# 2018 APPENDIX B: BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

Name of Project: BUILDING ADDITION TO EXISTING FIRE STATION # 2

Address: 6801 ROCKY RIDGE ROAD Zip Code 27284

Proposed Use: OFFICES, DORMS & APPARATUS BAY

Owner or Authorized Agent: Ricky Baker, Fire Chief Phone # (919) 967-5858 E-Mail chief@ogfire.org

Owned By: ORANGE GROVE VOLUNTEER FIRE COMPANY, INC. ☐ City/County ☒ Private ☐ State

Code Enforcement Jurisdiction: ☐ City ☒ County ORANGE COUNTY ☐ State

LEAD DESIGN PROFESSIONAL: ALLEY, WILLIAMS, CARMEN & KING, INC.

| DESIGNER | FIRM | NAME | LICENSE # | TELEPHONE # | E-MAIL |
|---|---|---|---|---|---|
| Architectural | ALLEY, WILLIAMS, CARMEN & KING, INC. | Jorge Rodriguez | 10611 | (336) 226-5534 | jrodriguez@awck.com |
| Civil | ALLEY, WILLIAMS, CARMEN & KING, INC. | Mark D. Reich | 12634 | (336) 226-5534 | mreich@awck.com |
| Electrical | SOLE SOURCE ENGINEERING | Jimmy L. Peacock | 027431 | (336) 446-6911 | jpeacock@triad.rr.com |
| Fire Alarm | SOLE SOURCE ENGINEERING | Jimmy L. Peacock | 027431 | (336) 446-6911 | jpeacock@triad.rr.com |
| Plumbing | BLACK MOUNTAIN ENGINEERING | Michael Sprague | 19293 | (336) 454-0887 | msprague@blackmtn.net |
| Mechanical | BLACK MOUNTAIN ENGINEERING | Michael Sprague | 19293 | (336) 454-0887 | msprague@blackmtn.net |
| Sprinkler-Standpipe | BLACK MOUNTAIN ENGINEERING | Michael Sprague | 19293 | (336) 454-0887 | msprague@blackmtn.net |
| Structural | LANDWEHRMANN ENGINEERING, PLLC | Robert Landwehrmann | 14919 | (336) 373-0608 | rob@rclengineer.com |
| Retaining Walls > 5' High | LANDWEHRMANN ENGINEERING, PLLC | Robert Landwehrmann | 14919 | (336) 373-0608 | rob@rclengineer.com |
| Landscape | ALLEY, WILLIAMS, CARMEN & KING, INC. | MARK D. REICH | 12634 | (336) 226-5534 | mreich@awck.com |

2018 EDITION OF NC CODE FOR: ☐ New Building ☐ Shell/Core ☐ 1st Time Interior Completions ☒ Addition ☐ Phased Construction-Shell Core

2018 NC EXISTING BUILDING CODE: (check all that apply) ☐ Prescriptive ☐ Alteration Level I ☐ Historic Property ☐ Repair ☒ Alteration Level II ☐ Change of Use ☐ Chapter 14 ☐ Alteration Level III

CONSTRUCTED (date): 2012 CURRENT USE(S) (Ch. 3): Group S-2, Low-hazard storage

RENOVATED (date)_____ PROPOSED USE(S) (Ch. 3): Business (offices) & Group S-2, Low-hazard storage Group R-2, Residential

OCCUPANCY CATEGORY (Table 1604.5): Current: Risk Category IV Proposed: Risk Category 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 ☐ NFPA 13 ☒ NFPA 13R ☐ NFPA 13D

Standpipes: ☒ No Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry

Primary Fire District: ☐ No ☐ Yes Flood Hazard District: ☐ No ☐ Yes

Special Inspections Required: ☐ No ☐ Yes

## GROSS BUILDING AREA TABLE

| FLOOR | EXISTING (SQ FT) | NEW (SQ FT) | SUB-TOTAL |
|---|---|---|---|
| OFFICES | 0.0 SQ. FT. | 2,120.23 SQ. FT. | 2,130.23 SQ. FT. |
| APPARATUS BAYS | 2,000.0 SQ. FT. | 867.55 SQ. FT. | 2,867.55 SQ. FT. |
| TOTAL BLDG. AREA: | 2,000.0 SQ. FT. + | 2,997.78 SQ. FT. = | 4,997.78 SQ. FT. |

## ALLOWABLE AREA

Primary Occupancy Classification(s):

Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐ B
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-1 Condition ☐ 1 ☐ 2
I-2 Condition ☐ 1 ☐ 2
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☒ S-2 Low ☐ High-piled ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancy Classification(s): Business (B) + Residential (R-2)

Incidental Uses (Table 509):

Special Uses (Chapter 4 - List Code Sections): ☐ 402 ☐ 403 ☐ 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 416 ☐ 417 ☐ 418 ☐ 419 ☐ 420 ☐ 421

Special Provisions (Chapter 5 - List Code Sections): ☐ 508.2 ☐ 508.3 ☐ 508.4

Mixed Occupancy: ☐ No ☒ Yes Separation: ___ Hr. Exception: 303.3.1

☐ Non-Separated Mixed Occupancy (508.3)

☒ 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.

*Actual Area of Occupancy A* / *Allowable Area of Occupancy A* + *Actual Area of Occupancy B* / *Allowable Area of Occupancy B* < 1.00

| | | | | | |
|---|---|---|---|---|---|
| 1 st Floor | Offices | 2,120.23 | 23,000 | N / A | N / A |
| 1 st Floor | Vehicle Bays | 4,867.55 | 26,000 | | |

1 Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____
d. W = Minimum width of public way = _____ (W)
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. The maximum area of air traffic control towers must comply with Table 412.3.1.
5 Frontage increase is based on the unsprinklered area value in Table 506.2

## PERCENTAGE OF WALL OPENING CALCULATIONS

| FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES | DEGREE OF OPENINGS PROTECTION (TABLE 705.8) | ALLOWABLE AREA ( % ) | ACTUAL SHOWN ON PLANS |
|---|---|---|---|
| MORE THAN 30 FT. | UNPROTECTED, NONSPRINKLERED | NO LIMIT | MORE THAN 30 FT. |

## ALLOWABLE HEIGHT

| | ALLOWABLE (TABLE 503) | INCREASE FOR SPRINKLERS | SHOWN ON PLANS | CODE REFERENCE |
|---|---|---|---|---|
| Building Height in Feet (Table 504.3) | Feet : 55 | Feet = H + 20' = | 25 ft. (EXIST. ) | |
| Building Height in Stories (Table 504.4) | Stories: 1 | Stories = 1 _____ | Stories: 1 (EXIST.) | |

1 Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

## PLUMBING FIXTURE REQUIREMENTS

Table 2902.1, NC State Building Code 2018

| USE | WATERCLOSETS | | URINALS | LAVATORIES | | SHOWERS / TUBS | DRINKING FOUNTAINS | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | | Male | Female | | REGULAR | ACCESSIBLE |
| PROVIDED | 2 | 1 | 0 | 2 | 1 | 2 | 1 | 1 |
| REQUIRED | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |

Total Occupancy (per Chapter 29 of NC Building Code 2018) = 31
- Waterclosets required (per Table 2902.1 for Business) = 2
- Lavatories required (per Table 2902.1 for Business) = 2
- Drinking Fountains required (per Table 2902.1 for Business) = 2

## FIRE PROTECTION REQUIREMENTS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Structural frame including columns, girders, trusses | | | | | | | |
| Bearing walls | N / A | | N / A | N / A | N / A | N / A | N / A |
| Exterior | N / A | | | | | | |
| North | N / A | | | | | | |
| East | N / A | | | | | | |
| West | N / A | | | | | | |
| South | N / A | | | | | | |
| Interior | | 1-HR | N / A | N / A | N / A | N / A | N / A |
| Nonbearing walls and partitions | | | | | | | |
| Exterior walls | | | | | | | |
| North | >30' | 0 | | | | | |
| East | >30' | 0 | | | | | |
| West | >30' | 0 | | | | | |
| South | >30' | 0 | | | | | |
| Interior walls and partitions | N / A | 2-HR | | | | | |
| Floor Construction including supporting beams & joists | N / A | 0 | | | | | |
| Floor Ceiling Assembly | N / A | 0 | | | | | |
| Columns supporting Floors | N / A | 0 | | | | | |
| Roof Construction including supporting beams & joists | N / A | 0 | | | | | |
| Roof Ceiling Assembly | N / A | 0 | | | | | |
| Columns supporting Roof | N / A | 0 | | | | | |
| Shaft Enclosures - Exit | N / A | 0 | | | | | |
| Shaft Enclosures - Other (Elevator) | N / A | 0 | | | | | |
| Corridor Separation | N / A | 0 | | | | | |
| Occupancy / Fire Barrier Separation | | 2-HR | 2-HR | | U 906 / U 419 | | |
| Party/Fire Wall Separation | N / A | 0 | | | | | |
| Smoke Barrier Separation | N / A | 0 | | | | | |
| Smoke Partition | N / A | 0 | | | | | |
| Tenant / Dwelling Unit / Sleeping Unit Separation | N / A | 0 | | | | | |
| Incidental Use Separation | N / A | 0 | | | | | |

* Indicate section number permitting reduction

## EXIT WIDTH

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Offices | 1,176.73 | 100 g.s.f. | 11.76 | | | | | | |
| | | | | | | | | | |
| Storage / Mechanical | 337.31 | 300 g.s.f. | 1.12 | | | | | | |
| Bedrooms | 595.11 | 200 g.s.f. | 2.97 | | | | | | |
| Apparatus bay | 2,899.89 | 200 g.s.f. | 14.5 | | | | | | |
| Total | 2,987.78 | | 31 | N/A | 0.2 | N/A | 44" min. | N/A | 56" |

1 See Table 1004.1.2 to determine whether net or gross area is applicable. See definition "Area, Gross" and "Area, Net" (Section 1002)
2 Minimum stairway width (Section 1005.3.1); min. corridor width (Section 1020.2); min. door width (Section 1010.1.1)
3 Minimum width of exit passageway (Section 1024.2)
4 See Section 1005.6 for egress convergence.
5 The loss of one means of egress shall not reduce the available capacity to less than 50 percent of the total required (Section 1005.5)
6 Assembly occupancies (Section 1029)

## STRUCTURAL DESIGN

(Provide on sheet 1 or 2 of the structural sheets)

DESIGN LOADS:

Importance Factors: Wind (Iw) ___ Snow (Is) 1.2 Seismic ($I_E$) 1.5

Live Loads: Roof 20 psf Mezzanine ___ psf Floor 100 psf

Ground Snow Load: 15 psf

Wind Load: Basic Wind Speed 120 mph (ASCE-7) Exposure Category C Wind Base Shears (for MWFRS) Vy = _____ Vx = _____

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 Ss .158 %g S1 .079 %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F
Data Source: ☐ Field Test ☒ Presumptive ☐ Historical Data
Basic structural system (check one)
☐ Bearing Wall ☒ Dual w/ Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum

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 2,000 psf
Pile size, type, and capacity _____

## ACCESSIBLE PARKING

Section 1106, NC State Building Code 2018

1

| LOT OR PARKING AREA | TOTAL # OF PARKING SPACES | | # OF ACCESSIBLE SPACES PROVIDED | | | TOTAL # ACCESSIBLE PROVIDED |
|---|---|---|---|---|---|---|
| | REQUIRED | PROVIDED | REGULAR WITH 5' ACCESS AISLE ( 96" ) | VAN SPACES WITH 8' ACCESS AISLE ( 132" ) | | |
| Offices Governmental | 2 | 6 | 0 | 1 | | 1 |
| TOTAL | 2 | 6 | 0 | 1 | | 1 |

Parking requirements based on Orange County, NC : UDO (Table 6.8.7, Off-Street Parking Requirements Standards )
Governmental Offices: 1 space per employee / shift) = 2 spaces
Apparatus Bays: no requirement

## LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☐ No ☒ Yes
Smoke Detection Systems: ☐ No ☒ Yes ☐ Partial
Panic Hardware: ☒ No ☐ Yes

## EXIT REQUIREMENTS
## NUMBER AND ARRANGEMENT OF EXITS

TOTAL

| | | | | | | |
|---|---|---|---|---|---|---|
| 1st floor w/ sprinkler | 2 | 4 | 200 ft. | 56 ft. | > 62 ft. | 70 ft. |
| | | | | | | |

1 Corridor dead ends (Section 1020.4)
2 Single exits (Table 1006.2.1) , Spaces w/ one means of egress (Table 1015.1)
3 Common path of travel (Section 1014.3)

## SPECIAL APPROVALS

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

## ENERGY SUMMARY

### ENERGY REQUIREMENTS:

The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If energy cost budget method, state the annual cost budget vs allowable energy cost budget.

### THERMAL ENVELOPE

METHOD OF COMPLIANCE:
☒ Prescriptive ☐ ___% Glazed Wall Area
☐ Performance ☐ Energy Cost Budget

**ROOF/CEILING ASSEMBLY (each assembly)**
DESCRIPTION OF ASSEMBLY : TPO (80 mil) membrane adhered to 5/8" gyp. cover board on 4" polyisocyanurate rigid insulation on steel deck.
U-VALUE OF TOTAL ASSEMBLY : 0.037
R-VALUE OF INSULATION : Not less than 24.
SKYLIGHTS IN EACH ASSEMBLY: N/A
U-VALUE OF SKYLIGHT - N/A
TOTAL SQUARE FOOTAGE OF SKYLIGHTS IN EACH ASSEMBLY - N/A

**EXTERIOR WALL ASSEMBLY (each assembly)**
DESCRIPTION OF ASSEMBLY: 4" brick veneer with 2" airspace, plus 2" rigid insulation veneer, plus 5/8 Densglass sheathing board, plus 6" steel studs with batt insulation and 5/8" gypsum wall board, on room side.
U-VALUE OF TOTAL ASSEMBLY: Not less than 0.033
R-VALUE OF INSULATION: Not less than 30 ( R-19 + R-11.4 ci ).
OPENINGS (WINDOWS OR DOORS WITH GLAZING)
U-VALUE OF ASSEMBLY: ...
SHADING COEFFICIENT: ...
PROJECTION FACTOR: ... LOW e REQUIRED, IF APPLICABLE: ... DOOR R-VALUES ...

**WALLS ADJACENT TO UNCONDITIONED SPACE (each assembly)**
DESCRIPTION OF ASSEMBLY:
4" masonry Veneer with 1" airspace, plus 1/2" insulation veneer with 1" airspace, plus 1/2" insulation sheathing with batt insulation and 6" steel studs with 5/8" drywall on room side.
U-VALUE OF TOTAL ASSEMBLY: Not less than 19.
R-VALUE OF INSULATION: Not less than 19.
OPENINGS (WINDOWS OR DOORS WITH GLAZING)
U-VALUE OF ASSEMBLY: ...
SHADING COEFFICIENT: ...
PROJECTION FACTOR: ...
LOW e REQUIRED, IF APPLICABLE:
DOOR R-VALUES.

**WALLS BELOW GRADE (each assembly)**
DESCRIPTION OF ASSEMBLY: N / A
U-VALUE OF TOTAL ASSEMBLY:
R-VALUE OF INSULATION:

**FLOORS OVER UNCONDITIONED (each assembly)**
DESCRIPTION OF ASSEMBLY: N / A
U-VALUE OF TOTAL ASSEMBLY:
R-VALUE OF INSULATION:

**FLOORS SLAB ON GRADE**
DESCRIPTION OF ASSEMBLY: 4" CONCRETE SLAB + 3' x 24" PERIMETER RIGID INSULATION
U-VALUE OF TOTAL ASSEMBLY:
R-VALUE OF INSULATION: 11.4
HORIZONTAL/VERTICAL REQUIREMENT SLAB HEATED

**ELECTRICAL SUMMARY**
See electrical drawings for energy compliance
Statements related to electrical systems and equipment.

**MECHANICAL SUMMARY**
See mechanical drawings for energy compliance
Statements related to mechanical systems, service

Designer statement:
To the best of my knowledge and belief, the design of this building complies with the thermal envelope requirements of the 2018 North Carolina State Building Code.

JORGE RODRIGUEZ, AIA
ALLEY, WILLIAMS, CARMEN & KING, INC.

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| A.C. | ABOVE CEILING | EL. | ELEVATION |
| A.C.T. | ACOUSTICAL CEILING TILE | EQ. | EQUAL |
| A.D.A. | AMERICAN WITH DISABILITIES ACT | EXIT. | EXTERIOR |
| A.F.F. | ABOVE FINISH FLOOR | F.D. | FLOOR DRAIN |
| ALUM. | ALUMINUM | F.E. | FIRE EXTINGUISHER |
| A.S.F.M. | AMERICAN SOCIETY OF TESTING AND MATERIALS | F.F. | FINISH FLOOR |
| | | F.R. | FIRE RETARDANT |
| BLDG. | BUILDING | GA. | GAUGE |
| B.F. | BOTTOM OF FOOTING | GALV. | GALVANIZED |
| C.C. | CENTER TO CENTER | G.C. | GENERAL CONTRACTOR |
| C.I. | CAST IRON | G.W.B. | GYPSUM WALL BOARD |
| C.J. | CONTROL JOINT | H.M. | HOLLOW METAL |
| C.M.U. | CONCRETE MASONRY UNIT | H.W. | HOT WATER |
| C.O. | CLEANOUT | INSUL. | INSULATION |
| CONC. | CONCRETE | INT. | INTERIOR |
| CPT. | CARPET | LAM. | LAMINATED |
| DIA. | DIAMETER | M.O. | MASONRY OPENING |
| DN. | DOWN | MTD. | MOUNTED |
| EA. | EACH | MTL. | METAL |
| E.F. | EXHAUST FAN | N.I.A. | NOT IN CONTRACT |
| E.J. | EXPANSION JOINT | N.T.S. | NOT TO SCALE |
| | | EL. | ELEVATION |
| | | PREFIN. | PREFINISHED |
| | | P.S.F. | POUNDS PER SQUARE FOOT |
| | | P.S.I. | POUNDS PER SQUARE INCH |
| | | PTD. | PAINTED |
| | | P.V.C. | POLY VINYL CHLORIDE |
| | | Q.T. | QUARRY TILE |
| | | R.C.P. | REINFORCED CONCRETE PIPE |
| | | R.D. | ROOF DRAIN |
| | | S.S. | STAINLESS STEEL |
| | | T.O.C. | TOP OF CURB |
| | | T.O.M. | TOP OF MASONRY |
| | | T.O.J. | TOP OF JOIST |
| | | T.O.S. | TOP OF STEEL |
| | | TYP. | TYPICAL |
| | | U.L. | UNDERWRITERS LABORATORY |
| | | U.N.O. | UNLESS OTHERWISE NOTED |
| | | V.C.T. | VINYL COMPOSITION TILE |
| | | V.I.F. | VERIFY IN FIELD |
| | | V.P. | VENT PIPE |
| | | V.T.R. | VENT THROUGH ROOF |
| | | WD. | WOOD |
| | | W.W.F. | WELDED WIRE FABRIC |

## DRAWING NOTATIONS

04 / A2.1 BUILDING ELEVATION
00 / A0.0 PLAN DETAIL / ENLARGED PLAN
00 / A0.0 WALL / BUILDING SECTION
SITE PAVING
00 / A0.0 INTERIOR ELEVATION
INTERIOR H.M. FRAME W/ GLASS
09 / A7.1 INTERIOR ELEVATION
W / C / X WINDOW FRAME TYPE
FEC FIRE EXTINGUISHER CABINET

## SYMBOLS

BATT INSULATION
RIGID INSULATION
CONCRETE
STEEL
CMU
STONE VENEER
EARTH
GLASS
GYPSUM WALL BOARD
WOOD (BLOCKING)
PLYWOOD
POROUS FILL

# OFFICE & BAY ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF

# ORANGE GROVE VOLUNTEER FIRE CO., INC.

6801 ROCKY RIDGE ROAD; HILLSBOROUGH, NORTH CAROLINA 27278

## INDEX OF DRAWINGS


TITLE SHEET

CIVIL
C1 SITE, WATER AND SEWER PLAN
C2 GRADING AND STORM DRAINAGE PLAN
C3 CONSTRUCTION DETAILS
C4 LANDSCAPE PLAN

ARCHITECTURAL
LS1 LIFE SAFETY PLAN & U.L. DESIGN
LS2 U.L. DESIGN
D1 DEMOLITION PLAN & NOTES
A1 EXISTING FLOOR PLAN & ELEVATIONS
A2 FLOOR PLAN & FINISH SCHEDULE
A3 BUILDING ELEVATIONS & DETAILS
A4 ROOF PLAN AND DETAILS
A5 DOOR & WINDOW SCHEDULES & DETAILS
A6 ENLARGED TOILETS & WALL SECTIONS
A7 BUILDING SECTIONS & DETAILS
A8 ENLARGED FLOOR PLAN, INTERIOR
A9 CONSTRUCTION DETAILS
SP1 SPECIFICATIONS
SP2 SPECIFICATIONS
SP3 SPECIFICATIONS

STRUCTURAL
S1 FOUNDATION PLAN - APPARATUS BAY
S2 FOUNDATION PLAN - OFFICE
S3 FRAMING PLAN - APPARATUS BAY
S4 FRAMING PLAN - OFFICE
S5 DETAILS
S6 ELEVATIONS & DETAILS

PLUMBING
P1 SUPPLY FLOOR PLAN, NOTES & DETAILS
P2 WASTE & VENT FLOOR PLAN, SCHEDULES
P3 PLUMBING SPECIFICATIONS & DETAILS
P4 PLUMBING ISOMETRICS & DETAILS

MECHANICAL
M1 HVAC FLOOR PLAN, NOTES & SCHEDULES
M2 EQUIPMENT ROOM, SCHEDULES & DETAILS
M3 HVAC SPECIFICATIONS

ELECTRICAL
E1 ELECTRICAL SPECIFICATIONS, RISER, NOTE AND LUMINAIRE SCHEDULE
E2 LIGHTING PLAN AND NOTES
E3 POWER PLAN AND NOTES
E4 PANEL SCHEDULES, DETAILS


ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 29 BURLINGTON NC

JORGE LUIS RODRIGUEZ LICENSED ARCHITECT 8-18-2025 #10611 NORTH CAROLINA


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

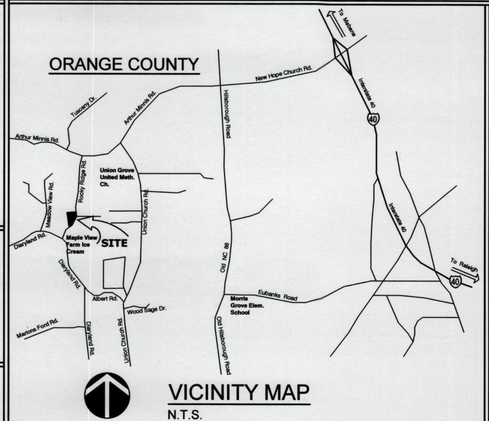


ALLEY, WILLIAMS, CARMEN & KING, INC.
ENGINEERS AND ARCHITECTS
740 CHAPEL HILL ROAD
BURLINGTON, NC 27216-1179
(336) 226-5534 / FAX: (336) 226-3034

LANDWEHRMANN ENGINEERING, PLLC
STRUCTURAL ENGINEER
2115 ENTERPRISE ROAD
GREENSBORO, NC 27408
(336) 373-0608 / FAX: (336) 373-0632

BLACK MOUNTAIN ENGINEERING
CONSULTING ENGINEERS
720 W. MAIN STREET, SUITE A
JAMESTOWN, NC 27282
(336) 454-0887 / FAX: (336) 454-0892

SOLE SOURCE ENGINEERING
CONSULTING ENGINEERS
207 EAST MAIN STREET
GIBSONVILLE, NC 27244
(336) 446-6911


VICINITY MAP
N.T.S.

1 REVISIONS PER ORANGE COUNTY D.A.C. 07-24-2025

**PROJECT # 24060**

**SET #** _____

April 21, 2025

THIS PLAN DOES NOT PURPORT TO SHOW ALL EXISTING UTILITIES, LINES, APPURTENANCES, ETC., AND THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES, PIPES, VALVES, ETC. AS SHOWN ARE IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER/ARCHITECT. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES, LINES, PIPES, ETC. BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, PIPES AND VALVES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY CONFLICTS WITH EXISTING AND PROPOSED FACILITIES TO DETERMINE IF AN ITEM WILL NEED TO BE RELOCATED.

