TYPE
CMU	CONCRETE MASONRY UNIT	GYP.	GYPSUM	SAN.	SANITARY		CENTER LINE
CONT.	CONTINUOUS	HM	HOLLOW METAL	SEC.	SECTION		HIDDEN LINE
CJ	CEILING JOIST	HOR.	HORIZONTAL	SHT.	SHEET		BREAK LINE
C/J	CONSTRUCTION JOINT	H.B.	HOSE BIBB	SHTHG.	SHEATHING		CONSTRUCTION FENCE
CRS	COURSES	INSUL.	INSULATION	SIM.	SIMILAR		
DET.	DETAIL	INT.	INTERIOR	SPEC.	SPECIFICATIONS		
DIA.	DIAMETER	JST.	JOIST	SQ.	SQUARE		
DBL.	DOUBLE	LAV.	LAVATORY	SS	SERVICE SINK		
DS	DOWN SPOUT	M.H.	MAN HOLE	STD.	STANDARD		

SEAL: MARK DOUGLAS GIBSON, REGISTERED ARCHITECT, 10-1-13, 5121, NORTH CAROLINA, KNIGHTDALE, N. C.

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

STATE OF NORTH CAROLINA · NO ILLEGAL TRANSFER · DEPARTMENT OF TRANSPORTATION

PROJECT: DIVISION 11 EQUIPMENT SHOP OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.# 13-10023-01A
ASSET NUMBER
COUNTY - SITE - BUILDING 97 - 03 - 41

REVISIONS

NO.	DATE

DATE ISSUED: 08-02-13
DRAWN BY: IS/ RA
CHECKED BY: MG
SHEET CONTENTS: *CODE SUMMARY

SHEET NO. T1
1 OF 21

Section/Table/NoteTitle

EXIT REQUIREMENTS
NUMBER AND ARRANGEMENT OF EXITS

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM NUMBER OF EXITS		TRAVEL DISTANCE		EGRESS (SECTION 1015.2.1) ARRANGEMENT MEANS OF	
	REQUIRED	SHOWN ON PLANS	ALLOWABLE TRAVEL DISTANCE (TABLE 1016.1)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS
OFFICE	2	2	300'	135'	58'	160'

EXIT WIDTH

USE GROUP OR SPACE DESCRIPTION	(A) AREA SQ. FT.	(A1) AREA OF IMPACT	(B) AREA PER OCCUPANT (TABLE 1004.1.1)	CALCULATED OCCUPANT LOAD	(C) EGRESS WIDTH PER OCCUPANT (TABLE 1005.1)		EXIT WIDTH (in) REQUIRED WIDTH (SECTION 1005.1) (a1/b)xc		ACTUAL WIDTH SHOWN ON PLANS	
					STAIR	LEVEL	STAIR	LEVEL	STAIR	LEVEL
OFFICE	35414	4998	100	50	N/A	.2	N/A	10"	N/A	3(33") 99"

ACCESSIBLE DWELLING UNITS
(SECTUIB 1107)

NOT APPLICABLE TO THIS PROJECT

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 (NO CHANGE MADE TO EXISTING PARKING)
(SECTION 1106)

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

STRUCTURAL DESIGN

DESIGN LOADS:

Importance Factors: Wind (IW) _____
Snow (IS) _____
Seismic (IE) _____

Live Loads: Roof _____ psf
Mezzanine _____ psf
Floor _____ psf

Ground Snow Load: _____ psf

Wind Load: Basic Wind Speed _____ mph (ASCE-7)
Exposure Category _____
Wind base shears (for MWFRS) Vx = _____ Vy = _____

NOT APPLICABLE TO THIS PROJECT

SEISMIC DESIGN CATEGORY: ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Accelerations SS_____ %g S1_____ %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: VX = _____VY = _____
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) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: ☐Yes ☐No

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

(NO CHANGES MADE TO PLUMBING FIXTURE REQUIREMENTS. ACCESSIBLE BATHROOM IS LOCATED ACROSS FROM COLUMN C3, SEE B6A1).

USE		WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
BUILDING B	EXISTING								
	NEW								
	REQUIRED								

SPECIAL APPROVALS

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

NOT APPLICABLE TO THIS PROJECT

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 _____ cost for the proposed design.
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: _____
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: _____

NOT APPLICABLE TO THIS PROJECT

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: _____

Section 502.4.3 Sealing of Building Envelope [Indicate where details are in the set]
☐Joint around fenestration and door frames
☐Junction between walls and foundations, walls at building corners, walls and structural floors or roofs, walls and roof or wall panels.
☐Openings at penetrations of utility services through roofs, walls, and floors including but not limited to electrical, plumbing, mechanical, security and communications.
☐Site-built fenestration and doors.
Joints, seams and penetrations of air barrier system.
☐Other openings in the building envelope.

Samples of construction details are available in Appendix 2.1

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: _____

NOT APPLICABLE TO THIS PROJECT

Building heating load: _____

Building cooling load: _____

Mechanical Spaces Conditioning (each)
Sanitary
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

ELECTRICAL SYSTEM AND EQUIPMENT

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

SEE ELECTRICAL DRAWINGS

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 proposed 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

SEAL
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RALEIGH NORTH CAROLINA 27601
919/707-4540 FAX 919/715-0399

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * NO ILLEGAL DUMPING

PROJECT:
DIVISION 11 EQUIPMENT SHOP
OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.# 13-10023-01A
ASSET NUMBER
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REVISIONS

NO.	DATE

DATE ISSUED: 08-02-13
DRAWN BY: IS/ RA
CHECKED BY: MG
SHEET CONTENTS: *CODE SUMMARY

SHEET NO.
T2
1 OF 22

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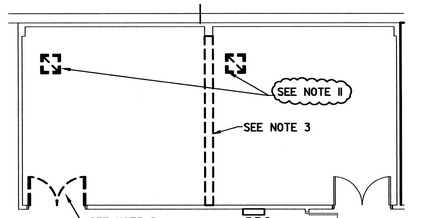
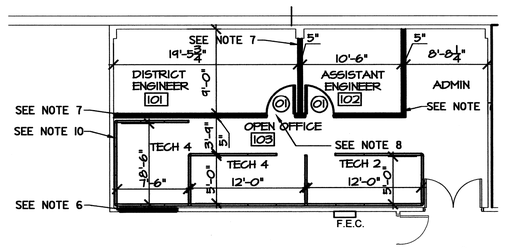


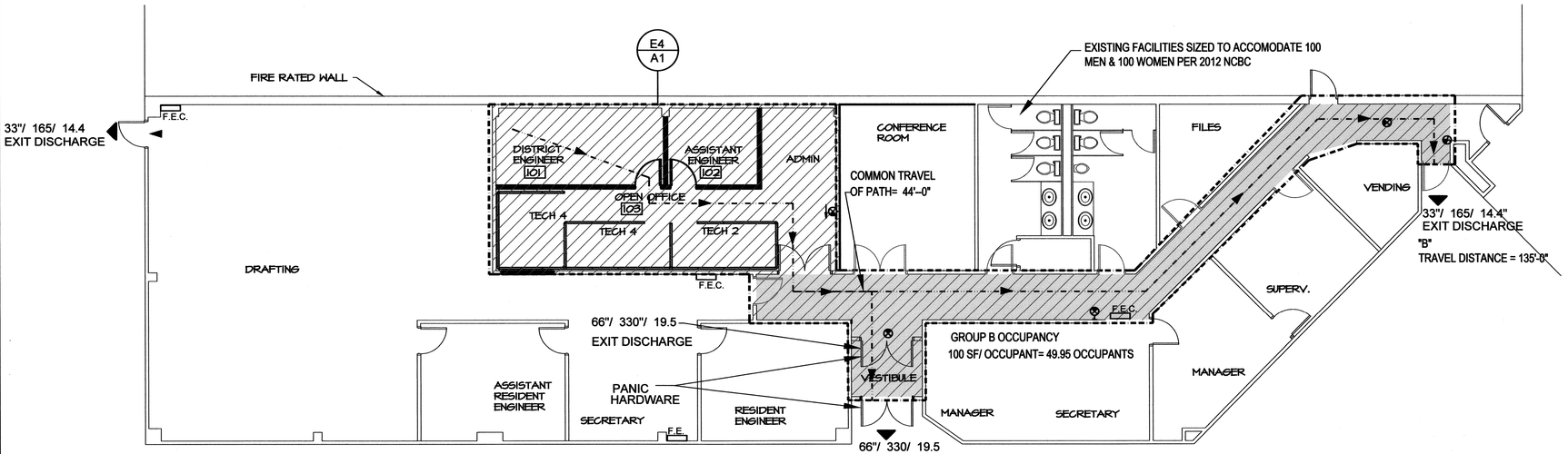
E6 / A1 **ENLARGED DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

LEGEND- DEMO (PLAN E6/A1):
REMOVE DOOR - SEE NOTE 1



E4 / A1 **ENLARGED PROPOSED PLAN**
SCALE: 1/8" = 1'-0"

LEGEND- PROPOSED (E4/A1):
NEW WALL- SEE NOTE 7
NEW CUBICLE PANELS- SEE NOTE 10
NEWDOOR- SEE NOTE 8



B6 / A1 **LIFE SAFETY PLAN**
SCALE: 1/8" = 1'-0"

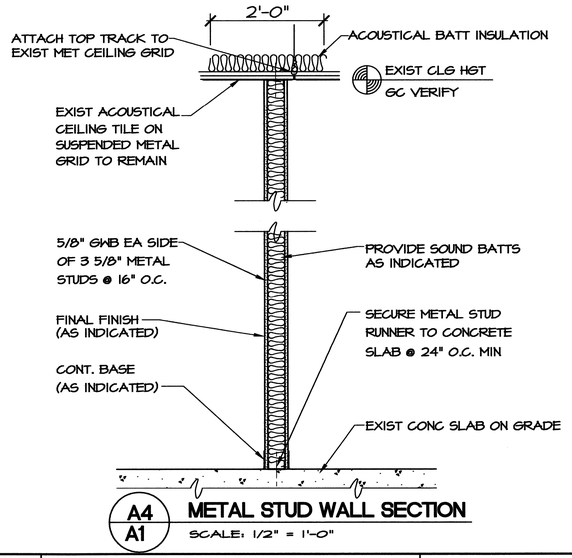
LEGEND- LIMIT OF WORK:
LIMIT OF WORK, SEE E6, E4, D3/A1

LEGEND- EGRESS:
EXIT
AREA OF IMPACT
TRAVEL PATH
EXIT SIGN
FIRE EXTINGUISHER CABINET F.E.C.

