CIVITAN RENOVATION

TAMMY LYNN CENTER

743 CHAPPELL DRIVE
RALEIGH, NC 27606

DRAWING INDEX- COMBINED

MONTEITH
CONTRACTOR

BSA
ARCHITECTURE
AND INTERIOR DESIGN

optima engineering
MECHANICAL, ELECTRICAL,
PLUMBING, AND FIRE ALARM
ENGINEERING

MORRISON ENGINEERS
STRUCTURAL ENGINEERING

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 INDIANAPOLIS, INDIANA NORTH CAROLINA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

tlc

BSA

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

PERMIT SET
11/11/24

COVER SHEET

BSALS PROJECT NO.	21950006
DATE	11/11/24

G000

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

Name of Project: Civitan Renovations
Address: 743 Chappell Drive, Raleigh, NC Zip Code 27606
Owner/Agent TLC / Sarah Crawford Phone # (919) 274 -4265 E-Mail scrawford@mcfc.org
Owned By: ☐ City/County ☑ Private ☐ State
Code Enforcement Jurisdiction: ☑ City Raleigh ☐ County ☑ State DHSR

CONTACT: Mark Searls, Principal/Project Manager

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	BSA LifeStructures	Mark Searls	16711	(919)334-0691	msearls@bsalifestructures.com
Civil				( )	
Electrical	Optima Engineering	Clay Washington	055146	(919)926-2235	cwashington@optimaengineering.com
Fire Alarm	Optima Engineering	Clay Washington	055146	(919)926-2235	cwashington@optimaengineering.com
Plumbing	Optima Engineering	John Mathews	34468	(919)926-2229	jmathews@optimaengineering.com
Mechanical	Optima Engineering	Evan C. Connell	045488	(919)926-2212	econnell@optimaengineering.com
Sprinkler-Standpipe	Optima Engineering	Brian Crawford	29772 FS-I	(919)792-6171	brian@crawfordsprinkler.com
Structural	Morrison Engineers	Aaron Marx	043844	(919)851-2021	aaron@morrisonengineers.com
Retaining Walls >5' High				( )	
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) _____ **ORIGINAL OCCUPANCY(S)** (Ch. 3): _____
RENOVATED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): _____
RISK CATEGORY (table 1604.5) **Current:** ☐ I ☑ II ☐ III ☐ IV
Proposed: ☐ I ☑ II ☐ III ☐ IV

BASIC BUILDING DATA
Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A ☐ II-B ☐ III-A ☐ III-B ☐ IV ☑ 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
Special Inspections Required: ☐ No ☑ Yes

Medical Gas Piping
Third-Party Inspector:
Aaron Wagner, ASSE 6030 Verifier
NITC 12524613
CHT Healthcare
216-219-3408

Gross Building Area: * "AREA, BUILDING" PER 2018 NCSBC

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	5,174	0	5,174	5,174
Basement				
TOTAL	5,174			

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
☑ I-2 Condition ☑ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4 (Condition 2)
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancy Classification(s): _____
Incidental Uses (Table 509)**:** Laundry Room >100 SF
Special Uses (Chapter 4 – List Code Sections) _____
Special Provisions: (Chapter 5 – List Code Sections): N/A
Mixed Occupancy: ☑ No ☐ Yes Separation: ____ Hr. Exception: _____
☐ Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
☐ Separated Use (508.4) -
See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(a) BLDG AREA PER STORY (ACTUAL)	(b) TABLE 506.2[4] AREA	(c) AREA FOR FRONTAGE INCREASE[1,5]	(d) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	I-2	5,174	12,000		

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase I_f = 100 [F/P - 0.25] x W/30 = _____ (%)
[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)	50'	21' - 7"	
Building Height in Stories (Table 504.4)	4	1	

[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

Opening protectives not required by other areas of the code (602.1)

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		1	N/A				
Bearing Walls		1	1	G Series	--	--	
Exterior		1	1	G251	U356	N/A	
North	X>30ft	1	1	G251	U356	N/A	
East	X>30ft	1	1	G251	U356	N/A	
West	X>30ft	1	1	G251	U356	N/A	
South	X>30ft	1	1	G251	U356	N/A	
Interior		1	1	G250	U305	N/A	
Nonbearing Walls and Partitions Exterior walls		0	N/A				
North		0	N/A				
East		0	N/A				
West		0	N/A				
South		0	N/A				
Interior walls and partitions		0	N/A				
Floor Construction Including supporting beams and joists		1	N/A				
Floor Ceiling Assembly		1	N/A				
Column Supporting Floors		N/A	N/A				
Roof Construction, including supporting beams and joists		1	N/A				
Roof Ceiling Assembly		1	1	G252	P538	N/A	
Column Supporting Roof		N/A	N/A				
Shaft Enclosures - Exit		N/A	N/A				
Shaft Enclosures - Other		N/A	N/A				
Corridor Separation		0	0				
Occupancy/Fire Barrier Separation		1		G250	U305		
Party/Fire Wall Separation		N/A	N/A				
Smoke Barrier Separation		N/A	N/A				
Smoke Partition		0	0				
Tenant/Dwelling Unit/ Sleeping Unit Separation		N/A	N/A				
Incidental Use Separation		0	0				

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET FROM PROPERTY LINES	DEGREES OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
X > 30ft	UP, NS	NO LIMIT	--

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 #: G Series

☑ 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) PARKING IS EXISTING TO REMAIN

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" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
TOTAL						

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	--	--	--	--	--	--	--			
I-2	NEW	--	-	4	--	--	--	10	3 *	0 *	
	REQ'D	2	2	--	--	2	2	--	5	1	

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, SCO, DPI, DHHS, ICC, etc., describe below)
CITY OF RALEIGH INSPECTIONS
DHHS - DIVISION OF HEALTH SERVICE REGULATION

* **2902.1:** Adjustment in occupant content is requested by the plumbing official based on actual operational use of the facility. Functioning as an Intermediate Care Facility (ICF) for individuals with developmental disabilities, residents in this facility are majority non-ambulatory and requiring 24/7 assistance/medical attention. Bathing for residents is assisted in medical tubs provided in central bathing rooms at a 5:1 ratio based on the needs of the care population, in compliance with 2022 FGI Guidelines for Residential Health, Care and Support Facilities 4.1-2.2.8.9.

(RESIDENTIAL ENERGY EFFICIENCY)

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 (The remainder of this section is not applicable)
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)

Roof/ceiling Assembly (each assembly)
Description of assembly: Refer to exterior assemblies
U-Value of total assembly: _____
R-Value of insulation: R-30
Skylights in each assembly:
U-Value of skylight: Existing
Total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly: Refer to remain
U-Value of total assembly: _____
R-Value of insulation: _____
Openings (windows or doors with glazing)
U-Value of assembly: 0.35 max
Solar heat gain coefficient: 0.30 max
Projection factor: _____
Door R-Values: 0.35 max

Walls below grade (each assembly)
Description of assembly: N/A
U-Value of total assembly: N/A
R-Value of insulation: N/A

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: Existing to remain
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/Vertical requirement: _____
Slab Heated: _____

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

REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION

DESIGN LOADS:

Importance Factors: Snow (I_s) 1.0 Seismic (I_e) 1.0
Live Loads: Roof 20 psf Mezzanine N/A psf Floor 40 psf
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 15.6 %g S_1 7.7 %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) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

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

MECHANICAL SUMMARY REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: 16 F
summer dry bulb: 95 F

Interior design conditions
winter dry bulb: 72 F
summer dry bulb: 75 F
relative humidity: _____

Building heating load: REFER TO SHEET M001
Building cooling load: REFER TO SHEET M001

Mechanical Spacing Conditioning System
Unitary
description of unit: Variable Refrigerant Flow Split System with Dedicated Outside Air Unit
heating efficiency: REFER TO SCHEDULES
cooling efficiency: REFER TO SCHEDULES
size category of unit: _____
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 REFER TO ELECTRICAL DRAWINGS FOR MORE INFORMATION

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: REFER TO SCHEDULES
number of lamps in fixture: REFER TO SCHEDULES
ballast type used in the fixture: REFER TO SCHEDULES
number of ballasts in fixture: REFER TO SCHEDULES
total wattage per fixture: REFER TO SCHEDULES
total interior wattage specified vs. allowed (whole building or space by space) INTERIOR ALLOWED: 5,230 WATTS INTERIOR SPECIFIED: 4,280 WATTS
total exterior wattage specified vs. allowed EXTERIOR ALLOWED: 1,100 WATTS EXTERIOR SPECIFIED: 700 WATTS

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

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CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

CIVITAN

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. REGISTERED PROFESSIONAL ENGINEERS INDIANAPOLIS, INDIANA NORTH CAROLINA CERT. NO. 51394

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

CODE SUMMARY - APPENDIX B

DATE 11/11/24
BSALS PROJECT NO. 21950006

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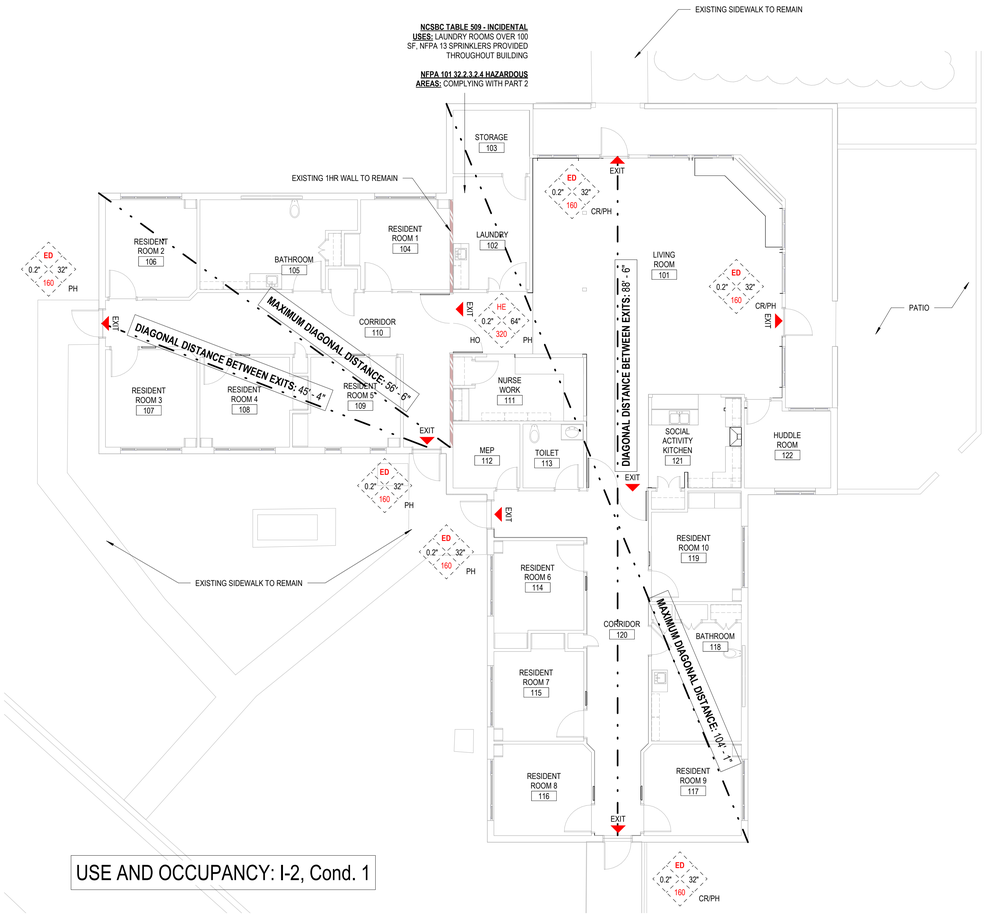
DESIGNED Author
DRAWN Author
APPROVED Approver



USE AND OCCUPANCY: I-2, Cond. 1

1 EGRESS PLAN
1/8" = 1'-0"

LIFE SAFETY SYMBOLS LEGEND

- XX — COLUMN LINE
- ROOM / 000 — ROOM NAME DESIGNATION / ROOM NUMBER DESIGNATION
- PLAN NOTE DESIGNATION
- EXIT — EXIT SYMBOL
- CLEAR OPENING WIDTH
- OPENING TYPE
- EXIT CAPACITY WIDTH PER OCCUPANT
- MEANS OF EGRESS SYMBOL
- HOLD OPEN DEVICE
- MAXIMUM NUMBER OF OCCUPANTS
- PANIC HARDWARE DEVICE

ED 0.33" 2" XXX PH HO

ABBREVIATIONS
ED = EGRESS / EXIT DOOR
HO = HOLD OPEN
PH = PANIC HARDWARE

- EXIT SIGN - WALL MOUNTED
- EXIT SIGN - CEILING MOUNTED
- EXIT DIRECTIONAL ARROW
- COMMON PATH OF EGRESS TRAVEL
- EXIT ACCESS

WALL RATINGS

1-HOUR FIRE AND SMOKE BARRIER - (1HRS)

RCP LEGEND

EXISTING GYPSUM BOARD TO BE RE- PAINTED

EXISTING CEILING TILE TO BE REMOVED AND NEW 5/8" GYPSUM BOARD TO BE INSTALLED WHERE DAMAGED

X00 KEYNOTE LEGEND

REFER TO A000 FOR GENERAL NOTES

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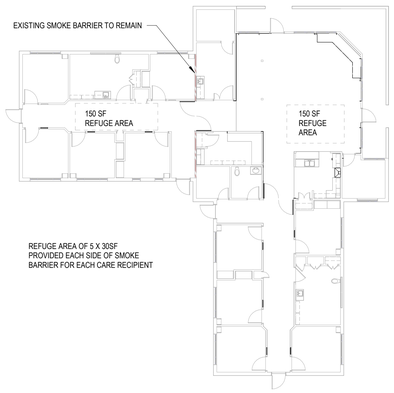
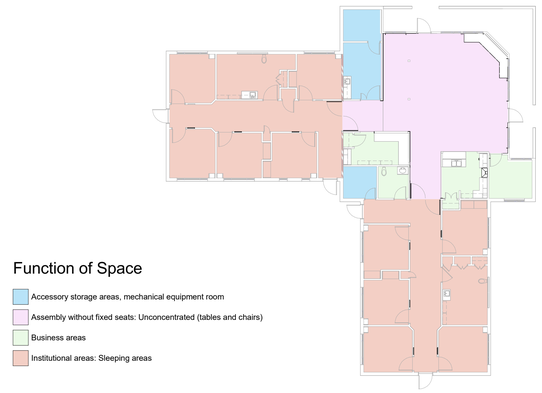
PERMIT SET

OCCUPANCY SCHEDULE - CHAPTER 10

FUNCTION OF SPACE (Table 1004.1.2)	AREA (Per Plan)	OCCUPANT LOAD FACTOR	NET/GROSS	NUMBER OF OCCUPANTS
Accessory storage areas, mechanical equipment room	310 SF	300 SF	GROSS	2
Assembly without fixed seats: Unconcentrated (tables and chairs)	1153 SF	15 SF	NET	77
Business areas	510 SF	100 SF	GROSS	7
Institutional areas: Sleeping areas	2901 SF	120 SF	GROSS	26
TOTAL	4874 SF			112



3 407.5 REFUGE AREA
1/16" = 1'-0"



2 FUNCTION OF SPACE
1/16" = 1'-0"

CIVITAN

KEYPLAN

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

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MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

LIFE SAFETY PLAN

DATE	11/11/24
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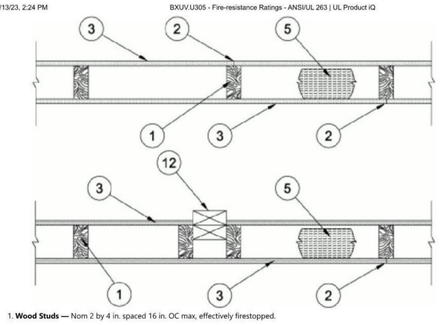
DESIGNED Designer
DRAWN Author
APPROVED Approver

Design No. U305

February 3, 2023

Bearing Wall Rating — 1 Hr
Finish Rating — See Items 3, 3A, 3D, 3E, 3F, 3G, 3H, 3J and 3L.
STC Rating - 56 (See Item 9)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC max, effectively firestopped.

2. **Joints and Nail-Heads —** Joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape. Nailheads exposed or covered with joint compound.

3. **Gypsum Board* —** 5/8 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths other than 48 in., gypsum panels are to be installed horizontally. For an alternate method of attachment of gypsum panels, refer to Items 6 through 6F, **Steel Framing Members***.
When Items 6, 6B, 6C, 6D, 6E, or 6F, **Steel Framing Members***, are used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 6A, **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers. One layer of gypsum board attached to opposite side of wood stud without furring channels as described in Item 3.

When Item 7, resilient channels are used, 5/8 in. thick, 4 ft wide gypsum panels applied vertically. Screw attached furring channels with 1 in. long, self-drilling, self-tapping Type S or S-12 steel screws spaced 8 in. OC, vertical joints located midway between studs.

AMERICAN GYPSUM CO — Types AGX-1(finish rating 23 min.), M-Glass (finish rating 23 min.), Type AGX-11 (finish rating 26 min), Type AGX-12 (finish rating 22 min), Type LightRoc (finish rating 23 min.) or Type AG-C

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1 (finish rating 24 min)

CABOT MANUFACTURING ULC — Type X (finish rating 22 min), 5/8 Type X, Moisture Resistant Type X, Gypsum Sheathing Type X, Mold & Mildew Resistant Type X and Mold & Mildew Resistant AR Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Type C, Type X-1 (finish rating 26 min); Type EGRG or GlasRoc (finish rating 23 min), GlasRoc-2, Type Habito (finish rating 26 min), Type LWTX (finish rating 18 min), Type LGFC6A (finish rating 34 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX (finish rating 21 min), Type CLLX (finish rating 24 min)

CGC INC — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SCX (finish rating 24 min), Type SHX (finish rating 24 min), Type ULX (finish rating 22 min), Type WRC (finish rating 24 min), Type WRX (finish rating 24 min), Type ULIX (finish rating 20 min)

GEORGIA-PACIFIC GYPSUM L L C — Type 5 (finish rating 26 min), Type 6 (finish rating 23 min), Type 9 (finish rating 26 min), Type C (finish rating 26 min), Type DGG (finish rating 20 min), Type GPFS1 (finish rating 20 min), Type GPFS2 (finish rating 20 min), Type GPFS6 (finish rating 26 min), Type DS, Type DAP, Type DD (finish rating 20 min), Type DA, Type DAPC, Type LS (finish rating 23 min), Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, Type LWX (finish rating 22 min), Veneer Plaster Base-Type LWX (finish rating 22 min), Water Rated-Type LWX (finish rating 22 min), Sheathing Type-LWX (finish rating 22 min), Soffit-Type LWX (finish rating 22 min), Type DGLW (finish rating 22 min), Water Rated-Type DGLW (finish rating 22 min), Sheathing Type- DGLW (finish rating 22 min), Soffit-Type DGLW (finish rating 22 min), Type LWX (finish rating 22 min), Type LW2X (finish rating 22 min), Veneer Plaster Base - Type LW2X (finish rating 22 min), Water Rated - Type LW2X (finish rating 22 min), Sheathing - Type LW2X (finish rating 22 min), Soffit - Type LW2X (finish rating 22 min), Type DGL2W (finish rating 22 min), Water Rated - Type DGL2W (finish rating 22 min), Sheathing - Type DGL2W (finish rating 22 min)

NATIONAL GYPSUM CO — Type FSK (finish rating 20 min), Type FSK-G (finish rating 20 min), Type FSW (finish rating 20 min), Type FSW-2 (finish rating 24 min), Type FSW-3 (finish rating 20 min), Type FSW-5 (finish rating 22 min), Type FSW-G (finish rating 20 min), Type FSK-C (finish rating 20 min), Type FSW-C (finish rating 20 min), Type FSMR-C, Type FSW-6 (finish rating 20 min), Type FSL (finish rating 24 min), Type FSW-8, Type FSLX (finish rating 21 min), Type RSX (finish rating 26 min).

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR, or WR.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2 (finish rating 20 min), PG-3 (finish rating 20 min), Types PG-3W, PG-5W (finish rating 20 min), Type PG-4 (finish rating 20 min), Type PG-6 (finish rating 23 min), Types PG-3WS, PG-5WS, PGS-WRS (finish rating 20 min), Types PG-5, PG-9 (finish rating 26 min), PG-11 PG-13 (Nails increased to 2 in.), Type PG-C or PGI (finish rating 26 min)

PANEL REY S A — Type ARX, GREX, GRIX, PRX, PRC, PRC2; Types RHX, Guard Rey, MDX, ETX (finish rating 22 min), PRX2 (finish rating 21 min)

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1 (finish rating 26 min)

THAI GYPSUM PRODUCTS PCL — Type C, Type X (finish rating 26 min)

UNITED STATES GYPSUM CO — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type FRX-G (finish rating 29 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type SCX (finish rating 24 min), Type SGX (finish rating 24 min), Type ULX (finish rating 22 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type ULIX (finish rating 20 min)

USG BORAL DRYWALL SFZ LLC — Type SGX (finish rating 24 min).

USG MEXICO S A DE C V — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), SCX (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type ULX (finish rating 22 min)

3A. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.

AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LighttRoc (finish rating 25 min.)

CERTAINTEED GYPSUM INC — Type C, Type X-1 (finish rating 26 min), Type EGRG or GlasRoc, LWTX.

CGC INC — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SCX (finish rating 24 min), Type SHX (finish rating 24 min), Type WRC (finish rating 24 min), Type WRX (finish rating 24 min)

NATIONAL GYPSUM CO — Type FSW (finish rating 24 min)

UNITED STATES GYPSUM CO — Type AR (finish rating 24 min), Type SCX (finish rating 24 min), Type SGX (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type FRX-G (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, SGX (finish rating 24 min).

USG MEXICO S A DE C V — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type SCX, Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min)

3B. **Gypsum Board* —** (As an alternate to Item 3) — Nom 3/4 in. thick, installed with 1-7/8 in. long cement coated nails as described in Item 3 or 1-3/8 in. long Type W coarse thread gypsum panel steel screws as described in Item 3A.
CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

3C. **Gypsum Board* —** (As an alternate to Items 3, 3A and 3B) — 5/8 in. thick, 2 ft wide, tongue and groove edge, applied horizontally to one side of the assembly. Installed with 1-7/8 in. long cement coated nails as described in Item 3 or 1-1/4 in. long Type W coarse thread gypsum panel steel screws as described in Item 3A. Joint covering (Item 2) not required.
CGC INC — Type SHX

UNITED STATES GYPSUM CO — Type SHX

USG MEXICO S A DE C V — Type SHX

3D. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, or 3C — Not Shown) — For Direct Application to Studs Only- Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs or tabs may be used in lieu of or in addition to the lead batten strips or optional at other locations. Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards underneath screw locations prior to the installation of the screws. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RAY-BAR ENGINEERING CORP — Type RB-LBG (finish rating 24 min)

3E. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, and 3D) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed 7 in. OC with 6d cement coated nails 1-7/8

in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG (finish rating 20 min), GreenGlass Type X (finish rating 23 min)

3F. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, 3D, and 3E) — 5/8 in. glass-mat faced with square edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC around the perimeter and in the field with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Nails shall be placed 1 inch and 3 inch from horizontal joints and 7 inch OC thereafter.
CGC INC — Type USGX (finish rating 22 min)

UNITED STATES GYPSUM CO — Type USGX (finish rating 22 min.)

USG BORAL DRYWALL SFZ LLC — , Type USGX (finish rating 22 min.)

USG MEXICO S A DE C V — Type USGX (finish rating 22 min.)

3G. **Gypsum Board* —** (As an alternate to Items 3 through 3F) — 5/8 in. thick paper surfaced applied vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min)

3H. **Gypsum Board* —** (As an alternate to Items 3) — Not to be used with items 6 or 7. 5/8 in. thick paper surfaced applied vertically only. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
NATIONAL GYPSUM CO — Type SBWB

3I. **Gypsum Board* —** (As an alternate to Items 3 through 3H, Not Shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically. Panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Panel joints covered with paper tape and two layers of joint compound. Nailheads covered with two layers of joint compound.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES (finish rating 20 min)

3J. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick paper surfaced applied vertically or horizontally. Gypsum panels secured with 1-1/4 in. Type W coarse thread gypsum panel steel screws spaced a maximum of 12 in. OC.
CERTAINTEED GYPSUM INC — Type SilentFX

3K. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 8 in. OC with the last screw 1 in. from the edge of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
NATIONAL GYPSUM CO — Type FSK (finish rating 20 min), Type FSK-G (finish rating 20 min), Type FSW (finish rating 20 min), Type FSW-2 (finish rating 24 min), Type FSW-3 (finish rating 20 min), Type FSW-5 (finish rating 22 min), Type FSW-G (finish rating 20 min), Type FSK-C (finish rating 20 min), Type FSW-C (finish rating 20 min), Type FSMR-C, Type FSW-6 (finish rating 20 min), Type FSL (finish rating 24 min).

3L. **Gypsum Board* —** (As an alternate to Item 3) — For Direct Application to Studs Only — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick. compression fitted or adhered over the screw heads. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D".
MAYCO INDUSTRIES INC — "X-Ray Shielded Gypsum"

3M. **Gypsum Board* —** (As an alternate to Items 3) — For Direct Application to Studs Only — For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4.
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

3N. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick, 4 ft. wide, applied horizontally or vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Secured as described in Item 3 or 3A.
CERTAINTEED GYPSUM INC — Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2 (finish rating 24 min)

3O. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 3, Not Shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically. Panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Panel joints covered with paper tape and two layers of joint compound. Nailheads covered with two layers of joint compound.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527 (finish rating 24 min).

3P. **Gypsum Board* —** (As an alternate to Item 3, Not Shown) — Two layers nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by wood studs. Horizontal joints on the same side between face and base layers need not be staggered. Base layer gypsum panels fastened to studs with 1-1/4 in. long drywall nails spaced 8 in. OC. Face layer gypsum panels fastened to studs with 1-7/8 in. long drywall nails spaced 8 in. OC starting with a 4" stagger.
NATIONAL GYPSUM CO — Type FSW (finish rating 25 min)

3Q. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

3R. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5H) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 3 above. Applied either horizontally or vertically, and screwed to panels with 1-5/8 in. long Type W coarse thread steel screws at 8 in. OC at perimeter and in the field with the last two screws 4 and 3/4 in. from the edges of the board when applied as the base layer. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

3S. **Gypsum Board* —** 3/4 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels secured as described in Item 3 with nail length increased to 2 in.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-13

3T. **Wall and Partition Facings and Accessories* —** (As an alternate to 5/8 in. thick board as outlined in Item 3) — Nominal 1-3/8 in. thick, 4 ft wide panels, applied vertically or horizontally. Fastened with #6 x 2 in. long drywall screws spaced 8 in. OC along the perimeter and 12 in. OC in the field.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 545

3U. **Gypsum Board* —** (As an alternate to Item 3 - For use with Foamed Plastic products, Item 5J) — 5/8 in. thick, 4 ft. wide, applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
AMERICAN GYPSUM CO — Types AGX-1

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CABOT MANUFACTURING ULC — Type X

CERTAINTEED GYPSUM INC — Type X

CGC INC — Type SCX

PANEL REY S A — Type ARX, PRX

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type X

UNITED STATES GYPSUM CO — Types SCX and SGX

USG BORAL DRYWALL SFZ LLC — Types SCX and SGX

USG MEXICO S A DE C V — Type SCX

3V. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5K) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 3 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field.

3W. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5L) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 3 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1-1/4 in. long Type W screws spaced 8 in. OC at perimeter and in the field.

4. **Steel Corner Fasteners —** (Optional) — For use at wall corners. Channel shaped, 2 in. long by 1 in. high on the back side with two 1/8 in. wide cleats protruding into the 5/8 in. wide channel, fabricated from 24 gauge galv steel. Fasteners applied only to the end or cut edge (not along tapered edges) of the gypsum board, no greater than 2 in. from corner of gypsum board, max spacing 16 in. OC. Nailed to adjacent stud through tab using one No. 6d cement coated nail per fastener. Corners of wall board shall be nailed to top and bottom plate using No. 6d cement coated nails.

5. **Batts and Blankets* —** (Optional — Required when Item 6A is used (RC-1)) — Glass fiber or mineral wool insulation. Placed to completely or partially fill the stud cavities. When Item 6A is used, glass fiber or mineral wool insulation shall be friction-fitted to completely fill the stud cavities.
CERTAINTEED CORP

JOHNS MANVILLE

KNAUF INSULATION LLC

MANSON INSULATION INC

ROCKWOOL — Types Acoustical Fire Batts and Type AFB, min. density 1.69 pcf / 27.0 kg/m^3

ROCKWOOL MALAYSIA SDN BHD — Type Acoustical Fire Batts

ROCK WOOL MANUFACTURING CO — Delta Board

THERMAFIBER INC — Type SAFB, SAFB FF

5A. **Fiber, Sprayed* —** (Not Shown — Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product. When Item 6B is used, Fiber, Sprayed shall be INS735, INS745, INS750LD, INS765LD, INS773LD or SANCTUARY.

Applegate Greenfiber Acquisition LLC — INS735, INS745, INS750LD, Insulmax, and SANCTUARY for use with wet or dry application. INS515LD, INS541LD, INS735, INS765LD, and INS773LD are to be used for dry application only

5B. **Fiber, Sprayed* —** (Not Shown - Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

5C. **Batts and Blankets* —** Required for use with resilient channels, Item 7, 3 in. thick mineral wool batts, friction-fitted to fill interior of wall.
THERMAFIBER INC — Type SAFB, SAFB FF

5D. **Glass Fiber Insulation —** (As an alternate to Item 5C) — 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the interior of the wall. See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

5E. **Batts and Blankets* —** (Required for use with Wall and Partition Facings and Accessories, Item 3D) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of 0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

5F. **Fiber, Sprayed* —** (Optional, Not Shown — Not for use with Items 6, 6A, 6B, 6C, or 6D) — As an alternate to Batts and Blankets (Item 5) and Item 5A - Spray applied granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5G. **Fiber, Sprayed* —** (Optional, Not Shown — Not for use with Items 6, 6A, 6B, 6C, or 6D). — As an alternate to Batts and Blankets (Item 5) and Item 5A - Brown Colored Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed stud cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

5H. **Foamed Plastic* —** (Optional -For use with Item 3R) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
SES FOAM INC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam.

5I. **Fiber, Sprayed* —** (Not Shown — Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft^3.
APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

5J. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 3U) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
GACO WESTERN L L C — Types GacoEZSpray F4500, GacoProFill FR6500R, Gaco 052N, GacoOnePass F1850, GacoOnePass Low GWP F1880, and Gaco WallFoam 183M

5K. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 3V) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
CARLISLE SPRAY FOAM INSULATION — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, and Foamsulate HFO.

5L. **Foamed Plastic*** - (Optional, Not Shown – For use with Item 3W) - Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.

BASF CORP – Types Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, Walltite® HP+, Spraytite® Comfort XL, and Walltite® XL.

6. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6a) to studs. Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75)

6A. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members on one side of studs as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Aa) to one side of studs only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

6B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
PLITEQ INC — Type Genie Clip

6C. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6D. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with a double strand of No. 18 AWG twisted steel wire. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

REGUPOL AMERICA — Type SonusClip

6E. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 6Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC - Type RC+ Assurance Clip

6F. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Fa) to studs. Clips spaced 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

6G. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach resilient channels to wall studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 16 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.
PAC INTERNATIONAL L L C — Type RC-1 Boost

7. **Furring Channel —** Optional — Not Shown — For use on one side of the wall - Resilient channels, 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. When resilient channels are used, insulation, Items 5C or 5D is required.

8. **Caulking and Sealants —** (Not Shown, Optional) — A bead of acoustical sealant applied around the partition perimeter for sound control.

9. **STC Rating —** The STC Rating of the wall assembly is 56 when it is constructed as described by Items 1 through 6, except:

A. Item 2, above — Nailheads Shall be covered with joint compound.

B. Item 2, above — Joints As described, shall be covered with fiber tape and joint compound.

C. Item 5, above — Batts and Blankets* The cavities formed by the studs shall be friction fit with R-19 unfaced fiberglass insulation batts measuring 6-1/4 in. thick and 15-1/4 in. wide.

D. Item 6, above — Steel Framing Members* Type RSIC-1 clips shall be used to attach gypsum board to studs on either side of the wall assembly.

E. Item 8, above — Caulking and Sealants (Not Shown) A bead of acoustical sealant shall be applied around the partition perimeter for sound control.

F. Steel Corner Fasteners (Item 4), Fiber, Sprayed (Items 5A and 5B) and Steel Framing Members (Item 6A), not evaluated as alternatives for obtaining STC rating.

10. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

11. **Cementitious Backer Units* —** (Optional Item Not Shown — For Use On Face Of 1 Hr Systems With All Standard Items Required) - 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide. Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

12. **Non-Bearing Wall Partition Intersection —** (Optional) —Two nominal 2 by 4 in. studs or nominal 2 by 6 in. studs nailed together with two 3 in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

13. **Mesh Netting —** (Not Shown) — Any thin, woven or non-woven fibrous netting material attached with staples to the outer face of one row of studs to facilitate the installation of the sprayed fiber from the opposite row.

14. **Mineral and Fiber Board* —** (Optional, Not Shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with 2 in. long Type W steel screws, spaced 12 in. OC. The required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

14A. **Mineral and Fiber Board* —** (Optional, Not Shown) — For use with Items 14B-14E) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

14B. **Glass Fiber Insulation —** (For use with Item 14A) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ) categories for names of Classified companies.

14C. **Batts and Blankets* —** (As an alternate to Item 14B, For use with Item 14A), 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC.
THERMAFIBER INC — Type SAFB, SAFB FF

14D. **Adhesive —** (For use with Item 14A) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

14E. **Gypsum Board* —** (For use with Item 14A) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 14A). Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min.
AMERICAN GYPSUM CO — Type AG-C

BSA
BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

CERT. NO. 51394

MARK DENISON SEARLS
16711

UL ASSEMBLIES

DATE 11/11/24
BSALS PROJECT NO. 21950006

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DESIGNED Designer
DRAWN Author
APPROVED Approver

CGC INC — Types C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

14F. **Mineral and Fiber Board —** (Optional, Not Shown) — For optional use as an additional layer on one side of wall - Nom 1/2 in. thick, 4 ft wide, square edge fiber boards applied vertically to studs on one side of the wall in between the wood studs and the UL Classified Gypsum Board (Item 3). Fiber boards installed with 1-1/4 in. long, Type W, bugle head, coarse thread gypsum board screws spaced 12 in. OC max, with the last screws spaced 2 in. and 6 in. from edge of board. Gypsum board (Item 3) installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
BLUE RIDGE FIBERBOARD INC — SoundStop

14G. **Building Units –** (Optional Item Not Shown – For use over Gypsum Board, Item 3) 1 in., 2 in. or 3 in. thick, 4 ft. wide – Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of of ¾ in., spaced a max 8 in. o.c.
NATIONAL GYPSUM CO – Type PBCI

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-02-03

Feedback

Design No. U356

October 07, 2020

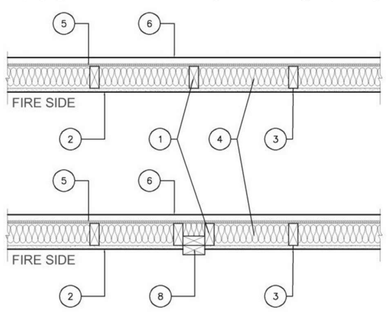
Bearing Wall Rating - 1 Hr Rating Exposed to Fire on Interior Face Only

Bearing Wall Rating — 1 Hr Rating Exposed to Fire on Exterior Face (See Item 6E)

Finish Rating — 23 Min or 25 Min (See Item 2C)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC with two 2 by 4 in. top and one 2 by 4 in. bottom plates. Studs laterally-braced by wood structural panel sheathing (Item 5). When **Mineral and Fiber Boards*** (Item 5A) are considered as bracing for the studs, the load is restricted to 76% of allowable axial load. Walls effectively fire stopped at top and bottom of wall.

2. **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 5/8 in. thick, 4 ft wide, applied vertically and nailed to studs and bearing plates 7 in. OC with 6d cement-coated nails, 1-7/8 in. long with 1/4 in. diam head.
When Item **Steel Framing Members*** (Item 7 or any alternate clips), is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 7A **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — Any 5/8 in. thick 4 ft wide gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified Companies listed below shown in the **Gypsum Board*** (CKNX) category. Applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.

CGC INC

UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2B. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — 5/8 in. thick 4 ft wide gypsum panels applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Type C, Type X, Type X-1, Easi-Lite Type X-2

GEORGIA-PACIFIC GYPSUM L L C — Types X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS, PGI.

THAI GYPSUM PRODUCTS PCL — Type C or Type X

2C. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — For Use with Item 5A only - 5/8 in. thick 4 ft wide gypsum panels applied horizontally and attached to studs and bearing plates with 1 -1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screws 1 in.and 4 in. from edges of board. Finish Rating is 25 min.

CABOT MANUFACTURING ULC — 5/8 Type X, Type Blueglass Exterior Sheathing

GEORGIA-PACIFIC GYPSUM L L C — Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS, PGI

2D. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads, 7 in. OC.

NATIONAL GYPSUM CO — Type SBWB

2E **Gypsum Board* —** (As an alternate to Items 2 through 2D) — Nominal 5/8 in. thick, 4 ft wide panels, secured as described in Item 2.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

2F. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally and fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.

CERTAINTEED GYPSUM INC — Type SilentFX

2G. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, secured as described in Item 2.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

2H. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

2I. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum boards are to be installed horizontally.

AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LightRoc (finish rating 25 min.)

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

2J. **Gypsum Board* —** (As an alternate to Item 2) - 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread steel screws spaced a max 8 in. OC with the last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum boards are to be installed horizontally.

CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1(finish rating 26 min), Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2, Type EGRG or GlasRoc or GlasRoc Sheathing (finish rating 23 min)

3. **Joints and Fastener Heads —** (Not Shown) — Gypsum board joints covered with tape and joint compound. Fastener heads covered with joint compound.

4. **Batts and Blankets* —** Mineral fiber or glass fiber insulation, 3-1/2 in. thick, pressure fit to fill wall cavities between studs and plates. Mineral fiber insulation to be unfaced and to have a min density of 3 pcf. Glass fiber insulation to be faced with aluminum foil or kraft paper and to have a min density of 0.9 pcf (min R-13 thermal insulation rating).

See **Batts and Blankets*** (BKNV) Category in the Building Materials Directory and **Batts and Blankets*** (BZJZ) Category in the Fire Resistance Directory for names of Classified Companies.

4A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS735 and INS745 for use with wet or dry application. INS515LD, INS541LD, INS735, INS745, INS765LD, and INS773LD are to be used for dry application only.

4B. **Fiber, Sprayed* —** As an alternate to Item 4 and 4A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft³.

NU-WOOL CO INC — Cellulose Insulation

4C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

4D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied, granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).

AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Wood Structural Panel Sheathing —** Min 7/16 in. thick, 4 ft wide wood structural panels, min grade "C-D" or "Sheathing". Installed with long dimension of sheet (strength axis) or face grain of plywood parallel with or perpendicular to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 6d cement coated box nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs.

5A. **Mineral and Fiber Boards* —** As an alternate to Item 5 - Min 1/2 in. thick, 4 ft wide sheathing, installed vertically to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 1-1/2 in. long galvanized roofing nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs. As an option a weather resistive barrier may be applied over the Mineral and Fiber Boards.

6. **Exterior Facings —** Installed in accordance with the manufacturer's installation instructions. One of the following exterior facings is to be applied over the sheathing:

A. **Vinyl Siding — Molded Plastic* —** Contoured rigid vinyl siding having a flame spread value of 20 or less.

See **Molded Plastic** (BTAT) category in the Building Materials Directory for names of manufacturers.

B. **Particle Board Siding —** Hardboard exterior sidings including patterned panel or lap siding.

C. **Wood Structural Panel or Lap Siding —** APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

D. **Cementitious Stucco —** Portland cement or synthetic stucco systems with self-furring metal lath or adhesive base coat. Thickness from 3/8 to 3/4 in., depending on system.

E. **Brick Veneer —** Any type on nom 4 in. wide brick veneer. When brick veneer is used, the rating is applicable with exposure on either face. Brick veneer fastened with corrugated metal wall ties attached over sheathing to wood studs with 8d nail per tie: ties spaced not more than each sixth course of brick and max 32 in. OC horizontally. One in. air space provided between brick veneer and sheathing.

F. **Exterior Insulation and Finish System (EIFS) —** Nom 1 in. **Foamed Plastic*** insulation bearing the UL Classification Marking, attached over sheathing and finished with coating system, or Portland cement or synthetic stucco systems, in accordance with manufacturer's instructions. See **Foamed Plastic** (BRYX and CCVW) categories for names of Classified companies.

G. **Siding —** Aluminum or steel siding attached over sheathing to studs.

H. **Fiber-Cement Siding —** Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

I. **Wall and Partition Facings and Accessories* —** Stone veneer is mortar bonded to a lath, scratch coat and water resistant barrier applied to sheathing, installed in accordance with the manufacturers installation instructions, and meeting the requirements of local code agencies.

ELDORADO STONE OPERATIONS L L C — Type Eldorado Stone

J. **Cementitious Backer Units —** 1/2 in. or 5/8 in., min. 32 in. wide.- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum 3/4 in., spaced a max of 8 in. OC. Horizontal joints need not be backed by framing. When Cementitious Backer Units are used, the rating is applicable with exposure on either face. Cementitious Backer Units for use as substrate for exterior finishes such as ceramic tile, slate, marble, natural stone, manufactured stone, thin brick, or Portland cement or synthetic stucco.

NATIONAL GYPSUM CO — Type PermaBase

6A. **Building Units* — As an alternate to Exterior Facing Item 6 —** Insulated steel panels, 12 through 42 in. wide. Attached over sheathing through retainer clips to studs or support steel with No. 14 hex head self-tapping screws located at each joint in the concealed lip of the units and spaced in accordance with the structural design requirements. KINGSPAN INSULATED PANELS INC — Types 200, 300, 400, 900, or KS series, 2 through 6 in. thickness; CWP-V, H, 2 through 3 in. nominal thickness or Designwall 2000 or Designwall 4000, 2 and 3 in. nominal thickness.

7. **Steel Framing Members* —** (Optional, Not Shown) — Furring Channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7A) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

7A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Two layers of gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to interior side of studs. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.

KINETICS NOISE CONTROL INC — Type Isomax.

7B. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

PLITEQ INC — Type Genie Clip

7C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ca) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

7D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Db. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

REGUPOL AMERICA — Type SonusClip

7E. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Resilient channels and Steel Framing Members as described below:

a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8-15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.

KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7F **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:

a **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. or 1-1/2 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b **Steel Framing Members* —** Used to attach furring channels (Item 7Fa) to studs. Clips spaced maximum 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

8. **Non-Bearing Wall Partition Intersection —** (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2020-10-07

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. REGISTERED ARCHITECTURAL CORPORATION INDIANAPOLIS, INDIANA CERT. NO. 51394 NORTH CAROLINA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

UL ASSEMBLIES

DATE	11/11/24
BSALS PROJECT NO.	21950006

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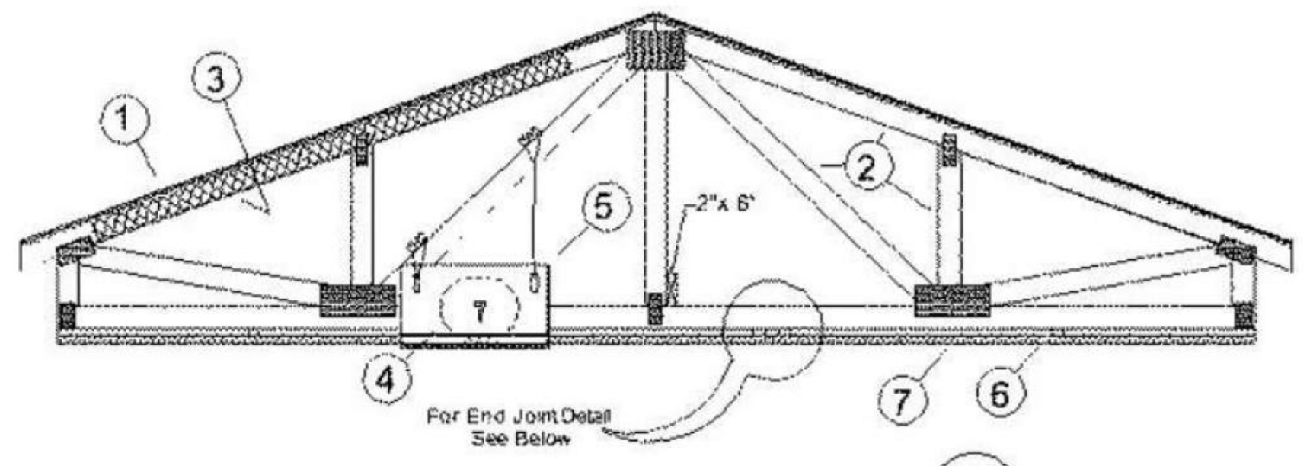
DESIGNED Designer
DRAWN Author
APPROVED Approver

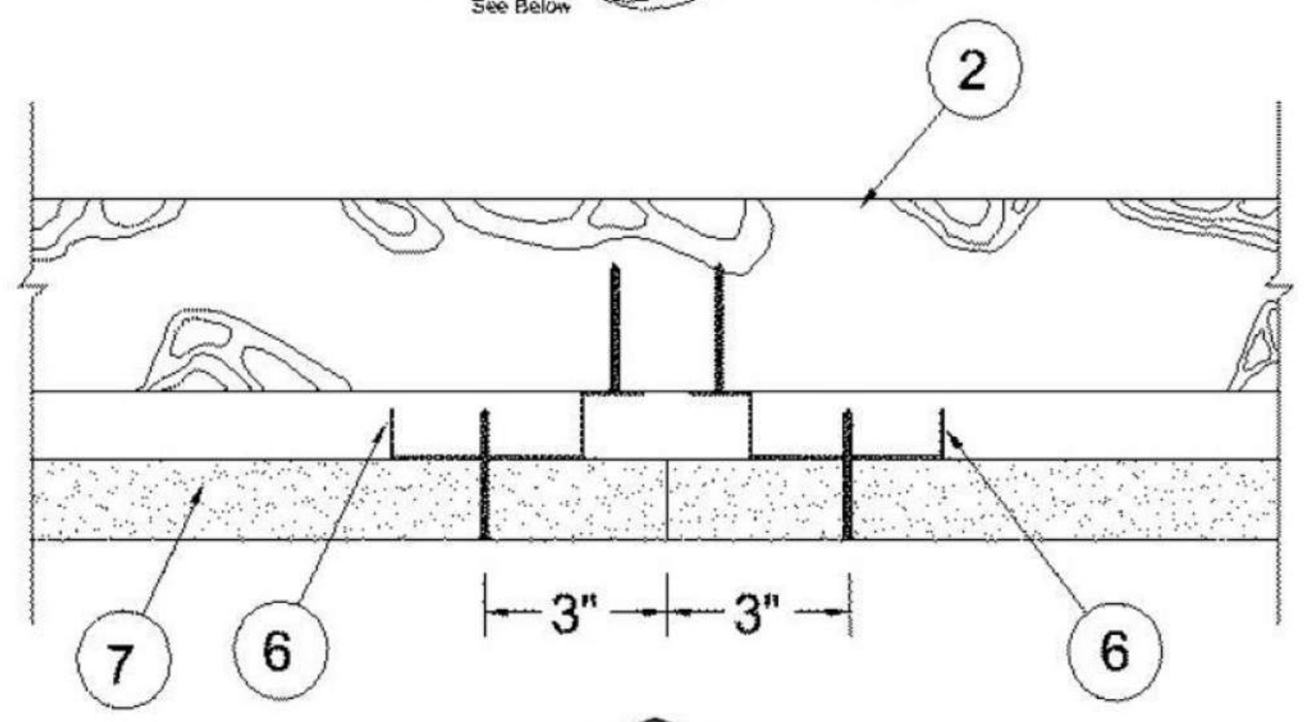
Design No. P538

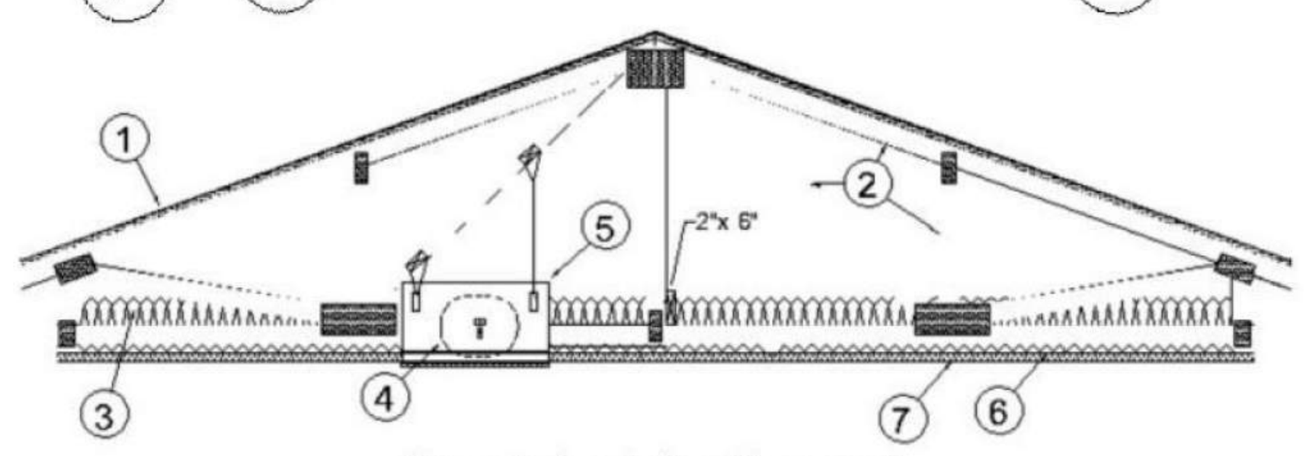
February 15, 2023

Unrestrained Assembly Rating - 1 Hr.
Finish Rating - 21 Min.
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**







Alternate Insulation Placement

1. **Roofing System* —** Any UL Class A, B or C Roofing System (TGFU) or Prepared Roof Covering (TFWZ) acceptable for use over nom 15/32 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Nom 15/32 in. thick wood structural panels secured to trusses with No. 6d ringed shank nails. Nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Construction adhesive is optional.

2. **Trusses —** Pitch or Parallel chord trusses, spaced a max of 24 in. OC, fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Truss members secured together with 0.040 in. thick galv steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tooth has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approximately 7/8 in. centers with four rows of teeth per inch

of plate width. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 5-1/4 in. with a min roof slope of 3/12 and a min. average depth of 18 in..

3. **Batts and Blankets* —** (Optional) — Glass fiber insulation, secured to the plywood decking with staples spaced 12 in. OC, to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC., or loosely laid on the back of gypsum board. Any glass fiber or loose fill insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance, having a min density of 0.5 pcf.

3A. **Foamed Plastic* —** (As an alternate to Item 3, Not Shown) — Spray foam insulation applied directly to the underside of the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 10 in. at a nominal 0.5 lb/ft^3 density, while maintaining a minimum 8-1/2 in. clearance between the spray foam insulation and the gypsum board (Item 7). When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board (Item 7) to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Items 5 through 5Q) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Not evaluated for use with Items 6A through 6C.
SES FOAM INC — Sucraseal

BASF CORP — Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, and Walltite® HP+

3B. **Foamed Plastic* —** (As an alternate to Item 3 or 3A, Not Shown) — Spray foam insulation applied directly to the underside of the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 17 in. at a nominal 0.5 lb/ft^3 density, while maintaining a minimum 1-1/2 in. clearance between the spray foam insulation and the gypsum board (Item 7). When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board (Item 7) to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Items 5 through 5Q) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Not evaluated for use with Items 6A through 6C.
SES FOAM INC — EasySeal.5

3C. **Foamed Plastic* —** (As alternate to Item 3 - not to be used in combination with any alternates to item 3) — Spray foam insulation applied directly to the underside of the roofing system. Spray foam insulation installed to a maximum thickness of 11 in. at a nominal 1.0 lb/ft^3 - 2.5 lb/ft^3 density, while maintaining a minimum 7 in. clearance between the spray foam insulation and the gypsum board (Item 7). Spray foam insulation is limited for use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board spaced maximum 3 in. away from gypsum butt joints. Gypsum board to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels, as illustrated above. If used with a ceiling damper (Items 5 through 5S) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Only for use with item 6 not evaluated for use with alternates to item 6.

CARLISLE SPRAY FOAM INSULATION — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, SealTite PRO HFO, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, Foamsulate HFO, and Foamsulate HFO 2.0.

4. **Air Duct* —** Optional- for use with ceiling dampers. - Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

5. **Ceiling Damper* —** (Optional) — Nom 20 in. long by 18 in. wide by 2-1/8 in. high, fabricated from galvanized steel. Plenum box maximum size nom. 21 in. long by 18 in. wide by 16 in. high fabricated from either galavanized steel or Classified Air Duct Materials bearing the UL Class 0 or Class 1 rigid air duct material. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.
NAILOR INDUSTRIES INC — Types 0755, 0755A, 0756, 0756D, 0757, 0757D, 0757FP, 0757DFP, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP

SAFE AIR DOWCO — Types 0455, 0455A, 0456, 0456D, 0457, 0457D

5A. **Alternate Ceiling Damper* —** (Optional) — As an Alternate to Item 5 - Maximum nominal area, 324 sq in. Maximum square size, 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a maximum width of 18 in. Maximum damper height is 14 in. Installed in accordance with the manufacturers installation instructions provided with the damper. Maximum damper openings not to exceed 162 sq in. per 100 sq ft of ceiling area.
C&S AIR PRODUCTS — Model RD-521

POTTORFF — Model CFD-521

5B. **Alternate Ceiling Damper* —** (Optional) — Max nom area shall be 256 sq in. with the length not to exceed 24 in. and the width not to exceed 20 in. Max height of damper shall be 17 in. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-IP, RD-521-NP

POTTORFF — Models CFD-521-IP, CFD-521-NP

5C. **Alternate Ceiling Damper* —** (Optional) — Max nom area shall be 144 sq in. with the length not to exceed 14 in. and the width not to exceed 12 in. Max height of damper shall be 17-7/8 in. Aggregate damper openings shall not exceed 74 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-90, RD-521-NP90

POTTORFF — Models CFD-521-90, CFD-521-90NP

5D. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 75 sq in. with the length not to exceed 8-9/16 in. and the width not to exceed 8-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 38 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturers installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Models CRD2, GBR-CRD, ITG-CRD

5E. **Alternate Ceiling Damper* —** (Optional) — Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max length of 20 in. and a max width of 22 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 154 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturer's installation instructions provided with the damper.
UNITED ENERTECH CORP — Type C-S/R-WT or C-S/R-WTP (Max nom area 324 sq. in.) or C-S/R-WTS or C-S/R-WTPS (Max nom area 162 sq. in.)

5F. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 75 sq in. with the length not to exceed 9-1/4 in. and the width not to exceed 9-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 45 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Model SIG-CRD

5G. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 131 sq in. with the length not to exceed 11-1/16 in. and the width not to exceed 11-7/8 in. Aggregate damper openings shall not exceed 66 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Model SMT-CRD

5H. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly. Max nom area shall be 103 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 10-1/8 in. Aggregate damper openings shall not exceed 52 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.

PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA — Model PC-RD05C5

5I. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 113 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 11-1/8 in. Aggregate damper openings shall not exceed 57 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDFUWT

5J. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 79 sq in. with the length not to exceed 10 in. and the width not to exceed 7-15/16 in. Aggregate damper openings shall not exceed 40 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A metallic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Models RDJ1 and RDH

5K. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT

5L. **Alternate Ceiling Damper* —** (Optional) — Ceiling damper & fan assembly. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT2

5M. **Alternate Ceiling Damper* —** (Optional) — Max nom 21 in. long by 18 in. wide, fabricated from galvanized steel. Plenum box max size nom 21 in. long by 18 in. wide by 14 in. high (inner dimension) fabricated from either galvanized steel or min 1 in. thick Listed Duct Board bearing the UL Listing Marking having a min R-Value of 4.3. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-1WT

5N. **Alternate Ceiling Damper* —** (Optional) — Max nom 12 in. long by 12 in. wide with an 8 in. diameter damper, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 72 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-2WT

5O. **Alternate Ceiling Damper* —** (Optional) Max nom 11-1/8 in. long by 13-5/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 76 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-310WT

5P. **Alternate Ceiling Damper* —** (Optional) Max nom 12-3/8 in. long by 14-1/2 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 90 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-320WT

5Q. **Alternate Ceiling Damper* —** (Optional) Max damper assembly size nom 18 in. long by 18 in. wide and 4-1/4 in. high, or 8 in. diam. fabricated from galvanized steel. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Installed in accordance with the installation instructions provided by the manufacturer.
RUSKIN COMPANY — Model CFD7T, CFD7T-END-BT, CFD7T-90-BT, CFD7T-ST-BT, CFD7T-SB, CFD7T-R6-DB, CFD7T-IB6, or CFDR7T

5R. **Alternate Ceiling Damper* —** (Optional) Max 12 in. diameter damper within max 15 in. by 15 in. register box with max 12 in. by 12 in. register opening fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall

not exceed 72 sq. in. per 100 sq. ft. of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.
RUSKIN COMPANY — Model CFD7T-SR

5S. **Alternate Ceiling Damper* —** (Optional) Max nom 10-3/8 in. long by 10-3/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 54 sq in. per 100 sq ft of ceiling area.

GREENHECK FAN CORP — Model CRD-300WT

6. **Furring Channels —** Resilient channels formed from min 25 MSG galv steel, spaced 16 in. OC, installed perpendicular to trusses. Channels oriented opposite at wallboard butt joints (spaced 6 in. OC) as shown in the above illustration. When Batts and Blankets (Item 3) are loosely laid on the back of gypsum boards, channels are spaced a maximum of 12 in. OC. perpendicular to trusses. Channels secured to each truss with 1-1/4 in. long Type S steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in OC, oriented opposite each gypsum board end joint as shown in the above illustration. Additional channels shall extend 6 in beyond each side edge of board.

6A. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 6, furring channels and **Steel Framing Members*** as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to trusses. When batt insulation (Item 3) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to alternating trusses with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

6B. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members* as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to wood structural members. When insulation, Items 3 is applied over the furring channel/gypsum panel ceiling membrane, the furring channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to the trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. As an alternate, ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the gypsum butt joints as described in item 7.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

6C. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members* as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to wood structural members. When insulation, Items 3 is applied over the furring channel/gypsum panel ceiling membrane, the furring channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to the trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. As an alternate, ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the gypsum butt joints as described in item 7.

REGUPOL AMERICA — Type SonusClip

7. **Wallboard, Gypsum* —** Nom 5/8 in. thick, 48 in. wide, installed with long dimension perpendicular to resilient channels with 1 in. long Type S screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. At end joints, two resilient channels are used, extending a min of 6 in. beyond both ends of the joint. When Batts and Blankets (Item 3) are loosely laid on the back of the gypsum boards, gypsum boards shall be secured to resilient channels with 1 in. long Type S bugle head screws spaced a maximum of 8 in. OC. and located a min. of 3/4 in. from side and end joints.
When **Steel Framing Members** (Item 6B) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two support furring channels shall be spaced approximately 3 in. in from end joint. Screw spacing along the gypsum board butt joint and along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between. Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel.

When **Steel Framing Members** (Item 6C) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channels) to support the floating end of the gypsum board. Each of these shorter sections of furring channel shall extend one truss beyond the width of the gypsum panel and be attached to the adjacent trusses with one SonusClip at every truss involved with the butt joint.

CERTAINTEED GYPSUM INC — Type C

THAI GYPSUM PRODUCTS PCL — Type C

7A. **Gypsum Board* —** As an alternate to Item 7 when **Batts and Blankets*** (Item 3) are loosely laid on the back of the gypsum board/draped over resilient channels (Item 6) spaced 12 in. OC- Nom 5/8 in. thick, 48 in. wide gypsum panels. Gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. Butted end joints shall be staggered min. 4 ft within the assembly, and occur midway between the continuous furring channels. End joints secured to both resilient channels as shown in end joint detail.
CERTAINTEED GYPSUM INC — Easi-Lite Type X-2

8. **Finishing System —** (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum wallboard.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-02-15

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 51394 INDIANAPOLIS, INDIANA

MARK DENISON SEALS REGISTERED ARCHITECT 16711 NORTH CAROLINA

UL ASSEMBLIES

DATE 11/11/24
BSALS PROJECT NO. 21950006

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DESIGNED Designer
DRAWN Author
APPROVED Approver

Design No. **U301**

February 3, 2023

Bearing Wall Rating — 2 Hr.
Finish Rating — 66 Min.
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

1. **Nailheads —** Exposed or covered with joint compound.