THE ENGINEER/ARCHITECT HAS MADE NO EXAMINATION TO DETERMINE WHETHER ANY HAZARDOUS OR TOXIC MATERIALS ARE PRESENT OR CONTAINED IN, UNDER, OR ON THE SUBJECT PROPERTY OR ITS WATERS, OR IF ANY HAZARDOUS OR TOXIC MATERIALS HAVE CONTAMINATED THIS OR OTHER PROPERTIES OR ITS WATERS IN ANY WAY WHATSOEVER. NO SUB-SURFACE EXAMINATION OF ANY TYPE HAS BEEN MADE BY THE ENGINEER/ARCHITECT, AND ACCORDINGLY, NO OPINION IS EXPRESSED OR INFERRED ON ALL SUCH MATTERS. FURTHER, NO OPINION IS RENDERED AS TO ANY VIOLATION OF ANY ENVIRONMENTAL LAWS OR REGULATIONS, EITHER FEDERAL, STATE, OR LOCAL RELATED TO THE INFORMATION SHOWN ON THIS PLAN AND THE ENGINEER/ARCHITECT IS IN NO WAY LIABLE FOR ANY VIOLATION OF SUCH ENVIRONMENTAL LAWS SHOULD SUCH EXIST.

| CURVE TABLE | | | | | |
|---|---|---|---|---|---|
| CURVE | ARC LENGTH | RADIUS | DELTA ANGLE | CHORD BEARING | CHORD LENGTH |
| C1 | 161.98' | 649.74' | 14° 17' 03" | S 55° 18' 46" W | 161.56' |
| C2 | 411.50' | 522.63' | 45° 06' 44" | N 39° 53' 55" E | 400.95' |

ORANGE GROVE VOLUNTEER FIRE COMPANY, INC.
DB.6694 P.1037
PB.89 P.59
PIN:9851911570

**5.90 ACRES**

N 88° 50' 08" W 2.66' (TIE TO 1" REFERENCE IRON)
36"OAK
PROPERTY LINE
N 88° 50' 08" W 500.96'
GEORGE BRYANT DODSON 07-E-289 (6507 Rocky Ridge Road) Zoning: RR, Rural Buffer
1/2"EIP
50'
EXISTING WELL
60'
PROPERTY LINE
N 17° 20' 33" E 208.5'
S 00° 02' 06" E 600.22'
464.24' SIDEYARD SETBACK
ROCKY RIDGE ROAD (S.R.1113) (60' PUBLIC R/W)
580
585
590
595
SEPTIC LINES
EXIST. TELEPHONE PEDESTAL
EXISTING PROPANE TANK
EXIST. SEPTIC TANK
FIRE STATION (METAL BUILDING)
EXISTING GENERATOR
EXIST. TRENCH DRAIN
CONCRETE DRIVE/PARKING
40.6'
BANDIT FARMS II, LLC DB.6766 P.291 (SEE PB.85 P.58) PB.89 P.59 (6901-UT Rocky Ridge Road) Zoning: RR, Rural Buffer
155.59' SIDEYARD SETBACK
1/2"EIP (W/ CAP)
S 84°52'09" W 115.38'
S 00° 02' 18" W 163.53'
TBM: RR SPIKE IN UTILITY POLE ELEVATION = 591.21' (NAVD 88)
MAPLE VIEW FARM ICE CREAM COMPANY, LLC DB.6305 P.150 PB.117 P.17 PB.114 P.116
1/2"EIP
S 90°00'38" E 65.20'
N 72°10'18" W 69.47'
15'

SURVEY BY: R.S. JONES & ASSOCIATES, INC. ON NOVEMBER 27, 2024
TEL. # (919) 563 - 3623
LICENSE # C - 2565
P.O. BOX 1700
204 N. FIFTH STREET, SUITE 1
MEBANE, N.C. 27302

1 / C1 SITE PLAN - OVERALL PROPERTY
SCALE: 1" = 40'

GRAPHIC SCALE
40 0 20 40 80 160
( IN FEET )
1 inch = 40 ft.

EXIST. SEPTIC TANK
EXIST. MTL. BUILDING ( 2,026.0 S.F.)
587.50'
587.48'
587.45'
EXIST. CONCRETE PARKING / DRIVEWAY
585
590
C2

1 / C2 ENLARGED SITE PLAN - EXISTING CONDITIONS
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
( IN FEET )
1 inch = 10 ft.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

NORTH CAROLINA PROFESSIONAL SEAL 053486 ENGINEER TRENTON J. ELLIS 8/18/25

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS
1 Revisions per Orange County DAC 07-24-2025

OVERALL SITE PLAN

DATE April 21, 2025
DRAWN BY: CHECKED:
JOB NO. 24060
SHEET NO. C1 OF

**PROPERTY DESCRIPTION**

- ADDRESS: 6801 ROCKY RIDGE RD., HILLSBOROUGH
- PROPERTY AREA: 5.90 ACRES
- DEED BOOK/PAGE: 6694 / 1037
- PARCEL PIN: 9851911570
- OWNER: ORANGE GROVE VOLUNTEER FIRE COMPANY, INC.
- COUNTY: ORANGE COUNTY, NC
- ZONING: RB, RURAL BUFFER
- WATERSHED ZONING OVERLAY DESIGNATION: JORDAN LAKE UNPROTECTED
- PROPOSED USE: GOVERNMENTAL
- EXIST. PARKING SPACES: 4
- REQUIRED PARKING SPACES: 2
- PROPOSED PARKING SPACES: 6
- TRAFFIC GENERATED: 3 TRIPS PER DAY

AREA OF DISTURBANCE: +/- 25,270.3 S.F.

AREA OF DISTURBANCE: +/- 26,786.60 S.F.

BUILDING AREA : 2,026.0 S.F.

PARKING LOT AREA : 4,096.0 S.F.

26,786.60 s.f.
- 2,000.0 s.f.
- 4,096.0 s.f.
= 20,690.60 s.f.
(0.47 OF ACRE)

LIMITS OF DISTURBANCE = 0.47 OF AN ACRE

THIS PLAN DOES NOT PURPORT TO SHOW ALL EXISTING UTILITIES, LINES, APPURTENANCES, ETC., AND THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES, PIPES, VALVES, ETC. AS SHOWN ARE IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER/ARCHITECT. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES, LINES, PIPES, ETC. BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, PIPES AND VALVES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY CONFLICTS WITH EXISTING AND PROPOSED FACILITIES TO DETERMINE IF AN ITEM WILL NEED TO BE RELOCATED.

THE ENGINEER/ARCHITECT HAS MADE NO EXAMINATION TO DETERMINE WHETHER ANY HAZARDOUS OR TOXIC MATERIALS ARE PRESENT OR CONTAINED IN, UNDER, OR ON THE SUBJECT PROPERTY OR ITS WATERS, OR IF ANY HAZARDOUS OR TOXIC MATERIALS HAVE CONTAMINATED THIS OR OTHER PROPERTIES OR ITS WATERS IN ANY WAY WHATSOEVER. NO SUB-SURFACE EXAMINATION OF ANY TYPE HAS BEEN MADE BY THE ENGINEER/ARCHITECT, AND ACCORDINGLY, NO OPINION IS EXPRESSED OR INFERRED ON ALL SUCH MATTERS. FURTHER, NO OPINION IS RENDERED AS TO ANY VIOLATION OF ANY ENVIRONMENTAL LAWS OR REGULATIONS, EITHER FEDERAL, STATE, OR LOCAL RELATED TO THE INFORMATION SHOWN ON THIS PLAN AND THE ENGINEER/ARCHITECT IS IN NO WAY LIABLE FOR ANY VIOLATION OF SUCH ENVIRONMENTAL LAWS SHOULD SUCH EXIST.

**GRADING AND STORM DRAINAGE NOTES :**

1. ALL SITE MATERIALS ARE UNCLASSIFIED. NO ADDITIONAL PAYMENT WILL BE MADE FOR ROCK EXCAVATION IF ENCOUNTERED. UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. ANY BORROW MATERIAL REQUIRED TO GRADE THE SITE WILL BE AT THE CONTRACTORS EXPENSE. ENVIRONMENTAL PERMITS AND FEES REQUIRED FOR BORROW OR WASTE SITES SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTORS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKEOUT AT CONTRACTORS EXPENSE.
3. CONTRACTOR SHALL EMPLOY THE SERVICES OF A GEOTECHNICAL ENGINEER AND TESTING LABORATORY TO PROVIDE GEOTECHNICAL SERVICES FOR THE PROJECT AT CONTRACTORS EXPENSE.
4. ALL ASPECTS OF THE EARTHWORK OPERATIONS ARE TO BE APPROVED BY THE GEOTECHNICAL ENGINEER.
5. HAZARDOUS MATERIALS SHALL BE DEFINED AS MATERIAL CONTAINING ASBESTOS, PCB OR PETROLEUM CONTAMINANTS, OR OTHER CONTAMINANTS IDENTIFIED BY THE E.P.A. OR OTHER FEDERAL OR STATE AGENCY AS POTENTIALLY LIFE-THREATENING AND REQUIRING SPECIAL HANDLING AND/OR DISPOSAL. IF THE PRESENCE OF ANY SUCH CONTAMINANTS IS SUSPECTED, THE ARCHITECT OR ENGINEER SHALL BE PROMPTLY TESTED. IF CONTAMINATED MATERIALS ARE IDENTIFIED, SUCH MATERIALS WILL BE REMOVED FROM THE SITE BY THE OWNER UNDER SEPARATE CONTRACT OR BY THE GENERAL CONTRACTOR AS AN APPROVED CHANGE TO HIS CONTRACT. ESTIMATED QUANTITIES, UNIT PRICES AND SCHEDULE FOR REMOVAL SHALL BE IDENTIFIED, VERIFIED AND APPROVED BY THE ARCHITECT/ENGINEER AND THE OWNER PRIOR TO SUCH REMOVAL.
6. FILL MATERIAL SHALL BE INORGANIC, FREE OF DEBRIS, SUITABLE FOR COMPACTION & APPROVED BY THE GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL HAVE A PLASTICITY INDEX LESS THAN 25.
7. FILL MATERIAL SHALL BE SPREAD IN SUCCESSIVE, UNIFORM LAYERS NOT EXCEEDING 8" IN LOOSE THICKNESS & COMPACTED TO A MINIMUM OF 98% OF THE MAXIMUM DENSITY.
8. DRAINAGE PIPE MAY BE EITHER RCP, CLASS III OR HDPE WITH SOIL TIGHT CONNECTIONS. ALL PIPE AND INSTALLATION SHALL BE IN ACCORDANCE w/ NCDOT STANDARD SPECIFICATIONS.
9. DRAINAGE STRUCTURES FOR CATCH BASINS AND DROP INLETS SHALL BE MASONRY AND CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE PLANS. PRECAST STRUCTURES MAY BE USED PROVIDED SUBMITTALS ARE APPROVED AS "OR EQUAL".
10. CUT, FILL AND ROUGH GRADE AS REQUIRED TO BRING SITE TO PROPOSED SUBGRADE ELEVATIONS. MAKE GRADES, NOT OTHERWISE INDICATED, AT UNIFORM LEVELS OR SLOPES BETWEEN WHERE ELEVATIONS ARE GIVEN; HOWEVER, PROVIDE PROPER & POSITIVE DRAINAGE FROM ALL AREAS.
11. PROVIDE A 1/4" PER FOOT CROSS SLOPE FOR SIDEWALKS.
12. REGRADE AROUND EXISTING BUILDING TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE ORANGE COUNTY STANDARDS. IF ORANGE COUNTY SPECIFICATIONS DO NOT ADDRESS AN ITEM, COMPLY WITH NCDOT STANDARD SPECIFICATIONS AND REQUIREMENTS.
14. REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III AND CONFORM TO AASHTO M-170, TABLE III.
15. WHERE DESIGNATED ON THE PLANS, CONTRACTOR MAY USE RCP IN LIEU OF HDPE PIPE.
16. CONTRACTOR SHALL PROVIDE CPP FOR ROOF DRAIN LEADERS AND CONNECTIONS. CONTRACTOR SHALL PROVIDE ADAPTERS AND NECESSARY FITTINGS TO CONNECT LEADERS TO DOWNSPOUTS. MIN. PIPE SIZE SHALL BE 6" ø . MIN. PIPE SLOPE SHALL BE 1/4" PER FOOT.

NOTE:
15" ø RCP PIPE IS NOT NEEDED ON ENTRANCE OF DRIVEWAY PER COMMENTS BY NCDOT

1/C2 ENLARGED SITE PLAN
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
( IN FEET )
1 inch = 10 ft.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC.
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

NORTH CAROLINA PROFESSIONAL SEAL 059786 ENGINEER TRENTON J. PROFFITT
8/19/25

CONSULTANT JOB NO.

# BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.

6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

1 Revisions per Orange County DAC 07-24-2025

SITE, GRADING PLAN & STORM DRAINAGE

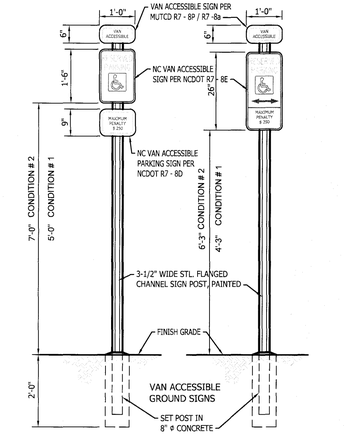
DATE April 21, 2025

DRAWN BY: | CHECKED:

JOB NO. 24060

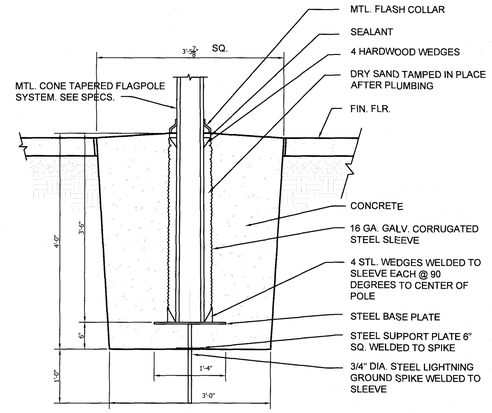
SHEET NO. C2 OF

R:\2024\24060_Orange Grove F.S. #2_Hillsborough\CD_Final Dwgs\24060_C1_C2_C3_C4-Trenton_REV 01.dwg, 8/18/2025 11:40:39 AM, Canon TM-355_24x36.pc3




## 1 / C3 ACCESSIBLE PARKING SIGNS
SCALE: 1/2" = 1'-0"

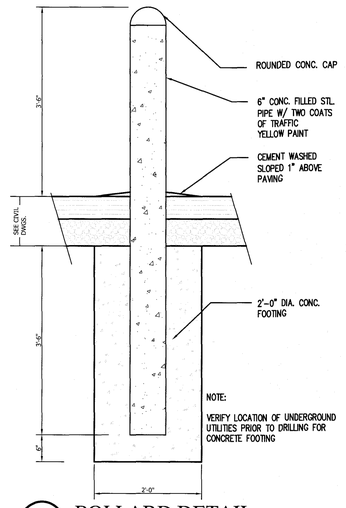
GENERAL NOTES: REGARDLESS OF AGE, ALL ACCESSIBLE SPACES SHALL BE IDENTIFIED BY ABOVE GROUND SIGNS ONLY. NEW SPACES SHALL NOT USE GROUND-PAINTED SYMBOLS. ACCESSIBLE SPACES ARE REQUIRED TO BE STRIPED OFF ONLY; BLUE COLORING IS NOT NECESSARY NOR REQUIRED. STRIPING IS WHITE ON DARK PAVEMENT; BLACK ON LIGHT PAVEMENT. CONDITION # 1: PEDESTRIAN PATH DOES NOT PASS UNDER OR AROUND SIGN. CONDITION # 2 : PEDESTRIAN PATH GOES BY, UNDER OR AROUND SIGN.



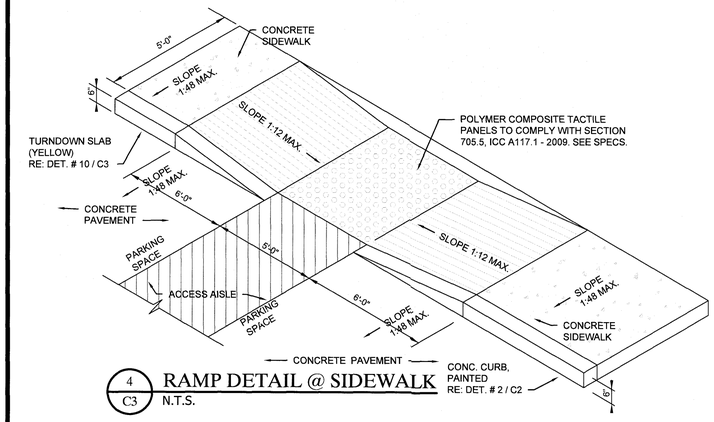

## 2 / C3 FLAGPOLE FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"

NOTES:

1. MAX. FLAGPOLE HEIGHT IS 24' PER SECTION 6.12.12, ORANGE COUNTY UNIFORM DEVELOPMENT CODE.
2. MAX. FLAG SIZE IS 24 SQ. FT. PER ORANGE COUNTY UNIFORM DEVELOPMENT CODE.




## 3 / C3 BOLLARD DETAIL
SCALE: 3/4" = 1'-0"




## 4 / C3 RAMP DETAIL @ SIDEWALK
N.T.S.




## 5 / C3 CONC. PARKING BUMPER
SCALE: 1/4" = 1'-0"




## 6 / C3 GROUND SIGN - FLOOR PLAN
SCALE: 3/4" = 1'-0"

***SEEDING SPECIFICATIONS***

ALL DISTURBED AREAS SHALL BE REPAIRED WITH THE FOLLOWING RATE OF SEED, FERTILIZER AND LIMESTONE IN POUNDS PER ACRE, AND THE AREAS PROPERLY MULCHED AND TACKED:

25# RELIANT HARD FESCUE
100# ALTA OR KENTUCKY 31 TALL FESCUE
25# KENBLUE KENTUCKY BLUEGRASS
1000# 5-10-10 FERTILIZER
4000# LIMESTONE

1

TYPICAL TREE NOTES

1. MIN. 1/2" DIAMETER NYLON STRAPPING MAY BE SUBSTITUTED FOR SISAL ROPE AND RUBBER HOSE.
2. REMOVE ALL TREATED OR PLASTIC COATED BURLAP WIRE OR NYLON TWINE FROM PLANT BALL.
3. INSTALL TOP OF PLANT BALL 3'-4" ABOVE FINISH GRADE.
4. SOAK PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.
5. WRAP TREES FROM GROUND TO LOWEST BRANCHES WITH BURLAP OR TREE WRAP PAPER. SECURE NEAR TOP AND BOTTOM WITH HEMP STRING ONLY.
6. LENGTH OF RUBBER HOSE TO BE 2/3 CIRCUMFERENCE OF TREE.
7. PLACE 2 WOODSTAKES PARALLEL TO STREET.
8. SEE SPECIFICATIONS FOR OTHER PLANTING REQUIREMENTS.

NOTES:

GRASS:

| | |
|---|---|
| General: | Area shall be amended and power tilled to 6" Cultipak or roll seed area. |
| Seed: | Kentucky 31 Fescue @ 250 lbs./acre |
| Lime: | Ground Lime @ 2000 lbs./acre |
| Fertilizer: | 10-10-10 @ 500 lbs./acre |
| Straw: | Wheat straw @ 90 lbs./1000 s.f. |
| Tack: | Asphalt @ 225 gal./acre |

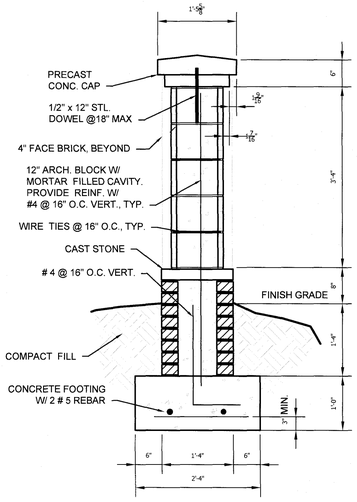
2. BED AREAS:

General: Amend planting beds with course shredded organic matter, lime, and super phosphate. Power till to a depth of 6" minimum Planting areas shall be amended and planting pits backfilled with a topsoil mix. All planting beds shall be mulched.

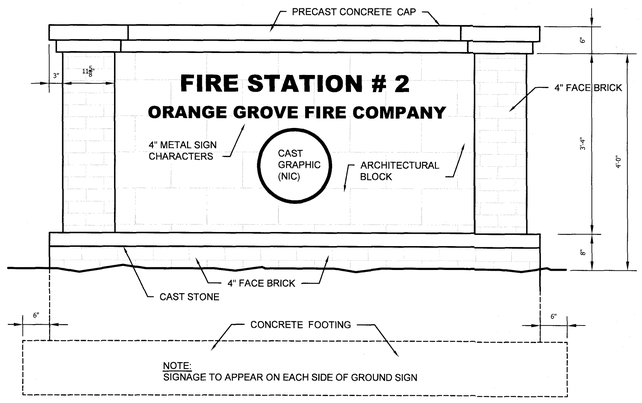
Mulch: Medium sized pine bark mulch, a minimum of 4" thick.

3. GENERAL:

All bed areas shall be raised 6" above surrounding grade.
All bed areas shall have a 4" deep notch edge when adjacent to grassed areas.
All planting beds shall be continuous under shrubbery.
All trees shall have a 3'-0" wide mulch bed at their base.



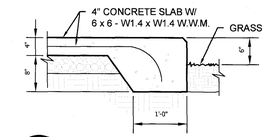

## A / C3 GROUND SIGN SECTION
SCALE: 3/4" = 1'-0"



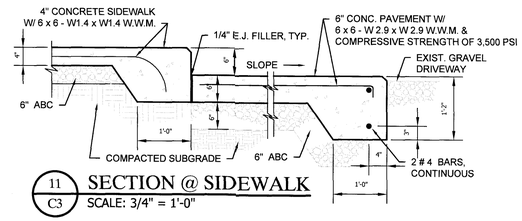

## 7 / C3 GROUND SIGN ELEVATION
SCALE: 3/4" = 1'-0"

NOTES:

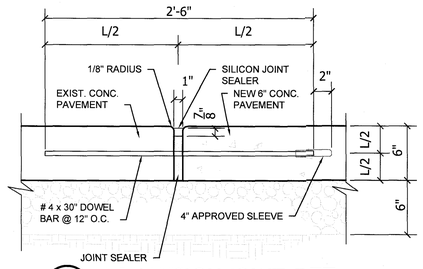
1. MAX. GROUND SIGN AREA IS 32 SQ. FT. PER SIGN FACE IN ACCORDANCE WITH SECTION 6.12.13, ORANGE COUNTY UNIFORM DEVELOPMENT CODE.
2. MAX. GROUND SIGN HEIGHT IS 6'-0".




## 10 / C3 SECT. @ SIDEWALK
SCALE: 3/4" = 1'-0"

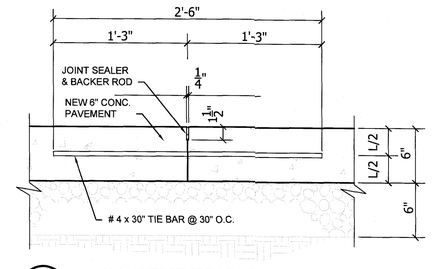



## 11 / C3 SECTION @ SIDEWALK
SCALE: 3/4" = 1'-0"




## 12 / C3 EXPANSION JOINT. DET
SCALE: 1 1/2" = 1'-0"

ROADWAY STANDARD DRAWING FROM NC DEPT. OF TRANSPORTATION, DIVISION OF HIGHWAYS




## 13 / C3 LONGITUDINAL CONST. JOINT. DET
SCALE: 1 1/2" = 1'-0"

ROADWAY STANDARD DRAWING FROM NC DEPT. OF TRANSPORTATION, DIVISION OF HIGHWAYS

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

NORTH CAROLINA PROFESSIONAL SEAL 059786 ENGINEER TRENTON J. BOVELL 07/24/25

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

1 Revisions per Orange County DAC 07-24-2025

SIDEWALK, FLAGPOLE, SIGNAGE,CONCRETE DETAILS

DATE April 21, 2025

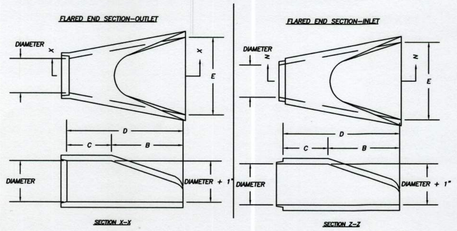
DRAWN BY: | CHECKED:

JOB NO. 24060

SHEET NO. C3 OF

| PIPE DIAMETER | WALL THICKNESS | SLOPE | B | C | D | E | WEIGHT |
|---|---|---|---|---|---|---|---|
| 12 | 2 1/4 | 3:1 | 24 | 49 | 73 | 24 | 730 |
| 15 | 2 1/4 | 3:1 | 27 | 46 | 73 | 30 | 910 |
| 18 | 2 1/2 | 3:1 | 27 | 46 | 73 | 36 | 1190 |
| 21 | 2 3/4 | 3:1 | 36 | 37 | 73 | 42 | 1370 |
| 24 | 3 | 3:1 | 42 | 31 1/2 | 73 1/2 | 48 | 1770 |
| 27 | 3 1/4 | 3:1 | 48 | 25 1/2 | 73 1/2 | 54 | 2130 |
| 30 | 3 1/2 | 3:1 | 54 | 19 3/4 | 73 3/4 | 60 | 2380 |
| 36 | 4 | 3:1 | 63 | 34 3/4 | 97 3/4 | 72 | 5320 |
| 42 | 4 1/2 | 3:1 | 63 | 35 | 98 | 78 | 5920 |
| 48 | 5 | 3:1 | 72 | 26 | 98 | 84 | 7470 |
| 54 | 5 1/2 | 2.4:1 | 66 | 34 | 100 | 90 | 8810 |
| 60 | 6 | 2:1 | 60 | 39 | 99 | 96 | 11180 |
| 72 | 7 | 2:1 | 78 | 21 | 99 | 108 | 13980 |

DIMENSIONS IN INCHES, WEIGHT IN POUNDS




## INLET & OUTLET FLARED END SECTIONS

PROTECTION OF WORK, PROPERTY AND THE PUBLIC:

1). THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFETY MEASURES FOR THE PROTECTION OF ALL PERSONS ON THE JOB, INCLUDING THE REQUIREMENTS OF THE A.G.C. *ACCIDENT PREVENTION MANUAL IN CONSTRUCTION* AND SHALL FULLY COMPLY WITH ALL STATE LAWS OR REGULATIONS AND NORTH CAROLINA STATE BUILDING CODE REQUIREMENTS TP PREVENT ACCIDENT OR INJURY TO PERSONS ON OR ABOUT THE LOCATION OF THE WORK. THE G.C. SHALL CLEARLY MARK OR POST SIGNS WARNING OF HAZARDS EXISTING, AND SHALL BARRICADE EXCAVATIONS, STAIRWELLS AND SIMILAR HAZARDS. HE SHALL PROTECT AGAINST DAMAGE OR INJURY RESULTING FROM FALLING MATERIALS AND HE SHALL MAINTAIN ALL PROTECTIVE DEVICES AND SIGNS THROUGHOUT THE PROGRESS OF THE WORK.