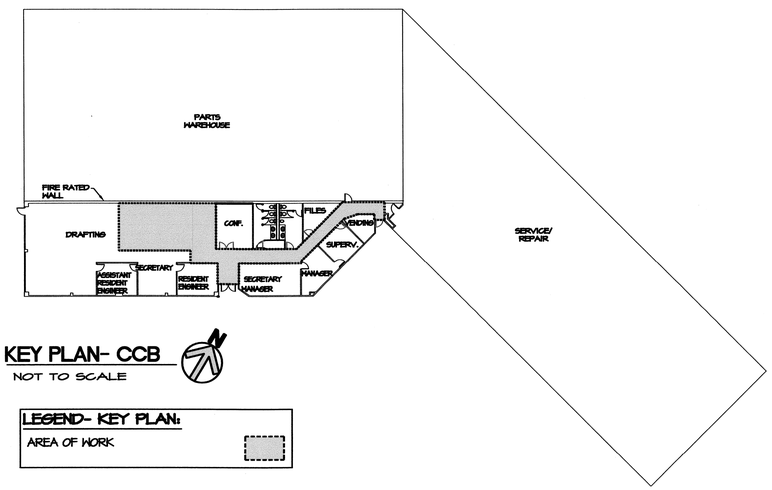
LEGEND- EXIT
EXIST. DOOR WIDTH / EGRESS CAPACITY / ACTUAL OCCUPANT LOAD
SHOW DIRECTION OF EXIT
EXIT DISCHARGE

GENERAL NOTES:

1. CONTRACTOR MUST FIELD VERIFY DIMENSIONS AND OTHER CONDITIONS
2. EXISTING DOOR TO BE REMOVED. FRAME TO REMAIN
3. REMOVE EXISTING PARTITION TRACK.
4. REMOVE EXISTING CEILING TILES NEXT TO THE TRACK.
5. ADD PROPER FITTING CEILING TILES ACCORDING TO REMAINING SPACE. SUSPENDED CEILING TO MATCH NCDOT BLDG. COMPLEX STANDARD OFF-WHITE COLOR.
6. SEAL EXISTING DOOR FRAMES W/ 5/8" DRYWALL SECURED & FLUSH W/ DOOR FRAMES. FINISH NEW SURFACE TO MATCH EXISTING.
7. ADD NEW WALL (3-1/2 METAL STUDS W/ 5/8" DRYWALL PANELS PROVIDE SOUND INSULATION). FOR WALL SECTION, SEE A4/A1
8. ADD NEW DOOR / FRAME. DOOR SCHEDULE: NEW 3'-0"X 7'-0"X 1-3/4" SOLID CORE BIRCH DOOR W/OFFICE TYPE LOCKSET, LEVER HARDWARE TO COMPLY W/ ADA, NO CLOSER. MATCH EXISTING DOOR LOCKSET (BEST)- HOLLOW METAL FRAME, 1 -1/2" PAIR HINGES/DOOR. MATCH EXISTING DOOR-FLOOR STOPS.
9. COLOR SCHEME IS THE SAME FOR ALL NEW OFFICES. PAINT NEW AND EXISTING WALLS & DOOR FRAMES. MATCH EXISTING. SEE FINISH SCHEDULE ON SHEET A2.
10. INSTALL NEW CUBICLE WORKSTATIONS SUPPLIED BY OWNER.
11. GENERAL CONTRACTOR TO DEMOLISH EXISTING EXHAUST GRILLE AND DUCTWORK. PROVIDE METAL CLOSURE AT UNDERSIDE OF EXISTING ROOF CURB. SEE ELECTRICAL DEMOLITION KEY NOTE NO. 4/ E0.1.



A4 / A1 **METAL STUD WALL SECTION**
SCALE: 1/2" = 1'-0"



KEY PLAN- CCB
NOT TO SCALE

LEGEND- KEY PLAN:
AREA OF WORK

SEAL: MARK DOUGLAS GIBSON, REGISTERED ARCHITECT, 5121, NORTH CAROLINA, KNIGHTDALE, N.C., 10-1-13

FACILITIES DESIGN
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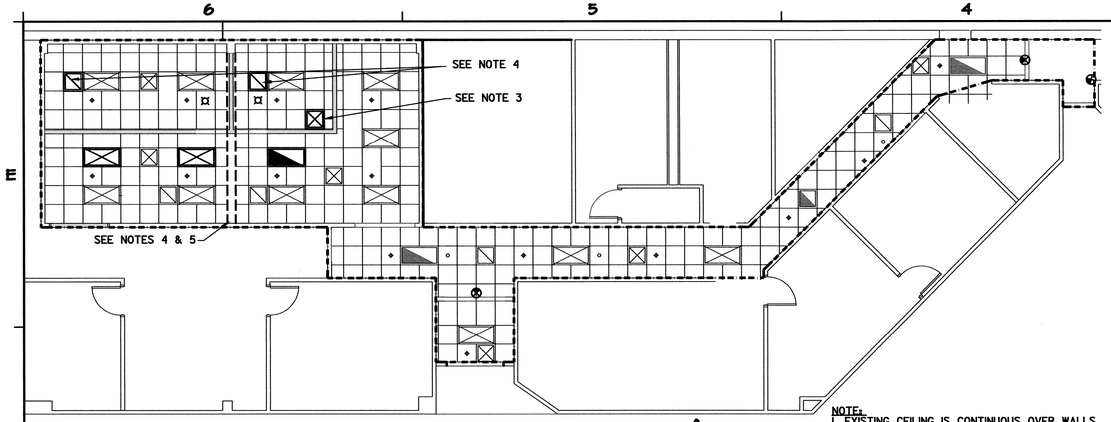
PROJECT:
DIVISION 11 EQUIPMENT SHOP OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.#	13-10023-01A
ASSET NUMBER	
COUNTY - SITE - BUILDING	97 - 03 - 41
REVISIONS NO.	DATE
DATE ISSUED:	08-02-13
DRAWN BY:	IS/ RA
CHECKED BY:	MG
SHEET CONTENTS:	• PROPOSED, DEMO, EGRESS PLAN • GENERAL NOTES, LEGEND • WALL SECTION
SHEET NO.	A1
	1 OF 2

S:\FD\N.WILKESBORO\ARCH\A1- N.WILKESBORO_REVISED- 2013.dwg, 10/1/2013 1:58:23 PM, \\dot-trbpp01\FD209072



D6 / A2 REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"

NOTE:
1. EXISTING CEILING IS CONTINUOUS OVER WALLS.
2. WOMENS AND MENS CEILING IS GYPSUM WALL
3. RELOCATED SUPPLY AIR GRILLE
4. PROVIDE NEW 24"X 24" RETURN AIR GRILLE

LEGEND- RCP (PLAN D3/A1):

	2X2 FLUORESCENT EMERGENCY LIGHT
	2X4 FLUORESCENT EMERGENCY LIGHT
	2X4 FLUORESCENT LIGHT
	HVAC SUPPLY GRILLE
	HVAC RETURN GRILLE
⊗	EXIT SIGN
¤	HORN/ STROBE

NOTE: SEE SHEET E00 & E-01 FOR LIGHTS TO BE RELOCATED

LEGEND- EXISTING RCP :

	2X2 FLUORESCENT EMERGENCY LIGHT
	2X4 FLUORESCENT EMERGENCY LIGHT
	2X4 FLUORESCENT LIGHT
	HVAC SUPPLY GRILLE
	HVAC RETURN GRILLE

FINISH SCHEDULE

RM. NO.	ROOM NAME	FLOOR (CONC. SLAB) MATERIAL	BASE MATERIAL	NORTH WALL MATERIAL	EAST WALL MATERIAL	SOUTH WALL MATERIAL	WEST WALL MATERIAL	CEILING (SMG) MATERIAL	HEIGHT
101	DISTRICT ENGINEER	C	R	GYP	GYP	GYP	GYP	ACT	10'-0"
102	ASSISTANT ENGINEER	C	R	GYP	GYP	GYP	GYP	ACT	10'-0"
103	OPEN OFFICE	C	R	GYP	GYP	GYP	GYP	ACT	

ABBREVIATIONS:

GYP	GYPSUM
R	RUBBER BASE
C	CARBET
CONC.	CONCRETE
SMG	SUSPENDED METAL GRID
ACT	ACOUSTIC CEILING TILE

SEAL:
MARK DOUGLAS GIBSON
REGISTERED ARCHITECT
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STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

PROJECT:
DIVISION 11 EQUIPMENT SHOP
OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.# 13-10023-01A

ASSET NUMBER

COUNTY - SITE - BUILDING
97 - 03 - 41

REVISIONS

NO.	DATE

DATE ISSUED: 08-02-13

DRAWN BY: IS/ RA

CHECKED BY: MG

SHEET CONTENTS:
- REFLECTED CEILING PLAN/ LEGEND.
- FINISH SCHEDULE

SHEET NO.
A2
2 OF 2

ELECTRICAL SYMBOLS (ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT)

- TYP. LINEAR FLUOR. LIGHT FIXTURES
- TYP. DOWNLIGHT FIXTURE
- TYP. WALL MOUNTED FIXTURES
- TYP. WALL MOUNTED UPLIGHT FIXTURE
- EXIT LIGHT, DARKENED SIDE INDICATES FACE
- DUAL HEAD EMERGENCY BATTERY LIGHT
- DUAL HEAD REMOTE LIGHT FIXTURE

UPPERCASE ALPHANUMERIC DESIGNATORS INDICATE LIGHT FIXTURE TYPE. REFER TO LIGHT FIXTURE SCHEDULE.
LOWERCASE ALPHANUMERIC DESIGNATORS INDICATE ASSOCIATED SWITCHED CIRCUIT. UPPERCASE ',E' INDICATES UNSWITCHED EMERGENCY CIRCUIT
A DIAGONAL LINE INDICATES LAY-IN MOUNTING.
TWO DOTS INDICATE PENDANT MOUNTING.
A CENTERED SINGLE CIRCLE INDICATES SURFACE MOUNTING.
DIAGONAL SOLID HATCH INDICATES AN EMERGENCY LIGHT FIXTURE. PROVIDE 1100 LUMENS EMERGENCY BALLAST IF NO EMERGENCY CIRCUITS ARE AVAILABLE. TIE BATTERY UNITS INTO GENERAL LIGHTING CIRCUIT AHEAD OF SWITCHING.

- RECEPTACLE, DUPLEX
- RECEPTACLE, QUAD
- RECEPTACLE, SINGLE
- GFI — GROUND FAULT INTERR. RECEPTACLE
- RECEPTACLE, SPECIAL (NEMA CONFIGURATION INDICATED)
- RECEPTACLE, CEILING MOUNTED

S = SURGE PROTECTOR
L = LOCKING COVER
WP = WEATHERPROOF WITH IN-USE COVER
MOUNT 18" A.F.F. UNLESS INDICATED OTHERWISE. + INDICATES MOUNTING HEIGHT 8" ABOVE COUNTER U.O.N. NUMBERS INDICATE HEIGHT AFF.. REFER TO ARCH. DRAWINGS.

- 6"Ø CORE DUAL SERVICE FLUSH DUPLEX FLOOR BOX (2) POWER AND (4) TEL/DATA OUTLETS
- 8"Ø CORE DUAL SERVICE FLUSH QUAD FLOOR BOX (4) POWER AND (4) TEL/DATA OUTLETS
- DUAL SERVICE TELE/DATA & POWER POLE

DUAL SERVICE DEVICES INCLUDE CONTINUOUS BARRIER BETWEEN LINE AND LOW VOLTAGE COMPARTMENTS

- JUNCTION BOX, CEILING, FLOOR MOUNTED
- JUNCTION BOX, TELEPHONE
- JUNCTION BOX, DATA
- JUNCTION BOX, TELEPHONE & DATA
- JUNCTION BOX, POWER
- LIGHTING/RECEPTACLE PANEL SURFACE MOUNT, FLUSH MOUNT
- POWER PANEL SURFACE MOUNT, FLUSH MOUNT
- DISTRIBUTION PANEL
- EQUIPMENT CABINET OR PANEL AS INDICATED
- xx/xx/xx/xx NON-FUSED DISCONNECT SWITCH
- xx/xx/xx/xx FUSED DISCONNECT SWITCH
- xx/xx/xx/xx COMBINATION STARTER/DISCONNECT SWITCH ("F" INDICATES FUSED)

xx/xx/xx/xx INDICATES CURRENT RATING/ POLES/NEMA RATING/ VOLTAGE
30A, 3P UNLESS NOTED OTHERWISE

- C — CONTACTOR, MAGNETIC
- STARTER, MAGNETIC
- S_M — MOTOR RATED SWITCH
- S_F — FRACTIONAL HP STARTER
- MOTOR (# INDICATES HORSEPOWER)
- CIRCUIT BREAKER IN ENCLOSURE
- CIRCUIT BREAKER

SIZE & # OF POLES AS INDICATED ON DRAWINGS.

- ADJUSTABLE FREQUENCY DRIVE, WITH INTEGRAL DISCONNECT SWITCH
- e — EQUIPMENT TERMINATION. SEE MECHANICAL DRAWINGS FOR DETAILS.

- S — SWITCH, SINGLE POLE TOGGLE
- S_3 — SWITCH, 3 WAY TOGGLE
- S_4 — SWITCH, 4 WAY TOGGLE
- S_{DM} — SWITCH, DIMMER
- S_D^{3c} — SWITCH, 3 WAY DIMMER
- S_K — SWITCH, KEY-OPERATED
- S_P — SWITCH, SINGLE POLE & PILOT LIGHT COMBINATION
- S_L — SWITCH, LOW VOLTAGE RELAY SYSTEM
- S_E — SWITCH, EMERGENCY BOILER OFF, 3-WAY
- OS^U — OCCUPANCY SENSOR (P=PASSIVE INFRARED, U=ULTRASONIC, D=DUAL TECHNOLOGY, A= ACOUSTIC DUAL TECHNOLOGY)

LOWER CASE LETTERS INDICATE ASSOCIATED LIGHT FIXTURES. TWO COMMA-SEPARATED LOWER CASE LETTERS INDICATE INBOARD/OUTBOARD SWITCHING.