2. **Joints —** Exposed joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape.

3. **Nails —** 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam, 1/4 in. diam heads, and 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam heads.

4. **Gypsum Board* —** 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with the 1-7/8 in. nails spaced 6 in. OC. Outer layer attached to studs over inner layer with the 2-3/8 in. long nails spaced 8 in. OC. Vertical joints located over studs. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
When used in widths other than 48 in., gypsum board to be installed horizontally.

When **Steel Framing Members*** (Item 6 or any alternate clips) are used, base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced max 24 in. OC; face layer attached with 1-5/8 in. long Type S bugle-head steel screws spaced max 12 in. OC.

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, AGX-11, LightRoc

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Moisture Resistant Type X, Gypsum Sheathing Type X, Mold & Mildew Resistant Type X and Mold & Mildew Resistant AR Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Types EGRG, GlasRoc, GlasRoc-2, Type C, Type X-1, Type LWTX

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, ULX, USGX, WRC, WRX

CERTAINTEED GYPSUM INC — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD, LGLLX, CLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS, TG-C, Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, GreenGlass Type X, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSW-C, FSW-G, FSMR-C, FSL, RSX

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR, or WR.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2, PG-3, PG-3W, PG-4, PG-5, PG-5W, PG-5WS, PG-9, PG-11, PG-C, PGS-WRS, PGI

PANEL REY S A — Types PRC, PRC2, PRX, RHX, MDX, ETX, GREX, GRIX

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type C or Type X

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, ULX, USGX, WRC, WRX

USG BORAL DRYWALL SFZ LLC — Types C, SCX, USGX

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type X

UNITED STATES GYPSUM CO — Type SCX

USG BORAL DRYWALL SFZ LLC — Types SCX

USG MEXICO S A DE C V — Type SCX

4T. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13B) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 4 above. Two layers applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. All joints in outer layers staggered with joints in inner layers. Inner layer attached to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Outer layer attached to studs over inner layer with the 2-1/2 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC.

4U. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13C) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 4 above. Two layers applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. All joints in outer layers staggered with joints in inner layers. Inner layer attached to studs with 1-1/4 in. long Type W screws spaced 8 in. OC at perimeter and in the field. Outer layer attached to studs over inner layer with 1-7/8 in. long Type W screws spaced 8 in. OC.

5. **Molded Plastic* —** Not Shown, Optional — Solid vinyl siding mechanically secured over the outer layer to framing members in accordance with manufacturer's recommended installation details.
ALSIDE, DIV OF ASSOCIATED MATERIALS INC

GENTEK BUILDING PRODUCTS LTD

VYTEC CORP

6. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Wallboard attached to furring channels as described in Item 4.

8. **Steel Framing Members* —** Used to attach furring channels (Item 6a) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

6A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 4.

8. **Steel Framing Members* —** Used to attach furring channels (Item 6Aa) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

6B. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Bb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 4.

8. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

6C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) —Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 4.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 6Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

6D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Used as an alternate method to attach resilient channels to wall studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 24 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.
PAC INTERNATIONAL L L C — Type RC-1 Boost

6E **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:
a **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 4.

b **Steel Framing Members* —** Used to attach furring channels (Item 6Ea) to studs. Clips spaced maximum 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

7. **Furring Channel —** Optional — Not Shown — For use on one side of the wall with Item 4K — Resilient channels, 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. When resilient channels are used, insulation, Item 8 or 9 is required.

8. **Batts and Blankets* —** Required for use with resilient channels, Item 7, min. 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the nom 4 in. face of the studs with staples placed 24 in. OC.
ROCKWOOL — Type SAFEnSOUND, min. 1.8 pcf.

THERMAFIBER INC — Type SAFB, SAFB FF

9. **Batts and Blankets* —** (As an alternate to Item 8) — Min. 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the stud cavities. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

9A. **Fiber, Sprayed* —** (Optional) — As an alternate to Batts and Blankets (Item 8), Required for use with resilient channels, Item 7. Not for use with Item 6, 6A, 6B, or 6C. — Spray applied mineral wool insulation. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

10. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 or QR-510

11. **Cementitious Backer Units* —** (Optional Item Not Shown — For Use On Face Of 2 Hr Systems With All Standard Items Required) — 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide. Applied horizontally or vertically with vertical joints centered over studs. Face layer fastened over gypsum board to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

12. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) - When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to items (A) to (C) below.
A. **Non Insulated system with metal channels —** Install moisture barrier over the Gypsum Board Item 4 and Install Acry Metal Channels vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. Acry Metal Channels attached through the moisture barrier and the Gypsum Board to the Wood Studs using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco illmod 600 pre compressed polyurethane foam sealant.

B. **Insulated system with metal channels —** Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the wood studs with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acry Metal Channels vertically over the Z girts at a max horizontal spacing of 24 in. OC. Acrytec Panels installed on Acry channel with 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC, along with manufacturers approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

C. **Non insulated wood strapping system —** Install moisture barrier over the Gypsum Board Item 4 and Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Wood studs using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acrytec Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System —** Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier and the Gypsum Board Item 4, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the Insulation, the Gypsum Board and moisture barrier to the Wood Studs using fasteners specified by the manufacturer and fasteners spaced max. 24 in. OC. Acrytec Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

ACRYTEC PANEL INDUSTRIES — Nominal 5/8 inch thick Acrytec Panel.

13. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4Q) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
SES FOAM INC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam. For use in Bearing and Non-Load Bearing Walls.

13A. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4S) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
GACO WESTERN L L C — Types GacoEZSpray F4500, GacoProFill FR6500R, Gaco 052N, GacoOnePass F1850, GacoOnePass Low GWP F1880, and Gaco WallFoam 183M.

13B. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4T) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
CARLISLE SPRAY FOAM INSULATION — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, and Foamsulate HFO.

13C. **Foamed Plastic*** - (Optional, Not Shown – For use with Item 4U) - Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.

BASF CORP – Types Enerfite® NM, Enerfite® G, FE178®, Spraytite® 178, Spraytite® 8120G, Walltite® 200, Walltite® US , Walltite® US-N, Walltite® HP+, Spraytite® Comfort XL, and Walltite® XL

14. **Foamed Plastic* —** (Optional, Not Shown - For use over Gypsum Board, Item 4) - Polyisocyanurate foamed plastic boards, any thickness applied vertically with vertical joints located over studs. May be used with Molded Plastic, Item 5 or any exterior facing, as authorized by the Authority Having Jurisdiction and installed in accordance with the manufacturer's installation instructions.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci Class A", "Xci 286", "Xci Foil (Class A)", "Xci CG", "Xci Foil", "Xci CG NH", "Xci Foil NH"

15. **Building Units* —** (Optional, Not Shown - For use over Gypsum Board, Item 4) Polyisocyanurate composite foamed plastic boards, any thickness, applied vertically with vertical joints located over studs. May be used with Molded Plastic, Item 5 or any exterior facing, as authorized by the Authority Having Jurisdiction and installed in accordance with the manufacturer's installation instructions.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci NB", "Xci Ply"

16. **Building Units –** (Optional Item Not Shown – For use over Gypsum Board, Item 4) 1 in., 2 in. or 3 in. thick, 4 ft. wide – Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of of ¾ in., spaced a max 8 in. o.c.

NATIONAL GYPSUM CO – Type PBCI

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-02-03

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288

Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

CIVITAN

KEYPLAN

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. REGISTERED PROFESSIONAL ENGINEER CERT. NO. 51394 NORTH CAROLINA INDIANAPOLIS, INDIANA

MARK DENISON SEARLS REGISTERED ARCHITECT 16711 NORTH CAROLINA

UL ASSEMBLIES

DATE	11/11/24
BSALS PROJECT NO.	21950006

G253

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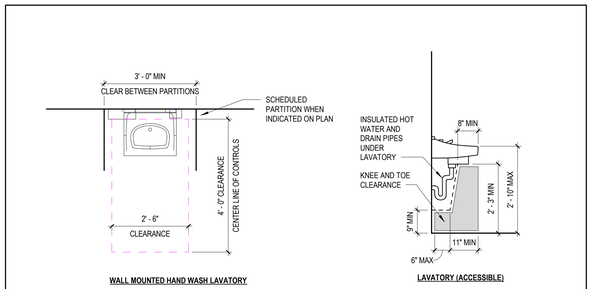
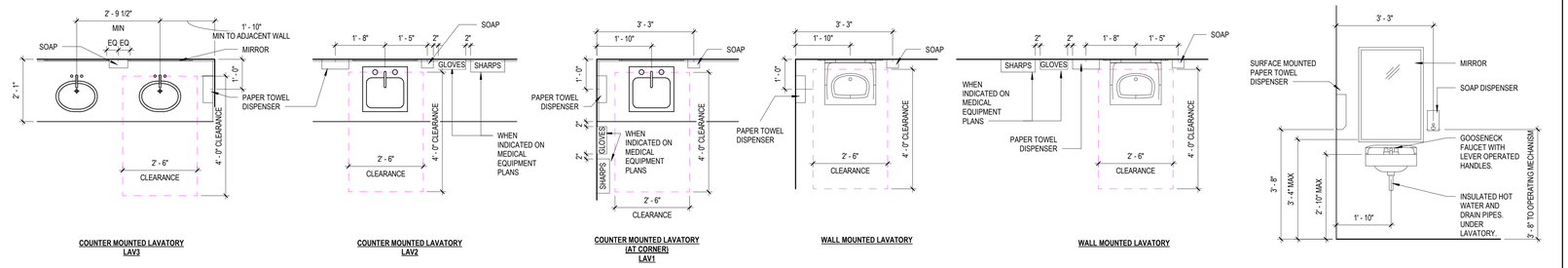
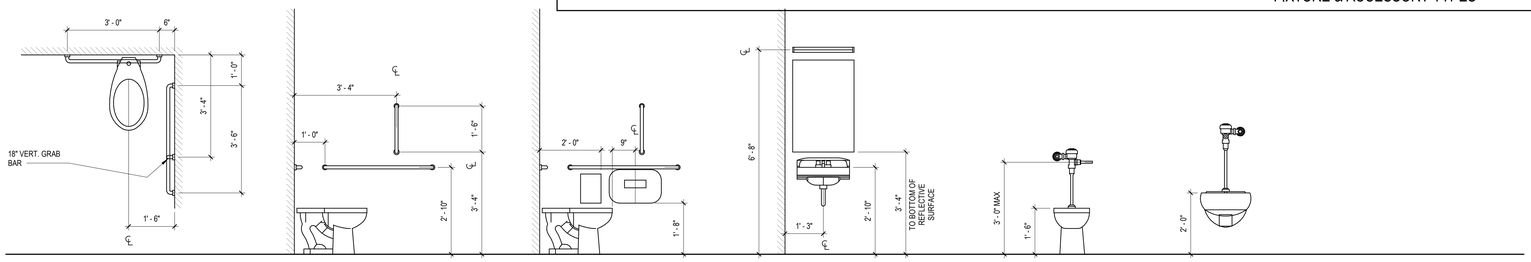
DESIGNED Designer
DRAWN By Author
APPROVED Approver

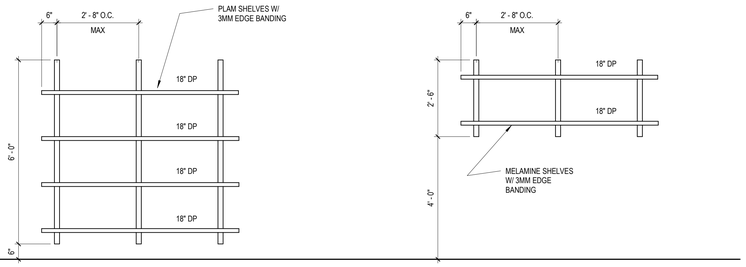


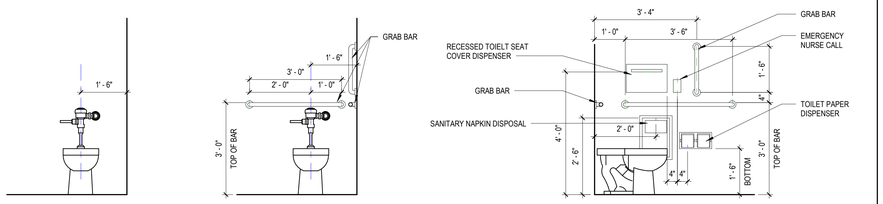
HAND WASH LAVATORY



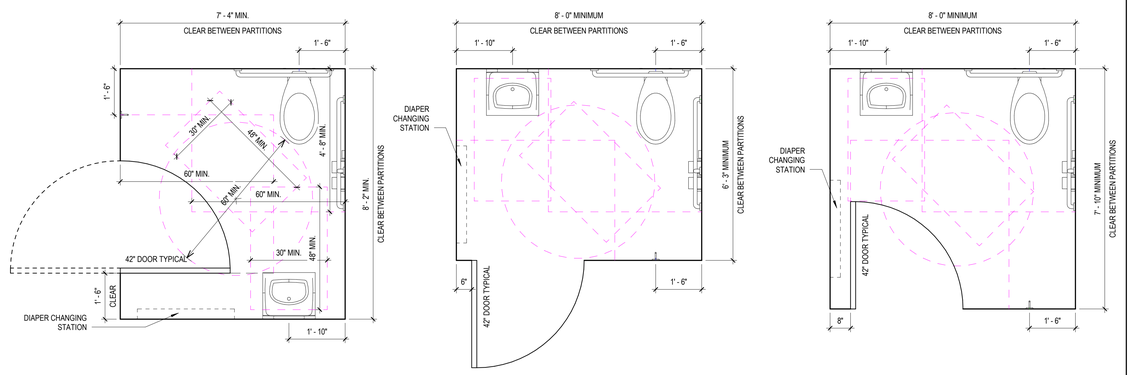
FIXTURE & ACCESSORY TYPES







TOILETS ACCESSIBILITY



TOILET ROOM TYPES (ACCESSIBLE)

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 INDIANAPOLIS, INDIANA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

TYPICAL ACCESSIBILITY DETAILS

DATE	11/11/24
BSALS PROJECT NO.	21950006

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DESIGNED Designer
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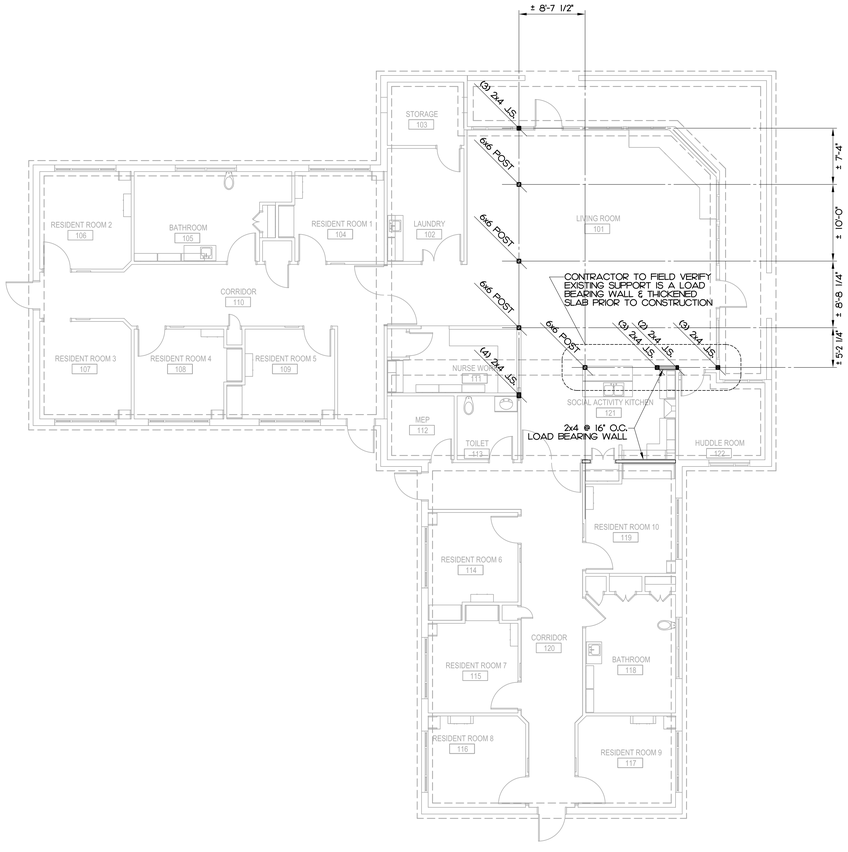
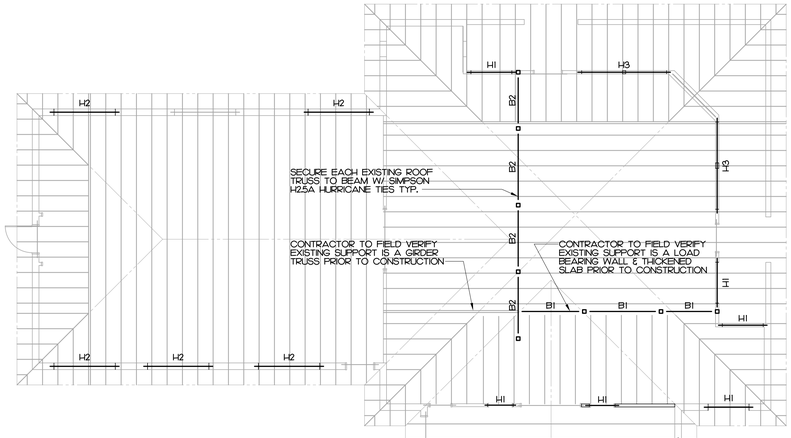


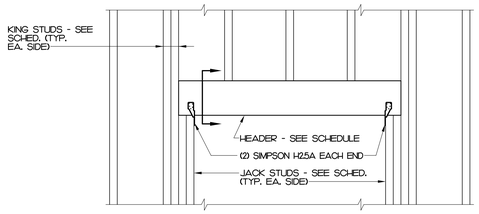
FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

FOUNDATION PLAN NOTES
1. J.S. ON PLAN INDICATES JACK STUD
2. ALL 6x6 POSTS SHALL RECEIVE A SIMPSON ABW66Z POST BASE WITH 1/2" X 4" TITEN HD SCREW ANCHOR

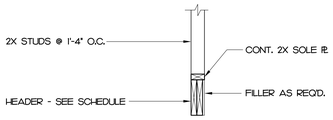


ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

ROOF FRAMING PLAN NOTES
1. B1 ON PLAN INDICATES (2) 2x10
2. B2 ON PLAN INDICATES (2) 1.75x9.25 LVL
3. ALL BEAMS SHALL BE SECURED TO 6x6 POSTS WITH (2) SIMPSON LPC6Z POST CAPS AND TO STUD PACKS WITH (2) SIMPSON H2.5A TIES.



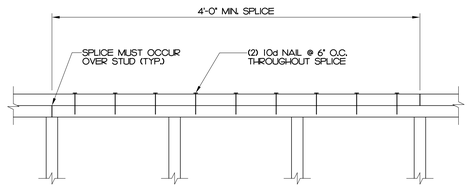
ELEVATION



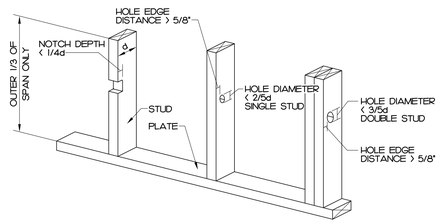
SECTION

HEADER SCHEDULE			
LABEL	HEADER	KING STUD	JACK STUD
H1	(2) 2 X 10	(2) 2 X 4	(1) 2 X 4
H2	(2) 1.75 X 9.25 LVL	(3) 2 X 4	(2) 2 X 4
H3	(2) 1.75 X 9.25 LVL	(4) 2 X 4	(2) 2 X 4 EA. END + (3) 2 X 4 AT MID SPAN

HEADER



DOUBLE TOP PLATE SPLICE



STUD NOTCHING AND BORING LIMITS

I. DESIGN CRITERIA:
1. BUILDING CODE..... 2018 NORTH CAROLINA BUILDING CODE
2. DEAD LOADS:
   A) ROOF ..... 20 PSF
3. LIVE LOADS:
   A) ROOF ..... 20 PSF
   B) FLOOR ..... 100 PSF
4. SNOW LOAD (N/A):
5. WIND (N/A):
6. SEISMIC (N/A):

II. FOUNDATIONS:
1. FOUNDATION DESIGN IS BASED ON A SOIL BEARING PRESSURE OF 2000 PSF.

III. STRUCTURAL WOOD:
1. ALL STRUCTURAL LUMBER SHALL BE SURFACED DRY WITH 19% MAXIMUM MOISTURE CONTENT.
2. ALL WOOD MEMBERS EXPOSED TO WEATHER OR CONNECTED TO CONCRETE SHALL BE PRESERVATIVE TREATED. ALL JOIST HANGERS, METAL CONNECTORS AND STRAPS, STRONG HOLD NAILS AND NAILS SHALL BE GALVANIZED STEEL.
3. WALL STUDS SHALL BE SPRUCE–PINE–FIR NO. 2 OR SOUTHERN PINE NO. 2.
4. BEAMS AND HEADERS SHALL BE SOUTHERN PINE NO. 2.
5. LVL'S SHALL BE 1.75" WIDE (EACH MEMBER) AND Fb=2,600 PSI E=1,900 KSI
6. ALL WOOD POSTS AND MULTIPLE STUDS MUST BE CARRIED THROUGH VERTICALLY TO THE LOWEST LEVEL TO BEAR ON THE SLAB ON GRADE OR FOUNDATION, UNLESS NOTED OTHERWISE.
7. MULTIPLE PLY BEAMS AND/OR HEADERS MAY BE NAILED TOGETHER IF THE MEMBERS BEAR ON TOP OF THE BEAM. NAIL EACH PLY TO THE ADJACENT WITH (3) ROWS OF 10d NAILS AT 12" O.C. FOR 2x10 AND LARGER OR 2 ROWS FOR SMALLER. IF THE BEAM SUPPORTS MEMBERS FRAMING INTO ITS SIDES WITH JOIST HANGERS, THE PLIES MUST BE SCREWED TOGETHER WITH (3) ROWS OF 1/4" SDS SCREWS AT 12" O.C FOR 2x10 AND LARGER OR 2 ROWS FOR SMALLER.

IV. MISCELLANEOUS:
1. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.
2. NO OPENING SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT WRITTEN APPROVAL OF THE ARCHITECT.
3. NO CHANGE IN SIZE OF DIMENSION OF STRUCTURAL MEMBER SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT.
4. FIRE PROOFING METHODS AND MATERIALS FOR STRUCTURAL MEMBERS ARE NOT SHOWN ON STRUCTURAL DRAWINGS.
5. DO NOT SCALE THESE DRAWINGS; USE DIMENSIONS.

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CIVITAN RENOVATION

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RALEIGH, NC 27606

PERMIT SET

CIVITAN

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

MORRISON ENGINEERS PLLC
NCBELS: P-0184 | NCLBGC License: 63835
7701 Chapel Hill Road
Cary NC 27513
919.851.2021 office | 919.851.2024 fax
www.morrisonengineers.com

NORTH CAROLINA PROFESSIONAL SEAL 043844 ENGINEER AARON W. MARR
11/11/2024

PLANS, GENERAL NOTES & TYPICAL DETAILS

DATE	NOV 12, 2024
ME PROJECT NO.	24106

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DRAWN AMM
APPROVED AMM

GENERAL DEMOLITION NOTES

A. ALL ITEMS SHOWN IN A BOLD DASHED LINE AND NOT OTHERWISE CALLED OUT, INDICATE EXISTING ITEMS OR WALLS TO BE DEMOLISHED. REMOVE SUCH ITEMS TOTALLY AND COMPLETELY.
B. REMOVE ALL EXISTING WALL MOUNTED ITEMS WITHIN THE PROJECT LIMIT AREA WHICH ARE NOT NOTED TO REMAIN. DISPOSE OF THESE ITEMS AFTER INSPECTION BY THE OWNER DETERMINES THEY ARE NOT TO BE SALVAGED. IF ITEMS ARE REMOVED FROM WALLS THAT ARE TO REMAIN, PATCH WALLS AS REQUIRED TO RECEIVE NEW FINISHES AND/OR SURFACES.
C. REFER TO STRUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL DEMOLITION INFORMATION.
D. ALL EXISTING BUMP RAILS SHALL BE REMOVED FROM THE WALLS THAT ARE MARKED AS TO BE REMOVED OR SCHEDULED TO RECEIVE NEW FINISHES. SALVAGE FOR POSSIBLE REUSE OR TRANSFER TO OWNER.
E. REMOVE EXISTING CEILING FINISHES, INCLUDING BULKHEADS, AS APPLICABLE IN ALL AREAS WITHIN THE PROJECT LIMITS THAT ARE SCHEDULED TO RECEIVE NEW CEILINGS.

GENERAL DIMENSION NOTES

A. ALL DIMENSIONS ARE TO FACE OF GYPSUM BOARD, FACE OF MASONRY OR CONCRETE, OR TO FACE OF EXISTING WALL FINISH UNLESS NOTED OTHERWISE.
B. INSTALL CONTROL JOINTS IN GYPSUM BOARD WALLS, CEILINGS AND BULKHEADS AS INDICATED ON THE DIMENSION PLANS, REFLECTED CEILING PLANS, INTERIOR ELEVATIONS AND AS INDICATED IN THE SPECIFICATIONS. CONSULT ARCHITECT FOR LOCATIONS IF NOT INDICATED.
C. THE DIMENSION PLANS ARE INTENDED TO SHOW DIMENSIONS, WALL RATINGS, WALL TYPES AND DOOR AND WINDOW LOCATIONS ONLY.
D. PROVIDE 18" MINIMUM ADA REQUIRED CLEARANCE ADJACENT TO STRIKE OF DOOR ON SWING SIDE OF DOOR. PROVIDE 12" MINIMUM ON OPPOSITE SIDE OF DOOR.
E. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR SIZES AND LOCATIONS OF EQUIPMENT PADS. COORDINATE SLAB CONSTRUCTION WITH MECHANICAL AND STRUCTURAL.
F. WALLS NOT FULLY EXTENDED TO DECK OR ROOF ABOVE SHALL BE DIAGONALLY BRACED AT 10'-0" MAXIMUM ON CENTER FROM TOP OF WALL TO DECK OR ROOF STRUCTURE ABOVE.
G. PROVIDE FULL HEIGHT STRUCTURAL STUDS TO THE STRUCTURE ABOVE AT ALL CORNERS, AT DOOR AND BORROWED LIGHT FRAMES, AND JAMBS.
H. REFER TO STRUCTURAL DRAWINGS FOR MASONRY REINFORCEMENT.
I. ALL INTERIOR WALLS SHALL BE TYPE 'B3' UNLESS NOTED OTHERWISE. ALL COLUMN SURROUNDS SHALL BE WALL TYPE 'A2' UNLESS NOTED OTHERWISE.
J. INSTALL CONTROL JOINTS IN GYPSUM BOARD WALLS, CEILINGS AND BULKHEADS AS INDICATED ON THE DIMENSION, REFLECTED CEILING PLANS, INTERIOR ELEVATIONS AND PER SPECIFICATION DIVISION 09.
K. ALL STUDS SHALL BE AT 16" O.C. UNLESS NOTED OTHERWISE.
L. ALL SHAFT WALL STUDS SHALL BE AT 24" O.C. UNLESS NOTED OTHERWISE.
M. UNLESS NOTED OTHERWISE, PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL WALLS COMMON TO WATER CLOSETS, URINALS, LAVATORIES, SINKS AND SHAFTS.
N. WHERE RATED WALLS ARE INDICATED, ENTIRE WALL ASSEMBLY SHALL BE CONTINUOUS AS SHOWN OR IMPLIED ON THE CONTRACT DOCUMENTS. WHERE PENETRATIONS THROUGH RATED WALL PARTITIONS ARE REMOVED, PATCH AND REPAIR SUCH WALLS TO MAINTAIN THE RATING. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR FURTHER COORDINATION.
O. SMOKE AND FIRE RATED WALLS SHALL BE CONTINUOUS THROUGH AND ABOVE DOOR AND WINDOW OPENINGS.
P. FURNISH AND INSTALL FIRE STOP SEALANT WHERE GYPSUM WALL BOARD MEETS FIREPROOFING ON COLUMNS, BEAMS, AND METAL DECK AT FIRE RATED PARTITIONS.
Q. WHERE GYPSUM BOARD COLUMN SURROUNDS ARE ADJACENT TO CASEWORK, THE DEPTH OF THE COLUMN SURROUND SHALL EXTEND 1" BEYOND FACE OF CASEWORK OR EDGE OF COUNTERTOP.
R. SEAL ALL PENETRATIONS ABOVE AND BELOW ACOUSTICAL TILE CEILINGS IN ALL ISOLATION AND PROCEDURE ROOMS.
S. VERIFY FINAL LOCATION OF PUSH PADS, CARD READERS AND TOUCHLESS ACTUATORS WITH OWNER BEFORE INSTALLATION.
T. PROVIDE WOOD BLOCKING AT WALL STUDS TO SUPPORT GRAB BARS, HANDRAILS, DOOR STOPS AND TOILET PARTITIONS.
U. REFER TO THE ENLARGED PLANS AND SECTIONS OF THE STAIRS AND ELEVATORS FOR ADDITIONAL NOTES AND DIMENSIONS RELATING TO THESE AREAS.
V.

GENERAL ARCHITECTURAL NOTES

A. REFER TO THE EQUIPMENT SCHEDULE ON SHEET EDIT FOR EQUIPMENT INFORMATION. COORDINATE BLOCKING AND MECHANICAL, ELECTRICAL AND PLUMBING CONNECTIONS AS REQUIRED.
B. VERIFY WITH OWNER REQUIREMENTS FOR ALL EQUIPMENT (MOUNTING HEIGHTS, LOCATIONS AND SIZES) INCLUDING ALL OWNER FURNISHED OWNER INSTALLED ITEMS.
C. REFER TO THE DIMENSION PLAN FOR ADDITIONAL INFORMATION REGARDING WALL AND OPENING CONSTRUCTION.
D. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING PLANS FOR ADDITIONAL INFORMATION.
E. VERIFY EXISTING CONDITIONS PRIOR TO ANY FABRICATION OR CONSTRUCTION. IF EXISTING CONDITIONS ARE DIFFERENT THAN SHOWN, NOTIFY ARCHITECT/ENGINEER IMMEDIATELY.
F. LOOSE FURNITURE IF SHOWN IS FOR REFERENCE PURPOSES ONLY AND IS OWNER FURNISHED AND INSTALLED.
G. ALL STRUCTURAL FRAMING MEMBERS, COLUMNS AND BEAMS SHALL BE FIREPROOFED IN ACCORDANCE WITH SPECIFCATION SECTION 07 81 00.

GENERAL FRAME ELEVATION NOTES

A. FRAME TYPES: HM = HOLLOW METAL, SF = STOREFRONT, CW = CURTAIN WALL, AG = ALL GLASS, SSF = SPECIALTY STOREFRONT, FSF = FIRE-RATED STOREFRONT.
B. REFER TO DIVISION 08 IN THE PROJECT MANUAL FOR ALL FRAME PANEL TYPE DESIGNATIONS.
C. ALL STOREFRONT SYSTEMS TO BE 2" TALL (FACE FRAME) x 4 1/2" DEEP UNITS U.N.O.
D. ALL HOLLOW METAL SYSTEMS TO BE 2" TALL (FACE FRAME) x 5 1/4" DEEP UNITS U.N.O.
E. SEE SHEET A510 SERIES FOR DETAIL SETS
F. FRAME MANUFACTURER TO VERIFY IN FIELD ACTUAL CONDITIONS PRIOR TO FRAME MANUFACTURE AND INSTALLATION.
G. MULLION LOCATIONS ARE INDICATED TO THE CENTERLINE OF THE MULLION U.N.O.
H. ALL FRAME ELEVATIONS ARE SHOWN AS SEEN FROM THE PUBLIC APPROACH SIDE OF FRAME
I. REFER TO X/XXXX FOR TYPICAL CW CORNER CONDITION, UNLESS NOTED OTHERWISE.

GENERAL REFLECTED CEILING NOTES

A. NOT USED
B. NOT USED
C. ALL GYPSUM BOARD BULKHEADS SHALL BE INSTALLED AT 8' - 0" ABOVE FINISH FLOOR, UNLESS NOTED OTHERWISE.
D. REFER TO EDIT FOR TYPICAL BULKHEAD DETAIL
E. REFER TO EDIT FOR TYPICAL CUBICLE CURTAIN TRACK DETAIL
F. INSTALL CONTROL JOINTS IN GYPSUM BOARD WALLS, CEILINGS AND BULKHEADS AS INDICATED ON THE DIMENSION PLANS, REFLECTED CEILING PLANS, INTERIOR ELEVATIONS AND AS INDICATED IN THE SPECIFICATIONS.
G. FIRE RATED WALLS SHALL EXTEND FROM FLOOR TO STRUCTURE ABOVE.
H. NOT USED
I. ALL LIGHTING FIXTURES, MECHANICAL DIFFUSERS AND GRILLES, ET CETERA ARE SHOWN ON REFLECTED CEILING PLANS FOR REFERENCE ONLY. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS.

GENERAL INTERIOR ELEVATION NOTES

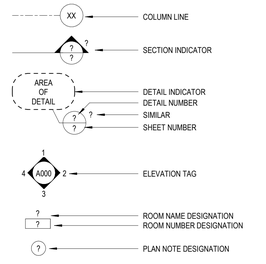
A. REFER TO FLOOR PLANS AND THE EQUIPMENT SCHEDULE FOR EQUIPMENT. COORDINATE CONNECTIONS. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
B. REFER TO PLUMBING DRAWINGS FOR LAVATORIES AND SINK TYPES.
C. ALL DIMENSIONS ARE TAKEN TO THE FACE OF FINISHED MATERIAL UNLESS OTHERWISE INDICATED.
D. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF CABINETRY.
E. CONSTRUCT GYPSUM BOARD BULKHEADS ABOVE UPPER CABINETRY TO BE 1" DEEPER AND LONGER THAN CABINETRY BELOW UNLESS INDICATED OTHERWISE.
F. COORDINATE ALL WALL DEVICES TO AVOID CONFLICT WITH CASEWORK AND COUNTERTOPS.
G. COORDINATE SUPPORT BRACKET LOCATIONS WITH UNDER COUNTER EQUIPMENT INDICATED ELSEWHERE IN CONTRACT DOCUMENTS.
H. ALL BASE CABINETS SHALL BE 2'-0" DEEP UNLESS NOTED OTHERWISE.
I. ALL CASEWORK SHALL BE FINISHED IN PLASTIC LAMINATE UNLESS NOTED OTHERWISE.
J. PROVIDE 1" MINIMUM FILLER PANELS AT ALL LOCATIONS WHERE CABINETRY ABUTS A WALL.
K. PROVIDE A 4" HIGH INTEGRAL BACK SPLASH ON ALL COUNTERS WITH RECESSED SINKS. INSTALL SIDE/END SPLASHES WHERE THESE COUNTERS ABUT A WALL.
L. PROVIDE ADJUSTABLE SHELVING WITHIN ALL WALL AND BASE CABINETRY AS SHOWN BY DASHED LINE.
M. BOTTOM OF UPPER CABINETS TO BE FINISHED TO MATCH VERTICAL FACES.
N. PROVIDE 12" CLEAR INTERIOR DIMENSION ON ALL UPPER WALL CABINETS UNLESS NOTED OTHERWISE.
O. ALL KEYBOARD TRAYS WILL BE OWNER FURNISHED AND OWNER INSTALLED.
P. AT WALLS WITH FIRE EXTINGUISHER CABINETS, STOP UPPER BUMP RAILS 6" FROM EDGES OF CABINET.
Q. ALL CABINET/CASEWORK PULLS TO BE TYPE EDIT UNLESS NOTED OTHERWISE.
R. REFER TO ARCHITECTURAL AND/OR INTERIOR DRAWINGS FOR SOLID SURFACE SINK TYPES.

GENERAL ROOF PLAN NOTES

A. ROOF INSULATION SHALL BE A MINIMUM 4" THICKNESS OR AS REQUIRED AT ROOF DRAINS UNLESS NOTED OTHERWISE.

ARCHITECTURAL SYMBOLS LEGEND

GENERAL SYMBOLS



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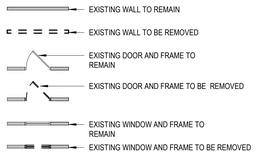
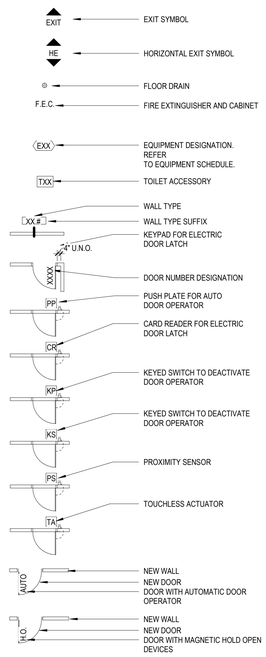
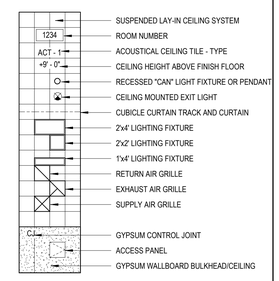


NEW CONSTRUCTION SYMBOLS



CEILING SYMBOLS



ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS USED ON PROJECT

A		
	A/E	ARCHITECT/ENGINEER
	ACT	ACOUSTICAL CEILING TILE
	ADA	AMERICANS WITH DISABILITIES ACT
	ADH	ADHESIVE
	ADJ	ADJACENT
	AF	ACCESS FLOORING
	AFF	ABOVE FINISH FLOOR
	AHU	AIR HANDLING UNIT
	ALT	ALTERNATE
	ALUM	ALUMINUM
	AL	ALUMINUM
	ANOD	ANODIZED
	APPROX	APPROXIMATE(LY)
	ARCH	ARCHITECT(TURAL)
	AUTO	AUTOMATIC
B		
	BL	BLINDS
	BLDG	BUILDING
	BLKHD	BULKHEAD
	BO	BY OTHERS
	BOT	BOTTOM
	BR	BUMP RAIL
	BSMT	BASEMENT
	BTWN	BETWEEN
C		
	CC	CUBICLE CURTAIN
	CFCI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
	CFOI	CONTRACTOR FURNISHED/OWNER INSTALLED
	CFVI	CONTRACTOR FURNISHED/VENDOR INSTALLED
	CG	CORNER GUARD
	CJ	CONTROL JOINT
	CL	CENTER LINE
	CLG	CEILING
	CLR	CLEAR(ANCE)
	CMU	CONCRETE MASONRY UNIT
	COL	COLUMN
	CONC	CONCRETE
	CONST	CONSTRUCTION
	CONT	CONTINUOUS
	COORD	COORDINATE
	CORR	CORRIDOR
	CPT	CARPET
	CR	CARD READER, CRASH RAIL OR CHAIR RAIL
	CS	CAST STONE OR CULTURED STONE
	CT	CERAMIC TILE
	CTB	CERAMIC TILE BASE
	CTR	CENTER
	CURT	CURTAIN
	CWT	CERAMIC WALL TILE
D		
	D	DEPTH (DEEP)
	DAFS	DIRECT APPLIED FINISH SYSTEM
	DEMO	DEMOLITION
	DEPT	DEPARTMENT
	DF	DRINKING FOUTAIN
	DG	DECORATIVE GLASS
	DIA	DIAMETER
	DIAG	DIAGONAL
	DIM	DIMENSION
	DISP	DISPENSER
	DN	DOWN
	DP	DECORATIVE PANEL
	DR	DOOR
	DTL	DETAIL
	DWG	DRAWING
	DWGS	DRAWINGS
E		
	E	EAST
	EA	EACH
	ECT	ET CETERA (AND SO FORTH)
	EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
	EJ	EXPANSION JOINT
	EL	ELEVATION
	ELEC	ELECTRIC(AL)
	ELEV	ELEVATOR
	EMER	EMERGENCY
	ENGR	ENGINEER
	EOS	EDGE OF SLAB
	EP	EPOXY PAINT
	EPO	EMERGENCY POWER OFF
	EQ	EQUAL
	EQUIP	EQUIPMENT
	ETR	EXISTING TO REMAIN
	EWC	ELECTRIC WATER COOLER
	EWS	EYE WASH STATION
	EXH	EXHAUST
	EXIST	EXISTING
	EXT	EXTERIOR
F		
	FB	FABRIC
	FD	FLOOR DRAIN
	FDTN	FOUNDATION
	FE	FIRE EXTINGUISHER
	FEC	FIRE EXTINGUISHER CABINET
	FF	FINISH FACE
	FIXT	FIXTURE
	FLR	FLOOR
	FP	FIREPROOF
	FRP	FIBER REINFORCED PANEL
	FRMG	FRAMING
	FSTNR	FASTENER
	FT	FOOT (FEET)
	FTG	FOOTING
	FURN	FURNITURE
	FWC	FABRIC WALLCOVERING
G		
	GA	GUAGE
	GALV	GALVANIZE(ED)
	GC	GENERAL CONTRACTOR
	GL	GLASS
	GLT	GLASS TILE
	GLZ	GLAZING
	GYP	GYPSUM
	GYP BD	GYPSUM BOARD
H		
	H	HIGH
	HAZ	HAZARD
	HCP	HANDICAPPED
	HDW	HARDWARE
	HM	HOLLOW METAL
	HO	HOLD OPEN
	HORIZ	HORIZONTAL
	HR	HOUR(S) [FIRE RESISTANCE RATING], OR HANDRAIL
	HSKPG	HOUSEKEEPING
	HT	HEIGHT
I		
	IBC	INTERNATIONAL BUILDING CODE
	ID	INSIDE DIAMETER (DIMENSION)
	IDEN	IDENTIFICATION
	INFO	INFORMATION
	INSUL	INSULATION
	INT	INTERIOR
L		
	LAV	LAVATORY
	LBS	POUND(S)
	LED	LIGHT EMITTING DIODE
	LSF	LINOLEUM SHEET FLOORING
	LTF	LINOLEUM TILE FLOORING
	LL	LEAD LINED
	LVT	LUXURY VINYL TILE
	LWC	LIGHTWEIGHT CONCRETE
M		
	MATL	MATERIAL
	MAX	MAXIMUM
	MB	MARKER BOARD
	MECH	MECHANICAL
	MEP	MECHANCIAL, ELECTRICAL AND PLUMBING
	MFD	MANUFACTURED
	MFG	MANUFACTURING
	MFR	MANUFACTURER
	MIN	MINIMUM
	MISC	MISCELLANEOUS
	MO	MASONRY OPENING
	MT	MOSAIC TILE
	MTD	MOUNTED
	MTL	METAL
N		
	N	NORTH
	NOM	NOMINAL
	NTS	NOT TO SCALE

O		
	OC	ON CENTER
	OD	OUTSIDE DIAMETER (DIMENSION)
	OF/CI	OWNER FURNISHED/CONTRACTOR INSTALLED
	OF/OI	OWNER FURNISHED/OWNER INSTALLED
	OF/VI	OWNER FURNISHED/VENDER INSTALLED
	OH	OPPOSITE HAND
	OH DR	OVERHEAD (COILING) DOOR
	OPNG	OPENING
	OPP	OPPOSITE
	OR	OPERATING ROOM
	ORIG	ORIGINAL
	OVHD	OVERHEAD
P		
	P	PAINT
	PB	PUSH BUTTON
	PERF	PERFORATED
	PL	PROPERTY LINE, OR PLASTIC LAMINATE
	PLAM	PLASTIC LAMINATE
	PLBG	PLUMBING
	PLYWD	PLYWOOD
	PME	PAINT OR PATCH TO MATCH EXISTING
	PNEU	PNEUMATIC
	PP	PUSH/PULL (PUSH PAD)
	PR	PAIR
	PREFAB	PREFABRICATE
	PREP	PREPARATION
	PREV	PREVIOUS
	PSI	POUNDS PER SQUARE INCH
	PT	PORCELAIN TILE
	PTB	PORCELAIN TILE BASE
	PTN	PARTITION
	PWR	POWER
Q		
	QT	QUARRY TILE
	QTY	QUANTITY
	QZ	QUARTZ SURFACE
R		
	RB	RESILIENT BASE
	RCP	REFLECTED CEILING PLAN
	RCPTN	RECEPTION
	RD	ROOF DRAIN
	REBAR	REINFORCING STEEL BARS
	REC	RECESSED
	RECPT	RECEPTACLE
	REF	REFERENCE (REFER TO)
	REG	REGISTER
	REINF	REINFORCE(MENT)
	REQD	REQUIRED
	REST	RESTROOM
	REV	REVISION
	RF	RUBBER FLOORING
	RFI	REQUEST FOR INFORMATION
	RM	ROOM
	RO	ROUGH OPENING
	RS	ROLLER SHADE
	RST	RESILIENT STAIR TREAD
S		
	S	SOUTH
	SC	SEALED CONCRETE
	SCWD	SOLID CORE WOOD DOOR
	SDT	STATIC DISSIPATIVE TILE
	SF	SQUARE FOOT (FEET)
	SGD	SLIDING GLASS DOOR
	SGL	SINGLE
	SHR	SHOWER
	SIM	SIMILAR
	SPEC	SPECIFICATION
	SPKR	SPEAKER
	SQ	SQUARE
	SS	SOLID SURFACE
	SST	STAINLESS STEEL
	STC	SOUND TRANSMISSION CLASS
	STD	STANDARD
	STL	STEEL
	STOR	STORAGE
	STRUCT	STRUCTURE(AL)
	SUB	SUBSTITUTE
	SV	SHEET VINYL
T		
	T/	TOP OF
	TA	TOUCHLESS ACTUATOR
	TB	TACKBOARD
	TEL	TELEPHONE
	TEMP	TEMPORARY (TEMPERATURE)
	TF	TACKABLE FABRIC
	THK	THICK(NESS)
	THRU	THROUGH
	TOC	TOP OF CONCRETE
	TOS	TOP OF STEEL
	TS	TUBE STEEL
	TSTAT	THERMOSTAT
	TV	TELEVISION
	TYP	TYPICAL
	TZ	TERRAZZO FLOORING
	TZB	TERRAZZO BASE
U		
	UBC	UNIFORM BUILDING CODE
	UL	UNDERWRITER'S LABORATORIES
	UNO	UNLESS NOTED OTHERWISE
	UTIL	UTILITY
V		
	VAR	VARIES
	VB	VINYL BASE
	VCT	VINYL COMPOSITION TILE
	VERT	VERTICAL
	VEST	VESTIBULE
	VET	VINYL ENHANCED TILE
	VIF	VERIFY IN FIELD
	VWC	VINYL WALL COVERING
W		
	W	WEST (WIDE)
	W/	WITH
	W/O	WITHOUT
	WD	WOOD PANELING
	WDW	WINDOW
	WF	WIDE FLANGE
	WM	WALK-OFF MAT
	WP	WALL PROTECTION ASSEMBLY
	WPT	WORKING POINT
	WR	WEATHER RESISTANT
	WT	WEIGHT
	WVW	WOOD VENEER WALLCOVERING
	WWF	WELDED WIRE FABRIC

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510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288

Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 INDIANAPOLIS, INDIANA NORTH CAROLINA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

GENERAL NOTES AND ABBREVIATIONS

DATE	11/11/24
BSALS PROJECT NO.	21950006

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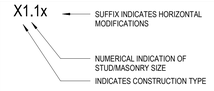
GENERAL PARTITION CONTRUCTION REQUIREMENTS

PARTITION TYPE SEE PLANS FOR PARTITION TYPE(S)	**ABBR.**	**GENERAL USE**	**FIRE RATING OF PARTITION**	**PARTITION HORIZONTAL CONTINUITY**	**PARTITION VERTICAL CONTINUITY**	**OPENINGS** (SUCH AS WINDOWS AND DOORS)	**PENETRATIONS** (SUCH AS DUCTS, PIPING, CONDUITS)	**JOINTS** (SUCH AS HEAD, SILL, AND VERTICAL JOINTS)	**DUCTS AND AIR TRANSFER OPENINGS**
FIRE WALL	2HR 3HR 4HR	SEPARATES DIFFERENT BUILDINGS, OR TO DIVIDE A STRUCTURE INTO SEPARATE BUILDINGS	2-HOUR, 3-HOUR, OR 4-HOUR RATED AS INDICATED	CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL. NO EXTENSION REQUIRED BEYOND NONCOMBUSTIBLE EXTERIOR SHEATHING WHERE THE SHEATHING EXTENDS HORIZONTALLY AT LEAST 4 FEET ON EITHER SIDE OF THE WALL.	WALLS MUST BE CONTINUOUS FROM THE FOUNDATION TO A POINT 30" ABOVE BOTH ADJACENT ROOFS, EXCEPT THAT WALLS MAY TERMINATE AT THE UNDERSIDE OF THE ROOF DECK WHERE THE ROOF DECK IS NONCOMBUSTIBLE WITH AT LEAST A CLASS B RATING AND WITHOUT OPENINGS WITHIN 4' OF THE WALL.	FIRE RATED. REFER TO OPENING SCHEDULE	FIRE RATED PROTECTED BY APPROVED FIRESTOP SYSTEM	FIRE RATED. PROTECTED BY APPROVED FIRESTOP SYTSTEM	FIRE DAMPER REQUIRED WHERE DUCT OR AIR TRANFER OPENING PENETRATES THE FIRE WALL. DUCT PENETRATIONS NOT PERMITTED ON LOT LINES
FIRE BARRIER	1HR 2HR	SEPARATES SHAFT ENCLOSURES, EXIT ENCLOSURES, EXIT PASSAGEWAYS, HORIZONTAL EXISTS, INCIDENTAL USE AREAS AND OCCUPANCY SEPARATION FROM OTHER SPACES.	1-HOUR OR 2-HOUR RATED AS INDICATED	CONTINUOUS AROUND ENCLOSURE OR SEPARATING SPACE	FULL HEIGHT FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF ABOVE. CONTINUOUS THROUGH CONCEALED SPACES SUCH AS ABOVE SUSPENDED CEILINGS.	FIRE RATED. REFER TO OPENING SCHEDULE	FIRE RATED PROTECTED BY APPROVED FIRESTOP SYSTEM	FIRE RATED. PROTECTED BY APPROVED FIRESTOP SYSTEM	FIRE DAMPER REQUIRED WHERE DUCTS PENETRATE ANY 2-HOUR FIRE BARRIER AND IN ALL 1- OR 2-HOUR SHAFT WALLS. FIRE DAMPER REQUIRED WHERE AIR TRANSFER OPENINGS PENETRATE A 1- OR 2-HOUR FIRE BARRIER
SMOKE BARRIER	SB	SUBDIVIDES FLOORS INTO SMOKE COMPARTMENTS IN 1-2 OCCUPANCY.	1-HOUR RATED	CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL	FULL HEIGHT FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF ABOVE. CONTINUOUS THROUGH CONCEALED SPACES SUCH AS ABOVE SUSPENDED CEILINGS.	1/3- HOUR (20MIN) FIRE RATED. DOORS SHALL MEET SMOKE AND DRAFT CONTROL ASSEMBLY PER UL 1784.	FIRE RATED PROTECTED BY APPROVED FIRESTOP SYSTEM MEETING REQUIREMENTS OF UL 1479 FOR AIR LEAKAGE.	FIRE RATED. PROTECTED BY APPROVED FIRESTOP SYSTEM MEETING REQUIREMENTS OF UL 2079 FOR AIR LEAKAGE.	SMOKE DAMPER NOT REQUIRED WHERE DUCT IS PART OF A FULLY DUCTED SYSTEM. SMOKE DAMPER REQUIRED OR WHERE AIR TRANSFER OPENING PENETRATES THE SMOKE BARRIER
SMOKE PARTITION		SEPARATES CORRIDORS FROM OTHER SPACES IN 1-2 OCCUPANCY. SEPARATES SUITES FROM OTHER SPACES IN 1-2 OCCUPANCY.	0-HOUR, NON-FIRE RATED	CONTINUOUS ALONG CORRIDOR PERIMETER OR SUITE PERIMETER	FULL HEIGHT FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF ABOVE OR UNDERSIDE OF CEILING WHERE CEILING MEMBRANE IS CONSTRUCTED TO LIMIT THE TRANSFER OF SMOKE.	NON-FIRE RATED WINDOWS SEALED TO RESIST THE FREE PASSAGE OF SMOKE OR AUTOMATIC CLOSING UPON DETECTION OF SMOKE. DOORS SHALL LIMIT THE TRANSFER OF SMOKE.	NON-FIRE RATED SPACE AROUND PENETRATING ITEMS SHALL BE FILLED WITH AN APPROVED MATERIAL TO LIMIT THE FREE PASSAGE OF SMOKE.	NON-FIRE RATED. JOINTS SHALL BE FILLED WITH AN APPROVED MATERIAL TO LIMIT THE FREE PASSAGE OF SMOKE.	NON-FIRE RATED. SPACE AROUND DUCTS SHALL BE FILLED WITH AN APPROVED MATERIAL TO LIMIT THE FREE PASSAGE OF SMOKE. AIR TRANSFER OPENINGS SHALL HAVE SMOKE DAMPER
COMBINATION FIRE BARRIER AND SMOKE BARRIER	1HRS 2HRS	A WALL THAT SEPARATES SMOKE COMPARTMENTS AND ALSO SEPARATES SHAFT ENCLOSURES, EXIT ENCLOSURES, EXIT PASSAGE WAYS, HORIZONTAL EXITS, INCIDENTAL USE AREAS FROM OTHER SPACES	1-HOUR OR 2-HOUR RATED AS INDICATED	CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND/OR AROUND ENCLOSURE OR SEPARATING SPACE	FULL HEIGHT FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF ABOVE. CONTINUOUS THROUGH CONCEALED SPACES SUCH AS ABOVE SUSPENDED CEILINGS.	FIRE RATED. REFER TO OPENING SCHEDULE. DOORS SHALL MEET SMOKE AND DRAFT CONTROL ASSEMBLY PER UL 1784	FIRE RATED. PROTECTED BY APPROVED FIRESTOP SYSTEM MEETING REQUIREMENTS OF UL 1479 FOR AIR LEAKAGE	FIRE RATED. PROTECTED BY APPROVED FIRESTOP SYSTEM MEETING REQUIREMENTS OF UL 2079 FOR AIR LEAKAGE.	FIRE DAMPER REQUIRED WHERE DUCTS PENETRATE ANY 2-HOUR FIRE BARRIER AND IN ALL 1- OR 2-HOUR SHAFT WALLS. A COMBINATION FIRE/SMOKE DAMPER IS REQUIRED IF SUCH DUCT IS NOT PART OF A FULLY DUCTED SYSTEM. COMBINATION FIRE/SMOKE DAMPER REQUIRED WHERE AIR TRANSFER OPENING PENETRATES THE FIRE/SMOKE BARRIER

WALL TYPE SYMBOL



WALL TYPES SUFFIX

1. INDICATES PARTIAL HEIGHT WALL.

a. INDICATES NO SOUND ATTENUATION BLANKETS
b. INDICATES 5/8" CEMENT BOARD IN LIEU OF 5/8" GYPSUM BOARD..
c. INDICATES 1/2" 4'x8' SHEETS OF FIRE RETARDANT PLYWOOD APPLIED TO TELECOM. SIDE OF ROOM. APPLY TO A HEIGHT OF 8'-0" A.F.F.
d. INDICATES ADDITIONAL LAYER OF 5/8" GYPSUM BOARD OVER WALL.
e. INDICATES FOIL-FACED GYPSUM BOARD.
f. INDICATES ADDITION OF 7/8" METAL HAT CHANNEL TO ATTACH GYPSUM WALL BOARD.

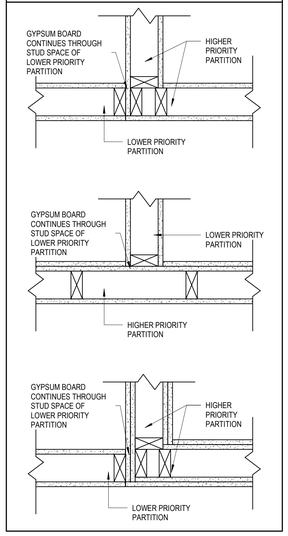
GENERAL WALL TYPE NOTES

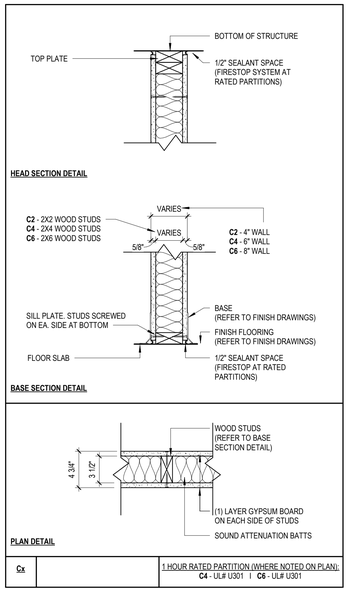
A. ALL INTERIOR GYPSUM BOARD WALLS SHALL BE TYPE B4 UNLESS NOTED OTHERWISE.
B. REFER TO A500 SERIES SHEETS FOR OPENING SCHEDULE AND REFER TO SPECIFICATIONS FOR HARDWARE INFORMATION.
C. TOP OF WALL PLATE SHALL EXTEND TO BOTTOM OF ROOF TRUSS, UNLESS NOTED OTHERWISE.