2). THE GENERAL CONTRACTOR SHALL PROVIDE COVER AND PROTECT ALL PORTIONS OF THE STRUCTURE WHEN THE WORK IS NOT IN PROGRESS, PROVIDE AND SET ALL TEMPORARY ROOFS, COVERS FOR DOORWAYS, WINDOWS, AND ALL OTHER MATERIALS NECESSARY TO PROTECT ALL THE WORK ON THE BUILDING, WETHER SET BY HIM, OR ANY OF THE SUBCONTRACTORS. ANY WORK DAMAGED THROUGH THE LACK OF PROPER PROTECTION OR FROM ANY OTHER CAUSE, SHALL BE REPAIRED OR REPLACED WITHOUT EXTRA COST TO THE OWNER.

3). THE GENERAL CONTRACTOR SHALL PROTECT ALL TREES AND SHRUBS DESIGNATED TO REMAIN IN THE VICINITY OF THE OPERATIONS BY BUILDING SUBSTATIAL BOXES AROUND SAME. THE G.C. SHALL BARRICADE ALL WALKS, ROADS, ETC., AS DIRECTED BY THE DESIGNER TO KEEP THE PUBLIC AWAY FROM THE CONSTRUCTION. ALL TRENCHES, EXCAVATIONS OR OTHER HAZARDS IN THE VICINITY OF THE WORK SHALL BE WELL BARRICADED AND PROPERLY LIGHTED AT NIGHT.

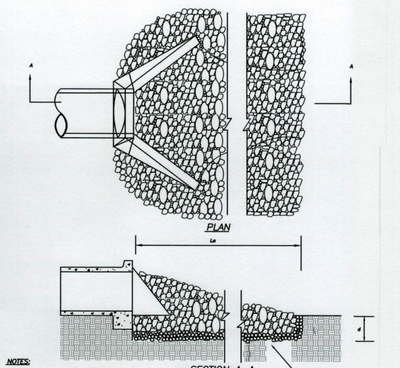
4). THE GENERAL CONTRACTOR SHALL BE JOINTLY RESPONSIBLE FOR THE ENTIRE SITE AND THE BUILDING OR CONSTRUCTION OF THE SAME AND PROVIDE ALL THE NECESSARY PROTECTIONS AS REQUIRED BY THE OWNER OR DESIGNER, AND BY THE LAWS OR ORDINANCES GOVERNING SUCH CONDITIONS. THEY SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE OWNER'S PROPERTY, OR OF THAT OF OTHERS ON THE JOB, BYTHEM, THEIR PERSONNEL, OR THEIR SUBCONTRACTORS, AND SHALL MAKE GOOD SUCH DAMAGES. THEY SHALL BE RESPONSIBLE FOR AND PAY FOR ANY DAMAGES CAUSED TO THE OWNER. ALL CONTRACTORS SHALL HAVE ACCESS TO THE PROJECT AT ALL TIMES.

5). NO FIRES OF ANY KIND WILL BE ALLOWED INSIDE OR AROUND THE OPERATIONS DURING THE COURSE OF CONSTRUCTION WITHOUT SPECIAL PERMISSION FROM THE DESIGNER.

6). THE GENERAL CONTRACTOR SHALL ADHERE TO THE RULES, REGULATIONS AND INTERPRETATIONS OR THE NORTH CAROLINA DEPARTMENT OF LABOR RELATING TO OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR THE CONSTRUCTION INDUSTRY (TITLE 29, CODE OF FEDERAL REGULATIONS, PART 1926, PUBLISHED IN VOLUME 39, NUMBER 122, PART II, JUNE 24, 1974, FEDERAL REGISTER), AND REVISIONS THERETO AS ADOPTED BY GENERAL STATUTES OF NORTH CAROLINA 95 - 126 THROUGH 155

GENERAL NOTES

1. THE GENERAL CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE 2018 AND OSHA..
2. THE GENERAL CONTRACTOR WILL CONDUCT A DETAILED INSPECTION OF THE ALL THE SITE AND EXISTING BUILDING AND WILL REPORT TO THE ARCHITECT / OWNER OF ANY INCONSISTENCIES OBSERVED BETWEEN FIELD CONDITIONS AND CONSTRUCTION DOCUMENTS.
3. THE ENGINEER / ARCHITECT HAS MADE NO EXAMINATION TO DETERMINE WETHER ANY HAZARDOUS OR TOXIC MATERIALS ARE PRESENT IN THE CRAWL SPACE. NO SUB SURFACE EXAMINATION HAS BEEN MADE BY THE ENGINEER / ARCHITECT, AND ACCORDINGLY NO OPINION IS EXPRESSED OR INFERRED ON ALL SUCH MATTERS.
4. NO OPINION IS RENDERED AS TO ANY VIOLATION OF ANY ENVIRONMENTAL LAWS OR REGULATIONS, EITHER FEDERAL, STATE, OR LOCAL RELATED TO THE INFORMATION SHOWN ON THIS PLAN. THE ENGINEER / ARCHITECT IS IN NO WAY LIABLE FOR ANY VIOLATION OF SUCH ENVIRONMENTAL LAWS SHOULD SUCH EXIST.
5. ITEMS OF DEMOLITION WHICH MAY CONTAIN ASBESTOS (INCLUDING BUT NOT LIMITED TO INSULATION, DUCTWORK, MECHANICAL EQUIPMENT, ETC.) SHALL BE REMOVED AND DISPOSED OF AS A PART OF THE WORK OF THIS CONTRACT. THE GENERAL CONTRACTOR SHALL TEST SAMPLES OF ANY MATERIALS SUSPECTED OF CONTAINING ASBESTOS AND SHALL PROVIDE COPIES OF THE TEST REPORTS TO THE OWNER.
6. IF ASBESTOS-CONTAINING MATERIALS ARE ENCOUNTERED, THE G.C. IS RESPONSIBLE FOR TESTING AND MONITORING, AS REQUIRED BY STATE AND FEDERAL LAW DURING THE REMOVAL PROCESS OF UTILITIES, PIPES AND VALVES.
7. THE G.C. SHALL NOTIFY THE ENGINEER / ARCHITECT OF THE INDIVIDUALS AND/OR FIRMS PROPERLY LICENSED AND QUALIFIED FOR THE ALL THE WORK OF REMOVAL, TESTING & MONITORING. ALL METHODS OF REMOVAL SHALL COMPLY WITH TRADE STANDARDS AND APPLICABLE STATE AND FEDERAL LAWS AND REGULATIONS. THE G.C. SHALL PROVIDE THE OWNER WITH DOCUMENTATION THAT ALL PROPER PROCEDURES HAVE BEEN FOLLOWED AND THAT ANY CONTAMINATED MATERIALS FROM THE BUILDING SITE HAVE BEEN PROPERLY DISPOSED OF.




NOTES:

SEE APPROPRIATE SCHEDULE FOR DIMENSIONS

1. La is the length of the riprap apron.
2. d = 1.5 times the maximum stone diameter but not less than 6"
3. In well–defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth or to the top of the bank which ever is less.
4. A filter blanket or filter fabric should be installed between the riprap and soil foundation.

## PIPE CULVERT OUTLET PROTECTION FOR DEFINED CHANNEL

*Design Criteria:*

*Aggregate Size–Use 2-3 inch washed stone.*

*Dimensions of gravel pad–*

*Thickness: 6 inches minimum*

*Width: 12-ft minimum or full width at all points of the vehicular entrance and exit area, whichever is greater.*

*Length: 50-ft minimum*

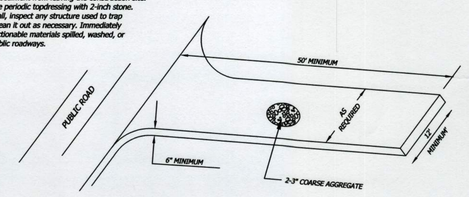
*Location–Locate construction entrances and exits to limit sediment from leaving the site and to provide for maximum utility by all construction vehicles. Avoid steep grades and entrances at curves in public roads.*

*Maintenance–Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2-inch stone. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary. Immediately remove all objectionable materials spilled, washed, or tracked onto public roadways.*

*Washing–If conditions at the site are such that most of the mud and sediment are not removed by vehicles traveling over the gravel, the tires should be washed. Washing should be done on an area stabilized with crushed stone that drains into a sediment trap or other suitable disposal area. A wash rack may also be used to make washing more convenient and effective.*

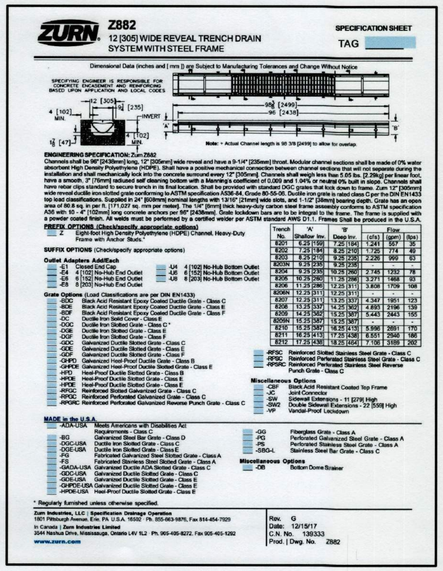
*Construction Specifications:*

*1. Clear the entrance and exit area of all vegetation, roots and other objectionable material and properly grade it.*
*2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.*
*3. Provide drainage to carry water to a sediment trap or other suitable outlet.*
*4. Use geotextile fabrics because they improve stability of the foundation in locations subject to seepage or high water table.*




## TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

T.O.K. ROADWAY STD. NO. 210



ZURN Z882
12 [305] WIDE REVEAL TRENCH DRAIN SYSTEM WITH STEEL FRAME
SPECIFICATION SHEET
TAG

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice

SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES

Note: * Actual Channel length is 95 3/8 [2439] to allow for overlap.

**ENGINEERING SPECIFICATION: Zurn Z882**

Trench drain shall be 12" [305mm] wide by 12" [305mm] wide reveal and have a 9-1/4" [235mm] throat. Modular channel sections shall be made of 0% water absorption High Density Polymer Concrete (HDPC). Shall have a positive mechanical connection between channel sections that will add support during installation and shall mechanically lock into the concrete surround every 12" [305mm]. Channels shall weigh less than 5.65 lbs. (2.56kg) per linear foot, have a smooth .7" [17mm] radiused self cleaning bottom with a Manning's coefficient of 0.009 and 1.04% or neutral 0% built in slope. Channels shall have rebar clips standard to secure trench in its final location. Shall be provided with standard OGC grates that lock down to frame. Zurn 12" [305mm] wide reveal ductile iron slotted grate conforming to ASTM specifications A536-84, Grade 80-55-06. Ductile iron grate is rated class D per the DIN EN1433 top load classifications. Supplied in 24" [609mm] nominal lengths with 13/16" [21mm] wide slots, and 1-1/2" [38mm] bearing depth. Grate has an open area of 80.8 sq. in per ft. [11,027 sq. mm per meter]. The 1/4" [6mm] thick heavy-duty carbon steel frame assembly conforms to ASTM specification A36 with 10 - 4" [102mm] long concrete anchors per 88" [2436mm]. Grate lockdown bars are to be integral to the frame. The frame is supplied with a powder coated finish. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames Shall be produced in the U.S.A.

**PREFIX OPTIONS (Check/specify appropriate options)**

- 2 Eight-foot High Density Polyethylene (HDPE) Channel, Heavy-Duty Frame with Anchor Studs.*

**SUFFIX OPTIONS (Check/specify appropriate options)**

**Outlet Adapters Add/Each**

- -E 4 [102] Hub-Ends
- -E4 4 [102] Hub-End Outlet
- -E6 6 [152] No-Hub End Outlet
- -E8 8 [203] No-Hub End Outlet
- -UH 4 [102] No-Hub Bottom Outlet
- -UE 6 [152] No-Hub Bottom Outlet
- -U8 8 [203] No-Hub Bottom Outlet

**Grate Options** (Load Classifications are per DIN EN1433)

- -B Ductile Iron Bolted Grate - Class C
- -BDE Black Acid Resistant Epoxy Coated Ductile Grate - Class E
- -BDF Black Acid Resistant Epoxy Coated Ductile Grate - Class F
- -DC Ductile Iron Solid Cover - Class E
- -DCC Ductile Iron Slotted Grate - Class C *
- -DCB Ductile Iron Slotted Grate - Class B
- -DCD Ductile Iron Slotted Grate - Class F
- -DDC Galvanized Ductile Slotted Grate - Class C
- -DDE Galvanized Ductile Slotted Grate - Class E
- -DDF Galvanized Ductile Slotted Grate - Class F
- -GHPB Galvanized Heel-Proof Ductile Grate - Class B
- -GHPDE Galvanized Heel-Proof Ductile Slotted Grate - Class E
- -HPD Heel-Proof Ductile Slotted Grate - Class B
- -HPDE Heel-Proof Ductile Slotted Grate - Class E
- -RPB Reinforced Perforated Galvanized Grate - Class B
- -RPDC Reinforced Perforated Galvanized Grate - Class C
- -RPDE Reinforced Perforated Galvanized Grate - Class E
- -RPDRC Reinforced Perforated Galvanized Reverse Punch Grate - Class C
- -RPSC Reinforced Slotted Stainless Steel Grate - Class C
- -RPSE Reinforced Perforated Stainless Steel Grate - Class E
- -RPSRC Reinforced Perforated Stainless Steel Reverse Punch Grate - Class C

**Miscellaneous Options**

- -CSF Black Acid Resistant Coated Top Frame
- -CW Joint Connector
- -EW Wall Flange Extensions - 11 [279] High
- -SWD Double Sidewall Extensions - 22 [559] High
- -VP Vandal-Proof Lockdown

**MADE in the U.S.A.**

- -ADA-USA Meets Americans with Disabilities Act Requirements - Class C
- -BG Galvanized Steel Bar Grate - Class D
- -DDC-USA Ductile Iron Slotted Grate - Class C
- -DDE-USA Ductile Iron Slotted Grate - Class E
- -FA Fabricated Stainless Steel Slotted Grate - Class A
- -FG Fabricated Stainless Steel Slotted Grate - Class A
- -GADA-USA Galvanized Ductile ADA Slotted Grate - Class C
- -GDC-USA Galvanized Ductile Slotted Grate - Class C
- -GDE-USA Galvanized Ductile Slotted Grate - Class E
- -GHPDE-USA Galvanized Ductile Slotted Grate - Class E
- -HPDE-USA Heel-Proof Ductile Slotted Grate - Class E
- -GG Fiberglass Grate - Class A
- -PG Perforated Galvanized Steel Grate - Class A
- -PS Perforated Stainless Steel Grate - Class A
- -SBG-L Stainless Steel Bar Grate - Class C

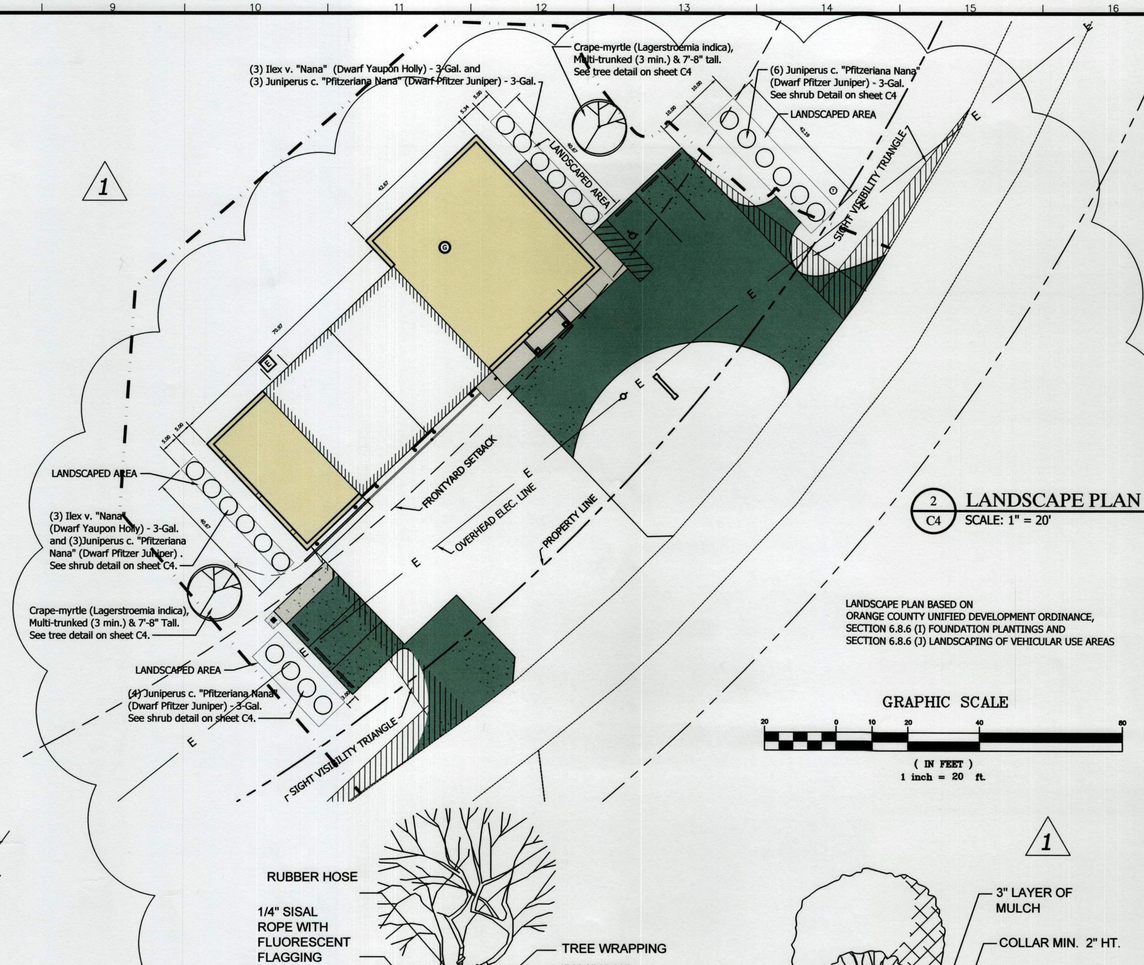
**Miscellaneous Options**

- -DB Bottom Dome Strainer

* Regularly furnished unless otherwise specified

Zurn Industries, LLC Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 Ph. 855-663-9876, Fax 814-454-7929
In Canada | Zurn Industries Limited
3044 Nashua Drive, Mississauga, Ontario L4V 1L2 Ph. 905-405-8272, Fax 905-405-9282
www.zurn.com

Rev. G
Date: 12/15/17
C.N. No. 130333
Prod. | Dwg. No. Z882




2 / C4 LANDSCAPE PLAN
SCALE: 1" = 20'

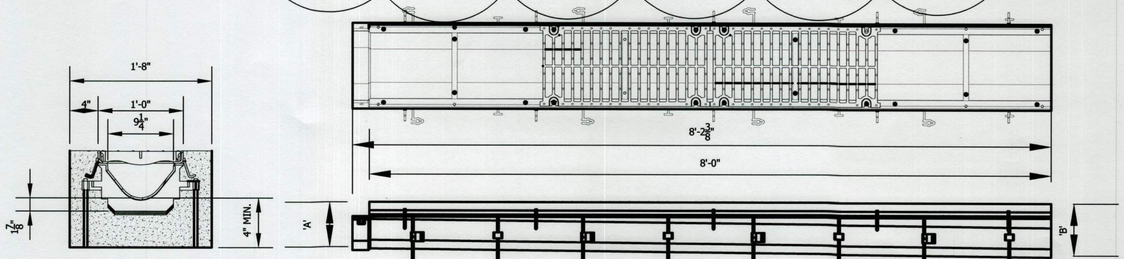
LANDSCAPE PLAN BASED ON
ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE,
SECTION 6.8.6 (I) FOUNDATION PLANTINGS AND
SECTION 6.8.6 (J) LANDSCAPING OF VEHICULAR USE AREAS

GRAPHIC SCALE
20 0 10 20 40 80
( IN FEET )
1 inch = 20 ft.




SMALL MATURING TREE
NO SCALE

SHRUB DETAIL
NO SCALE




1 / C4 OUTDOOR TRENCH DRAIN DETAIL
N.T.S.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226–5534

ALLEY WILLIAMS CARMEN & KING, INC
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052749 TRENTON J. TROVELLI 04/21/25

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

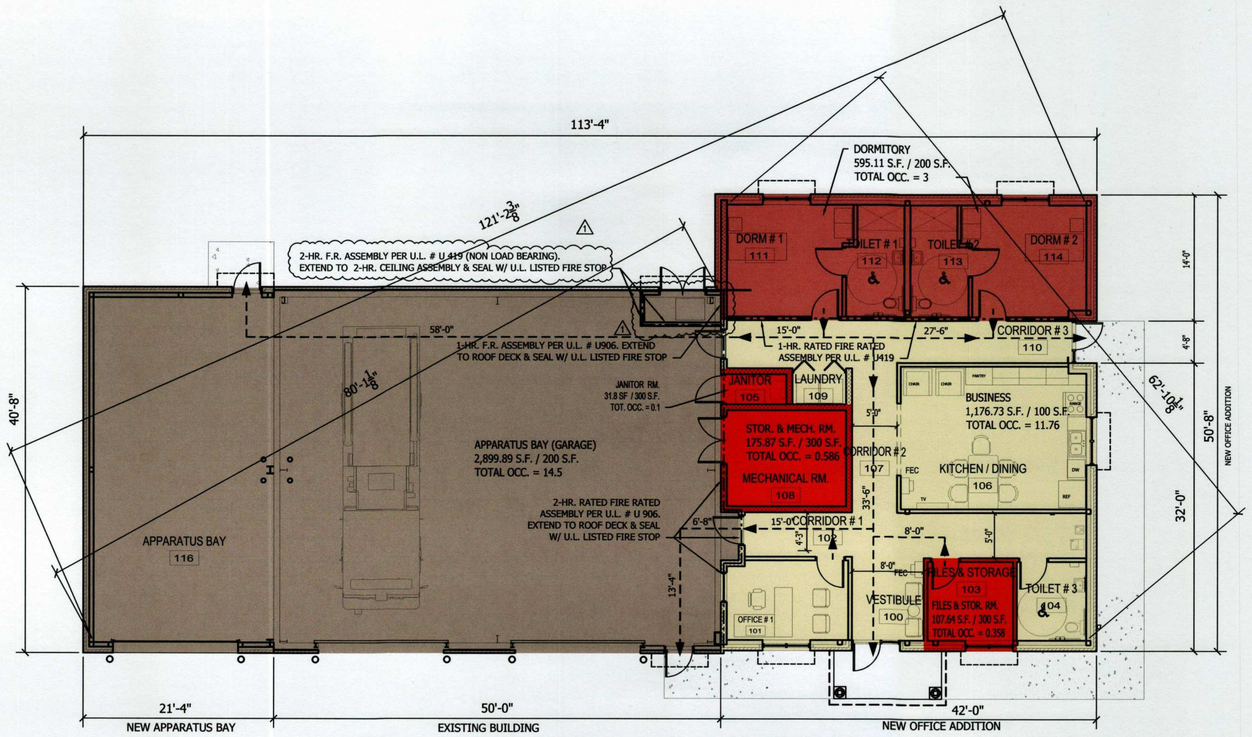
REVISIONS

| | |
|---|---|
| 1 | Revisions per Orange County DAC 07-24-2025 |

GENERAL NOTES & LANDSCAPING NOTES

DATE April 21, 2025
DRAWN BY: CHECKED:
JOB NO. 24060
SHEET NO. C4
OF

R:\2024\24060_Orange Grove F.S. #2_Hillsborough\CD_Final Dwgs\24060_C1_C2_C3_C4-Trenton_REV 01.dwg, 8/18/2025 11:51:29 AM, Canon TM-355_24x36.pc3




1 LS1 **LIFE SAFETY PLAN**
SCALE: 1/8" = 1'-0"

TOTAL BUILDING OCCUPANCY: 31
(TABLE 1004.1.2, NC BLDG. CODE 2018)

1-HR. RATED FIRE RATED ASSEMBLY PER U.L. # U419

2-HR. RATED FIRE RATED ASSEMBLY PER U.L. # U404

FEC FIRE EXTINGUISHER CABINET.
FIRE EXTINGUISHERS SHALL BE TYPE ABC 5 AND DISTRIBUTED AS SHOWN ON DRAWINGS AS RECOMMENDED BY NFPA 10, TABLES 6-2(B AND 6-2(C.