- PC — PHOTO CELL
- HAND DRYER
- R — RELAY
- EXPOSED RACEWAY
- LOW VOLTAGE WIRING
- CONDUIT CONCEALED IN WALLS OR CEILING
- EM — EMERGENCY CIRCUIT
- CONDUIT CONCEALED IN OR UNDER FLOOR OR UNDER GROUND
- FLEXIBLE CONNECTION TO EQUIPMENT
- HOMERUN – CIRCUIT & PANEL AS INDICATED (2#12 + 1#12G., 3/4"C. UNLESS NOTED OTHERWISE)
- —CT— CABLE TRAY
- —W— SURFACE RACEWAY, WIREMOLD

DASHED LINES INDICATE UNSWITCHED LIGHTING CIRCUITS.

- WIRE MARKS: LEFT TO RIGHT: HOT, NEUTRAL, GROUND
- DOOR BELL PUSH BUTTON
- D — DOOR BELL
- (0) ITEMS FURNISHED BY OTHERS, BUT INSTALLED & WIRED BY E.C.
- (00) ITEMS FURNISHED & INSTALLED BY OTHERS, BUT WIRED BY E.C.
- (000) ITEMS FURNISHED, INSTALLED AND WIRED BY OTHERS
- (0000) ITEMS FURNISHED & WIRED BY E.C., BUT INSTALLED BY OTHERS
- DENOTES POINT OF CONNECTION OF OLD TO NEW
- TIME CLOCK SWITCH
- *(E)* EXISTING EQUIPMENT TO REMAIN
- *(R)* EXISTING EQUIPMENT TO BE REMOVED
- *(ERR)* EXISTING EQUIPMENT TO BE REMOVED & REINSTALLED. COMPARE DEMO AND NEW PLANS FOR LOCATIONS.
- (N) NEW EQUIPMENT
- (RN) REPLACE EXISTING WITH NEW EQUIPMENT IN SAME LOCATION. REPLACE WIRING AS REQUIRED.
- GA — GENERATOR ANNUNCIATOR
- K — REMOTE KEY PAD
- DL — ELECTRIC DOOR LOCK & CONTACT
- G — SECURITY SYSTEM GLASSBREAK DETECTOR
- CR — CARD READER
- PUSH BUTTON STATION
- M — ELECTRIC UTILITY METER
- CT — CURRENT TRANSFORMER
- DM — DIGITAL METER MONITOR

- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR
- FATC — FIRE ALARM TERMINAL CABINET
- SPRINKLER FLOW SWITCH
- SPRINKLER TAMPER SWITCH
- ZV — SPRINKLER ZONE VALVE
- F — FIRE ALARM PULL STATION
- FIRE ALARM STROBE LIGHT. WALL, CEILING MOUNTED
- COMBINATION FIRE ALARM HORN/STROBE

15cd U.O.N.

- FIRE ALARM HORN
- IM — ISOLATION MODULE
- AIM — ADDRESSABLE INPUT MODULE
- AOM — ADDRESSABLE OUTPUT MODULE
- PHOTO-ELECTRIC TYPE SMOKE DETECTOR.
- BR, BT — BT & BR INDICATE BEAM TRANSMITTER & RECEIVER.
- SB — SB INDICATES SOUNDER BASE.
- HEAT DETECTOR (COMBINATION FT/RR U.O.N., A=ANTICIPATOR TYPE, AC=ABOVE CEILING.)
- F — HEAT DETECTOR (FIXED TEMPERATURE)
- R — HEAT DETECTOR (RATE OF RISE)
- PHOTO-ELECTRIC TYPE DUCT SMOKE DETECTOR WITH REMOTE ANNUNCIATING TEST STATION 'RAIL'.
- REMOTE ANNUNCIATING TEST STATION 'RAIL'
- HVA — SMOKE DETECTOR REMOTE MONITOR STATION
- M — MAGNETIC DOOR HOLDER
- TELEPHONE OUTLET (1" RACEWAY ROUGH-IN ONLY)
- DATA OUTLET (1" RACEWAY ROUGH-IN ONLY) WALL, CEILING MOUNTED
- COMBINATION TELEPHONE AND DATA OUTLET (1" RACEWAY ONLY) WALL, CEILING MOUNTED
- SOUND SYSTEM WALL PHONE (ROUGH-IN ONLY)
- MICROPHONE OUTLET
- SP — SPEAKER CEILING MOUNTED
- SPEAKER WALL MOUNTED
- SPEAKER HORN
- SPHERICAL SPEAKER
- CLOCK, WALL MOUNTED
- CLOCK/SPEAKER BAFFLE
- SV — SOUND VOLUME CONTROL
- DL — SECURITY SYSTEM DOOR CONTACTS
- IC — INTERCOM
- ALARM BELL
- TV — DUPLEX RECEPTACLE AND CATV RECEPTACLE AT 6'-0" AFF
- IS — INFRARED SECURITY SENSOR

ABBREVIATIONS

%	PERCENT
&	AND
Ø, PH	PHASE
C.°	CENTIGRADE DEGREES
F.°	FAHRENHEIT DEGREES
1/C	SINGLE CONDUCTOR
A.C.B.	AIR CIRCUIT BREAKER
A.I.C.	AMPERES INTERRUPTING CAPACITY
AIM/AOM	ADDRESSABLE I/O MODULE
A.T.C.	AUTOMATIC TEMPERATURE CTRL
A.T.S.	AUTOMATIC TRANSFER SWITCH
A/C.	AIR CONDITION
AC	ALTERNATING CURRENT
ADDL.	ADDITIONAL
AF	AMPERE FRAME
A-F	AMPERE FUSE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AHJ	AUTHORITY HAVING JURISDICTION
AL.	ALUMINUM
AMP., A.	AMPERE
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
AT	AMPERE TRIP
ASY.	ASYMMETRICAL
AUX.	AUXILIARY
B.F.C.	BELOW FINISHED CEILING
BKR.	BREAKER
BLDG.	BUILDING
BSMT.	BASEMENT
C	CONDUIT
C OF U	COEFFICIENT OF UTILIZATION
C.T., CT	CURRENT TRANSFORMER
CB, C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT.	CIRCUIT
CL.	CLOSET
CLG.	CEILING
CO.	COMPANY
COAX.	COAXIAL CABLE
COL.	COLUMN
COMP	COMPLETE
CONC.	CONCRETE
CONDR.	CONDUCTOR
CONN	CONNECTED, CONNECTOR
CONST.	CONSTRUCTION
CONT.	CONTINUATION
CONTR.	CONTRACTOR
COORD.	COORDINATE
CORR	CORRIDOR
CPU	CENTRAL PROCESSING UNIT
CU	COPPER, CONDENSING UNIT
CU	CONDENSING UNIT
CU. FT.	CUBIC FEET
CW	CLOCKWISE, COOL WHITE
D	DEPTH
DEM	DEMAND
DIA.	DIAMETER
DISC	DISCONNECT SWITCH
DIV.	DIVISION
DN.	DOWN
DPST	DOUBLE POLE SINGLE THROW
DWG.	DRAWING
E.C.	ELECTRICAL CONTRACTOR
E.F., EF	EXHAUST FAN
E.H.	ELECTRIC HEATER
E.P.R.	ETHYLENE PROPYLENE RUBBER
E.W.	EACH WAY
EA.	EACH
EHT	ELEC. HEAT TRACING CABLE
ELEC.	ELECTRIC
ELEV.	ELEVATION/ELEVATOR
EM	EMERGENCY POWER PACK
EMT	ELECTRICAL METALLIC TUBING
ENCL.	ENCLOSURE
ENT.	ENTRANCE
EQ.,	EQUAL
EQUIP.	EQUIPMENT
EST.	ESTIMATE
EX.	EXISTING
EXT.	EXTERNAL/EXTERIOR
F.A.	FIRE ALARM
F.E.	FIRE EXTINGUISHER
F.O.	FIBER OPTIC
FDN.	FOUNDATION
FIG.	FIGURE
FIN.	FINISH/FINISHED
FIXT.	FIXTURE
FL.	FLOOR
FLA	FULL LOAD AMPERES
FLEX.	FLEXIBLE
F.L.M.C.	FLEX. LIQUIDTIGHT METAL COND.
FLUOR.	FLUORESCENT
FC	FOOTCANDLE
FT.	FEET
FU.	FUSE/FUSED
G.C.	GENERAL CONTRACTOR
GA.	GAGE/GAUGE
GALV.	GALVANIZED
GEN.	GENERATOR
GFCI	GND. FAULT CIRC. INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND., G	GROUND
H.I.D.	HIGH INTENSITY DISCHARGE
H.O.A.	HAND OFF AUTO
H.P.S.	HIGH PRESSURE SODIUM
HEX.	HEXAGON
HH	HANDHOLE
HORIZ.	HORIZONTAL
HP.	HORSEPOWER
HPF	HIGH POWER FACTOR
HT., H	HEIGHT
HWH	HOT WATER HEATER
HZ.	HERTZ
IMC	INTERMEDIATE CONDUIT
INC.	INCANDESCENT
INSUL.	INSULATION/INSULATED
ISOL.	ISOLATED
JB, J	JUNCTION BOX
KAIC	KILOAMP. INTERRUPT. CAPACITY
KO	KNOCKOUT
KCMIL	THOUSAND CIRCULAR MILS
KHZ	KILOHERTZ
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR
LF	LINEAR FEET
LG.	LENGTH
LG.	LONG
LRA	LOCKED ROTOR AMPERES
LT.	LIGHT
LTG.	LIGHTING
M.L.O.	MAIN LUGS ONLY
M/C	MULTI-CONDUCTOR
MFR.	MANUFACTURER
MAX.	MAXIMUM
MB	MAIN BREAKER
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILLS
MDP	MAIN DISTRIBUTION PANEL
MDS	MAIN DISTRIBUTION SWBD.
MECH.	MECHANICAL
MIN.	MINIMUM
MISC	MISCELLANEOUS
MTD.	MOUNTED
MTG.	MOUNTING
N.	NEUTRAL
NAT'L	NATIONAL
NAC	F.A. NOTIFICATION APPLIANCE CKT.
NC	NORMAL CLOSED
NEC	NAT'L ELECTRICAL CODE
NEMA	NAT'L ELEC. MANUF. ASSOC.
NIC	NOT IN CONTRACT
NO, NO.,	NORMALLY OPEN
NOTIF.	NOTIFICATION
#	NUMBER
NTS	NOT TO SCALE
OB	OUTLET BOX
P	POLE
PC	PHOTO CELL, PULL CHAIN
P.C.	PLUMBING CONTRACTOR
P.I.L.C.	PAPER INSULATED LEAD COVERED
PB, P	PULL BOX, BREAKER OR SWITCH POLE
PNL.	PANELBOARD
PORC.	PORCELAIN
PRI.	PRIMARY
PS	PAYSTATION TELEPHONE
PTD.	PAINTED
PVC	POLYVINYLCHLORIDE
R.	RADIUS
R.C.SW.	REMOTE CONTROL SWITCH
REBAR.	REINFORCING BAR
REC.	RECESSED, RECEPTACLE
RECPT.	RECEPTACLES
REQ'D	REQUIRED
REV.	REVISE/REVISION
RF	RADIO FREQUENCY
RGA	REMOTE GENERATOR ANNUNCIATOR
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RT	ROOFTOP
S.F.	SQUARE FEET
S.S.	STAINLESS STEEL, SET SCREW
SEC.	SECONDARY
SECT.	SECTION
SEP.	SEPARATE
SERV.	SERVICE
SHT.	SHEET
SIG.	SIGNAL
SK.	SKETCH
SLC	F.A. SIGNALING LINE CIRCUIT
SN	SOLID NEUTRAL
SPD	SURGE PROTECTION DEVICE
SPECS.	SPECIFICATIONS
SQ.	SQUARE
STA.	STATION
SURF.	SURFACE
SUSP.	SUSPENDED
SW.	SWITCH
SWBD.	SWITCHBOARD
SYM.	SYMMETRICAL
TC	TIME CLOCK
TEL.	TELEPHONE
THRU	THROUGH
XFMR	TRANSFORMER
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UH	UNIT HEATER
UL	UNDERWRITING LABORATORIES
UPS	UNINTERRUPTIBLE POWER SOURCE
V	VOLTAGE, VOLTS
VD	VOLTAGE DROP
VERT.	VERTICAL
VS.	VERSUS
W	WIRE
W.I.	WROUGHT IRON
W/	WITH
W/O	WITHOUT
WD.	WIDE
WP	WEATHER PROOF
XLP	CROSSLINKED POLYETHYLENE