PARTITION PRIORITY LEGEND

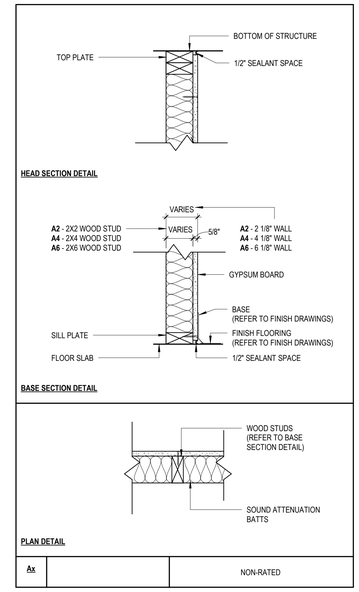
PARTITION FIRE RATING (AS NOTED)	PRIORITY
3 HOUR FIRE WALL	HIGHEST
2 HOUR FIRE BARRIER WALL	|
1 HOUR FIRE BARRIER WALL	|
1 HOUR SMOKE BARRIER	|
SMOKE PARTITION	|
NON RATED PARTITION	LOWEST

PARTITION PRIORITY DIAGRAMS





Cx		1 HOUR RATED PARTITION (WHERE NOTED ON PLAN): **C4** - UL# U301 | **C6** - UL# U301



Ax		NON-RATED

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CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 INDIANAPOLIS, INDIANA NORTH CAROLINA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

INTERIOR AND EXTERIOR ASSEMBLIES

DATE	11/11/24
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DESIGNED Designer
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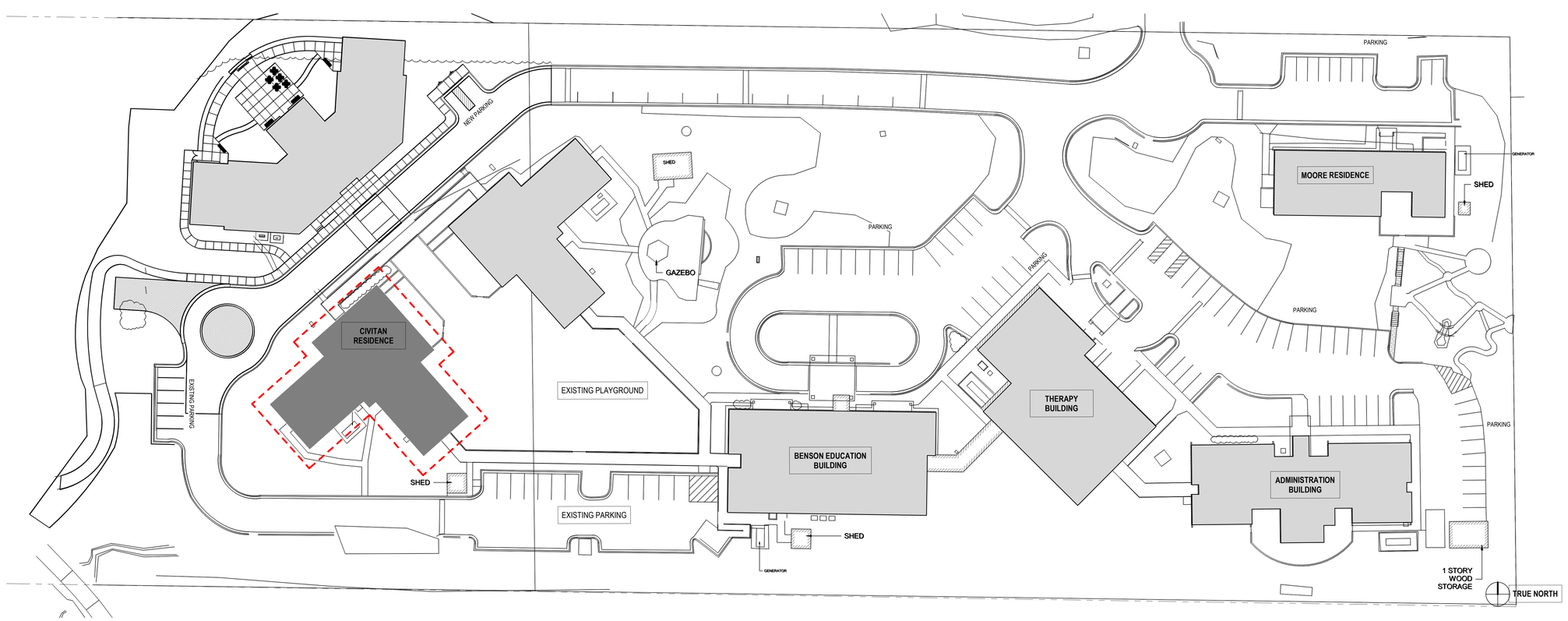
EXISTING CONDITIONS - NOT TO SCALE



1 ARCHITECTURAL SITE PLAN
1" = 30'-0"

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CIVITAN RENOVATION

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PERMIT SET

CIVITAN

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

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MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

ARCHITECTURAL SITE PLAN

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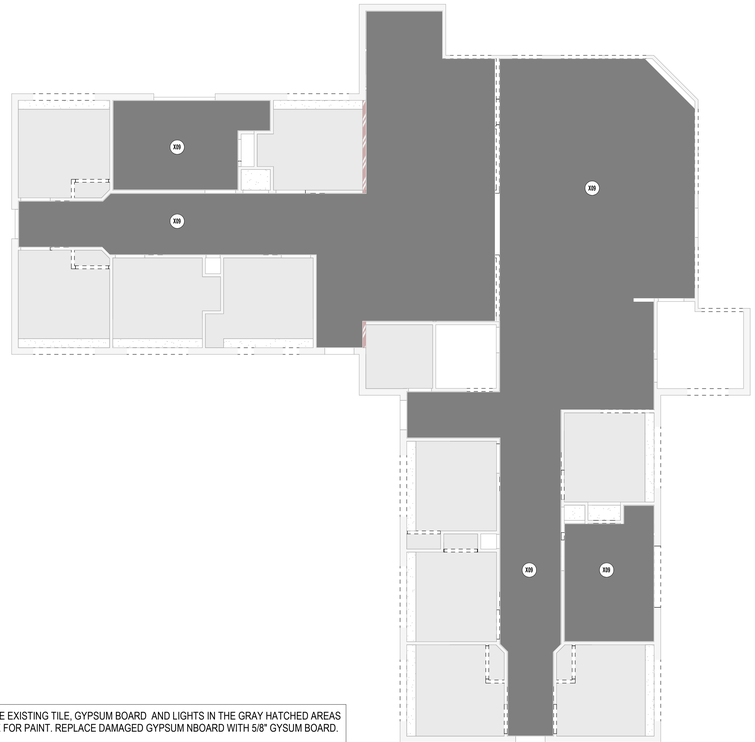
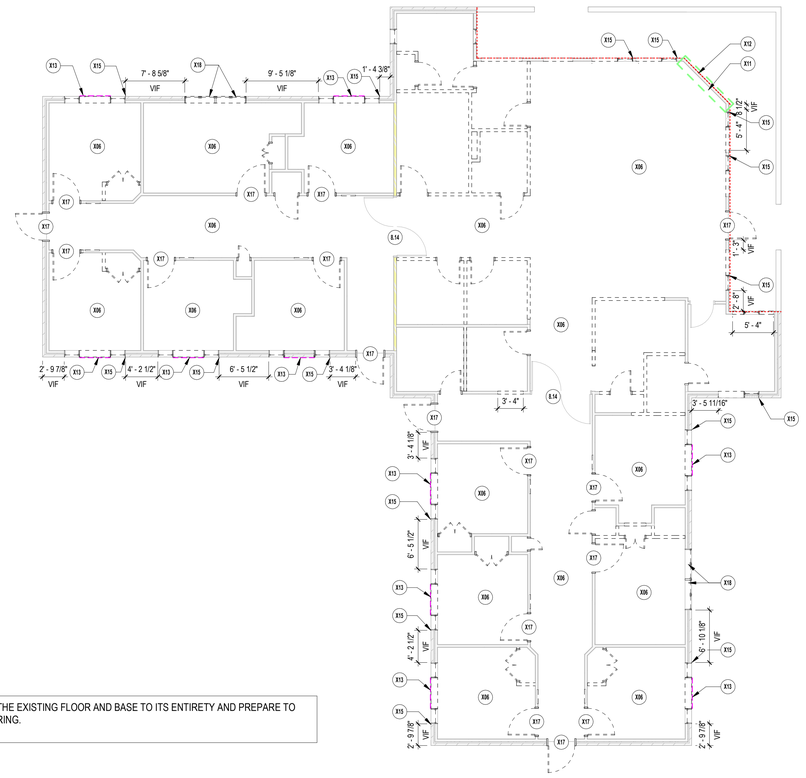


NOTE: REMOVE EXISTING TILE, GYPSUM BOARD AND LIGHTS IN THE GRAY HATCHED AREAS AND PREPARE FOR PAINT. REPLACE DAMAGED GYPSUM NBOARD WITH 5/8" GYSUM BOARD.

2 DEMOLITION REFLECTED CEILING PLAN
1/8" = 1'-0"



NOTE: REMOVE ALL THE EXISTING FLOOR AND BASE TO ITS ENTIRETY AND PREPARE TO RECEIVE NEW FLOORING.

1 DEMOLITION PLAN
1/8" = 1'-0"

WALL RATINGS

1-HOUR FIRE AND SMOKE BARRIER - (1HRS)

RCP LEGEND

EXISTING GYPSUM BOARD TO BE RE- PAINTED

EXISTING CEILING TILE TO BE REMOVED AND NEW 5/8" GYPSUM BOARD TO BE INSTALLED WHERE DAMAGED

KEYNOTE LEGEND

X00

REFER TO A000 FOR GENERAL NOTES

8.14	RE-FRESH AND RE- FINISH THE DOORS
X06	REMOVE EXISTING FLOORING AND BASE IN THEIR ENTIRETY. PREPARE FLOOR SLAB TO RECEIVE NEW FLOOR FINISH. PREPARE WALL TO RECEIVE NEW BASE. REFER TO INTERIOR FINISH PLANS FOR ADDITIONAL INFORMATION.
X09	REMOVE THE EXISTING CEILING TILE AND RETAIN THE GYPSUM BOARD. RE-PAINT THE GYPSUM BOARD. FOR PAINT COLOR COORDINATE WITH ARCHITECT
X11	INTERIOR GYPSUM BOARD TO BE REMOVED TO INCREASE THE WALL THICKNESS TO ACCOMMODATE A WALL NICHE. REFER DETAIL NO. -
X12	REMOVE THE EXISTING EXTERIOR VINYL CLADDING AND REPLACE WITH FIBER CEMENT LAP SIDING
X13	REMOVE FACE BRICK
X15	ALIGN OPENINGS WITH EXISTING JAMBS
X17	REMOVE EXISTING DOOR AND FRAME. PREPARE OPENING TO RECEIVE NEW DOOR. FOR OPENING SIZE REFER DOOR SCHEDULE
X18	REMOVE EXISTING WINDOW. PREPARE OPENING TO RECEIVE THE NEW WINDOW. COORDINATE OPENING SIZE WITH WINDOW SCHEDULE.

DEMOLITION PLAN NOTES

- EXISTING WALL TO REMAIN
- EXISTING WALL TO BE REMOVED
- EXISTING DOOR AND FRAME TO REMAIN
- EXISTING DOOR AND FRAME TO BE REMOVED
- EXISTING WINDOW AND FRAME TO REMAIN
- EXISTING WINDOW AND FRAME TO BE REMOVED

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CIVITAN

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

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DEMOLITION PLAN

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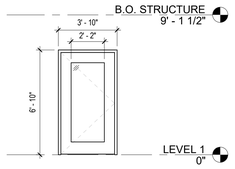
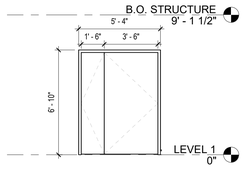
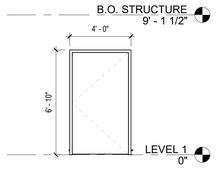


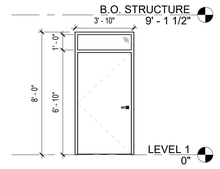
3 OPENING TYPE- D01
1/4" = 1'-0"



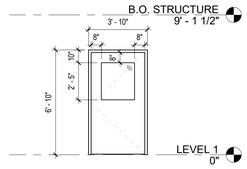
4 OPENING TYPE- D02
1/4" = 1'-0"



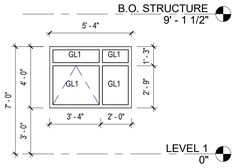
8 OPENING TYPE - D03
1/4" = 1'-0"



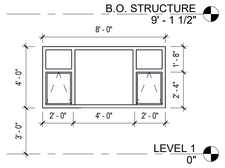
6 OPENING TYPE-D04
1/4" = 1'-0"



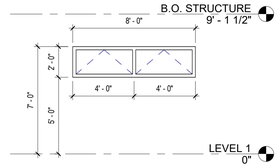
5 OPENING TYPE-D06
1/4" = 1'-0"



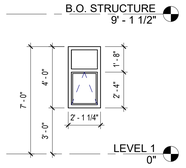
7 W01
1/4" = 1'-0"



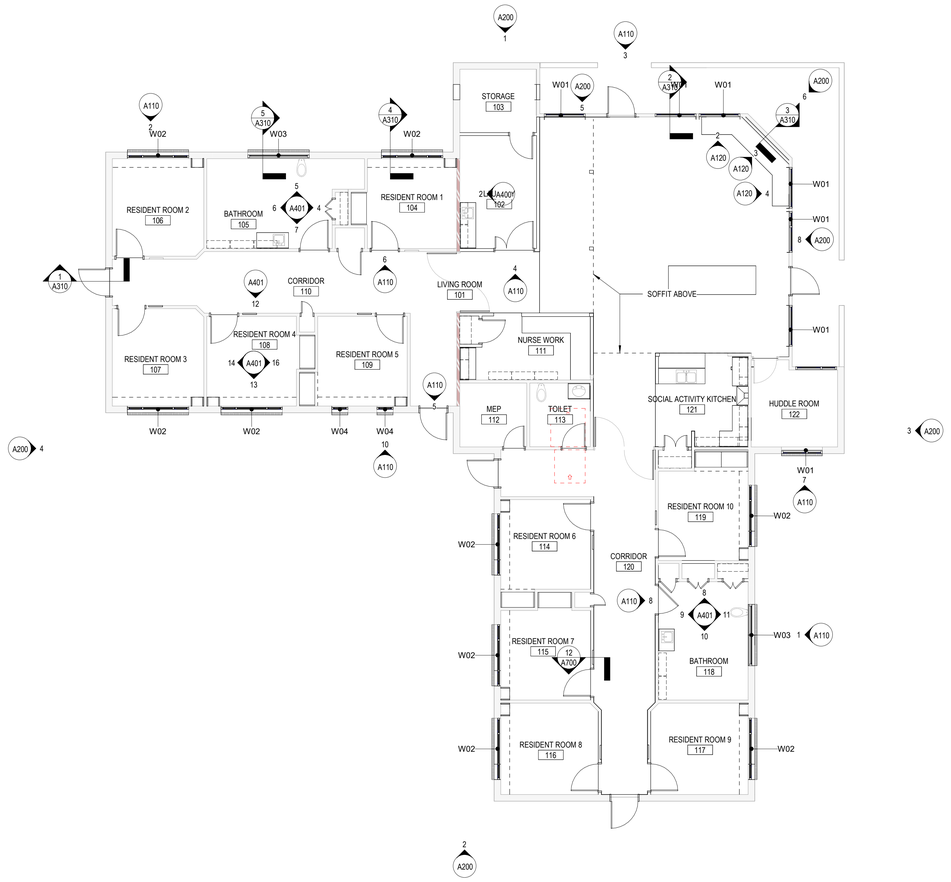
2 WINDOW TYPE- W01
1/4" = 1'-0"



1 WINDOW TYPE- W03
1/4" = 1'-0"

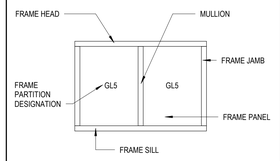


10 WINDOW TYPE - W04
1/4" = 1'-0"



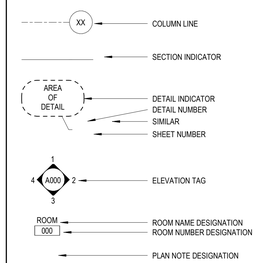
9 OPENING TYPE - D04
1/8" = 1'-0"

FRAME COMPONENT DIAGRAM

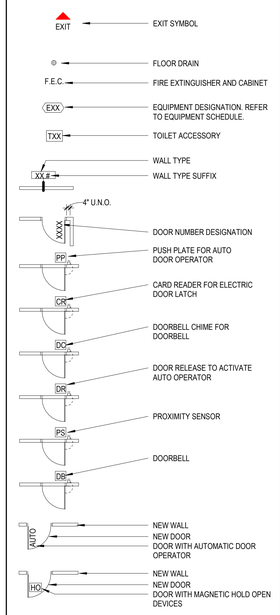


ARCHITECTURAL SYMBOLS LEGEND

GENERAL SYMBOLS



NEW CONSTRUCTION SYMBOLS



GENERAL ARCHITECTURAL NOTES

A. ALL CORRIDOR WALLS SHALL BE CONSTRUCTED TO BE SMOKE PARTITION WALLS, UNLESS NOTED OTHERWISE.
B. COORDINATE BLOCKING AND MECHANICAL, ELECTRICAL AND PLUMBING CONNECTIONS AS REQUIRED.
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F. LOOSE FURNITURE IS SHOWN FOR REFERENCE PURPOSES ONLY.
G. REFER TO A001 FOR INTERIOR AND EXTERIOR ASSEMBLY TYPES.
H. ALL WALL CABINETS TO BE 14" DEEP. U.N.O.

WALL RATINGS

1-HOUR FIRE AND SMOKE BARRIER - (1HRS)

RCP LEGEND

EXISTING GYPSUM BOARD TO BE RE- PAINTED

EXISTING CEILING TILE TO BE REMOVED AND NEW 5/8" GYPSUM BOARD TO BE INSTALLED WHERE DAMAGED

X00 KEYNOTE LEGEND

REFER TO A000 FOR GENERAL NOTES

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

CIVITAN

KEYPLAN

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. INDIANAPOLIS, INDIANA NORTH CAROLINA CORPORATION CERT. NO. 51394

MARK DENISON SEARLS REGISTERED ARCHITECT 16711 NORTH CAROLINA

DIMENSION PLAN

DATE	11/11/24
BSALS PROJECT NO.	21950006

A110

11/11/2024 6:48:38 PM
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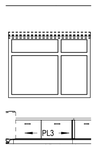
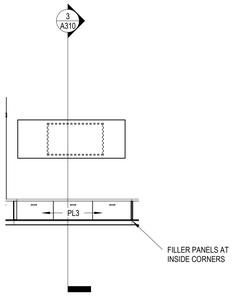
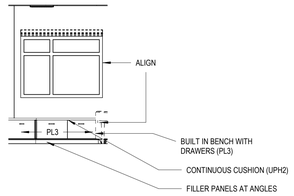
DESIGNED Designer
DRAWN Author
APPROVED Approver



2 LIVING ROOM - BENCH A
1/4" = 1'-0"

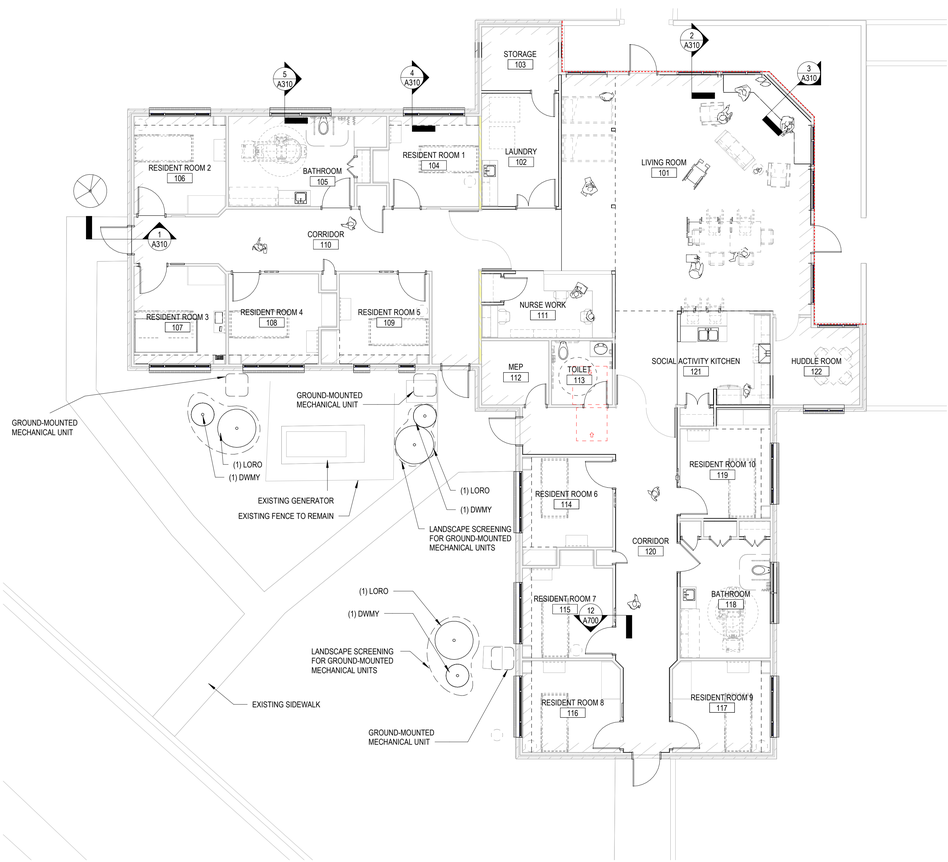


3 LIVING ROOM -STONE WALL/ BENCH B
1/4" = 1'-0"



4 LIVING ROOM - BENCH C
1/4" = 1'-0"

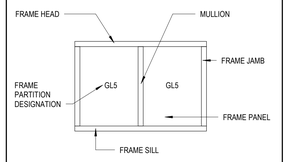
6 BENCH



PLANT SCHEDULE			
CODE	BOTANICAL / COMMON NAME	CONTAINER	HEIGHT
DWMY	MYRICA CERIFERA 'DON'S DWARF / DWARF WAX MYRTLE'	#3	4'-6' MATURE
LORO	LOROPETALUM CHINENSE VAR RUBRUM / LOROPETALUM	#3	4'-6' MATURE
DHOL	ILEX CORNUTA / DWARF BURFORD HOLLY	#3	4'-6' MATURE

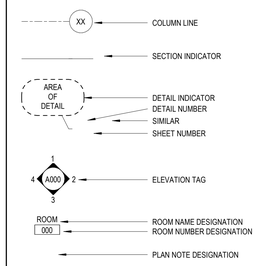
1 ARCHITECTURAL PLAN
1/8" = 1'-0"

FRAME COMPONENT DIAGRAM

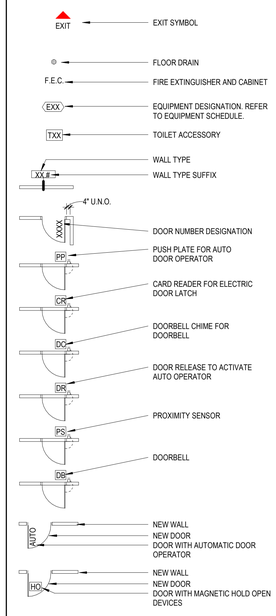


ARCHITECTURAL SYMBOLS LEGEND

GENERAL SYMBOLS



NEW CONSTRUCTION SYMBOLS



GENERAL ARCHITECTURAL NOTES

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G. REFER TO A001 FOR INTERIOR AND EXTERIOR ASSEMBLY TYPES.
H. ALL WALL CABINETS TO BE 14" DEEP. U.N.O.

WALL RATINGS

1-HOUR FIRE AND SMOKE BARRIER - (1HRS)

RCP LEGEND

EXISTING GYPSUM BOARD TO BE RE- PAINTED

EXISTING CEILING TILE TO BE REMOVED AND NEW 5/8" GYPSUM BOARD TO BE INSTALLED WHERE DAMAGED

X00 KEYNOTE LEGEND

REFER TO A000 FOR GENERAL NOTES

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Raleigh, NC 27603-1262
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CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

CIVITAN

KEYPLAN

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 NORTH CAROLINA INDIANAPOLIS, INDIANA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

ARCHITECTURAL PLAN

DATE	11/11/24
BSALS PROJECT NO.	21950006

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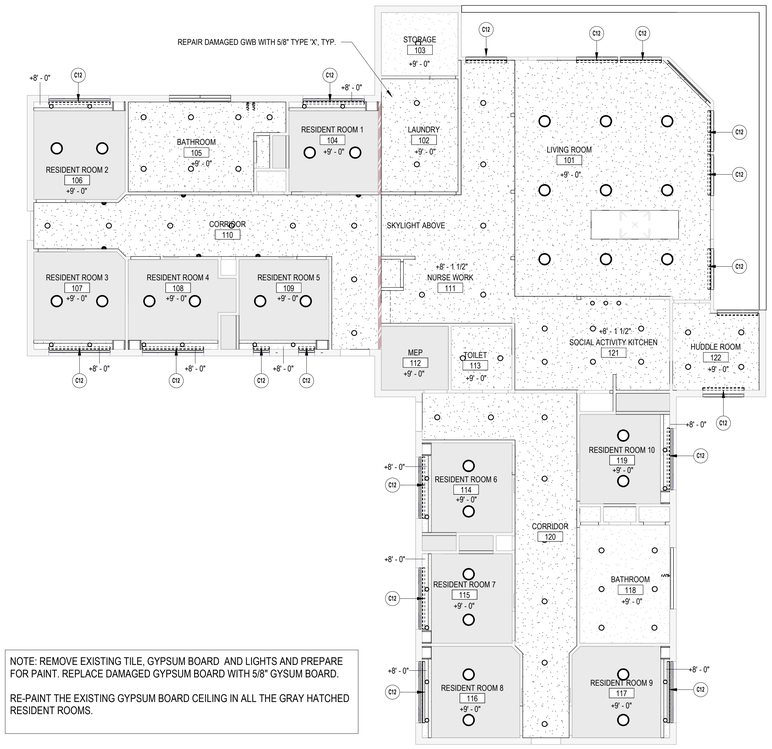
DESIGNED Designer
DRAWN Author
APPROVED Approver



NOTE: REMOVE EXISTING TILE, GYPSUM BOARD AND LIGHTS AND PREPARE FOR PAINT. REPLACE DAMAGED GYPSUM BOARD WITH 5/8" GYSUM BOARD.

RE-PAINT THE EXISTING GYPSUM BOARD CEILING IN ALL THE GRAY HATCHED RESIDENT ROOMS.

1 REFLECTED CEILING PLAN
1/8" = 1'-0"

REFLECTED CEILING SCHEDULE

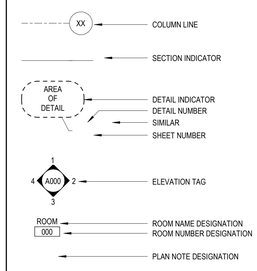
TYPE	REFERENCE STANDARD MANUFACTURER	CEILING TYPE				SUSPENSION SYSTEM			DESCRIPTION
		STYLE NAME	MODEL #	SIZE	COLOR	GRID SYSTEM	SIZE	COLOR	

KEYNOTE LEGEND

X00	REFER TO A000 FOR GENERAL NOTES
C12	MANUALLY-OPERATED ROLLER SHADE

ARCHITECTURAL SYMBOLS LEGEND

GENERAL SYMBOLS



GENERAL REFLECTED CEILING NOTES

A. ALL GYPSUM BOARD CEILINGS SHALL BE INSTALLED WITH 25 GAGE RESILIENT CHANNELS, SPACED 12" O.C. MAXIMUM, TO THE UNDERSIDE OF ROOF TRUSS, UNLESS NOTED OTHERWISE. REFER TO EXTERIOR ASSEMBLY 'RF-1A' FOR TYPICAL CEILING DETAIL.
B. REFER TO A002 FOR TYPICAL INTERIOR AND EXTERIOR ASSEMBLIES.
C. INSTALL CONTROL JOINTS IN GYPSUM BOARD WALLS, CEILINGS AND BULKHEADS AS INDICATED ON THE DIMENSION PLANS, REFLECTED CEILING PLANS, INTERIOR ELEVATIONS AND AS INDICATED IN THE SPECIFICATIONS.
D. FIRE RATED WALLS SHALL EXTEND FROM FLOOR TO UNDERSIDE OF ROOF TRUSS.
E. ALL CORRIDOR CEILINGS SHALL BE DESIGNED TO BE SMOKE PARTITION CEILINGS, UNLESS NOTED OTHERWISE.
F. ALL LIGHTING FIXTURES, MECHANICAL DIFFUSERS AND GRILLES, ET CETERA ARE SHOWN ON REFLECTED CEILING PLANS FOR REFERENCE ONLY. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS.
G. REMOVE EXISTING TILE AND PATCH THE CEILING

WALL RATINGS

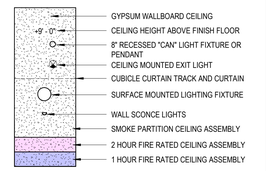
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)

RCP LEGEND

EXISTING GYPSUM BOARD TO BE RE- PAINTED

EXISTING CEILING TILE TO BE REMOVED AND NEW 5/8" GYPSUM BOARD TO BE INSTALLED WHERE DAMAGED

CEILING SYMBOLS



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Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES, INC. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA INDIANAPOLIS, INDIANA CERT. NO. 51594

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

REFLECTED CEILING PLAN

DATE	11/11/24
BSALS PROJECT NO.	21950006

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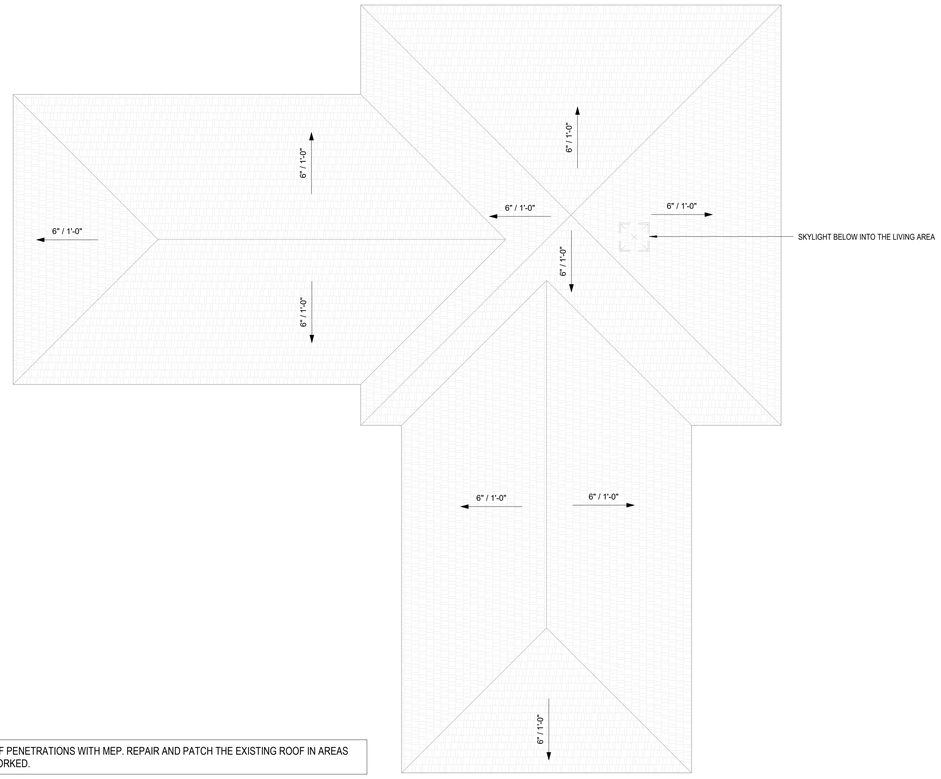
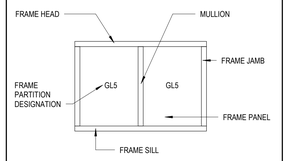
DESIGNED Designer
DRAWN Author
APPROVED Approver



NOTE: COORDINATE ROOF PENETRATIONS WITH MEP. REPAIR AND PATCH THE EXISTING ROOF IN AREAS WHICH ARE BEING RE- WORKED.

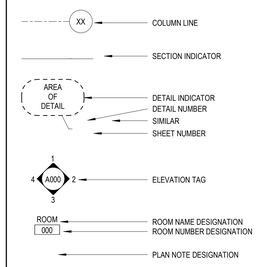
1 B.O. STRUCTURE(1)
1/8" = 1'-0"

FRAME COMPONENT DIAGRAM

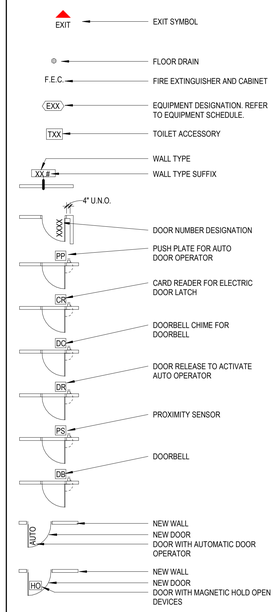


ARCHITECTURAL SYMBOLS LEGEND

GENERAL SYMBOLS



NEW CONSTRUCTION SYMBOLS



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WALL RATINGS

1-HOUR FIRE AND SMOKE BARRIER - (1HRS)

RCP LEGEND

EXISTING GYPSUM BOARD TO BE RE- PAINTED

EXISTING CEILING TILE TO BE REMOVED AND NEW 5/8" GYPSUM BOARD TO BE INSTALLED WHERE DAMAGED

KEYNOTE LEGEND

X00

REFER TO A000 FOR GENERAL NOTES

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CIVITAN RENOVATION

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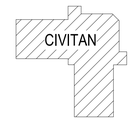

KEYPLAN

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

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MARK DENISON SEARLS REGISTERED ARCHITECT NORTH CAROLINA 16711

ROOF PLAN

DATE	11/11/24
BSALS PROJECT NO.	21950006

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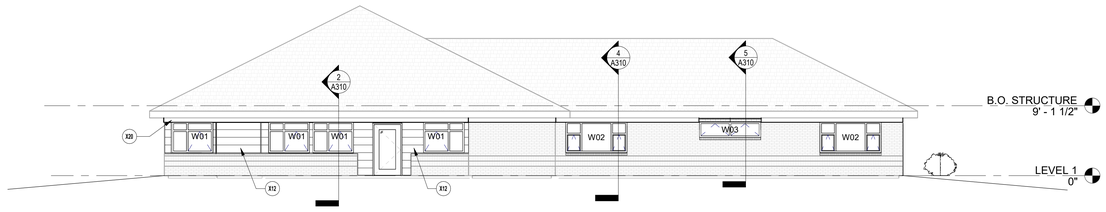
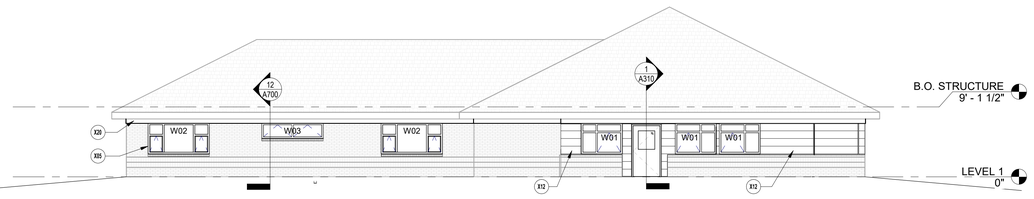
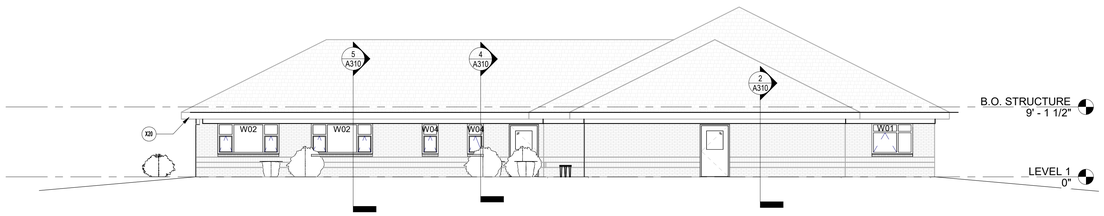
DESIGN: Designer
DRAWN: Author
APPROVED: Approver



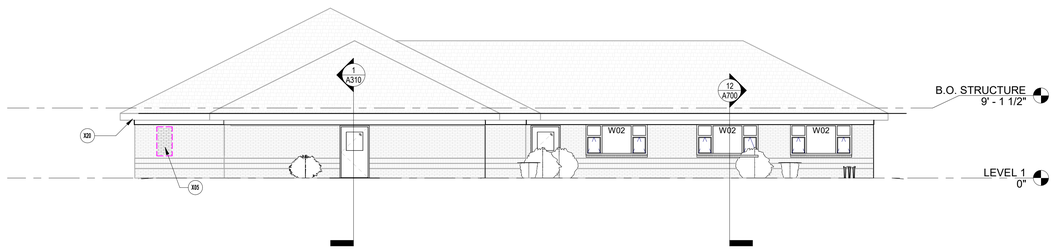
1 NORTH ELEVATION
1/8" = 1'-0"



3 EAST ELEVATION
1/8" = 1'-0"

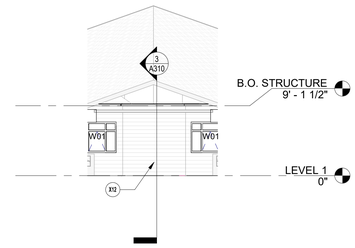


2 SOUTH ELEVATION
1/8" = 1'-0"

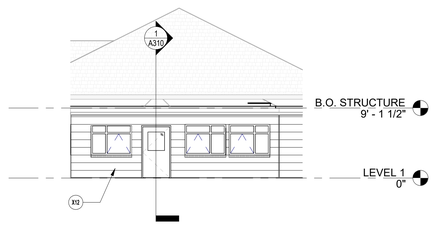


4 WEST ELEVATION
1/8" = 1'-0"

5 FRONT PORCH ELEVATION
1/8" = 1'-0"



6 CORNER ELEVATION
1/8" = 1'-0"



8 EAST SIDE ELEVATION- WITHOUT THE PORCH BRICK
1/8" = 1'-0"

X00	KEYNOTE LEGEND
	REFER TO A000 FOR GENERAL NOTES
X05	REMOVE EXISTING WINDOW, FRAME, AND HARDWARE IN ITS ENTIRETY. PREPARE OPENING TO BE INFILLED WITH NEW WALL CONSTRUCTION. REFER TO ARCHITECTURAL DIMENSION PLANS FOR ADDITIONAL INFORMATION.
X12	REMOVE THE EXISTING EXTERIOR VINYL CLADDING AND REPLACE WITH FIBER CEMENT LAP SIDING
X20	REMOVE EXISTING FASCIA AND SOFFIT AND REPLACE WITH NEW FC1

EXTERIOR ENCLOSURE - MATERIAL LEGEND

GLAZING TYPE GL-1 OR GL-1A
(VISION). SEE NOTE 1 BELOW.

CEMENTITIOUS FIBER CEMENT BOARD: FC1
MANUFACTURER: JAMES HARDIE
COLOR: COBBLESTONE, CEDAR MILL

FACE BRICK TYPE FB1
(1/3 RUNNING BOND)

NOTES:
1. EXTERIOR ENCLOSURE GLASS TO BE GLAZING TYPE GL1 (VISION), UNLESS INDICATED OTHERWISE.

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KEYPLAN
PLAN NORTH

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MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

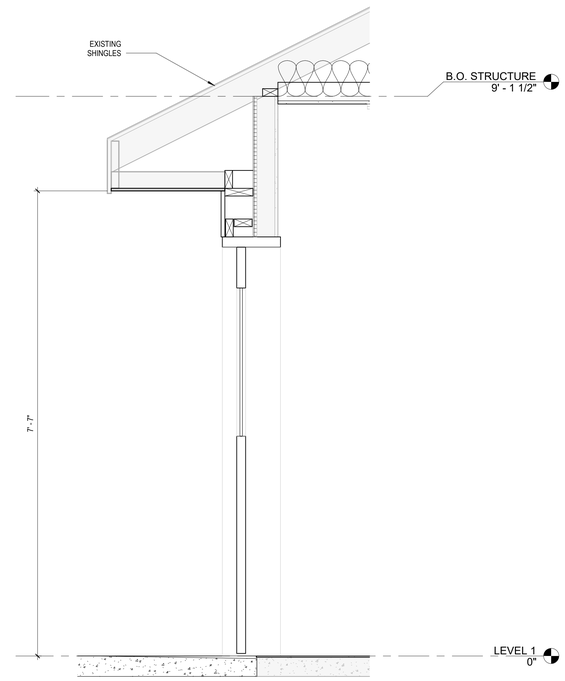
EXTERIOR ELEVATIONS

DATE	11/11/24
BSALS PROJECT NO.	21950006

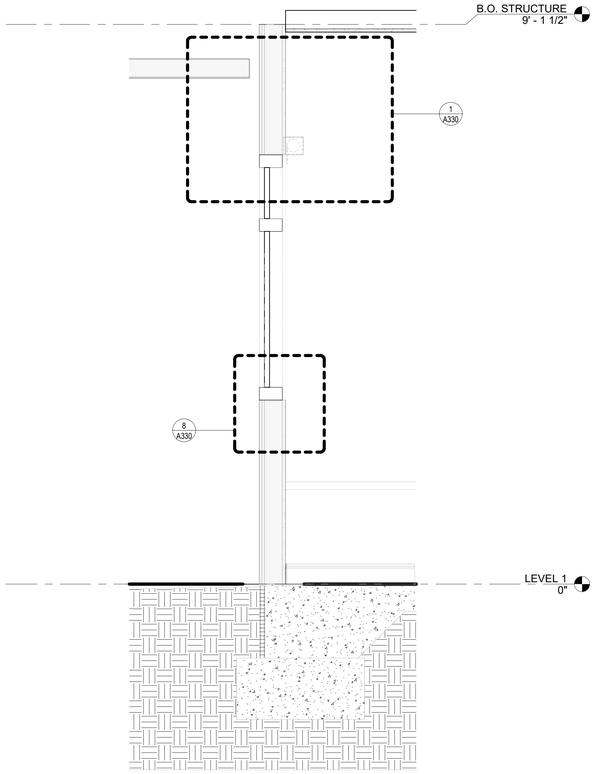
A200

11/11/2024 6:48:45 PM
Autodesk Docs://21950006 - Tucker & Civitan Renovations/21950006-ARCH_Civitan_BSALS_v2024.rvt
DESIGNED Designer
DRAWN Author
APPROVED Approver

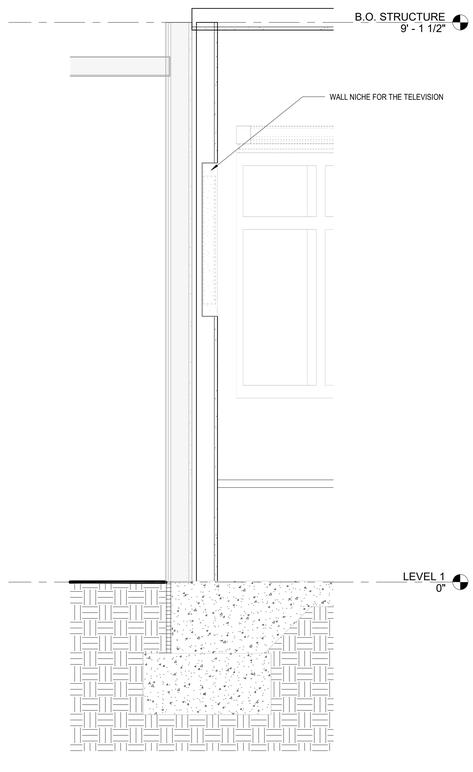
X00	KEYNOTE LEGEND
	REFER TO A000 FOR GENERAL NOTES



1 Section 4
1" = 1'-0"



2 WINDOW IN VINYL
1" = 1'-0"



3 FEATURE WALL
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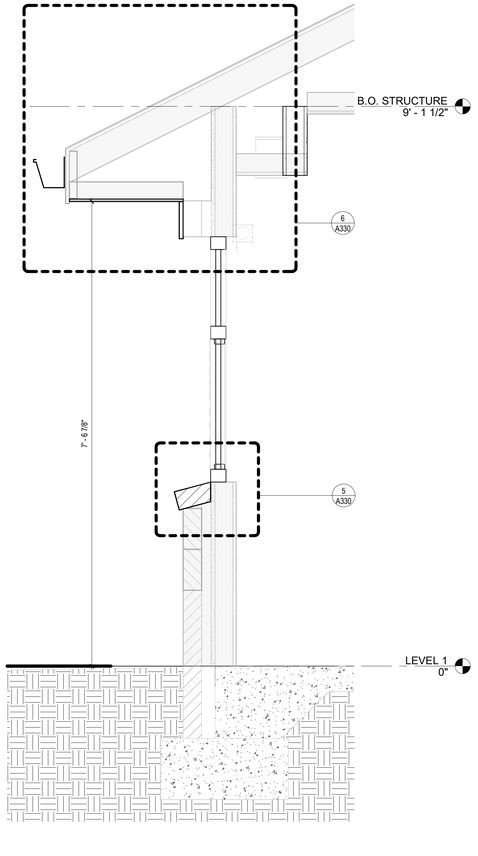
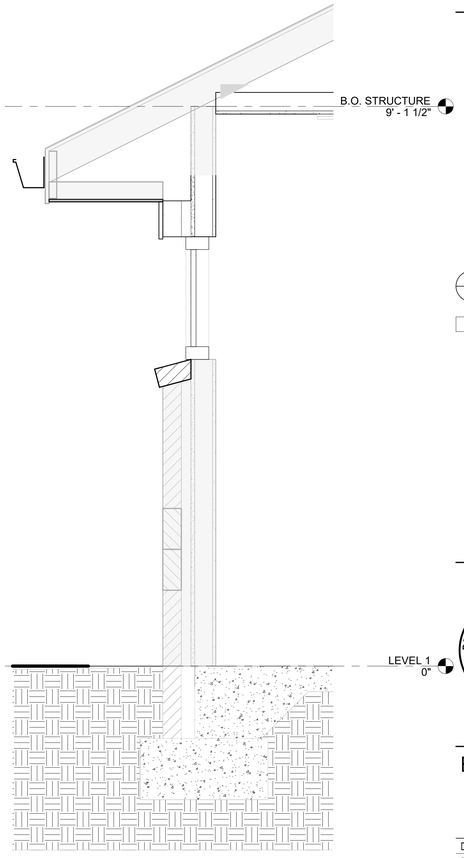


4 WINDOW AT BRICK
1" = 1'-0"



5 HIGH WINDOW IN BRICK
1" = 1'-0"

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 INDIANAPOLIS, INDIANA NORTH CAROLINA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

EXTERIOR WALL SECTIONS

DATE	11/11/24
BSALS PROJECT NO.	21950006

A310

11/11/2024 6:49:46 PM
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DRAWN Author
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X00	KEYNOTE LEGEND
	REFER TO A000 FOR GENERAL NOTES

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CIVITAN RENOVATION

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RALEIGH, NC 27606

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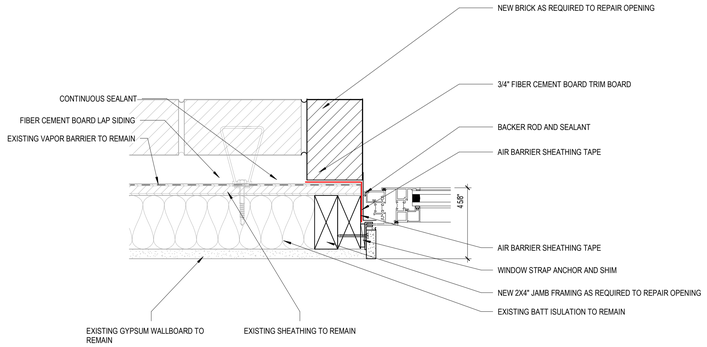
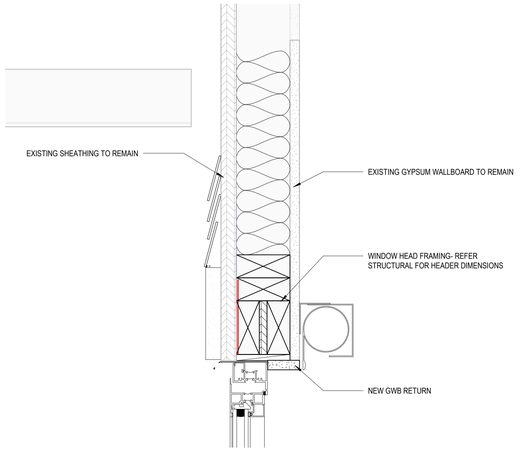


3 JAMB DETAIL AND BRICK VENEER
3" = 1'-0"



1 WINDOW AT VINYL - TYPICAL HEAD DETAIL
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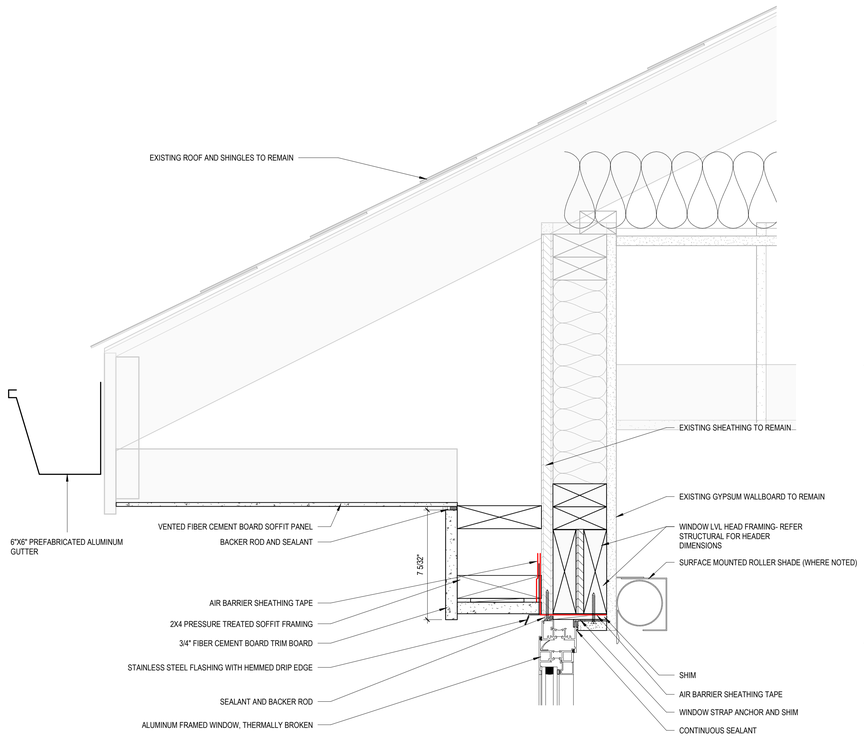
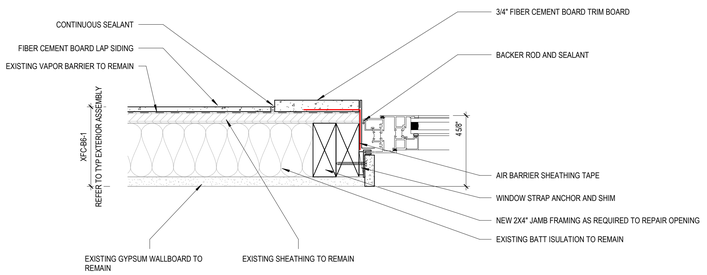
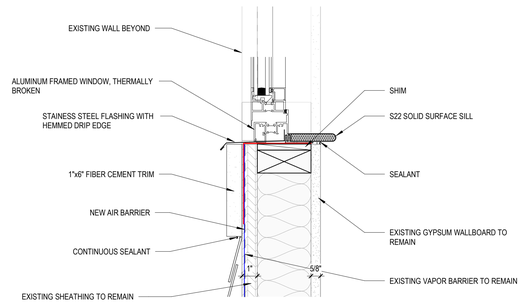


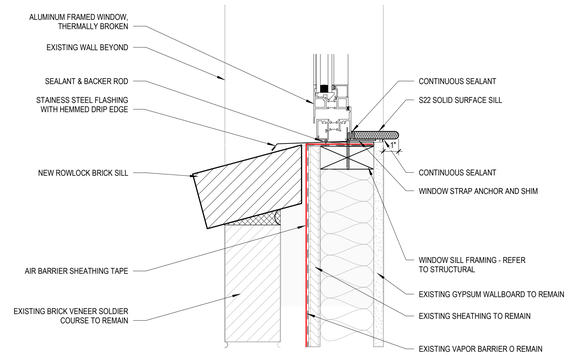
6 WINDOW AT BRICK - HEAD DETAIL
3" = 1'-0"



7 JAMB DETAIL AT FIBER CEMENT BOARD SIDING
3" = 1'-0"



8 WINDOW IN VINYL - SILL DETAIL
3" = 1'-0"



5 WINDOW AT BRICK - SILL DETAIL
3" = 1'-0"

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES, INC. — INDIANA CORPORATION — CERT. NO. 51394 — INDIANAPOLIS, INDIANA & NORTH CAROLINA

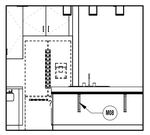
MARK DENISON SEARLS — REGISTERED — 16711 — ARCHITECT — NORTH CAROLINA

EXTERIOR SECTION DETAILS

DATE	11/11/24
BSALS PROJECT NO.	21950006

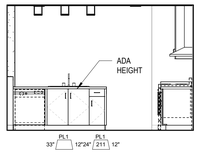
A330

11/11/2024 6:45:47 PM
Autodesk Docs://21950006 - Tucker & Civitan Renovations/21950006-ARCH_Civitan_BSALS_v2024.rvt
DESIGNED Designer
DRAWN Author
APPROVED Approver

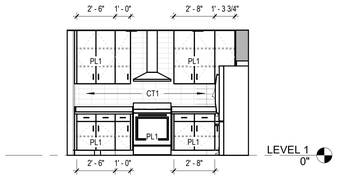


12 KITCHEN F
1/4" = 1'-0"

16 KITCHEN - G
1/4" = 1'-0"



3 KITCHEN - C
1/4" = 1'-0"



18 Elevation 1 - a
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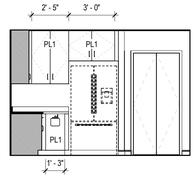
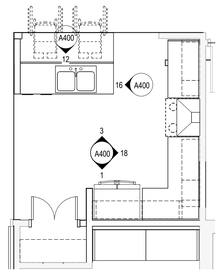
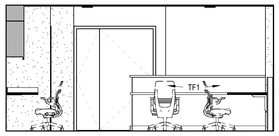


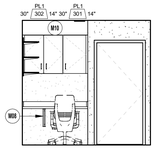
1 KITCHEN - A
1/4" = 1'-0"



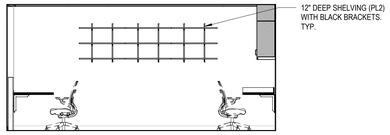
4 ENLARGED FLOOR PLAN - KITCHEN
1/4" = 1'-0"



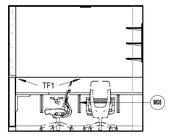
11 NURSE WORK - D
1/4" = 1'-0"



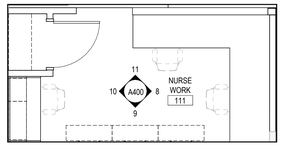
10 NURSE WORK - C
1/4" = 1'-0"



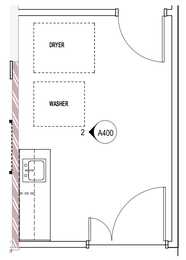
9 NURSE WORK - B
1/4" = 1'-0"



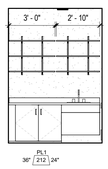
8 NURSE WORK - A
1/4" = 1'-0"



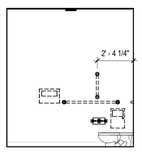
5 ENLARGED FLOOR PLAN - NURSE WORK
1/4" = 1'-0"



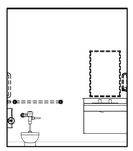
6 ENLARGED FLOORPLAN - LAUNDRY
1/4" = 1'-0"



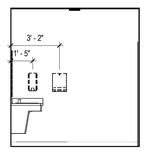
2 LAUNDRY-A
1/4" = 1'-0"



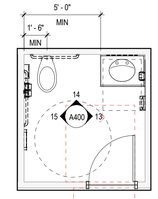
15 TOILET ROOM - C
1/4" = 1'-0"



14 TOILET ROOM - B
1/4" = 1'-0"

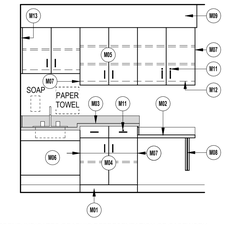


13 TOILET ROOM - A
1/4" = 1'-0"



7 ENLARGED FLOOR PLAN - TOILET ROOM
1/4" = 1'-0"

CASEWORK LEGEND



* LEGEND INDICATES GRAPHIC REPRESENTATION OF CASEWORK ELEMENTS, NOT A TYPICAL LAYOUT.
* ALL NOTES ARE TYPICAL UNLESS OTHERWISE NOTED (UNO) AND EVERY INSTANCE MAY NOT BE NOTED ON INTERIOR ELEVATIONS.

GENERAL INTERIOR ELEVATION NOTES

A. REFER TO FLOOR PLANS AND THE EQUIPMENT SCHEDULE FOR EQUIPMENT. COORDINATE CONNECTIONS. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
B. REFER TO PLUMBING DRAWINGS FOR LAVATORIES AND SINK TYPES.
C. ALL DIMENSIONS ARE TAKEN TO THE FACE OF FINISHED MATERIAL UNLESS OTHERWISE INDICATED.
D. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF CABINETRY.
E. CONSTRUCT GYPSUM BOARD BULKHEADS ABOVE UPPER CABINETRY TO BE 1" DEEPER AND LONGER THAN CABINETRY BELOW UNLESS INDICATED OTHERWISE.
F. COORDINATE ALL WALL DEVICES TO AVOID CONFLICT WITH CASEWORK AND COUNTERTOPS.
G. COORDINATE SUPPORT BRACKET LOCATIONS WITH UNDER COUNTER EQUIPMENT INDICATED ELSEWHERE IN CONTRACT DOCUMENTS.
H. ALL BASE CABINETS SHALL BE 2'-0" DEEP UNLESS NOTED OTHERWISE.
I. ALL CASEWORK SHALL BE FINISHED IN PLASTIC LAMINATE UNLESS NOTED OTHERWISE.
J. PROVIDE 1" MINIMUM FILLER PANELS AT ALL LOCATIONS WHERE CABINETRY ABUTS A WALL.
K. PROVIDE A 4" HIGH BACK SPLASH ON ALL COUNTERS WITH RECESSED SINKS. INSTALL SIDE/END SPLASHES WHERE THESE COUNTERS ABUT A WALL.
L. PROVIDE ADJUSTABLE SHELVING WITHIN ALL WALL AND BASE CABINETRY AS SHOWN BY DASHED LINE.
M. BOTTOM OF UPPER CABINETS TO BE FINISHED TO MATCH VERTICAL FACES.
N. PROVIDE 12" CLEAR INTERIOR DIMENSION ON ALL UPPER WALL CABINETS UNLESS NOTED OTHERWISE.
O. ALL KEYBOARD TRAYS WILL BE OWNER FURNISHED AND OWNER INSTALLED.
P. AT WALLS WITH FIRE EXTINGUISHER CABINETS, STOP UPPER BUMP RAILS 6" FROM EDGES OF CABINET.
Q. ALL CABINET/CASEWORK PULLS TO BE 4" PULLS, UNLESS NOTED OTHERWISE.
R. REFER TO ARCHITECTURAL AND/OR INTERIOR DRAWINGS FOR SOLID SURFACE SINK TYPES.
S. ALL CASEWORK TAGS REFER TO THE AWI- CABINET DESIGN SERIES

X00 KEYNOTE LEGEND

REFER TO A000 FOR GENERAL NOTES

M01	4" (UNO) FINISHED BASE, REFER TO INTERIOR FINISH PLAN.
M02	PLASTIC LAMINATE COUNTERTOP WITH SIDE AND BACK SPLASHES, AS INDICATED.COUNTERTOP DEPTH EQUALS BASE CABINET AND CABINET DOORS PLUS 1".
M03	SOLID SURFACE COUNTERTOP (SHADED) WITH SIDE AND BACK SPLASHES, AS INDICATED. COUNTERTOP DEPTH EQUALS BASE CABINET AND CABINET DOORS PLUS 1".
M04	24" DEEP (UNO) BASE CABINET (INCLUDING DOORS), CONFIGURE DOOR(S), DRAWER(S), LOCK(S) AND SHELVE(S) AS INDICATED.
M05	12" CLEAR INTERIOR DIMENSION (UNO) WALL CABINET, CONFIGURE DOOR(S), LOCK(S) AND ADJUSTABLE SHELVE(S) AS INDICATED.
M06	ACCESSIBLE (BARRIER FREE) SINK SKIRT ASSEMBLY WITH REMOVABLE PANEL.
M07	FINISHED END PANEL - TYPICAL ALL VISIBLE SURFACES.
M08	COUNTER SUPPORT BRACKET @ 36" O.C. MAXIMUM.
M09	GYPSUM BULKHEAD CONSTRUCTION TO BE 1" DEEPER AND 1" LONGER THAN CASEWORK BELOW (UNO).
M10	PLASTIC LAMINATE BULKHEAD. FINISH FACE OF BULKHEAD TO BE ALIGNED WITH FINISHED FACE OF CASEWORK DOORS ON THE FRONT AND FINISHED FACE OF CASEWORK BOX ON THE SIDES.
M11	CASEWORK LOCK, WHERE INDICATED.
M12	2" DEEP LIGHT SKIRT, WHERE INDICATED.
M13	FILLER PANEL (FP), WHEN CASEWORK DOES NOT ABUT AN ADJACENT WALL A FILLER PANEL IS REQUIRED. RETURN FINISHED FILLER ACROSS BOTTOM OF CASEWORK TO BACK WALL.