THE MAX. MOUNTING HEIGHT OF FIRE EXTINGUISHERS SHALL BE 5 FT. ( TOP OF UNIT TO FINISH FLOOR).

| | | |
|---|---|---|
| AREA FOR BUSINESS OCCUPANCY: | 1,176.73 | S.F. |
| AREA FOR STOR./GARAGE OCCUPANCY: | 3,061.57 | S.F. |
| AREA FOR DORMITORY OCCUPANCY: | 595.1 | S.F. |
| AREA FOR STOR./MECH. OCCUPANCY: | 175.87 | S.F. |
| TOTAL AREA OF BUILDING (EXISTING + ADDITION): | 5,009.27 | S.F. |

## REQUIREMENTS PER NC STATE BUILDING CODE (NCSBC) 2018:

1. USE & OCCUPANCY CLASSIFICATION: STORAGE (S-2) PER SECTION 311 & BUSINESS (B) PER SECTION 304.
2. MINIMUM CORRIDOR WIDTH: 36", PER TABLE 1020.2
3. MINIMUM CORRIDOR FIRE-RESISTANCE RATING: 1 HOUR, PER TABLE 1020.1
4. DEAD END CORRIDOR DISTANCE: 20 FT. MAX., PER 1020.4 (NOT SPRINKLERED)
5. MAX. EXIT ACCESS TRAVEL DISTANCE: 200 FT. (W/O SPRINKLERS SYST.), PER TABLE 1017.2
6. MIN. NUMBER OF EXITS OR ACCESS TO EXITS PER STORY: 2 EXITS, PER TABLE 1006.3.1
7. MAX. FLOOR AREA ALLOWANCES PER OCCUPANT, PER TABLE 1004.1.2:

| | | | | |
|---|---|---|---|---|
| a. | BUSINESS: | (100 S.F. GROSS PER OCCUPANT) | 1,176.73 s.f / 100 = | 11.76 |
| b. | ACCESSORY STORAGE/MECHANICAL ROOM: | (300 S.F. GROSS PER OCCUPANT) | 175.87 s.f. / 300 = | 1.12 |
| c. | STORAGE GROUP S-2 (APPARATUS BAYS): | (200 S.F. GROSS PER OCCUPANT) | 2,899.89 s.f. / 200 = | 14.5 |
| d. | RESIDENTIAL GROUP R-2 (BEDROOMS): | (200 S.F. GROSS PER OCCUPANT) | 595.11 s.f. / 50 = | 2.97 |
| | | | Total = | 30.35 |

8. TOTAL OCCUPANCY: 31 PERSONS

## LIFE SAFETY REQUIREMENTS

Life Safety Plan Sheet # LS

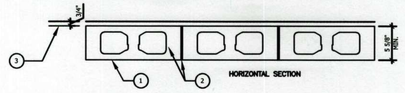
- ☐ Fire and / or smoke rated wall locations (Chapter 7)
- ☐ Assumed and real property line locations (if not on the site plan)
- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☒ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- ☒ Occupant loads for each area
- ☒ Exit access travel distances (1017)
- ☒ Common path of travel distances (Tables 1006.2.1 & 1006.3.2.(1) )
- ☒ Corridor Fire – Resistance Ratings ( Table1020.1)
- ☒ Dead end lenghts (1020.4)
- ☐ Clear exit widths for each exit door
- ☐ Maximum calculated occupant load capacity each exit door can accomodate based on egress width (1005.3)
- ☐ Actual occupant load for each exit door
- ☐ A separate schematic plan indicating where fire rated floor / ceiling and / or roof structure is provided for purposes of occupancy separation
- ☐ Location of doors with panic hardware (1010.1.9.9)
- ☐ 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

Design No. U906

November 09, 2020

Bearing Wall Rating - 2 HR.
Nonbearing Wall Rating - 2 HR

This design was evaluated using a load design method other than the Limit States Design Method (ew.g., Working Stresssw Design Method).
For jurisdiction 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 o cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.




1. CONCRETE BLOCKS* - Nominal 6 by 8 by 16 in., hollow or solid. Classification D-2 (2 hr).
See Concrete Blocks category for list of eligible manufacturers.

ANCHOR CONCRETE PRODUCTS, INC.
CAGNE & SON CONCRETE BLOCK, INC.
GLENWOOD MASONRY PRODUCTS
OLDCASTLE APG SOUTH INC., DBA ADAMS PRODUCTS
WESTBROOK CONCRETE BLOCK CO., INC.

2. MORTAR - Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. PORTLAND CEMENT STUCCO OR GYPSUM PLASTER - If used, add 1/2 hr. to Classification. Attached to concrete blocks (Item 1).

4. FOAMED PLASTIC* - (Optional - not shown) 1-1/2 in thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).

ATLAS ROOFING CORP - Type R2 + SHEATH

DUPONT DE NEMOURS, INC. -Types Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), TUFF-R ci insulation, Thermax Butler Stylwall Insulation Board and Thermax Morton Heavy Duty Insulation Board.

FIRESTONE BUILDING PRODUCTS CO LLC - "Enverge CI Foil Exterior Wall Insulation" and "Enverge CI Glass Exterior Wall Insulation".

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC - Types "Xci-Class A", "Xci 286", "Xci Foil (Class A)"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION - Types "TSX - 8500", "ECOMAX xi FR White", "ECOMAXci", "ECOMAXci FR Air Barrier", "Thermasheath XP", "Thermasheath", "Thermasheath - 3", "Durasheath - 3"

JOHNS MANVILLE - Type "AP Foil-Faced Foam Sheathing"

4a. BUILDING UNITS * - as AN ALTERNATE TO Item 4, min. 1-in thick polyisocyanurate composite foamed plastic insulation boards, nom. 48 by 48 or 96 in.
RMAX, A BUSINESS UNIT OF SIKA CORPORATION - "Thermasheath -SI", "ECOBASEci", "ThermaBase- CI", "ECOMAXci FR Ply", "ECOMAXci Ply"

Celotex Corp. - Type Thermax

*Bearing the UL Classification Marking

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC.
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JORGE LUIS RODRIGUEZ SAM
LICENSED ARCHITECT
6-18-2025
#10611
NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING
FIRE STATION # 2 PROPERTY OF
**ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

1 Revisions per O.C. Insp. Dept. comments. 8-8-2025

LIFE SAFETY PLAN & UL DESIGN

DATE April 21, 2025

DRAWN BY: | CHECKED:

JOB NO. 24060

SHEET NO. LS1

OF

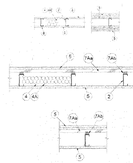
R:\2024\24060_Orange Grove F.S. #2_Hillsborough\CD_Final Dwgs\24060_LS1_D1_A1_A2_A3_A4_A5_A6_A7_A8_A9_Rev 01.dwg, 8/18/2025 12:00:14 PM, Canon TM-355_24x36.pc3

Design No. **U419**

*June 14, 2024*

**Nonbearing Wall Ratings -- 1, 2, 3 or 4 Hr (See Items 4 & 5 through 5J)**

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




1. **Floor and Ceiling Runners** -- (Not Shown) -- For use with Item 2 -- Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.
**CEMCO, LLC** -- ViperZ5™ Track
**CRACO MFG INC** -- SmartTrackZ5™
**MARINO/WARE, DIV OF WARE INDUSTRIES INC** -- ViperZ5™ Track
**IMPERIAL MANUFACTURING GROUP INC** -- ViperZ5™ Track

1B. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2C, proprietary channel shaped runners, 1 1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
**CEMCO, LLC** -- ViperJ5™ Track
**MARINO/WARE, DIV OF WARE INDUSTRIES INC** -- ViperJ5™ Track
**IMPERIAL MANUFACTURING GROUP INC** -- ViperJ5™ Track

1C. **Framing Members* -- Floor and Ceiling Runners** -- (Not Shown) -- In lieu of Item 1 -- Channel shaped, attached to floor and ceiling with fasteners 24 in. OC, max.
**ALLSTEEL & GYPSUM PRODUCTS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20
**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** -- Type SUPREME D24/30EQD and Type SUPREME D20
**QUAIL RUN BUILDING MATERIALS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20
**SCAFCO STEEL STUD MANUFACTURING CO** -- Type SUPREME D24/30EQD and Type SUPREME D20
**STEEL CONSTRUCTION SYSTEMS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20
**TELLING INDUSTRIES L L C** -- Type SUPREME D24/30EQD and Type SUPREME D20
**UNITED METAL PRODUCTS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20

1D. **Floor and Ceiling Runners** -- (Not Shown) -- For use with Item 2A -- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. **Framing Members* -- Floor and Ceiling Runners** -- (Not Shown, As an alternate to Item 1) -- For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
**CLARKDIETRICH BUILDING SYSTEMS** -- CD ProTRAK
**DMFCWBS L L C** -- ProTRAK
**MBA METAL FRAMING** -- ProTRAK
**RAM SALES L L C** -- Ram ProTRAK
**STEEL STRUCTURAL PRODUCTS L L C** -- Tri-S ProTRAK

1F. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
**SUPER STUD BUILDING PRODUCTS** -- The Edge

1G. **Framing Members* -- Floor and Ceiling Runner** -- For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.
**STUDCO BUILDING SYSTEMS** -- CROCSTUD Track

1H. **Floor and Ceiling Runners** -- (Not Shown) -- Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.018 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.
**MARINO/WARE, DIV OF WARE INDUSTRIES INC** -- ViperZ0™ Track VT100
**IMPERIAL MANUFACTURING GROUP INC** -- ViperZ0™ Track VT100

1I. **Framing Members* -- Floor and Ceiling Runners** -- (Not Shown, As an alternate to Item 1) -- For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
**TELLING INDUSTRIES L L C** -- TRUE-TRACK™

1J. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

1K. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1L. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min. 3-1/2 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
**RESCUE METAL FRAMING, L L C** -- AlphaTRAK

1M. **Framing Members* -- Floor and Ceiling Runners** -- Not Shown -- As an alternate to Item 1 -- For use with Item 2O, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
**RONDO BUILDING SERVICES PTY LTD** -- Rondo Wall Track

1N. **Framing Members* -- Floor and Ceiling Runners** -- Not Shown -- As an alternate to Item 1 -- For use with Item 2P, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
**OEG BUILDING MATERIALS** -- OEG Track

1O. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2Q, proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.
**CEMCO, LLC** -- Viper X Track

1P. **Framing Members* -- Floor and Ceiling Runner** -- (Not Shown -- Alternate to Item 1) -- For use with Item 2R, channel shaped runners pre-equipped with proprietary attachment clips. Min. 3-5/8 in. wide. Legs of top runners minimum 3-1/4 in. wide. Legs of bottom runners minimum 1-1/2 in. wide. Runners attached to floor and ceiling with fasteners 24 in. OC max.
**HYPERFRAME INC** - Hypertrack

1Q. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2S , proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 20 EQ/22 mils. (min. 0.0221 in. thick) galvanized steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
**JJC INTERNATIONAL DISTRIBUTORS** -- Non-structural Tracks 3-5/8" and 6".

1R. **Framing Members* -- Floor and Ceiling Runner** -- Not Shown -- In lieu of Item 1 -- For use with Item 2T, proprietary channel shaped runners ,min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max
**IRONLINE METALS LLC** -- Bantam Track.

2. **Steel Studs --** Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Steel Studs --** (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J or Type ULIX) -- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. **Framing Members* - Steel Studs** -- (As an alternate to Item 2, For use with Items 5C, 5I or Type ULIX) -- Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
**CEMCO, LLC** -- ViperZ5™
**CRACO MFG INC** -- SmartStudZ5™
**MARINO/WARE, DIV OF WARE INDUSTRIES INC** -- ViperZ5™
**IMPERIAL MANUFACTURING GROUP INC** -- ViperZ5™

2C. **Framing Members* -- Steel Studs** -- Not Shown -- In lieu of Item 2 -- proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
**CEMCO, LLC** -- ViperZ0™
**MARINO/WARE, DIV OF WARE INDUSTRIES INC** -- ViperZ0™
**IMPERIAL MANUFACTURING GROUP INC** -- ViperZ0™

2D. **Framing Members* -- Steel Studs** -- In lieu of Item 2 -- Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
**ALLSTEEL & GYPSUM PRODUCTS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20
**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** -- Type SUPREME D24/30EQD and Type SUPREME D20
**QUAIL RUN BUILDING MATERIALS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20
**SCAFCO STEEL STUD MANUFACTURING CO** -- Type SUPREME D24/30EQD and Type SUPREME D20
**STEEL CONSTRUCTION SYSTEMS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20
**TELLING INDUSTRIES L L C** -- Type SUPREME D24/30EQD and Type SUPREME D20
**UNITED METAL PRODUCTS INC** -- Type SUPREME D24/30EQD and Type SUPREME D20

2E. **Framing Members* -- Steel Studs** -- (Not Shown, As an alternate to Item 2) -- For use with Items 5F or 5G or 5I or Type ULIX only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
**CLARKDIETRICH BUILDING SYSTEMS** -- CD ProSTUD
**DMFCWBS L L C** -- ProSTUD
**MBA METAL FRAMING** -- ProSTUD
**RAM SALES L L C** -- Ram ProSTUD
**STEEL STRUCTURAL PRODUCTS L L C** -- Tri-S ProSTUD

2F. **Framing Members* -- Steel Studs** -- Not Shown -- In lieu of Item 2 -- proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.
**SUPER STUD BUILDING PRODUCTS** -- The Edge

2G. **Framing Members* -- Steel Studs** -- Not Shown. -- In lieu of Item 2 -- proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.
**STUDCO BUILDING SYSTEMS** -- CROCSTUD

2H. **Framing Members* -- Steel Studs** -- (Not Shown. As an alternate to Item 2) -- Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
**TELLING INDUSTRIES L L C** -- TRUE-STUD™

2I. **Framing Members* -- Steel Studs --**

2J. **Framing Members* -- Metal Studs** -- Not Shown -- In lieu of Item 2 -- proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

2K. **Framing Members* -- Steel Studs** -- As an alternate to Item 2 -- For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
**EB METAL INC** -- NITROSTUD

2L. **Framing Members* -- Steel Studs** -- As an alternate to Item 2 -- For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
**OLMAR SUPPLY INC** -- PRIMESTUD

2M. **Framing Members* -- Steel Studs** -- As an alternate to Item 2 -- For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
**MARINO/WARE, DIV OF WARE INDUSTRIES INC** -- StudRite™

2N. **Framing Members* -- Steel Studs** -- As an alternate to Item 2 -- proprietary channel shaped steel studs, min depth 3- 1/2 in. and as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in length than assembly height.
**RESCUE METAL FRAMING, L L C** -- AlphaSTUD

2O. **Framing Members* -- Steel Studs** -- As an alternate to Item 2 -- proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
**RONDO BUILDING SERVICES PTY LTD** -- Rondo Lipped Wall Stud

2P. **Framing Members* -- Steel Studs** -- As an alternate to Item 2 -- proprietary channel shaped steel studs, min width as indicated under Item 5, min 25 MSG galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
**OEG BUILDING MATERIALS** -- OEG Stud

2Q. **Framing Members* -- Steel Studs** -- Not Shown -- In lieu of Item 2 -- For use with Item 1Q, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min. 20 EQ/22 mils. (min. 0.0221 in. thick), galvanized steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
**CEMCO, LLC** -- Viper X

2R. **Framing Members* -- Steel Studs** -- (Not Shown -- Alternate to Item 2, For use with Item 1P) -- Channel shaped steel studs with attachment clips at top and bottom, min 3-5/8 in. depth, spaced a max of 24 in. OC. Studs clipped into floor and ceiling runners (Item 1P). Max 2-3/8 in. extension reveal from top of stud to inside of ceiling runner.
**HYPERFRAME INC** - Hyperstud

2S. **Framing Members* -- Steel Studs** -- Not Shown -- In lieu of Item 2 -- For use with Item 1Q, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min. 20 EQ/22 mils. (min. 0.0221 in. thick), galvanized steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
**JJC INTERNATIONAL DISTRIBUTORS** -- Non-structural Studs 3-5/8" and 6".

2T. **Framing Members* -- Steel Studs** -- Not Shown -- In lieu of Item 2 -- For use with Item 1R, proprietary channel shaped steelstuds, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
**IRONLINE METALS LLC** - Bantam Stud.

3. **Wood Structural Panel Sheathing** -- (Optional, For use with Item 5 Only) -- (Not Shown) -- 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS 1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from walboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC in the perimeter and 12 in. OC in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets*** -- (Required as indicated under Item 5) -- Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under item 5.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4A. **Batts and Blankets*** -- (Optional - as an alternate to item 4) -- Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Fiber, Sprayed*** -- (Optional - as an alternate for items 4 or 4A, for use with Type ULIX) Where insulation is required - Spray applied granulated mineral fiber material. The fiber is applied with adhesive at a minimum density of 4.0 pcf to completely fill the wall cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
**AMERICAN ROCKWOOL MANUFACTURING, LLC** -- Type Rockwool Premium Plus

4C. **Foamed Plastic*** -- (As an alternate for items 4, 4A or 4B, for use with Item 5K) -- Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity, for 2 hour rated assemblies only. When foamed plastic is used, minimum stud depth shall be 3-1/2 in. with minimum 20 MSG steel thickness.
**CARLISLE SPRAY FOAM INSULATION** -- Types SealTite ONE, SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamulate Closed Cell, Foamulate OCX, Foamulate 70, and Foamulate HYO.

4D. **Foamed Plastic*** -- (As an alternate for items 4, 4A or 4B, for use with Item 5K) -- Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity, for up to 2 hour rated assemblies only. When foamed plastic is used, minimum stud depth shall be 3-1/2 in. with minimum 20 MSG steel thickness.
**BASF CORP** - Enertite® NM, Enertite® G, FE178®, Sprayfoam® 178, Sprayfoam® 81206, Wallrite® 120, Wallrite® US, Wallrite® US-N, Wallrite HF+, FE137®, FE158®, Sprayfoam® 158, Sprayfoam® SP, Sprayfoam® 81205, Sprayfoam® Comfort XL, Wallrite® XL, Wallrite® MAX, Wallrite® LWP, Wallrite® Plus and Enertite® Max

5. **Gypsum Board*** -- Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) with Type ULIX need not be staggered. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

**Gypsum Board Protection on Each Side of Wall**

| Rating, Hr | Min Stud Depth, in. | Item 2, 2C, 2D, 2F, 2G, 2O | No. of Layers & Thkns of Panel | Min Thkns of Insulation (Item 4) |
|---|---|---|---|---|
| 1 | 3-5/8 | 1-1/2 in. thick Type C or 5/8 in. thick Type SCX | 1 | 3-1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or SLTRACODE |
| 2 | 3-5/8 | 1-1/2 in. thick Type C or 5/8 in. thick Type SCX | 2 | 3-1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or SLTRACODE |
| 3 | 3-5/8 | 1-1/2 in. thick Type C or 5/8 in. thick Type SCX | 3 | 3-1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or SLTRACODE |
| 4 | 3-5/8 | 1-1/2 in. thick Type C or 5/8 in. thick Type SCX | 4 | 3-1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or SLTRACODE |

When Item 7B, **Steel Framing Members***, is used. Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. **Gypsum Board*** -- (As an alternate to Item 5) -- 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in item 6.
**CGC INC** -- Type SHX
**UNITED STATES GYPSUM CO** -- Type FRX-G, SHX
**USG MEXICO S A DE C V** -- Type SHX

5B. **Gypsum Board*** -- (Not Shown) -- As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 in. thick products are specified. For direct attachment only to steel studs item 2A, (not to be used with Item 3) -- Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 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. Gypsum board secured to 20 MSG steel studs item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).
**RAY-BAR ENGINEERING CORP** -- Type RB-LBG

5C. **Gypsum Board*** -- (For Use With Item 2B) -- Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) -- The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) -- The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.
**CGC INC** -- Type SCX, ULIX
**THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO** -- Type SCX
**UNITED STATES GYPSUM CO** -- Type SCX, SGX, ULIX
**USG BORAL DRYWALL SFZ LLC** -- Type SCX
**USG MEXICO S A DE C V** -- Type SCX

5D. **Gypsum Board*** -- (As an alternate to Item 5) -- 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.
**CGC INC** -- Type USGX
**UNITED STATES GYPSUM CO** -- Type USGX
**USG BORAL DRYWALL SFZ LLC** -- Type USGX
**USG MEXICO S A DE C V** -- Type USGX

5E. **Gypsum Board*** -- (Not Shown) -- (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified. For direct attachment only to steel studs item 2A, not to be used with Item 3). Nominal 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 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
**NEW ENGLAND LEAD BURNING CO INC, DBA NELCO** -- Nelco

5F. **Gypsum Board*** -- (As an alternate to Item 5) -- For use with Items 1E and 2E and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.
**THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO** -- Type SCX
**UNITED STATES GYPSUM CO** -- 5/8 in. thick Type SCX, SGX, ULIX

5G. **Gypsum Board*** -- (As an alternate to Item 5) -- For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

**Gypsum Board Protection on Each Side of Wall**

| Rating, Hr | Min Stud Depth, in. | Item 1E No. of Layers & Thkns of Panel | Min Thkns of Insulation (Item 4) |
|---|---|---|---|
| 2 | 3-5/8 | 1, 1/2 in. thick Optional 21-5/8 layers, 1/2 in. thick Optional 31-5/8 layers, 5/8 in. thick Optional 41-5/8 layers, 5/8 in. thick Types IP-X3 or ULTRACODE | **THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO** -- Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or ULTRACODE |
| 3 | 3-5/8 | 2, 1/2 in. thick Optional 21-5/8 layers, 1/2 in. thick Optional 31-5/8 layers, 5/8 in. thick Optional 41-5/8 layers, 5/8 in. thick Types IP-X3 or ULTRACODE | **UNITED STATES GYPSUM CO** -- Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or SLTRACODE |
| 4 | 3-5/8 | 3, 1/2 in. thick Optional 21-5/8 layers, 1/2 in. thick Optional 31-5/8 layers, 5/8 in. thick Optional 41-5/8 layers, 5/8 in. thick Types IP-X3 or ULTRACODE | **USG BORAL DRYWALL SFZ LLC** -- 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE |
| | | | **USG MEXICO S A DE C V** -- 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, WRX or WRC, 3/4 in. thick Types IP-X3 or ULTRACODE |

5H. **Gypsum Board*** -- (Not Shown) -- (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).
**MAYCO INDUSTRIES INC** -- Type X-Ray Shielded Gypsum

5I. **Gypsum Board*** -- (As an alternate to Item 5) -- Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in item 5. Steel stud minimum depth shall be as indicated in Item 5.
**CGC INC** -- Type ULIX, ULX
**UNITED STATES GYPSUM CO** -- Type ULIX, ULX
**USG MEXICO S A DE C V** -- Type ULIX

5J. **Gypsum Board*** -- (Not Shown) -- (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3) 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 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC 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 8 lb/sq 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 achieved 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".
**RADIATION PROTECTION PRODUCTS INC** -- Type RPP - Lead Lined Drywall

5K. **Gypsum Board*** -- (As an alternate to Item 5 when Foam Plastic insulation (Items 4C or 4D) is used.)-- Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 5 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 S steel screws spaced 8 in. OC at perimeter and in the field. For 2 layer assemblies outer layer will be attached to studs over inner layer with the 1-7/8 in. long steel screws spaced 8 in. OC.

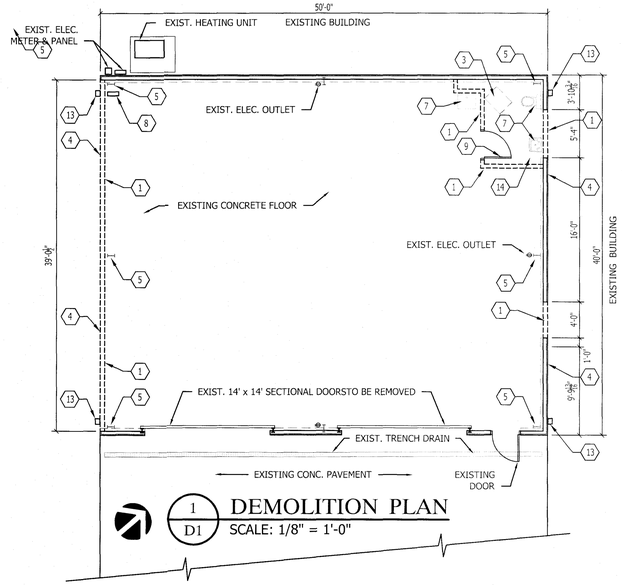
6. **Fasteners --** (Not Shown) -- For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Single layer system with Type ULIX:** 1 in. long, spaced 12 in. OC in the field and perimeter, when panels are applied horizontally or vertically **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1- 1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1 5/8 in. long for 1/2 in., 5/8 in. thick panels or 2- 1/4 in. long for 3/4 in. thick panels, spaced 16 in OC with screws offset 8 in. from first layer **Three-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1 5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2 1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1 5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2- 1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset 6 in. from layer below.

7. **Furring Channels** -- (Optional, Not Shown, for single or double layer systems) -- Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A.