GENERAL NOTES

1. THIS WORK SHALL COMPLY WITH STATE CONSTRUCTION OFFICE AND NORTH CAROLINA DEPARTMENT OF INSURCANCE STANDARDS AND ALL OTHER STATE AND LOCAL BUILDING, ELECTRIC, AND FIRE CODES AND REGULATIONS.
2. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, THE SPECIFICATIONS FOR GROUNDING, THE CONTRACT DRAWINGS, FEDERAL, STATE AND LOCAL CODES AND TO THE SATISFACTION OF THE ENGINEER. ALL GROUNDING CONNECTIONS TO BE MADE BY THE CADWELD PROCESS OR EQUAL.
3. ALL CONDUITS AND ELECTRICAL EQUIPMENT ARE SHOWN DIAGRAMMATICALLY AND MAY BE ALTERED TO SUIT FIELD CONDITIONS PENDING ENGINEER'S APPROVAL.
4. ALL PLANS ELEVATIONS AND CLEARANCES SHALL BE CHECKED IN THE FIELD PRIOR TO INSTALLATION TO AVOID ALL OBSTRUCTIONS.
5. ALL JUNCTION BOXES SHALL BE OF SUFFICIENT SIZE TO PROVIDE FREE SPACE FOR ALL CONDUCTORS ENCLOSED IN THE BOX AND SHALL BE SIZED WITH THE LATEST N.E.C. ARTICLE 314.
6. ALL DIMENSIONS ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
7. CONTRACTOR SHALL CHECK FOR OBSTRUCTIONS AND CLEAN OUT ALL CONDUITS PRIOR TO PULLING IN CABLES.
8. PHASING OF ALL ELECTRICAL CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR AND SHALL BE MADE IN ACCORDANCE WITH THE LOCAL UTILITY COMPANY REQUIREMENTS.
9. ALL HOLES THROUGH STRUCTURE TO ACCOMMODATE ELECTRICAL CONDUITS SHALL BE CORE DRILLED AND SEALED WITH NON-SHRINK GROUTING COMPOUND. WHERE RACEWAYS PASS THROUGH FLOORS AND FIRE RATED WALLS AND/OR PARTITIONS, CONTRACTOR SHALL FURNISH UL RATED FIREPROOFING MATERIAL TO BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND RESTORE ORIGINAL FIRE RATING.
10. THE CONTRACTOR SHALL FURNISH STRUCTURAL SUPPORT FOR ALL EQUIPMENT. FOR SURFACE MOUNTED EQUIPMENT, SUCH AS PANELBOARDS, STARTERS, SAFETY SWITCHES AND THE LIKE, PROVIDE "UNISTRUT" WITH CORROSION RESISTANT MOUNTING HARDWARE.
11. NO CONDUIT SMALLER THAN 1/2" SHALL BE USED UNLESS OTHERWISE SPECIFIED.
12. ALL JOINTS BETWEEN DISSIMILAR METALS SHALL BE COATED WITH A LITHIUM BASED THREAD LUBRICANT.
13. RACEWAYS SHALL BE PROVIDED WITH EXPANSION-DEFLECTION FITTINGS WHERE CROSSING BUILDING CONSTRUCTION EXPANSION JOINTS AND WHERE NECESSARY TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.
14. FURNISH AND INSTALL CONCRETE PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
15. PRIOR TO SUBMITTING PROPOSALS, BIDDERS ARE INSTRUCTED TO REVIEW PLANS AND SPECIFICATIONS OF ALL CONCURRENT WORK TO DETERMINE QUANTITIES OF LABOR AND MATERIAL NECESSARY TO INSTALL, CONNECT, AND TEST MATERIAL FURNISHED UNDER THESE SPECIFICATIONS. ANY ADDITIONAL LABOR AND MATERIAL REQUIRED DUE TO FAILURE OF THE CONTRACTOR TO FOLLOW THESE INSTRUCTIONS, SHALL BE FURNISHED AT NO ADDITIONAL COST TO THE OWNER.
16. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER CONTRACTORS EMPLOYED ON THIS PROJECT PRIOR TO ROUGHING IN. THE CONTRACTOR SHALL OBTAIN AND REVIEW APPROVED SHOP DRAWINGS OF ALL OTHER TRADES AFFECTING HIS WORK.
17. THE CONTRACTOR SHALL CHECK AND TORQUE TIGHTEN ALL CONNECTIONS, WHETHER FACTORY MADE OR MADE UNDER THIS CONTRACT, USING ACCURATELY CALIBRATED TOOLS. TORQUE SETTINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC RECOMMENDATIONS. IN THE ABSENCE OF THE MANUFACTURER'S RECOMMENDATIONS, THE CONTRACTOR SHALL USE THE VALUES LISTED IN TABLES 110-2, 110-3, 110-4, AND 110-5 OF THE NATIONAL ELECTRICAL CODE HANDBOOK.
18. INSTALL AN 1/8 INCH POLY PROPYLENE (PULL-IN-ROPE) IN ALL SPARE CONDUITS.
19. INSULATED GREEN COPPER CONDUCTORS FOR EQUIPMENT GROUNDING SHALL BE ROUTED WITH ALL POWER CONDUCTORS.
20. CONDUCTORS USED FOR CONTROL WIRING SHALL BE AT LEAST NO. 14 A.W.G AND ALL POWER CONDUCTORS SHALL BE AT LEAST NO. 12 A.W.G. UNLESS OTHERWISE SPECIFIED.
21. CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFETY EQUIPMENT AND EXERCISE PRECAUTIONARY PROCEDURES WHEN WORKING WITH OR NEAR ENERGIZED EQUIPMENT.
22. CONTRACTOR SHALL REMOVE ALL EQUIPMENT, MADE OBSOLETE BY THIS WORK, CONDUITS AND WIRING, EXCEPT WHERE OTHERWISE NOTED.
23. INTERRUPTION OF SERVICE SHALL BE SCHEDULED AND COORDINATED WITH THE OWNER AND HELD TO MINIMUM IN ORDER TO MAINTAIN THE PROPER OPERATION OF THE FACILITY.
24. WHEN CONDUIT OR CABLE RUNS FOR POWER AND LIGHTING EXCEED 50 FT. FOR 120 VOLT OR 125 FT. FOR 277 VOLT TO CENTER OF LOAD, NO. 10 AWG WIRE OR LARGER SHALL BE USED AS REQUIRED FOR A MAXIMUM 2% VOLTAGE DROP AT FULL CIRCUIT CAPACITY.
25. HEAVIER LINEWEIGHT SYMBOLS AND TEXT INDICATE NEW WORK UNLESS OTHERWISE NOTED. LIGHT LINEWEIGHT SYMBOLS AND ITALICIZED TEXT INDICATE EXISTING CONDITIONS TO REMAIN UNLESS OTHERWISE NOTED.
26. FIELD-VERIFY EXISTING AND COORDINATE NEW EQUIPMENT SIZES WITH ASSOCIATED CONTRACTORS (MECHANICAL, KITCHEN VENDORS ETC.) AFTER COMPLETION OF SHOP DRAWING REVIEW. ADJUST VOLTAGE RATING, CAPACITY AND SIZE OF WIRING, STARTERS, DISCONNECT SWITCHES AND OVERCURRENT PROTECTION DEVICES AS REQUIRED. NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE ORDERING SUPPLIES AND START OF CONSTRUCTION. OMISSION TO COMPLY WILL REQUIRE THE ELECTRICAL CONTRACTOR TO BEAR THE COST FOR CORRECTLY SIZED EQUIPMENT AND WIRING.
27. TERMINATIONS OF LIGHT FIXTURES SHALL BE MADE DIRECTLY FROM A JUNCTION BOX. JUMPERS FROM FIXTURE TO FIXTURE ARE NOT ACCEPTABLE. "FIXTURE WHIPS" CONNECTING JUNCTION BOXES AND FIXTURES IN SUSPENDED CEILINGS SHALL BE FMC NOT TO EXCEED 6 FEET. NO JUNCTION BOX SHALL HAVE MORE THAN 4 TERMINATIONS.

WIRE AND CONDUIT SIZING SCHEDULE

WIRE SIZE (AWG/KCMIL)			NO. OF WIRES & CONDUIT SIZE IN INCHES		
CODE	CONDUCTOR Ø & NEUTRAL	GROUND	A	B	C
			1Ø, 2W+G	1Ø/3Ø, 3W+G	3Ø, 4W+G
1	14	14	3/4	3/4	3/4
2	12	12	3/4	3/4	3/4
3	10	10	3/4	3/4	3/4
4	8	10	3/4	3/4	3/4
5	6	10	3/4	3/4	1
6	4	10	3/4	1	1-1/4
7	4	8	3/4	1	1-1/4
8	3	8	1	1	1-1/4
9	2	8	1	1 1/4	1-1/4
10	1	8	1-1/4	1-1/4	1-1/2
11	1	6	1-1/4	1-1/4	1-1/2
12	1/0	6	1-1/4	1-1/2	1-1/2
13	2/0	6	1-1/2	2	2
14	3/0	6	1 1/2	2	2
15	4/0	4	1-1/2	2	2-1/2
16	250	4	2	2	2-1/2
17	300	4	2	2-1/2	2-1/2
18	350	4	2	2-1/2	3
19	400	3	2	2-1/2	3
20	500	3	2-1/2	3	3
21	(2)4/0	(2)2	-	(2)2	(2)2-1/2
22	(2)250	(2)2	-	(2)2	(2)2-1/2
23	(2)350	(2)1	-	(2)2-1/2	(2)3
24	(2)500	(2)1/0	-	(3)	(2)3-1/2
25	(3)300	(3)1/0	-	(3)2-1/2	(3)3
26	(3)400	(3)2/0	-	(3)3	(3)3
28	(4)350	(4)3/0	-	(4)2-1/2	(4)3
30	(5)400	(5)4/0	-	(5)3	(5)3
32	(6)400	(6)350	-	(6)3	(6)4
33	(7)500	(7)350	-	(7)3	(7)3-1/2
34	(8)500	(8)400	-	(8)3	(8)3-1/2

NOTE: THE ABOVE SCHEDULE IS BASED ON 600VOLT WIRE TYPE THWN/XHHN. THE FOLLOWING IS A SAMPLE OF CONDUIT AND WIRE READOUT FROM ABOVE SCHEDULE:

- (2A) 2#12+1#12G IN 3/4" C.
- (11B) 3#1+1#6G IN 1-1/4" C.
- (25C) (3) 3" C. W/ 4-300KCMIL+1#1/0G EA.

STANDARD MOUNTING HEIGHTS

MOUNTING HEIGHTS FOR EQUIPMENT SHALL BE AS LISTED BELOW UNLESS OTHERWISE SPECIFICALLY LABELED. (UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO THE CENTERLINE OF BOXES.) ALL PROTRUSIONS BELOW 7' A.F.F. SHALL BE LESS THAN 4" FOR ADA COMPLIANCE.

SWITCHES	3'-10" A.F.F.
TELEPHONE - WALL TYPE	4'-0" A.F.F.
TELEPHONE - DESK TYPE	1'-6" A.F.F.
RECEPTACLE - GENERAL	1'-6" A.F.F.
RECEPTACLE - MECHANICAL ROOMS	3'-0" A.F.F.
FIRE ALARM GONG OR HORN	6'-8" TO BOTTOM OF GONG OR HORN
FIRE ALARM PULL STATION	4'-0" A.F.F. TO CENTER OF PULL
FIRE ALARM STROBE LIGHT	6'-8" A.F.F. TO BOTTOM OF STROBE
FIRE ALARM MODULE	6'-0" A.F.F. TO BOTTOM OF MODULE.
MOTION DETECTORS	6'-5" AFF
PANELBOARDS	6'-0" TO TOP OF CB MAX.
EXIT LIGHTS- WALL OR END MOUNTED	ABOVE DOORS (MIN. 7'-6" A.F.F. CLEAR)
KEY PAD	3'-8" AFF
DATA	1'-6" AFF
VOLUME CONTROL	3'-8" AFF
TIMERS	4'-6" AFF

2012 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:

Energy Code:	X	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

SEE LIGHT FIXTURE SCHEDULE

total interior wattage specified vs allowed whole building or space-by-space	N/A - NO CHANGE
total exterior wattage specified vs allowed	NO EXT. PERIMERT LIGHTS. 12W EMERG. EGRESS LTS ADDED.