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PERMIT SET

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. INCORPORATED NORTH CAROLINA CORPORATION CERT. NO. 51394 INDIANAPOLIS, INDIANA NORTH CAROLINA

MARK DENISON SEARS REGISTERED ARCHITECT 16711 NORTH CAROLINA

ENLARGED ROOM PLANS AND ENLARGED ROOM ELEVATIONS

DATE	11/11/24
BSALS PROJECT NO.	21950006

A400

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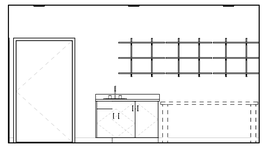
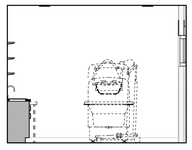
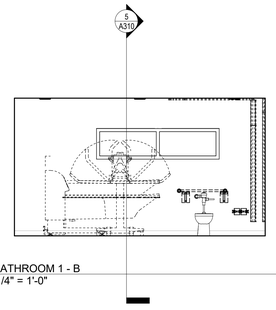


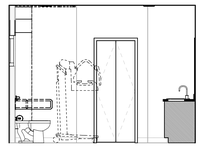
7 BATHROOM 1 - D
1/4" = 1'-0"



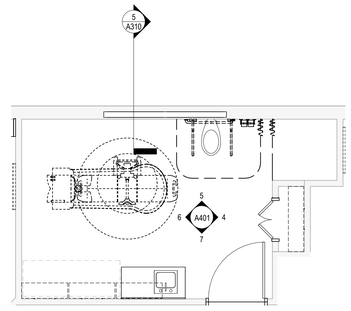
6 BATHROOM 1 - C
1/4" = 1'-0"



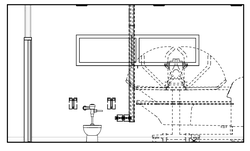
5 BATHROOM 1 - B
1/4" = 1'-0"



4 BATHROOM 1 - A
1/4" = 1'-0"



1 ENLARGED FLOOR PLAN - BATHROOM 1
1/4" = 1'-0"



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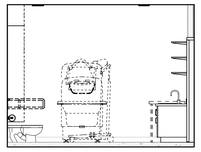

10 BATHROOM 2 - C
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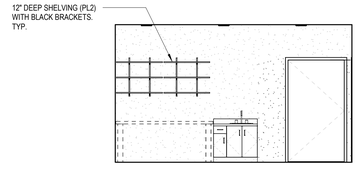
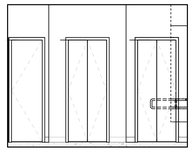
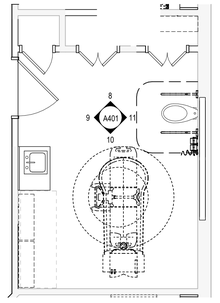


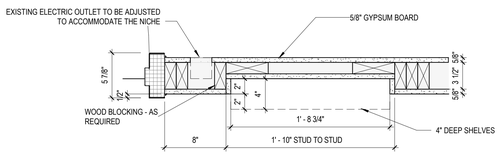
9 BATHROOM 2 - B
1/4" = 1'-0"



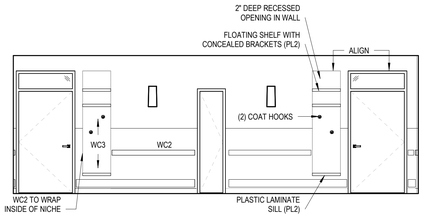
8 BATHROOM 2 - A
1/4" = 1'-0"



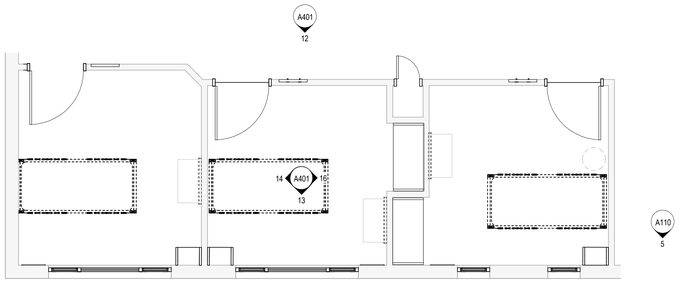
2 ENLARGED FLOOR PLAN - BATHROOM 2
1/4" = 1'-0"



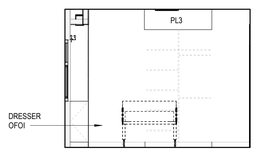
15 NICHE DETAIL
1 1/2" = 1'-0"



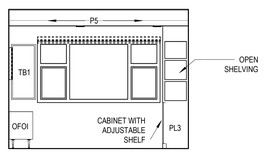
12 RESIDENT ROOM- ENTRY
1/4" = 1'-0"



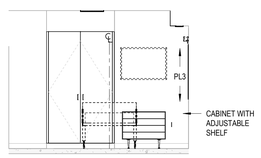
3 ENLARGED FLOOR PLAN - RESIDENT ROOMS
1/4" = 1'-0"



14 RESIDENT ROOM - B
1/4" = 1'-0"



13 RESIDENT ROOM - A
1/4" = 1'-0"



16 RESIDENT ROOM - C
1/4" = 1'-0"

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

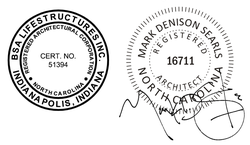
743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24



ENLARGED ROOM PLANS AND ENLARGED ROOM ELEVATIONS

DATE	11/11/24
BSALS PROJECT NO.	21950006

A401

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DESIGNED Designer
DRAWN Author
APPROVED Approver

OPENING SCHEDULE

OPENING NUMBER	ROOMS		OPENING TYPE	OPENING SIZE		PANEL CONSTRUCTION					FRAME CONSTRUCTION					GLASS TYPE	FIRE RATING (MINUTES)	COMMENTS	REV.
							WIDTH		ELEVATION				SIDELITE WIDTH						
	ROOM A	ROOM B		WIDTH	HEIGHT	MATERIAL	PRIMARY	SECONDARY	PRIMARY	SECONDARY	MATERIAL	ELEVATION	HINGE SIDE	WIDTH SIDE	DETAIL SET				
85	CORRIDOR	CLOSET	SW1	3' - 0"	6' - 8"		3' - 0"	0"	P1.1 : FLUSH	--		F1.1 : STANDARD	0"	0"			--		
86	CORRIDOR	CLOSET	SW1	1' - 6"	6' - 8"		1' - 6"	0"	P1.1 : FLUSH	--		F1.1 : STANDARD	0"	0"			--		
98	CLOSET	CORRIDOR	SW1	1' - 6"	6' - 8"		1' - 6"	0"	P1.1 : FLUSH	--		F1.1 : STANDARD	0"	0"			--		
124	LIVING ROOM	LAUNDRY	LIP2	5' - 0"	6' - 8"	WD	3' - 6"	1' - 6"	P1.1 : FLUSH	P1.1 : FLUSH	HM	F1.1 : STANDARD	0"	0"			S		
126	LAUNDRY	STORAGE	SW1	3' - 0"	6' - 8"	WD	3' - 0"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
127	SOCIAL ACTIVITY KITCHEN	PANTRY	SW2	3' - 0"	6' - 8"	WD	1' - 6"	1' - 6"	P1.1 : FLUSH	P1.1 : FLUSH	HM	F1.1 : STANDARD	0"	0"			--		
128	NURSE WORK	STORAGE	SW1	3' - 0"	6' - 8"	WD	3' - 0"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
130	CORRIDOR	RESIDENT ROOM 5	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S	TRANSOM TO RECEIVE WINDOW FILM	
131		BATHROOM	SW1	2' - 0"	6' - 8"	WD	2' - 0"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
132	CORRIDOR	RESIDENT ROOM 4	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
133	CORRIDOR	RESIDENT ROOM 2	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
134	CORRIDOR	RESIDENT ROOM 1	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
135	CORRIDOR	RESIDENT ROOM 6	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
136	CORRIDOR	RESIDENT ROOM 7	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
137	CORRIDOR	RESIDENT ROOM 8	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
138	CORRIDOR	RESIDENT ROOM 9	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
139	CORRIDOR	RESIDENT ROOM 10	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		
140	CORRIDOR	BATHROOM	SW1	3' - 8"	6' - 8"	WD	3' - 8"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
141	CORRIDOR	BATHROOM	SW1	3' - 8"	6' - 8"	WD	3' - 8"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
149	CORRIDOR	MEP	SW1	2' - 8"	6' - 8"	WD	2' - 8"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
150	CORRIDOR	TOILET	SW1	3' - 0"	6' - 8"	WD	3' - 0"	0"	P1.1 : FLUSH	--	HM	F1.1 : STANDARD	0"	0"			--		
152		CORRIDOR	SW1	3' - 6"	6' - 8"	HM	3' - 6"	0"	P2.2 : HALF LITE	--	HM	F1.1 : STANDARD	0"	0"			--		
153		CORRIDOR	SW1	3' - 6"	6' - 8"	HM	3' - 6"	0"	P2.2 : HALF LITE	--	HM	F1.1 : STANDARD	0"	0"			--		
154		CORRIDOR	SW1	3' - 6"	6' - 8"	HM	3' - 6"	0"	P2.2 : HALF LITE	--	HM	F1.1 : STANDARD	0"	0"			--		
155		CORRIDOR	SW1	3' - 6"	6' - 8"	HM	3' - 6"	0"	P2.2 : HALF LITE	--	HM	F1.1 : STANDARD	0"	0"			--		
156		LIVING ROOM	SW1	3' - 6"	6' - 8"	HM	3' - 6"	0"	P2.2 : HALF LITE	--	HM	F1.1 : STANDARD	0"	0"			--		
157		BATHROOM	SW2	2' - 6"	6' - 8"	WD	1' - 3"	1' - 3"	P1.1 : FLUSH	P1.1 : FLUSH	HM	F1.1 : STANDARD	0"	0"		Glass	--		
163		BATHROOM	SW2	2' - 6"	6' - 8"	WD	1' - 3"	1' - 3"	P1.1 : FLUSH	P1.1 : FLUSH	HM	F1.1 : STANDARD	0"	0"		Glass	--		
164		LIVING ROOM	SW1	3' - 6"	6' - 8"	HM	3' - 6"	0"	P2.3 : FULL LITE	--	HM	F1.1 : STANDARD	0"	0"			--		
165	BATHROOM		SW2	2' - 6"	6' - 8"	WD	1' - 3"	1' - 3"	P1.1 : FLUSH	P1.1 : FLUSH	Default	F1.1 : STANDARD	0"	0"		Glass	--		
169	CORRIDOR	RESIDENT ROOM 3	SW1	3' - 6"	6' - 8"	WD	3' - 6"	0"	P1.1 : FLUSH	--	HM	F6.0 : TRANSOM	0"	0"	01	GL2	S		

OPENING SCHEDULE GENERAL NOTES

XX1
OPENING TYPE — NUMBER OF PANELS

A. OPENING TYPES:
   a. DE = DOUBLE EGRESS
   b. SA = SLIDING, AUTOMATIC
   c. SW = SWING
   d. UP = UNEQUAL PAIR
B. MATERIALS
   a. AL = ALUMINUM
   b. HM = HOLLOW METAL
   c. WD = SOLID CORE WOOD
C. GLASS TYPES
   a. GL1 = CLEAR, INSULATED VISION GLAZING
   b. GL1T = CLEAR, INSULATED VISION GLAZING (TEMPERED)
   c. GL2 = CLEAR, UN-INSULATED VISION GLAZING
   d. GL2T = CLEAR, UN-INSULATED VISION GLAZING (TEMPERED)
D. FIRE RATINGS: S = SMOKE TIGHT
E. FRAME MANUFACTURER TO VERIFY IN FIELD ACTUAL CONDITIONS PRIOR TO FRAME MANUFACTURE AND INSTALLATION.
F. REFER TO PROJECT MANUAL FOR DOOR HARDWARE INFORMATION.
G. REFER TO ELECTRICAL WIRING DIAGRAMS OF POWERED OPENINGS FOR ADDITIONAL INFORMATION.
H. ALL HOLLOW METAL SYSTEMS TO BE 2" TALL (FAME FRAME) X 5-1/4" DEEP UNITS, U.N.O.
I. ALL ALUMINUM SYSTEMS TO BE 2-1/2" TALL (FACE FRAME) X 4-1/2" DEEP UNITS, U.N.O.

NOTE : ALL DOOR & WINDOW HARDWARE TO MATCH NEW TUCKER..

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
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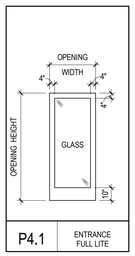
Engineering Registration Number - C-2412

CIVITAN RENOVATION

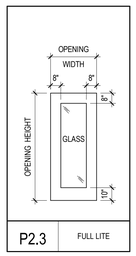
743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

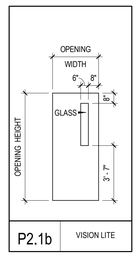
Window Schedule				
Type Mark	Height	Width	Sill Height	Count
W01	4' - 0"	5' - 4"	3' - 0"	8
W02	4' - 0"	8' - 0"	3' - 0"	9
W03	2' - 0"	8' - 0"	5' - 0"	2
W04	4' - 0"	2' - 1 1/4"	3' - 0"	2



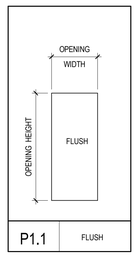
P4.1 ENTRANCE FULL LITE



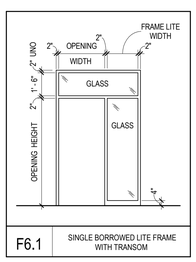
P2.3 FULL LITE



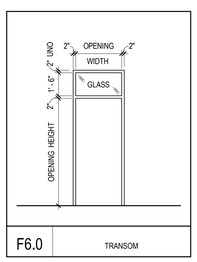
P2.1b VISION LITE



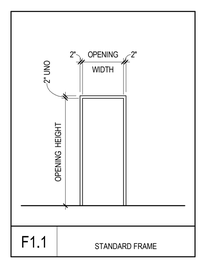
P1.1 FLUSH



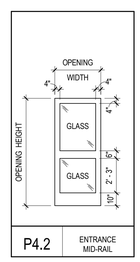
F6.1 SINGLE BORROWED LITE FRAME WITH TRANSOM



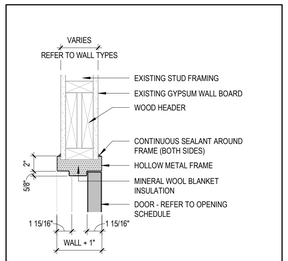
F6.0 TRANSOM



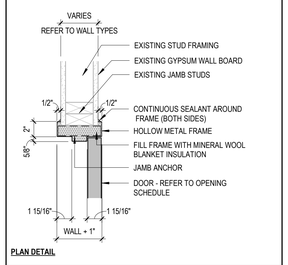
F1.1 STANDARD FRAME



P4.2 ENTRANCE MID-RAIL



SECTION DETAIL



PLAN DETAIL

01	HM FRAME @ TYPICAL INTERIOR PARTITION
	1 1/2" = 1'-0"

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES, INC. REGISTERED ARCHITECTURAL CORPORATION INDIANAPOLIS, INDIANA NORTH CAROLINA CERT. NO. 51394

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

OPENING SCHEDULES

DATE	11/11/24
BSALS PROJECT NO.	21950006

A500

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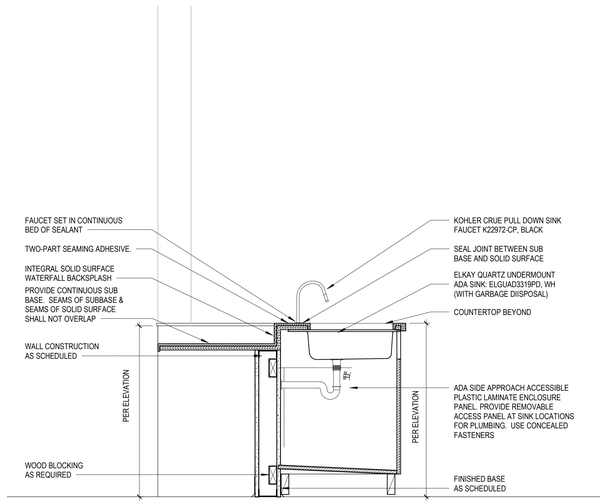
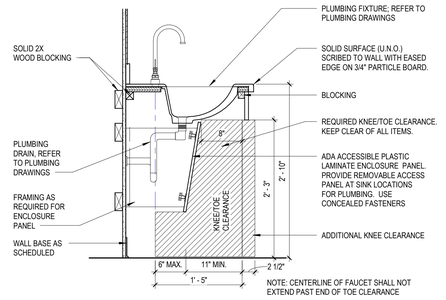
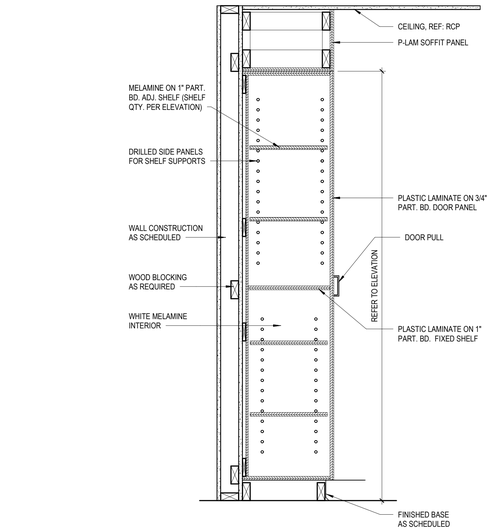
Autodesk Docs://21950006 - Tucker & Civitan Renovations/21950006-ARCH_Civitan_BSALS_v2024.rvt
CHECKED Checker
DESIGN Author
DRAWN Author
APPROVED Approver



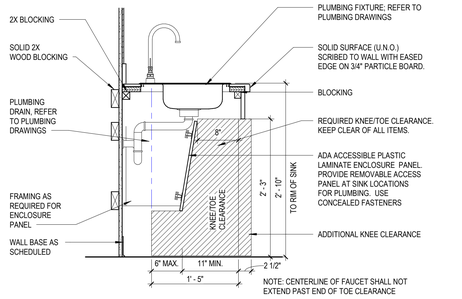
11 KITCHEN - SPECIALTY SINK
1" = 1'-0"



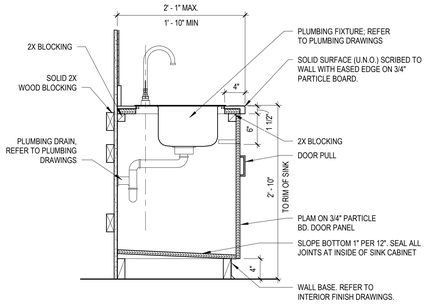
10 ADA SOLID SURFACE SINK WITH REMOVABLE PANEL
1" = 1'-0"



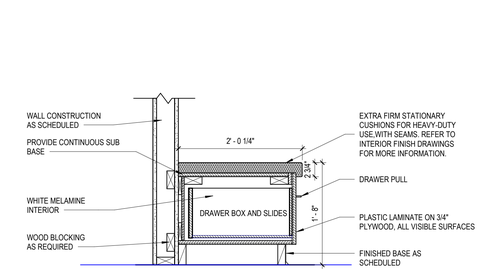
9 WARDROBE SECTION
1" = 1'-0"



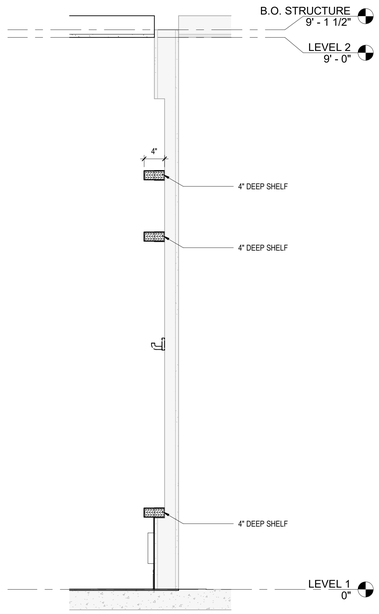
8 ADA STAINLESS STEEL SINK WITH REMOVEABLE PANEL
1" = 1'-0"



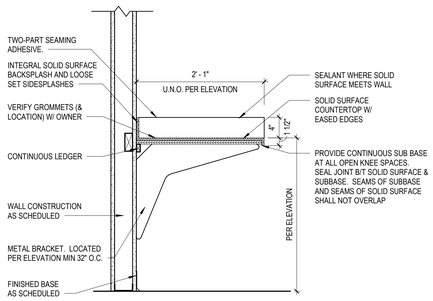
7 STAINLESS STEEL SINK WITH SLOPED CABINET BOTTOM
1" = 1'-0"



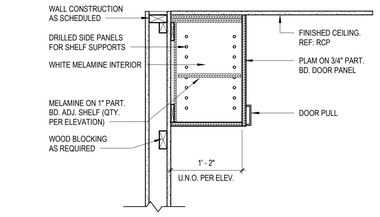
6 LIVING ROOM- BENCH WITH DRAWER
1" = 1'-0"



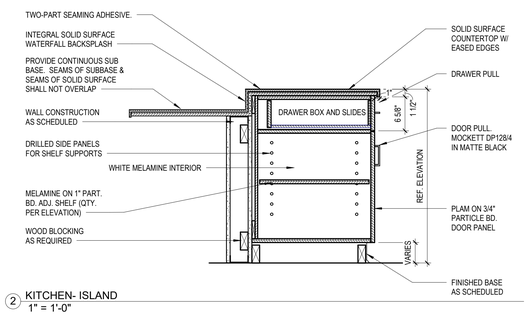
12 NICHE SECTION- RESIDENT ROOM
1" = 1'-0"



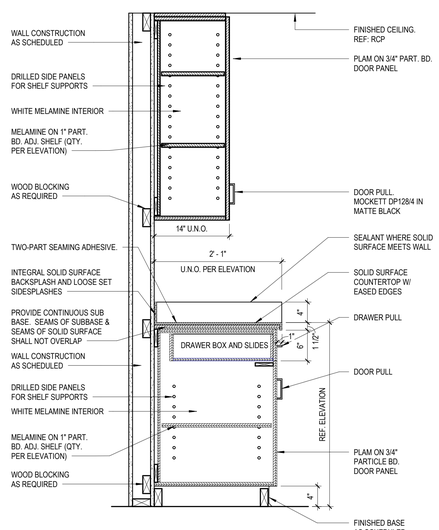
4 SOLID SURFACE COUNTER WITH OPEN KNEE SPACE
1" = 1'-0"



3 UPPER CABINET - NO LIGHT SKIRT
1" = 1'-0"



2 KITCHEN- ISLAND
1" = 1'-0"



1 KITCHEN- UPPER AND LOWER WITH DRAWER AND SOLID SURFACE
1" = 1'-0"

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. REGISTERED ARCHITECTURAL CORPORATION INDIANAPOLIS, INDIANA NORTH CAROLINA CERT. NO. 51594

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

MILLWORK SECTIONS

DATE	11/11/24
BSALS PROJECT NO.	21950006

A700

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Autodesk Docs://21950006 - Tucker & Civitan Renovations/21950006-ARCH_Civitan_BSALS_v2024.rvt
DESIGNED Designer
DRAWN Author
APPROVED Approver

INTERIORS- FINISH SPECIFICATIONS

MARK:	MANUFACTURER:	STYLE:	NUMBER:	COLOR:	SIZE:	COMMENTS:	CONTACT:
BUMPER RAIL							
BR1	INPRO CORPORATION	1600 WALL GUARD	0258	CHINO	6" HIGH WALL GUARD WITH .080" COVER AND .080" CONTINUOUS ALUMINUM RETAINER SUPPORTS, 12' LENGTH	BOTTOM OF RAIL TO BE INSTALLED 5" AFF. PROVIDE CONTINUOUS CORNER PIECE AT EACH CORNER LOCATION	KELLY CAMPBELL@INPROCORP.COM, 704-762-0198
CERAMIC TILE							
CT1	TRINITY SURFACES	SANTORINI CRACKLED	--	BLANCO	3" X 10", 7-8mm THICK	INSTALL USING HORIZONTAL STACK BOND INSTALL METHOD. INSTALL SCHLUTER JOLLY TRIM ON ALL EXPOSED EDGES	SARAH BELL, SBELL@TRINITY SURFACES.COM
CT2	TRINITY SURFACES	SANTORINI	--	AQUA	3" X 12"	INSTALL USING HORIZONTAL STACK BOND INSTALL METHOD. INSTALL SCHLUTER JOLLY TRIM ON ALL EXPOSED EDGES	SARAH BELL, SBELL@TRINITY SURFACES.COM
EPOXY PAINT							
EP1	SHERWIN WILLIAMS	REFER TO PROJECT MANUAL	SW 7005	PURE WHITE	--	--	STEVEN GOODE, STEVEN.R.GOODE@SHERWIN.COM, 980-207-9410
HANDRAIL							
HR1	INPRO CORPORATION	800 HANDRAIL	0258	CHINO	5 1/2" HIGH HAND RAIL WITH .080" COVER AND .080" CONTINUOUS ALUMINUM RETAINER SUPPORT	BOTTOM OF RAIL TO BE INSTALLED 3' AFF. PROVIDE CONTINUOUS CORNR PIECE AT EACH CORNER LOCATION	KELLY CAMPBELL@INPROCORP.COM, 704-762-0198
INTEGRAL SHEET VINYL COVE BASE							
SVCB1	ALTRO	AQUARIUS	PX2001	LIGHTHOUSE	4" INTEGRAL BASE WITH METAL CAP	PROVIDE FLASHCOVE PREFABRICATED METAL BASE BEHIND SHEET VINYL	KELLEY DAVIS, KDAVIS@SSTFLOOR.COM, 919-985-4100
SVCB2	MANNINGTON	BIOSPEC CHOICES - BIOSPEC MD	15364	NEW GLACIER	4" INTEGRAL BASE WITH METAL CAP	PROVIDE FLASHCOVE PREFABRICATED METAL BASE BEHIND SHEET VINYL	DON CAVIN, DON_CAVIN@MANNINGTON.COM
LUXURY VINYL TILE							
LVT1	PATCRAFT	TIMBER GROVE II	I438V - 00173	SPROUT - V2	5.96" X 48" PLANKS. 2.5 MM THICK	INSTALL USING MANUFACTURERS STAGGER INSTALL METHOD	MARIA KEBSCHULL, MARIA.KEBSCHULL@PATCRAFT.COM, 919-920-8631
LVT2	SHAW CONTRACT	STRAND	0516V - 16761	DUNE	18" X 36" TILES. 2.5 MM THICK	INSTALL USING MANUFACTURERS BRICK INSTALL METHOD	MICHELLE PARRISH, MICHELLE.PARRISH@SHAWINC.COM, 919-609-9033
LVT3	PATCRAFT	MARK MAKING	1509V - 00150	ALMOND - V2	5.96" X 48" PLANKS. 2.5 MM THICK	INSTALL USING MANUFACTURERS STAGGER INSTALL METHOD	MARIA KEBSCHULL, MARIA.KEBSCHULL@PATCRAFT.COM, 919-920-8631
PAINT							
P1	SHERWIN WILLIAMS	REFER TO PROJECT MANUAL	SW 7005	PURE WHITE	--	--	STEVEN GOODE, STEVEN.R.GOODE@SHERWIN.COM, 980-207-9410
P2	SHERWIN WILLIAMS	REFER TO PROJECT MANUAL	SW 7567	NATURAL TAN	--	--	STEVEN GOODE, STEVEN.R.GOODE@SHERWIN.COM, 980-207-9410
P3	SHERWIN WILLIAMS	REFER TO PROJECT MANUAL	SW 0019	FESTOON AQUA	--	--	STEVEN GOODE, STEVEN.R.GOODE@SHERWIN.COM, 980-207-9410
P4	NOT USED	--	--	--	--	--	--
P5	SHERWIN WILLIAMS	REFER TO PROJECT MANUAL	SW 7007	CEILING BRIGHT WHITE	--	--	STEVEN GOODE, STEVEN.R.GOODE@SHERWIN.COM, 980-207-9410
P6	SHERWIN WILLIAMS	REFER TO PROJECT MANUAL	SW 7069	IRON ORE	--	--	STEVEN GOODE, STEVEN.R.GOODE@SHERWIN.COM, 980-207-9410
PLASTIC LAMINATE							
PL1	FORMICA	MATTE FINISH	5349-58	FOSSIL	--	--	SHERI REID, SHERI.REID@FORMICA.COM, 704-534-7300
PL2	ARBORITE	--	W490-CVW	NATURAL ARCADIAN OAK	--	--	TYLER HERBERT, TYLER.HERBERT@ARBORITE.COM, 704-778-9854
PL3	WILSONART	STANDARD LAMINATE	1573-60	FROSTY WHITE		--	AMY CONDER, AMY.CONDER@WILSONART.COM, 540-537-3431
PORCELAIN TILE							
PT1	TRINITY SURFACES	GRACE BAY	--	WHITE SURF	11" X 22"	INSTALL ABOVE THE BASE AND UP TO 6' 8" AFF USING A 1/3 OFF SET INSTALL METHOD IN THE RESIDENT RESTROOMS. INSTALL FULL HEIGHT IN THE SHOWER STARTING ABOVE THE BASE. INSTALL A SCHLUTER SCHIENE TRIM PIECE ON ALL EXPOSED EDGES.	TYLER HALSTEAD, THALSTEAD@TRINITYSURFACES.COM
PRIVACY CURTAIN							
PC1	INPRO CORPORATION	SHIELD BY PANAZ	--	MALT DECO	72" WIDTH. RAILROADED	--	KELLY CAMPBELL@INPROCORP.COM, 704-762-0198
RESILIENT BASE							
RB1	TARKETT	JOHNSONITE TRADITIONAL DURACOVE THERMOPLASTIC RUBBER BASE	TG5	MACADAMIA WG	4" HIGH	--	STEPHANIE HARRIS, STEPHANIE.HARRIS@TARKETT.COM, 910-710-3900
RB2	TARKETT	JOHNSONITE MILLWORK REVEAL BASE	TG5	MACADAMIA WG	4.25" HIGH	--	STEPHANIE HARRIS, STEPHANIE.HARRIS@TARKETT.COM, 910-710-3900
ROLLER SHADE							
RS1	DRAPER	--	PW3560-U59	ALABASTER (LINEN) 5%	MANUAL ROLLER SHADES	--	MATT SCHULTZ, MSCHULTZ@DRAPERINC.COM, 770-562-3226
SEALED CONCRETE							
SC1	REFER TO PROJECT MANUAL	--	--	--	--	--	--
SHEET VINYL							
SV1	ALTRO	AQUARIUS	PX2001	LIGHTHOUSE		HEAT WELD SEAMS. WELD ROD TO MATCH SHEET VINYL	BARBARA DAVIS, BDAVIS@CHBRIGGS.COM, 704-954-8825
SV2	MANNINGTON	BIOSPEC CHOICES - BIOSPEC MD	15364	NEW GLACIER	6' 6" WIDE ROLLS	HEAT WELD SEAMS. WELD ROD TO MATCH SHEET VINYL	DON CAVIN, DON_CAVIN@MANNINGTON.COM
SOLID SURFACE							
SS1	LX HAUSYS	HI-MACS - SOLID SURFACE	W102	ALABASTER	--	--	KARI DANIEL, KDANIEL@LXHAUSYS.COM, 804-454-6050
SS2	LX HAUSYS	HI-MACS - SOLID SURFACE	S028	ALPINE WHITE	--	--	KARI DANIEL, KDANIEL@LXHAUSYS.COM, 804-454-6050
SOLID SURFACE SINK							
SSK1	CORIAN	SOLID SURFACE	--	GLACIER WHITE	--	--	BARBARA DAVIS, BDAVIS@CHBRIGGS.COM, 704-954-8825
STONE PANEL							
ST1	REALSTONE SYSTEMS	WHITE BIRCH HONED PANEL	WSP-BH	--	6" X 24" PANELS. UNIT THICKNESS .4"-1"	PAIR WITH THE WHITE BIRCH HONED CORNER PANELS WHERE NEEDED. INSTALL TO BE FROM FLOOR TO CEILING USING RUNNING BOND INSTALL METHOD	SHEA RECKNER, SRECKNER@REALSTONE.COM, 248-421-4081
TACKABLE FABRIC							
TF1	CARNEGIE	UNBACKED XOREL	6615-51	FLASH BACK		XOREL WRAPPED TACKABLE PANEL. REFER TO ELEVATIONS AND DETAILS FOR LOCATIONS	DEB HINES, DEBHINES@DHAOFTHECAROLINES.COM,0704-905-4601
TACKBOARD							
TB1	KOROSEAL	TAC-WALL	87	SANDALWOOD	1/4" THICK. 48" X 72" PANEL SIZE	36" X 43" BOARD WITH MANUFACTURER STANDARD ALUMINUM TRIM	CHRISTA HOCHSTRASSER, CHOCHSTRASSER@KOROSEAL.COM, 919-698-0569
UPHOLSTERY							
UPH1	NOT USED	--	--	--	--	--	--
UPH2	WOLF GORDON	HAZEL	GOH 33938507	OXFORD	--	100% NON-PHTHALATE VINYL, POLYESTER KNIT BACKING, SPILL AND STAIN RESISTANT TREATMENT FINISH	RACHEL DONOVAN, RACHEL.DONOVAN@WOLFGORDON.COM, 704-674-6691
WALL COVERING							
WC1	MOMENTUM	VANTAGE III VERDON	AFP04-078	CHAMPAGNE	54" LY. .034" THICK	INSTALL FULL HEIGHT WHERE INDICATED AND TO BE REVERSE MATCHED. INSTALL WITH 1" OVERLAP UNDER BASE	CLEA GRIMM, CGRIMM@MOMTEX.COM, 800-366-6839
WC2	MOMENTUM	VANTAGE III VERDON	AFP04-078	CHAMPAGNE	54" LY. .034" THICK	INSTALL WITH TOP TO BE 51" AFF WITH A 1" OVERLAP UNDER BASE	CLEA GRIMM, CGRIMM@MOMTEX.COM, 800-366-6839
WC3	MOMENTUM	VANTAGE III VERDON	AFP04-397	CAESIOUS	54" LY. .034" THICK	INSTALL FULL HEIGHT WHERE INDICATED AND TO BE REVERSE MATCHED. INSTALL WITH 1" OVERLAP UNDER BASE WHERE APPLICABLE	CLEA GRIMM, CGRIMM@MOMTEX.COM, 800-366-6839
WALL PROTECTION							
WP1	INPRO CORPORATION	RIGID SHEET WALL PROTECTION	0154	CLAM SHELL	4' SHEET PANELS	INSTALL RIGHT ABOVE BASE AND WITH TOP TO BE 52" AFF .04" THICKNESS. TRIM PIECE ON ALL EXPOSED EDGES	KELLY CAMPBELL@INPROCORP.COM, 704-762-0198

GENERAL FINISH NOTES

A. PATTERN NAME, COLOR AND NUMBER FOR EACH MATERIAL ARE GIVEN WHENEVER POSSIBLE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT / INTERIOR DESIGNER TO ENSURE THAT THE CORRECT MATERIAL IS INSTALLED.
B. REFER TO SHEET (IF000) FOR FLOOR TRANSITION DETAILS.
C. REFER TO SHEET (IF000) FOR WALL BASE DETAILS.
D. PATCH AND MATCH EXISTING FINISHES AS NEEDED FOR NEW CONSTRUCTION.
E. WALL RATINGS ARE SHOWN FOR REFERENCE ONLY. REFER TO "A" SERIES DRAWINGS FOR WALL RATINGS LEGEND.
F. FURNITURE INDICATED BY DASHED LINES SHALL BE OWNER FURNISHED, OWNER INSTALLED.
G. ALL FLOOR MATERIAL TRANSITIONS SHALL BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION.
H. ALL FLOORING SHALL BE INSTALLED PERPENDICULAR TO ROOM WALLS U.N.O.
I. PROVIDE SEALANT AT ALL DOOR AND WINDOW FRAMES WHERE THEY MEET HARD SURFACE FLOORING.
J. REFER TO PROJECT MANUAL SECTION "CAST-IN-PLACE CONCRETE" FOR SPECIFICATIONS FOR SEALED CONCRETE (SC).
K. THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO TERMINATE ON AN OUTSIDE CORNER UNLESS SPECIFICALLY NOTED OTHERWISE. IF THIS CONDITION OCCURS, BRING IT TO THE ATTENTION OF THE INTERIOR DESIGNER IMMEDIATELY.
L. ALL REFERENCES TO EPOXY PAINT (EP) ON THE DRAWINGS, SHALL MATCH CORRESPONDING PAINT (P) COLOR. REFER TO PROJECT MANUAL FOR PAINT (P) AND EPOXY PAINT (EP) TYPES AND FINISHES.
M. FINISH BEHIND FIXED EQUIPMENT SUCH AS CABINETRY, CASEWORK, CHALK AND TACK / MARKERBOARDS, LOCKERS ETC.
N. PAINT ALL BULKHEADS, SOFFITS, AND GYPSUM WALLBOARD CEILING SURFACES (P5) U.N.O. ALL BULKHEADS, SOFFITS, AND GYPSUM WALLBOARD CEILING SURFACES SHALL BE FINISHED WITH THE SAME MATERIAL AND / OR COLOR ON ALL FACES (VERTICAL AND HORIZONTAL), U.N.O.
O. REFER TO REFLECTED CEILING PLAN(S) FOR ADDITIONAL CEILING FINISHES.
P. ALL NEW INTERIOR WOOD DOORS SHALL BE STAINED TO MATCH (PL2). REFER TO PROJECT MANUAL.
Q. ALL NEW INTERIOR HOLLOW METAL DOOR AND WINDOW FRAMES SHALL BE PAINTED (P5) ONLY IF DOOR IS WOOD. IF DOOR IF HOLLOW METAL THEN FRAMES ARE TO BE PAINTED TO MATCH ADJACENT WALL.
R. ALL NEW INTERIOR HOLLOW METAL DOORS SHALL BE PAINTED TO MATCH ADJACENT WALL.
S. ALL EXISTING HOLLOW METAL DOOR AND WINDOW FRAMES SHALL BE PAINTED (P5), ONLY IF DOOR IS WOOD. IF DOOR IF HOLLOW METAL THEN FRAMES ARE TO BE PAINTED TO MATCH ADJACENT WALL.
T. ALL EXISTING INTERIOR HOLLOW METAL DOORS SHALL BE PAINTED TO MATCH ADJACENT WALL, ONLY IF ADJACENT WALL IS SCHEDULED FOR NEW PAINT / WALL FINISH OR U.N.O.
U. PAINT ALL WALL MOUNTED GRILLES, VENTS, ELECTRICAL PANELS, ACCESS PANELS, ETC. TO MATCH ADJACENT WALL U.N.O.
V. ALL VERTICAL PLASTIC LAMINATE SURFACES SHALL BE (PL1) U.N.O.
W. ALL SOLID SURFACE COUNTERTOPS AND BACKSPLASH SHALL BE (SS1) U.N.O.
X. ALL COUNTERTOPS WITH SINKS SHALL BE SOLID SURFACE (SS1) U.N.O.
Y. ALL INTEGRAL SOLID SURFACE SINKS SHALL BE (SSK1) U.N.O.
Z. WINDOW SILLS SHALL BE (SS2) U.N.O.
AA. PROVIDE WALL PROTECTION (WP1) AT MOP BASINS TO WIDTH AND / OR DEPTH OF SINK AND 48" H. ABOVE FINISHED WALL BASE.
BB. TOP OF ALL BUMP RAIL (BR1) SHALL BE INSTALLED AT (5)' H., A.F.F., U.N.O.
CC. TOP OF ALL HANDRAIL (HR1) SHALL BE INSTALLED AT 36" H., A.F.F., U.N.O.
DD. ALL PRIVACY CURTAINS SHALL BE (PC1) WITH (WHITE) MESH COLOR, U.N.O.

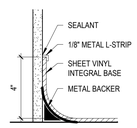
BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

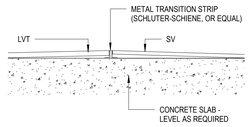
743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

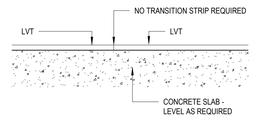
MARK	DATE	DESCRIPTION



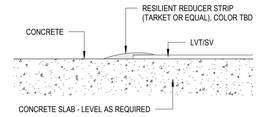
4 BASE DETAIL - SHEET VINYL COVE
3" = 1'-0"



3 FLOOR TRANSITION - LVT TO SV
6" = 1'-0"



2 FLOOR TRANSITION - LVT TO LVT
6" = 1'-0"



1 FLOOR TRANSITION - CONCRETE TO LVT/SV
6" = 1'-0"

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. CERT. NO. 51394 INDIANAPOLIS, INDIANA

MARK DENISON SEARLS REGISTERED 16711 ARCHITECT NORTH CAROLINA

INTERIOR FINISH SPECIFICATIONS AND DETAILS

DATE	11/11/24
BSALS PROJECT NO.	21950006

IF000

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Autodesk Docs://21950006 - Tucker & Civitan Renovations/21950006-ARCH_Civitan_BSALS_r2024.rvt
DESIGNED Designer
DRAWN Author
APPROVED Approver

1 Project Level_INTERIOR FINISH PLAN
1/8" = 1'-0"

X00	KEYNOTE LEGEND
	REFER TO A000 FOR GENERAL NOTES

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

FINISH REMARKS

a. REFER TO INTERIOR FINISH PLAN FOR ACCENT WALL LOCATIONS.
b. REFER TO INTERIOR FINISH PLANS FOR FLOOR PATTERN.
c. PT1 TO BE INSTALLED 6'8" AFF AND TO START ABOVE BASE. REMAINDER OF WALL TO BE EP1.
d. CT2 TO BE INSTALLED FROM BASE TO CEILING WHERE INDICATED.

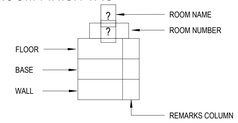
FINISH ABBREVIATIONS

* NOT ALL FINISHES LISTED ARE USED IN PROJECT

ACT	ACOUSTICAL CEILING TILE	PT	PORCELAIN TILE
BR	BUMPER RAIL	RB	RESILIENT BASE
BRK	BRICK	RS	ROLLER SHADE
CT	CERAMIC TILE	SC	SEALED CONCRETE (SPEC 03300)
EP	EPOXY PAINT	SS	SOLID SURFACE
FWC	FABRIC WALLCOVERING	SSK	SOLID SURFACE SINK
GYP	GYPSUM	ST	STONE OR STONE VENEER
GYP BD	GYPSUM BOARD	SV	SHEET VINYL
GLT	GLASS TILE	SVCB	INTEGRAL SHEET VINYL COVE BASE
HR	HANDRAIL	TB	TACKBOARD
LVT	LUXURY VINYL TILE	TF	TACKABLE FABRIC
P	PAINT	UPH	UPHOLSTERY
PC	PRIVACY CURTAIN	WC	WALL COVERING
PL	PLASTIC LAMINATE	WP	WALL PROTECTION

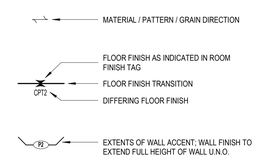
FINISH SYMBOLS LEGEND

ROOM FINISH TAG



NOTE: FINISHES INDICATED IN ROOM FINISH TAG ARE GENERAL OVERALL FINISHES FOR ROOM UNLESS OTHERWISE NOTED BY NOTE, REMARK, DETAIL, AND/OR ELEVATION.

GENERAL SYMBOLS



CIVITAN

KEYPLAN

PLAN NORTH

MARK	DATE	DESCRIPTION

Date signed: 11/11/24

BSA LIFESTRUCTURES INC. REGISTERED ARCHITECTURAL CORPORATION INDIANAPOLIS, INDIANA NORTH CAROLINA CERT. NO. 51394

MARK DENISON SEARS REGISTERED 16711 ARCHITECT NORTH CAROLINA

INTERIOR FINISH PLAN

DATE	11/11/24
BSALS PROJECT NO.	21950006

IF120

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Autodesk Docs://21950006 - Tucker & Civitan Renovation/21950006-ARCH_Civitan BSALS_r2024.rvt
DESIGNED Designer
DRAWN Author
APPROVED Approver

PLUMBING DEMOLITION NOTES

1. THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY EXISTING CONDITIONS AND DETERMINE THE LEVEL OF DEMOLITION REQUIRED AND INCLUDE ALL NECESSARY PRICING IN THEIR BID. ANY DISCREPANCIES NOTED BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING.
2. PLUMBING CONTRACTOR SHALL REMOVE EXISTING PLUMBING FIXTURES AND EQUIPMENT AS INDICATED, INCLUDING ASSOCIATED HOT WATER, COLD WATER, WASTE AND VENT PIPING, UNLESS NOTED OTHERWISE. SEE ARCHITECTURAL DEMOLITION PLAN FOR LOCATIONS.
3. PLUMBING CONTRACTOR SHALL REMOVE UNUSED HW & CW BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS, TERMINATE WITH SHUT-OFF VALVE AND CAP.
4. PLUMBING CONTRACTOR SHALL TERMINATE UNUSED BRANCH WASTE PIPING WITH A CLEAN-OUT AT THE MOST REMOTE END OR ABANDONED AND CAPPED WITHIN 12" OF THE MAIN IT CONNECTS. (NO DEAD- ENDS ALLOWED)
5. PLUMBING CONTRACTOR SHALL REMOVE UNUSED VENT BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS THEN CAP.
6. PLUMBING CONTRACTOR SHALL VERIFY PROPER OPERATION OF ALL EXISTING EQUIPMENT PRIOR TO BEGINNING WORK. ANY PROBLEMS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ARCHITECT IMMEDIATELY.
7. WITH THE REMOVAL OF EXISTING WALLS, SOME EXISTING WASTE, VENT, STORM DRAIN, OR DOMESTIC WATER PIPING MAY BE DISCOVERED. ANY EXISTING PIPING DISCOVERED THAT IS ACTIVE SHALL BE OFFSET BY THE P.C. TO NEW WALLS. ANY EXISTING PIPING DISCOVERED THAT IS ABANDONED SHALL BE REMOVED.

SANITARY WASTE, VENT & STORM DRAIN PIPING

1. BELOW GRADE PIPING AND JOINTS: PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). INSTALL PLASTIC PIPE BELOW GRADE PER ASTM D2321. FOAM CORE PVC PIPING IS NOT APPROVED.
2. ABOVE GRADE PIPING AND JOINTS: PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PIPE IS NOT APPROVED. DO NOT INSTALL PVC PIPING IN RETURN AIR PLENUMS.
3. SLOPE WASTE AND STORM DRAIN PIPING AT 1/4" PER FOOT MINIMUM FOR PIPING 2-1/2" AND SMALLER AND 1/8" PER FOOT MINIMUM FOR PIPING 3" AND LARGER UNLESS NOTED OTHERWISE. SLOPE ALL KITCHEN GREASE WASTE PIPING AT 1/4" PER FOOT MINIMUM.
4. PROVIDE CLEAN-OUTS AT THE BASE OF WASTE STACKS AND AT EVERY TURN IN PIPING IN EXCESS OF 45° AND SPACED WITH-IN 100'-0" APART IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
5. PROVIDE FLOOR CLEANOUTS WITH TOPS DESIGNED TO MATCH SPECIFIC FLOOR FINISHES SUCH AS CARPET, TILE, ETC. YARD CLEANOUTS SHALL BE PROVIDED IN AN 18"x18"x6" CONCRETE PAD.
6. WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME PLATED BRASS PIPING, REMOVABLE P-TRAPS, MATCHING STOPS AND ESCUTCHEONS FOR ALL LAVATORIES.
7. WASTE AND VENT SYSTEMS SHALL BE TESTED AND PROVED WATER TIGHT UNDER A HEAD PRESSURE OF NO LESS THAN 10 FT. THIS PRESSURE SHALL BE HELD FOR A PERIOD OF NO LESS THAN 15 MINUTES.
8. WHERE MECHANICAL ROOM FLOOR DRAINS ARE INSTALLED ABOVE GRADE, PROVIDE 1"THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET ON THE FLOOR DRAIN BODY, THE ASSOCIATED P-TRAP AND HORIZONTAL DRAIN PIPING ABOVE GRADE.
9. PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES SHALL MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS AS TESTED BY ASTM E84 (NFPA 255) METHOD. INSTALL INSULATION CONTINUOUSLY THRU FIRE RATED WALLS AND PIPE HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION.

DOMESTIC WATER PIPING

1. BELOW GRADE PIPING AND JOINTS: PROVIDE TYPE 'K' SOFT ANNEALED SEAMLESS COPPER TUBING (ASTM B 88) WITH NO JOINTS FOR PIPING 2-1/2" AND SMALLER. PROVIDE DUCTILE IRON PIPE AND FITTINGS (AWWA C151, AWWA C110) WITH RUBBER GASKET JOINTS AND RODS (AWWA C111) FOR PIPING 3" AND LARGER.
2. ABOVE GRADE PIPING AND JOINTS: PROVIDE TYPE 'L' HARD DRAWN SEAMLESS COPPER TUBING (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18). JOINTS 2" AND SMALLER SHALL BE LEAD FREE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32), JOINTS 2-1/2" AND LARGER SHALL BE BCUP SILVER / PHOSPHORUS / COPPER BRAZED JOINTS (AWS A5.8). ALTERNATELY PROVIDE COPPER PIPE AND FITTINGS AS SPECIFIED ABOVE EXCEPT WITH GROOVED ENDS (ASTM B 88, ASME B16.18) AND JOINTS UTILIZING GROOVED MECHANICAL COUPLINGS MEETING (ASTM F1476).
3. INSULATE DOMESTIC WATER DISTRIBUTION SYSTEMS (HOT AND COLD) USING COPPER TUBE/PIPE WITH GLASS FIBER INSULATION HAVING A VAPOR BARRIER AND CANVAS OR PVC JACKETING.
4. INSULATE DOMESTIC WATER DISTRIBUTION SYSTEMS (HOT AND COLD) USING CPVC OR PEX PLASTIC TUBE/PIPE USING CLOSED-CELL ELASTOMERIC PIPE INSULATION.
   EXCEPTIONS: INSULATION MAY BE OMITTED ON COLD WATER SUPPLY MAINS INSTALLED IN CONDITIONED SPACES IN RESIDENTIAL CONSTRUCTION. RUN-OUTS TO INDIVIDUAL DWELLING UNITS NEED NOT BE INSULATED UNLESS PIPE/TUBING IS INSTALLED IN BUILDING EXTERIOR WALLS.
5. PIPE INSULATION SHALL HAVE A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-IN/H PER FT.^{2} F°, SEE LIST BELOW FOR INSULATION THICKNESS:
   - PROVIDE 1" THICK INSULATION FOR HW & HWR PIPING SIZES 1/2" THRU 3/4", R-VALUE R7.
   - PROVIDE 1-1/2" THICK INSULATION FOR HW & HWR PIPING SIZES 1" THRU 1 1/4", R-VALUE R12.5.
   - PROVIDE 1-1/2" THICK INSULATION FOR HW & HWR PIPING SIZES 1-1/2" THRU 4", R-VALUE 11.
   - PROVIDE 1/2" THICK INSULATION FOR COLD WATER PIPING SIZES 1/2" THRU 1-1/4", R-VALUE 6.5.
   - PROVIDE 1" THICK INSULATION FOR COLD WATER PIPING SIZES 1-1/2" THRU 4", R-VALUE 6.5.
6. PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES SHALL MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS AS TESTED BY ASTM E84 (NFPA 255) METHOD AND SHALL BE PLENUM RATED. PROVIDE PVC INSULATION JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. INSTALL INSULATION CONTINUOUSLY THRU FIRE RATED WALLS AND PIPE HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION.
7. PROVIDE A CHROME FINISH ON EXPOSED PIPING IN REST ROOMS AND OTHER FINISHED AREAS.
8. PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON TRAPEZE HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH DISSIMILAR OTHER METALS.
9. PROTECT COPPER PIPING AGAINST CONTACT WITH MASONRY. WHERE COPPER IS SLEEVED THROUGH MASONRY, PROVIDE COPPER OR RED BRASS SLEEVES. WHERE COPPER MUST BE CONCEALED IN OR AGAINST MASONRY PARTITIONS, PROVIDE A HEAVY COATING OF ASPHALTIC ENAMEL ON THE COPPER PIPING AND 15# ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION.
10. PERFORM A PRESSURE TEST ON ALL WATER PIPING. FILL PIPING WITH POTABLE WATER, CAP AND SUBJECT PIPING TO A STATIC WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS OR PRESSURIZE PIPING WITH AIR TO AT LEAST ONE-HUNDRED (100) PSI. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED
11. STERILIZE THE DOMESTIC WATER SYSTEM IN PER THE AMERICAN WATER WORKS ASSOCIATION'S INSTRUCTIONSSPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
12. SLOPE WATER PIPING FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.

PLUMBING GENERAL NOTES

1. GENERAL AND SPECIAL CONDITIONS OF THE CONTRACT APPLY TO THE PLUMBING SCOPE OF WORK. THE PLUMBING DRAWINGS AND SPECIFICATIONS SHALL NOT BE INTERPRETED AS WAIVING OR OVERRULING ANY REQUIREMENTS EXPRESSED IN GENERAL CONDITIONS.
2. PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
3. SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.
4. PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. ACREAGE CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSTRUED TO BE A PART OF THIS CONTRACT.
5. WARRANT THE SYSTEM LABOR, MATERIALS AND EQUIPMENT FOR THE TIME PERIOD SPECIFIED IN THE PROJECT MANUAL. IF NO WARRANTY SECTION IS PROVIDED, THEN WARRANT THE SYSTEM LABOR, MATERIAL AND EQUIPMENT FOR A MINIMUM OF ONE YEAR AFTER COMPLETION AND ACCEPTANCE. PRIOR TO TURNING THE COMPLETED SYSTEM OVER TO THE OWNER, REVIEW THE INSTALLATION WITH THE ARCHITECT / ENGINEER AND REPLACE OR REPAIR ANY DEFECTIVE WORKMANSHIP, EQUIPMENT AND MATERIALS AT NO ADDITIONAL COST TO THE OWNER.
6. COORDINATE ALL PLUMBING PIPING LOCATIONS, ROUGH-IN LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.
7. FIELD VERIFY PROPER OPERATION OF EXISTING SYSTEMS BEFORE STARTING CONSTRUCTION. NOTIFY THE ARCHITECT / ENGINEER OF RECORD OF ANY PROBLEMS OR DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS AND/OR ANY POTENTIAL PROBLEMS OBSERVED BEFORE CONTINUING WORK IN THE AFFECTED AREAS.
8. PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONS OF ALL LOCATIONS OF PLUMBING FIXTURES, FLOOR DRAINS, COLUMNS, WALLS, DOORS, ETC.
9. WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL APPLY. CONTACT ENGINEER FOR CLARIFICATION.
10. ALL CAST IRON PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
11. ALL VALVES, BACKFLOW PREVENTERS, BOOSTER PUMPS, ETC. SERVING THE DOMESTIC WATER SYSTEM SHALL MEET LEAD FREE STANDARDS PER ANSI/NSF 372 AND NSF 61, ANNEX G.
12. PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT. INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TAIL PIECES, ESCUTCHEONS, ETC. AND INSTALL PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
13. CUT WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF PLUMBING WORK. ALL CUTTING SHALL BE HELD TO A MINIMUM. PATCH AND FINISH SURFACES TO MATCH ADJOINING SURFACES.
14. PIPING AND SPECIALTIES SHALL BE LOCATED CONCEALED IN WALLS, PARTITIONS OR ABOVE CEILINGS UNLESS NOTED OTHERWISE. PIPING IN EXPOSED AREAS SHALL BE RUN TIGHT TO UNDERSIDE OF STRUCTURE.
15. PIPE PENETRATIONS THRU WALLS, PARTITIONS AND FLOORS SHALL BE SLEEVED. CORE DRILLING THRU WALLS AND PARTITIONS IS PERMITTED IF PERFORMED IN A NEAT CRAFTSMAN LIKE MANNER. OPENINGS THRU WALLS, PARTITIONS, AND FLOORS SHALL BE LARGE ENOUGH FOR PIPE INSULATION TO REMAIN CONTINUOUS, PIPES PENETRATING THRU EXTERIOR WALLS SHALL BE SEALED WATER TIGHT. INSTALL ESCUTCHEONS IN ALL EXPOSED AREAS.
16. PROVIDE ACCESS DOORS FOR ALL SPECIALTIES, VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC., CONCEALED BEHIND WALLS OR CEILINGS THAT REQUIRE MAINTENANCE ACCESS.
17. DO NOT INSTALL PIPING IN AREAS SUBJECT TO FREEZING TEMPERATURES. INSTALL PIPING SHOWN IN EXTERIOR WALLS ON THE CONDITIONED SIDE OF THE WALL INSULATION.
18. PIPING, VENTS, ETC. EXTENDING THROUGH EXTERIOR WALLS AND/OR THE ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER. COORDINATE FLASHING WITH THE GENERAL CONTRACTOR.
19. PROVIDE A CHROME FINISH FOR ALL EXPOSED PIPING IN REST ROOMS AND OTHER FINISHED AREAS.
20. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
21. REFER TO THE STRUCTURAL PLANS AND DETAILS FOR ACCEPTABLE LOCATIONS TO ATTACH HANGERS AND SUPPORTS TO THE BUILDING STRUCTURE. HANGERS SHALL NOT ATTACH TO THE ROOF DECK.
22. PROVIDE MANUFACTURERS RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE.
23. VALVES AND OTHER PIPING ACCESSORIES REQUIRING ACCESS SHALL BE INSTALLED IN ACCESSIBLE LOCATION NO MORE THAN 18" ABOVE THE CEILING, PROVIDE OFFSETS IN PIPING AS NEEDED.
24. PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, PIPE IDENTIFICATION, DOMESTIC WATER SYSTEM, SANITARY WASTE AND VENT SYSTEM, NATURAL GAS SYSTEM.

FIRE STOPPING:

1. FIRE STOP ALL PENETRATIONS, BY PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEVICE(S) OR SYSTEM(S) WHICH HAS BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE A DEVICE(S) OR SYSTEM(S) WITH AN 'F' RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.

PIPE IDENTIFICATION:

1. PIPE IDENTIFICATION SHALL MATCH THE FACILITY'S EXISTING STANDARD. IF NO STANDARD EXISTS, THEN THE PIPE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI A13.1.
2. PROVIDE PIPING LABELS FOR ALL PLUMBING PIPING. PIPING LABELS SHALL BE ACRYLIC FACED, WRAP-AROUND TYPE. EACH LABEL SHALL INDICATE THE PIPING CONTENTS, DIRECTION OF FLOW AND SHALL BEAR THE MANUFACTURER'S STANDARD COLOR FOR THE SERVICE INDICATED.

SUBMITTALS:

1. PROVIDE SUBMITTALS BEARING THE CONTRACTORS REVIEW STAMP FOR ALL PLUMBING FIXTURES, PIPING, EQUIPMENT AND ACCESSORIES IN ELECTRONIC FORMAT (PDF).
2. NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED AS EQUALS TO PRODUCTS SPECIFIED HEREIN.
3. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SUBSTITUTIONS TO SPECIFIED PLUMBING FIXTURES AND EQUIPMENT INCLUDING BUT NOT LIMITED TO; PROVIDING MAINTENANCE ACCESS CLEARANCE, PIPING, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC. AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS REQUIRED BY THE EQUIPMENTS INSTALLATION INSTRUCTIONS. ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BASE BID.