7A. **Framing Members*** -- (Optional on one or both sides, not shown, for single or double layer systems) -- As an alternate to Item 7, furring channels and Steel Framing Members as described below:

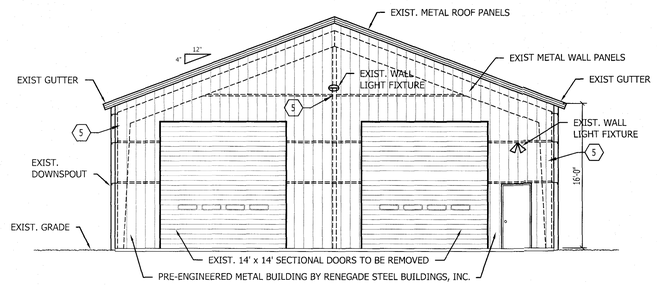
a. **Furring Channels** -- Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in item b. Gypsum board attached to furring channels as described in item 6. Not for use with Item 5A.

b. **Steel Framing Members*** -- Used to attach furring channels (Item 7A) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into



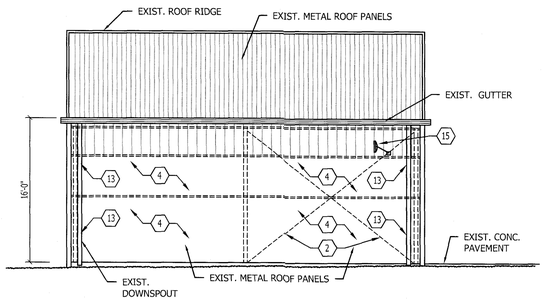

1 / D1 DEMOLITION PLAN

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



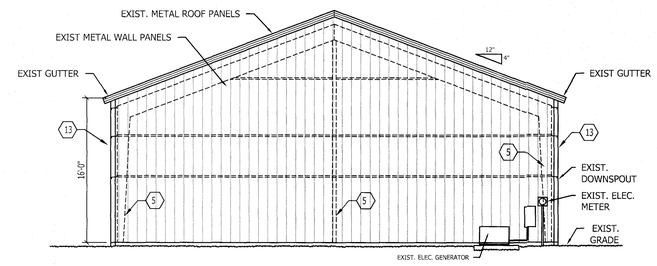

2 / A1 EXISTING FRONT ELEVATION

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



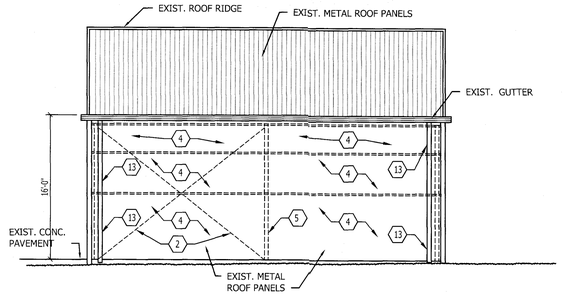

5 / A1 EXISTING LEFT LAT. ELEVATION

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




3 / D1 EXISTING REAR ELEVATION

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




4 / D1 EXISTING RIGHT LAT. ELEVATION

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

## GENERAL NOTES:

1. EXISTING WALLS TO RECEIVE NEW FINISHES AND BASE. SEE FIINISH SCHEDULE
2. REPAIR OPENINGS LEFT BY REMOVAL OF MECHANICAL, PLUMBING OR ELECTRICAL WORK TO MATCH EXISTING ADJOINING CONSTRUCTION.
3. REMOVE ALL EXTERIOR LIGHTING THAT WILL INTERFERE WITH NEW WORK.
4. NOTIFICATION OF DEMOLITION FORMS AND PERMITS SHALL BE SUBMITTED TO THE NCDEH AS REQUIRED BY LAW A MINIMUM OF 10 DAYS PRIOR TO COMMENCEMENT OF WORK.
5. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES ALL TEMPORARY AND PERMANENT SHUT DOWNS PRIOR TO COMMENCEMENT OF WORK.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL, EQUIPMENT AND BUILDINGS DESIGNATED TO REMAIN.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF UTILITIES, EQUIPMENT AND BUILDINGS DESIGNATED TO REMAIN.
8. FIELD VERIFY AND COORDINATE ALL DIMENSIONS WITH THE FLOOR PLAN PRIOR TO CONSTRUCTION.
9. REMOVE CONSTRUCTION SHOWN DASHED (– – – – ) ON DEMOLITION PLAN. AS NOTED ON THIS PLAN OR ELSEWHERE IN THE DRAWINGS, AS SPECIFIED AND AS OTHERWISE REQUIRED FOR THE PROPER COMPLETION OF THE WORK AS SHOWN AND SPECIFIED. WORK TO INCLUDE WALLS, DOORS, WINDOWS, CABINETS, FLOORS, PLUMBING FIXTURES AND OTHER RELATED WORK AS NOTED. SEE DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.
10. G.C. TO COORDINATE WITH PLUMBING CONTRACTOR FOR SIZE OF CONCRETE SLAB REMOVAL FOR ABANDONED AND NEW PLUMBING.
11. REMOVE ALL EXISTING MOULDING AND TRIM THAT WILL INTERFERE WITH INSTALLING NEW GYPSUM BOARD ON EXISTING WALLS.

## DEMOLITION LEGEND

1. REMOVE EXISTING WALLS, WALL FINISHES AND WALL BASE.
2. REMOVE EXISTING STRUCTURAL CROSS BRACING.
3. EXIST. HEATING ROOF UNIT & FLUE TO BE REMOVED. ROOF OPENING TO BE CLOSED. RELOCATE EXIST. PIPING TO NEW HEATING UNIT. SEE MECH. DWGS.
4. REMOVE EXISTING METAL WALL PANELS AND BATT INSULATION.
5. EXISTING COLUMNS TO REMAIN.
6. REMOVE EXISTING SUSPENDED CEILING, GYPSUM CEILING, LIGHT FIXTURES, & CEILING SUPPORT STRUCTURE, CONDUITS IN THE CEILING PLENUM.
7. REMOVE EXISTING PLUMBING FIXTURES (SINKS, W.C.).
8. EXISTING ELEC. PANEL TO REMAIN.
9. REMOVE EXISTING DOOR.
10. REMOVE EXISTING LIGHT FIXTURES (ATTACHED TO ROOF STRUC.).
11. REMOVE EXISTING WATER HEATER.
12. REMOVE EXISTING LIGHT FIXTURES & ELEC. CONDUITS.
13. REMOVE EXISTING ROOF DOWNSPOUTS.
14. EXISTING CONCRETE FLOOR TO REMAIN. REPAIR & CLEAN.
15. EXISTING SATELLITE DISH TO BE REMOVED.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC.
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JORGE LUIS RODRIGUEZ
LICENSED ARCHITECT
4-21-2025
#10611
NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.

6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

DEMOLITION PLAN

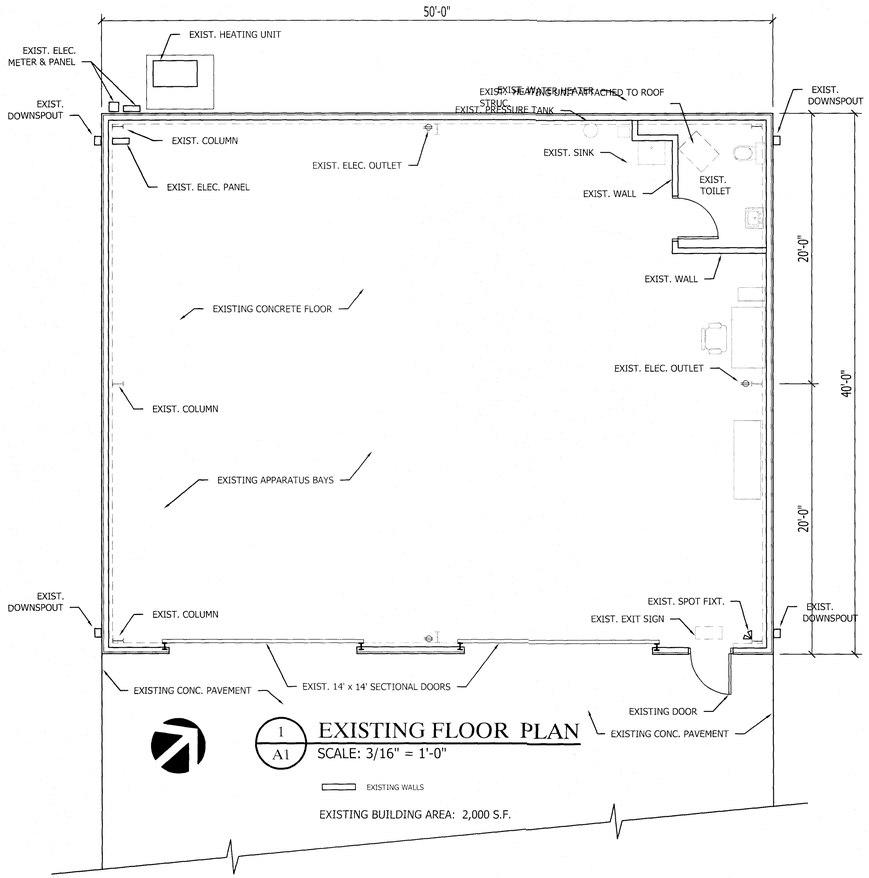
DATE April 21, 2025

DRAWN BY: | CHECKED:

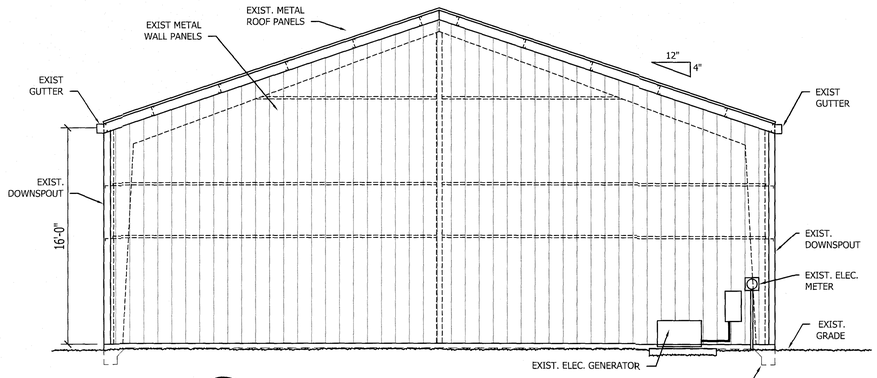
JOB NO. 24060

SHEET NO. D1

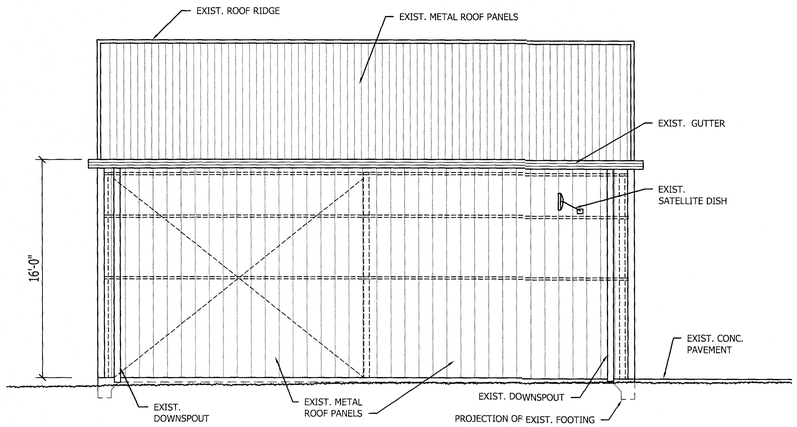
OF



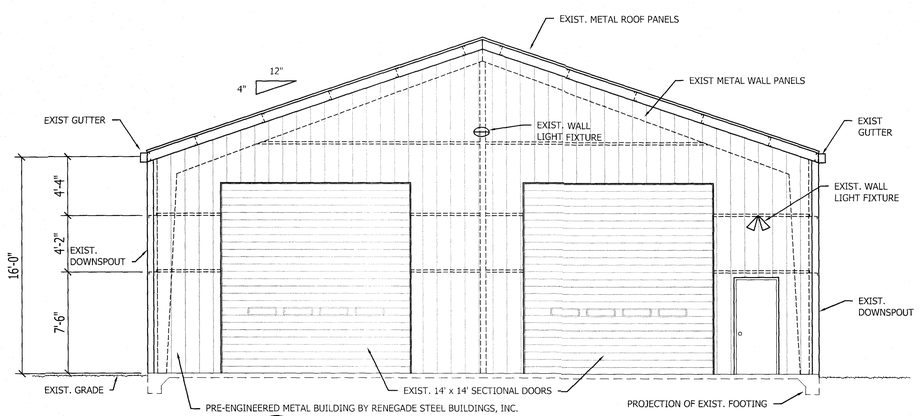

1 / A1 EXISTING FLOOR PLAN
SCALE: 3/16" = 1'-0"



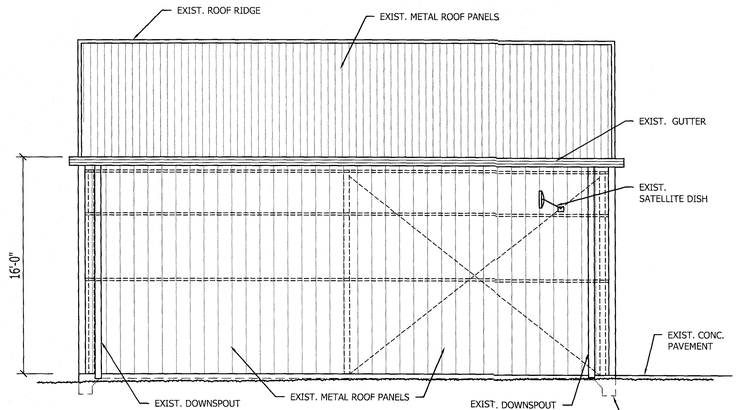

3 / A1 EXISTING REAR ELEVATION
SCALE: 3/16"=1'-0"




4 / A1 EXISTING RIGHT LAT. ELEVATION
SCALE: 3/16"=1'-0"




2 / A1 EXISTING FRONT ELEVATION
SCALE: 3/16"=1'-0"




5 / A1 EXISTING LEFT LAT. ELEVATION
SCALE: 3/16"=1'-0"

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

ALLEY, WILLIAMS CARMEN & KING, INC.
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JORGE LUIS RODRIGUEZ
REGISTERED ARCHITECT
4-21-2025
#10611
NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING
FIRE STATION # 2 PROPERTY OF
**ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

FLOOR PLAN & BLDG. ELEVATIONS (EXISTING CONDITIONS)

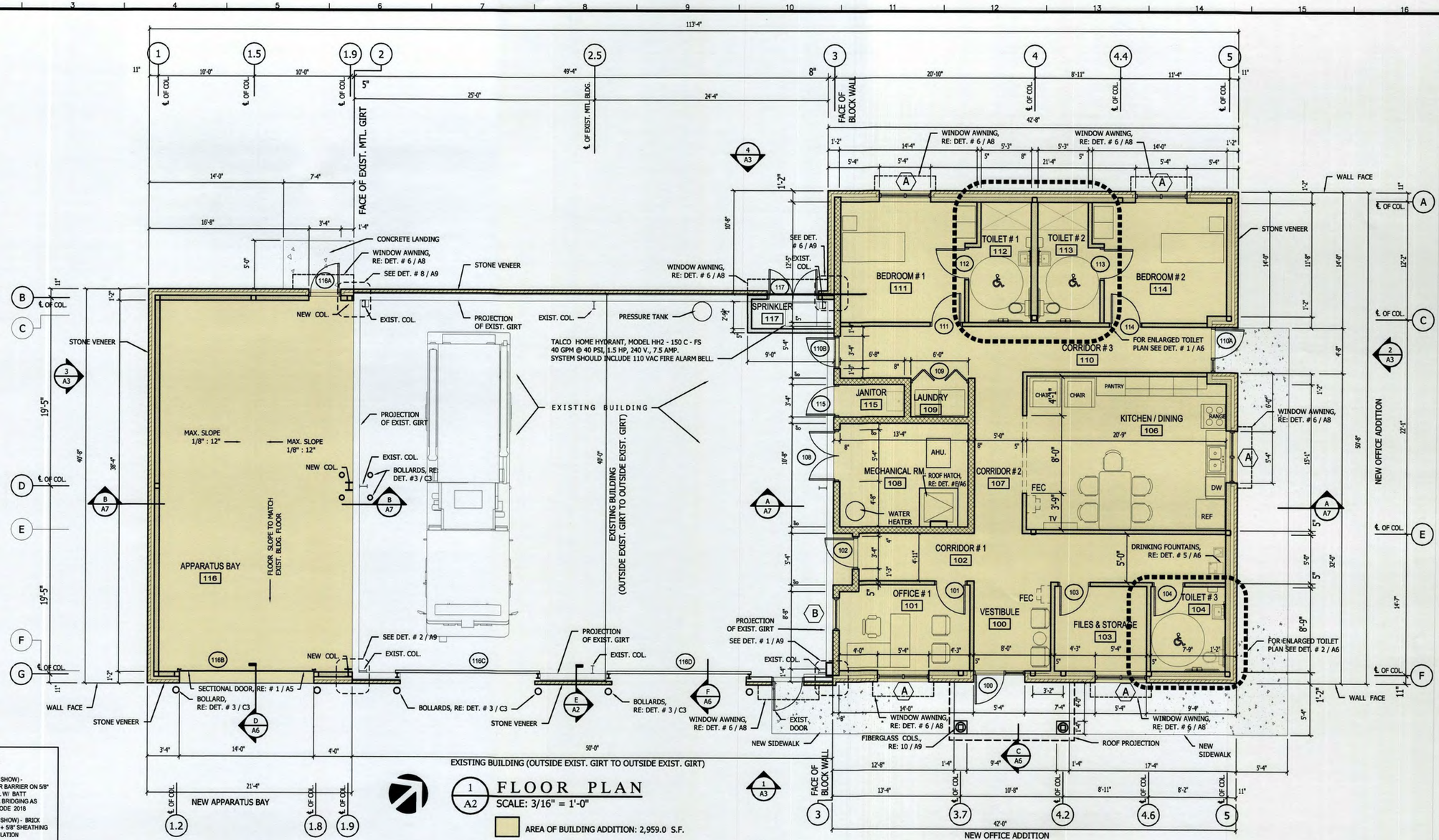
DATE April 21, 2025

DRAWN BY: | CHECKED:

JOB NO. 24060

SHEET NO. A1

OF




## FLOOR PLAN

SCALE: 3/16" = 1'-0"

## PARTITION SCHEDULE

- EXTERIOR WALL, (THICKNESS AS SHOW) - 2" INSULATED MTL. PANEL, VAPOR BARRIER ON 5/8" SHEATHING + 6" MTL. STUD WALL W/ BATT INSULATION. PROVIDE LATERAL BRIDGING AS REQUIRED BY NC STATE BLDG. CODE 2018
- EXTERIOR WALL, (THICKNESS AS SHOW) - BRICK VENEER + 2" AIR + 2" RIGID INSUL. + 5/8" SHEATHING + 6" MTL. STUD WALL W/ BATT INSULATION
- INTERIOR WALL - 8" CMU WALL
- INTERIOR WALL, (THICKNESS AS SHOWN) - 3-⅝" OR 6" MTL. STUDS AT 16" O.C. W/ 5/8" GYP. BRD. ON EACH SIDE - PROVIDE SOUND BATTING IN WALLS, TYPICAL.

## DRAWING NOTATIONS

- OFFICE 107 — ROOM NAME / NUMBER - SEE SHT. A2.0 FOR FINISH SCHEDULE
- 101 — DOOR NUMBER - SEE SHT. A2.1 FOR DOOR SCHEDULE
- A — WINDOW LETTER
- D / A11 — DETAIL NUMBER / SHEET NUMBER
- FIRE EXTINGUISHER & CABINET: FIRE EXTINGUISHERS SHALL BE TYPE ABC 5. SEE LOCATION ON DRAWINGS AS RECOMMENDED BY NFPA 10, TABLES 6-2.3B AND 6-2.3C. THE MAX. MOUNTING HEIGHT OF FIRE EXTINGUISHERS SHALL BE 5 FT. ( TOP OF UNIT TO FINISH FLOOR).

GENERAL NOTES:

1. ALL WALL OPENINGS AND DOOR OPENINGS WILLL REQUIRE A LINTEL - SEE STRUCTURAL DRAWINGS.
2. ALL WALLS IN TOILET ROOMS SHALL EXTEND TO THE ROOF DECK AND SHALL BE REINFORCED FOR INSTALLATION OF GRAB BARS

GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL INFORM THE DESIGNER, IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY VIRTUE OF THE DESIGNER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE DESIGNER OF SUCH DEVIATION AT TIME OF SUBMISSION, AND THE DESIGNER HAS GIVEN WRITTEN APPROVAL FOR THE SPECIFIC DEVIATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION, AND ERECTION OF STRUCTURAL MATERIALS IN ACCORDANCE WITH THE DRAWING AND SPECIFICATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE ARCHITECTURAL, PLUMBING, MECHANICAL AND STRUCTURAL DRAWINGS OR BETWEEN THE DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION , OR OTHER DRAWINGS OR INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER PRIOR TO PROCEEDING WITH AFFECTED WORK.
4. ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL AND DRAWINGS OF ANY OTHER TRADE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT ALL THE WORK OF ALL TRADES IS COORDINATED WITH THE ARCHITECTURAL WORK.

## FINISH SCHEDULE

| NO | ROOM NAME | FLOOR | | | | | BASE | | | | | WALLS | | | | | CEILING | | | | | | HGT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 12" x 12" HARD TILE | CARPET TILES | 2" x 2" CERAMIC TILE | VINYL PLANK (LVP) | EPOXY FLOOR | EXIST. FINISH TO REMAIN | HARD TILE | CERAMIC TILE | EPOXY | EXIST. FINISH TO REMAIN | WOOD BASE | GWB, PAINTED | CMU, PAINTED | CERAMIC TILE | GWB, PARTIO (DRY | FRP WALL PANELS | 2 x 2 LAY-IN CEILING-WITH TILE TO MATCH | 2 x 2 LAY-IN ACOUST. CEILING | GYP. BOARD | EXPOSED STRUCTURE | EXIST. CEILING TO REMAIN | | |
| 100 | VESTIBULE | | | | • | | | • | | | | | • | | | | | | • | | | | | 8'-4" | |
| 101 | OFFICE # 1 | | | | • | | | • | | | | | • | • | | | | | • | | | | | 8'-4" | |
| 102 | CORRIDOR # 1 | | | | • | | | • | | | | | • | • | | | | | • | | | | | 8'-4" | |
| 103 | FILES & STORAGE | | | | • | | | • | | | | | • | • | | | | | • | | | | | 8'-0" | |
| 104 | TOILET # 3 | • | | | | | | | • | | | | • | | | | | • | | | | | | 8'-0" | |
| 105 | NOT USED | | | | | | | | | | | | | | | | | | | | | | | | |
| 106 | KITCHEN / DINING | | | | • | | | • | | | | | • | • | | | | | • | | | | | 8'-4" | |
| 107 | CORRIDOR # 2 | | | | • | | | • | | | | | • | • | | | | | • | | | | | 8'-4" | |
| 108 | MECHANICAL ROOM | | | | | • | | • | | | | | • | | | | | | | | • | | | 8'-8" | |
| 109 | LAUNDRY ROOM | | | | • | | | • | | | | | • | | | | | | | | • | | | 8'-4" | |
| 110 | CORRIDOR # 3 | | | | • | | | • | | | | | • | • | | | | | • | | | | | 8'-4" | |
| 111 | DORM ROOM # 1 | • | | | | | | | | | • | | • | • | | | | | • | | | | | 8'-4" | |
| 112 | TOILET # 1 | • | | | | | | | • | | | | | | | | | • | | | | | | 8'-0" | SHOWERS SHALL HAVE 6" x 6" CERAMIC WALL TILES |
| 113 | TOILET # 2 | • | | | | | | | • | | | | | | | | | • | | | | | | 8'-0" | |
| 114 | DORM ROOM # 2 | | • | | | | | | | | • | | • | • | | | | | • | | | | | 8'-4" | |
| 115 | JANITOR ROOM | | | | | • | | • | | | | | • | | | | | | | | • | | | 8'-0" | |
| 116 | APPARATUS BAY | | | | | • | | | | | | | | | • | • | | | | | | | • | | |
| 117 | SPRINKLER ROOM | | | | | • | | • | | | | | | | | • | | | | | • | | | 8'-8" | |

GENERAL NOTES: PROVIDE CONCRETE FLOOR SEALER ON EXPOSED CONCRETE FLOORS AND STEEL TROWEL FINISH.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

JORGE LUIS RODRIGUEZ SOLIS LICENSED ARCHITECT 4-21-2025 #10611 NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.
6801 ROCKY RIDGE RD., HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL

REVISIONS

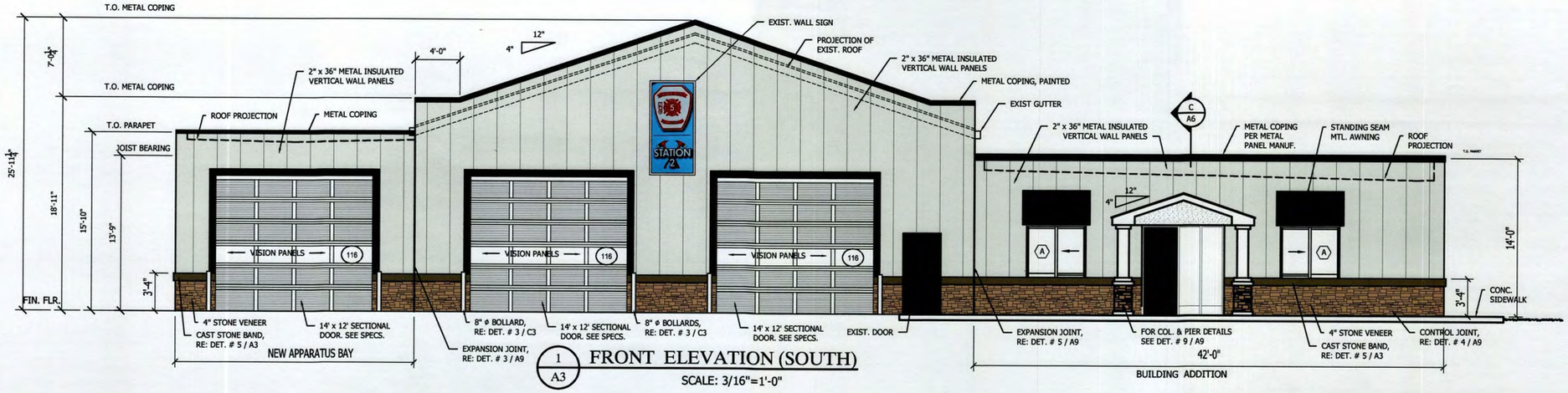
FLOOR PLAN & FINISH SCHEDULE

DATE April 21, 2025

DRAWN BY: CHECKED:

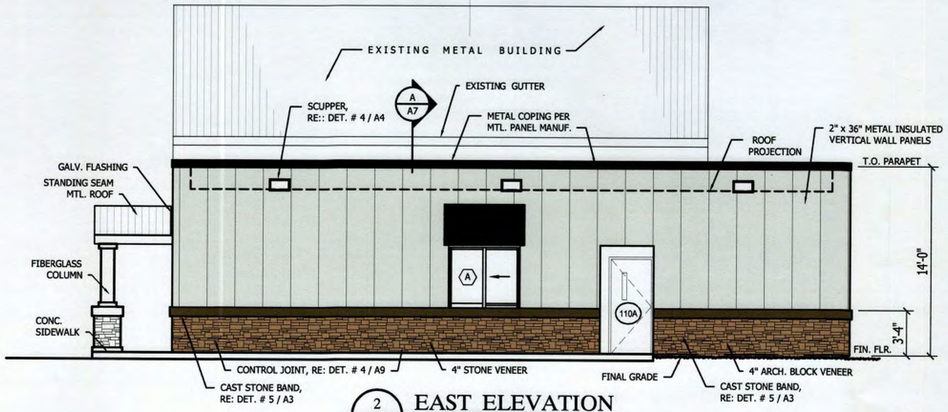
JOB NO. 24060

SHEET NO. A2 OF



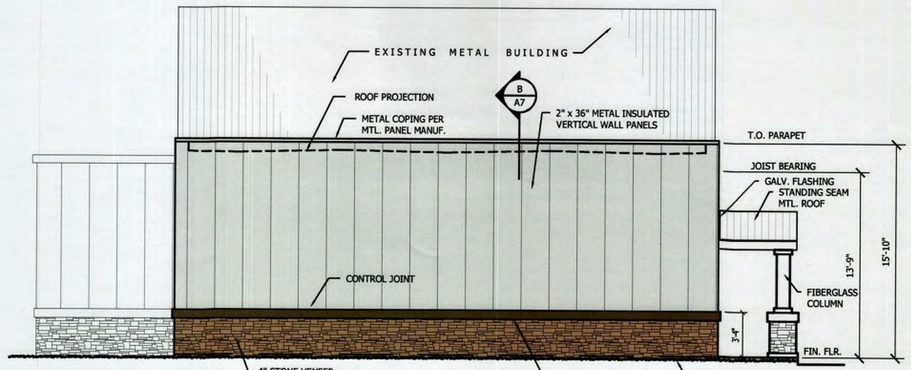

1 A3 **FRONT ELEVATION (SOUTH)**

SCALE: 3/16"=1'-0"




2 A3 **EAST ELEVATION**

SCALE: 3/16"=1'-0"



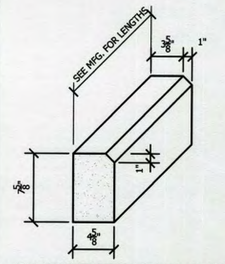

3 A3 **WEST ELEVATION**

SCALE: 3/16"=1'-0"




4 A3 **REAR ELEVATION (NORTH)**

SCALE: 3/16"=1'-0"




5 A3 **CAST STONE SILL DETAIL**

SCALE: 1 1/2" = 1'-0"

**NOTE:**
ANCHOR SYSTEM FOR CAST STONE AS PER MANUFACTURER'S SPECIFICATIONS AND DETAILS

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
p.o. box 1179
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

JORGE LUIS RODRIGUEZ SEAL REGISTERED ARCHITECT 4-21-2025 #10611 NORTH CAROLINA

CONSULTANT JOB NO.

# BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.

6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

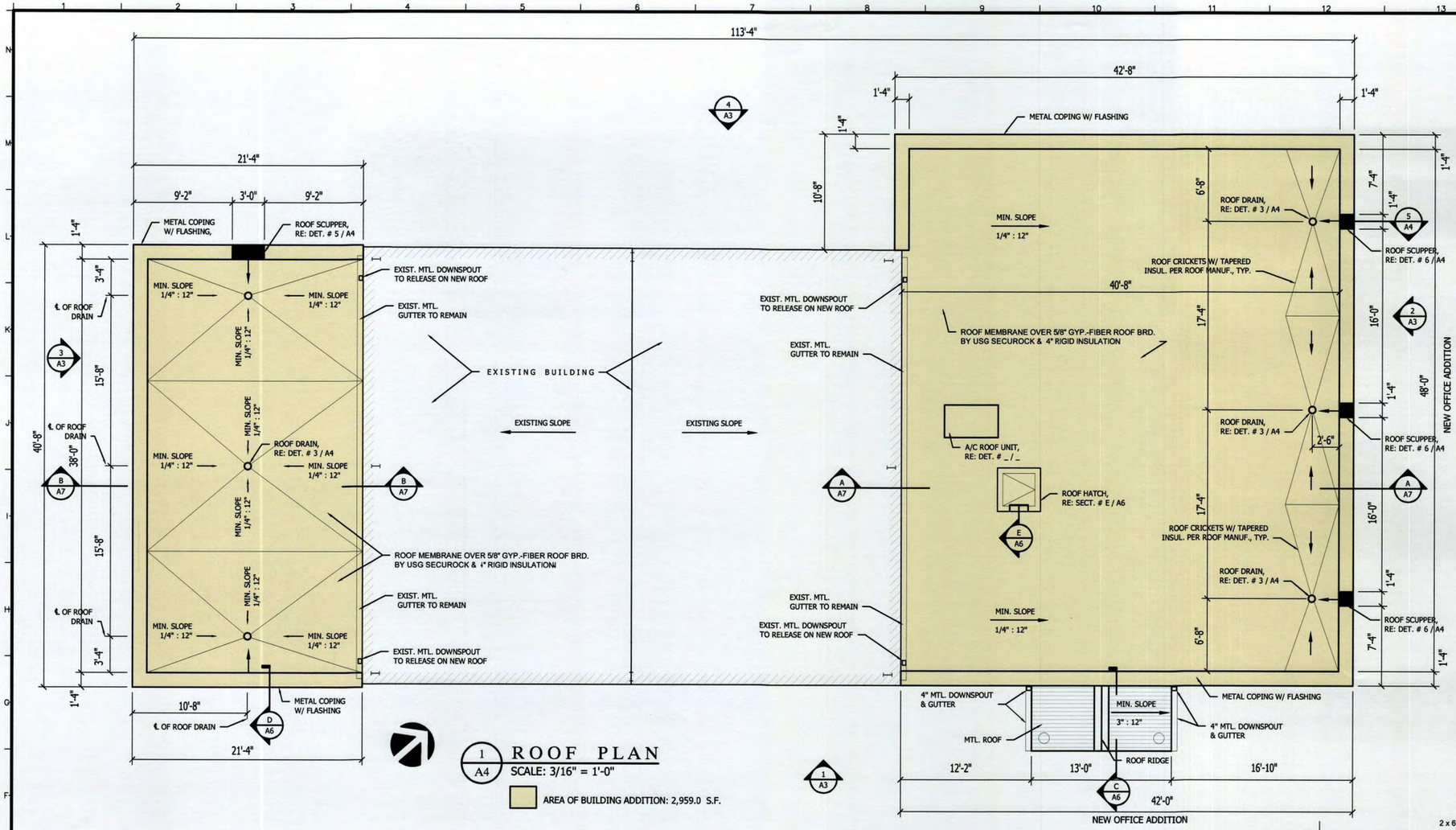
BUILDING ELEVATIONS

DATE April 21, 2025

DRAWN BY: CHECKED:

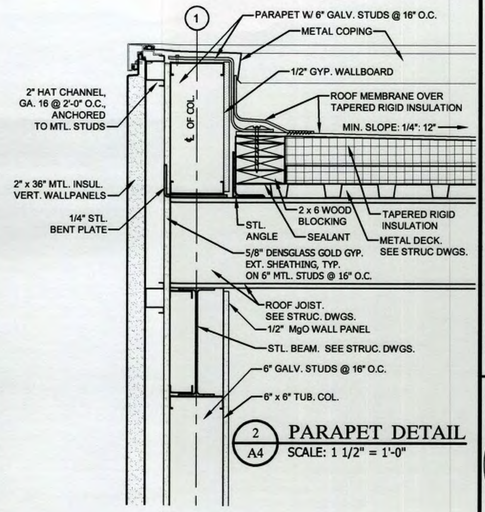
JOB NO. 24060

SHEET NO. A3 OF

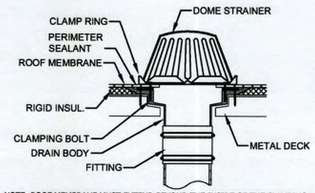



## ROOF PLAN
SCALE: 3/16" = 1'-0"

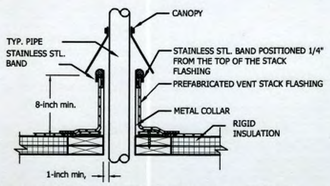
AREA OF BUILDING ADDITION: 2,959.0 S.F.



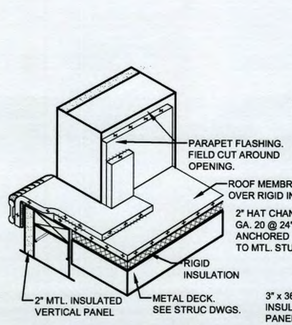

## PARAPET DETAIL
SCALE: 1 1/2" = 1'-0"



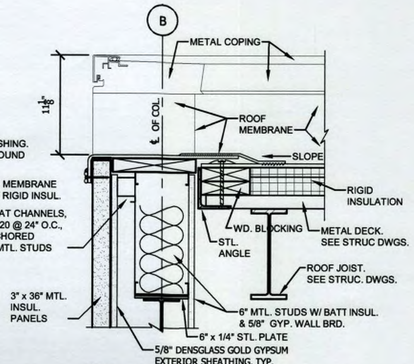

## ROOF DRAIN DETAIL
SCALE: 1 1/2" = 1'-0"



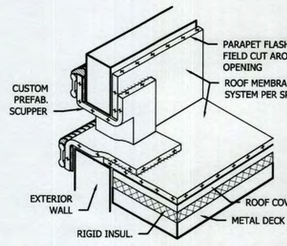

## ROOF PENETRATION DETAIL
SCALE: 1" = 1'-0"



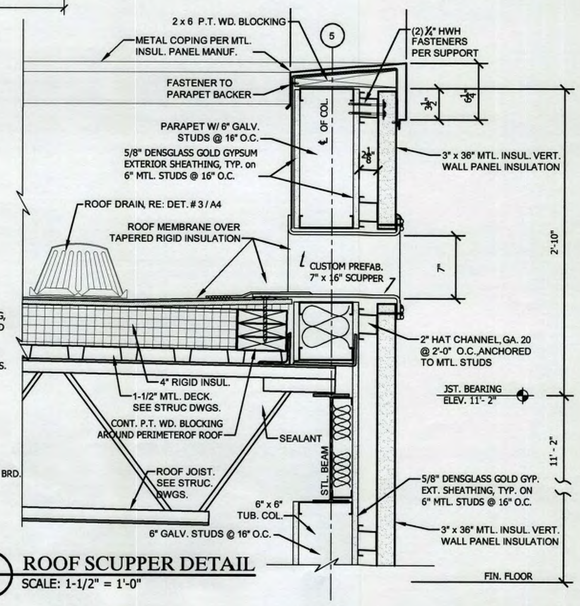

ISOMETRIC




## ROOF SCUPPER DETAIL
SCALE: 1-1/2" = 1'-0"




ISOMETRIC




## ROOF SCUPPER DETAIL
SCALE: 1-1/2" = 1'-0"

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

JORGE LUIS RODRIGUEZ LICENSED ARCHITECT 4-21-2025 #10611 NORTH CAROLINA

CONSULTANT JOB NO.

# BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.

6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

ROOF PLAN & SECTIONS

DATE April 21, 2025

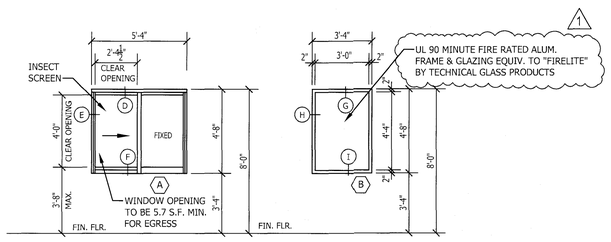
DRAWN BY: CHECKED:

JOB NO. 24060

SHEET NO. A4

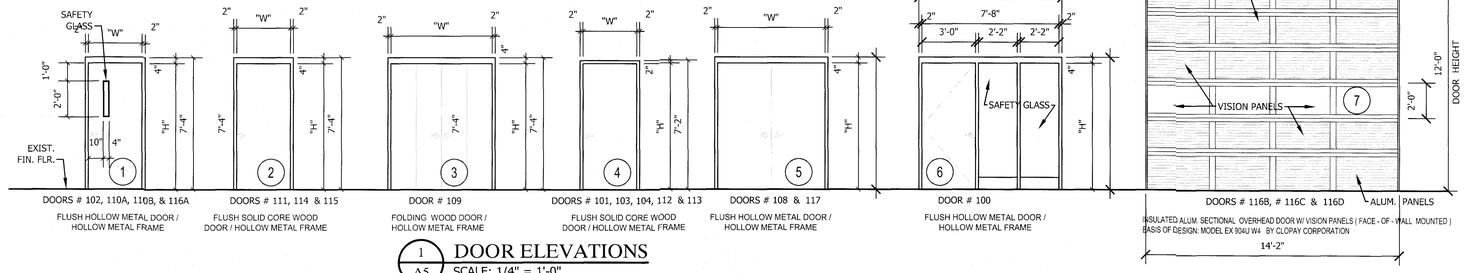
OF

R:\2024\24060_Orange Grove F.S. #2_Hillsborough\CD_Final Dwgs\24060_REV 10_LS1_D1_A1_A2_A3_A4_A5_A6_A7_A8_A9.dwg, 5/30/2025 9:57:18 AM, \\DC01\Canon TM-355

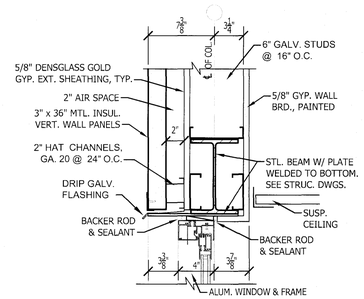



WINDOW " A" COMPLIES W/ EMERGENCY ESCAPE OPENING PER SECT. 1030.2 & SECT. 1030.3, NC BLDG. CODE 2018

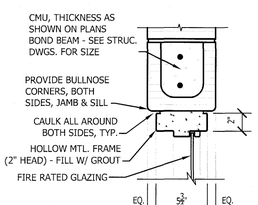
3 / A5 WINDOW ELEVATIONS
SCALE: 1/4" = 1'-0"



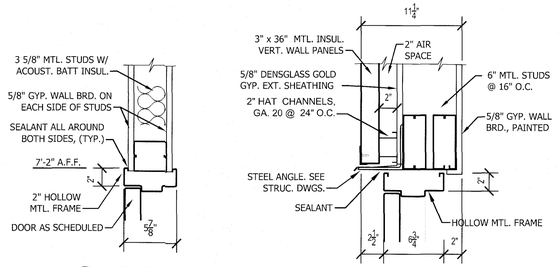

1 / A5 DOOR ELEVATIONS
SCALE: 1/4" = 1'-0"




D / A5 HEAD DETAIL
SCALE: 1-1/2" = 1'-0"




G / A5 HEAD DETAIL
SCALE: 1-1/2" = 1'-0"



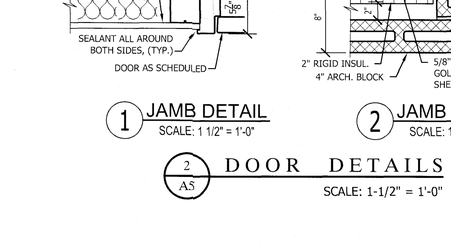

A / HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

B / HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

C / HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

D / HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

6 / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



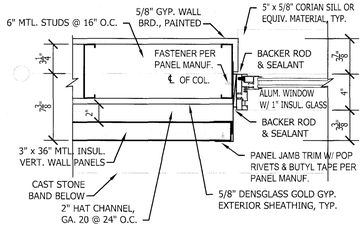

1 / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

2 / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

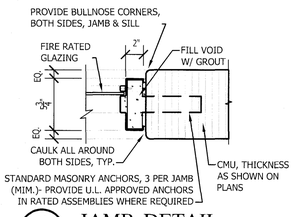
3 / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

4 / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

5 / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

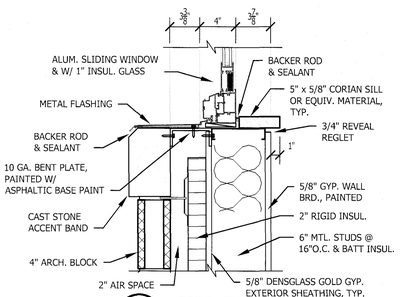



E / A5 JAMB DETAIL
SCALE: 1-1/2" = 1'-0"

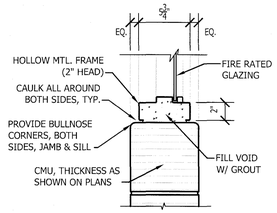



H / A5 JAMB DETAIL
SCALE: 1-1/2" = 1'-0"

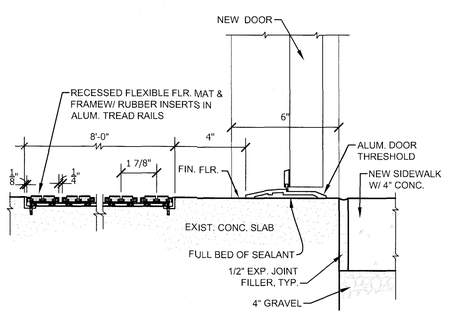
2 / A5 DOOR DETAILS
SCALE: 1-1/2" = 1'-0"




F / A5 SILL DETAIL
SCALE: 1-1/2" = 1'-0"




I / A5 SILL DETAIL
SCALE: 1-1/2" = 1'-0"




4 / A5 RECESSED FLOOR MAT DETAIL
SCALE: 3" = 1'-0"

## DOOR SCHEDULE

| DOOR NO | DOOR SIZE # | W | H | T | DOOR / FRAME TYPE | DOOR ELEV | FRAME DETAILS (SEE SHT. A2.2) HEAD | JAMB | HARDWARE GROUP | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 1 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 6 | A / 1 | | 1 | PROVIDE ALUM. THRESHOLD & ACCESS CONTROL DEVICE |
| 101 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 4 | A / 1 | | 5 | |
| 102 | 1 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 1 | A / 1 | | 2 | "B" LABEL DR. & FRAME W/ 4" x 24" GLASS PROVIDE ALUM. THRESHOLD |
| 103 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 4 | A / 1 | | 2 | |
| 104 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 4 | A / 1 | | 3 | |
| 105 | N O U S E D | | | | | | | | | |
| 106 & 107 | N O U S E D | | | | | | | | | |
| 108 | 2 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 5 | A / 1 | | 6 | "B" LABEL DOOR & FRAME |
| 109 | 2 | 2-11 | 7-0 | 1-3/4 | WD./WD. | 3 | | | 8 | BI-FOLD DOORS |
| 110A | 1 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 1 | C / 3 | | 1 | PROVIDE ALUM. THRESHOLD & ACCESS CONTROL DEVICE |
| 110B | 1 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 1 | C / 3 | | 2 | "B" LABEL DR. & FRAME W/ 4" x 24" GLASS PROVIDE ALUM. THRESHOLD |
| 111 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 2 | A / 1 | | 3 | "C" LABEL DOOR & FRAME |
| 112 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 4 | | | 3 | |
| 113 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 4 | A / 1 | | 3 | |
| 114 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 2 | A / 1 | | 3 | "C" LABEL DOOR & FRAME |
| 115 | 1 | 3-0 | 7-0 | 1-3/4 | WD./HM. | 2 | A / 1 | | 4 | "B" LABEL DOOR & FRAME |
| 116B 116C 116D | 1 | 14-0 | 12-0 | | STL./STL. | 7 | B / 2 | | | ALUM. SECTIONAL INSULATED DOOR EQUIV. TO CLOPAY, MODEL EX904U W/ MOTOR OPER. |
| 116A | 1 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 1 | C / 3 | | 1 | |
| 117 | 2 | 3-0 | 7-0 | 1-3/4 | HM./HM. | 5 | A / 1 | | 7 | PROVIDE ALUM. THRESHOLD |

## DOOR HARDWARE SCHEDULE

| HARDWARE GROUP | |
|---|---|
| 1 | 1 ½ Pairs Hinges; Electronic Mortise Lock (CO-100 Schlage or equivalent) ; Cylinder; Closer; Silencers; Threshold; Kick Plate; Weatherstripping (perimeter seal) |
| 2 | 1 ½ Pairs Hinges; Mortise Lock; Closer; Cylinder; Wall Stop; Silencers |
| 3 | 1 ½ Pairs Hinges; Closer; Privacy Lock; Wall Stop; Silencers |
| 4 | 1 ½ Pairs Hinges; Mortise Lock; Cylinder; Closer; Wall Stop; Silencers |
| 5 | 1 ½ Pairs Hinges; Mortise Lock; Cylinder; Closer; Wall Stop; Silencers |
| 6 | 3 Pairs Hinges; 2 Flush bolts; 1 Lockset; Cylinder; Closer; Wall Stop; Silencers |
| 7 | 1 ½ Pairs Hinges; 2 Flush bolts; 1 Lockset; 1 Lock Protector; Threshold; Closer; Weatherstripping (perimeter seal); 1 Gasketing |
| 8 | Top hung bi-fold door hardware, commercial grade by Johnson Hardware 200 fs series or equivalent |

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534

ALLEY, WILLIAMS, CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

JORGE LUIS RODRIGUEZ LICENSED ARCHITECT 10611 NORTH CAROLINA 8-18-2025

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL

REVISIONS

Revisions per O.C. Insp. Dept. comments 8-8-2025

DOOR & WINDOW ELEVATIONS AND DETAILS

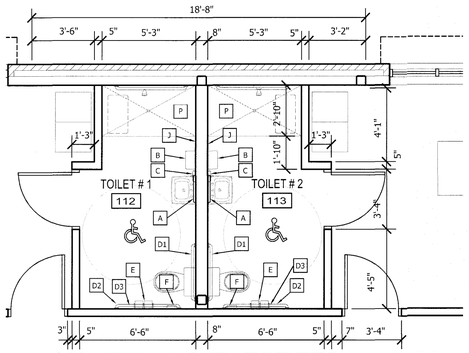
DATE April 21, 2025

DRAWN BY: | CHECKED:

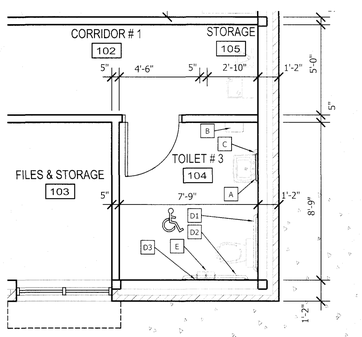
JOB NO. 24060

SHEET NO. A5

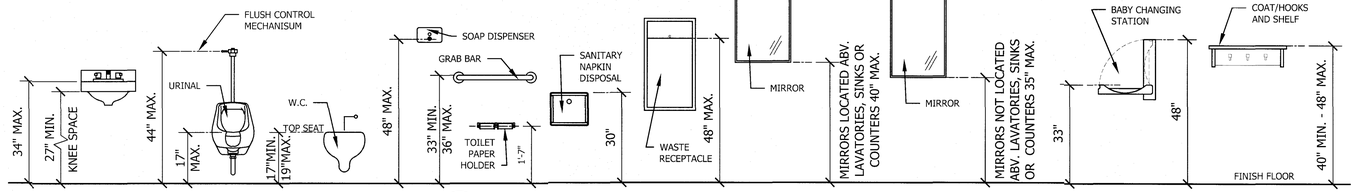
OF



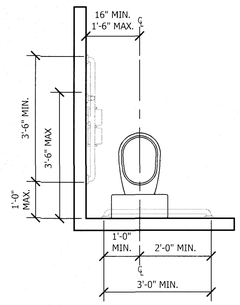

1 / A6 ENLARGED TOILETS # 1 & # 2
SCALE: 1/4" = 1'-0"

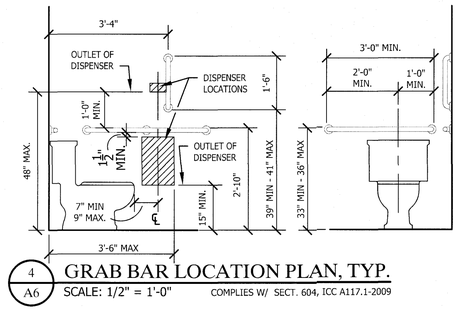



2 / A6 ENLARGED TOILET # 3
SCALE: 1/4" = 1'-0"




3 / A6 TOILET ACCESSORY ELEVATIONS
SCALE: 1/2" = 1'-0"



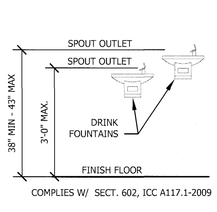




4 / A6 GRAB BAR LOCATION PLAN, TYP.
SCALE: 1/2" = 1'-0" COMPLIES W/ SECT. 604, ICC A117.1-2009

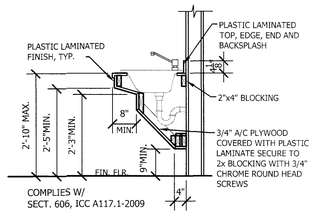
## TOILET ACCESSORY SCHEDULE

| NO. | ITEM | MFG. | CAT. NO. | MOUNTING HEIGHT ABOVE FIN. FLOOR |
|---|---|---|---|---|
| A | STAINLESS STEEL FRAMED MIRROR | ASI | 24360-2436 | SEE MOUNTING ELEV. |
| B | PAPER TOWEL DISPENSER/RECEPTACLE | ASI | 0467-2 | SEE MOUNTING ELEV. |
| C | SOAP DISPENSER | ASI | 0345 | SEE MOUNTING ELEV. |
| D1 | GRAB BAR, 1-1/2" ø x 36" | ASI | SERIES 3800 | SEE DET. # 4 / A3 |
| D2 | GRAB BAR, 1-1/2" ø x 42" | ASI | 0345 | SEE DET. # 4 / A3 |
| D3 | GRAB BAR - 1-1/2" ø x 18" (VERTICAL) | ASI | 0345 | SEE DET. # 4 / A3 |
| E | TOILET TISSUE DISPENSER | ASI | 0264-1A | SEE DET. # 4 / A3 |
| F | SANITARY NAPKIN DISPOSAL | ASI | 20470 | SEE DET. # 2 / A3 |
| G | SHOWER SEAT | INCLUDED IN SHOWER PACKAGE | | |
| H | SHOWER CURTAIN AND ROD | INCLUDED IN SHOWER PACKAGE | | |
| J | CLOTHES/TOWEL HOOK | ASI | 7311-20B | |
| L | HAND SHOWER | INCLUDED IN SHOWER PACKAGE | | |
| M | SHOWER CURTAIN AND ROD | INCLUDED IN SHOWER PACKAGE | | |
| N | SHOWER SEAT | INCLUDED IN SHOWER PACKAGE | | |
| P | ADA SHOWER UNIT, 63" x 33-3/4" EQUIVALENT TO CLARION BATHWARE, MODEL # MP6333BF34, W/ 3/4" COLLAPSIBLE THRESHOLD | | | |

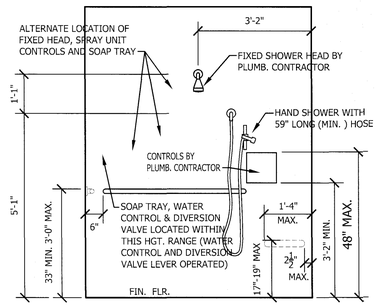
NOTES :
1. INSTALL SOAP DISPENSER OVER SINK TO PREVENT SOAP LEAKING ON FLOOR.
2. PROVIDE BLOCKING IN WALLS AT GRAB BARS, IN ORDER FOR GRAB BARS TO SUPPORT 250 LBS.
3. GRAB BARS SHALL HAVE A 1-1/2" MIN. CLEARANCE FROM THE WALL SURFACE.