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

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PROJECT: N. WILKSBORO OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

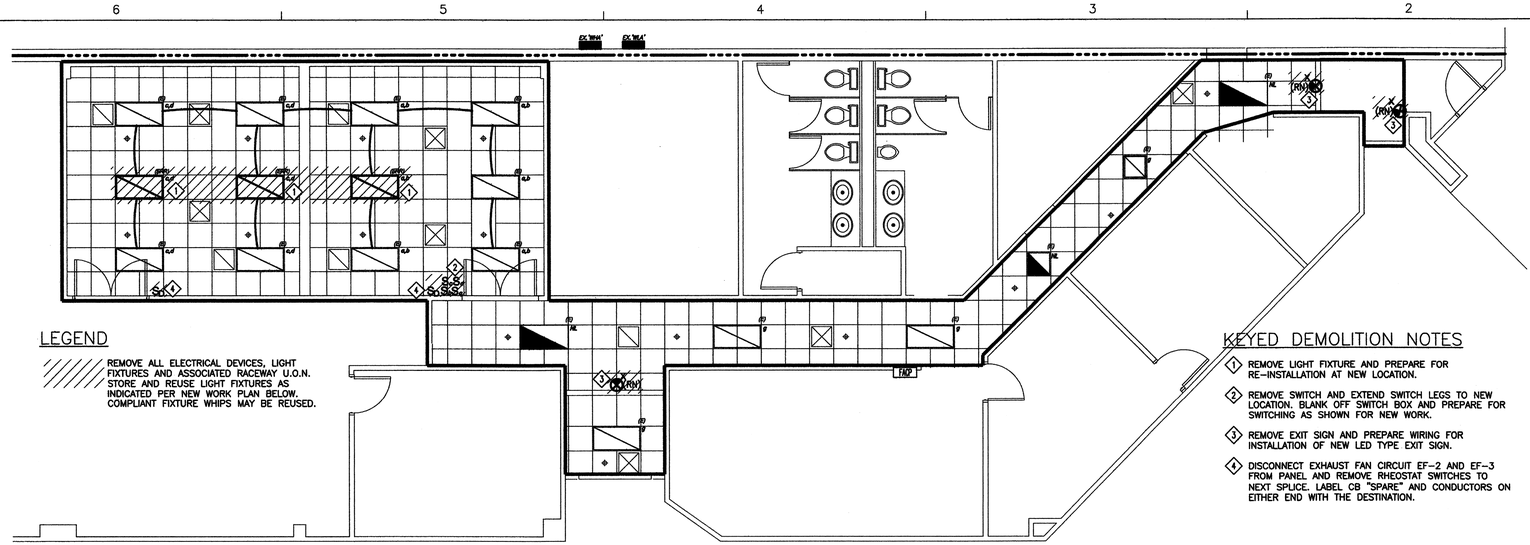
STATE CONSTRUCTION ID.# 13-10023-01A
ASSET NUMBER
COUNTY - SITE - BUILDING 97-03-41

REVISIONS NO.	DATE

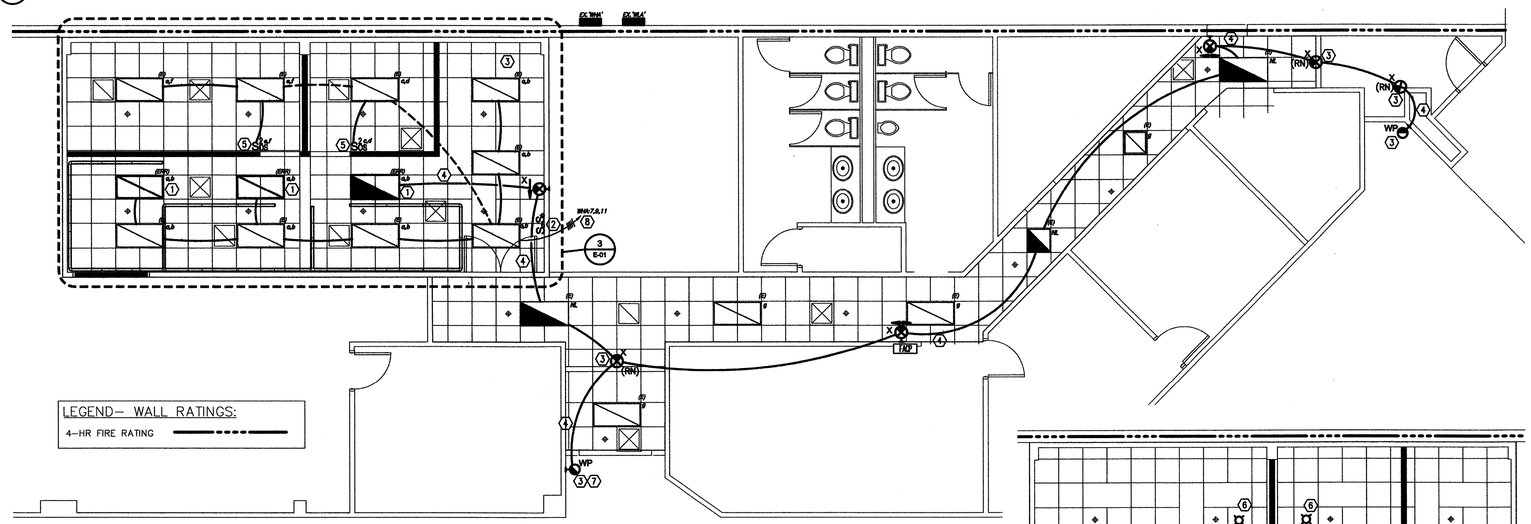
DATE ISSUED: 8-2-2013
DRAWN BY: MM
CHECKED BY: JLW

ELECTRICAL COVER

SHEET NO. E-00
OF --



1 E-01 LIGHTING RCP - DEMOLITION 3/16" = 1'-0"



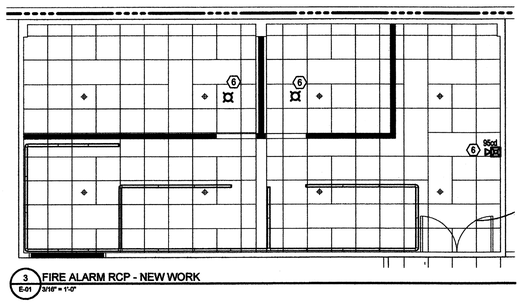
2 E-01 LIGHTING RCP - NEW WORK 3/16" = 1'-0"

GENERAL NOTES

1. TRACE AND RECORD EXISTING AND NEW BRANCH CIRCUITS CONNECTED TO THE PANELS SHOWN ON PLAN AND PROVIDE CORRECTED PANEL DIRECTORIES. MARK UNUSED CIRCUIT BREAKERS "SPARE". COORDINATE WITH OWNER AND RECORD MAXIMUM BRANCH CIRCUIT AMPACITIES. COORDINATE PHASING AND TERMINATIONS WITH ENGINEER. PANEL BALANCING IS INCLUDED.
2. ALL LINE AND LOW VOLTAGE WIRING SHALL BE IN CONDUIT.
3. PROVIDE COMPRESSION FITTINGS FOR CONDUITS THROUGHOUT.
4. LIMIT FMC AND LFMC TO 6'-0" IN UTILITY SPACES.
5. PROVIDE DOUBLE-FLANGE STRAPS FOR EXPOSED CONDUITS. COORDINATE PAINTING OF EXPOSED RACEWAYS WITH G.C.
6. JUNCTION BOXES SHOWN ARE DIAGRAMMATIC ONLY. ADD J-BOXES AS REQUIRED TO LIMIT TO FOUR CONDUIT TERMINATIONS PER BOX.
7. ADD JUNCTION BOXES AS REQUIRED TO LIMIT FIXTURE WHIPS TO LIMIT FMC TO 6'-0" LENGTH.
8. WHERE BOXES CANNOT BE LOCATED IN CONCEALED OR UTILITY SPACES PROVIDE SHALLOW CAST ALUMINUM BOXES ABOVE 8'-0" AFF.
9. EMERGENCY LIGHTING SHALL BE MINIMUM 1200 LUMENS AND UL LISTED.
10. ALL ACTIVE FIRE ALARM WORK SHALL USE COMPONENTS LISTED FOR USE WITH THE EXISTING FIRE ALARM CONTROL PANEL AND BE PERFORMED BY A FACTORY CERTIFIED PROGRAMMER AND INSTALLER TO THE SATISFACTION OF THE ENGINEER AND AHJ. MAINTAIN AND EXPAND EXISTING FACP TO ACCOMMODATE RELOCATED AND NEW INITIATION, NOTIFICATION, INPUT/OUTPUT DEVICES SHOWN.
11. EXPAND AND PROVIDE NEW SLC AND NAC LOOPS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM TO THE SATISFACTION OF THE AHJ. NAC POWER EXTENDERS SHALL BE SUPERVISED BATTERY UNITS.
12. EXISTING RACEWAY MAY BE REUSED WHERE FEASIBLE AND IN COMPLIANCE WITH THE CODE. REMOVE ABANDONED CONDUITS.
13. REPLACE DEFECTIVE EXISTING DEVICES IN KIND.
14. THE FIRE ALARM SUBMITTALS INCLUDE AN ABBREVIATED DESCRIPTION OF THE COMPLETE SYSTEM AND A FULL DESCRIPTION OF THE AFFECTED LOOPS INCLUDING EXISTING AND NEW DEVICES ON RISER DIAGRAMS AND FLOOR PLANS, WITH WIRE LEGENDS, LOAD AND VOLTAGE DROP CALCULATIONS. REVIEW WILL BE BY THE ENGINEER, OWNER AND THE AHJ.
15. SEAL ALL NEW AND EXISTING PENETRATIONS AROUND RACEWAYS AND LOW-VOLTAGE PATHWAYS.
16. NEW LIGHTING CIRCUITS ARE 20A/1P CB WITH 2#12G+1#12G IN 1/2"C. U.O.N.
17. REPAIR ANY DAMAGES TO EXISTING BUILDING SYSTEMS RESULTING FROM THIS WORK AT NO ADDITIONAL EXPENSE TO THE OWNER.
18. PROVIDE ALL J-BOXES OUTSIDE OF HARD CEILINGS.
19. PROVIDE 2-LAMP BALLASTS WITH MASTER-SLAVE TANDEM WIRING FOR DOUBLE SWITCHED LIGHT FIXTURES. SINGLE LAMP BALLASTS ARE NOT ACCEPTABLE.
20. COORDINATE EXACT LOCATION, CONFIGURATION AND QUANTITY OF EXIT SIGNS WITH ARCHITECT.

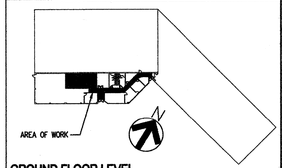
KEYED NOTES

1. RE-INSTALL LIGHT FIXTURE IN NEW LOCATION AND EXTEND CIRCUIT.
2. PROVIDE NEW SWITCHING. REVISE CIRCUITING AS REQUIRED FOR NEW ZONING.
3. PROVIDE NEW LIGHT FIXTURE / ILLUMINATED SIGNAGE AND ASSOCIATED CIRCUITING. PHOTOCELL CONTROL FOR TYPE 'WP'.
4. EXTEND EMERGENCY NIGHT LIGHT CIRCUIT. (TYP.)AS REQUIRED.
5. PROVIDE LINE VOLTAGE DUAL CIRCUIT OCCUPANCY SENSOR SWITCH SET TO VACANCY MODE (MANUAL ON, AUTO OFF). USE DUAL PASSIVE (IR & MICROPHONIC) SENSOR TECHNOLOGY. (TYP.)
6. PROVIDE NEW HORN/STROBE AND TIE INTO EXISTING UNIMODE MODEL 10UD FIRE ALARM SYSTEM. REFER TO PLAN 2/E-01 FOR LOCATION OF FACP. ALL FIRE ALARM WORK PERFORMED SHALL BE BY A CERTIFIED INSTALLER LOCATED WITHIN 100 MILES FROM THE SITE.
7. COORDINATE EXACT LOCATION W/ OWNER. CENTER ABOVE DEDICATION PLAQUE. PROVIDE PHOTOCELL CONTROL.
8. MAINTAIN EXISTING HOME RUN TO REMAIN. FIELD-VERIFY EXACT LOCATION. (TYP.)