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - PLUMBING SUMMARY

C401 METHOD OF COMPLIANCE

- ■ 2018 NCECC CHAPTER 4
- ☐ ASHRAE 90.1-2013 PRESCRIPTIVE
- ☐ ASHRAE 90.1-2013 PERFORMANCE
- ☐ N/A (EXISTING LIGHTING, HVAC, AND DOM. WATER HEATING SYSTEMS TO REMAIN)
- ☐ COMCHECK PROVIDED (2018 NCECC)
- ☐ COMCHECK PROVIDED (90.1-2013)
- ☐ ENERGY MODELING DATA PROVIDED

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.2 EFFICIENT MECH EQUIPMENT
- ■ C406.3 REDUCED LTG DENSITY
- ☐ C406.4 ENHANCED LTG CONTROLS
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ☐ C406.6 DEDICATED OA SYSTEM
- ☐ C406.7 SERVICE WATER HEATING

TABLE C404.2 - MINIMUM PERFORMANCE OF WATER HEATING EQUIPMENT[c]

EQUIPMENT TYPE	SIZE CATEGORY (INPUT)	SUB CATEGORY OR RATING CONDITION	PERFORMANCE REQUIRED a,b	REQ'D EFFICIENCY	SPECIFIED EQPM
WATER HEATER ELECTRIC	> 12 kW	RESISTANCE	(0.3+27/V_m), %/h	96%	97%

a. ENERGY FACTOR (EF) AND THERMAL EFFICIENCY (E_t) ARE MINIMUM REQUIREMENTS. IN THE EF EQUATION V IS THE VOLUME IN GALLONS.
b. STANDBY LOSS (SL) IS THE MAXIMUM BTU/H BASED ON A NOMINAL 70° TEMPERATURE DIFFERENCE BETWEEN STORED WATER AND AMBIENT REQUIREMENTS. IN THE SL EQUATION Q IS THE NAMEPLATE INPUT RATE IN BTU/H. IN THE EQUATIONS FOR ELECTRIC WATER HEATERS, V IS THE RATED VOLUME IN GALLONS AND V_m IS THE MEASURED VOLUME IN GALLONS. IN THE SL EQUATION FOR GAS WATER HEATERS AND BOILERS, V IS THE RATED VOLUME IN GALLONS.
c. REFER TO WATER HEATER SCHEDULES FOR SPECIFIED WATER HEATING EQUIPMENT TYPES, CAPACITIES (STORAGE VOLUME) AND ENERGY INPUTS (ELECTRIC AND/OR GAS)

C408 - SYSTEM COMMISSIONING

- ■ PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ☐ PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	CW	COLD WATER PIPING
	HW	HOT WATER PIPING
	HWR	HOT WATER RETURN PIPING
TW	TW	TEMPERED HOT WATER PIPING
140	140	140°F HOT WATER PIPING
140	140	140°F HOT WATER RETURN PIPING
	W	SANITARY WASTE PIPING
	V	SANITARY VENT PIPING
GW	GW	GREASE WASTE PIPING
GV	GV	GREASE VENT PIPING
AW	AW	ACID RESISTANT WASTE PIPING
AV	AV	ACID RESISTANT VENT PIPING
SD	SD	STORM DRAIN PIPING
ESD	ESD	EMERGENCY STORM DRAIN PIPING
PD	PD	PUMP DISCHARGE (SUMP PUMP)
G	G	NATURAL GAS PIPING
D	D	DRAIN PIPING (INDIRECT)
	-	PIPING ELBOW DOWN
	-	PIPING ELBOW UP
	-	PIPING CONTINUES
	-	SHUT-OFF VALVE
	-	CHECK VALVE
	-	BALANCING VALVE
	PRV	PRESSURE REDUCING VALVE
	-	SOLENOID VALVE
	RPZ	REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY
	-	IN-LINE PUMP
	-	PIPING REDUCER
	FCO	FLOOR CLEANOUT
	YCO	YARD CLEANOUT
	WCO	WALL CLEANOUT
	CO	PLUG CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	RD	ROOF DRAIN
	HB	HOSE BIBB / WALL HYDRANT
SA-#	SA-#	SHOCK ARRESTOR - SUFFIX INDICATES PDI SIZE

ADDITIONAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MFG	MANUFACTURER
AFG	ABOVE FINISHED GRADE	PSI	POUNDS PER SQUARE INCH
AVTR	ACID VENT THRU ROOF	T&P	TEMPERATURE AND PRESSURE
BAS	BUILDING AUTOMATION SYSTEM	TW	TEMPERED WATER
BFF	BELOW FINISHED FLOOR	TYP	TYPICAL
CFH	CUBIC FEET PER HOUR	UG	UNDERGROUND
CLG	CEILING	VTR	VENT THRU ROOF
CONT	CONTINUATION	WSV	WASTE STACK VENT
DN	DOWN	WC	WATER COLUMN
GPF	GALLONS PER FLUSH		
GPM	GALLONS PER MINUTE	EC	ELECTRICAL CONTRACTOR
HP	HORSE POWER	FSC	FOOD SERVICE CONTRACTOR
INV	INVERT ELEVATION	GC	GENERAL CONTRACTOR
KW	KILOWATT	MC	MECHANICAL CONTRACTOR
MBH	1,000 BRITISH THERMAL UNIT / HOUR	PC	PLUMBING CONTRACTOR

PLUMBING SHEET INDEX

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT

BSA
BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 043866 ENGINEER DANIEL A. REVILLA
11/11/2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

AREA A

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

PLUMBING LEGEND, INDEX, AND NOTES

DATE	11/11/24
BSALS PROJECT NO.	21950006

P001

OPTIMA# 24-0146R

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DESIGNED Designer
DRAWN Author
APPROVED Approver

WATER HEATER SCHEDULE

SYM.	DESCRIPTION	STORAGE (GALLONS)	GPH RECOVERY @ 100°F RISE	ELECTRICAL DATA				SELECTION BASED ON		REMARKS
				KW	VOLTS	PHASE	HERTZ	MANUFACTURER	MODEL	
WH1	ELECTRIC WATER HEATER	120	74	18	208	3	60	STATE	CSB-120-18	1,2

REMARKS:
1. EQUIVALENT MANUFACTURERS: LOCHINVAR, BRADFORD WHITE.
2. WATER HEATER SHALL MEET OR EXCEED THE REQUIREMENTS OF ASHRAE 90.1.

EXPANSION TANK SCHEDULE

SYM.	DESCRIPTION	VOLUME (GALLONS)	DIAMETER (INCHES)	HEIGHT (INCHES)	BASIS OF DESIGN		REMARKS
					MANUFACTURER	MODEL	
ET1	BLADDER TYPE EXPANSION TANK	2	8	13	AMTROL	ST-5	1,2

REMARKS:

1.EQUIVALENT MANUFACTURERS: BELL & GOSSETT, WESSELS COMPANY.
2. PROVIDE ASME CONSTRUCTION.

SHOCK ARRESTOR TABLE

DRAWING SYMBOL	FIXTURE UNITS	PDI WH201 STANDARD DESIGNATION	ARRESTOR SIZE	APPROVED MANUFACTURERS
SA-A	1-11	A	1/2"	- SIOUX CHIEF - WATTS - PPP INC.
SA-B	12-32	B	3/4"	
SA-C	33-60	C	1"	
SA-D	61-113	D	1 1/4"	REMARKS
SA-E	114-154	E	1 1/2"	INSTALL SHOCK ARRESTORS PER PDI WH201 GUIDELINES
SA-F	155-330	F	2"	

LINT INTERCEPTOR - LI-1

STRIEM MODEL PS-25-S OR APPROVED EQUAL, 21 GALLON LIQUID CAPACITY, 10 GALLON LINT CAPACITY. PROVIDE WITH FIELD ADJUSTABLE RISER TO EXTEND COVER TO FINISHED FLOOR, PROVIDE WITH 3" INLET AND 3" OUTLET OPTION AND MEDIUM FILTER SCREEN OPENINGS (0.1" x 0.08").

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

SYM.	DESCRIPTION	CONNECTIONS (IN.) W	V	CW	HW	SPECIFICATION	REMARKS
P1A	WATER CLOSET, HET ADA COMPLIANT ELONGATED BOWL FLOOR MOUNTED FLUSH VALVE, 1.28 GPF	3"	2"	1"	-	FIXTURE: AMERICAN STD. 3043.001 "MADERA" SEAT: BEMIS 1955SSCT FLUSH VALVE: SLOAN G2 8111-1.28 MATERIAL: VITREOUS CHINA COLOR: WHITE	SEAT HEIGHT 17"-19" AFF PROVIDE FLUSH VALVE LEVER ON WIDE SIDE OF STALL. SEE NOTE 2 BELOW
P3A	LAVATORY ADA. COMPLIANT, 17"x14" OVAL COUNTER MOUNTED SELF RIMMING BOWL 0.5 GPM SENSOR FAUCET BATTERY POWERED	2"	1 1/2"	1/2"	1/2"	FIXTURE: AMERICAN STD. "OVALYN" MODEL# 0495221 DRAIN:MCGUIRE 155A GRID STRAINER FAUCET: AMERICAN STD. INNSBROOK MODEL# 6055.205 P-TRAP: MCGUIRE 8902 1 1/4" x 1 1/2" STOPS: MCGUIRE LF175LK	SEE NOTE 1 BELOW. PROVIDE 0.5 GPM AERATOR FOR MOUNTING HEIGHT. SEE ARCHITECTURAL PLANS
P5A	S.S. SINK 30"W x 19"L x 8"D, DOUBLE BOWL 18 GAUGE STAINLESS STEEL UNDER COUNTER MOUNTED PULL DOWN FAUCET WITH 1.8 GPM AERATOR	2"	1 1/2"	1/2"	1/2"	FIXTURE: ELKAY ELUH3118 FAUCET: AMERICAN STD. "STUDIO S" MODEL # 48033300 STRAINER: MCGUIRE 151 (BASKET) P-TRAP: MCGUIRE 8891Z (1 1/2"x1 1/2") STOPS: MCGUIRE LF175LK	SEE NOTE 1 BELOW. PROVIDE WATER AND WASTE CONNECTIONS FOR ADJACENT DISHWASHER. W = FRONT TO BACK L = LEFT TO RIGHT
P5B	S.S. SINK ADA COMPLIANT 17"W x 20"L x 7.5"D, SINGLE BOWL 18 GAUGE STAINLESS STEEL COUNTER MOUNTED, SELF-RIMMING FAUCET WITH 1.5 GPM AERATOR	2"	1 1/2"	1/2"	1/2"	FIXTURE: ELKAY LR1720 FAUCET: AMERICAN STD. "EDGEWATER" MODEL #4932.200 STRAINER: MCGUIRE 151 (BASKET) P-TRAP: MCGUIRE 8891Z (1 1/2"x1 1/2") STOPS: MCGUIRE LF175LK	SEE NOTE 1 BELOW. W = FRONT TO BACK L = LEFT TO RIGHT
P7	LAUNDRY TUB MOLDED COMPOSITE 20"L x 24"W x 13"D FLOOR MOUNTED FAUCET WITH 1.5 GPM AERATOR	2"	1 1/2"	1/2"	1/2"	FIXTURE: FIAT FL-1 FAUCET: MOEN 74998 DRAIN: 1 1/2" DRAIN WITH PLUG P-TRAP: MCGUIRE 8891Z (1 1/2"x1 1/2") STOPS: MCGUIRE LF175LK	PROVIDE ACCESSORY KIT WITH (4) LEGS

NOTES:
1. PROVIDE PRE-MANUFACTURED INSULATION KIT FOR EXPOSED TRIM UNDER SINK.
2. PROVIDE WALL HUNG WATER CLOSET CARRIER THAT MEETS ASME A112.6.1M OR ASME A112.6.2 AND 1,000 LB. STATIC LOAD RATING.

APPROVED MANUFACTURERS:
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY ANY OF ALL FIXTURES OF THE SAME THE MANUFACTURER'S LISTED. NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED AS EQUALS TO PRODUCTS SPECIFIED HEREIN. TYPE AND/OR MATERIAL SHALL BE PROVIDED BY A SINGLE MANUFACTURER.

VITREOUS CHINA FIXTURES	AMERICAN STANDARD, KOHLER, ZURN, TOTO, SLOAN
TOILET SEATS	CHURCH, OLSONITE, BEMIS, CENTOCO
FLUSH VALVES	SLOAN, ZURN, DELANEY, MOEN, AMERICAN STANDARD, KOHLER
MANUAL FAUCETS	MOEN COMMERCIAL, DELTA COMMERCIAL, T&S BRASS, CHICAGO, ZURN
SENSOR OPERATED FAUCETS	SLOAN, MOEN COMMERCIAL, DELTA COMMERCIAL, T&S BRASS, ZURN
STAINLESS STEEL SINKS	ELKAY, JUST, ADVANCE-TABCO
UTILITY SINKS (MOP BASINS, LAUNDRY SINKS)	FIAT, FLORESTONE, STERN WILLIAMS
SUPPLY STOPS, P-TRAPS	McGUIRE, BRASSCRAFT, KEENEY
ADA INSULATING KITS FOR EXPOSED TRIM	TRUEBRO, PLUMBEREX, KEENEY
DRAINS, CARRIERS, CLEANOUTS	ZURN, J.R. SMITH, WADE, JOSAM, WATTS
DRAIN AND SUPPLY BOXES	GUY GRAY, SIOUX CHIEF, OATEY

PLUMBING SPECIALTIES SCHEDULE

SYM.	DESCRIPTION	CONNECTIONS (IN.) W	V	CW	HW	SPECIFICATION	REMARKS
WB1	WASHING MACHINE BOX, 14"x9"x3.5" 20 GAUGE STEEL WITH WHITE POWDER COATING	2"	1 1/2"	1/2"	1/2"	EQUIPMENT: GUY GRAY T200TPPVCHA STOPS: 1/4 TURN WITH WATER HAMMER ARRESTOR SUPPLIES: (2) 5/8" BRAIDED SS FLEXIBLE HOSES	2" DRAIN OUTLET, 2" STANDPIPE WITH 2" P-TRAP
FCO	FLOOR CLEANOUT CAST IRON BODY, ADJUSTABLE, NICKEL BRONZE TOP	SEE DWG	-	-	-	CLEANOUT: ZURN ZN-1400	GAS / WATER TIGHT ABS PLUG
WCO	WALL CLEANOUT STAINLESS STEEL WALL PLATE	SEE DWG	-	-	-	CLEANOUT: ZURN ZS-1468	GAS / WATER TIGHT ABS PLUG
YCO	YARD CLEANOUT ADJUSTABLE, CAST IRON BODY, COATED CAST IRON TOP	SEE DWG	-	-	-	CLEANOUT: ZURN ZN-1474 IN AN 18"L x 18"W x 6"D CONCRETE PAD.	GAS / WATER TIGHT ABS PLUG
FD1	FLOOR DRAIN CAST IRON BODY, ADJUSTABLE NICKEL BRONZE TOP	SEE DWG	-	-	-	DRAIN: ZURN ZN-415 STRAINER: 6" DIAMETER, TYPE B, NICKEL BRONZE P-TRAP: DEEP SEAL (MATCH DRAIN SIZE)	
FD2	FLOOR DRAIN, MECHANICAL ROOM CAST IRON BODY AND TOP SEDIMENT BUCKET	SEE DWG	-	-	-	DRAIN: ZURN Z-556-Y STRAINER: 8" DIAMETER, SLOTTED, CAST IRON P-TRAP: DEEP SEAL (MATCH DRAIN SIZE)	

APPROVED EQUALS:	SPECIFIED PRODUCT:	ACCEPTED EQUAL:
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED.	ZURN (DRAINS, CARRIERS)	J.R. SMITH, WADE

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288

Engineering Registration Number - C-2412

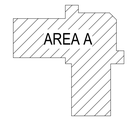
optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 043866 ENGINEER DANIEL A. REVILLA
11/11/2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET



KEYPLAN
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MARK	DATE	DESCRIPTION

PLUMBING SCHEDULES

DATE 11/11/24
BSALS PROJECT NO. 21950006

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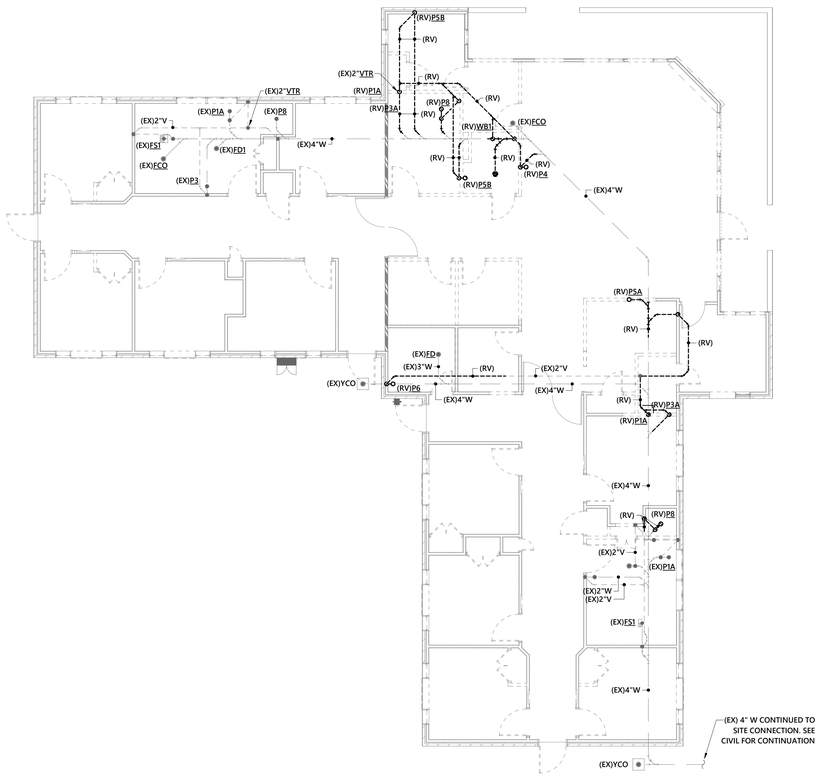
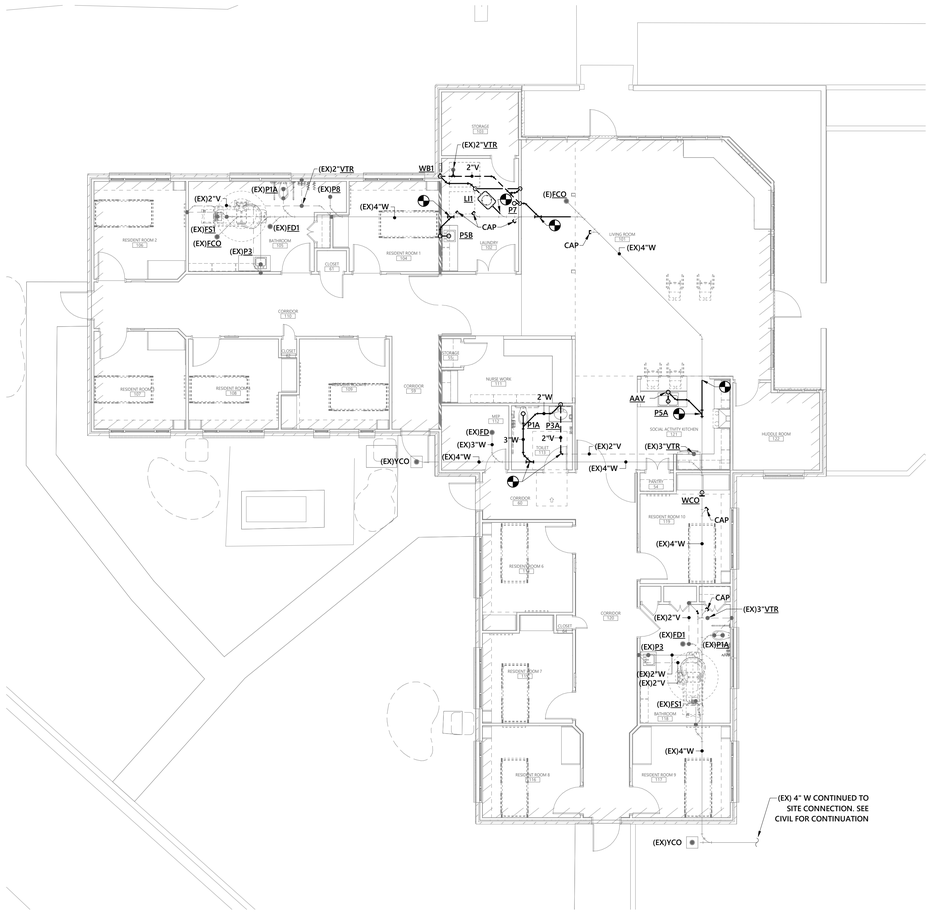


1 **PLUMBING DRAINAGE PLAN - DEMOLITION**
1/8" = 1'-0"



2 **PLUMBING DRAINAGE PLAN - NEW WORK**
1/8" = 1'-0"

WALL RATINGS	
SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 043866 ENGINEER DANIEL A. REVILLA
11/11/2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

PLUMBING DRAINAGE PLANS

DATE	11/11/24
BSALS PROJECT NO.	21950006

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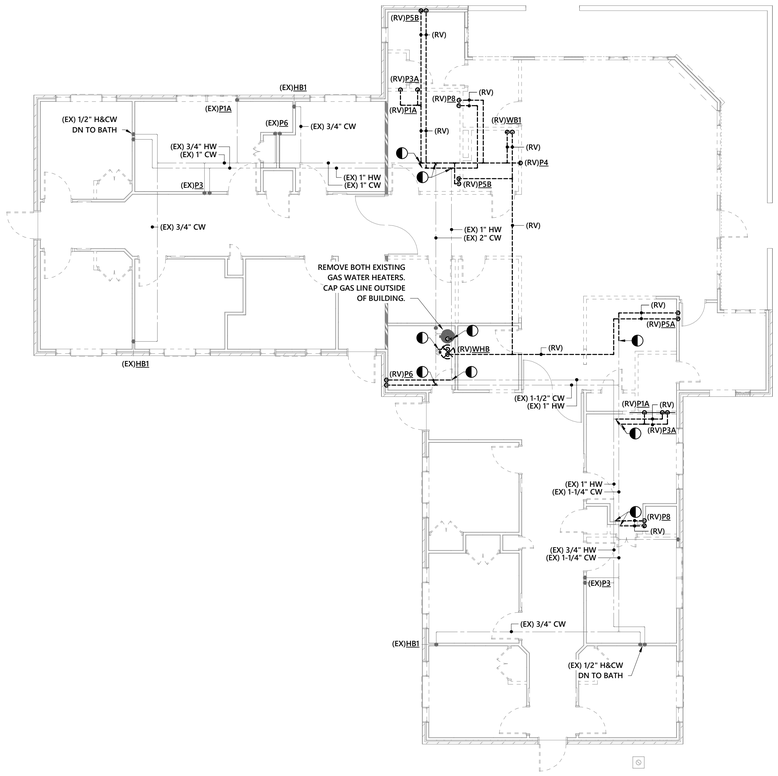
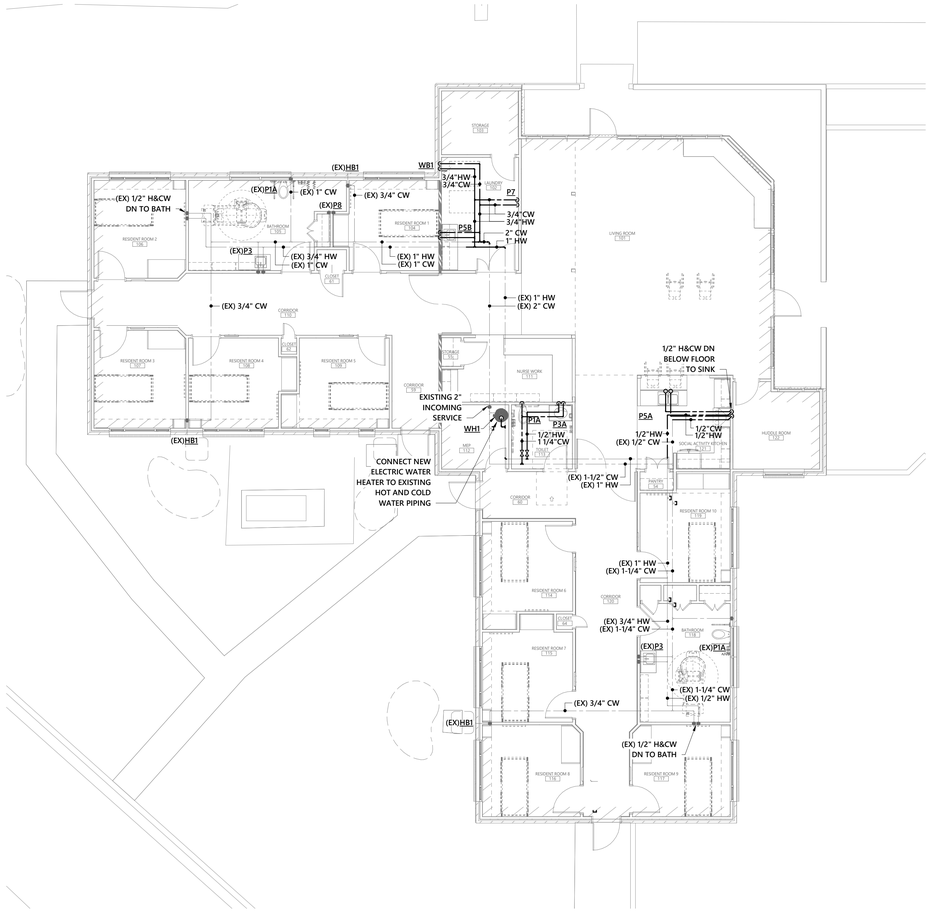


1 PLUMBING SUPPLY PLAN - DEMOLITION

1/8" = 1'-0"



2 PLUMBING SUPPLY PLAN - NEW WORK

1/8" = 1'-0"

WALL RATINGS	
SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS	
ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
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EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
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11/11/2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

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AREA A

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

PLUMBING SUPPLY PLANS

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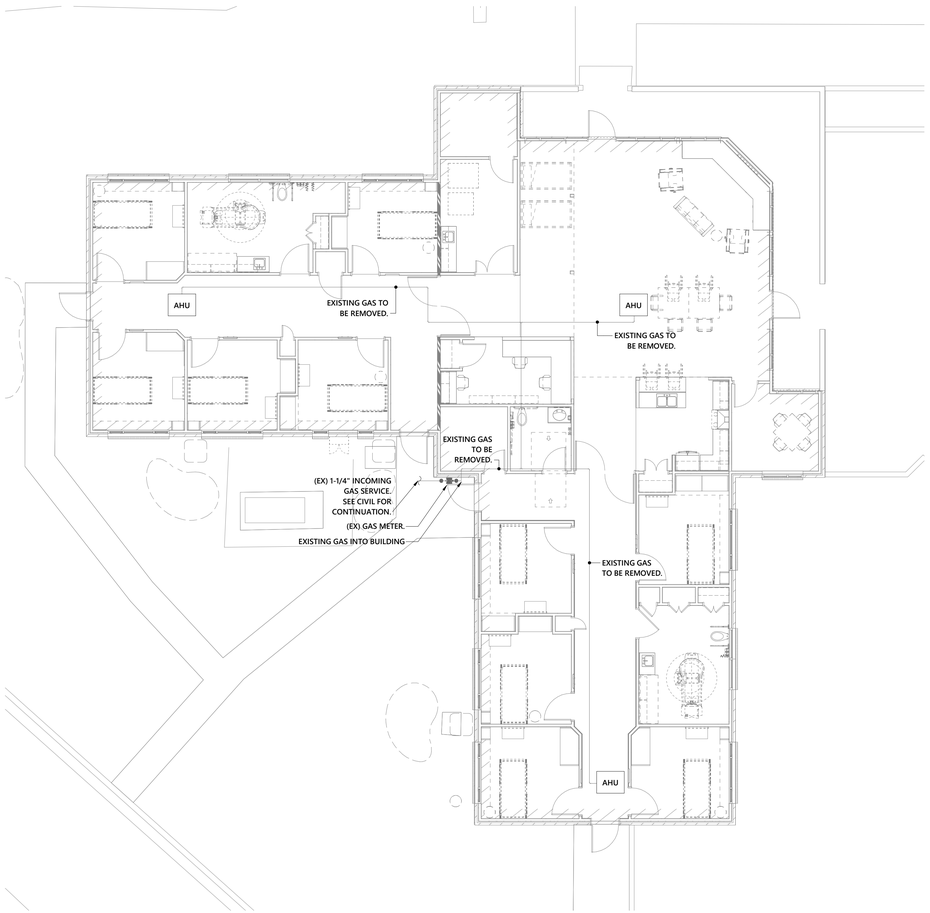
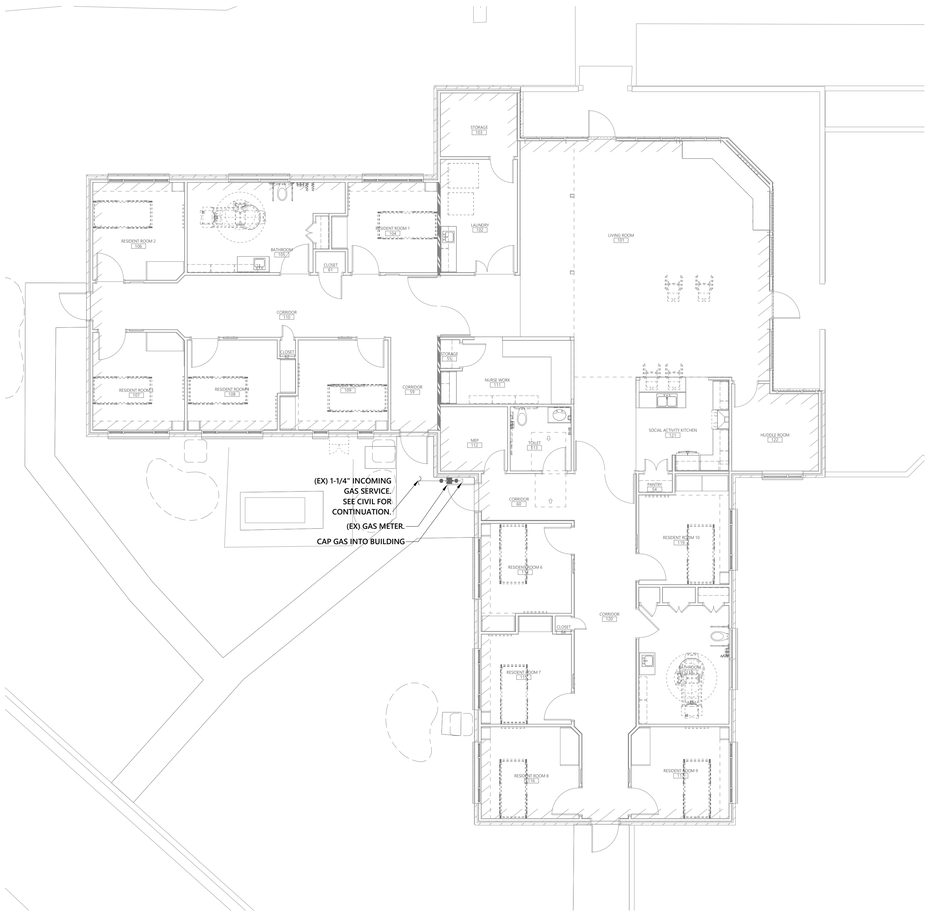


1 **PLUMBING GAS PLAN - DEMOLITION**
1/8" = 1'-0"



2 **PLUMBING GAS PLAN - NEW WORK**
1/8" = 1'-0"

WALL RATINGS	
SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS	
ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
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AREA A

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

PLUMBING GAS PLANS

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TESTING, ADJUSTING, AND BALANCING

1. THE MECHANICAL CONTRACTOR SHALL BALANCE ALL MECHANICAL SYSTEMS TO THE PERFORMANCE SPECIFICATIONS INDICATED ON PLANS AND PROVIDE THE ENGINEER WITH A DIGITAL COPY OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.

2. CONDUCT TESTING AND BALANCING IN ACCORDANCE WITH TECHNICAL PORTIONS OF THE AABC "NATIONAL STANDARDS FOR TESTING AND BALANCING HVAC SYSTEMS", LATEST EDITION.

3. INSTRUMENTS USED FOR BALANCING MUST HAVE BEEN CALIBRATED WITHIN A PERIOD OF SIX (6) MONTHS PRIOR TO BALANCING. SUBMIT SERIAL NUMBERS, AND DATES OF CALIBRATION OF ALL INSTRUMENTS TO BE USED PRIOR TO THE START OF WORK.

4. SET HVAC SYSTEM AIRFLOW AND WITHIN THE FOLLOWING TOLERANCES:

   A. SUPPLY AND EXHAUST FANS AND EQUIPMENT WITH FANS: MINUS 10 TO PLUS 10 PERCENT.

MECHANICAL DEMOLITION NOTES

1. THE MECHANICAL CONTRACTOR SHALL VISIT SITE PRIOR TO BEGINNING WORK TO DETERMINE THE LEVEL OF DEMOLITION REQUIRED AND INCLUDE ALL NECESSARY PRICING IN THEIR BID.

2. IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL EXISTING DUCTWORK AND PIPING. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND MECHANICAL PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE MECHANICAL ENGINEER.

3. THE MECHANICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CEILING RADIATION DAMPERS ARE LOCATED WHERE INDICATED ON DRAWINGS. ALL NEW AND EXISTING GRILLES AND DUCTS PENETRATING RATED CEILINGS SHALL BE PROVIDED WITH A CEILING RADIATION DAMPER.

4. RUN OUTS MAY BE REUSED IF SIZED ADEQUATELY TO PROVIDE THE AIR QUANTITIES INDICATED. ANY FLEX DUCT BEING REUSED SHALL BE CLEANED AND VERIFIED TO BE IN GOOD WORKING CONDITION.

5. M.C. SHALL VERIFY ALL EXISTING SUPPLY AND RETURN AIR DUCT TO REMAIN IS INSULATED WITH VAPOR BARRIER INTACT. IF EXISTING DUCT IS NOT INSULATED WITH EITHER DUCT LINER OR WRAP, M.C. SHALL PROVIDE 2" THICK DUCT WRAP WITH VAPOR BARRIER (MIN. R-VALUE OF 6.0, WHEN IN ATTIC 8.0).

6. M.C. SHALL VERIFY ALL EXISTING PIPING SYSTEMS TO REMAIN ARE INSULATED WITH VAPOR BARRIER INTACT. IF ANY PORTION OF THE PIPING SYSTEM IS MISSING INSULATION OR DETERMINED DURING ANY PHASE OF THE PROJECT AS DEFECTIVE, THAT PORTION SHALL BE PROVIDED WITH NEW INSULATION. MINOR TEARS ON EXISTING PIPING MAY BE REPAIRED WITH TAPES, ADHESIVE, OR SEALANT. EXISTING PIPING SYSTEMS SHALL INCLUDE REFRIGERANT, AND A/C CONDENSATE DRAIN PIPING. THE MECHANICAL CONTRACTOR SHALL MAKE PROVISIONS IN THEIR BASE BID TO COVER ALL COSTS NECESSARY ACHIEVE A CONTINUOUS VAPOR BARRIER THROUGHOUT THESE EXISTING SYSTEMS. REFER TO SPECIFICATIONS SECTION 230700/ MECHANICAL GENERAL NOTES FOR INSULATION MATERIAL REQUIREMENTS.

7. DAMAGED DUCTWORK SHALL BE REPAIRED.

MECHANICAL DUCT SYMBOLS

	DESCRIPTION
16x8	SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
16/8	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
16"Ø	ROUND DUCT SIZE TAG (DIAMETER)
(EX)	EXISTING DUCT TAG (GRAY ON DEMO PLANS, OTHERWISE SAME SYSTEM COLOR, ONLY HALFTONE)
▨	DUCT BEING DEMOLISHED
S/A	SUPPLY AIR
O/A	OUTDOOR AIR
R/A	RETURN AIR
E/A	EXHAUST AIR
L/A	RELIEF AIR
T/A	TRANSFER AIR
☒	SUPPLY AIR DIFFUSER (4-WAY)
⧄	RETURN AIR GRILLE
⧅	EXHAUST AIR GRILLE
◕	POINT OF EXISTING TO NEW CONNECTION
◑	POINT OF DISCONNECT TO EXISTING CONNECTION
M.C.	MECHANICAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
N.I.C.	NOT IN CONTRACT
(EX)	EXISTING
AFF	ABOVE FINISHED FLOOR
DN	DOWN
UP	UP
X X	SECTION CUT REFERRING DETAIL NUMBER REFERRING SHEET NUMBER

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
ADD	ADDENDUM	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	ONE THOUSAND BTU PER HOUR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CFM	CUBIC FEET PER MINUTE	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NORMALLY OPEN
D	DEGREE	NTS	NOT TO SCALE
DB	DRY BULB	O/A	OUTSIDE AIR
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PSI	POUNDS PER SQUARE INCH
ELEC	ELECTRICAL	PSIG	POUNDS PER SQUARE INCH GAUGE
EQUIP	EQUIPMENT	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R/A	RETURN AIR
E/A	EXHAUST AIR	RH	RELATIVE HUMIDITY
EXIST	EXISTING	RL/A	RELIEF AIR
F	DEGREES FAHRENHEIT	RM	REMAIN
FD	FIRE DAMPER	RPM	REVOLUTIONS PER MINUTE
FL	FLOOR	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FT	FOOT/FEET	SF	SQUARE FOOT
GC	GENERAL CONTRACTOR	SD	SMOKE DAMPER
GPM	GALLONS PER MINUTE	SP	STATIC PRESSURE
HP	HORSE POWER	T	THERMOSTAT
HTG	HEATING	TD	TEMPERATURE DROP
HTR	HEATER	TEMP	TEMPERATURE
HW	HOT WATER	TYP	TYPICAL
IN	INCH	VAV	VARIABLE AIR VOLUME
LB	POUND	VENT	VENTILATION
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE		

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - MECHANICAL SUMMARY

C401 METHOD OF COMPLIANCE

- ■ 2018 NCECC CHAPTER 4
- ☐ ASHRAE 90.1-2013 PRESCRIPTIVE
- ☐ ASHRAE 90.1-2013 PERFORMANCE
- ☐ N/A (EXISTING LIGHTING, HVAC, AND DOM. WATER HEATING SYSTEMS TO REMAIN)
- ☐ COMCHECK PROVIDED (2018 NCECC)
- ☐ COMCHECK PROVIDED (90.1-2013)
- ☐ ENERGY MODELING DATA PROVIDED

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.2 EFFICIENT MECH EQUIPMENT
- ■ C406.3 REDUCED LTG DENSITY
- ☐ C406.4 ENHANCED LTG CONTROLS
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ☐ C406.6 DEDICATED OA SYSTEM
- ☐ C406.7 SERVICE WATER HEATING

C301 CLIMATE ZONE

4A - WAKE COUNTY, NC

DESIGN CONDITIONS

EXTERIOR (ASHRAE 90.1-2013 TABLE D-1)

winter dry bulb	18° F.
summer dry bulb	91° F.
summer wet bulb	74° F.

INTERIOR (2018 NCECC SECTION C302.1)

winter dry bulb	72° F.
summer dry bulb	75° F.

C403.2 HEATING & COOLING LOADS AND EQUIPMENT & SYSTEM SIZING

BUILDING HEATING LOAD	NO CHANGE
BUILDING COOLING LOAD	NO CHANGE
INSTALLED HEATING CAPACITY	143,000 BTUH
INSTALLED COOLING CAPACITY	150,500 BTUH

C403.2.3 & C406.2 - REQUIRED & INCREASED HVAC EQUIPMENT PERFORMANCE

SYSTEM DESCRIPTION - EXISTING DX SPLIT SYSTEM WITH GAS HEAT TO BE REPLACED WITH NEW DX SPLIT SYSTEM WITH ELECTRIC AUX. HEAT.

- ■ MINIMUM HVAC EQUIP EFFICIENCY COMPLIANCE - TABLE C403.2.3
- ☐ INCREASED HVAC EQUIP EFFICIENCY COMPLIANCE - 10% OVER TABLE C403.2.3

EQUIP TYPE	SIZE CATEGORY (BTUH)	SUBCATEGORY	C403.2.3 MINIMUM EFFICIENCY (a)	10% INCREASED EFF. (a)	DESIGN EFFIC.
TABLE C403.2.3(1) - UNITARY AIR CONDITIONERS AND CONDENSING UNITS					
AIR COOLED COOL MODE	< 65,000 (<= 5 TONS)	SPLIT SYSTEM & SINGLE PACKAGE	14.0 SEER	15.4 SEER	SEE SCHEDULE
AIR COOLED HEAT MODE	< 65,000 (<= 5 TONS)	SPLIT SYSTEM & SINGLE PACKAGE	8.2 HSPF	9.0 HSPF	SEE SCHEDULE

C403.2.4 THRU C403.2.11

- ■ HVAC SYSTEMS ARE FULLY COMPLIANT WITH THE REQUIREMENTS FOR HVAC SYSTEM CONTROL, VENTILATION, ENERGY RECOVERY, DUCT AND PLENUM INSULATION AND SEALING, PIPING INSULATION, AND SYSTEM COMPLETION.

C403.2.12 - AIR SYSTEM DESIGN AND CONTROL

- ■ ALL FANS INSTALLED ON THE PROJECT ARE 5 HP OR LESS AND ARE EXEMPT FROM THESE REQUIREMENTS.
- ☐ FANS ABOVE 5 HP MEET THE CFM LIMITATIONS SHOWN BELOW:

C405.8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS).

- ■ ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE.

C408 - SYSTEM COMMISSIONING

- ■ PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ☐ PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

MECHANICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.

2. ALL EQUIPMENT LISTED IN PROJECT SCHEDULES IS TO BE CONSIDERED DESIGN BASIS EQUIPMENT. ALL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THIS INCLUDES ANY MODIFICATIONS TO ANY ASSOCIATED MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS REQUIRED BY THIS SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS.

3. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS. ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 2" THICK DUCT WRAP WITH VAPOR BARRIER. INSULATION (INCLUDING FLEXIBLE DUCT INSULATION) SHALL HAVE A MINIMUM INSTALLED R-VALUE OF 6.0. TRANSFER DUCTS SHALL BE LINED WITH 1" THICK FIBERGLASS DUCT LINER FOR ACOUSTICAL PURPOSES. DUCT DIMENSIONS ON PLANS ARE FREE AREA SIZE.

4. ALL DUCTWORK SHALL BE SEALED PER THE REQUIREMENTS OF THE NORTH CAROLINA MECHANICAL CODE. SEAL LOW PRESSURE SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK FOR POSITIVE/NEGATIVE 2" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 4.

5. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.

6. UPON PROJECT COMPLETION, THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE OWNER INSTALLATION INFORMATION INCLUDING RECORD SUBMITTALS (WITH ANY SUBMITTAL REVIEW COMMENTS ADDRESSED) AND O&M MANUALS FOR EACH PIECE OF EQUIPMENT INCLUDING ALL SELECTED OPTIONS, THE NAME AND ADDRESS OF AT LEAST ONE SERVICE AGENCY, FULL CONTROL SYSTEM O&M AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, FULL SEQUENCE OF OPERATION, AND PROGRAMMED SETPOINTS.

7. PROVIDE A ONE YEAR WARRANTY FOR ALL WORK PERFORMED BEGINNING ON THE DAY THE SYSTEM IS COMPLETELY OPERATIONAL AND ACCEPTABLE BY THE OWNER.

8. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE AND FILTER REMOVAL.

9. CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED. CONDENSATE DRAINS SHALL BE INSULATED WITH 1/2" THICK ARMAFLEX INSULATION. MINIMUM DRAIN SIZE SHALL BE 3/4". TERMINATE ROOFTOP UNIT DRAINS ON A CONCRETE SPLASHBLOCK.

10. ALL REFRIGERANT PIPE SHALL BE NITROGENIZED ACR COPPER TUBE. SIZE, INSULATE, AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. REFRIGERANT PIPING INSULATION EXPOSED OUTDOORS SHALL BE COVERED WITH AN OUTER ALUMINUM JACKET.

11. ANY DEVICE REQUIRING A THERMOSTAT FOR CONTROL SHALL BE FURNISHED WITH A THERMOSTAT WHETHER INDICATED ON THE DRAWINGS OR NOT.

12. INSTALL THE TOP OF ALL THERMOSTATS, SENSORS, AND SWITCHES AT 4'-0" (MAXIMUM) ABOVE FINISH FLOOR. COORDINATE EXACT THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLATION. ANY DEVICE ON A PERIMETER WALL SHALL BE MOUNTED ON A FOAM-FILLED ELECTRICAL BOX, WITH ALL GAPS BETWEEN BOX AND WALL SEALED TO PREVENT INFILTRATION.

13. CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION. NEW ROOF PENETRATIONS MADE THROUGH EXISTING ROOF SYSTEMS SHALL BE VERIFIED WITH THE OWNER'S EXISTING ROOF WARRANTY PRIOR TO INSTALLATION.

14. CONTRACTOR SHALL LOCATE EXHAUST FANS, OUTLETS, AND GAS FLUES A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.

15. PROVIDE UNIONS, FLANGES OR COUPLINGS AT CONNECTION TO ALL VALVES AND EQUIPMENT. DO NOT USE DIRECT WELDED OR THREADED CONNECTIONS TO VALVES, EQUIPMENT OR OTHER APPARATUS.

16. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.

17. ALL ISOLATION VALVES, CONTROLS, ETC. REQUIRING ACCESS AND SERVICE SHALL BE INSTALLED WITHIN 18" OF THE CEILING FOR SERVICE ACCESSIBILITY. LOCATIONS SHALL BE INDICATED ON THE CEILING GRID PER THE SPECIFICATIONS.

18. EQUIPMENT OPERATED DURING CONSTRUCTION SHALL USE FILTERED MEDIA TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING COILS, DUCTWORK SYSTEMS, AIR TERMINALS ETC. AT COMPLETION OF CONSTRUCTION, MECHANICAL CONTRACTOR SHALL CLEAN ALL SYSTEMS WITH ALL CONTROL DEVICES WIDE OPEN AND REMOVE ANY REMAINING DEBRIS PRIOR TO TEST AND BALANCING. MECHANICAL CONTRACTOR SHALL REPLACE ALL FILTRATION WITH NEW FILTERS AT COMPLETION OF CONSTRUCTION. ANY DUCTWORK, AIR TERMINALS, AND/OR OTHER EQUIPMENT UPSTREAM OF FILTRATION SHALL BE CLEANED THOROUGHLY OF CONSTRUCTION DEBRIS BEFORE HANDING OVER TO OWNER.

19. ALL MECHANICAL EQUIPMENT SHALL BE U.L. LISTED AND LABELED AS A COMPLETE PACKAGE, NOT THROUGH INDIVIDUAL COMPONENTS OR PARTS. PROVIDE REQUIRED 3RD PARTY FIELD UL LISTING SERVICES AS REQUIRED TO COMPLY.

20. COMMERCIAL DRYER EXHAUST DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL NOT LESS THAN 0.0195 INCHES THICK. EXHAUST DUCT SHALL BE ASSEMBLED WITH SMOOTH INTERIOR SURFACE SO THAT THE JOINTS DO NOT PERMIT THE ACCUMULATION OF LINT, DO NOT USE SHEET METAL SCREWS AT JOINTS. ALL 90° TURN SHALL HAVE LONG RADIUS ELBOWS. ALL DUCTWORK SHALL BE INSTALLED PER THE DRYER MANUFACTURER'S RECOMMENDATIONS. COMMERCIAL DRYER EXHAUST DUCTWORK SHALL BE WRAPPED WITH TWO LAYERS OF 1½" THICK THERMAL INSULATION BLANKET AS MANUFACTURED BY FIREMASTER (OR EQUAL) IF WITHIN 6" OF COMBUSTIBLE MATERIAL. INSULATION SHALL BE INSTALLED PER NFPA-96 AND IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS TO OBTAIN A 2-HOUR RATED ASSEMBLY. ASSEMBLY SHALL BE U.L. APPROVED.

21. COMMERCIAL DRYER WALL VENT SHALL COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SHALL BE PROVIDED WITH A BACKDRAFT DAMPER IF ALLOWED BY MANUFACTURER.

EXHAUST FAN SCHEDULE

SYMBOL	LOCATION	MANUFACTURER	MODEL NO.	TYPE	CFM	APPROX. ESP	DRIVE TYPE	FAN RPM	SONES	ELECTRICAL DATA WATTS	H.P.	VOLTAGE-PHASEØ	ACCESSORIES	CONTROL TYPE
EF-01	BATHROOM 26	GREENHECK	SP-A200	EXHAUST	175	0.250	DIRECT	852	3	40	■	115 V-1Ø	A,B,F,G,O	2
EF-02	MEP 29	GREENHECK	SP-B80	EXHAUST	45	0.250	DIRECT	899	1.8	20	■	115 V-1Ø	A,B,F,G,O	8
EF-03	BATHROOM 24	GREENHECK	SP-A200	EXHAUST	175	0.250	DIRECT	852	3	40	■	115 V-1Ø	A,B,F,G,O	2
EF-04	TOILET 48	GREENHECK	G-060-E	EXHAUST	75	0.250	DIRECT	1500	3.3	■	0.07	115 V-1Ø	A,B,W,E	2

EXHAUST FAN SCHEDULE ACCESSORIES:

A. DISCONNECT SWITCH
B. GRAVITY BACKDRAFT DAMPER
C. MOTORIZED BACKDRAFT DAMPER
D. PREFAB, ROOF CURB
E. BIRDSCREEN
F. ACOUSTICAL LINING
G. HANGING BRACKETS WITH VIBRATION ISOLATION
H. WL, WALL LOUVER DISCHARGE
I. RCC OR GRS ROOF CAP (FLAT ROOF) OR RJ ROOF CAP (PITCHED ROOF)
J. WALL MOUNTING COLLAR
K. INLET GAURD
M. 2" WASHABLE ALUMINUM FILTERS
N. MOTORSIDE FAN GUARD
O. EXHAUST GRILLE
P. U.L. 762
Q. VENTED ROOF CURB EXTENSION
R. COMBINATION KITCHEN HOOD FAN CURB
S. INTERLOCK WITH FUME HOOD
T. PROVIDE DRAIN PLUG ACCESSORY
U. ROOF SUPPORT RAILS
V. VFD
W. ADAPTER FOR EXISTING CURB

EXHAUST FAN SCHEDULE CONTROLS:

1. WALL MOUNTED THERMOSTAT (REVERSE ACTING, SET FOR 80°)
2. INTERLOCK WITH ROOM LIGHT SWITCH (FAN SHALL OPERATE WHEN LIGHT IS ON IF ANY ROOM IS SERVED BY FAN). INSTALLED BY E.C.
3. WALL MOUNTED ON/OFF SWITCH WITH IDENTIFICATION LABEL
4. WALL MOUNTED MUSHROOM PUSH BUTTON SWITCH/STARTER WITH IDENTIFICATION LABEL
5. CONTROLLED BY BUILDING AUTOMATION SYSTEM
6. CONTINUOUS OPERATION
7. CONTROLLED BY THE FACP AND FIREMAN'S MANUAL OVER-RIDE CONTROL PANEL IN FIRE COMMAND ROOM. NO MECHANICAL CONTROL POINTS REQUIRED BY M.C. FOR SMOKE CONTROL FANS
8. PROVIDE LINE VOTLAGE WALL MOUNTED TWIST TIMER (0-30 MINUTE RANGE) WITH IDENTIFICATION LABEL. INSTALLED BY E.C.

EXHAUST FAN SCHEDULE NOTES:

1. ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW. ALL FANS INSTALLED INSIDE, ABOVE, OR ADJACENT TO OCCUPIED SPACES SHALL HAVE A MAXIMUM 9.0 INLET SONE LEVEL.
2. ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
3. MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
4. PROVIDE ALL DIRECT DRIVE FANS WITH SPEED CONTROLLERS.

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EWH	ELECTRIC WATER HEATER
ACC	AIR COOLED CONDENSER	FCU	FAN COIL UNIT
ACCU	AIR COOLING CONDENSING UNIT	FP	FIRE PUMP
AHU	AIR HANDLING UNIT	GI	GREASE INTERCEPTOR
AS	AIR SEPARATOR	GRV	GRAVITY ROOF VENTILATOR
B	BOILER	HWP	HEATING WATER PUMP
CH	CHILLER	HX	HEAT EXCHANGER
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	PRV	POWER ROOF VENTILATOR
CWP	CONDENSER WATER PUMP	RE	RETURN/EXHAUST FAN
CHWP	CHILLED WATER PUMP	RTU	ROOFTOP UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER
ET	EXPANSION TANK		

2018 NCMC VENTILATION RATE SUMMARY

LOCATION NO.	NAME	Occupancy Category	Area, Az	Number of People, Pz	Outdoor Airflow Rate Per Person, Rp	Outdoor Airflow Rate Per Unit Area, Ra	Breathing Zone Outdoor Airflow, Voz	Zone Air Distribution Effectiveness, Ez	Required Outdoor Air Intake Flow, Vot
109	RESIDENT ROOM 5	Bedroom/living room	147.48 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	17 CFM
108	RESIDENT ROOM 4	Bedroom/living room	147.50 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	17 CFM
107	RESIDENT ROOM 3	Bedroom/living room	151.12 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	18 CFM
106	RESIDENT ROOM 2	Bedroom/living room	151.12 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	18 CFM
104	RESIDENT ROOM 1	Bedroom/living room	145.51 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	17 CFM
110	CORRIDOR	Corridors	338.43 SF	0	0.0 CFM	0.06 CFM/SF	20 CFM	0.8	25 CFM
59	CORRIDOR	Corridors	73.29 SF	0	0.0 CFM	0.06 CFM/SF	4 CFM	0.8	5 CFM
IDU-1			1,154.43 SF	5					118 CFM
115	RESIDENT ROOM 7	Bedroom/living room	147.50 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	17 CFM
114	RESIDENT ROOM 6	Bedroom/living room	147.48 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	17 CFM
116	RESIDENT ROOM 8	Bedroom/living room	151.12 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	18 CFM
117	RESIDENT ROOM 9	Bedroom/living room	151.12 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	18 CFM
119	RESIDENT ROOM 10	Bedroom/living room	155.77 SF	1	5.0 CFM	0.06 CFM/SF	14 CFM	0.8	18 CFM
120	CORRIDOR	Corridors	338.03 SF	0	0.0 CFM	0.06 CFM/SF	20 CFM	0.8	25 CFM
60	CORRIDOR	Corridors	73.66 SF	0	0.0 CFM	0.06 CFM/SF	4 CFM	0.8	6 CFM
IDU-2			1,164.67 SF	5					119 CFM
112	MEP	Electrical equipment rooms	72.68 SF	0	0.0 CFM	0.06 CFM/SF	4 CFM	0.8	5 CFM
122	HUDDLE ROOM	Conference/meeting	119.68 SF	4	5.0 CFM	0.06 CFM/SF	27 CFM	0.8	34 CFM
103	STORAGE	Occupiable storage rooms for liquids or gels	82.63 SF	0	0.0 CFM	0.06 CFM/SF	5 CFM	0.8	6 CFM
102	LAUNDRY	Laundry rooms within dwelling units	147.57 SF	0	5.0 CFM	0.12 CFM/SF	18 CFM	0.8	22 CFM
101	LIVING ROOM	Bedroom/living room	895.17 SF	10	5.0 CFM	0.06 CFM/SF	104 CFM	0.8	130 CFM
121	SOCIAL ACTIVITY KITCHEN	Kitchen (cooking)	377.39 SF	2	7.5 CFM	0.12 CFM/SF	60 CFM	0.8	75 CFM
111	NURSE WORK	Office space	131.60 SF	3	5.0 CFM	0.06 CFM/SF	23 CFM	0.8	29 CFM
IDU-3			1,826.72 SF	19					301 CFM

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

SYMBOL	DESCRIPTION	MANUF.	MODEL	NECK WIDTH	NECK HEIGHT	NOTES
A	DBL DEFLECTION LOUVERED GRILLE	PRICE	520	(SEE PLANS FOR SIZE AND CFM)		SUPPLY
B	FILTER FRAME LOUVERED GRILLE	PRICE	530FF	(SEE PLANS FOR SIZE AND CFM)		RETURN/EXHAUST
C	LOUVERED GRILLE	PRICE	530	(SEE PLANS FOR SIZE AND CFM)		RETURN/EXHAUST

AIR DISTRIBUTION SCHEDULE NOTES:

1. ALL DEVICES SHALL BE FURNISHED WITH FRAMES SUITABLE FOR THE TYPE OF INSTALLATION REQUIRED.
2. ALL DOUBLE DEFLECTION SUPPLY GRILLES SHALL HAVE DAMPER BLADES ADJUSTED TO PROVIDE AIRFLOW PATTERN INDICATED BY FLOW ARROWS ON PLANS. DAMPERS SHALL BE ADJUSTED TO A 30 DEGREE POSITION UNLESS NOTED OTHERWISE ON PLANS.
3. RETURN GRILLES 530FF SHALL BE PROVIDED WITH MERV8 FILTERS ONLY.

INDOOR UNIT SCHEDULE

SYMBOL	CFM	NOMINAL TONNAGE	O.A. CFM	E.S.P.	COOLING CAPACITY TC (BTUH)	COOLING CAPACITY SHC (BTUH)	HEATING CAPACITY (BTUH)	ELECTRIC HEAT ELECTRIC HEATER MODEL	KW	STAGES	ELECTRICAL DATA MCA	MOCP	VOLTAGE	PH	MANUFACTURER	REFRIGERANT TYPE	MODEL
IDU-1	1500	4	120	0.50	47500	36700	44000	BAYHTR3510LUG	7.20	1	33.0	35.0	208 V	3	TRANE	R-410	TEM6A0C48H41SC
IDU-2	1500	4	120	0.50	47500	36700	44000	BAYHTR3510LUG	7.20	1	33.0	35.0	208 V	3	TRANE	R-410	TEM6A0C48H41SC
IDU-3	1800	5	310	0.50	55500	40700	55000	BAYHTR3510LUG	7.20	1	33.0	35.0	208 V	3	TRANE	R-410	TEM6B0C60H51

NOTES:

1. COOLING CAPACITY BASED ON 80°/67° ENTERING AIR.
2. PROVIDE UNITS WITH: ELECTRONIC 7-DAY PROGRAMMABLE THERMOSTAT, FIELD INSTALLED HEATER, U.L. LABEL, SINGLE POINT ELECTRICAL CONNECTION, 1-INCH INSULATION, DYNAMIC AIR ACTIVE FILTER.
3. SEQUENCE OF OPERATION: UNIT SHALL BE CONTROLLED BY ITS ELECTRONIC 7-DAY PROGRAMMABLE THERMOSTAT. UNIT SUPPLY FAN SHALL RUN CONTINUOUSLY IN THE OCCUPIED MODE, CYCLE WITH HEATING AND COOLING WHILE UNOCCUPIED. UPON A RISE IN SPACE TEMPERATURE, UNIT COMPRESSOR AND CONDENSER FAN SHALL ACTIVATE TO SATISFY SPACE. UPON A DROP IN SPACE TEMPERATURE, UNIT COMPRESSOR SHALL ACTIVATE IN REVERSE CYCLE FOR HEATING. UPON A FURTHER DROP IN SPACE TEMPERATURE, ELECTRIC HEAT SHALL BE ENERGIZED TO SATISFY SPACE TEMPERATURE. THERMOSTATS SHALL PROVIDE A DEADBAND OF 5°, WITHIN WHICH THE SUPPLY OF HEATING OR COOLING ENERGY TO THE ZONE CAN BE REDUCED TO THE MINIMUM. THERMOSTATS SHALL BE SET FOR OCCUPIED COOLING 75°, OCCUPIED HEATING 70°, UNOCCUPIED COOLING 85°, UNOCCUPIED HEATING 55°. ALL TIME AND TEMPERATURE SETPOINTS SHALL BE VERIFIED BY THE OWNER PRIOR TO PROGRAMMING. THERMOSTATS SHALL BE PROGRAMMED BY MECHANICAL CONTRACTOR IN THE PRESENCE OF OWNER'S REPRESENTATIVE PRIOR TO PROJECT COMPLETION.
4. PROVIDE IDU-3 ONLY WITH AN IONIZATION TYPE SMOKE DETECTOR, INSTALLED IN THE RETURN DUCT WIRED TO SHUT DOWN THE UNIT UPON ACTIVATION. SMOKE DETECTOR SHALL BE SUPPLIED, WIRED FOR INTERFACE WITH FIRE ALARM SYSTEM AND UNIT SHUTDOWN BY THE ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN DUCT BY THE MECHANICAL CONTRACTOR.
5. IDU-3 SHALL BE PROVIDED WITH A MOTORIZED OA DAMPER AND CO2 SENSOR LOCATED IN THE LIVING/DINING AREA FOR DEMAND-CONTROL VENTILATION. CONTRACTOR SHALL BALANCE OA DAMPER TO OPEN TO A LOW AIRFLOW OCCUPIED SETTING (180 CFM) WITH DAMPER OPENING LINEARLY TO MAXIMUM SETPOINT NOTED IN THE SCHEDULE ABOVE UPON DETECTION OF 600 PPM CO2 IN THE SPACE. UPON REDUCTION OF CO2 CONCENTRATION BELOW THRESHOLD, DAMPER SHALL RESET BACK TO LOW AIRFLOW SETPONIT. DAMPER SHALL BE INTERLOCKED WITH UNIT SUPPLY FAN TO SHUT UPON UNIT DEACTIVATING.