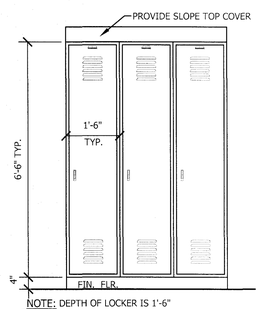

5 / A6 WATER COOLER DET.
SCALE: 1/2" = 1'-0"




6 / A6 LAV. & COUNTER SECTION
SCALE: 1/2" = 1'-0"

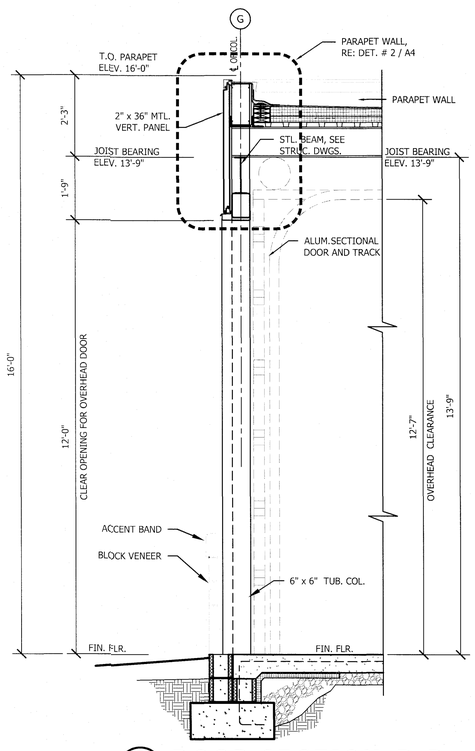



7 / A6 SHOWER ELEV. (ROLL-IN)
SCALE: 1/2" = 1'-0"
TOILETS # 1 ( ROOM # 112) & TOILET # 2 (ROOM # 113 )

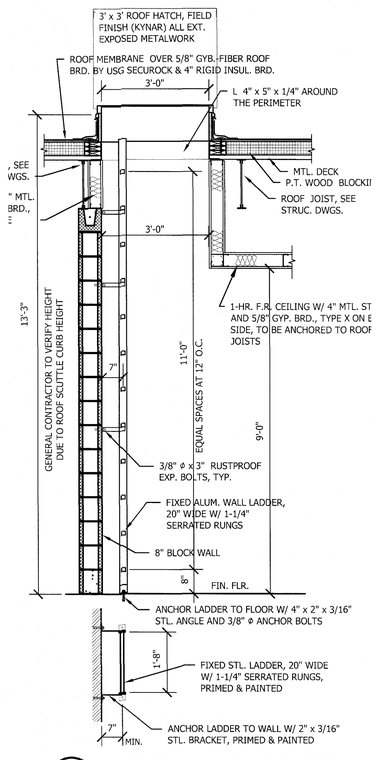



NOTE: DEPTH OF LOCKER IS 1'-6"

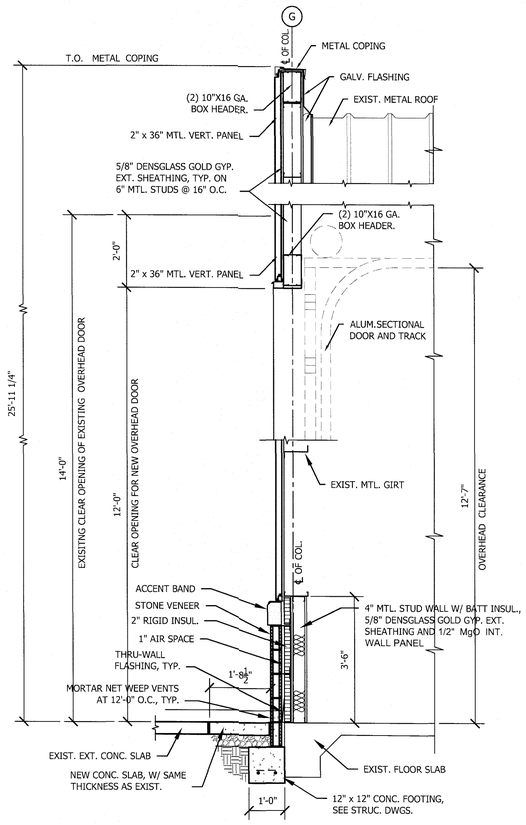
8 / A6 TYP. LOCKER ELEV.
SCALE: 1/2" = 1'-0"




D / A6 DOOR SECTION D-D
SCALE: 1/2" = 1'-0"




E / A6 LADDER & ROOF HATCH DETAIL
SCALE: 1/2" = 1'-0"




F / A6 WALL SECTION F-F
SCALE: 1/2" = 1'-0"

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
336/226-5534
burlington, n.c. 27215

ALLEY WILLIAMS CARMEN & KING, INC.
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JORGE LUIS RODRIGUEZ SOTO
LICENSED ARCHITECT
4-21-2025
# 10611
NORTH CAROLINA

CONSULTANT JOB NO.

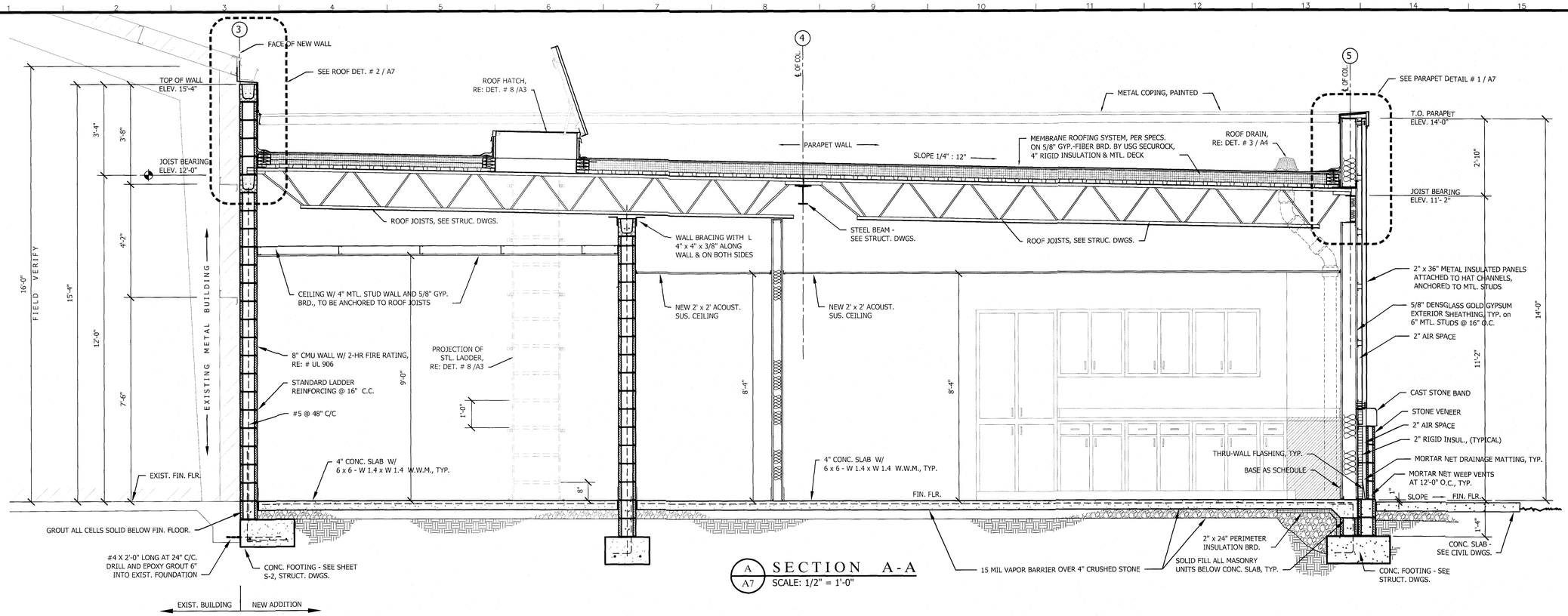
BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF
**ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

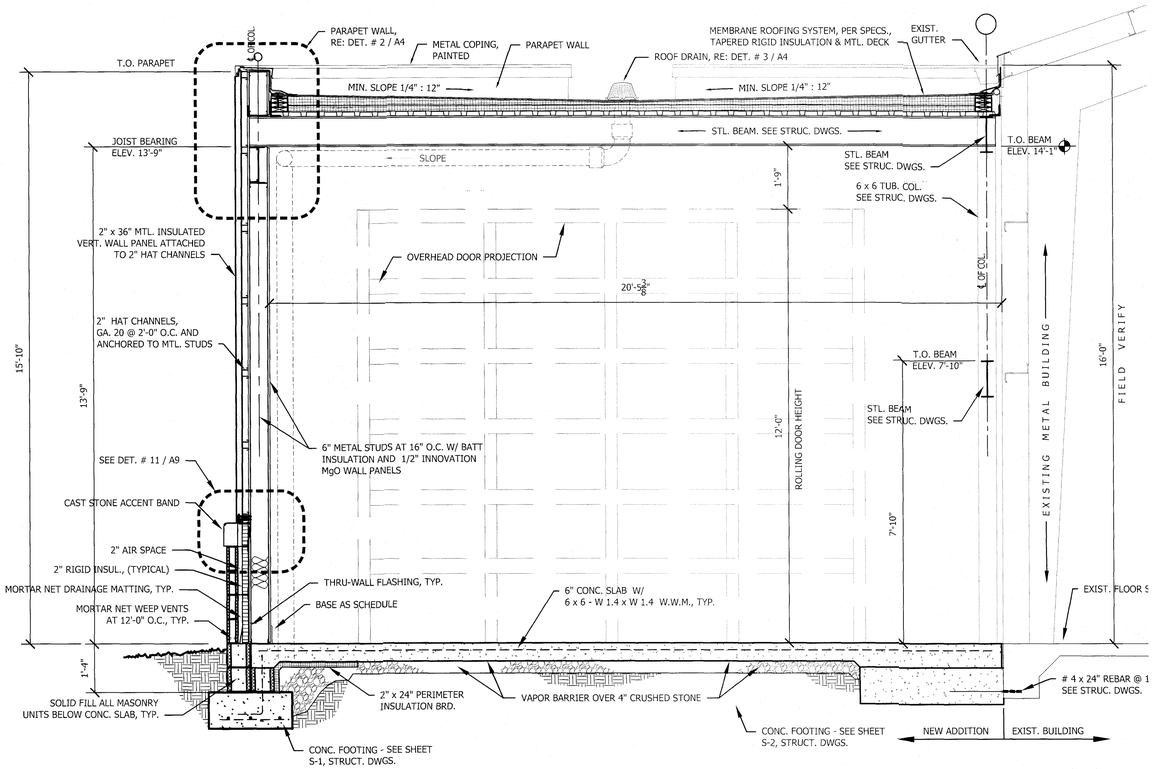
REVISIONS

BUILDING SECTION & DETAILS

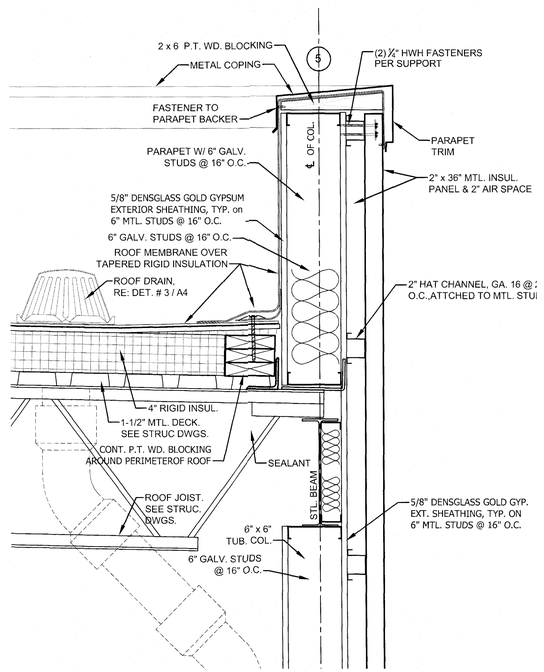
DATE April 21, 2025
DRAWN BY: | CHECKED:
JOB NO. 24060
SHEET NO. A6
OF

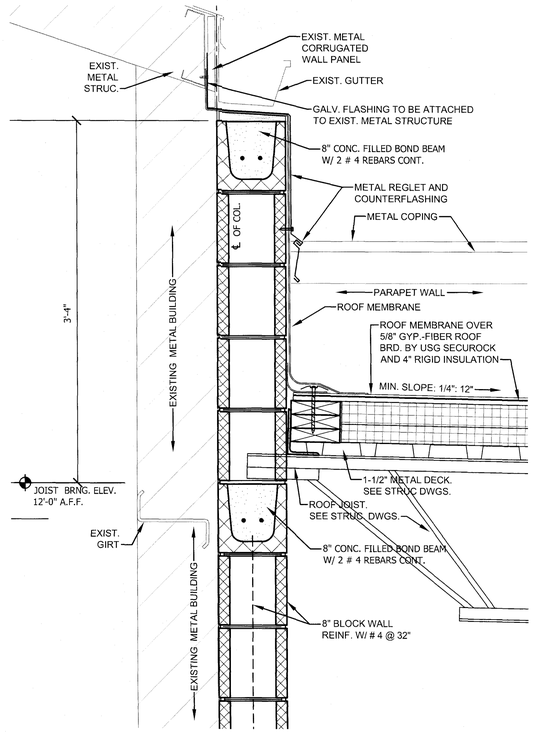



A7 SECTION A-A
SCALE: 1/2" = 1'-0"




1 A7 PARAPET DETAIL
SCALE: 1 1/2" = 1'-0"




2 A7 EXPANSION JOINT ROOF DETAIL
SCALE: 1 1/2" = 1'-0"

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
p.o. box 1179
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC.
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JORGE LUIS RODRIGUEZ SAN
LICENSED ARCHITECT
4 - 21 - 2025
# 10611
NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

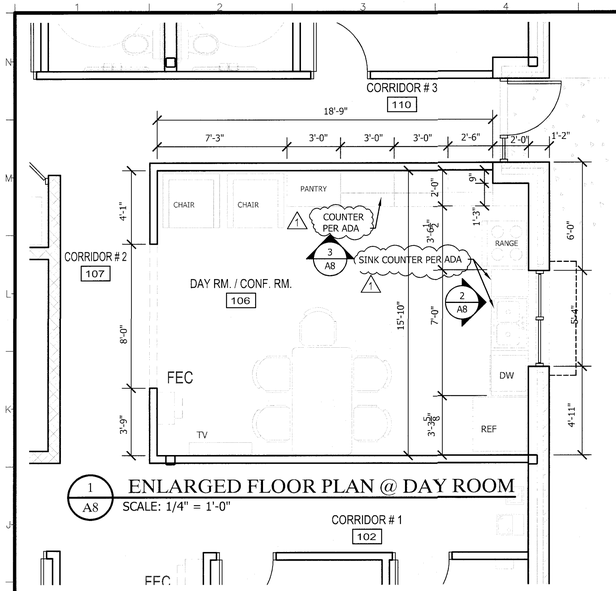
THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

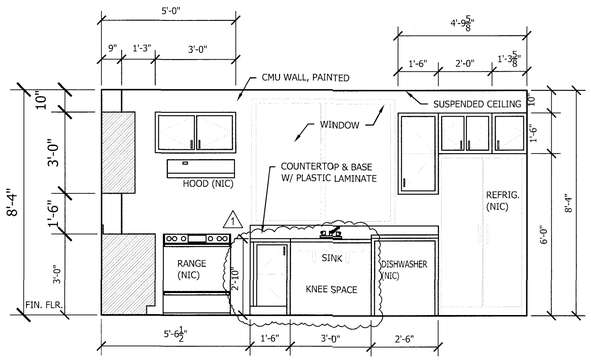
BUILDING SECTIONS & DETAILS

DATE April 21, 2025
DRAWN BY: | CHECKED:
JOB NO. 24060

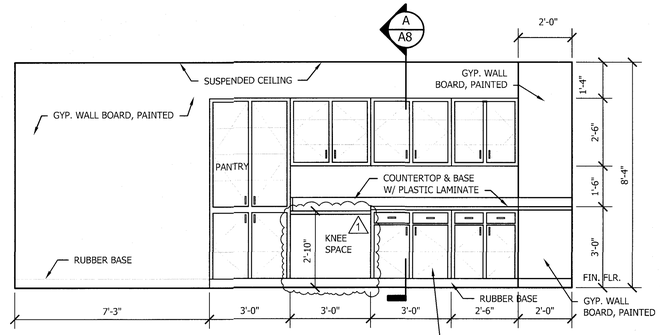
SHEET NO. A7 OF




1 / A8 ENLARGED FLOOR PLAN @ DAY ROOM
SCALE: 1/4" = 1'-0"

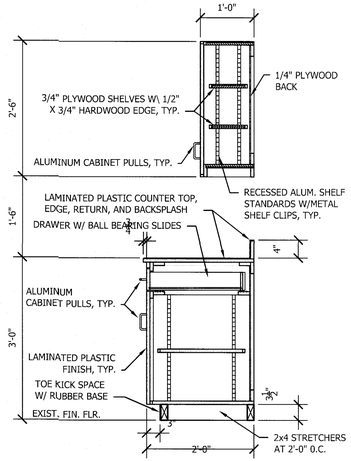



2 / A8 CABINET ELEV. @ BREAK RM.
SCALE: 3/8" = 1'-0"

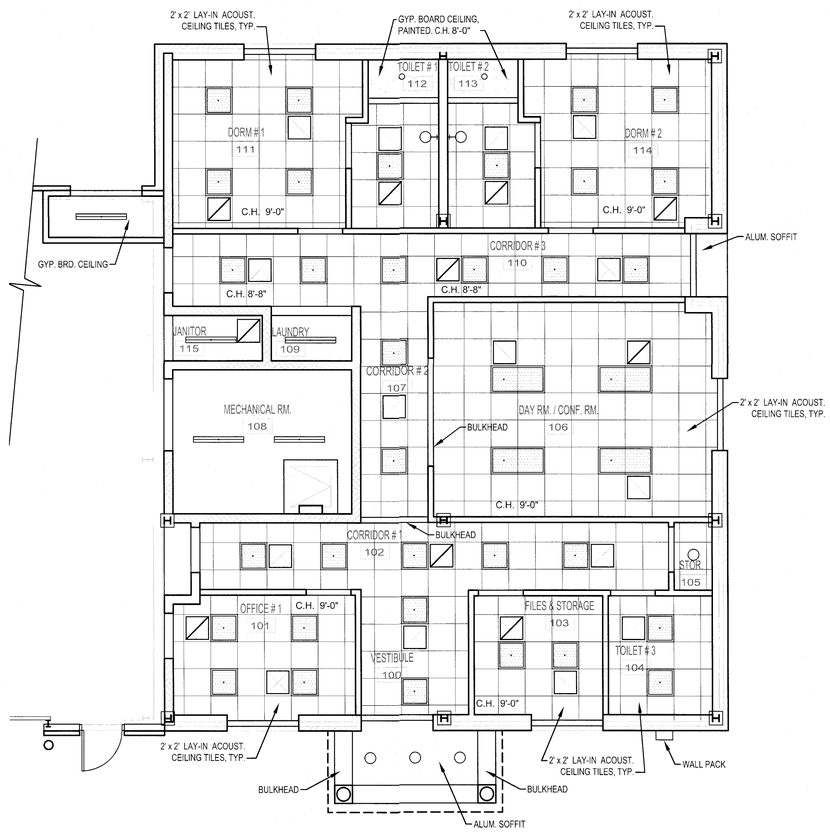



3 / A8 CABINET ELEV. @ BREAK RM.
SCALE: 3/8" = 1'-0"

PROVIDE DOOR AND KICK SPACE WITH SIDE POCKET DOOR HINGES WHICH CAN BE OPENED FOR CLEAR HANDICAPPED ACCESS



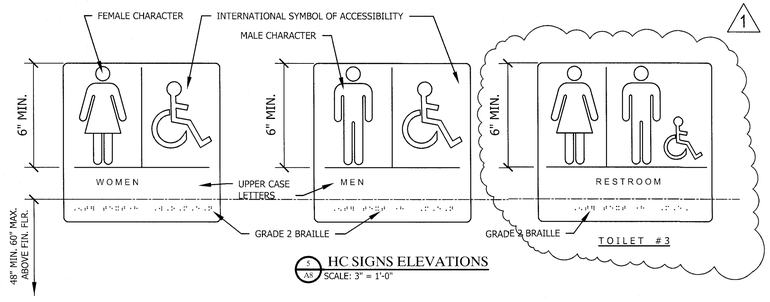

A / A8 SECTION A-A
SCALE: 3/4" = 1'-0"



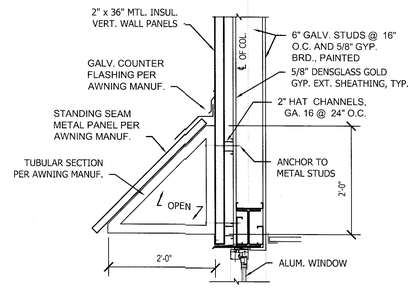

4 / A8 REFLECTED CEILING PLAN
SCALE: 3/16"=1'-0"

## FIXTURE SCHEDULE

- WALL MOUNTED LED
- RECESSED LED DOWNLIGHT
- 2' x 2' LED
- WALL MOUNTED FLUORESCENT
- ILLUMINATED EXIT SIGN
- CEILING FLUORESCENT FIXTURE
- RECESSED LED DOWNLIGHT
- 2' x 4' LED
- AIR SUPPLY DIFFUSER
- AIR RETURN DIFFUSER
- UTILITY FLUORESCENT




2 / A8 HC SIGNS ELEVATIONS
SCALE: 3" = 1'-0"




6 / A8 AWNING DETAIL
SCALE: 3/4" = 1'-0"

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON, NC.