3 E-01 FIRE ALARM RCP - NEW WORK 3/16" = 1'-0"

Key Plan: SCALE: 1:500



GROUND FLOOR LEVEL

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PROJECT:
N. WILKSBORO
OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.# 13-10023-01A
ASSET NUMBER
COUNTY - SITE - BUILDING 97 - 03 - 41

REVISIONS

NO.	DATE

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CHECKED BY: JLW

LIGHTING AND FIRE ALARM REFLECTED CEILING PLANS

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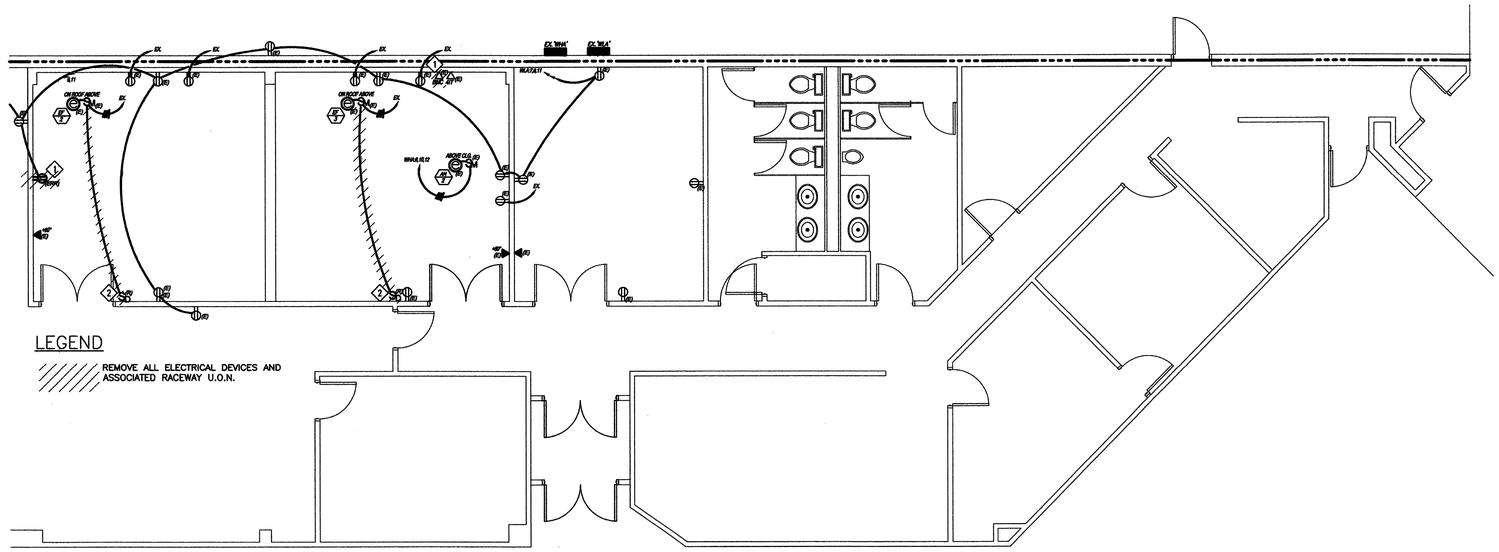
OF --



1 E-02 POWER AND SYSTEMS FLOOR PLAN - DEMOLITION
3/16" = 1'-0"

GENERAL NOTES

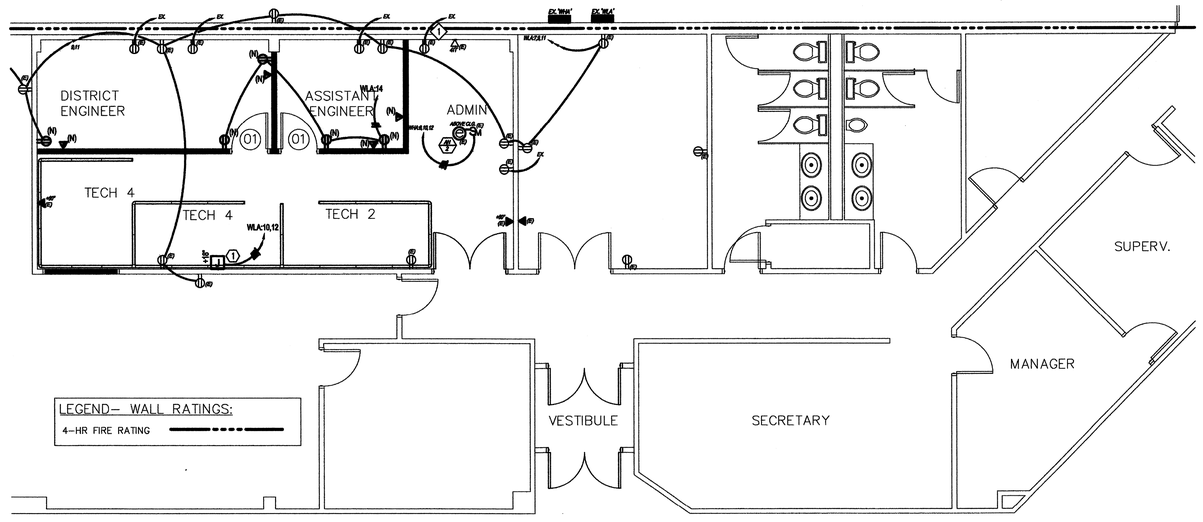
1. TRACE AND RECORD EXISTING AND NEW BRANCH CIRCUITS CONNECTED TO THE PANELS SHOWN ON PLAN AND PROVIDE CORRECTED PANEL DIRECTORIES. MARK UNUSED CIRCUIT BREAKERS "SPARE". COORDINATE WITH OWNER AND RECORD MAXIMUM BRANCH CIRCUIT AMPACITIES. COORDINATE PHASING AND TERMINATIONS WITH ENGINEER. PANEL BALANCING IS INCLUDED.
2. ALL LINE AND LOW VOLTAGE WIRING SHALL BE IN CONDUIT. TELECOMMUNICATIONS WIRING MAY BE IN J-HOOKS ABOVE CEILINGS. PROVIDE PLASTIC BUSHINGS AT CONDUIT STUBS.
3. PROVIDE COMPRESSION FITTINGS FOR CONDUITS THROUGHOUT.
4. LIMIT FMC AND LFMC TO 6'-0".
5. PROVIDE DOUBLE-FLANGE STRAPS FOR SURFACE METAL RACEWAY WHERE CONDUITS CANNOT BE CONCEALED WHERE SO DEEMED BY OWNER. COORDINATE EXACT ROUTING OF SURFACE RACEWAY W/ OWNER PRIOR TO INSTALLATION. USE OF CHALK LINE IS INCLUDED.
6. JUNCTION BOXES SHOWN ARE DIAGRAMMATIC ONLY. ADD J-BOXES AS REQUIRED TO LIMIT TO FOUR CONDUIT TERMINATIONS PER BOX.
7. ADD JUNCTION BOXES AS REQUIRED TO LIMIT FIXTURE WHIPS TO LIMIT FMC TO 6'-0" LENGTH.
8. WHERE BOXES CANNOT BE LOCATED IN CONCEALED OR UTILITY SPACES PROVIDE SHALLOW CAST ALUMINUM BOXES ABOVE 8'-0" AFF.
9. EXISTING RACEWAY MAY BE REUSED WHERE FEASIBLE AND IN COMPLIANCE WITH THE CODE. REMOVE ABANDONED CONDUITS.
10. REPLACE DEFECTIVE EXISTING DEVICES IN KIND.
11. SEAL ALL NEW AND EXISTING PENETRATIONS AROUND RACEWAYS AND LOW-VOLTAGE PATHWAYS.
12. NEW RECEPTACLE CIRCUITS ARE 20A/1P CB WITH #12G CURRENT CARRYING +1#12G IN MIN. 3/4" C. U.O.N.
13. REPAIR ANY DAMAGES TO EXISTING BUILDING SYSTEMS RESULTING FROM THIS WORK AT NO ADDITIONAL EXPENSE TO THE OWNER.
14. PROVIDE ALL J-BOXES OUTSIDE OF HARD CEILINGS.

KEYED DEMOLITION NOTES

1. REMOVE RECEPTACLE WHERE IT INTERFERES WITH NEW WALL. RE-ROUTE CIRCUIT AS REQUIRED.
2. DISCONNECT EXHAUST FAN CIRCUIT EF-2 AND EF-3 FROM PANEL AND REMOVE RHEOSTAT SWITCHES TO NEXT SPLICE. LABEL CONDUCTORS ON EITHER END.

KEYED NOTES

1. PROVIDE NEW CIRCUITS TO NEW RECESSED 2-GANG J-BOX AND LFMC WHIP TO PARTITION. PROVIDE CONNECTION TO BUILD-IN RECEPTACLES. COORDINATE CONNECTIVITY DETAILS W/ OWNER. DO NOT EXCEED (6) DUPLEX RECEPTACLES FOR CIRCUITS 10 AND 12 EA. (TYP.)



2 E-02 POWER AND SYSTEMS FLOOR PLAN - NEW WORK
3/16" = 1'-0"

kVA LOAD A	kVA LOAD B	kVA LOAD C	DESIGNATION TYPED ON DIRECTORY	COND [in]	WIRE SIZE	BRKR RATG	POLES	CKT NO.
0.90			EX. RECEPTACLES		EX. TO REMAIN	20	1	1
	0.90		EX. RECEPTACLES		EX. TO REMAIN	20	1	3
		0.90	EX. RECEPTACLES		EX. TO REMAIN	20	1	5
1.08			EX. RECEPTACLES		EX. TO REMAIN	20	1	7
	0.90		EX. RECEPTACLES		EX. TO REMAIN	20	1	9
		0.90	EX. RECEPTACLES		EX. TO REMAIN	20	1	11
0.90			EX. RECEPTACLES		EX. TO REMAIN	20	1	13
	0.36		EX. EWC		EX. TO REMAIN	20	1	15
		0.90	EX. RECPT COFFEE,		EX. TO REMAIN	20	1	17
0.90			EX VENDING MACH.		EX. TO REMAIN	20	1	19
	0.36		EX. COPY / ISL. RECPT.		EX. TO REMAIN	20	1	21
		0.90	EX VENDING MACH.		EX. TO REMAIN	20	1	23
0.90			EX. RECEPTACLES		EX. TO REMAIN	20	1	25
	0.70		EX. TABLE LIGHT WHSE		EX. TO REMAIN	20	1	27
		0.70	EX. TABLE LIGHT WHSE		EX. TO REMAIN	20	1	29
0.70			EX. TABLE LIGHT WHSE		EX. TO REMAIN	20	1	31
	0.70		EX. TABLE LIGHT WHSE		EX. TO REMAIN	20	1	33
		0.72	EX. COMPUTER RECPT		EX. TO REMAIN	20	1	35
0.54			EX. RECPT CUBICLE		EX. TO REMAIN	20	1	37
	4.38		EX. RANGE		EX. TO REMAIN	50	2	39
		4.38						41
5.92	8.30	9.40	kVA					