HEAT PUMP SCHEDULE

SYMBOL	NOMINAL TONNAGE	COOLING COIL TC (BTUH)	COOLING COIL SHC (BTUH)	COIL HEATING CAPACITY (BTUH)	EFFICIENCY SEER	EER	COP	HSPF	ELECTRICAL DATA MCA	MOCP	VOLTAGE	PH	WEIGHT	MANUFACTURER (TRANE) MODEL
HP-1	4.0	47500	36700	44000	14.7	12.4	4	8.7	26.0	40.0	208 V	1	250 lb	4TWR4048N1000A
HP-2	4.0	55500	40700	44000	14.7	12.4	4	8.7	26.0	40.0	208 V	1	250 lb	4TWR4048N1000A
HP-3	5.0	55500	40700	55000	14.7	12.4	3.9	8.7	32.0	50.0	208 V	1	251 lb	4TWR4060N1000A

NOTES:

1. COOLING CAPACITY @ 95 AMBIENT.
2. ALL UNITS SHALL BE U.L. LISTED.
3. HEAT PUMP SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL BE PROVIDED WITH CONTROLS TO PREVENT OPERATION WHEN THE REVERSE CYCLE HEAT CAN MEET HEATING LOAD. SUPPLEMENTAL ELECTRIC HEAT SHALL BE ALLOWED TO OPERATE DURING HEAT PUMP DEFROST CYCLE. SUPPLEMENTAL ELECTRIC HEAT SHALL BE LOCKED OUT WHEN THE OUTDOOR TEMPERATURE IS BETWEEN 35°F AND 40°F AND THE INDOOR TEMPERATURE SETPOINT IS INCREASED.
4. MOUNT UNITS ON A 4" THICK CONCRETE PAD AND PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNITS.
5. PROVIDE UNITS WITH CONDENSER COIL HAIL GUARDS AND LOW AMBIENT CONTROLS.

REFRIGERANT PHASE OUT - ALTERNATE

EQUIPMENT USING REFRIGERANT R410A IS BEING PHASED OUT DUE TO ENVIRONMENTAL PROJECTION AGENCY REGULATIONS. REFRIGERANT R454B IS BEING UTILIZED BY MOST MANUFACTURERS MOVING FORWARD. EQUIPMENT SELECTIONS HAVE NOT BEEN AVAILABLE UNTIL RECENTLY. ALL EQUIPMENT BIDS SHALL CLEARLY INDICATE WHICH REFRIGERANT IS BASE BID, AND SHALL PROVIDE AN ALTERNATE FOR EQUAL EQUIPMENT UTILIZING R454B EQUIPMENT.

MECHANICAL SHEET INDEX

M001	MECHANICAL LEGEND, NOTES, AND SCHEDULES
M101	MECHANICAL PLANS
M102	MECHANICAL ROOF PLAN
M502	MECHANICAL DETAILS

BSA
BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

SEAL 045488
EVAN C. CONNELL
11/11/24

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

MARK	DATE	DESCRIPTION

MECHANICAL LEGEND, NOTES, AND SCHEDULES

DATE	11/11/24
BSALS PROJECT NO.	21950006

M001

OPTIMA# 24-0146R

Sheet No. 1 of 4

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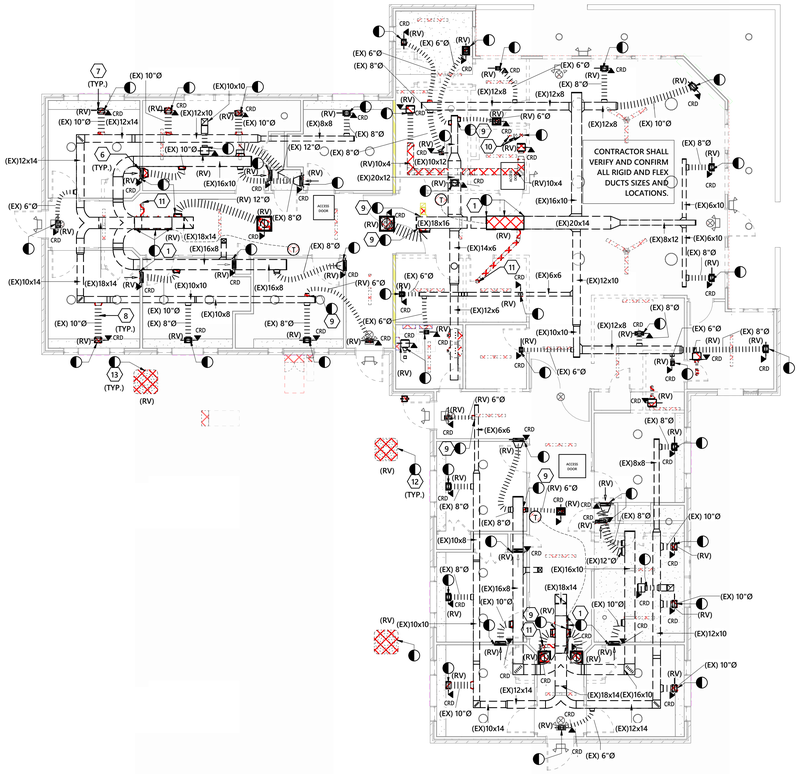
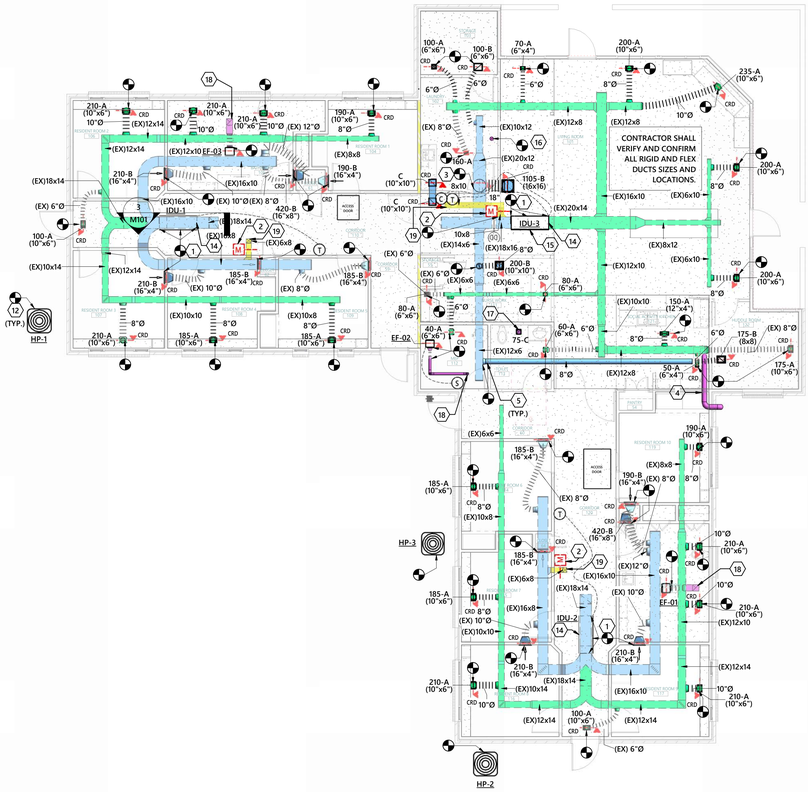
KEYNOTE LEGEND

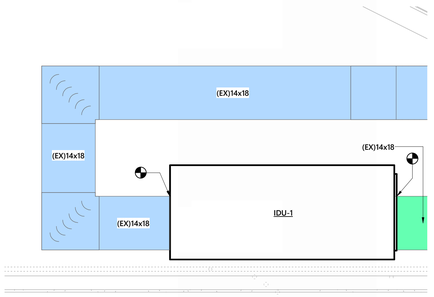
1	CONTRACTOR SHALL DISCONNECT EXISTING INDOOR UNITS FROM THE EXISTING REFRIGERANT PIPING. CONTRACTOR SHALL DEMOLISH ALL EXISTING REFRIGERANT PIPING AND INSTALL NEW PIPING THAT IS COMPATIBLE WITH THE NEW UNITS. CONTRACTOR SHALL PROVIDE NEW INSULATION FOR THE REFRIGERANT PIPING.
2	PROVIDE MOTORIZED DAMPER AND BALANCE IT TO AIRFLOW NOTED IN SCHEDULES.
3	CONTRACTOR SHALL ENLARGE EXISTING OPENING TO ACCOMMODATE THE NEW FLEX DUCT SIZE AND ASSOCIATED AIRFLOW.
4	CONTRACTOR TO ROUTE 6" EXHAUST DUCT FROM EYEBROW STYLE WALL CAP (WITH BACKDRAFT DAMPER) TO DOMESTIC LEVEL RANGE HOOD (BY G.C.). CONTRACTOR SHALL COORDINATE HOOD TRANSITION DIMENSIONS AND LOCATION FOR FINAL CONNECTION. COORDINATE ALL WALL CAP FINISH COLORS AND ELEVATIONS WITH ARCHITECT PRIOR TO ROUGH IN.
5	DUCTWORK AND PIPING ROUTED IN THE ATTIC SHALL BE COORDINATED WITH STRUCTURE AND OTHER TRADES TO PREVENT CONFLICTS. ALL DUCTWORK SHALL BE INSULATED TO R-8 WITH FULLY SEALED VAPOR BARRIER. ALL PENETRATIONS THROUGH CEILING SHALL BE FULLY SEALED AIRTIGHT PRIOR TO CONCEALMENT WITH BLOW IN ATTIC INSULATION.
6	CONTRACTOR SHALL VERIFY AND CONFIRM THE LOCATIONS OF ALL EXISTING RETURN GRILLES IN THE BUILDING. CONTRACTOR SHALL CONFIRM THE SIZES OF ALL RETURN GRILLES AND REPLACE THEM WITH PRICE 530FF OF THE SAME SIZE UNLESS OTHERWISE NOTED.
7	CONTRACTOR SHALL VERIFY AND CONFIRM THE LOCATIONS OF ALL EXISTING SUPPLY GRILLES IN THE BUILDING. CONTRACTOR SHALL CONFIRM THE SIZES OF ALL SUPPLY GRILLES AND REPLACE THEM WITH PRICE 520 OF THE SAME SIZE UNLESS OTHERWISE NOTED.
8	FLEX DUCTS CAN BE REUSED IF IN GOOD CONDITION.
9	EXISTING DUCTWORK TO BE SEALED AIR-TIGHT AT POINT OF DISCONNECTION.
10	CONTRACTOR SHALL DEMOLISH THE THREE DRYER DUCTS DOWN TO THE DRYER. CONTRACTOR SHALL REPAIR THE ROOF OPENING WATER TIGHT AND INSULATE TO A LIKE NEW CONDITION.
11	CONTRACTOR IS TO DEMOLISH THE DUCTWORK OF THE FLUE GAS RELIEF HOOD AND THE MAKE-UP OUTSIDE AIR INTAKE HOOD DOWN TO THE UNIT AND CAP AIR TIGHT.
12	CONTRACTOR SHALL DISCONNECT EXISTING OUTDOOR UNITS FROM THE EXISTING REFRIGERANT PIPING. CONTRACTOR SHALL DEMOLISH ALL EXISTING REFRIGERANT PIPING AND INSTALL NEW PIPING THAT IS COMPATIBLE WITH THE NEW UNITS. CONTRACTOR SHALL PROVIDE NEW INSULATION FOR THE REFRIGERANT PIPING.
13	DEMOLISH EXISTING PADS AND CREATE NEW ONES FOR THE NEW HEAT PUMPS AT THE LOCATIONS SHOWN ON THE PLANS.
14	PROVIDE ELECTROSTATIC AIR CLEANING FILTER SIMILAR TO DYNAMIC MODEL DYN.
15	PROVIDE FULL SIZE DRAIN WITH TRAP. TERMINATE ON A SPLASH BLOCK ON THE EXTERIOR.
16	8" COMMERCIAL DRYER EXHAUST DUCT ROUTED TO ROOF. CONTRACTOR TO FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR TERMINATION AND ROUTING REQUIREMENTS. FIRE WRAP AND CLEAN-OUT REQUIRED FROM RATED CEILING ASSEMBLY DOWN TO DRYER.
17	UP TO EF-04.
18	UP TO RELIEF HOOD ON ROOF.
19	UP TO INTAKE HOOD ON ROOF.



1 MECHANICAL PLAN - DEMOLITION
1/8" = 1'-0"



2 MECHANICAL PLAN - NEW WORK
1/8" = 1'-0"



3 IDU-1 ELEVATION (TYPICAL IDU-2)
NOT TO SCALE

WALL RATINGS

SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT

BSA LifeStructures
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optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045488 ERWIN C. CONNELL
11/11/24

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

MECHANICAL PLANS

DATE	11/11/24
BSALS PROJECT NO.	21950006

M101

OPTIMA# 24-0146R

Sheet No. 2 of 4

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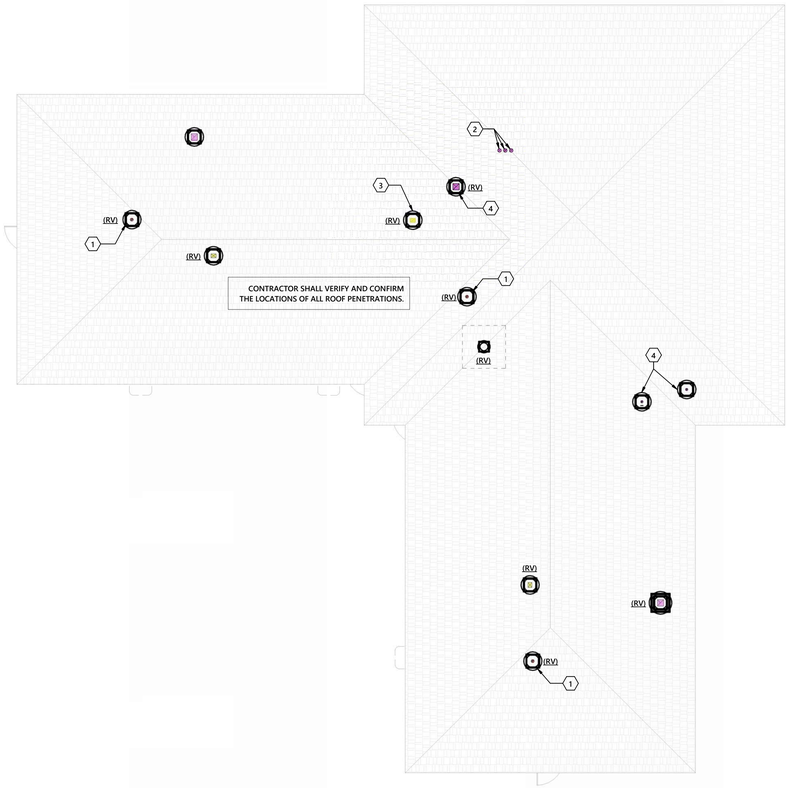
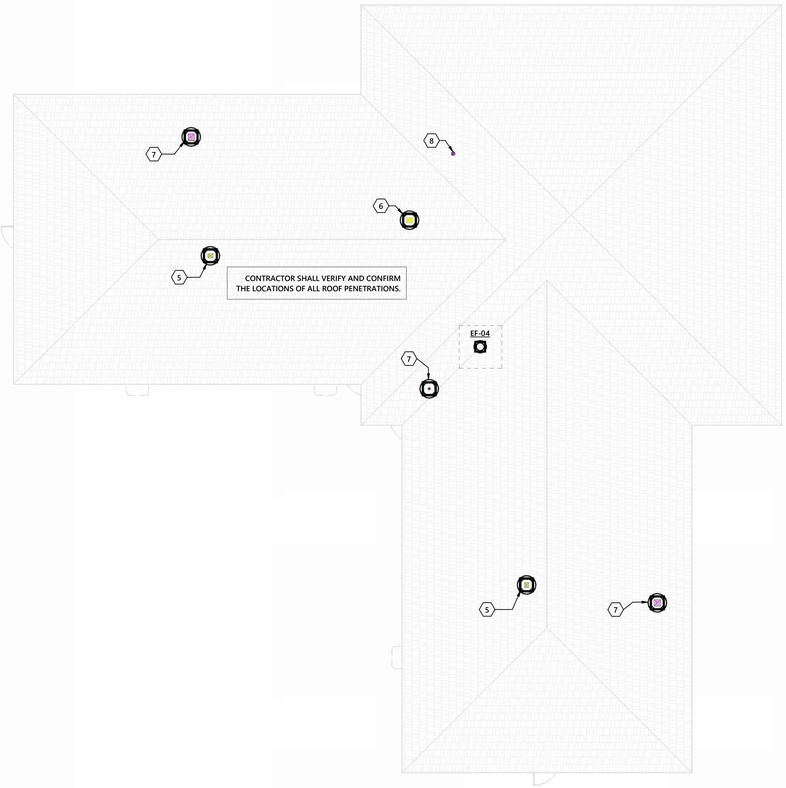
KEYNOTE LEGEND (#)

1	CONTRACTOR IS TO DEMOLISH THE DUCTWORK OF THE FLUE GAS RELIEF HOOD AND THE MAKE-UP OUTSIDE AIR INTAKE HOOD DOWN TO THE UNIT AND CAP AIR TIGHT.
2	CONTRACTOR SHALL DEMOLISH THE THREE DRYER DUCTS DOWN TO THE DRYER. CONTRACTOR SHALL REPAIR THE ROOF OPENING WATER TIGHT AND INSULATE TO A LIKE NEW CONDITION.
3	CONTRACTOR SHALL DEMOLISH THE OUTSIDE AIR INTAKE HOOD ALONG WITH ITS ASSOCIATED DUCT DOWN TO EXISTING UNIT IDU-3.
4	CONTRACTOR IS TO DEMOLISH THE DUCTWORK OF THE EXHAUST SYSTEM RELIEF HOOD DOWN TO THE FAN AND CAP AIR TIGHT.
5	GREENHECK GRSI-8 WITH BIRDSCREEN OR EQUAL WITH SLOPED ROOF CURB TO MATCH EXISTING ROOF.
6	GREENHECK GRSI-10 BIRDSCREEN OR EQUAL WITH SLOPED ROOF CURB TO MATCH EXISTING ROOF.
7	GREENHECK GRSR-8 BIRDSCREEN OR EQUAL WITH SLOPED ROOF CURB TO MATCH EXISTING ROOF.
8	8" COMMERCIAL DRYER EXHAUST DUCT ROUTED TO ROOF. CONTRACTOR TO FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR TERMINATION AND ROUTING REQUIREMENTS. FIRE WRAP AND CLEAN-OUT REQUIRED FROM RATED CEILING ASSEMBLY DOWN TO DRYER.



1 MECHANICAL ROOF PLAN - DEMOLITION
1/8" = 1'-0"



2 MECHANICAL ROOF PLAN - NEW WORK
1/8" = 1'-0"

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT

BSA LifeStructures
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Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 045488 ENGINEER KEVIN C. CONNELL
11/11/24

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

MECHANICAL ROOF PLAN

DATE	11/11/24
BSALS PROJECT NO.	21950006

M102

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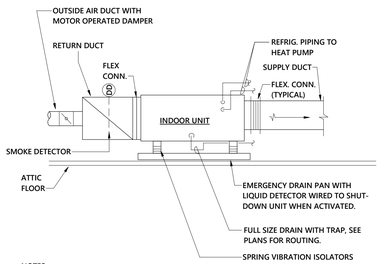
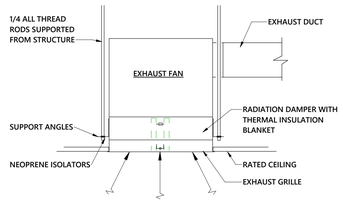
NOTE:
MECHANICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION OF INDOOR UNIT WITH DUCTWORK, PLUMBING, ELECTRICAL, ETC. TO MAINTAIN FILTER AND MAINTENANCE ACCESS CLEARANCES.



NOTES:
1. SMOKE DETECTOR SHALL BE IONIZATION TYPE WIRED TO SHUT DOWN UNIT WHEN ACTIVATED (MOUNT IN RETURN DUCT PRIOR TO O.A. CONNECTION).
2. ALLOW A MINIMUM OF 2'-0" FROM INDOOR UNIT BEFORE ADDING AN ELBOW.

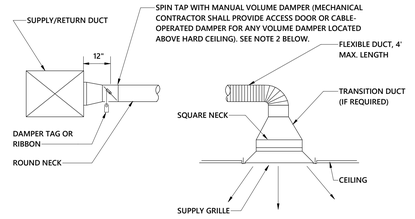
1 INDOOR UNIT DETAIL
NOT TO SCALE

NOTE:
MAINTAIN 2" CLEAR ABOVE FAN AND BELOW COMBUSTIBLE CONSTRUCTION OR PROVIDE 5/8" GYPSUM BOARD BETWEEN THE FAN AND THE STRUCTURE ABOVE.



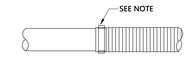
NOTE:
RADIATION DAMPER SHALL BE COMPLETE WITH THERMAL INSULATION BLANKET AND FUSIBLE LINK (160°) AND SHALL BE A U.L. LABELED ASSEMBLY WITH THE FAN.

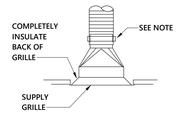
2 FAN - CEILING EXHAUST WITH RADIATION DAMPER
NOT TO SCALE



NOTE:
1. MANUAL VOLUME DAMPERS SHALL BE PROVIDED FOR ALL SUPPLY, RETURN AND GENERAL EXHAUST RUNOUTS.
2. ALL MANUAL VOLUME DAMPERS (FOR INSULATED DUCTWORKS) SHALL BE PROVIDED WITH AN ELEVATED REGULATOR (STAND-OFF) EQUAL TO DURO DYNE SEST SERIES AND FULL-LENGTH SHAFT. STAND SHALL EXTEND A MINIMUM OF 2" BEYOND DUCTWORK WITH EXTENDED TAB/SHAFT.
3. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR DESIRED DAMPER ACCESS STYLE CABLE-OPERATED DAMPER ADJUSTMENT SHALL BE THROUGH AIR TERMINAL. FACE OPERATION (CONCEALED MOUNTING) OR THROUGH CEILING-MOUNTED RECESSED PORTS EQUAL TO MAT RT-CCM.

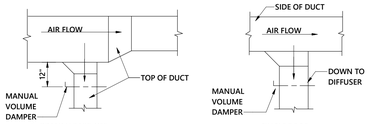
3 SPIN TAP TO ROUND NECK DIFFUSER
NOT TO SCALE

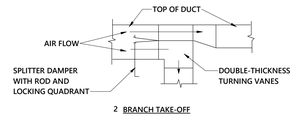




NOTE:
ALL FLEXIBLE DUCT CONNECTIONS TO SHEET METAL SHALL BE SECURED WITH APPROVED STRAP AND SEALANT.

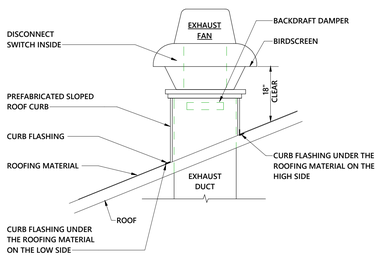
4 FLEX CONNECTION DETAIL
NOT TO SCALE



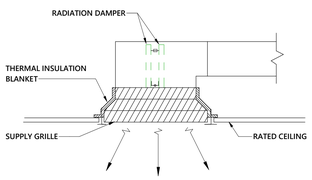


NOTE:
1. USE BRANCH TAKE-OFF (1) WHEN MAIN AND BRANCH DUCTS ARE DIFFERENT DEPTHS
2. USE BRANCH TAKE-OFF (2) WHEN MAIN AND BRANCH DUCTS ARE SAME DEPTHS
3. MANUAL VOLUME DAMPERS SHALL BE PROVIDED FOR ALL SUPPLY, RETURN AND GENERAL EXHAUST SINGLE DROP DUCT RUNS.

5 DUCTWORK DETAILS
NOT TO SCALE

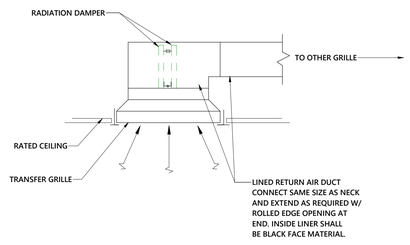


6 SLOPED ROOF EXHAUST FAN
NOT TO SCALE



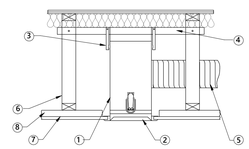
NOTE:
PROVIDE RADIATION INSULATION BLANKET ON TOP SIDE OF GRILLE AS REQUIRED TO MANITAIN RATING OF CEILING.

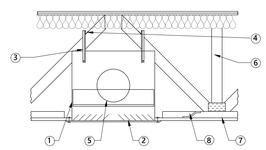
7 RATED CEILING GRILLE
NOT TO SCALE

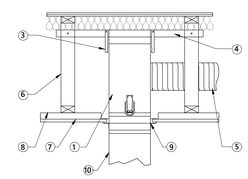


NOTE:
PROVIDE RADIATION INSULATION BLANKET ON TOP SIDE OF GRILLE AS REQUIRED TO MANITAIN RATING OF CEILING.

8 TRANSFER GRILLE W/SOUND ATTENUATION & RAD. DAMPER
NOT TO SCALE







1. DAMPER ASSEMBLY (CFD-521-ES STEEL PLENUM) (CFD-521-IP INSULATED PLENUM)
2. GRILLE (0.025 STEEL MIN)
3. 3/4" X 3/4" X 26 GA (16 x 16 x 0.55) OR 18 SWG STEEL WIRE (MIN)
4. 3/4" X 3/4" X 26 GA (16 x 16 x 0.55) OR 2" X 4" (51 x 102) WOOD STUD SUPPORT
5. FLEX DUCT UL CLASSIFIED AIR DUCT (CLASS 0 OR 1)
6. WOOD FRAMING MEMBER OR JOIST
7. 5/8" (16) GYPSUM WALLBOARD
8. RC-CHANNEL
9. 1" X 1" X 22 GA (25 X 25 X 0.85) RETAINING ANGLE (MIN)
10. AIR DUCT

TYPICAL INSTALLATION DETAILS FOR POTTORFF MODEL CFD-521-ES AND CFD-521-IP DAMPERS

NOTE:
1. RADIATION DAMPERS SHALL COMPLY WITH ARCHITECT'S UL ASSEMBLY ON SHEET A0.3 (UL PS22). ACCEPTABLE MODELS INCLUDE C&S AIR PRODUCT MODEL RD-521 AND POTTORFF MODEL CFD-521.

9 RATED CEILING DAMPER
NOT TO SCALE

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045488 KEVIN C. CONNELLY 11/11/24

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

MARK	DATE	DESCRIPTION

MECHANICAL DETAILS

DATE 11/11/24
BSALS PROJECT NO. 21950006

M502

OPTIMA# 24-0146R Sheet No. 4 of 4

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DESIGNED Dan
DRAWN Author
APPROVED Approver

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - ELECTRICAL SUMMARY

C401 METHOD OF COMPLIANCE

- ■ 2018 NCECC CHAPTER 4
- ☐ NC SPECIFIC COMCHECK PROVIDED
- ☐ N/A BASED ON PROJECT SCOPE
- ☐ ASHRAE 90.1-2013

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.2 EFFICIENT MECH EQUIPMENT
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ■ C406.3 REDUCED LTG DENSITY
- ☐ C406.6 DEDICATED OA SYSTEM
- ☐ C406.4 ENHANCED DIGITAL LTG CNTLS
- ☐ C406.7 HI-EFF SERVICE WTR HTG
- ☐ NOT APPLICABLE BASED ON PROJECT SCOPE
- ☐ C406.7.1 WTR HTG LOAD FRACTION

C405.2 - LIGHTING CONTROLS (MANDATORY REQUIREMENTS):

- ■ LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION C405.2, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C405.3 - EXIT SIGNS (MANDATORY REQUIREMENTS):

- ■ INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
- ☐ NOT APPLICABLE

C405.4 - INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON-EXEMPT):

- ☐ NOT APPLICABLE PER 2018 NCECC C503.1, EXCEPTION 2.G.

C405.4.1 - TOTAL CONNECTED INTERIOR LIGHTING POWER:

3,290 WATTS SPECIFIED

17 % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF C406.1.2 IS SELECTED)

C405.4.2 - TOTAL ALLOWABLE INTERIOR LIGHTING POWER:

METHOD OF COMPLIANCE:

- ■ BUILDING AREA METHOD
- ☐ SPACE-BY-SPACE METHOD

3,941 WATTS ALLOWED

C405.5.1 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT):

- ☐ NOT APPLICABLE

TOTAL CONNECTED EXTERIOR LIGHTING POWER:

332 WATTS SPECIFIED

TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:

1,130 WATTS ALLOWED

C405.6 - ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):

- ☐ SEPARATE ELECTRICAL METERING HAS BEEN PROVIDED FOR EACH DWELLING UNIT IN GROUP R-2 BUILDINGS.
- ■ NOT APPLICABLE

C405.7 - ELECTRICAL TRANSFORMERS (MANDATORY REQUIREMENTS):

- ☐ ELECTRICAL TRANSFORMERS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.7, EXCEPT WHERE EXEMPT.
- ■ NOT APPLICABLE

C405.8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS):

- ■ ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C408 - SYSTEM COMMISSIONING:

- ■ PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ☐ PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	DCP	DOMESTIC WATER CIRCULATING PUMP	HT	HEIGHT	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION	SWBD	SWITCHBOARD
A	AMPERE	DEPT	DEPARTMENT	HTG	HEATING			SYM	SYMMETRICAL
AC	ABOVE COUNTER OR AIR CONDITIONER	DET	DETAIL	HTR	HEATER			SYS	SYSTEM
		DIA	DIAMETER	HV	HIGH VOLTAGE	NFDS	NON-FUSED SAFETY DISCONNECT SWITCH	TEL	TELEPHONE
ACLG	ABOVE CEILING	DISC	DISCONNECT	HVAC	HEATING, VENTILATING AND AIR CONDITIONING			TEL/DATA	TELEPHONE/DATA
ADO	AUTOMATIC DOOR OPENER	DIST	DISTRIBUTION	HWP	HYDRONIC WATER PUMP	NIC	NOT IN CONTRACT	TERM	TERMINAL
AF	AMP FRAME	DN	DOWN			NL	NIGHT LIGHT	TL	TWIST LOCK
AFF	ABOVE FINISHED FLOOR	DPR	DAMPER	IC	INTERRUPTING CAPACITY	NPF	NORMAL POWER FACTOR	T-STAT	THERMOSTAT
AFG	ABOVE FINISHED GRADE	DS	SAFETY DISCONNECT SWITCH	IG	ISOLATED GROUND	NTS	NOT TO SCALE	TTC	TELEPHONE TERMINAL CABINET
AFI	ARC FAULT CIRCUIT INTERRUPTER	DT	DOUBLE THROW	IMC	INTERMEDIATE METAL CONDUIT				
		DWG	DRAWING	INCAND	INCANDESCENT	OH	OVERHEAD	TV	TELEVISION
AHU	AIR HANDLING UNIT			IR	INFRARED	OL	OVERLOADS	TVTC	TELEVISION TERMINAL CABINET
AL	ALUMINUM	EC	ELECTRICAL CONTRACTOR	I/W	INTERLOCK WITH				
ALT	ALTERNATE	ELEC	ELECTRIC, ELECTRICAL			PA	PUBLIC ADDRESS	TYP	TYPICAL
AMP	AMPERE	ELEV	ELEVATOR	J-BOX	JUNCTION BOX	PB	PULL BOX OR PUSHBUTTON		
AMPL	AMPLIFIER	EM	EMERGENCY			PE	PNEUMATIC ELECTRIC	UC	UNDER COUNTER
ANNUN	ANNUNCIATOR	EMS	ENERGY MANAGEMENT SYSTEM	KV	KILOVOLT	PED	PEDESTAL	UE	UNDERGROUND ELECTRICAL
APPROX	APPROXIMATELY	EMT	ELECTRICAL METALLIC TUBING	KVA	KILOVOLT-AMPERE	PF	POWER FACTOR	UG	UNDERGROUND
AQ-STAT	AQUASTAT	EP	ELECTRIC PNEUMATIC	KVAR	KILOVOLT-AMPERE REACTIVE	PH	PHASE	UH	UNIT HEATER
ARCH	ARCHITECT, ARCHITECTURAL	EQUIP	EQUIPMENT	KW	KILOWATT	PIV	POST INDICATING VALVE	UT	UNDERGROUND TELEPHONE
AS	AMP SWITCH	EWC	ELECTRIC WATER COOLER	KWH	KILOWATT HOUR	PNL	PANEL	UTIL	UTILITY
AT	AMP TRIP	EX	EXISTING			PP	POWER POLE	UV	UNIT VENTILATOR OR ULTRAVIOLET
ATS	AUTOMATIC TRANSFER SWITCH	EXH	EXHAUST	LOC	LOCATE OR LOCATION	PR	PAIR		
AUTO	AUTOMATIC	EXP	EXPLOSION PROOF	LT	LIGHT	PRI	PRIMARY		
AUX	AUXILIARY			LTG	LIGHTING	PROJ	PROJECTION	V	VOLT
AV	AUDIO VISUAL	FA	FIRE ALARM	LTNG	LIGHTNING	PRV	POWER ROOF VENTILATOR	VA	VOLT-AMPERES
AWG	AMERICAN WIRE GAUGE	FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	LV	LOW VOLTAGE	PT	POTENTIAL TRANSFORMER	VDT	VIDEO DISPLAY TERMINAL
						PVC	POLYVINYL CHLORIDE (CONDUIT)	VERT	VERTICAL
BATT	BATTERY	FACP	FIRE ALARM CONTROL PANEL	MAX	MAXIMUM			VFD	VARIABLE FREQUENCY DRIVE
BD	BOARD	FCU	FAN COIL UNIT	MAG S	MAGNETIC STARTER	PWR	POWER	VOL	VOLUME
BLDG	BUILDING	FIXT	FIXTURE	M/C	MOMENTARY CONTACT				
BMS	BUILDING MANAGEMENT SYSTEM	FLR	FLOOR	MC	MECHANICAL CONTRACTOR	QUAN	QUANTITY	W	WATT
		FLUOR	FLUORESCENT	MCB	MAIN CIRCUIT BREAKER			W/	WITH
		FPN	FUSED PER NAMEPLATE	MCC	MOTOR CONTROL CENTER	RCPT	RECEPTACLE	WG	WIRE GUARD
C	CONDUIT	FU	FUSE	MDC	MAIN DISTRIBUTION CENTER	REQD	REQUIRED	WH	WATER HEATER
CAB	CABINET	FUDS	FUSED SAFETY DISCONNECT SWITCH	MDP	MAIN DISTRIBUTION PANEL	RM	ROOM	W/O	WITHOUT
CAT	CATALOG			MFR	MANUFACTURER	RSC	RIGID STEEL CONDUIT	WP	WEATHERPROOF
CATV	CABLE TELEVISION			MFS	MAIN FUSED DISCONNECT SWITCH	RTU	ROOF TOP UNIT		
CB	CIRCUIT BREAKER	GA	GAUGE					XFMR	TRANSFORMER
CCTV	CLOSED CIRCUIT TELEVISION	GAL	GALLON	MH	MANHOLE	SC	SURFACE CONDUIT	XFR	TRANSFER
CKT	CIRCUIT	GALV	GALVANIZED	MIC	MICROPHONE	SEC	SECONDARY		
CLG	CEILING	GC	GENERAL CONTRACTOR	MIN	MINIMUM	SHT	SHEET		
COMB	COMBINATION	GEN	GENERATOR	MISC	MISCELLANEOUS	SIM	SIMILAR		
CMPR	COMPRESSOR	GFI	GROUND FAULT CIRCUIT INTERRUPTER	MLO	MAIN LUGS ONLY	S/N	SOLID NEUTRAL		
CONN	CONNECTION			MMS	MANUAL MOTOR STARTER	SPEC	SPECIFICATION		
CONST	CONSTRUCTION	GFP	GROUND FAULT PROTECTOR	MOA	MULTIOUTLET ASSEMBLY	SPKR	SPEAKER		
CONT	CONTINUATION OR CONTINUOUS	GND	GROUND	MSP	MOTOR STARTER PANELBOARD	SP	SPARE	∠	ANGLE
		GRS	GALVANIZED RIGID STEEL (CONDUIT)	MSBD	MAIN SWITCHBOARD	SR	SURFACE RACEWAY	@	AT
CONTR	CONTRACTOR			MT	MOUNT	SS	STAINLESS STEEL	△	DELTA
CONV	CONVECTOR	GYP BD	GYPSUM BOARD	MT.C	EMPTY CONDUIT	SSW	SELECTOR SWITCH	'	FEET
CP	CIRCULATING PUMP			MTS	MANUAL TRANSFER SWITCH	S/S	STOP/START PUSHBUTTONS	"	INCHES
CRT	CATHODE-RAY TUBE	HOA	HANDS-OFF-AUTOMATIC SWITCH	MTR	MOTOR, MOTORIZED	STA	STATION	#	NUMBER
CT	CURRENT TRANSFORMER					STD	STANDARD	Ø	PHASE
CTR	CENTER	HORIZ	HORIZONTAL	N.C.	NORMALLY CLOSED	SURF	SURFACE MOUNTED	C	CENTER LINE
CU	COPPER	HP	HORSEPOWER	NEC	NATIONAL ELECTRICAL CODE	SW	SWITCH	P	PLATE
		HPF	HIGH POWER FACTOR						

SYMBOL SCHEDULE POWER

SYMBOL	DESCRIPTION
	WIRING SYSTEM UNSWITCHED LEG OF CIRCUIT.
	WIRING SYSTEM LOW VOLTAGE.
	BRANCH CIRCUIT HOMERUN TO PANEL.

ELECTRICAL EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
	JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.
	208/120V THREE PHASE PANELBOARD. SEE SCHEDULE FOR MOUNTING. TOP OF PANEL AT 6'-6" AFF.
	AUTOMATIC TRANSFER SWITCH WALL MOUNT
	SPECIAL OUTLET. SEE PLANS.
	FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED. UNSHADED INDICATES NON-FUSED.
	NON-FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED. UNSHADED INDICATES NON-FUSED.
	FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION

ELECTRICAL FIXTURES LEGEND

SYMBOL	DESCRIPTION
	COMBINATION GROUND FAULT RECEPTACLE AND USB. NEMA 5-20R DUPLEX. ALL OUTLETS INSTALLED WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
	COMBINATION NEMA 5-20R GROUND FAULT RECEPTACLE AND USB-A & USB-C CHARGING OUTLET. ALL OUTLETS INSTALLED WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
	DUPLEX RECEPTACLE, 20 AMP, 120 VOLT COOPER 5362 OR EQUAL.
	GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
	GROUND FAULT RECEPTACLE - BREAKER AT PANEL. NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
	GROUND FAULT DUPLEX RECEPTACLE, NEMA 5-20R MOUNTED ABOVE COUNTER BACKSPLASH OR AT HEIGHT NOTED.
	WEATHERPROOF GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX, CORROSION RESISTANT, WITH IN-USE COVER.
	GROUND FAULT QUAD RECEPTACLE. TWO NEMA 5-20R DUPLEX RECEPTACLES ABOVE COUNTER.
	TWO COMBINATION QUAD 5-20R RECEPTACLES AND TWO USB-A & USB-C DUPLEX CHARGING OUTLETS.

TELECOM LEGEND

SYMBOL	DESCRIPTION
	TELEPHONE OUTLET ABOVE COUNTER OR HEIGHT SPECIFIED. MINIMUM 1" CONDUIT TO ABOVE NEAREST ACCESSIBLE CEILING FOR J-HOOK SYSTEM OR TO LOCAL CABLE TRAY (WITHIN 6') AS APPLICABLE WITH PULL STRING. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING. DATA/TELEPHONE DROPS, NUMBER INDICATES NUMBER OF JACKS/CABLING IN FACEPLATE. HEIGHT AS INDICATED.

EM./LS LIGHTING FIXTURE SYMBOLS AND DEVICES

SYMBOL	DESCRIPTION
	● LED FIXTURE WITH EMERGENCY BATTERY BALLAST. ■ PROVIDE 1100 LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE, EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.

LIGHTING FIXTURES AND DEVICES LEGEND

SYMBOL	DESCRIPTION
	WALL MOUNTED LED LIGHTING FIXTURE.
	LED STRIP LIGHT FIXTURE
	RECESSED LED
	SURFACE LINEAR LIGHT (TYPE DENOTED IN LIGHTING SCHEDULE)
	EXIT LIGHT WITH ARROWS AND NUMBERS OF FACES AS INDICATED ON PLANS. 90 MIN BATTERY BACKUP. SEE LIGHTING FIXTURE SCHEDULE.
	EMERGENCY BATTERY PACK FIXTURE. 90 MINUTE EMERGENCY INTEGRAL BATTERY. SEE LIGHTING FIXTURE SCHEDULE
	EMERGENCY BATTERY PACK/EXIT COMBO FIXTURE WITH 90 MINUTE BATTERY BACKUP, SEE FIXTURE SCHEDULE.
S	SINGLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER AH 1221, OR EQUAL BY HUBBELL, LEVITON AND PASS & SEYMOUR.
S^3	THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, OR EQUAL BY HUBBELL, LEVITON AND PASS & SEYMOUR.
S^4	FOUR WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1224 OR EQUAL.
S^T	2-HR TIMER SWITCH, 20 AMP, 120/277 VOLT, EQUAL TO INTERMATIC FF SERIES
S^D	DIMMER SWITCH. LUTRON SERIES, OR EQUAL. VERIFY LOAD ON CIRCUIT AND MATCH DIMMER SIZE TO LOAD AND DEVICE QUANTITY. PROVIDE DOUBLE GANG J-BOX WITH SINGLE GANG TRIM PLATE. PROVIDE DIMMING SWITCH AS RECOMMENDED BY LIGHTING MANUFACTURER. MATCH SWITCH TYPE TO SOURCE (LED, FLUORESCENT, OR INCANDESCENT,) WATTAGE, AND QUANTITY.
S^{10}	0-10V DIMMER SWITCH. SEE DETAIL "CLASSROOM SWITCH CONTROL - DIMMING" FOR TYPE AND TYPICAL APPLICATION. 3WAY "3D" APPLICATION IS BASED ON ON/ON LOW VOLTAGE SWITCH SWK-801 OR EQUAL.
OC	CEILING MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY. 360 DEGREE COVERAGE, 2,000 SQ FT COVERAGE LARGE MOTION, 400 SQ FT SMALL MOTION. NON CATEGORY CABLE CONNECTORS. LOW VOLTAGE DETECTOR, PROVIDE WITH POWER PACK FOR EACH SWITCH LEG. SENSOR SWITCH, WATT STOPPER, LEVITION, EATON, SENSORWXK OR EQUAL.
S^{OC}	WALL MOUNTED OCCUPANCY SENSOR AND SWITCH. INFRARED TECHNOLOGY WITH NEUTRAL, 120/277V RATED. WATT STOPPER #WS-250, OR EQUAL BY SENSOR SWITCH, AND LEVITON.
PP	CEILING MOUNTED OCCUPANCY SENSOR POWER PACK. SENSOR SWITCH PP-20, WATT STOPPER #BZ-100, COOPER SP-20, OR EQUAL.

SPECIAL SYSTEMS LEGEND

SYMBOL	DESCRIPTION
TV	SEE TV DETAIL (10/E601) FOR TYPE AND REQUIREMENTS. MINIMUM 1 1/4" CONDUIT FOR CABLING AND 3/4" CONDUIT FOR POWER. PROVIDE PULL STRING FOR LOW VOLTAGE CABLING TO ACCESSIBLE CEILING. COORDINATE LOCATION AND MOUNTING HEIGHT WITH OWNER.
	EMERGENCY CALL PATIENT STATION WITH PULL CORD AT 48" AFF WITH NO AUDIO. PROVIDE AND INSTALL DEEP 1-GANG BACKBOX WITH 3/4"C ROUTED ABOVE ACCESSIBLE CEILING.
N	NURSE CALL WALL MOUNT DOME LIGHT. PROVIDE AND INSTALL DEEP 4X4X4 SQUARE BACKBOX, 1-GANG MUD RING, WITH 3/4"C ROUTED ABOVE ACCESSIBLE CEILING.
	NURSE CALL STAFF STATION. PROVIDE AND INSTALL DEEP 3-GANG BACKBOX WITH 3/4"C ROUTED ABOVE ACCESSIBLE CEILING.

SECURITY DEVICES LEGEND

SYMBOL	DESCRIPTION
	CEILING MOUNTED SECURITY CAMERA LOCATION. CAMERA PROVIDED AND INSTALLED BY OTHERS. PROVIDED JUNCTION BOX AS REQUIRED BY OTHERS. COORDINATE EXACT REQUIREMENTS WITH LOW VOLTAGE INSTALLER.
CR	CARD READER, MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.
DR	DOOR RELEASE. INSTALL ONE SINGLE GANG JUNCTION BOX WITH ONE 1"C. TO ABOVE ACCESSIBLE CEILING. BUSH END OF CONDUIT

ELECTRICAL SHEET INDEX

EXISTING/DEMOLITION LEGEND

SYMBOL	DESCRIPTION
	HALFTONE SYMBOL INDICATES EXISTING
	DASHED SYMBOL INDICATES REMOVED
	HATCHED SYMBOL INDICATES REMOVED

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288

Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 055146 ENGINEER CLAY D. WASHINGTON 11.11.2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

AREA A

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

ELECTRICAL LEGEND AND NOTES

DATE	11/12/24
BSALS PROJECT NO.	21950006

E001

OPTIMA# 24-0146R

1. GENERAL:

A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS.

B. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NFPA, STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.

C. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES.

D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.

E. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, LUMINAIRES, LAMPS, BALLASTS, WIRING DEVICES, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), FIRE ALARM, TELECOMMUNICATIONS, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. ONE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB SITE.

F. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRING, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR.

G. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE INCORPORATED INTO THE ON-SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES.

H. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE. ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND.

I. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250.

J. PROVIDE AN INTERSYSTEM BONDING TERMINATION DEVICE AT THE MAIN ELECTRICAL SERVICE PER NEC 250.94.

K. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.

L. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE.

M. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.

N. ALL ELECTRICAL JUNCTION BOXES, SWITCHGEAR, CABLING, VOICE/DATA OUTLETS, LOW VOLTAGE CABINETS, EMERGENCY RECEPTACLES, ETC. SHALL BE LABELED ACCORDING TO PANEL/RACK AND CIRCUIT NUMBER.

O. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTOR AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.

P. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE PROJECT IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT.

Q. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.

R. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION.

S. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION ABOVE) ALL DISCONNECTING MEANS, OVERCURRENT PROTECTION AND WIRING REQUIRED TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE REQUIREMENTS.

T. CONTRACTOR SHALL COORDINATE THE ROUGH-IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH-IN.

U. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED.

V. CONTRACTOR SHALL TEST ALL "LIFE SAFETY" EQUIPMENT AND SYSTEMS FOR PROPER FUNCTION AND OPERATION. UPON SUCCESSFUL COMPLETION OF TESTS, CONFIRMATION SHALL BE SENT TO THE ENGINEER OF RECORD IN THE FORM OF A LETTER STATING THE TESTS PERFORMED, THE RESULTS, AND THE DATE TESTS WERE SUCCESSFULLY COMPLETE. "LIFE SAFETY" EQUIPMENT AND SYSTEMS CONSIST OF THOSE AS SPECIFIED IN THE STATE BUILDING CODE, THE NATIONAL ELECTRICAL CODE, NFPA 101, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.

W. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.

X. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE.

Y. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING TEMPORARY POWER AND LIGHTING FOR ALL TRADES. AT NO TIME SHALL EXISTING BUILDING POWER SYSTEMS BE UTILIZED WITHOUT WRITTEN PERMISSION FROM THE OWNER.

Z. COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL SERVICE WITH THE POWER COMPANY. WHERE MORE THAN ONE SERVICE IS SUPPLIED TO A BUILDING, PROVIDE IDENTIFICATION AT EACH SERVICE PER NEC 230-2(E).

AA. COORDINATE LOCATION AND REQUIREMENTS FOR TELEPHONE SERVICE WITH THE TELEPHONE COMPANY.

BB. THE CONTRACTOR SHALL PROVIDE A MINIMUM TWO WEEK NOTICE FOR ANY PLANNED UTILITY OUTAGES. WRITTEN AUTHORIZATION FROM THE OWNER SHALL BE PROVIDED PRIOR TO ANY OUTAGE. ALL PLANNED UTILITY OUTAGES SHALL BE COORDINATED WITH THE OWNER TO OCCUR DURING NON-OPERATING TIMES, INCLUDING NIGHTS, WEEKENDS AND HOLIDAYS. ALL PLANNED UTILITY OUTAGES SHALL INCLUDE PROVISIONS FOR PROPER BACK-UP OF ALL LIFE-SAFETY SYSTEMS AND INCLUDE AN APPROVED FIRE-WATCH PROGRAM AS REQUIRED BY THE LOCAL FIRE MARSHALL.

CC. EACH BIDDER SHALL VISIT THE JOB SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND TO ASCERTAIN THE EXTENT OF WORK REQUIRED. FAILURE TO VISIT SITE SHALL NOT EXCUSE CONTRACTOR FROM PERFORMING REQUIRED WORK NOR SHALL IT BE AN ACCEPTABLE REASON FOR REQUESTING ADDITIONS TO THE CONTRACT.

DD. IN ALL AREAS USED FOR PATIENT CARE, THE GROUNDING TERMINAL OF ALL RECEPTACLES AND ALL NON-CURRENT-CARRYING CONDUCTIVE SURFACES OF FIXED ELECTRICAL EQUIPMENT THAT ARE SUBJECT TO PERSONAL CONTACT, SHALL BE GROUNDED BY A GREEN INSULATED COPPER CONDUCTOR. THE GROUNDING CONDUCTOR SHALL BE INSTALLED IN A METAL RACEWAY WITH THE BRANCH CIRCUIT CONDUCTORS SUPPLYING THE RECEPTACLES OR FIXED EQUIPMENT.

2. RACEWAY:

A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.

B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.

C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE. ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL.

D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE.

E. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A CABLE TRAY SYSTEM OR J-HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'-0" CENTERS IN ALL ACCESSIBLE CEILINGS. WHERE THERE ARE INACCESSIBLE CEILINGS, PROVIDE CONDUIT FOR ENTIRE LENGTH OF INACCESSIBILITY.

F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS TELECOMMUNICATIONS, FIRE ALARM, SECURITY, CCTV, CONTROLS, AND SIMILAR CONDUITS ABOVE THE CEILING AND BACKBOARD(S) SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE INSTALLED PRIOR TO PULLING LOW-VOLTAGE CABLES.

G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB.

H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.

I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.

J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMPERS.

K. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR INTERIOR WORK, 1" FOR EXTERIOR WORK.

L. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.

M. LIQUID-TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'-0".

N. FLEXIBLE METAL CONDUIT, MINIMUM SIZE 3/8", SHALL ONLY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURES, MAXIMUM LENGTH OF 6'-0".

O. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS, THEY SHALL BE RGS.

P. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.

Q. ALL UNDERGROUND RACEWAYS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM BITUMASTIC.

R. ALL CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATERTIGHT BY USE OF POLYETRA-FLUOROETHYLENE TAPE.

S. THE USE OF AC OR NM CABLE IS NOT PERMITTED.

T. MC CABLE MAY ONLY BE UTILIZED WHERE PERMITTED BY CODE AND IT SHALL ONLY BE ALLOWED WHERE CONCEALED BEHIND HARD WALLS AND HARD CEILINGS. MC CABLE SHALL NOT BE EXPOSED.

U. APPROVED SEALS SHALL BE PROVIDED IN HAZARDOUS LOCATIONS AS REQUIRED BY THE NEC.

3. OUTLET BOXES:

A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE-HINDS, APPLETON (EMERSON), OR APPROVED EQUIVALENT.

B. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS.

C. ATTACH EMT WITH CONNECTORS HAVING INSULATED THROAT.

D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT METAL STUDS TO PREVENT TWISTING OF BOX IN WALL.

E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES, BLANK IF NOT USED.

F. ALL EXTERIOR BOXES SHALL BE WATER-TIGHT.

4. CONDUCTORS:

A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE-LUBRICATED" BY THE MANUFACTURER.

B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.

C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN-2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.

D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.

E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE COLOR-CODED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE ALLOWED.

F. INSULATION SHALL BE DUAL RATED TYPE THHN/THWN-2 FOR FEEDERS AND BRANCH CIRCUITS. FIXTURE TAPS SHALL BE #12 THHN/THWN-2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.

G. ALL CONDUCTORS SHALL BE IN CONDUIT.

H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.

I. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED, UNLESS EXPLICITLY INDICATED ON THE DRAWINGS. WHERE EXPLICITLY INDICATED ON THE DRAWINGS:
   a. ALL 20A MULTI-WIRE RECEPTACLE CIRCUITS SHALL UTILIZE A #10 AWG NEUTRAL CONDUCTOR.

J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WIRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CONNECTOR OR WIRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.

K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPACITY AND SHALL BE SIZED AND SELECTED TO MATCH THE CONDUCTOR SIZE AND MATERIAL.

L. CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.

M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED.

N. ALL SYSTEM FURNITURE CONNECTIONS SHALL COMPLY WITH NEC 605.

O. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT AND FOR EACH CIRCUIT, SIZED PER NEC 250-122.

P. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC 300-19.

Q. THE ELECTRICAL CONTRACTOR SHALL FOLLOW AND APPLY THE TABLE BELOW, REGARDLESS WHAT THE PANEL SCHEDULE INDICATES, FOR SIZING ALL 120V & 277V, 20 AMP BRANCH CIRCUITS (COPPER CONDUCTORS) TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT:

VOLTAGE	CONDUCTOR LENGTH *	BRANCH CIRCUIT
120	0' - 50'	#12
120	51' - 90'	#10
120	91' - 140'	#8
120	141' - 255'	#6

* - THE LENGTH IS MEASURED FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE WHICH THE BRANCH CIRCUIT SERVES. WHERE THE DISTANCE EXCEEDS ABOVE, CONSULT WITH THE ENGINEER.

R. ALL BRANCH CIRCUIT CONDUCTORS FROM ISOLATED POWER SOURCES SHALL BE INSTALLED IN IMC CONDUIT AND SHALL BE TYPE XHHW-2, COLOR CODED ORANGE FOR CONDUCTOR #1, BROWN FOR CONDUCTOR #2, AND YELLOW FOR CONDUCTOR #3.

5. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE, MINIMUM, EQUAL TO COOPER QUALITY INDICATED BELOW OR AS MANUFACTURED BY HUBBELL, LEGRAND-PASS & SEYMOUR, LEVITON, OR APPROVED EQUAL, UNLESS OTHERWISE NOTED:

SWITCHES (120/277V) SHALL BE AS FOLLOWS:

SINGLE-POLE 20 AMP	COOPER AH1221
DOUBLE-POLE 20 AMP	COOPER AH1222
THREE-WAY 20 AMP	COOPER AH1223

DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:

20 AMP DUPLEX	COOPER 5352
20 AMP DUPLEX GFCI	COOPER SGF20F
20 AMP DUPLEX TAMPER	COOPER TR5362
20 AMP DUPLEX GFCI-TAMPER	COOPER TRSGF20F

THE PART NUMBERS ABOVE ARE FOR WIRING DEVICE TYPE ONLY. SEE BELOW FOR WIRING DEVICE COLOR AND PLATE MATERIAL/COLOR.

B. SEE MOUNTING HEIGHT ELEVATION DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.

C. ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) AND PLATES SHALL MATCH EXISTING IN MATERIAL AND COLOR, UNLESS OTHERWISE NOTED. COVER PLATES IN MASONRY WALLS SHALL BE JUMBO SIZE.

D. EACH DUPLEX RECEPTACLE INDICATED TO BE ON A DEDICATED CIRCUIT SHALL BE 20 AMP TYPE.

E. ADJACENT DEVICES SHALL HAVE A COMMON WALL PLATE.

F. WEATHERPROOF COVERS SHALL BE "WHILE-IN-USE" AND EXTRA-DUTY RATED SO PLUGS MAY BE INSTALLED WITHOUT COMPROMISING THE WP FUNCTION. COOPER #WIU-2 DOUBLE-GANG WITH CLEAR COVER OR APPROVED EQUAL.

G. A MAXIMUM OF 10 GENERAL PURPOSE RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT.

H. DIMMERS SHALL BE LINEAR SLIDE, PRESENT ON/OFF, SQUARE LAW DIMMING, W/RFI FILTERING AND VOLTAGE COMPENSATION CIRCUITING.

I. ALL WALL MOUNTED OCCUPANCY/VACANCY SENSORS/SWITCHES SHALL BE INSTALLED WITH AN EQUIPMENT GROUNDING CONDUCTOR.

J. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.

K. ALL GFCI RECEPTACLES SHALL HAVE AUTO-MONITORING / SELF-TEST FUNCTION AND REVERSE LINE-LOAD MISFIRE FUNCTION AND MEET ALL REQUIREMENTS OF UL 943 (LATEST EDITION).

L. TAMPER-RESISTANT RECEPTACLES SHALL BE PROVIDED FOR ALL AREAS PER NEC 406.12, INCLUDING DWELLING UNITS, ATTACHED AND DETACHED GARAGES AND ACCESSORY BUILDINGS TO DWELLING UNITS, COMMON AREAS OF MULTIFAMILY DWELLINGS, GUEST ROOMS/GUEST SUITES/COMMON AREAS OF HOTELS AND MOTELS, CHILD-CARE FACILITIES, PRESCHOOL AND EDUCATION FACILITIES, BUSINESS OFFICES/CORRIDORS/WAITING ROOMS AND THE LIKE IN CLINICS/MEDICAL/DENTAL OFFICES AND OUTPATIENT FACILITIES, ASSEMBLY OCCUPANCIES INCLUDING PLACES OF AWAITING TRANSPORTATION/GYMNASIUMS/SKATING RINKS/AUDITORIUMS, DORMITORIES/STUDENT HOUSING, AND ASSISTED LIVING FACILITIES.

6. SUPPORTS:

A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.

B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.

C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED.

D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'-0" APART AND A MAXIMUM OF 3'-0" FROM BOXES.

E. LIGHTING FIXTURES MOUNTED IN OR ON CEILING SHALL BE SUPPORTED FROM STRUCTURE VIA 12 GAUGE STEEL WIRE. PROVIDE A MINIMUM OF FOUR WIRES, ONE ATTACHED TO EACH CORNER OF LAY-IN FIXTURES. RECESSED DOWNLIGHT FIXTURES SHALL BE SUPPORTED THE SAME. DO NOT SUPPORT RACEWAY OR FIXTURES FROM CEILING GRID OR DUCT WORK. USE U.L. LISTED GRID CLIPS ON ALL LAY-IN FIXTURES.

7. PAINTING:

A. SUITABLE FINISH COAT SHALL BE PROVIDED FOR ALL EQUIPMENT. PANEL TUBS, COVERS, ETC. SHALL BE PRIMED AND ENAMELED TO BLEND WITH ADJACENT SURFACES, OR SHALL BE MANUFACTURER'S STANDARD COLOR BAKED ENAMEL FINISH, OR AS DIRECTED BY THE ARCHITECT.

B. CONTRACTOR TO PAINT WHERE EXISTING EXPOSED PANELBOARDS, SURFACE RACEWAY, SURFACE BOXES, ETC. HAVE BEEN REMOVED DURING THE DEMOLITION PHASE, EITHER FOR TEMPORARY WORK OR PERMANENTLY.

8. TELECOMMUNICATIONS:

A. TELECOMMUNICATION OUTLETS SHALL CONSIST OF A 4" SQUARE DEEP BOX WITH SINGLE GANG PLASTER RING. PROVIDE BLANK PLATE WITH KNOCKOUTS FOR OUTLETS, AS PERMANENT COVERS WILL BE PROVIDED BY A SEPARATE INSTALLER.

B. PROVIDE MINIMUM 1.25" RACEWAY, UNLESS OTHERWISE NOTED, FROM EACH BOX TO ABOVE NEAREST ACCESSIBLE CEILING SPACE FOR J-HOOK SYSTEM OR TO CABLE TRAY AS APPLICABLE. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS. CONDUITS SHALL NOT BE DAISY-CHAINED.

C. PROVIDE RACEWAYS FOR ALL EXTERIOR AND/OR EXPOSED LOCATIONS.

D. PROVIDE GROUNDING FOR ALL TELEPHONE/DATA SYSTEMS AND EQUIPMENT PER REQUIREMENTS AND SPECIFICATIONS PROVIDED BY THE OWNERS DESIGNATED VENDOR.

E. ALL LOW-VOLTAGE CABLING SHALL BE PLENUM-RATED.

F. CONTRACTOR SHALL FURNISH AND INSTALL A #6 AWG GREEN INSULATED COPPER WIRE IN CONDUIT FROM THE MAIN ELECTRICAL GROUNDING BAR TO TELECOMMUNICATIONS GROUNDING BUS BAR.

9. LIGHTING FIXTURES:

A. TYPES AND MANUFACTURERS ARE SCHEDULED ON THE PLANS. EQUIVALENT FIXTURES BY OTHERS MAY BE SUBMITTED ONLY AS INDICATED ON THE PLANS AND ARE SUBJECT TO THE APPROVAL OF THE OWNER AND ENGINEER.

B. ALL FIXTURES SHALL BE U.L. LISTED AND LABELED.

C. LED DRIVERS AND/OR BALLASTS SHALL BE AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE OR AS OTHERWISE NOTED.

D. ALL FIXTURES SHALL BE PROVIDED FOR PROPER VOLTAGE BASED ON THE CIRCUIT ASSIGNMENT INDICATED ON THE PLANS.

E. CATALOG NUMBERS ARE FOR GENERAL IDENTIFICATION OF FIXTURES ONLY. ALL RELATED PARTS, SUCH AS PLASTER RINGS, JUNCTION BOXES, LOUVERS, SHIELDS, MOUNTING STEMS, CANOPIES, CONNECTORS, STRAPS, NIPPLES, HARDWARE, ACCESSORIES, ETC., TO FIT THEM PROPERLY TO THE CONSTRUCTION, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. CONTRACTOR SHALL PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL AS SPECIFIED IN ARCHITECTURAL FINISH SCHEDULES REGARDLESS OF CATALOG NUMBER GIVEN.

F. ALL FIXTURES SHALL BE GROUNDED PER THE NEC.

G. FIXTURES CONNECTED WITH FLEX TO THE RIGID RACEWAY PORTION OF THE WIRING SYSTEM SHALL CARRY A GREEN BONDING JUMPER WITHIN THE FLEX. THE JUMPER SHALL BE FASTENED TO BOTH THE FIXTURE AND THE RACEWAY SYSTEM WITH A STEEL CITY "G" CLIP OR APPROVED EQUIVALENT. PHASE AND GROUND CONDUCTORS RUN IN FLEX SHALL BE #12 AWG MINIMUM. MAXIMUM FLEX LENGTH SHALL BE 6'-0".

H. MOUNT ALL FIXTURES PLUMB AND SQUARE WITH ROWS ALIGNED.

I. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF FIXTURES.

J. CONTRACTOR SHALL COORDINATE FIXTURE TYPE AND TRIM WITH CEILING CONSTRUCTION AND ADJUST ACCORDINGLY WITHOUT ADDITIONAL EXPENSE.

K. ALL LIGHTING FIXTURES SHALL BE THERMALLY PROTECTED PER THE NEC.

L. SURFACE-MOUNTED FIXTURES INSTALLED ON COMBUSTIBLE MATERIAL SHALL BE MOUNTED AT LEAST 1/4" FROM THE SURFACE OF THE MATERIAL, EXCEPT FOR FIXTURES WHICH ARE PLAINLY MARKED AS U.L. APPROVED FOR MOUNTING DIRECTLY TO SUCH SURFACES.

M. FIXTURES IN CONTACT WITH INSULATION SHALL BE IC RATED.

N. FOR RECESSED LIGHTING FIXTURES IN FIRE RATED CEILINGS, PROVIDE A MANUFACTURER APPROVED AND LISTED FIRE RATED COVER/ASSEMBLY OVER THE FIXTURE TO MAINTAIN THE INTEGRITY OF THE CEILING FIRE RATING. ANY LIGHTING FIXTURES INSTALLED UNDER THE FIRE RATED CAP SHALL BE SUITABLE FOR THE INSTALLATION.

10. EQUIPMENT IDENTIFICATION:

A. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT SUPPLIED FOR THE PROJECT, INCLUDING BUT NOT LIMITED TO, WIRING TROUGHS, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), ETC. NAMEPLATE SHALL INDICATE THE DEVICE NAME, SYSTEM VOLTAGE (VOLTAGE/PHASE/WIRE), AND UPSTREAM DEVICE AND CIRCUIT. PROVIDE NAMEPLATES FOR CIRCUIT BREAKERS IN SWITCHGEARS, SWITCHBOARDS AND DISTRIBUTION PANELS.

B. NAMEPLATE COLORS SHALL BE AS FOLLOWS:

120/208V EQUIPMENT	BLUE SURFACE WITH WHITE CORE
EMERGENCY SYSTEMS	GREEN SURFACE WITH WHITE CORE
SECURITY SYSTEMS	BURGUNDY SURFACE WITH WHITE CORE
TELEPHONE SYSTEMS	ORANGE SURFACE WITH WHITE CORE
DATA SYSTEMS	BROWN SURFACE WITH WHITE CORE
TV SYSTEMS	PURPLE SURFACE WITH WHITE CORE
PAGING SYSTEMS	WHITE SURFACE WITH BLACK CORE

NAMEPLATES UP TO 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/16" THICK. NAMEPLATES LARGER THAN 8 SQUARE INCHES SHALL NOT LESS THAN 1/8" THICK.

C. LETTERING HEIGHT SHALL BE 1/2" MINIMUM.

D. NAMEPLATES SHALL BE ATTACHED WITH SELF-DRILLING/SELF-TAPPING SCREWS, EXCEPT RIVETS SHALL BE USED WHERE END OF SCREW IS NOT PROTECTED. QUANTITY AS FOLLOWS:

UP TO 5 SQUARE INCHES:	2 SCREWS
5 TO 12 SQUARE INCHES:	4 SCREWS
ABOVE 12 SQUARE INCHES:	6 SCREWS

11. DISCONNECTS:

A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE IN NEMA 1 ENCLOSURES, UNLESS OTHERWISE NOTED, FUSED OR NON-FUSED AS INDICATED. SWITCHES SHALL HAVE REJECTION-TYPE FUSE CLIPS. SWITCHES SHALL BE BY EATON, SQUARE-D, ABB, OR APPROVED EQUAL. WHERE FED FROM A LOAD CENTER, GENERAL-DUTY SWITCHES SHALL BE PERMITTED.

B. FUSES LESS THAN 60A SHALL BE CLASS RK5, DUAL-ELEMENT, TIME-DELAY WITH INDICATION

C. FUSES GREATER THAN 60A SHALL BE CLASS J, DUAL-ELEMENT, TIME-DELAY WITH INDICATION.

D. A SET OF 3 SPARE FUSES OF EACH SIZE AND TYPE SHALL BE FURNISHED TO THE OWNER.

12. PANELBOARDS:

A. PROVIDE HANDLE LOCK-ON DEVICES FOR ALL CIRCUIT BREAKERS CONNECTED TO EMERGENCY, EXIT, NIGHT LIGHTING, FIRE ALARM, TELEPHONE BOARDS, AND SECURITY SYSTEMS.

B. BREAKERS USED FOR SWITCHING SHALL BE SWITCHING DUTY (SWD) RATED.

C. BREAKERS USED FOR HEATING, AIR-CONDITIONING AND/OR REFRIGERATION SHALL BE HACR RATED.

D. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.

E. ARC-FAULT CIRCUIT-INTERRUPTER (AFCI) PROTECTION SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.12, INSTALLED IN A READILY ACCESSIBLE LOCATION. THIS INCLUDES ALL 120V, 15A AND 20A BRANCH CIRCUITS IN DWELLING UNITS, DORMITORY/STUDENT HOUSING UNITS AND HOTEL/MOTEL GUEST ROOMS/SUITES AS DEFINED BY THE NEC.

F. ALL PANELBOARDS SHALL HAVE METAL DIRECTORY FRAME. FOR EACH PANELBOARD, PROVIDE TYPED CIRCUIT DIRECTORY PER NEC 408.4. SPARE CIRCUIT BREAKERS SHALL BE LABELED SPARE AND IN THE OFF POSITION.

G. ALL GROUNDING TERMINAL BUSSES OF PANELBOARDS SERVING THE SAME PATIENT VICINITY SHALL BE BONDED TOGETHER WITH 1#10 AWG GREEN INSULATED COPPER GROUNDING CONDUCTOR. THE CONDUCTOR SHALL BE CONTINUOUS EXCEPT THAT IT MAY BE BROKEN AT THE PANELBOARD GROUND BAR IN ORDER TO TERMINATE.

13. GENERATOR AND ATS:

A. CONTRACTOR SHALL FURNISH AND INSTALL, AS INDICATED ON THE PLANS AND AS HEREIN SPECIFIED, A COMPLETE SYSTEM FOR THE EMERGENCY GENERATION, CONTROL, AND DISTRIBUTION OF ELECTRICAL POWER UPON FAILURE OF NORMAL ELECTRIC POWER SOURCE.

B. SYSTEM SHALL INCLUDE ENGINE-GENERATOR UNIT, AUTOMATIC TRANSFER SWITCH, NATURAL GAS FUEL SUPPLY SYSTEM, AND ALL OTHER WIRING, RACEWAYS, EQUIPMENT, HARDWARE, ETC., NECESSARY FOR A COMPLETE AND PROPERLY FUNCTIONING SYSTEM, WHETHER OR NOT EVERY SUCH COMPONENT IS SPECIFICALLY INDICATED ON CONTRACT DOCUMENTS OR MENTIONED HEREIN.

C. SYSTEM SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 110 AND 37, NEC ARTICLE 702, UL 2200, STATE BUILDING CODE, AND ALL LOCAL CODES AND REGULATIONS THAT MAY APPLY.

D. UPON FAILURE TO NORMAL POWER SOURCE TO THE AUTOMATIC TRANSFER SWITCH, SYSTEM SHALL FUNCTION AUTOMATICALLY TO RESTORE POWER TO DESIGNATED LOADS FROM THE ENGINE-GENERATOR SET WITHIN 10 SECONDS.

E. POWER RATING OF THE NATURAL GAS FUEL ENGINE-GENERATOR SET SHALL BE BASED ON OPERATION AT 1800 RPM WHEN EQUIPPED WITH ALL NECESSARY OPERATION ACCESSORIES SUCH AS AIR CLEANERS, LUBRICATING OIL PUMP, JACKET WATER PUMP, GOVERNOR, ALTERNATING CURRENT GENERATOR, AND EXCITER REGULATOR. RADIATOR FAN SHALL BE INCLUDED AS NECESSARY OPERATING ACCESSORY. RATING SHALL APPLY AT SITE CONDITIONS.

F. THE ENGINE SHALL BE WATER-COOLED, IN-LINE VEE TYPE, WITH FOUR-STROKE CYCLE.

G. THE ENGINE SHALL BE EQUIPPED WITH LUBE OIL SUMP HEATER, INTAKE AIR FILTERS, LUBE OIL COOLER, RUNNING TIME METER, CHARGING ALTERNATOR, GEAR-DRIVEN WATER PUMP, AND INSTRUMENTS, INCLUDING A FUEL PRESSURE GAUGE, WATER TEMPERATURE GAUGE, LUBRICATING OIL PRESSURE GAUGE AS HEREIN SPECIFIED.

H. AN AUTOMATIC VOLTS PER HERTZ TYPE, SOLID STATE EXCITER/REGULATOR, MANUFACTURED BY THE GENERATOR MANUFACTURER, SHALL BE INCLUDED AND MOUNTED INSIDE THE GENERATOR.

I. VOLTAGE REGULATION SHALL BE +1% FROM NO LOAD TO FULL RATED LOAD. READILY ACCESSIBLE VOLTAGE DROP, VOLTAGE LEVEL, AND VOLTAGE GAIN CONTROLS SHALL BE INCLUDED IN THE MODULE. VOLTAGE LEVEL ADJUSTMENTS SHALL BE MINIMUM OF +10%. THE MODULE SHALL INCLUDE THE FOLLOWING PROTECTIVE FEATURES:

J. VOLTAGE REGULATOR SHALL BE THREE PHASE SENSING. SINGLE SENSING SHALL NOT BE ACCEPTABLE.

K. AN ENGINE-MOUNTED RADIATOR WITH FLOWER-TYPE FAN SHALL BE PROVIDED TO MAINTAIN SAFE OPERATION AT 110 DEGREE F* (43 DEGREES C) AMBIENT TEMPERATURE. TOTAL AIR FLOW RESTRICTION TO AND FROM THE RADIATOR SHALL NOT EXCEED 0.5 IN. H20 (0, 12 KPA).

L. THE ENGINE COOLING SYSTEM SHALL BE PRETREATED BY THE ENGINE SUPPLIER FOR THE INHIBITION OF INTERNAL CORROSION. IN ADDITION, A SOLUTION OF 50% ETHYLENE GLYCOL SHALL BE ADDED, TO PREVENT FREEZING OF SYSTEM DUE TO EXTREME TEMPERATURES.

M. A CRITICAL EXHAUST SILENCER, AND ALL REQUIRED ACCESSORIES AND FITTINGS, SHALL BE PROVIDED. MOUNTING SHALL BE IN THE LEVEL 2 SOUND ATTENUATED, WEATHER-PROOF ENCLOSURE. THE CRITICAL SILENCER SHALL BE MOUNTED SO THAT ITS WEIGHT IS NOT SUPPORTED BY THE ENGINE NOR WILL EXHAUST SYSTEM GROWTH, DUE TO THERMAL EXPANSION, BE IMPOSED ON THE ENGINE. EXHAUST PIPE SIZE SHALL BE SUFFICIENT TO ENSURE THAT EXHAUST BACK-PRESSURE DOES NOT EXCEED THE MAXIMUM LIMITATIONS SPECIFIED BY THE ENGINE MANUFACTURER.

N. A RAIN CAP SHALL ALSO BE PROVIDED.

O. THE ENGINE SHALL BE EQUIPPED WITH A 12 VOLT STARTING SYSTEM WITH POSITIVE ENGAGEMENT DRIVE AND OF SUFFICIENT CAPACITY TO CRANK THE ENGINE AT A SPEED WHICH WILL START THE ENGINE UNDER OPERATING CONDITIONS.

P. FULLY AUTOMATIC GENERATOR SET START-STOP CONTROLS IN THE GENERATOR CONTROL PANEL SHALL BE PROVIDED. CONTROLS SHALL PROVIDE SHUTDOWN FOR LOW OIL PRESSURE, HIGH WATER TEMPERATURE, LOW COOLANT TEMPERATURE ALARM, LOW COOLANT LEVEL ALARM, OVERSPEED, OVERCRANK, AND ONE AUXILIARY CONTACT FOR ACTIVATING ACCESSORY ITEMS.

Q. GENERATOR SHALL BE PROVIDED WITH THE FOLLOWING NON-STANDARD OPTIONS: EXTENDED WARRANTY, CRITICAL EXHAUST SILENCER, FLEXIBLE FUEL LINES, BATTERY HEATER, LED LIGHT KIT, AND 21-LIGHT REMOTE ANNUNCIATOR.

R. A HEAVY-DUTY LEAD-ACID STORAGE BATTERY SET FOR THE LP/NG STARTING TYPE SHALL BE PROVIDED. BATTERY VOLTAGE SHALL BE COMPATIBLE WITH THE STARTING SYSTEM. THE BATTERY SET SHALL BE RATED NO LESS THAN 220 AMPERE HOURS. A BATTERY RACK CONSTRUCTED IN COMPLIANCE WITH NEC REQUIREMENTS AND NECESSARY CABLES AND CLAMPS SHALL BE PROVIDED. BATTERIES SHALL BE CAPABLE OF CRANKING ENGINE AT RATED AMBIENT FOR A MINIMUM OF FIVE MINUTES.

S. A CURRENT LIMITING, FLOAT-EQUALIZE CHARGER SHALL BE FURNISHED TO AUTOMATICALLY RECHARGE BATTERIES. THE CHARGER SHALL FLOAT AT 2.17 VOLTS PER CELL AND EQUALIZE AT 2.33 VOLTS PER CELL. IT SHOULD INCLUDE OVERLOAD PROTECTION, SILICON DIODE FULL WAVE RECTIFIERS, VOLTAGE SURGE SUPPRESSERS, DC AMMETER, AND FUSED C OUTPUT. AC INPUT VOLTAGE SHALL BE 120 VOLTS, SINGLE PHASE. AMPERAGE OUTPUT SHALL BE NO LESS THAN 5 AMPERES. CHARGER SHALL BE WALL- MOUNTING TYPE IN NEMA 1 ENCLOSURE. PROVIDE 5 AMP CHARGER.

T. SOUND ATTENUATED WEATHERPROOF ENCLOSURE FOR GENERATOR AND ALL OTHER ITEMS TO BE DESIGNED AND BUILT BY ENGINE MANUFACTURER AS AN INTEGRAL PART OF THE ENTIRE GENERATOR SET AND BE DESIGNED TO PERFORM WITHOUT OVERHEATING IN THE AMBIENT TEMPERATURE SPECIFIED.

U. SOUND ATTENUATED WEATHERPROOF ENCLOSURE SHALL BE CONSTRUCTED OF 16 MINIMUM GAUGE CORROSION RESISTANT SHEET METAL, SUITABLY REINFORCED TO BE VIBRATION FREE IN THE OPERATING MODE. ROOF TO BE PEAKED TO ALLOW DRAINAGE OF RAIN WATER. EXTERNAL FINISH SHALL BE BAKED ENAMEL WITH PRIMER AND FINISH COAT TO BE APPLIED BEFORE ASSEMBLY. ALL FASTENERS TO BE STAINLESS STEEL.

13. GENERATOR AND ATS:

V. STARTUP AND PERFORMANCE TEST/REVIEW BY FACTORY REPRESENTATIVE SHALL BE DONE IN THE PRESENCE OF THE OWNER AND ENGINEER.

W. THE NORMAL AND EMERGENCY CONTACTS SHALL BE POSITIVELY INTERLOCKED MECHANICALLY AND ELECTRICALLY TO PREVENT SIMULTANEOUS CLOSING. MAIN CONTACTS SHALL BE MECHANICALLY LOCKED IN POSITION IN BOTH THE NORMAL AND EMERGENCY POSITIONS WITHOUT THE USE OF HOOKS, LATCHES, MAGNETS OR SPRINGS AND SHALL BE SILVER-TUNGSTEN ALLOY. SEPARATE ARCING CONTACTS, WITH MAGNETIC BLOWOUTS, SHALL BE PROVIDED ON ALL TRANSFER SWITCHES. INTERLOCKED MOLDED CASE CICUIT BREAKERS OR CONTACTORS ARE NOT ACCEPTABLE. THE TRANSFER SHALL BE EQUIPPED WITH A PERMANENTLY ATTACHED SAFE MANUAL OPERATOR DESIGNED TO PREVENT INJURY TO OPERATING PERSONNEL.

X. THE MANUAL OPERATOR SHALL PROVIDE A SAME CONTACT-TO-CONTACT TRANSFER SPEED AS THE ELECTRICAL OPERATOR TO PREVENT A FLASHOVER FROM SWITCHING THE MAIN CONTACTS SLOWLY.

Y. CAREFULLY "OHM" OUT CONTROL WIRING BETWEEN ATS AND GENERATOR SET PRIOR TO CONNECTING. CHECK FOR OPENS, SHORTS, OR GROUNDS. TEST ATS FUNCTIONS PRIOR TO CONNECTING LOAD. CHECK NORMAL AND EMERGENCY INPUT FEEDERS, PRIOR TO CONNECTION, FOR INSULATION BREAKAGE, OPENS, SHORTS, LUG TORQUE, OR GROUNDS.

Z. THE GENERATOR SET SHALL BE TESTED AT THE EQUIPMENT MANUFACTURER'S FACILITY PRIOR TO SHIPMENT. ALL TESTS SHALL BE RECORDED AND SUBMITTED TO THE ARCHITECT/ENGINEER. MINIMUM TESTING TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
   1. TRANSIENT RESPONSE.
   2. VOLTAGE DIP AT 50, 75, AND 100% LOAD.

AA. UPON COMPLETION OF THE INSTALLATION, START-UP AND FULL FUNCTION TEST SHALL BE PERFORMED BY THE GENERATOR SET MANUFACTURER REPRESENTATIVE OR A TRAINED DEALER SERVICE REPRESENTATIVE. PARTS BOOKS COVERING THE ENGINE, GENERATOR, AND MAJOR AUXILIARY EQUIPMENT SHALL BE PROVIDED TO THE OWNER AT THIS TIME. PROCEDURES ON OPERATING AND MAINTENANCE OF THE STANDBY POWER SYSTEM SHALL BE EXPLAINED TO OPERATING PERSONNEL.

BB. EQUIPMENT FURNISHED UNDER THESE SPECIFICATIONS SHALL BE GUARANTEED AGAINST DEFECTIVE PARTS AND WORKMANSHIP UNDER TERMS OF THE MANUFACTURER'S AND DEALER'S STANDARD WARRANTY. BUT, IN NO EVENT, SHALL IT BE FOR A PERIOD OF LESS THAN TWO YEARS FROM DATE OF INITIAL START-UP OF THE SYSTEM AND SHALL INCLUDE LABOR AND TRAVEL TIME FOR NECESSARY REPAIRS AT THE JOB SITE AT NO ADDITIONAL COST TO THE OWNER. RUNNING HOURS SHALL NOT BE A LIMITING FACTOR FOR THE SYSTEM WARRANTY.

CC. PROVIDE AND INSTALL A 600AMP, OPEN TRANSITION AUTOMATIC TRANSFER SWITCH TO OPERATE ON A 120/208V, 3 PHASE, 4 WIRE, 60 HZ VOLTAGE. VOLTAGE AND AMPERAGE AS NOTED ON PLANS. TRANSFER SWITCH SHALL BE 4-POLE. THE ENTIRE ASSEMBLY SHALL BE UL LISTED UNDER UL-1008 AND COMPLY WITH ALL NATIONAL ELECTRICAL CODE REQUIREMENTS.

DD. THE TRANSFER SWITCH SHALL BE DOUBLE THROW, ACTUATED BY A SINGLE ELECTRICAL OPERATOR, MOMENTARILY ENERGIZED; AND CONNECTED TO THE TRANSFER MECHANISM BY A SINGLE OVER-CENTER-TYPE LINKAGE WITH A TOTAL TRANSFER TIME NOT TO EXCEED ONE-HALF SECOND. THE TRANSFER SWITCH SHALL BE CAPABLE OF TRANSFERRING SUCCESSFULLY IN EITHER DIRECTION WITH 70% OF RATED VOLTAGE APPLIED TO THE SWITCH TERMINALS.

14. FIRE STOPPING:

A. ALL PENETRATIONS OF RATED ASSEMBLIES SHALL BE SEALED WITH RATED MATERIALS MEETING ASTM E-814.

B. PROVIDE FIRESTOPPING DEVICE(S) OR SYSTEM(S) WHICH HAVE BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814. INSTALL THE DEVICE(S) OR SYSTEM(S) IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE THE APPROPRIATE DEVICE(S) OR SYSTEM(S) WITH AN 'F' RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED.

C. DEVICE(S) AND/OR SYSTEM(S) SHALL BE BY HILTI, 3M OR EQUIVALENT.

15. ELECTRICAL COORDINATION WITH OTHER TRADES:

A. THE ELECTRICAL CONTRACTOR SHALL CONNECT AND/OR PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT SUPPLIED BY OTHERS APPLICABLE TO THE PROJECT, INCLUDING BUT NOT LIMITED TO, MECHANICAL, PLUMBING, FIRE PROTECTION AND SUPPRESSION, OWNER FURNISHED, KITCHEN, LABORATORY, ETC. UNLESS OTHERWISE NOTED.

B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONNECTIONS PRIOR TO ROUGH-IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS.

C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANUAL MOTOR STARTER SWITCHES, DISCONNECT SWITCHES, RECEPTACLES, ETC. TO MECHANICAL AND PLUMBING EQUIPMENT. ALL STARTERS, OTHER THAN MANUAL STARTER SWITCHES, SHALL BE PROVIDED BY OTHERS, BUT INSTALLED BY THE ELECTRICAL CONTRACTOR.

D. ALL DISCONNECT SWITCHES AND FUSE SIZES SHALL BE COORDINATED WITH SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLING. ANY EQUIPMENT INSTALLED INCORRECTLY BECAUSE OF LACK OF COORDINATION WILL BE REMOVED AND INSTALLED CORRECTLY AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.

E. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT RUNS AND LIGHT FIXTURE LOCATIONS ABOVE THE CEILING WITH OTHER TRADES PRIOR TO INSTALLATION.

F. ALL DUCT SMOKE DETECTORS SHALL BE PROVIDED AND CONNECTED BY THE ELECTRICAL CONTRACTOR, BUT INSTALLED BY THE MECHANICAL CONTRACTOR.

G. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY OUTLETS FOR HEAT TAPE CONNECTIONS FOR MECHANICAL SYSTEMS. PROVIDE CLASS B (30mA) GFCI PROTECTION ON THE BREAKER SUPPLYING THE HEAT TAPE.

H. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 120V POWER AT EACH HVAC UNIT HAVING A CONTROLS POWER SUPPLY. CIRCUIT(S) SHALL BE DEDICATED 20A SERVING A MAXIMUM OF 10 HVAC UNITS PER CIRCUIT. COORDINATE ALL LOCATIONS WITH THE MECHANICAL CONTRACTOR.

16. DEMOLITION NOTES:

A. PARTIAL AND TOTAL DEMOLITION OF PORTIONS SHALL BE PERFORMED ALONG WITH ALL NECESSARY MODIFICATIONS TO THAT PORTION OF THE EXISTING BUILDING WHICH SHALL REMAIN SO THAT IT CONTINUES TO FUNCTION UNAFFECTED BY THE DEMOLITION AND ASSOCIATED NEW CONSTRUCTION.

B. WHERE INCLUDED AS PART OF THE CONTRACT DOCUMENTS, THE DRAWINGS INDICATE THE GENERAL AREAS OF WORK INVOLVED. HOWEVER, THE ELECTRICAL CONTRACTOR SHALL PERFORM WORK OUTSIDE THOSE AREAS SHOWN AS IS NECESSARY TO COMPLY WITH THE INTENT OF THIS SECTION.

C. THE ELECTRICAL CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING BUILDING AND WITH THE WORK OF ALL OTHER TRADES AND INCLUDE ALL WORK NECESSARY TO COMPLY WITH THE INTENT OF THE DEMOLITION.

D. IT SHALL BE UNDERSTOOD THAT FIELD CONDITIONS MAY BE ENCOUNTERED DURING THE EXECUTION OF THIS CONTRACT WHICH WILL REQUIRE EXTENSION OR RELOCATION OF EXISTING SYSTEMS OR EQUIPMENT WHICH ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS, BUT WHICH ARE REQUIRED TO MEET THE STATED INTENT THAT THE BUILDING CONTINUE TO FUNCTION UNAFFECTED BY THE DEMOLITION AND ASSOCIATED NEW CONSTRUCTION. THE ELECTRICAL CONTRACTOR SHALL INCLUDE SUCH WORK AS WOULD NORMALLY BE EXPECTED IN AN EXISTING BUILDING OF THIS AGE AND TYPE.

E. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL TOOLS, EQUIPMENT, LABOR, ETC. IN ORDER TO ACCOMPLISH THE DEMOLITION PORTION OF THE PROJECT.

F. THE DEMOLITION OF CERTAIN AREAS OF THE EXISTING BUILDING SHALL BE PERFORMED BY THE GENERAL CONTRACTOR. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE GENERAL CONTRACTOR TO DIFFERENTIATE THE SCOPE OF WORK BETWEEN SEPARATE TRADES.

G. THE ELECTRICAL CONTRACTOR SHALL INCLUDE COORDINATION WITH THE GENERAL CONTRACTOR AND SUCH DEMOLITION OF THE EXISTING ELECTRICAL SYSTEMS AS IS NECESSARY SO THAT THE DEMOLITION WORK OF THE GENERAL CONTRACTOR SHALL NOT DAMAGE THOSE PORTIONS OF THE ELECTRICAL SYSTEMS WHICH ARE TO REMAIN IN SERVICE, ARE TO BE REUSED, OR ARE TO BECOME THE PROPERTY OF THE OWNER.

H. TURN OVER TO OWNER, UPON REQUEST OR AS NOTED, ITEMS SHOWN AS BEING REMOVED AND NOT REINSTALLED. ITEMS NOT DIRECTED OR REQUESTED TO BE TURNED OVER TO THE OWNER SHALL BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR.

I. EQUIPMENT OR MATERIALS WHICH ARE TO BE REUSED OR TURNED OVER TO THE OWNER SHALL BE CAREFULLY REMOVED, CLEANED, AND STORED IN A CLEAN AND DRY AREA. SHOULD THE ELECTRICAL CONTRACTOR ENCOUNTER SUCH EQUIPMENT WHICH IS NOT IN SATISFACTORY CONDITION FOR REUSE AND NOT IN WORKING ORDER, THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY.

J. DISCONNECT ELECTRICAL SERVICES TO ALL EQUIPMENT REQUIRING REMOVAL. CONDUIT SHALL BE REMOVED BACK TO THE POINT WHERE IT WILL BE CONCEALED AT THE COMPLETION OF THIS CONTRACT. WIRE AND CABLE SHALL BE REMOVED BACK TO THE FIRST OUTLET BOX, CABINET, OR TERMINATION POINT WHICH IS TO REMAIN. CIRCUITS WHICH ARE NOT REUSED SHALL BE REMOVED BACK TO THE SOURCE IN THEIR ENTIRETY.

K. REMOVE AND REINSTALL CEILINGS IN THE EXISTING BUILDING AS REQUIRED FOR THE WORK. COORDINATE WITH THE GENERAL CONTRACTOR. IN SUCH AREAS, REMOVE AND REINSTALL ALL ELECTRICAL DEVICES WHICH ARE TO REMAIN IN OR ON THE CEILING.

L. WHERE NEW CEILINGS CONFLICT WITH EXISTING ELECTRICAL WORK WHICH IS TO REMAIN, RELOCATE THE ELECTRICAL WORK INVOLVED TO CLEAR THE NEW CONSTRUCTION.

M. WHERE NEW WALL OR FLOOR FINISHES CONFLICT WITH EXISTING ELECTRICAL WORK WHICH IS TO REMAIN, RELOCATE THE ELECTRICAL WORK INVOLVED OR PROVIDE BOX EXTENSIONS OR SIMILAR DEVICES AND REINSTALL ON THE NEW FINISH.

N. WHERE EXISTING BRANCH CIRCUITS AND SYSTEMS ARE INTERRUPTED BY NEW WORK OR SYSTEMS (ELECTRICAL, MECHANICAL, PLUMBING, FIRE PROTECTION, ETC.), EXTEND AND RECONNECT THOSE EXECUTION OF THIS CONTRACT, PROVIDE TEMPORARY CONNECTIONS UNTIL FINAL CONNECTIONS ARE COMPLETE.

17. TESTING AND DOCUMENTATION:

A. TESTING AND DOCUMENTATION SHALL BE PROVIDED AS FOLLOWS:
   1. ALL CONDUCTORS SHALL BE MEGGERED BEFORE FINAL CONNECTIONS.
   2. THE GROUND SYSTEM SHALL BE TESTED AND VERIFIED TO BE 25 OHMS OR LESS RESISTANCE-TO-GROUND.
   3. GFCI EQUIPPED BREAKERS SHALL BE PERFORMANCE TESTED.
   4. LIGHTING CONTROL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION OF SETPOINTS.
   5. GENERATOR TESTING SHALL INCLUDE AN 8-HOUR, 100% LOAD BANK AND TRANSIENT TESTING. POWER QUALITY ANALYZERS SHALL BE USED FOR WAVEFORM CAPTURE AND TRANSIENT RESPONSE DOCUMENTATION.
   6. ATS TESTING SHALL INCLUDE TRANSFER FUNCTIONS, VERIFICATION OF TIMER/PICKUP/DROP-OUT SETPOINTS AND LOAD/NO-LOAD TEST OPERATION.

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

SEAL 055146
CLAY D. WASHINGTON
11.11.2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

ELECTRICAL SPECIFICATIONS

DATE 11/12/24
BSALS PROJECT NO. 21950006

E002

OPTIMA# 24-0146R
Sheet No. 2 of 9

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DESIGNED Designer
DRAWN Author
APPROVED Approver

KEYNOTE LEGEND (#)

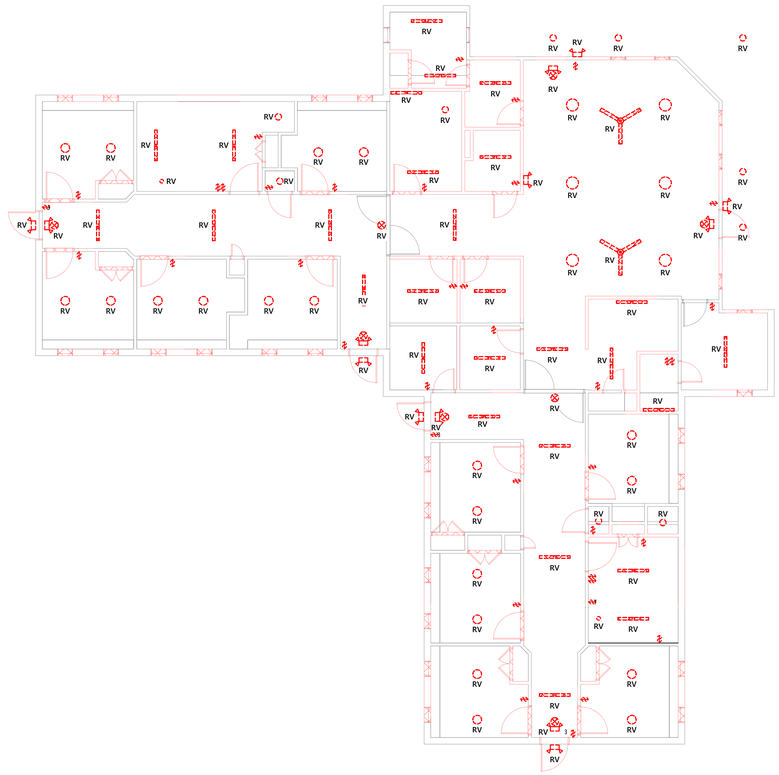
1	PROVIDE SINGLE POLE 20A SWITCH IN PARALLEL WITH OCCUPANCY SENSOR FOR MANUAL OVERRIDE.
2	CONNECT TO EXISTING 120V LIGHTING CIRCUIT SERVING THIS AREA. TOTAL LOAD ON EXISTING CIRCUIT SHALL NOT EXCEED 1900 WATTS.
3	CONNECT TO EXISTING 120V EXTERIOR LIGHTING CIRCUIT. NEW EXTERIOR FIXTURES SHALL UTILIZE EXISTING LIGHTING CONTROLS. TOTAL LOAD ON EXISTING CIRCUIT SHALL NOT EXCEED 1900 WATTS.

GENERAL NOTES - DEMOLITION

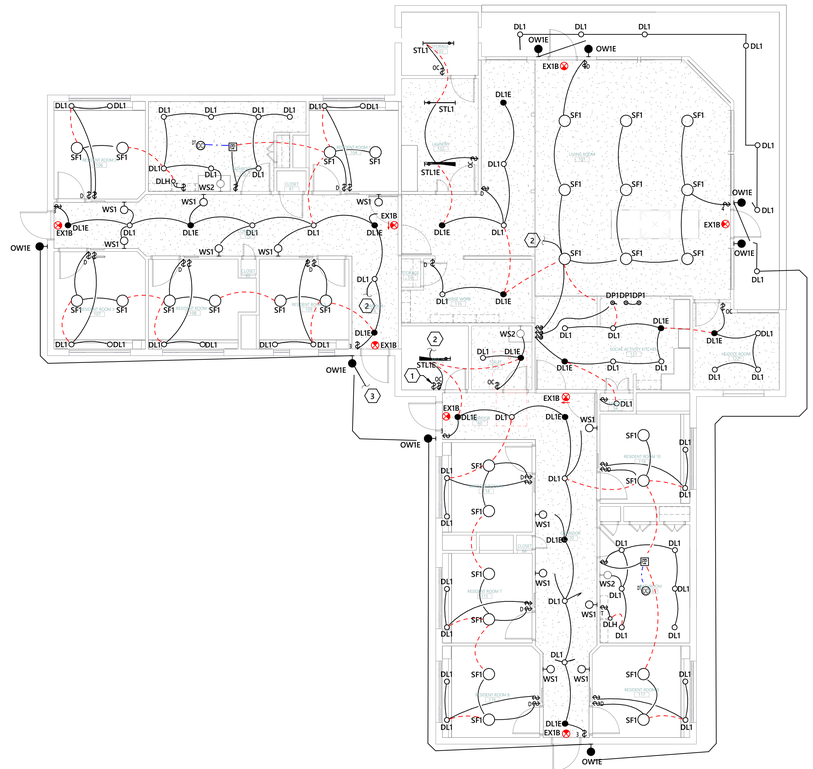
A.	SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
B.	DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES AND LIGHTING FIXTURES IN DEMOLITION AREAS UNLESS NOTED OTHERWISE.
C.	DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES IN WALLS TO BE DEMOLISHED. WALLS TO BE DEMOLISHED ARE SHOWN DASHED. DISCONNECT AND REMOVE ASSOCIATED CONDUIT AND WIRE BACK TO LAST REMAINING DEVICE. FURNISH AND INSTALL CONDUIT AND WIRE AS NECESSARY FOR CONTINUITY OF CIRCUIT(S) TO ANY EXISTING DEVICES TO REMAIN. COORDINATE AND VERIFY REQUIREMENTS WITH NEW WORK IN AREA.
D.	FURNISH AND INSTALL CONDUIT AND WIRE AS NECESSARY FOR CONTINUITY OF ANY FEEDERS OR BRANCH CIRCUITS ORIGINATING OUTSIDE THE DEMOLITION AREA THAT SERVES ANY ELECTRICAL EQUIPMENT OR DEVICES TO REMAIN AFTER DEMOLITION. MODIFY OR REPLACE AS REQUIRED.
E.	FURNISH AND INSTALL CONDUIT AND/OR COMMUNICATIONS/DATA WIRING AS NECESSARY FOR CONTINUITY OF ANY WIRING ORIGINATING OUTSIDE THE DEMOLITION AREA THAT SERVES ANY COMMUNICATIONS/DATA EQUIPMENT OR DEVICES TO REMAIN AFTER DEMOLITION. MODIFY OR REPLACE AS REQUIRED.
F.	DISCONNECT AND REMOVE LIGHT SWITCHES IN DEMOLITION AREAS AS NECESSARY TO ACCOMMODATE NEW DOOR CONFIGURATIONS.
G.	DISCONNECT AND REMOVE ANY EXISTING ELECTRICAL DEVICES AND BACK BOXES AS NECESSARY WHERE NEW WALL CONSTRUCTION WILL INTERSECT AN EXISTING WALL. FURNISH AND INSTALL CONDUIT AND WIRE AS REQUIRED FOR CONTINUITY OF CIRCUIT(S).
H.	FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

GENERAL NOTES - LIGHTING

A.	ALL RECESSED LIGHTING FIXTURES IN LAY-IN CEILINGS SHALL BE INSTALLED WITH 6' LONG FLEXIBLE METAL CONDUIT.
B.	ALL MOUNTING HEIGHTS FOR LIGHTING FIXTURES ARE TO THE BOTTOM OF THE FIXTURES UNLESS INDICATED OTHERWISE.
C.	SEE ARCHITECTURAL EXTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF EXTERIOR LIGHTING FIXTURES.
D.	REFER TO SECTION SPECIFICATIONS FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
E.	WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
F.	MODIFICATIONS TO NUMBER OF CONDUCTORS IN HOME RUNS IN ADDITION TO CIRCUITS INDICATED ON THIS DRAWING ARE PROHIBITED.



1 LIGHTING PLAN - DEMOLITION
1/8" = 1'-0"



2 LIGHTING PLAN - NEW WORK
1/8" = 1'-0"

WALL RATINGS

SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT

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510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288

Engineering Registration Number - C-2412

optima engineering
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CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

LIGHTING PLANS

DATE	11/12/24
BSALS PROJECT NO.	21950006

E101

OPTIMA# 24-0146R

KEYNOTE LEGEND

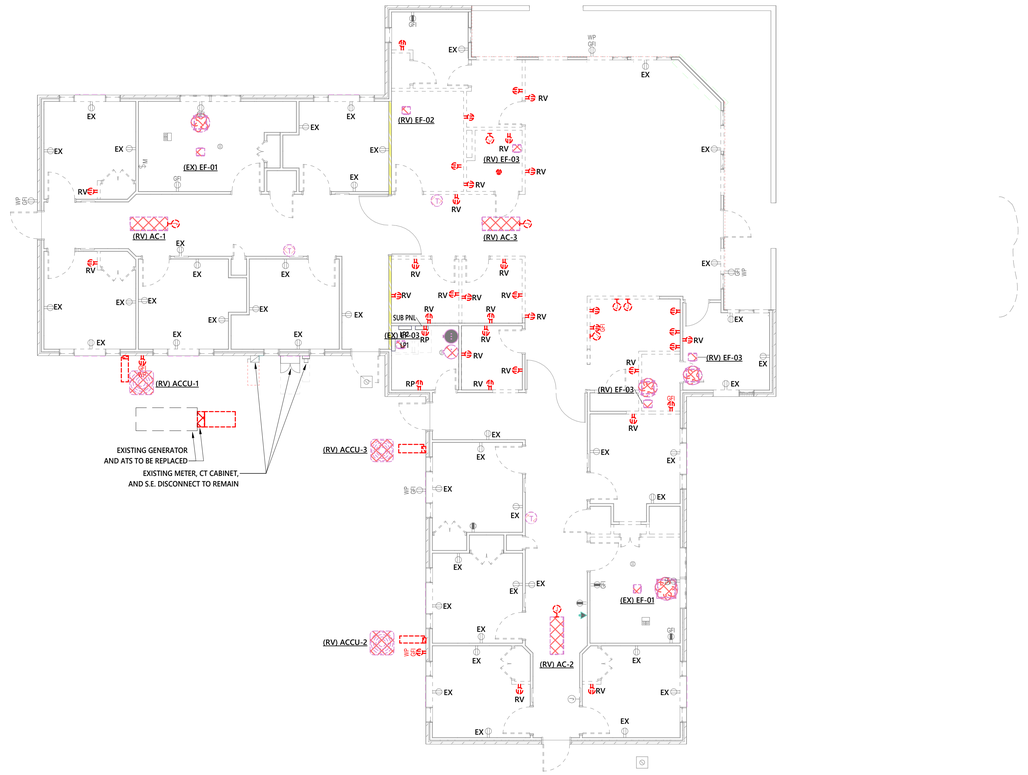
1	PROVIDE CONNECTION FOR DISHWASHER. VERIFY CONNECTION TYPE AND WIRING REQUIREMENTS WITH FINAL SELECTION. PROVIDE SINGLE POLE 20A SWITCH FOR DISHWASHER. UTILIZE EXISTING DISHWASHER CIRCUIT RETAINED DURING DEMOLITION.
2	PROVIDE CONNECTION FOR RANGE. VERIFY CONNECTION TYPE AND WIRING REQUIREMENTS WITH FINAL SELECTION. UTILIZE EXISTING RANGE CIRCUIT RETAINED DURING DEMOLITION.
3	PROVIDE CONNECTION FOR RANGE HOOD AND LOCKABLE TIMER SWITCH. VERIFY CONNECTION TYPE AND WIRING REQUIREMENTS WITH FINAL SELECTION. UTILIZE EXISTING HOOD CIRCUIT RETAINED DURING DEMOLITION. VERIFY MOUNTING REQUIREMENTS IN THE FIELD.
4	PROVIDE CONNECTION FOR COMMERCIAL DRYER. VERIFY ALL ELECTRICAL REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO COMMENCING WORK. DISCONNECT LOCATION TO BE DETERMINED IN THE FIELD.
5	CONNECT TO EXISTING RECEPTACLE CIRCUIT SERVING THIS AREA. NO MORE THAN 10 RECEPTACLES SHALL BE PERMITTED ON A SINGLE 20A CIRCUIT.
6	PROVIDE CONNECTION FOR MICROWAVE. VERIFY EQUIPMENT LOCATION IN THE FIELD. UTILIZE EXISTING MICROWAVE CIRCUIT RETAINED DURING DEMOLITION.
7	PROVIDE CONNECTION FOR REFRIGERATOR. UTILIZE EXISTING REFRIGERATOR CIRCUIT RETAINED DURING DEMOLITION.
8	PROVIDE CONNECTION FOR WASHER. UTILIZE EXISTING WASHER CIRCUIT RETAINED DURING DEMOLITION.
9	PROVIDE DOOR RELEASE FOR MAIN ENTRY DOOR. VERIFY EXACT LOCATION WITH OWNER/ARCHITECT.
10	PROVIDE NEW COVER PLATES AND TAMPER RESISTANT RECEPTACLES FOR ALL EXISTING RECEPTACLES PER NEC 406.12. EXISTING GFCI RECEPTACLES SHALL BE REPLACED WITH GFCI TAMPER RESISTANT RECEPTACLES. PROVIDE NEW COVER PLATES FOR ALL DATA OUTLETS. COORDINATE COVER PLATE FINISHES WITH ARCHITECT.

GENERAL NOTES - DEMOLITION

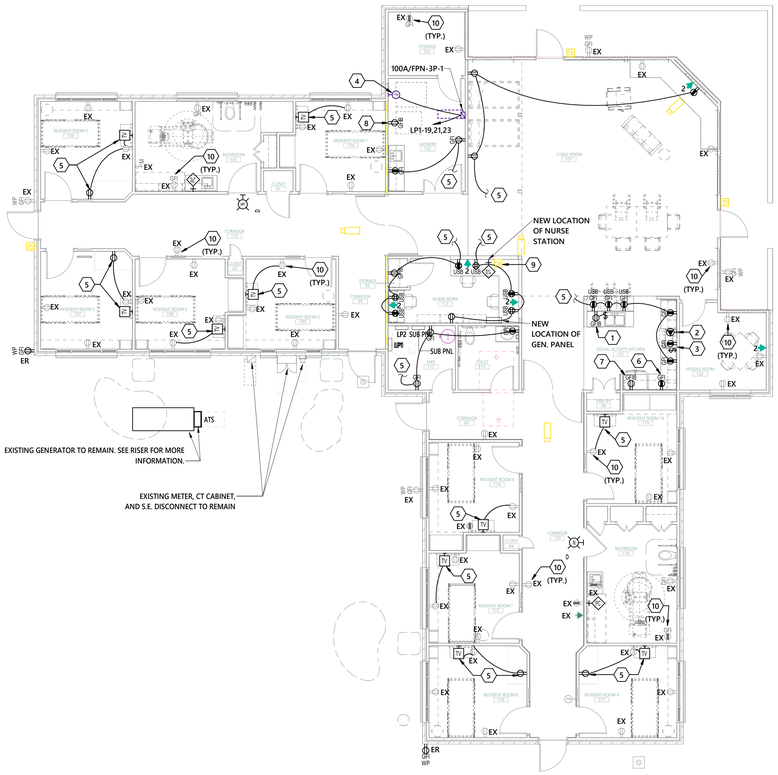
A.	SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
B.	DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES AND LIGHTING FIXTURES IN DEMOLITION AREAS UNLESS NOTED OTHERWISE.
C.	DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES IN WALLS TO BE DEMOLISHED. WALLS TO BE DEMOLISHED ARE SHOWN DASHED. DISCONNECT AND REMOVE ASSOCIATED CONDUIT AND WIRE BACK TO LAST REMAINING DEVICE. FURNISH AND INSTALL CONDUIT AND WIRE AS NECESSARY FOR CONTINUITY OF CIRCUIT(S) TO ANY EXISTING DEVICES TO REMAIN. COORDINATE AND VERIFY REQUIREMENTS WITH NEW WORK IN AREA.
D.	FURNISH AND INSTALL CONDUIT AND WIRE AS NECESSARY FOR CONTINUITY OF ANY FEEDERS OR BRANCH CIRCUITS ORIGINATING OUTSIDE THE DEMOLITION AREA THAT SERVES ANY ELECTRICAL EQUIPMENT OR DEVICES TO REMAIN AFTER DEMOLITION. MODIFY OR REPLACE AS REQUIRED.
E.	FURNISH AND INSTALL CONDUIT AND/OR COMMUNICATIONS/DATA WIRING AS NECESSARY FOR CONTINUITY OF ANY WIRING ORIGINATING OUTSIDE THE DEMOLITION AREA THAT SERVES ANY COMMUNICATIONS/DATA EQUIPMENT OR DEVICES TO REMAIN AFTER DEMOLITION. MODIFY OR REPLACE AS REQUIRED.
F.	DISCONNECT AND REMOVE LIGHT SWITCHES IN DEMOLITION AREAS AS NECESSARY TO ACCOMMODATE NEW DOOR CONFIGURATIONS.
G.	DISCONNECT AND REMOVE ANY EXISTING ELECTRICAL DEVICES AND BACK BOXES AS NECESSARY WHERE NEW WALL CONSTRUCTION WILL INTERSECT AN EXISTING WALL. FURNISH AND INSTALL CONDUIT AND WIRE AS REQUIRED FOR CONTINUITY OF CIRCUIT(S).
H.	FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

GENERAL NOTES - POWER

A.	WHERE CONNECTED TO A 20A, BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL RECEPTACLE (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20A.
B.	PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE, 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAIL DRAWINGS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.
C.	REFER TO SPECIFICATIONS FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
E.	WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
F.	MODIFICATIONS TO NUMBER OF CONDUCTORS IN HOME RUNS IN ADDITION TO CIRCUITS INDICATED ON THIS DRAWING ARE PROHIBITED.



1 **ELECTRICAL PLAN - DEMOLITION**
1/8" = 1'-0"



2 **POWER PLAN - NEW WORK**
1/8" = 1'-0"

WALL RATINGS

SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
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CIVITAN RENOVATION

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RALEIGH, NC 27606

PERMIT SET

AREA A

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

POWER PLANS

DATE	11/12/24
BSALS PROJECT NO.	21950006

E201

OPTIMA# 24-0146R

Sheet No. 4 of 9

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DESIGN: Designer
DRAWN: Author
APPROVED: Approver

KEYNOTE LEGEND ⟨x⟩	
1	CONNECT TO 120V LIGHTING CIRCUIT SERVING THIS AREA. FAN SHALL BE CONTROLLED BY SEPERATE SWITCH. COORDINATE WITH MECHANICAL CONTRACTOR.
2	CONNECT TO 120V LIGHTING CIRCUIT SERVING THIS AREA. INTERLOCK FAN WITH ROOM LIGHT SWITCH.

GENERAL NOTES - POWER	
A.	WHERE CONNECTED TO A 20A. BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL RECEPTACLE (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20A.
B.	PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE, 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAIL DRAWINGS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.
C.	REFER TO SPECIFICATIONS FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
E.	WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
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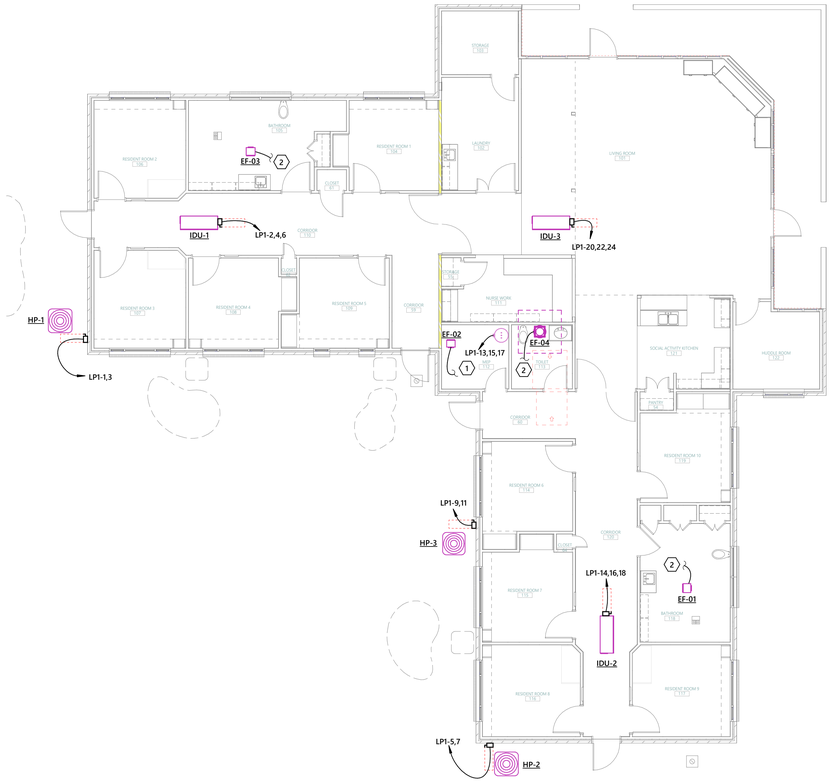

1 **EQUIPMENT CONNECTIONS PLAN - NEW WORK**
1/8" = 1'-0"

WALL RATINGS	
SMOKE PARTITION - (SP)	
1-HOUR SMOKE BARRIER - (SB)	
1-HOUR RATED FIRE BARRIER - (1HR)	
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	

RENOVATION LEGEND ABBREVIATIONS	
ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
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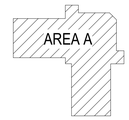

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

EQUIPMENT CONNECTIONS PLANS

DATE	11/12/24
BSALS PROJECT NO.	21950006

E301

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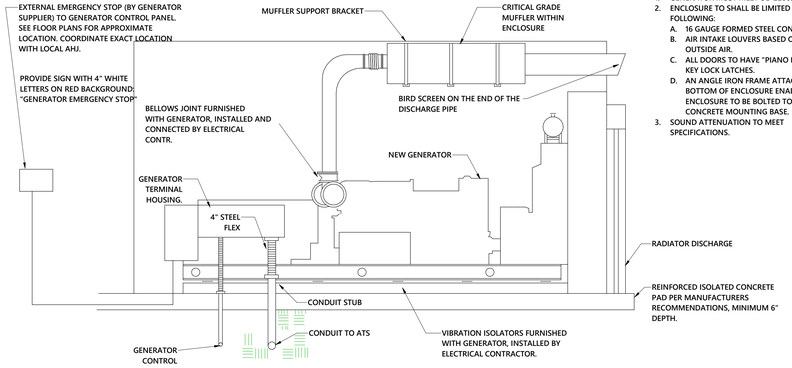
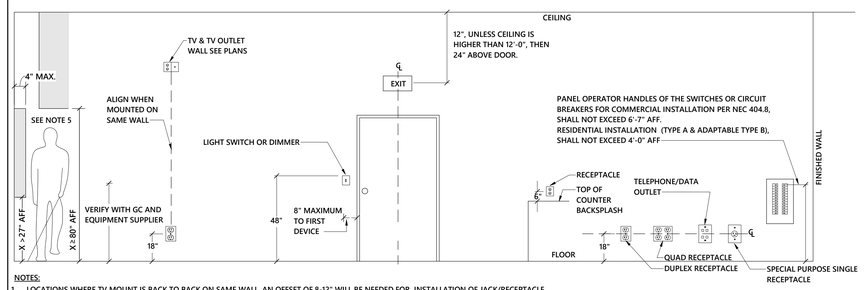
DESIGNED Designer
DRAWN Author
APPROVED Approver



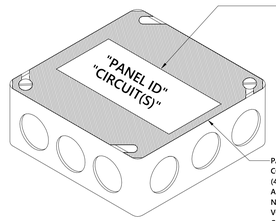
NOTES:
1. GENERATOR MUST MEET UL 2200.
2. ENCLOSURE TO SHALL BE LIMITED TO THE FOLLOWING:
   A. 16 GAUGE FORMED STEEL CONSTRUCTION.
   B. AIR INTAKE LOUVERS BASED ON 95° F OUTSIDE AIR.
   C. ALL DOORS TO HAVE "PIANO HINGES" AND KEY LOCK LATCHES.
   D. AN ANGLE IRON FRAME ATTACHED TO THE BOTTOM OF ENCLOSURE ENABLING ENCLOSURE TO BE BOLTED TO THE CONCRETE MOUNTING BASE.
3. SOUND ATTENUATION TO MEET SPECIFICATIONS.

2 SECTION AT WEATHERPROOF GENERATOR HOUSEING
NOT TO SCALE



NOTES:
1. LOCATIONS WHERE TV MOUNT IS BACK TO BACK ON SAME WALL, AN OFFSET OF 8-12" WILL BE NEEDED FOR INSTALLATION OF JACK/RECEPTACLE.
2. DEVICES ABOVE COUNTER TOPS SHALL BE A MAXIMUM OF 48" TO TOP OF DEVICE. DEVICES REQUIRED TO BE ADA ACCESSIBLE SHALL BE INSTALLED PER ANSI A117.1.
3. DEVICES NEXT TO DOOR EXIT SHALL BE WITHIN 8" (MAXIMUM) TYPICAL OF DOOR UNLESS OBSTACLES SUCH AS SIDELITES, ETC.
4. ALL METALLIC & NON-METALLIC, SWITCH AND RECEPTACLE BOXES INSTALLED IN FIRE RATED FRAME WALLS SHALL INCLUDE APPROVED FIRESTOP PUTTY PADS APPLIED ON THE BACK AND ALL SIDES OF BOX NOT TOUCHING THE WOOD STUD.
5. IN THE CIRCULATION PATH, IF THERE ARE PENDANT LIGHT FIXTURES, ENSURE THEY ARE LOCATED 80" A.F.F. OR HIGHER UNLESS LOCATED ABOVE A FIXED ELEMENT. WALL MOUNTED FIXTURES LOCATED BETWEEN 27" AND 80" A.F.F. SHALL NOT EXTEND GREATER THAN 4" FROM WALL OR BASE OR HAVE FIXED PROTECTION AT 27" A.F.F. OR LOWER WHEN THESE ELEMENTS ARE LOCATED IN THE CIRCULATION PATH.

1 MOUNTING HEIGHTS OF DEVICES - ELEVATION
NOT TO SCALE

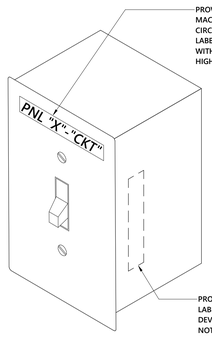


WITH PERMANENT MEANS (MINIMUM 1" LETTERING), INDICATE PANEL SOURCE, CIRCUIT NUMBER(S), FIRE ALARM LOOP ID, ETC. TO IDENTIFY WHAT IS CONTAINED WITHIN THE JUNCTION BOX. LABELING SHALL BE CLEARLY VISIBLE AGAINST THE PAINTED BACKGROUND.

PAINT ENTIRE JUNCTION BOX COVER TO IDENTIFY VOLTAGE (480/277V, 208/120V, ETC.) AND/OR SYSTEM (FIRE ALARM, NORMAL/EMERGENCY, SECURITY, VOICE/DATA, BAS/BMS, ETC.). COLOR SHALL BE AS INDICATED IN THE SPECIFICATIONS OR PER OWNER/BUILDING STANDARDS OR REQUIREMENTS.

NOTES:
1. ALL JUNCTION BOXES SHALL BE ACCESSIBLE.
2. THE LABELING/IDENTIFICATION INDICATED ABOVE IS INTENDED FOR ALL JUNCTION BOXES EXCEPT AS INDICATED IN NOTE 3.
3. LABELING/IDENTIFICATION FOR JUNCTION BOXES WHICH ARE VISIBLE IN FINISHED SPACES SHALL BE SIMILAR TO ABOVE EXCEPT THE LABELING/IDENTIFICATION SHALL BE LOCATED ON THE INSIDE COVER OF THE JUNCTION BOX.

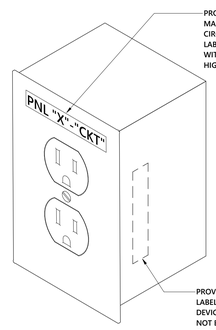
7 JUNCTION BOX LABELING/IDENTIFICATION
NO SCALE



PROVIDE SELF-ADHESIVE BACKED MACHINE LABEL INDICATING BRANCH CIRCUIT PANEL AND CIRCUIT ID. LABEL BACKGROUND SHALL BE CLEAR WITH BLACK TEXT, MINIMUM 1/4" HIGH.

PROVIDE MATCHING LABEL INSIDE THE DEVICE BOX WHERE NOT BLOCKED BY DEVICE OR WIRING.