TOP FEEDER ENTRANCE

CKT NO.	POLES	BRKR RATG	WIRE SIZE	COND [in]	DESIGNATION TYPED ON DIRECTORY	kVA LOAD A	kVA LOAD B	kVA LOAD C
2	1	20	EX. TO REMAIN		EX. WATER HEATER	2.50		
4	2	40	EX. TO REMAIN				2.50	
6	1	20	EX. TO REMAIN		EX. AHU			1.18
8	1	20	EX. TO REMAIN		EX. EF-1	0.70		
10	1	20	3#12+1#12G	3/4"	NEW RECPT		1.08	
12	1	20	3#12+1#12G	3/4"	NEW RECPT			1.08
14	1	20	3#12+1#12G	1/2"	NEW RECPT	0.72		
16	1	20	EX. TO REMAIN		EX. UH-2		0.83	
18	1	20	EX. TO REMAIN		EX. EF-5			0.70
20	1	20	EX. TO REMAIN		EX. EF-6	0.70		
22	1	20	EX. TO REMAIN		EX. EF-7		0.70	
24	1	20	EX. TO REMAIN		EX. EF-8			0.70
26	1	20	EX. TO REMAIN		EX. FLOOD LIGHT	0.60		
28	1	20	EX. TO REMAIN		EX. DOCK LIGHT		0.60	
30	1	20	EX. TO REMAIN		EX. HVAC CTRL			0.20
32	1	20	EX. TO REMAIN		EX. WHSE LIGHTS	0.80		
34	1	20	EX. TO REMAIN		EX. WHSE LIGHTS		0.80	
36	1	20	EX. TO REMAIN		EX. COMP. RECPT			0.72
38	1	20	EX. TO REMAIN		EX. COMP. RECPT	0.72		
40	1	20	EX. TO REMAIN		EX. COMP. RECPT		0.72	
42	1	20	EX. TO REMAIN		EX. RECPT CUBICLE			0.72
						6.04	6.83	5.30
					CONNECTED kVA	12.06	15.13	14.70
					TOTAL CONNECTED kVA:		42.39	

ENCLOSURE: NEMA 1 SURFACE MOUNT
VOLTAGE: 208Y/120V, 3ϕ, 4W+G
BUSSES (min): 225 / 225 AMP
BUSSING: COPPER
MAIN: 225 AMP MAIN LUGS ONLY
FEEDER: 4#1+#6G IN 1-1/2"C.
INTERRUPTING RATING: 10 KAIC FULLY RATED
SERVICE ENTRY RATED: NO
ISOLATED GROUND: NO

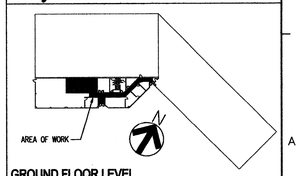
NOTES:
MAKE / MODEL SIEMENS CAT.NO. CDP-7, SERIES B, S.O.79 S:
1.) REFER TO WIRE AND CONDUIT SIZING SCHEDULE.
2.) NEW PARTS OF CIRCUIT ARE SHOWN BOLD. EX. LOADS ARE ESTIM. ONLY.
3.) GRAPHICAL REPRESENTATION OF CBs IS SCHEMATIC ONLY. PROVIDE NUMBER OF POLES AS SHOWN IN COLUMN 'POLES'.
4.) 'M' INDICATES HACR CB TO BE VERIFIED WITH M.C., L - LOCKABLE, S - SHUNT TRIP, G- GFCI CB, T - TIMER CIRCUIT, C- CONTROLLED BY OTHER MEANS.

EXISTING PANEL 'WLA' (NEW CONSTRUCTION)

LOAD TYPE		CONNECTED LOAD (KVA) EX.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (KVA) SUMMER	WINTER
LIGHTING	GENERAL	5.60		5.60	125%	7.00	7.00
	DISPLAY				125%		
	SIGNAGE				125%		
GENERAL USE	≤ 10KVA	14.94	2.88	10.00	100%	10.00	10.00
RECEPTACLES	>10KVA			7.82	50%	3.91	3.91
MOTORS &	LARGEST				125%		
EQUIPMENT	OTHERS				100%		
VENTILATION,	HEAT PUMP	5.21		5.21	125%	6.51	6.51
HVAC	COOLING LARGEST				125%		-
	OTHERS				100%		-
	HEATING				100%		
KITCHEN EQUIPMENT		8.76		8.76	100%	8.76	8.76
MISCELLANEOUS		5.00		5.00	100%	5.00	5.00
FUTURE ALLOWANCE					100%		
	TOTALS	39.51	2.88	42.39		41.18	41.18
					MAX. DEMAND:		114.3 Amp

Key Plan:

SCALE: 1:500



GROUND FLOOR LEVEL

SUD ASSOCIATES, P.A.
CONSULTING ENGINEERS
LICENSE NO. C-0315

1813 CHAPEL HILL ROAD
DURHAM, NORTH CAROLINA
(919) 493-5277

FLAT IRON BUILDING SUITE 706
20 BATTERY PARK AVENUE
ASHEVILLE, NORTH CAROLINA
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FACILITIES MANAGEMENT DIVISION, NCDOT
1 SOUTH WILMINGTON STREET
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919/707-4540 FAX 919/715-0399

PROJECT:
N. WILKSBORO
OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.# 13-10023-01A

ASSET NUMBER
COUNTY - SITE - BUILDING
97 - 03 - 41

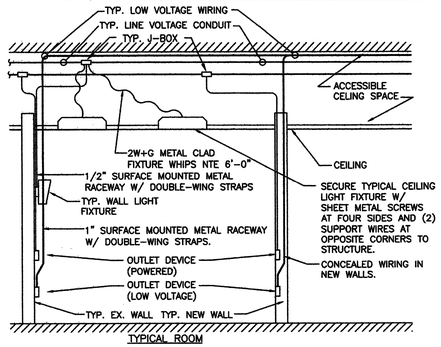
REVISIONS

NO.	DATE

DATE ISSUED: 8-2-2013
DRAWN BY: MM
CHECKED BY: JLW

POWER AND SYSTEMS FLOOR PLAN

SHEET NO.
E-02
OF --



TYPICAL ROOM

NOTES:

1. PROVIDE JUNCTION BOXES IN ACCESSIBLE CEILING SPACE OF EACH ROOM TO SERVE ALL LINE VOLTAGE LOADS INCLUDING LIGHTING AND RECEPTACLES.
2. PROVIDE 1" LOW VOLTAGE PATHWAY FROM EACH TELEPHONE, DATA, CATV AND SECURITY SYSTEM OUTLET TO SECURITY HEAD-END EQUIPMENT DESIGNATED BY OWNER.
3. PROVIDE JUNCTION BOXES AS REQUIRED. BOXES NTE 4 TERMINATIONS.
4. ALL RACEWAYS ARE EMT UNLESS NOTED OTHERWISE.

4 E-600 TYPICAL SPACE WIRING DETAIL N.T.S.

LIGHT FIXTURE SCHEDULE

(DESIGN BASIS. REVIEWED EQUAL IN PERFORMANCE AND APPEARANCE ARE ACCEPTABLE)

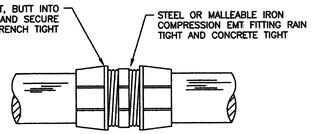
TYPE**	DESCRIPTION	MOUNTING	MANUFACTURER	CATALOG*	LAMPS*	VA	VOLTS	REMARKS**
WP	ARCH. TEARDROP EXTERIOR NORMAL/EMERGENCY EGRESS WALLPACK	SURFACE	MULE	MAKO LED ACEM DB	(2) LED	12.0	120	W/ BATT. & INTERNAL PHOTOCELL
X	EDGELIT BATTERY UNIT EXIT SIGN	RECESSED	NAVILITE	NXECRBA n R WH	(2) LED	20.0	MVOLT	NO OF FACES PER PLAN

* REFER TO HIGH EFFICIENCY (HE) LAMP/BALLAST SYSTEM SCHEDULE. HIGH EFFICIENCY (HE) LAMP/BALLAST SYSTEMS ARE MANDATORY WHERE INDICATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXPEDITE DELIVERY TO MEET PROJECT SCHEDULE.

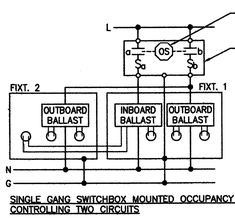
** FOR FIXTURE TYPES ENDING ON AN 'E' PROVIDE MINIMUM 1200 LUMENS SELF-TESTING EMERGENCY BALLAST.

COMPATIBILITY OF ALL COMPONENTS OF DIMMED AND EMERGENCY TRACK LIGHTING SYSTEMS SHALL BE APPROVED BY MANUFACTURERS PRIOR TO PURCHASING.

6 E-600 LIGHT FIXTURE SCHEDULE N.T.S.

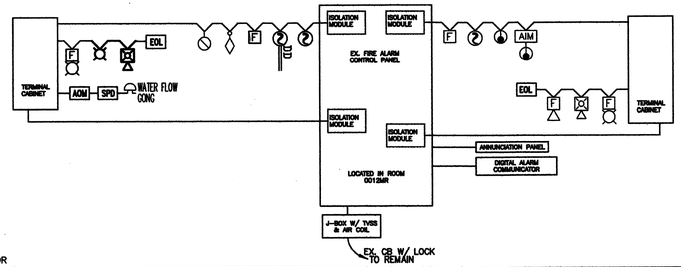


5 E-600 TYPICAL EMT COMPRESSION FITTING DETAIL N.T.S.



SINGLE GANG SWITCHBOX MOUNTED OCCUPANCY SENSOR CONTROLLING TWO CIRCUITS

7 E-600 OCCUPANCY SENSOR WALL SWITCH DETAIL N.T.S.

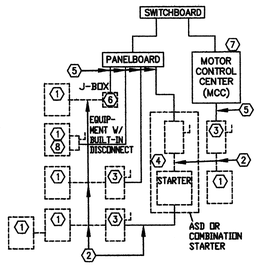


GROUND FLOOR

NOTES:

1. ALL ACTIVE FIRE ALARM WORK INCLUDED IN THIS PROJECT SHALL USE COMPONENTS LISTED FOR USE WITH THE EXISTING PANEL AND BE PERFORMED BY A FACTORY CERTIFIED PROGRAMMER, TECHNICIAN AND INSTALLER TO THE SATISFACTION OF THE ENGINEER AND AHJ. INCLUDE A QUOTE FROM THE OWNER'S CURRENT FIRE ALARM SERVICE COMPANY.
2. MAINTAIN AND EXPAND EXISTING UNIMODE MODEL 10UD FIRE ALARM CONTROL PANEL TO ACCOMMODATE RELOCATED AND NEW INITIATION, NOTIFICATION, INPUT/OUTPUT DEVICES SHOWN.
3. EXPAND AND PROVIDE NEW SLC AND NAC LOOPS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM TO THE SATISFACTION OF THE AHJ.
4. REUSE EXISTING RACEWAY WHERE FEASIBLE AND IN COMPLIANCE WITH THE CODE. REMOVE ABANDONED CONDUITS.
5. CLEAN AND REUSE EXISTING DEVICES AFTER THEY PASS THE MANUFACTURER'S TESTING STANDARDS.
6. FIRE ALARM RISER IS SCHEMATIC ONLY. WHERE APPLICABLE MAINTAIN DUAL RISER FOR INCREASED SURVIVABILITY OF SYSTEM. FIELD-VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. REUSE OF EXISTING RACEWAY IS ACCEPTABLE WHERE IT COMPLIES WITH PROJECT AND CODE REQUIREMENTS. REMOVE ALL ABANDONED CONDUIT.
7. FIELD-VERIFY ALL F.A. EOL'S, TIE-IN POINTS, RACEWAY AND WIRING PRIOR TO BID.
8. ALL WIRING, PROGRAMMING, POWER AND SIGNAL BOOSTER PANELS, NAC, SLC LOOPS AND ADDITIONAL EQUIPMENT, INTERFACE-, LOOP EXTENSION MODULES, ADDRESSABLE RELAYS ETC. REQUIRED FOR A COMPLETE FIRE ALARM SYSTEM ARE INCLUDED IN THIS PROJECT.
9. FOR SHOP DRAWINGS SUBMITTAL INVESTIGATE AND RECORD ALL FIRE ALARM SIGNALS. CALL OUT LOOP IDs, LOAD, VOLTAGE DROP, WIRE LEGEND, PARTIAL RISER AND FLOOR PLANS. PROVIDE NEW SLCs, ZONES, LOOPS AND INTERFACE MODULES AS REQUIRED.
10. MAINTAIN, RE-TEST AND CERTIFY EXISTING FIRE ALARM SYSTEMS WITHIN THIS PROJECT. NOTE ON FIRE ALARM SHOP DRAWINGS ALL CHANGES TO EQUIPMENT, MODULES, INTERFACES, DEVICES AND LOOPS. SHOW NEW WORK IN HEAVY LINEWEIGHT.
11. THE FIRE ALARM SUBMITTALS INCLUDE AN ABBREVIATED DESCRIPTION OF THE COMPLETE SYSTEM AND A FULL DESCRIPTION OF THE AFFECTED LOOPS INCLUDING EXISTING AND NEW DEVICES IN RISER DIAGRAMS AND FLOOR PLANS, WITH WIRE LEGENDS, LOAD AND VOLTAGE DROP CALCULATIONS. INCLUDE WIRE LEGEND, RISER DIAGRAMS, LOAD-, VOLTAGE DROP- AND BATTERY CALCULATIONS FOR THE SYSTEM. SHOW ROUTING OF NACs AND SLCs ON FLOOR PLANS AND IDENTIFY ALL DEVICES IDENTICAL SAME AS IN RISER DIAGRAM. NEW AND REVISED PORTIONS AND AREAS AFFECTED BY THIS WORK ARE DISTINGUISHED IN HEAVY PENWEIGHT. ANY REQUIRED WIRE- AND RACEWAY TRACING IS INCLUDED IN THIS PROJECT.
12. KEEP EXISTING FIRE ALARM SYSTEM OPERATIONAL DURING OCCUPANCY. PROVIDE A FIRE WATCH FOR TIMES WHEN SYSTEM IS RENDERED INOPERABLE.
13. THE MINIMUM SOUND PRESSURE LEVELS SHALL BE 15 dBA ABOVE AVERAGE AMBIENT SOUND LEVEL IN ALL AREAS. PROVIDE ADDITIONAL HORN/STROBE DEVICES OR VARIABLE DEVICES AS REQUIRED TO MAINTAIN THESE LEVELS.
14. FOR FIRE ALARM EQUIPMENT PANELS WITH LINE VOLTAGE POWER CIRCUITS PROVIDE ENGRAVED PHENOLIC LABELS FOR THE PANEL BOARD LOCATION, IDENTIFICATION AND CIRCUIT BREAKER NUMBER. PROVIDE BONDING JUMPERS TO BACK PLANE AND DOORS.
15. PROVIDE PHENOLIC LABELS FOR FIRE ALARM CABINETS TO INCLUDE FACP SERVED AND LOCATION OF CONNECTED PANELS/CABINETS.
16. PROVIDE ADDITIONAL ISOLATION MODULE(S) AFTER EACH 25 DEVICES AND CONTROL POINTS ON ANY ADDRESSABLE CIRCUIT.
17. EACH LOOP SHALL HAVE A MINIMUM OF 20 PERCENT SPARE CAPACITY.
18. EACH FIRE ALARM EQUIPMENT PANEL, INCLUDING POWER BOOSTER PANELS SHALL BE SUPERVISED BY A SMOKE DETECTOR WITHIN 15 FEET.
19. POWER BOOSTER PANELS ARE NOT SHOWN. LOCATE AS PER VOLTAGE DROP CALCULATION IN NON-PUBLIC SPACES BELOW CEILING. PROVIDE ALL POWER BOOSTER PANELS WITH DEDICATED CIRCUIT AND BATTERY BACK-UP.
20. ALL WIRING SHALL BE IN RACEWAY.
21. TEST AND CERTIFY COMPLETED SYSTEMS.
22. ADDRESSABLE LOOP (SIGNALING LINE CIRCUITS, SLC) SHALL BE COMPATIBLE WITH EXISTING SYSTEM AND WIRED WITH TYPE FPL/FPLR/FPLP FIRE ALARM CABLE, AWG 18 MINIMUM, LOW CAPACITANCE, TWISTED SHIELDED COPPER PAIR. CABLE SHIELD DRAIN WIRES SHALL BE CONNECTED AT EACH DEVICE ON THE LOOP TO MAINTAIN CONTINUITY, TAPED TO INSULATE FROM GROUND, AND TERMINATED AT THE FACP. ACCEPTABLE CABLES ARE LOW CAPACITANCE NOT TO EXCEED 30PF/FT. MAXIMUM BETWEEN CONDUCTORS. THE CABLE JACKET COLOR SHALL BE RED, WITH RED (+) AND BLACK (-) CONDUCTOR INSULATION. UNSHIELDED CABLE, OTHERWISE EQUAL TO THE ABOVE, IS PERMITTED TO BE USED WHERE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS UNEQUIVOCALLY REQUIRE, OR STATE PREFERENCE FOR, THE USE OF UNSHIELDED CABLE FOR ALL SYSTEMS. IN ALL UNDERGROUND CONDUIT, USE WEST PENN AQUASEAL TYPE CABLE.
23. EXCEPT AS REQUIRED ABOVE, ALL OTHER CIRCUITS IN THE SYSTEM SHALL BE WIRED WITH MINIMUM AWG 14, STRANDED COPPER, THHN/THWN CONDUCTORS, INSTALLED IN CONDUIT. COLOR CODE AS SHOWN BELOW THROUGHOUT THE SYSTEM, WITHOUT COLOR CHANGE IN ANY WIRE RUN:
    - ALARM NOTIFICATION APPLIANCE CIRCUITS (HORNS/STROBES) BLUE (+)/BLACK (-)
    - SEPARATE 24VDC OPERATING POWER (FOR EQUIPMENT) YELLOW (+)/BROWN (-)
    - DOOR CONTROL CIRCUITS (MAGNET POWER, IF FROM SYSTEM) ORANGE
    - CIRCUITS FROM AIM'S TO MONITORED DEVICES (AWG 14/16) VIOLET(+)/GREY (-)

3 E-600 TYPICAL FIRE ALARM RISER N.T.S.



GENERAL NOTES

1. IN ALL CASES THE CONTRACTOR FURNISHING THE EQUIPMENT SHALL MAKE FINAL CONNECTIONS, START UP AND TEST THE EQUIPMENT.
2. WHERE ELECTRICAL WIRING IS REQUIRED BY TRADES OTHER THAN COVERED BY DIVISION 26, THE INSTALLER SHALL REFER TO THE WIRING MATERIALS AND METHODS AS SPECIFIED UNDER DIVISION 26. NO EXCEPTIONS.

KEYED NOTES

(1) EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.

(2) CONDUIT AND WIRING BY HVAC, PLUMBING CONTRACTOR OR OTHER TRADES.

(3) IF AN ADDITIONAL DISCONNECT SWITCH IS REQUIRED BY THE NEC IT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR FURNISHING THE EQUIPMENT.

(4) A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPARATE DISCONECT SWITCH AND STARTER. LOCATE ADJACENT TO THE EQUIPMENT. IT SHALL BE PROVIDED BY THE CONTRACTOR FURNISHING THE EQUIPMENT.

(5) FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK. SEE PANELBOARD SCHEDULES FOR WIRE AND CIRCUIT BREAKER SIZES.

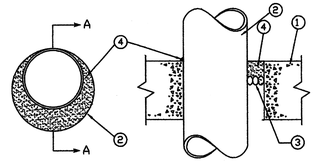
(6) A JUNCTION BOX MAY BE SHOWN ON THE ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO THE EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING WILL BE PROVIDED BY THE CONTRACTOR FURNISHING THE EQUIPMENT.

(7) IN PROJECTS UTILIZING AN MCC, THE STARTER, CIRCUIT BREAKER OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.

(8) IF ROOF TOP EQUIPMENT (RTE) IS NOT PROVIDED WITH A BUILT-IN DISCONNECT SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.

2 E-600 EQUIPMENT WIRING RESPONSIBILITY N.T.S.

System No. C-AJ-1044
March 15, 2007
F Ratings - 2, 3, and 4 Hr (See Items 2A and 4)
T Rating - 0 Hr
L Rating At Ambient - 2 CFM/sq ft
L Rating At 400 F - less than 1 CFM/sq ft
W Rating - Class 1 (See Item 4)



SECTION A-A

1. **Floor or Wall Assembly —** Lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Except as noted in table under Item 4, min thickness of solid concrete floor or wall assembly is 4-1/2 in. (114 mm). Floor may also be constructed of any min 6 in.(152 mm) thick UL Classified hollow core **Precast Concrete Units***. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening in solid lightweight or normal weight concrete floor is 32 in. (813 mm). Max diam of opening in floor constructed of hollow-core precast concrete units is 7 in. (178 mm)

See **Concrete Blocks** (CAZT) and **Precast Concrete Units** (CFTV) categories in the Fire Resistance Directory for names of manufacturers.

1A. **Steel Sleeve —** (Optional, Not Shown) - Nom 16 in. (406 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above top of floor or beyond either surface of wall. As an alternate, nom 16 in. (406 mm) diam (or smaller) min 0.028 (0.71 mm) thick galvanized sheet steel sleeve cast or grouted into floor or wall assembly flush with floor or wall surfaces.

2. **Through Penetrants —** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min annular space between pipe or conduit and edge of through opening is 0 in. (point contact). Max annular space to be as shown in the table in Item 4. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe —** Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe —** Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.

C. **Conduit —** Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.

D. **Conduit —** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

E. **Copper Tubing —** Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.

F. **Copper Pipe —** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Packing Material —** Polyethylene backer rod or nom 1 in. (25 mm) thickness of tightly-packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item 4).

3A. **Forming Material* —** As an alternate to the packing material in Item 3, nom 4 in. (102 mm) wide strips of min 1/2 in (13 mm) thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 4 in. (102 mm) depth. As an option, the strips of min 1/2 in. (13mm) thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 2 in. (51 mm) depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.

3M COMPANY — Fire Barrier Packing Material

4. **Fill, Void or Cavity Material* — Caulk, Sealant —** Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness to be installed symmetrically on both sides of wall, flush with wall surface. At point contact location between penetrant and sleeve or between penetrant and concrete, a min 1/4 in. (6 mm) diam bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

Min Floor or Wall Thkns in.	Nom Pipe Tube or Conduit Diam in.	Max Annular Space in.	Min Caulk Thkns in.	F Rating Hr
2-1/2 (64)	1/2-12 (13-305)	1-3/8 (35)	1/2 (13)	2
2-1/2 (64)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	2
4-1/2 (114)	1/2-6 (13-152)	1-3/8 (35)	1/4 (6) (a)	2
4-1/2 (114)	1/2-12 (13-305)	1-1/4 (32)	1/2 (13)	3
4-1/2 (114)	1/2-20 (13-508)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-20 (13-508)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	3
4-1/2 (114)	22-30 (558-762)	2 (51)	2 (51)	3
5-1/2 (140)	1/2-6 (13-152)	1-3/8 (35)	1 (25) (b)	4

(a)Min 2 in (51 mm) thickness of mineral wool batt insulation or forming material (Item 3A) required in annular space.

(b)Min 1 in. (25 mm) thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min 1 in.(25 mm) thickness of caulk to be installed flush with each surface of floor or wall assembly.

3M COMPANY — CP 25WB+ or FB-3000 WT.

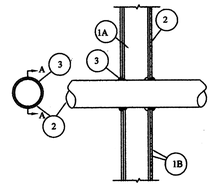
(Note - W Rating applies only when FB-3000 WT is used.)

*Bearing the UL Classification Mark

Last Updated on 2007-03-15

1 E-600 UL RATED FIRE ASSEMBLY N.T.S.

System No. W-L-1001
June 15, 2005
F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)
T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating At Ambient — less than 1 CFM/sq ft
L Rating At 400 F — less than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly – The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing may consist of either wood studs (nmx 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* – Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).
2. Through Penetrant – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe – Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe – Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. Conduit – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing
   D. Copper Tubing – Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing
   E. Copper Pipe – Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. Through Penetrating Product* – Flexible Metal Piping – The following types of steel flexible metal gas piping may be used:
      1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
      OMEGA FLEX INC
      2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
      TITEFLEX CORP
      A BUNDY CO
      3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
      WARD MFG INC
3. Fill, Void or Cavity Material* – Caulk or Sealant – Min 5/8. 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In. (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 hr.
3M COMPANY – CP 25WB+ caulk or FB-3000 WT sealant,
*Bearing the UL Classification Marking

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SEAL: NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER

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PROJECT: N. WILKSBORO OFFICE UPFIT
HIGHWAY DIVISION 11, NCDOT
WILKES COUNTY, NORTH CAROLINA

STATE CONSTRUCTION ID.# 13-10023-01A
ASSET NUMBER
COUNTY - SITE - BUILDING 97 - 03 - 41

REVISIONS

NO.	DATE

DATE ISSUED: 8-2-2013
DRAWN BY: MM
CHECKED BY: JLW

ELECTRICAL DETAILS & SCHEDULES

SHEET NO. E-03 OF --