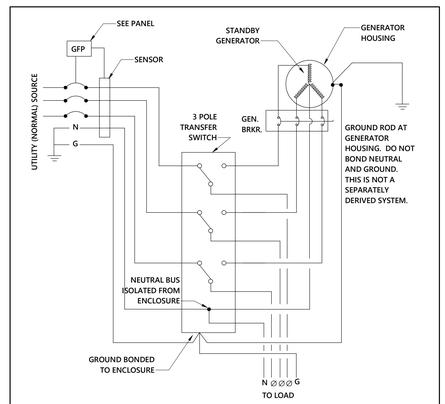
6 SWITCH PLATE AND BOX LABELING
NO SCALE



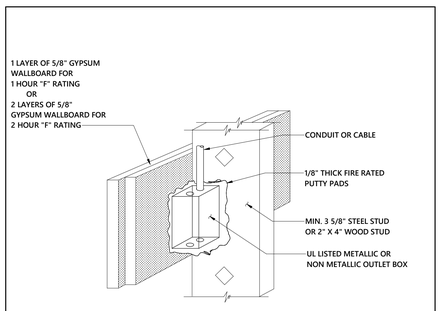
PROVIDE SELF-ADHESIVE BACKED MACHINE LABEL INDICATING BRANCH CIRCUIT PANEL AND CIRCUIT ID. LABEL BACKGROUND SHALL BE CLEAR WITH BLACK TEXT, MINIMUM 1/4" HIGH.

PROVIDE MATCHING LABEL INSIDE THE DEVICE BOX WHERE NOT BLOCKED BY DEVICE OR WIRING.

5 RECEPTACLE PLATE AND BOX LABELING
NO SCALE

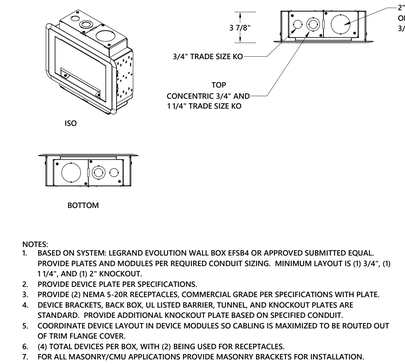


4 GENERATOR GROUNDING DETAIL
NOT TO SCALE



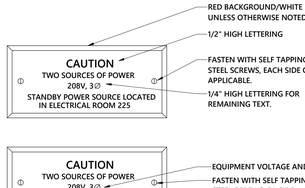
NOTES:
1. REQUIRED FOR METALLIC AND NON-METALLIC ELECTRICAL BOXES EXCEEDING 16 SQ. INCHES IN AREA OR MULTIPLE BOXES SERVING SAME SPACE.
2. REQUIRED FOR BACK TO BACK BOXES IN THE SAME STUD CAVITY.
3. REQUIRED FOR BOXES EXCEEDING 100 SQ INCHES TOTAL IN 100 SQ FEET OF WALL AREA.
4. THE USE OF PUTTY PADS ADHERENCE IS AT THE DISCRETION OF THE LOCAL AUTHORITY HAVING JURISDICTION.
5. REFER TO UL LISTING OF WALL FOR ADDITIONAL RESTRICTIONS OR INFORMATION.

3 WALL OUTLET DETAIL
NOT TO SCALE

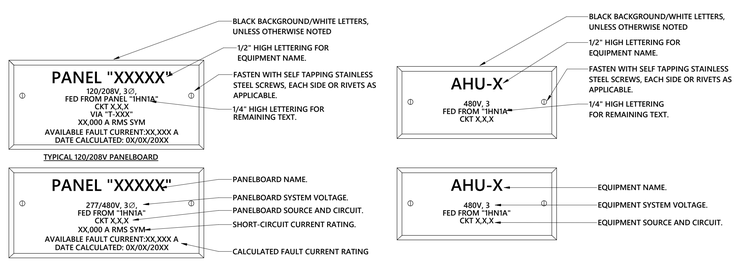


NOTES:
1. BASED ON SYSTEM: LEGRAND EVOLUTION WALL BOX EFSB4 OR APPROVED SUBMITTED EQUAL. PROVIDE PLATES AND MODULES PER REQUIRED CONDUIT SIZING. MINIMUM LAYOUT IS (1) 3/4", (1) 1 1/4", AND (1) 2" KNOCKOUT.
2. PROVIDE DEVICE PLATE PER SPECIFICATIONS.
3. PROVIDE (2) NEMA 5-20R RECEPTACLES, COMMERCIAL GRADE PER SPECIFICATIONS WITH PLATE.
4. DEVICE BRACKETS, BACK BOX, UL LISTED BARRIER, TUNNEL, AND KNOCKOUT PLATES ARE STANDARD. PROVIDE ADDITIONAL KNOCKOUT PLATE BASED ON SPECIFIED CONDUIT.
5. COORDINATE DEVICE LAYOUT IN DEVICE MODULES SO CABLING IS MAXIMIZED TO BE ROUTED OUT OF TRIM FLANGE COVER.
6. (4) TOTAL DEVICES PER BOX, WITH (2) BEING USED FOR RECEPTACLES.
7. FOR ALL MASONRY/CMU APPLICATIONS PROVIDE MASONRY BRACKETS FOR INSTALLATION.

10 TYPICAL TV/MONITOR AND POWER BACK BOX DIAGRAM FOR WALL MOUNTED FLAT SCREEN
NOT TO SCALE



9 EMERGENCY POWER NAMEPLATE
NOT TO SCALE



PANELBOARD NAMEPLATES

EQUIPMENT NAMEPLATES

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, COLORS, ETC.
2. PROVIDE SHORT-CIRCUIT CURRENT RATING AND AVAILABLE FAULT CURRENT ON EACH NON-DWELLING SERVICE EQUIPMENT NAMEPLATE.

8 TYPICAL NAMEPLATE DIAGRAM
NOT TO SCALE

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510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
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CIVITAN RENOVATION

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RALEIGH, NC 27606

PERMIT SET

AREA A

KEYPLAN
PLAN NORTH

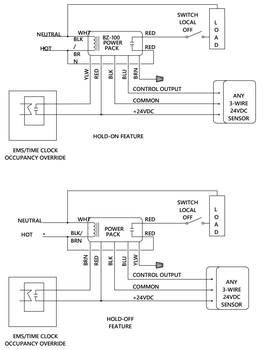
MARK	DATE	DESCRIPTION

ELECTRICAL DETAILS

DATE	11/12/24
BSALS PROJECT NO.	21950006

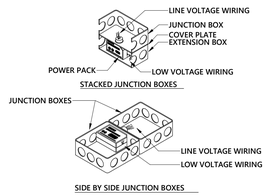
E601

OPTIMA# 24-0146R



NOTE: CONNECT ONLY THE SUPPLY FOR THE VOLTAGE BEING USED. CAP UNUSED POWER SUPPLY WIRE.

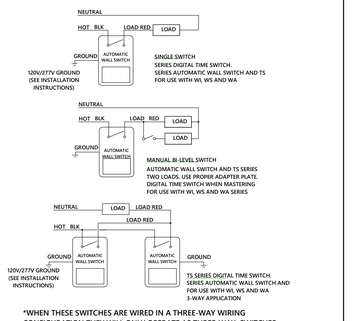
4 POWER PACK WIRING DIAGRAM
NOT TO SCALE



NOTE:
DO NOT MOUNT POWER PACKS CLOSER THAN 6-12 INCHES FROM SENSOR. PROVIDE DOUBLE STACKED JUNCTION BOX FOR MAXIMUM VENTILATION OF POWER PACK. PROVIDE BLANK COVER. WHERE PERMITTED BY CODE AND AHJ, LEAVE (2) OPENINGS IN CONDUIT KNOCKOUT FOR VENTING OF POWER PACK. VERIFY WITH AHJ PRIOR TO KNOCKOUT REMOVAL.

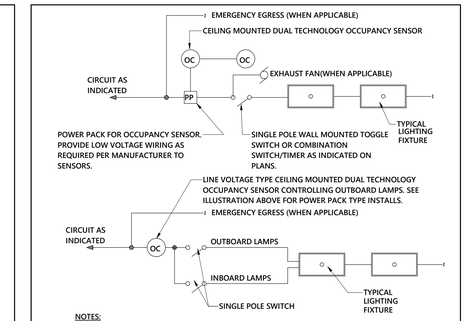
POWER PACK INSTALLED IN J-BOX

3 POWER PACK INSTALLATION
NOT TO SCALE



*WHEN THESE SWITCHES ARE WIRED IN A THREE-WAY WIRING CONFIGURATION THEY WILL ONLY OPERATE AS THREE-WAY SWITCHES IF THEY ARE LEFT IN AUTOMATIC MODE. IF ONE SWITCH IS TURNED OFF, THE LIGHTS WILL NOT COME AUTOMATICALLY ON UNTIL THAT SWITCH IS TURN BACK TO THE AUTOMATIC POSITION.

2 SINGLE POLE OCC. SENSOR SWITCH
NOT TO SCALE



NOTES:
1. OCCUPANCY SENSORS SHALL BE SET TO TIME OUT AFTER 15 MINUTES AND THE TRIM POTENTIOMETER IS SET TO 90% FOR SENSITIVITY.
2. OCCUPANCY SENSORS SHALL BE PLACED AS TO NOT FUNCTION UPON SOMEONE JUST PASSING BY THE ROOM DOOR BUT BY ACTUALLY ENTERING THE ROOM IN AS MUCH AS POSSIBLE.

1 TYPICAL CEILING MOUNTED OCCUPANCY SENSOR WIRING DIAGRAMS
NOT TO SCALE

NOTES:
1. WHERE ROOF DECKING IS THE IS THE ALLOWABLE SUPPORT STRUCTURE, AND PATHWAY SYSTEM IS NOT IMC OR RMC, THE MINIMUM DISTANCE FROM ROOF DECKING SHALL BE 1.5" FOR ALL BOXES AND CONDUIT.

6 TYPICAL RECESSED DOWN LIGHT FIXTURE INSTALLATION DIAGRAM
NOT TO SCALE

5 DT-200-300
NOT TO SCALE

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

ELECTRICAL DETAILS

DATE	11/12/24
BSALS PROJECT NO.	21950006

E602

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288
Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 055146 ENGINEER CLAY D. WASHINGTON 11.11.2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

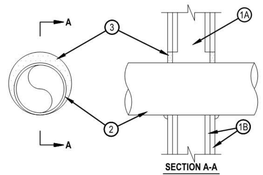
PERMIT SET

WL 1054

System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating (Without Movement) at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating (Without Movement) at 400°F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
M Rating (Movement) — See Table 1	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 5.1 L/s/m2
	L Rating at 204°C — Less Than 5.1 L/s/m2



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and 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 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. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. For M Rating, steel studs to be min 3-5/8 in. (92 mm) wide. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board 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 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.

The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly. The M Rating is applicable only to 1 hr rated walls.

HILTI FIRESTOP SYSTEMS

Hilti Firestop Systems

WL 1054

System No. W-L-1054

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. 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 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 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   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.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

Movement Direction	Penetrant Item	Nominal Penetrant Diameter	Annular Space	Movement	Sealant Depth	F-Rating	L Rating with Movement
Y	2A, 2C*	2 in.	Max 2-1/4 in.	5%	5/8 in.	1 hr	N/A
Z	2A, 2C*	2 in.	2-1/4 in.	0.25 in.	5/8 in.	1 hr	N/A

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

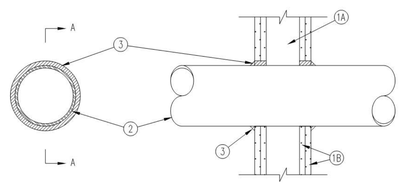
HILTI FIRESTOP SYSTEMS

Hilti Firestop Systems

SYSTEM NO. W-L-1054

WL 1085

System No. W-L-1085
F Rating – 1 and 2 Hr (See Item 1B)
T Rating – 0 Hr
L Rating At Ambient – Less Than 1 CFM/Sq Ft
L Rating At 400 F – 4 CFM/Sq Ft



SECTION A–A

1. Wall Assembly The 1 or 2 hr fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and 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 or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2–1/2 in. wide and spaced max 24 in. OC.
   B. Gypsum Board* 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 13–1/4 in.

Diam of circular opening cut through gypsum wallboard on each side of wall assembly to be min 1/4 in. to max 1/2 in. larger than outside diam of through penetrant (Item 2). The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

HILTI FIRESTOP SYSTEMS

WL 1085

System No. W-L-1085
F Rating – 1 and 2 Hr (See Item 1B)
T Rating – 0 Hr
L Rating At Ambient – Less Than 1 CFM/Sq Ft
L Rating At 400 F – 4 CFM/Sq Ft

2. Through Penetrants One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The annular space between the through–penetrant and the periphery of the opening shall be min 0 in. to max 1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe Nom 12 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit Nom 6 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. Copper Tubing Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* –– Sealant Fill material to be forced into the annulus to maximum extent possible. Additional fill material to be installed such that a min 1/2 in. crown is formed around the penetrating item and lapping 1/4 in. beyond the periphery of the opening.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC –– FS–One Sealant

*Bearing the UL Classification Marking

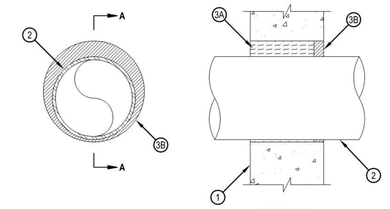
HILTI FIRESTOP SYSTEMS

SYSTEM NO. W-L-1085

WJ 1088

System No. W-J-1088
F Ratings — 1 and 2 Hr (See Item 3)
T Rating — 0 Hr

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115



SECTION A-A

1. Wall Assembly — Min 3-3/4 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diameter of opening 10-1/2 in.
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. An annular space of min 1/4 in. to max 1-5/8 in. is required within firestop system. 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 8 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 8 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or 6 in. diam steel conduit.
   D. Copper Tubing — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
   F. Flexible Steel Conduit+ — Nom 2 in. diam (or smaller) flexible steel conduit.
   See Flexible Metal Conduit (DXUZ) category in the Electrical Construction Equipment Directory for names of manufacturers.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 2-1/8 in. or 2-3/4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening on one side of the wall as permanent form for 1 and 2 Hr walls, respectively. Packing material to be recessed from one side of wall as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material — Sealant* — Min 1 in. thickness of fill material applied within opening, flush with one surface of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant

*Bearing the UL Classification Mark
+Bearing the UL Listing Mark

HILTI FIRESTOP SYSTEMS

Hilti Firestop Systems

SYSTEM NO. W-J-1088

BSA LifeStructures
510 Glenwood Ave, Suite 321
Raleigh, NC 27603-1262
ph 919.334.7301 fx 317.819.7288

Engineering Registration Number - C-2412

optima engineering
434 Fayetteville St., Suite 2450, Raleigh, NC 27601
Phone: 919-926-2200 - www.optimaengineering.com
North Carolina License Number C-0914

NORTH CAROLINA PROFESSIONAL SEAL 055146 ENGINEER CLAY D. WASHINGTON 11.11.2024

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

PERMIT SET

AREA A

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

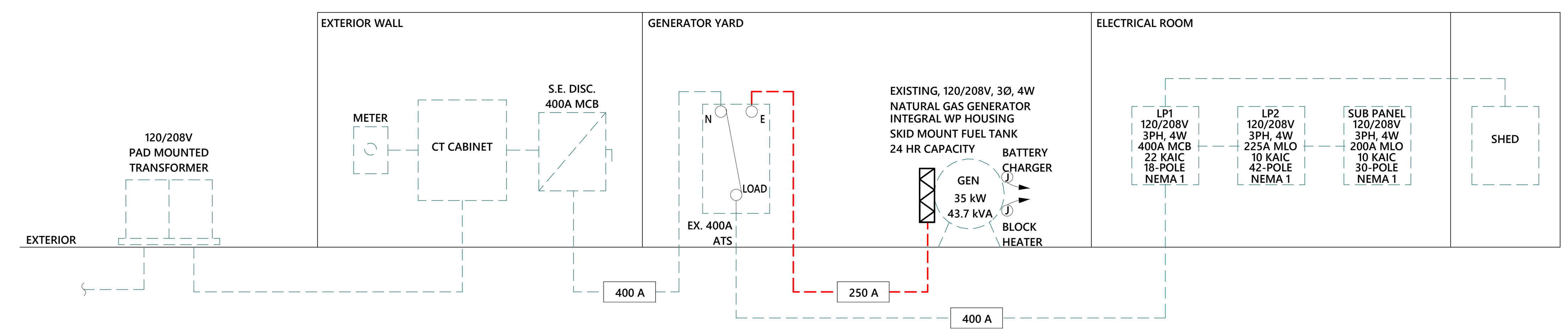
ELECTRICAL DETAILS

DATE	11/12/24
BSALS PROJECT NO.	21950006

E603

OPTIMA# 24-0146R

11/11/2024 3:52:29 PM
Autodesk Docs://21950006 - Tucker & Civitan Renovations/24-0146R_TLC Ph 3-Civitan_MEPFp_R24.rvt
DESIGN Designer
DRAWN Author
APPROVED Approver



LEGEND
NEW CONSTRUCTION
EXISTING CONSTRUCTION
DEMOLITION CONSTRUCTION

1 POWER RISER DIAGRAM - DEMO
NOT TO SCALE

PANEL: LP1

VOLTAGE: 208Y/120 3Ø — FED FROM: ATS
MOUNTING: SURFACE — MAIN TYPE: MLO — MFR: EXISTING
ENCLOSURE: NEMA1 — PHASE: 3 — TYPE: EXISTING
MAIN: 400 A — WIRE: 4 — AIC: 22 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A	A	B	B	C	C	Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
C	**HP-1 (NOTE 8)**	**8**	**40 A**	**1**	**2**	0.29	3.17					**3**	**2**	**35 A**	**8**	**IDU-1 (NOTE 8)**	**H**
				3				0.29	3.17				**4**				
C	**HP-2 (NOTE 8)**	**8**	**40 A**	**5**	**2**					0.29	3.17		**6**				
				7		0.29	0.00					3	8	80 A	EX	(EX) SHED	MS
C	**HP-3 (NOTE 8)**	**6**	**50 A**	**9**	**2**			0.29	0.00				10				
				11						0.29	0.00		12				
WH	**WH1 (NOTE 9)**	**4**	**65 A**	**13**	**3**	6.00	3.17					**3**	**14**	**35 A**	**8**	**IDU-2 (NOTE 8)**	**H**
				15				6.00	3.17				**16**				
				17						6.00	3.17		**18**				
LD	**DRYER (NOTE 8)**	**2**	**90 A**	**19**	**3**	8.04	3.17					**3**	**20**	**35 A**	**8**	**IDU-3 (NOTE 8)**	**H**
				21				8.04	3.17				**22**				
				23						8.04	3.17		**24**				
	SPACE ONLY	-	--	25	1	--	--					1	26	--	-	SPACE ONLY	
	SPACE ONLY	-	--	27	1			--	--			1	28	--	-	SPACE ONLY	
	SPACE ONLY	-	--	29	1					--	--	1	30	--	-	SPACE ONLY	
F	(EX) PANEL LP2	EX	200 A	31	3	0.00	--					1	32	--	-	SPACE ONLY	
				33				0.00	--			1	34	--	-	SPACE ONLY	
				35						0.00	--	1	36	--	-	SPACE ONLY	

	LOAD	Connected Load	Demand Factor	Estimated Demand
L	LIGHTS	0.00 kVA	0.00%	0.00 kVA
LE	LIGHTING - EXTERIOR	0.00 kVA	0.00%	0.00 kVA
H	HEATING	28.53 kVA	100.00%	28.53 kVA
C	COOLING	1.74 kVA	100.00%	1.74 kVA
V	VENTILATION	0.00 kVA	0.00%	0.00 kVA
M	MOTORS	0.00 kVA	0.00%	0.00 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	0.00 kVA	0.00%	0.00 kVA
WH	WATER HEATER	18.01 kVA	100.00%	18.01 kVA
MS	MISC.	0.00 kVA	0.00%	0.00 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	24.13 kVA	100.00%	24.13 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE NEW TYPE WRITTEN PANELBOARD SCHEDULE.
6. '(EX)' INDICATES EXISTING LOADS.
7. BOLD INDICATES NEW WORK/LOADS.
8. PROVIDE NEW BREAKER AS INDICATED AND CONNECT.
9. PROVIDE LOCKABLE CIRCUIT BREAKER.
10. PROVIDE CLASS-A (5mA-PERSONNEL) GFCI BREAKER.

TOTAL KVA...	72.41 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	72.41 kVA	201.1 A	201.1 A	201.1 A
TOTAL AMP....	201 A			
TOTAL AMP. (DEMAND):	201 A	**TOTAL AMP. (DEMAND) x 125%**		251.2 A

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD SUMMARY.

LP1 LOAD SUMMARY

EXISITING PEAK DEMAND	25.0	KVA
LOADS ADDED:		
LIGHTING	+4.02	KVA
+25% LIGHTS	+5.03	KVA
RECEPTACLES	+4.68	KVA
HVAC	+28.53	KVA
EXHUAST FANS	+0.27	KVA
MISC.	+24.13	KVA
ELEC WATER HEATER	+18.00	KVA
+25% ELEC WATER HEATER	+4.50	KVA
TOTAL ADDED:	*+85.14*	*KVA*
NET LOAD:	+110.14	KVA
208/120V	305.1	A
@125%	381.4	A

NOTE:
1. 12 MONTH PEAK DEMAND DATA PROVIDED BY THE UTILITY COMPANY; HIGHEST PEAK DEMAND READING FOR 2023

EQUIPMENT CONNECTION SCHEDULE

ID	FLA	MCA	MOCP	VOLT	PH	WIRE & CONDUIT SIZE	DISCONNECT
EF-01	0.1 A	0.2 A	20.0 A	115 V	1	3#12, 1#12(G) - 3/4" C	PROVIDED BY M.C.
EF-02	0.1 A	0.2 A	20.0 A	115 V	1	3#12, 1#12(G) - 3/4" C	PROVIDED BY M.C.
EF-03	0.1 A	0.2 A	20.0 A	115 V	1	3#12, 1#12(G) - 3/4" C	PROVIDED BY M.C.
EF-04	1.3 A	1.6 A	20.0 A	115 V	1	3#12, 1#12(G) - 3/4" C	PROVIDED BY M.C.
HP-1	13.8 A	26.0 A	40.0 A	208 V	1	3#8, 1#10(G) - 3/4" C	60AS-2P-3R
HP-2	13.8 A	26.0 A	40.0 A	208 V	1	3#8, 1#10(G) - 3/4" C	60AS-2P-3R
HP-3	15.9 A	32.0 A	50.0 A	208 V	1	3#6, 1#10(G) - 3/4" C	60AS-2P-3R
IDU-1	25.0 A	33.0 A	35.0 A	208 V	3	4#8, 1#10(G) - 3/4" C	60AS-3P-1
IDU-2	25.0 A	33.0 A	35.0 A	208 V	3	4#8, 1#10(G) - 3/4" C	60AS-3P-1
IDU-3	25.0 A	33.0 A	35.0 A	208 V	3	4#8, 1#10(G) - 3/4" C	60AS-3P-1
WH1	50.0 A	62.5 A	70.0 A	208 V	3	4#4, 1#8(G) - 3/4" C	LOCKABLE CIRCUIT BREAKER

FEEDER SCHEDULE FOR COPPER CONDUCTORS

FEEDER AMPS	WIRE SIZE TEMP 60°C (CU)	WIRE SIZE TEMP 75°C (CU)
60 A	4#4, 1#10G, 1-1/4"C	4#6, 1#10G, 1"C
150 A		4#1/0, 1#6G, 2"C
175 A		4#2/0, 1#6G, 2"C
200 A		4#3/0, 1#6G, 2-1/2"C
250 A		4-250 KCMIL, 1#4G, 3"C
400 A		(2)-4#3/0, 1#3G, 2-1/2"C

NOTES: 1.) FOR TERMINATIONS RATED 100A OR LESS, THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TERMINATIONS ARE LISTED FOR 75°C. WHERE 100A OR LESS RATED TERMINATIONS ARE LISTED 60°C, THE ELECTRICAL CONTRACTOR SHALL USE THE 60°C FEEDER LISTED IN THE TABLE.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MIN. LUMENS	CCT	WATTS	DRIVER	VOLT	MANUFACTURER	MODEL	REMARKS
DL1	8" RECESSED LED DOWNLIGHT	1,500	3000K	18.0 W	REMOTE LED DRIVER (TRIAC DIMMING)	120V	TGS (TRULY GREEN SOLUTIONS)	TWRF-0818-C-S; TWR-NC	AIR TIGHT IC RATED; MINIMUM 10% DIMMING; MINIMUM 1500 LUMENS; 110 DEGREE BEAM ANGLE;
DL1E	8" RECESSED LED DOWNLIGHT	1,500	3000K	18.0 W	REMOTE LED DRIVER (TRIAC DIMMING)	120V	TGS (TRULY GREEN SOLUTIONS)	TWRF-0818-C-S; TWR-NC; 90025-H	AIR TIGHT IC RATED; MINIMUM 10% DIMMING; MINIMUM 1500 LUMENS; 110 DEGREE BEAM ANGLE; PROVIDE WITH 25W EMERGENCY BATTERY
DLH	6" RECESSED DOWNLIGHT WITH HEAT LAMP	1,500	3500K	250.0 W	N/A	120V	CONTECH LIGHTING	RL30S-ICSA	IC RATED. PROVIDE WITH 250W INCANDESCENT RED HEAT LAMP.
DP1	MINI DECORATIVE LED PENDANT	2,000	3000K	12.0 W	INTEGRAL LED DRIVER	120V	BETTER DESIGNED LIGHTING	2153197	9.5 x 9.5 x 8.5 in; COORDINATE FINISH AND MOUNTING HEIGHT WITH ARCHITECT
EX1B	EXIT SIGN	[redacted]	3000K	1.0 W	INTEGRAL LED DRIVER	120V	MULE LIGHTING	PVT-__-B	SEE PLANS FOR EXIT SIGN FACE AND ARROW REQUIREMENTS; MIRROR FACE; NICKEL CADMIUM BATTERY EXIT SIGN 90 MINUTE OPERATION;RED TEST SWITCH PROVIDED
OW1E	DECORATIVE OUTDOOR WALL SCONCE	1,100	3000K	24.0 W	INTEGRAL LED DRIVER	120V	ARTIKA PRO	21OUT-C7-PMB	COORDINATE FINISH AND MOUNTING HEIGHT WITH ARCHITECT; WET LOCATION LISTED
SF1	18" DIA, SURFACE MOUNTED LED FIXTURE	4,000	3000K	40.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	120V	TGS (TRULY GREEN SOLUTIONS)	SOLA-18-40W-30K-U-D1-__-SM-D	FLUSH SATIN LENS; 4" DEPTH; SURFACE MOUNT; COORDINATE FINISH WITH ARCHITECT
STL1	4 FT. LED STRIP	5,000	3000K	42.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	120V	DAY-BRITE	FSS 4 40L 835 UNV DIM	SURFACE MOUNTED; MINIMUM 4000 LUMENS; LENSED; DLC LISTED; 3000K
STL1E	4 FT. LED STRIP WITH BATTERY BACKUP	5,000	3000K	42.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	120V	DAY-BRITE	FSS 4 40L 835 UNV DIM	SURFACE MOUNTED; MINIMUM 4000 LUMENS; LENSED; DLC LISTED; PROVIDE WITH 10W BATTERY PACK 3000K
WS1	DECORATIVE INDOOR WALL SCONCE	800	3000K	13.0 W	INTEGRAL LED DRIVER	120V	ARTIKA PRO	OUT-WIC-__-3000K	COORDINATE FINISH AND MOUNTING HEIGHT WITH ARCHITECT
WS2	DECORATIVE VANITY FIXTURE	[redacted]	3000K	20.0 W	INTEGRAL LED DRIVER	120V	ARTIKA PRO	VAN-WIC-__	COORDINATE FINISH AND MOUNTING HEIGHT WITH ARCHITECT; MINIMUM 1200 LUMENS;

1. ALL FIXTURES SHALL BE LED UNLESS OTHERWISE SPECIFIED. COLOR TEMPERATURE SHALL BE 3000K UNLESS OTHERWISE NOTED.
2. LED DRIVERS SHALL BE PROVIDED FROM PER MANUFACTURER RECOMMENDATION. AS PART OF THIS RECOMMENDATION COORDINATE THE REQUIRED WAVE OUTPUT SO THEY ARE COMPATIBLE. THIS INCLUDES EMERGENCY DRIVERS.
3. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT FIXTURE LOCATIONS.
4. FIXTURES IN FIRE RATED CEILING SHALL BE PROVIDED WITH FIRE RATED TENTS AS REQUIRED.
5. SUSPEND ALL FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
6. FIXTURES WITH EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH 1100 LUMEN INVERTERS.
7. PROVIDE INTEGRAL SURGE PROTECTION ON ALL EXTERIOR LED DRIVER FIXTURE TYPES.
8. DIMMING OF FIXTURES SHALL BE WITH A SWITCH AS RECOMMENDED BY THE DRIVER MANUFACTURER.
9. THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
10. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
11. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
12. ALL EXPEDITED EXPENSES SHALL BE THE RESPONSIBILTY OF THE CONTRACTOR.
13. FIXTURES TO BE INSTALLED IN CEILINGS, INDICATED ON ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH CEILING SURFACE, SHALL BE IC RATED BY MANUFACTURER.
14. LED DRIVERS LOCATED IN UNCONDITIONED SPACES SHALL BE RATED FOR 90 DEGREES F.
15. PROVIDE 90 MINUTE EMERGENCY BATTERY BACK UP. EMERGENCY BACK UP SHALL BE BASED ON TYPE OF FIXTURE, LED DRIVER, BALLAST, ETC. EMERGENCY BACKUP SHALL BE DUAL INPUT FOR BOTH SWITCHING AND CHARGING. PROVIDE UNSWITCHED "HOT" FROM LOCAL CIRCUIT UNLESS OTHERWISE INDICATED ON PLANS. PROVIDE WITH INDICATOR LIGHT. INSTALL LED INDICATOR ON LIGHT FIXTURE UNLESS DECORATIVE. DECORATIVE FIXTURES SHALL HAVE INDICATOR PLACED AT LOCAL CEILING. BODINE, PHILLIPS, POWER SENTRY OR EQUAL.

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Raleigh, NC 27603-1262
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Phone: 919-926-2200 - www.optimaengineering.com
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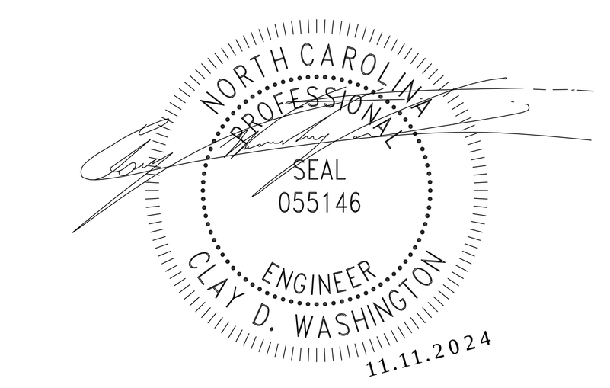

CIVITAN RENOVATION

743 CHAPPELL DRIVE
RALEIGH, NC 27606

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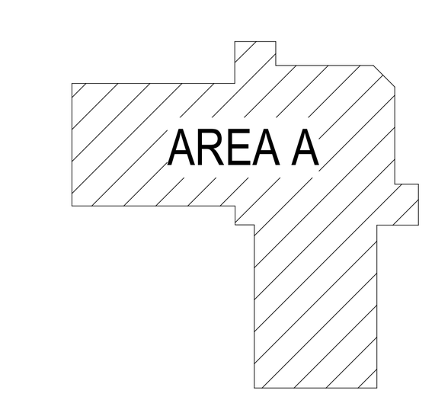

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

ELECTRICAL DIAGRAMS AND SCHEDULES

DATE 11/12/24
BSALS PROJECT NO. 21950006

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DESIGNED Designer
DRAWN Author
APPROVED Approver

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

	SYSTEM INPUTS	SYSTEM OUTPUTS: FACP ANNUNCIATION — ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE AUDIBLE SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	ACTUATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	RELEASE MOMENTARILY HELD DOORS	CLOSE ALL SMOKE DAMPERS	UNLOCK EXITS AND CONTROL DOORS	SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	NOTIFICATION	REQUIRED FIRE SAFETY CONTROL
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
1	FIRE ALARM SYSTEM AC POWER FAILURE			●	●					●		●										1	
2	FIRE ALARM SYSTEM LOW BATTERY					●	●			●			●									2	
3	OPEN CIRCUIT					●	●			●			●									3	
4	GROUND FAULT					●	●			●			●									4	
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●			●			●									5	
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●		●						6	
7	CORRIDOR SMOKE DETECTORS	●	●					●	●	●	●			●	●	●						7	
8	AREA SMOKE DETECTORS	●	●					●	●	●	●			●	●	●						8	
9	CARBON MONOXIDE DETECTORS	●	●					●	●	●	●			●	●	●						9	
10	HVAC AIR DUCT SMOKE DETECTORS			●	●			●		●		●					●					10	
11	AREA HEAT DETECTORS	●	●					●	●	●	●			●	●	●						11	
12	SPRINKLER TAMPER SWITCH			●	●			●		●		●										12	
13	SPRINKLER WATER FLOW IN BUILDING	●	●					●	●	●	●			●	●	●						13	
14	SPRINKLER LOW TEMPERATURE			●	●			●		●		●										14	
15	BDA SYSTEM			●	●			●		●		●										15	
16	REFRIGERANT MONITORING SYSTEM			●	●			●		●		●										16	
17																						17	
18																						18	
19																						19	
20	-																					20	
21	-																					21	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		

1 FIRE ALARM MATRIX
NOT TO SCALE

FIRE ALARM SPECIFICATIONS

1. FIRE ALARM SYSTEM:

A. NEW DEVICES SHALL BE CONNECTED TO THE EXISTING FIRE ALARM SYSTEM IN COMPLIANCE WITH ALL APPLICABLE NFPA 72 AND OTHER STANDARDS AS WELL AS THE AMERICAN'S WITH DISABILITIES ACT (ADA). ALL FINAL CONNECTIONS, TESTING AND ADJUSTMENTS SHALL BE PERFORMED BY OR UNDER DIRECT SUPERVISION OF AN AUTHORIZED FACTORY REPRESENTATIVE. NEW DEVICES SHALL BE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM. THE CONTRACTOR SHALL FIELD VERIFY EXACT SYSTEM MANUFACTURER AND TYPE AND CAPABILITY TO MEET THE INTENT INDICATED ON THE DRAWINGS.

B. INITIATING DEVICE ACTIVATION SHALL CAUSE OPERATION OF THE PROPER ALARM CIRCUIT IN THE CONTROL PANEL, AND OPERATE ALL AUDIBLE AND VISUAL INDICATING ALARMS. ALL AIR HANDLING UNITS SHALL BE STOPPED UPON ANY ALARM INPUT. EACH AIR HANDLER UNIT SHALL BE PROVIDED WITH A SYSTEM CONTROLLED RELAY TO EFFECT SHUTDOWN. ALL ALARM DEVICES AND LAMPS SHALL CONTINUE TO OPERATE UNTIL THE INITIATING DEVICE IS RESET. SUBSEQUENT ALARMS SHALL RESOUND THE SYSTEM. AN AUDIBLE AND VISUAL SIGNAL SHALL INDICATE SYSTEM TROUBLE. THE CONTROL PANEL SHALL PROVIDE FOR ACTIVATING A UL LISTED CENTRAL STATION SIGNAL FOR NOTIFYING THE FIRE DEPARTMENT.

C. CONDUCTORS SHALL BE INSTALLED IN CONDUIT OR PLENUM RATED AND INSTALLED IN COMPLIANCE WITH NFPA 70, ARTICLE 760; IN ADDITION TO WIRING METHODS 300.4.

D. NEW FIRE ALARM WIRING SHALL MATCH EXISTING WIRING CLASS -CLASS A FOR SIGNAL LINE CIRCUITS AND INITIATING DEVICE CIRCUITS AND CLASS B FOR NOTIFICATION APPLIANCE CIRCUITS.

E. PROVIDE ALL REQUIRED MODULES, POWER EXTENDERS, PROGRAMMING, ETC. FOR A COMPLETE AND OPERATIONAL SYSTEM.

F. SUBMIT FIRE ALARM SHOP DRAWINGS CONSISTING OF PRODUCT DATA, TO THE ENGINEER AND AUTHORITY HAVING JURISDICTION FOR APPROVAL.

G. COORDINATE NFPA 72 TESTING WITH ENGINEER AND FILL OUT NFPA 72 CERTIFICATION REPORT AND SUBMIT TO ENGINEER AND AUTHORITY HAVING JURISDICTION.

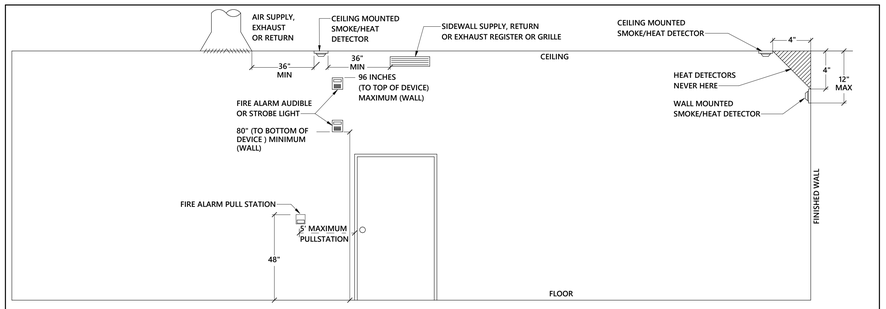
H. PROVIDE ALL REPROGRAMMING AND/OR REWORK AND/OR REPLACEMENT OF EXISTING FIRE ALARM PANEL AS REQUIRED.

FIRE ALARM SHEET INDEX

NFPA FIRE ALARM LEGEND

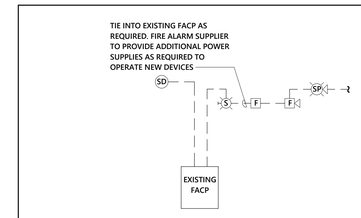
SYMBOL	DESCRIPTION
	PULLSTATION/FIRE ALARM
	SMOKE DETECTOR/SENSOR (DEFAULT PHOTOELECTRIC TYPE)
DD	RECTANGULAR DUCT SMOKE DAMPER. FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR, CONNECTED TO FIRE ALARM SYSTEM BY ELECTRICAL CONTRACTOR.
SB	DETECTOR WITH SOUNDER BASE (SB)
Wall	FIRE ALARM STROBE (CANDELAS), WHITE FINISH
Wall	ADA COMPLIANT WALL MOUNTED FIRE ALARM HORN WITH STROBE LIGHT, 15CD UNLESS OTHERWISE NOTED. WHITE FINISH.**

**Note: AUDIBLE DEVICES WITHIN SLEEPING ROOMS SHALL BE SUBJECT TO LOW FREQUENCY REQUIREMENTS. A SQUARE WAVE 520HZ TONE COMPATIBLE WITH NFPA 72 18.4.5.3. COORDINATE WITH LOCAL CODES AND REQUIREMENTS.



NOTES:
1. LOCATIONS WHERE TV MOUNT IS BACK TO BACK ON SAME WALL, AN OFFSET OF 8-12" WILL BE NEEDED FOR INSTALLATION OF JACK/RECEPTACLE.
2. DEVICES ABOVE COUNTER TOPS SHALL BE A MAXIMUM OF 48" TO TOP OF DEVICE.
3. DEVICES NEXT TO DOOR EXIT SHALL BE WITHIN 8" (MAXIMUM) TYPICAL OF DOOR UNLESS OBSTACLES SUCH AS SIDELITES, ETC.
4. ALL DEVICES ARE TO CENTER LINE OF DEVICE, UNLESS OTHERWISE NOTED.

2 MOUNTING HEIGHTS OF DEVICES - ELEVATION
NOT TO SCALE



NOTES:
A. CONNECT NEW FIRE ALARM DEVICES TO EXISTING FIRE ALARM SYSTEM. PROVIDE POWER EXTENDER PANELS AND OTHER EQUIPMENT IF REQUIRED FOR COMPLETE OPERATION. ALL FIRE ALARM DEVICES TO MATCH BUILDING STANDARD.

B. DASHED LINES ARE EXISTING TO REMAIN. SOLID LINES ARE NEW.

C. PROVIDE 120V CIRCUIT TO NEW NAC PANELS AS REQUIRED. NAC PANEL SHALL INCLUDE 24HR BATTERY BACKUP.

D. INSTALLATION SHALL MEET ALL ADA REQUIREMENTS.

E. VERIFY QUANTITIES ON PLAN.

F. NEW FIRE ALARM CONTROL PANELS SHALL MATCH EXISTING BUILDING STANDARD.

3 EXISTING FIRE ALARM RISER DIAGRAM
NOT TO SCALE

BSA LifeStructures
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Raleigh, NC 27603-1262
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optima engineering
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055146 CLAY D. WASHINGTON 11.11.2024

CIVITAN RENOVATION

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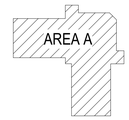

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

FIRE ALARM LEGEND AND NOTES

DATE	11/12/24
BSALS PROJECT NO.	21950006

FA001

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CHECKED Reviewer
DRAWN Author
APPROVED Approver

KEYNOTE LEGEND

GENERAL NOTES - DEMOLITION

A.	SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
B.	DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES AND LIGHTING FIXTURES IN DEMOLITION AREAS UNLESS NOTED OTHERWISE.
C.	DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES IN WALLS TO BE DEMOLISHED. WALLS TO BE DEMOLISHED ARE SHOWN DASHED. DISCONNECT AND REMOVE ASSOCIATED CONDUIT AND WIRE BACK TO LAST REMAINING DEVICE. FURNISH AND INSTALL CONDUIT AND WIRE AS NECESSARY FOR CONTINUITY OF CIRCUIT(S) TO ANY EXISTING DEVICES TO REMAIN. COORDINATE AND VERIFY REQUIREMENTS WITH NEW WORK IN AREA.
D.	FURNISH AND INSTALL CONDUIT AND WIRE AS NECESSARY FOR CONTINUITY OF ANY FEEDERS OR BRANCH CIRCUITS ORIGINATING OUTSIDE THE DEMOLITION AREA THAT SERVES ANY ELECTRICAL EQUIPMENT OR DEVICES TO REMAIN AFTER DEMOLITION. MODIFY OR REPLACE AS REQUIRED.
E.	FURNISH AND INSTALL CONDUIT AND/OR COMMUNICATIONS/DATA WIRING AS NECESSARY FOR CONTINUITY OF ANY WIRING ORIGINATING OUTSIDE THE DEMOLITION AREA THAT SERVES ANY COMMUNICATIONS/DATA EQUIPMENT OR DEVICES TO REMAIN AFTER DEMOLITION. MODIFY OR REPLACE AS REQUIRED.
F.	DISCONNECT AND REMOVE LIGHT SWITCHES IN DEMOLITION AREAS AS NECESSARY TO ACCOMMODATE NEW DOOR CONFIGURATIONS.
G.	DISCONNECT AND REMOVE ANY EXISTING ELECTRICAL DEVICES AND BACK BOXES AS NECESSARY WHERE NEW WALL CONSTRUCTION WILL INTERSECT AN EXISTING WALL. FURNISH AND INSTALL CONDUIT AND WIRE AS REQUIRED FOR CONTINUITY OF CIRCUIT(S).
H.	FURNISH AND INSTALL BLANK COVER PLATES OVER ALL EXISTING UNUSED OPENINGS.

GENERAL NOTES - FIRE ALARM

A.	REFER TO DRAWING F001 FOR SYMBOL LEGEND AND GENERAL NOTES.

BSA LifeStructures
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Raleigh, NC 27603-1262
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SEAL 055146
CLAY D. WASHINGTON
11.11.2024

CIVITAN RENOVATION

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RALEIGH, NC 27606

PERMIT SET

1 FIRE ALARM PLAN - DEMOLITION
1/8" = 1'-0"

2 FIRE ALARM PLAN - NEW WORK
1/8" = 1'-0"

KEYPLAN
PLAN NORTH

MARK	DATE	DESCRIPTION

WALL RATINGS

SMOKE PARTITION - (SP)	▥
1-HOUR SMOKE BARRIER - (SB)	▨
1-HOUR RATED FIRE BARRIER - (1HR)	▥
1-HOUR FIRE AND SMOKE BARRIER - (1HRS)	▨

RENOVATION LEGEND ABBREVIATIONS

ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT

FIRE ALARM PLANS

DATE 11/12/24
BSALS PROJECT NO. 21950006

FA101

OPTIMA# 24-0146R

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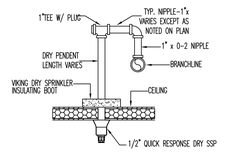
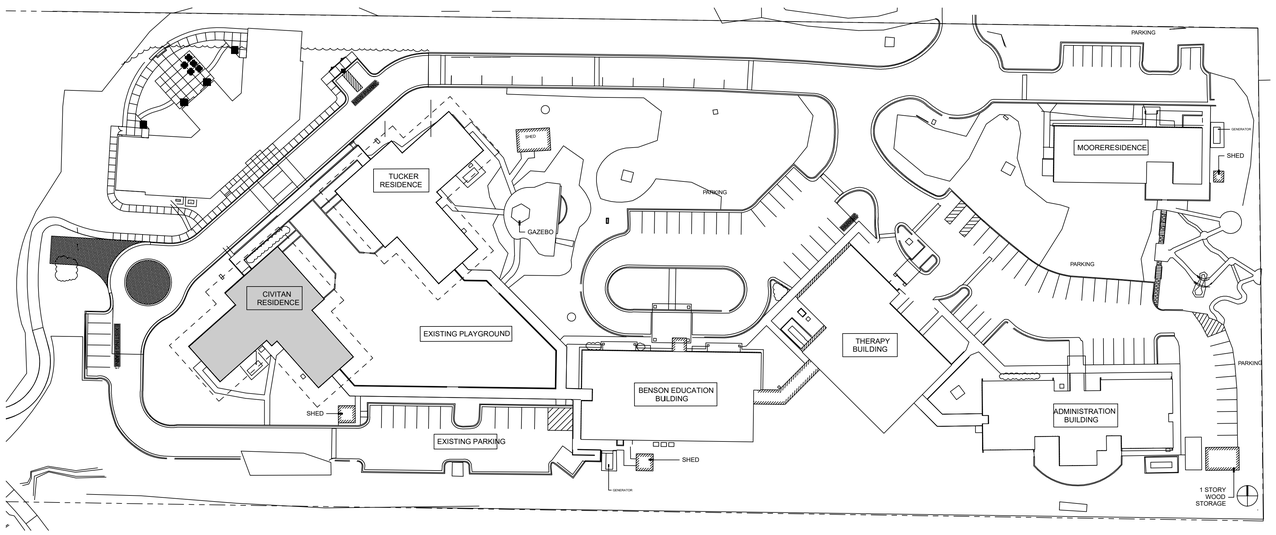
DESIGNED Designer
DRAWN Author
APPROVED Approver

1 FP1 **REFLECTED CEILING PLAN**
1/8" = 1'-0"



TYP. DRY PENDENT RETURN BEND DETAIL
N.T.S.



2 FP1 **WORK AREA / SITE PLAN - FOR REFERENCE ONLY**
1" = 40'-0"

SYMBOLS:

- DENOTES A 1-HR FIRE AND SMOKE BARRIER
- DENOTES A DRY SYSTEM RISER LOCATION
- R — DENOTES A RELOCATED SPRINKLER - REPLACE WITH NEW
- N — DENOTES A EXISTING SPRINKLER TO BE REPLACED WITH NEW
- PLUG — DENOTES A PLUGGED SPRINKLER
- X'-X" XXX — DENOTES FINISHED CEILING ELEVATION
- DENOTES AN EXTERIOR MOUNTED BELL
- DENOTES A BUILDING MOUNTED FIRE DEPARTMENT CONNECTION
- 1 — REMOVE SPRINKLER ESCUTCHEON TO ALLOW FOR ADHESIVE CEILING TILE REMOVAL FOR CEILING RE-PAINT AND FINISH OF GYPSUM BOARD CEILING.

  REPLACE ESCUTCHEON SKIRT TRIM RING WITH NEW.

  RECUT SPRINKLER DROP AS NECESSARY FOR PROPER ESCUTCHEON FIT TO REFINISHED CEILINGS SO THERE ARE NO GAPS BETWEEN CEILING AND ESCUTCHEON SKIRT

GENERAL NOTES:

1. ALL WORK SHALL BE IN FULL COMPLIANCE WITH NFPA 13 (2013) AND THE NORTH CAROLINA STATE FIRE CODE, THE GENERAL CONDITIONS OF THE CONTRACT APPLY.

2. MATERIALS AND INSTALLATION SHALL COMPLY WITH APPLICABLE NFPA CODES, STATE BUILDING CODE, LOCAL AUTHORITY HAVING JURISDICTION, AND INSURANCE UNDERWRITER'S REQUIREMENTS.

3. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED FOR THE INTENDED USE AND SHALL BE INSTALLED IN FULL COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.

4. ALL NEW AND EXISTING SPRINKLER PIPE 2" AND SMALLER IS SCHEDULE-40 BLACK STEEL WITH THREADED ENDS AND FITTINGS. ALL NEW AND EXISTING SPRINKLER PIPE 2½" AND LARGER IS SCHEDULE-10 BLACK STEEL WITH GROOVED ENDS AND FITTINGS - UNO.

5. SPRINKLER HEAD SPACING IS BASED ON THE NFPA STANDARDS FOR LIGHT HAZARD OCCUPANCIES (OFFICE, LIVING AND RESIDENT ROOMS) ALLOWING A MAXIMUM HEAD SPACING OF 225 S.F. PER HEAD.

6. SPRINKLER HEAD SPACING IS BASED ON THE NFPA STANDARDS FOR ORDINARY HAZARD OCCUPANCIES (KITCHEN, LAUNDRY, MECHANICAL & STORAGE ROOMS) ALLOWING A MAXIMUM HEAD SPACING OF 130 S.F. PER HEAD.

7. LOCATIONS OF PIPING AS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD.

8. THE SPRINKLER CONTRACTOR SHALL NOT BE RESPONSIBLE FOR ANY PRE-EXISTING CODE VIOLATIONS PERTAINING TO THE EXISTING SPRINKLER SYSTEM.

9. THIS INSTALLATION DOES NOT CREATE A MORE HYDRAULICALLY DEMANDING CONDITION. NO HYDRAULIC CALCULATIONS WERE PERFORMED.

10. CSCO IS NOT RESPONSIBLE FOR CHANGES IN THE CITY WATER SUPPLY THAT MAY ADVERSELY AFFECT THIS SYSTEM IN THE FUTURE.

SPRINKLER DESIGN DATA

PROJECT NAME: CIVITAN RENOVATIONS - TAMMY LYNN CENTER		SYSTEM #: 1
PROJECT STREET ADDRESS: 743 CHAPPELL DRIVE, RALEIGH, NORTH CAROLINA		SYS. SQ. FT.: -
SUITE: -	FLOOR #: 1ST FLOOR	CEILING HEIGHT: 9'-0" U.N.O.
DESIGNED BY: CRAWFORD SPRINKLER	PHONE: 919-828-9346	TOTAL BLDG. HEIGHT: -
OCCUPANCY: NURSING OR CONVALESCENT HOME	HAZARD: LIGHT HAZARD	

DESIGN SUMMARY

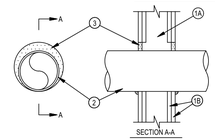
	#1	#2	#3	#4	#5
DESIGN METHOD	-	-	-	-	-
DESIGN AREA #	-	-	-	-	-
LOCATION	1ST FLOOR	-	-	-	-
TYPE OF SYSTEM	DRY	-	-	-	-
HAZARD CLASS	LIGHT	-	-	-	-
CRITERIA FROM	NFPA 13 (2013)	-	-	-	-
DESIGN AREA	-	-	-	-	-
SPRINKLER SPACING	225 S.F. MAX	-	-	-	-
DENSITY	.10	-	-	-	-
K-FACTOR	5.6	-	-	-	-
HOSE ALLOWANCE	-	-	-	-	-
# DESIGN SPRINKLERS	-	-	-	-	-
SPECIAL APP. SPRINKLER	-	-	-	-	-
REQUIREMENT @ BOR					
G.P.M. REQ'D	-	-	-	-	-
P.S.I. REQ'D	-	-	-	-	-
REQUIREMENT @ TEST					
GPM REQUIRED	-	-	-	-	-
PSI REQUIRED	-	-	-	-	-
SAFETY FACTOR @ TEST	-	-	-	-	-
DRY SYS. VOLUME (GAL.)	-	-	-	-	-

System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

VAL 1054

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Items 1 and 3)	F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft	FH Ratings - 1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	L Rating at Ambient - Less Than 1 CFM/sq ft
	L Rating at 400 F - Less Than 1 CFM/sq ft



1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and 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 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. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* - 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board 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 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.

   The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
2. Through-Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. 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 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 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   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.
3. Fill, Void or Cavity Material* - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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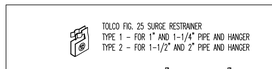
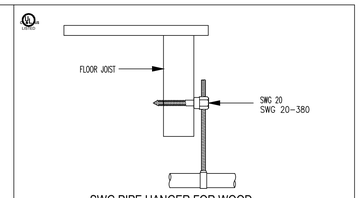


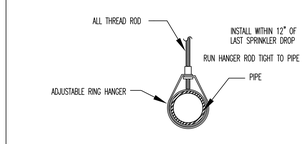
TOLCO FIG. 25 SURGE RESTRAINER
TYPE 1 - FOR 1" AND 1-1/4" PIPE AND HANGER
TYPE 2 - FOR 1-1/2" AND 2" PIPE AND HANGER

TOLCO FIG. 25 IS DESIGNED TO BE USED ONLY WITH TOLCO BAND HANGERS FIG. 200 AND NFPA TO RESTRAIN THE UPWARD MOVEMENT OF PIPE AS IT OCCURS DURING SPRINKLER HEAD ACTIVATION OR SEISMIC ACTIVITY

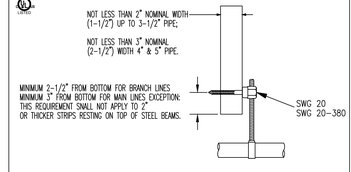
SURGE RESTRAINER - TOLCO FIG. 25
FOR STEEL OR CPVC PLASTIC PIPE



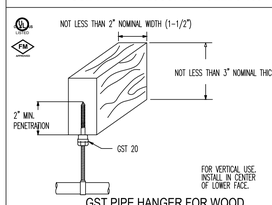
SWG PIPE HANGER FOR WOOD
1" TO 3-1/2" DIAMETER PIPE



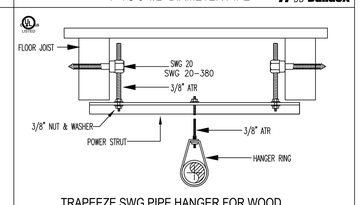
LAST BRANCHLINE SPRINKLER DROP
SUPPORT HANGER RING DETAIL
USE WHEN PRESSURE EXCEEDS 100 PSI



SWG PIPE HANGER FOR WOOD
1" TO 3-1/2" DIAMETER PIPE



GST PIPE HANGER FOR WOOD
1" TO 3-1/2" DIAMETER PIPE



TRAPEEZE SWG PIPE HANGER FOR WOOD
1" TO 3-1/2" DIAMETER PIPE

HANGER INSTALLATION REQUIREMENTS

	MAXIMUM DISTANCE BETWEEN HANGERS								
NOMINAL PIPE SIZE	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"
BLAZEMASTER CPVC	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	10'-0"	N/A	N/A
THREADABLE LIGHTWALL	N/A	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	N/A	N/A
STEEL PIPE (10/ 40)	N/A	12'-0"	12'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"

100 PSI STATIC PRESSURE ON SYSTEM REQUIRES UP-LIFT RESTRAINT WITHIN 12 INCHES HORIZONTALLY OF HEAD FOR ARM-OVERS AND END OF BRANCH LINE

THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER ON THE LINE SHALL NOT EXCEED 36" FOR 1" PIPE, 48" FOR 1 1/4" PIPE AND 60" FOR 1 1/2" PIPE OR LARGER

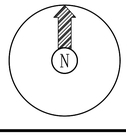
THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOVER TO A SPRINKLER, SPRINKLER DROP, OR SPRIG-UP SHALL NOT EXCEED 24"

TRAPEZE INSTALLATION REQUIREMENTS

SPAN OF TRAPEZE (SCHEDULE 10)	NOMINAL PIPE SIZE SUPPORTED							
	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"
1 FT. 6 IN.	1"	1"	1"	1"	1"	1"	1-1/4"	1-1/4"
2 FT. 0 IN.	1"	1"	1"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"
2 FT. 6 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	2"
3 FT. 0 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	1-1/2"	2"
4 FT. 0 IN.	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"
5 FT. 0 IN.	2"	2"	2"	2"	2"	2"	2-1/2"	2-1/2"
6 FT. 0 IN.	2"	2"	2"	2"	2"	2-1/2"	2-1/2"	3"
7 FT. 0 IN.	2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"
8 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"
9 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	4"
10 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	3"	4"

SPRINKLER SCHEDULE & LEGEND

SYMBOL	DESCRIPTION	SIN NO.	NPT	"K"	TEMP. ESCUTCHEON	QTY.
	EXISTING TYCO QR DRY CHROME PENDENT	DS-1	1/2"	5.6	155° 2-PIECE EXT'D	--
R	RELOCATED (NEW) VIKING QR DRY CHROME PENDENT	VK-176	1/2"	5.6	155° 2-PIECE EXT'D	8
R	RELOCATED (NEW) VIKING QR DRY CHROME PENDENT	VK-176	1/2"	5.6	200° 2-PIECE EXT'D	2
	TOTAL RELOCATED SPRINKLERS					10
1	REMOVE SPRINKLER ESCUT. TO ALLOW FOR ADHESIVE CEILING TILE REMOVAL & CEILING RE-PAINT & FINISH OF GYP. BD. CEILING. REPLACE ESCUTCHEON SKIRT TRIM RING WITH NEW. RECUT SPRINKLER DROP AS NECESSARY FOR PROPER ESCUT. FIT TO REFINISHED CEILINGS SO THERE ARE NO GAPS BETWEEN CEILING AND ESCUT. SKIRT					
DRPL	REPLACE (NEW) VIKING QR DRY CHROME PENDENT	VK-176	1/2"	5.6	200° 2-PIECE EXT'D	1
PLUG	PLUG EXISTING TYCO QR DRY CHROME PENDENT	DS-1	1/2"	5.6	155° 2-PIECE EXT'D	6
	(6) HEAD SPARE HEAD CABINET W/ WRENCH(S) PROVIDED					



IMPORTANT: IN LOCATIONS SUBJECT TO FREEZING CONDITIONS IT IS THE OWNERS RESPONSIBILITY TO PROVIDE ADEQUATE HEAT THROUGHOUT WET PIPE SPRINKLER SYSTEM AREAS AND ENCLOSURES FOR DRY-PIPE, DELUGE AND OTHER TYPES OF VALVES CONTROLLING WATER SUPPLIES TO SPRINKLER SYSTEMS.

NICET CERTIFIED

NICET#107492
WATER BASED SYSTEMS
LAYOUT LEVEL III
BRIAN THOMAS CRAWFORD

Crawford SPRINKLER CO. OF RALEIGH, INC.
2725 S. SAUNDERS STREET-RALEIGH, NC 27603
PHONE 919-828-9346 • FAX 919-839-8164

TAMMY LYNN CENTER
CIVITAN RENOVATIONS
743 CHAPPELL DRIVE
RALEIGH, NORTH CAROLINA

UNDERWRITERS:
INDEX NO.
REVISIONS:

DESIGN CRITERIA

SYSTEM TYPE	EXISTING
SYSTEM DESIGN	-
DESIGN DENSITY	-
MAX HEAD CVRG	-
HOSE ALLOWANCE	-

DRAWN BY: CJ DATE: 11/11/2024
CHECK BY: DATE:
SCALE: 1/8" = 1'-0"

CONTRACT NO: E24 2144
FILE NO:

DWG. NO: FP 1 OF 1

11/11/24

N.C License No. 29772 FS-I