JORGE LUIS RODRIGUEZ SAM LICENSED ARCHITECT 8-18-2025 #10611 NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

1 Revisions per O.C. Insp. Dept. comments. 8-8-2025

ENLARGED FLOOR PLAN & CASEWORK DETAILS

DATE April 21, 2025

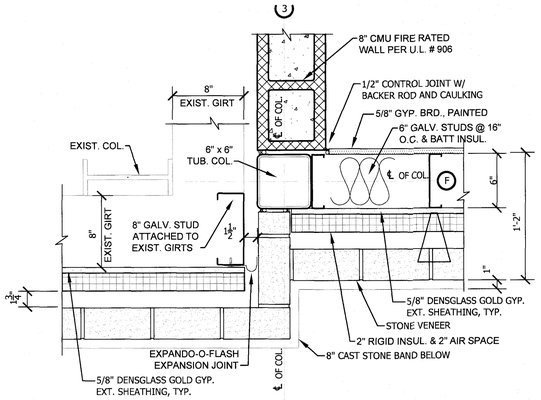
DRAWN BY: | CHECKED:

JOB NO. 24060

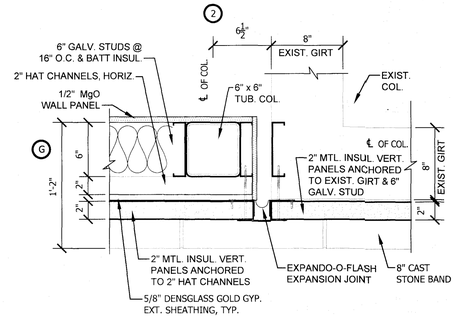
SHEET NO. A8

OF

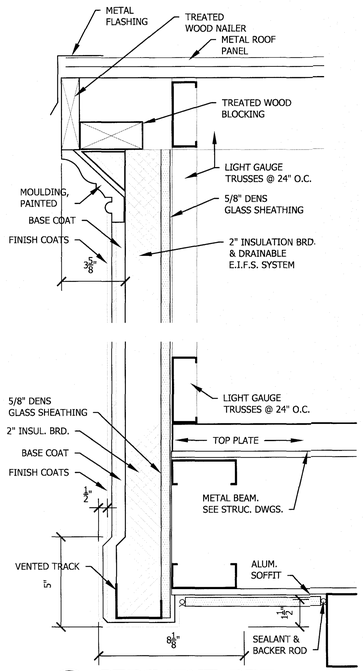
R:\2024\24060_Orange Grove F.S. #2_Hillsborough\CD_Final Dwgs\24060_LS1_D1_A1_A2_A3_A4_A5_A6_A7_A8_A9_Rev 01.dwg, 8/14/2025 2:17:39 PM, \\DC01.AWCK.local\KIP 7170K



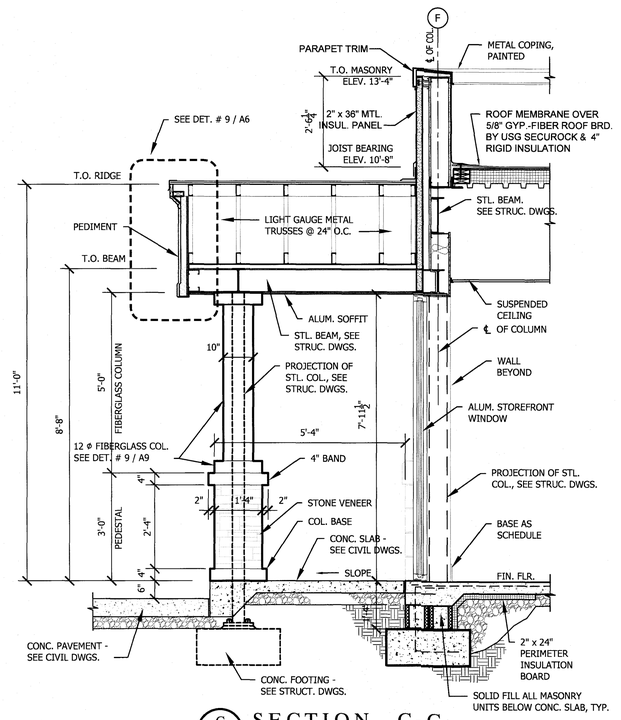

1 A9 EXPANSION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"



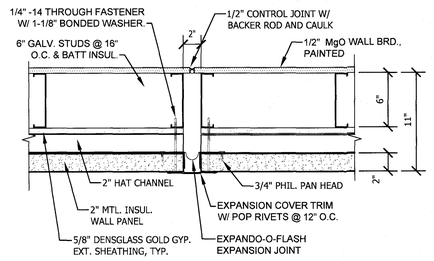

2 A9 EXPANSION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"



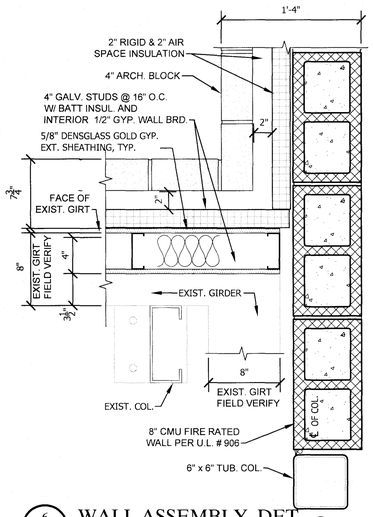

9 A6 PEDIMENT DET.
SCALE: 3" = 1'-0"



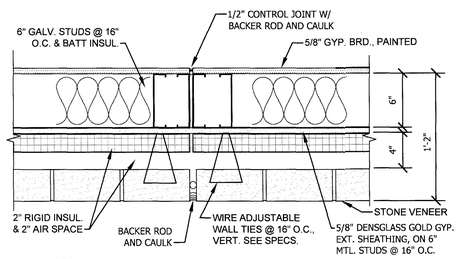

C A6 SECTION C-C
SCALE: 1/2" = 1'-0"



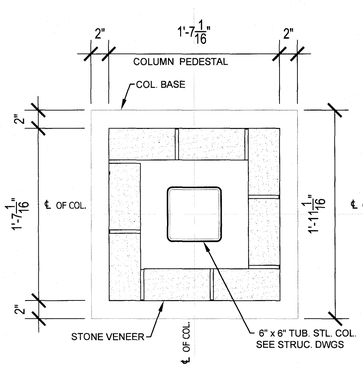

3 A9 EXPANSION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"



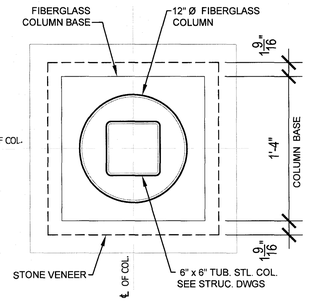

6 A9 WALL ASSEMBLY DET.
SCALE: 1 1/2" = 1'-0"



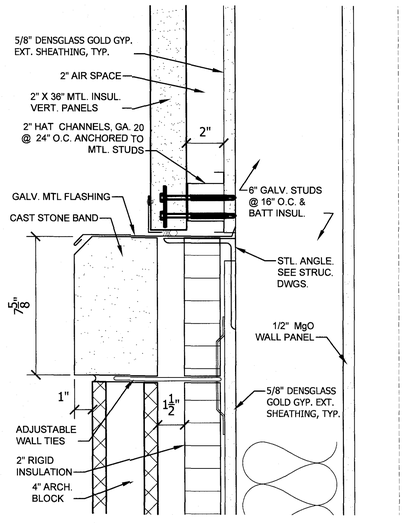

4 A9 CONTROL JOINT DETAIL
SCALE: 1 1/2" = 1'-0"



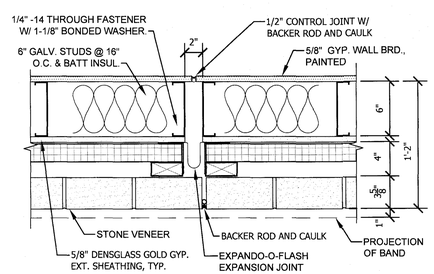

9 A9 PEDESTAL DETAIL
SCALE: 1 1/2" = 1'-0"



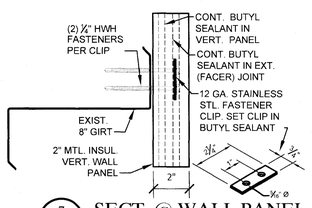

10 A9 COLUMN DETAIL
SCALE: 1 1/2" = 1'-0"



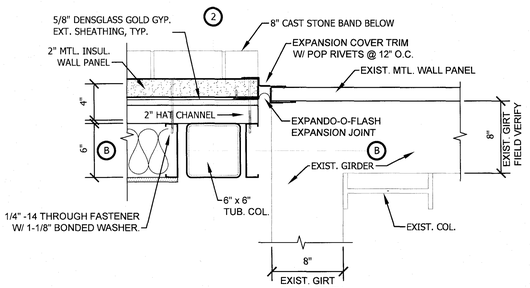

11 A9 MTL. PANEL / CAST STONE BAND DET.
SCALE: 3" = 1'-0"




5 A9 EXPANSION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"




7 A9 SECT. @ WALL PANEL
SCALE: 3" = 1'-0"




8 A9 EXPANSION JOINT DET.
SCALE: 1 1/2" = 1'-0"

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28 BURLINGTON NC

JORGE LUIS RODRIGUEZ SAN ROMAN LICENSED ARCHITECT 4-21-2025 #10611 NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27278

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

CONSTRUCTION DETAILS

DATE April 21, 2025
DRAWN BY: CHECKED:
JOB NO. 24060
SHEET NO. A9
OF

## GENERAL CONDITIONS

"The General Conditions of the Contract for the Construction of Buildings", AIA Document A-201, of the American Institute of Architects, latest Edition, are hereby (except as hereafter deleted or amended) made a part of this Specification, and each Division hereunder, to the same extent as if bound herein. The following modifications of these AIA General Conditions shall be in addition thereto and shall take precedence over their original provisions in case of conflict.

## SUPPLEMENTARY GENERAL CONDITIONS

The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction," AIA Document A201, Latest Edition. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

ARTICLE 3:

3.12.12 Shop Drawings: Add the following:
Product Data and Samples: Each contractor shall submit a minimum of five (5) copies of all shop drawings and product data for approval. With prior approval from the architect / engineers electronic submittals will be permitted.

3.12.13 Shop Drawings: The contractor shall make any corrections required by the Architect and file with him two (2) copies the corrected submittals when requested. Additional copies shall be furnished to other trades and prime contractors where necessary to coordinate their work. Each prime contractor shall keep at the project site a current set of shop drawings that bear the review stamp of the Architect / Engineer for each product requiring shop drawings.

3.15.3 Cleaning Up: Add the following:

Before final inspection and acceptance of the building, the contractors shall clean the building, including, but not limited to, glass, hardware, fixtures, equipment, masonry, clean floors as specified, and completely prepare the building for use by the Owner with no cleaning required by the Owner.

ARTICLE 7:

7.3.3 Change Orders (Profit and Overhead): Add the following:

The allowances for overhead and profit combined shall under Methods 1 and 3 not exceed 15% of net cost except where the change involves a subcontractor, allowances shall not exceed 10% for the subcontractor and 7.5% for the prime contractor. Under method 2, no allowance shall be made for overhead and profit. In the case of deduct change orders, under Method 1 and 3, the contractor shall include not less than 10% profit, but no allowance for overhead.

At the time of signing a change order, the contractor shall certify as follows, "I certify that my Bonding Company will be notified forthwith that my contract has been increased or decreased by the amount of this Change Order and that a copy of the approved change will be mailed to my surety upon receipt by me".

ARTICLE 9:

Payments and Completion:

9.2.1 Schedule of Values: Add the following:

Schedule of Values shall separate labor and material for each phase of the work. The phases of work shall be broken down per each section of the specifications. Where a section includes two or more two or more major items of work, they shall also be broken out separately. Submit four (4) copies to the Architect.

9.3.1 Application for Payment: Add the following:

Type of Form: Application and Certificate for Payment AIA Document G-702 and Continuation sheet G702A, latest edition.
Number of copies: Four (4) unless noted otherwise.

Application shall be in the Architect's office no later than the later than the 25th day of each month and shall be signed and notarized.

Retainage: Each certificate shall show, and the owner will retain, 5% of the amount of each estimate until final completion and acceptance of all work covered by this contract. However the retainage may be adjusted at 50% completion under the following requirements: Retained percentage shall be at the rate of 5% until 50% of the contract is in place after which there would be no additional retainage, provided the work has progressed to the satisfaction of the Owner, and provided the contractor's surety and the owner agree in writing to this procedure.

ARTICLE 11:

11.1 Contractor's Liability Insurance:

Shall be furnished and maintained by the contractor as outlined with the following adjustments and additions:

General Liability shall include: Comprehensive form, premises, operations, explosion and collapse hazard, underground hazard and products/completed operations hazard.

Automotive liability shall include: Comprehensive form, owned, hired, and non-owned.

Worker's Compensation and Employer's Liability.

11.1.1 Add the following:
Full contract amount shall appear on each document as necessary.

Effective date on each document shall be the same as the contract document date.

Expiration date shall be sufficient to complete the project.

Each policy shall be countersigned by an authorized individual agent, licensed to do business in North Carolina.

11.1.2 Limits shall be as follows:

Combined Single Limit:

General Liability - For Bodily Injury and Property Damage

Each Occurrence = $500,000

General Aggregate = $1,000,000

Auto Liability - For Bodily Injury and Property Damage

Combined Single Limit - $300,000

Employer Liability for each accident = $100,000

Subcontractor's Insurance Coverage -The Contractor shall either:

1) Require each of his subcontractors to procure and to maintain during the life of this subcontract, Subcontractor's Comprehensive General Liability, Automobile Liability, and Property Insurance of the type and in the same amount as specified in paragraph above; or
2) Insure the activity of his subcontractors in his own policy.

11.3.1 Property and Loss-of-Use Insurance:
Modify first sentence as follows:Contractor shall purchase and maintain insurance in lieu of Owner.

PERFORMANCE BOND AND PAYMENT BOND

1) Each contractor shall furnisha performance bond and payment bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in full contract amount. Bonds shall be executed in the form bound with these specifications (Section 307 and Section 308).

2) All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina.

## SPECIAL CONDITIONS

### Payments:

1. Payments for stored material will not be approved unless the Application for Payment is accompanied by a paid invoice. Material that is stored away from the site shall not be approved for payment unless special arrangements are made to establish the Owner's claim to the material in the event of default.

2. Application for Payment shall be made through the Architect, in four (4) copies on AIA Document G-702. Note that signing of the form by the Contractor constitutes an affidavit that he has paid all subcontractors in the same proportion as he has received previous payments.

3. All payments by the Owner shall be to and through the Contractors, based on the Contractor's monthly itemized estimate An amount equal to 5% of the work completed and of materials stored at the site as of the end of the month shall be withheld from each monthly estimate. The Contractor may, therefore, withhold an amount equal to 5% from all subcontractors and from all materials suppliers unless there is good cause to do otherwise.

4. Final payment will be made to the Contractor within 30 days after all work has been finally completed and each and every provision of the Specifications and accompanying Drawings complied with to the Owner's and Architect's satisfaction. Acceptance of the Acceptance of the complete job will be made by the Owner, or his representative, and the Architect.

### Permits, Licenses, Certificates, Fees, Sales Tax

1. Each Contractor or subcontractor shall obtain and pay for all permits, licenses, certificates, etc., from all authorities requiring same and pay all necessary inspection fees and sales tax.

2. Each Contractor shall include in his Proposal the costs for all North Carolina State and Local Sales and Use Tax applicable to this project.

3. Each monthly Application for Payment shall include an itemized list of all North Carolina State and Local Sales and Use Tax paid by contractor(s) on this project.

### Project Schedule

1. The General Contractor in cooperation with his subcontractors shall prepare a Project Schedule for review by the Owner and the Architect and for distribution to all project participants. The schedule shall be kept current, revised and redistributed as necessary.

### Subcontractors and Materials

1. Within fifteen (15) days following the award of a contract, the Contractor shall submit to the Architect for approval a complete list of subcontractors and materials that he proposes to use on the project. No substitution from those specified shall be made unless authorized in writing by the Owner or Architect, who may request samples for comparison and test before approving any item in the above list.

2. The list of alternates submitted by the Contractor with his proposal will be considered and notice shall be given to the Contractor in writing of any acceptable substitutions prior to execution of the Contract.

3. Subcontractors are subject to the approval of the Owner and Architect, and such approval shall be given in writing. No sub-contractor will be approved unless he is qualified by previous satisfactory performance on similar work. Subcontractors will not be allowed to start work until they and their insurance certicicates have been approved by the Contractor.

### Measurements and Dimensions.

1. The General Contractor shall, immediately upon entering project site for purpose of beginning work, locate all general reference points and take such action as is necessary to prevent their destruction, lay out his own work and be responsible for all bench marks, lines, elevations, and measurements for buildings, grading, utilities, and other work executed by him under the Contract. He must exercise proper precaution to verify figures shown on Drawings before laying out work and will be responsible for any error resulting from his failure to exercise such precaution.

2. Before ordering any materials or proceeding with his work, the Contractor and each of his subcontractors shall take all necessary measurements at the building and be responsible for the correctness of same, and they shall verify all controlling dimensions shown on shop drawings at the job site. No extra charge or compensation will be allowed on account of differences between actual job dimensions indicated on Drawings (including shop drawings). Any difference which may be found shall be submitted to the Architect for decision before proceeding with the work.

### Responsibility of the Contractors.

1. The contractor is responsible for producing his work in place, in carrying it out to the completion without unnecessary delays, and maintaining it in perfect condition until final completion.

2. The General Contractor shall keep for reference on the premises at least one copy of the Specifications and one set of the Drawings; these documents shall be readily available to the Architect, the Owner and his nominees, all subcontractors and foremen, and all proper officials.

3. The General Contractor shall be the "Project Coordinator" and shall be responsible for the overall coordination of all the work. He shall notify other trades when their work is required to continue the progress of the job and he shall endeavor to resolve conflicts in the work of various trades. All subcontractors shall promptly respond to the requests of the General Contractor and shall abide by decisions of the General Contractor, as approved by the Architect.

4. The project site must be kept clean and orderly to the satisfaction of the Architect. Remove debris as quickly as possible. Materials shall be stored neatly in a location approved by the Architect.

### Temporary Water, Light and Power

1. The General Contractor shall furnish whatever temporary water, power, light, communications or other facilities necessary during the process construction to insure an efficient and workmanlike procedure without delays. The General Contractor will be responsible for any changes or damage. After permanent power is connected to the building, the contractor may remove temporary utilites and use the site's permanent services.

### Progress Meetings

1. The General Contractor, as "Project Coordinator" shall hold regularly scheduled progress meetings at the job site. General Contractor shall be responsible for taking minutes of progress meetings and provide them to all participants.

### Temporary Toilet.

1. Adequate temporary toilet facilities for the use of workmen shall be provided and maintained by the General Contractor at location approved by the Architect.

### Protections.

1. During the entire work, the general Contractor shall be responsible for and shall provide adequate protections, barricades, runways, red lights, etc., as required by law and as may be necessary to protect new and existing work and to protect the public against any injury to person or property. He shall protect any existing work that is to remain in place from damage; and he shall repair or replace at his own expense any such existing work damaged during his construction operations. He shall also cover and protect all portions of his work when work is not in progress, and shall be responsible for damage from any cause. The building and all materials connected herewith shall be at the Contractor's risk until they are accepted, and he shall be responsible and liable for their safety in the amount paid to him by the Owner on account thereof.

### Signs.

1. No signs or advertisements will be allowed to be displayed without the approval of the Owner.

### Cleaning Up

1. Contractors shall keep the premises reasonably free from rubbish and debris and shall remove any accumulation of it from time to time or when directed by the Architect.
2. The General Contractor shall provide trash receptacles and shall daily pickup around the job and dispose of the accumulation as necessary.
3. Debris shall be confined to piles and shall be removed from the job site on a daily basis.
4. Materials to be used on the job shall be stacked and maintained in an orderly fashion.
5. Upon completion of each trade, the subcontractor shall clean and protect all portions of his work and it shall be accepted and maintained by the appropriate contractor.
6. Before final acceptance of the project, the Contractors shall clean and/or reclean all portions of their work and completely prepare the facility for use by the Owner.
7. Final inspection of the project will not be scheduled until the above cleaning has been accomplished to the satisfaction of the Architect.

### Operating Manuals.

1. It shall be the responsibility of the Contractor to compile a manual of maintenance instructions for the project.
2. The manual shall be bound in loose-leaf fashion, and indexed, and shall contain manufacturer's data, maintenance instructions, operation information for all equipment, together with names and addresses of subcontractors, suppliers and service agents.

### Damage to Existing Property.

1. Exercise all possible precautions to protect the existing property, equipment and site. This includes buildings, paving, active pipelines, planting, etc.
2. The contractor shall repair or replace any damages that occur as a result of the work being performed under this contract.
3. The contractor shall be responsible for protecting adjacent drives and streets from deposits of soil, materials, litter, etc. and shall clean up any such deposits.

### Substantial Completion.

1. The Architect shall establish in writing the date of substantial completion. Substantial completion shall be defined as that time when all material, labor and equipment have been incorporated in the project as originally specified and/or shown, and the project may be occupied by the Owner for its intended use. Exceptions to this may be made such as when equipment not affecting the Owner's use of the project is temporarily unavailable through no fault of the Contractor.

2. Following the date of substantial completion and before final payment, the Contractor is expected to correct defective work, make necessary adjustments to equipment, deliver guarantees and release of liens, complete required tests, and provide operating instructions.

### Completion Time.

1. It is hereby understood and mutually agreed, by and between the Contractors and the Owner, that the time for "substantial completion" as specified for the work to be done here under is an essential condition of this contract. It is mutually understood and agreed that the work embraced in this contract shall be "Substantially Complete" within the time designated by the contractor in the Proposal.

2. The awarding of contracts will be based on the lowest responsible bid with respect to the number of days to complete the project as well as the amount of dollars.

3. The Contractor agrees that the said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure "substantial completion" of the work described herein, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

### Liquidated Damages.

1. Work shall be started and the time for construction shall begin on a date designated by the Architect. Each Contractor shall state in his proposal the number of calendar days he will require to complete the project.

2. The Owner may retain the sum of $300.00 per calendar day as liquidated damages assessed against each Contractor responsible for delay, for each calendar day in excess of the designated time that the project is not "Substantially Complete". The Architect shall determine which Contractors are responsible for the delay, as well as when the project is substantially complete. The total liquidated damages shall be deducted from the final payment due to the contractor under the terms of the Contract.

3. Consideration for additional time will be given only to written requests based on extraordinary Acts of God, Acts of the Owner, Acts of an agency of the local, State or Federal Government, Fire, Strike, or Embargo. Written requests for additional time shall be submitted monthly with the periodic Application for Payment. Extraordinary weather claims shall be supported by U.S. Weather Bureau data documenting average conditions for the period.

### Unit Prices

1. See the form of proposal for items to be included as unit prices. Unit costs shall be provided for the following:
   a. removal and replacement of unsuitable soils
   b. removal of rock and replacement with suitable fill (if necessary)

### Acceptance and Final Payment.

1. When in the opinion of the contractor, the work has been completed in an acceptable manner in accordance with the Contract Documents, he shall make written request to the Architect for Final Inspection.

2. The Owner and the Architect shall make a Final Inspection of the entire project and upon completion of all necessary repairs the Architect shall certify in writing to the Owner and Contractor as to the acceptability of the project.

3. The Owner, upon receipt of said certificate, shall cause to be paid to the Contractor the amount of money then due under the contract All prior certificates or estimates upon which payments may have been made being merely partial estimates and subject to the correction in the final payment.

4. Issuance of final payment by the Owner to the Contractor shall serve as notice to the contractor of acceptance of the project, subject to the following guarantee.

### Allowances

1. The contractor shall include the following allowances in his base bid:
   Hardware: $ 18,000

### Guarantee

1. The contractor will be required to guarantee all material, equipment, and workmanship against defects of any description for a period of 12 months from the date of "Substantial Completion". The Performance Bond shall be so written as to cover this guarantee period.

2. At the completion of the job, the contractor shall secure and turn over to the Owner the guarantees and bonds issued by manufacturers or suppliers of products incorporated in the project.

## DIVISION 1 -- GENERAL REQUIREMENTS

### Scope of Work.

1. The work required for this project shall consist of the complete construction to the extent indicated herein and on the Drawings.

2. The Contractor shall, unless otherwise specified, supply all labor, tools, materials, equipment, temporary buildings, transportation, apparatus, utilities, fuel, etc., necessary for the entire completion of this work and be responsible for the safe, proper and lawful construction, maintenance, and use of same; and he shall construct and/or perform in the best and most workmanlike manner all work shown on the Drawings and/or specified and everything properly incidental thereto or reasonable implied therefrom, and in accordance with the Contract Documents.

3. No deviations from the construction methods, materials, details, specifications, general notes, schedules or equipment, nor deletion of any requirement shown on these plans, will be acceptable without specific written permission from the Owner.

4. The Contractor shall be responsible for constructing the building in strict accordance with all provisions of applicable building codes, ordinances and standards, including all state and federal handicap access requirements. Contractor shall consult with respective local fire department authorities having jurisdiction relative to requirements for fire protection of the building.

5. The Prime Contractor shall be responsible for honoring all guarantees, warranties and other requirements enumerated in these drawings and specifications, even when said responsibility is passed on to another subcontractor or materials supplier.

6. All materials to be incorporated into the project shall be new. If required, the contractor shall furnish satisfactory evidence as to building components' compliance with specification standards and requirements.

### Examination of Site

1. Prior to submitting a Proposal, each bidder shall examine the site and all conditions thereon, correlating same with the Bidding Documents. All Proposals will be presumed to include all such existing conditions as may affect any work on the project; and failure to familiarize himself with any such conditions will in no way relieve the successful bidder from the necessity of furnishing any materials or performing any work that may be required to complete the work in accordance with the drawings and specifications, without additional cost to the Owner.

### Demolition

1. Unless otherwise indicated, demolished materials become the property of the contractor. Remove from site and dispose of demolished materials according to all local, state and federal rules and regulations.
2. Maintain and protect existing utilities to remain in service before proceeding with demolition.
3. Provide and maintain shoring, bracing and/or structural support of adjacent buildings until permanent support and bracing is in place.
4. Prior to any demolition, asbestos containing material shall be removed pursuant to Local, State and Federal rules and guidelines. Submit required paper work to NCDEHNR and secure permits before asbestos abatement and demolition activities begin.

## DIVISION 2 -- SITE WORK

### Erosion Control

1. Control of erosion and sedimentation resulting from land disturbing activities is subject to the requirements of the State of NC. The Contractor shall provide and be responsible for maintaining all temporary and permanent erosion and sedimentation measures and facilities until the project is accepted by the Owner, or until removal of facilities and cessation of control measures are authorized by the governing authority.

### Temporary Seeding

1. See seeding schedules on erosion control details.

### Protection of Existing Structure, Grounds, Pavement and Utility Lines

1. Repair or replace any portion of the building and grounds damaged by construction operations, in a manner acceptable to the Architect. Protect existing pavement and walks from damage during construction. Remove and replace any pavement damaged by the construction operations.

2. Caution must be taken to locate and protect existing water, sewer, electrical, telephone, and fuel lines. Damaged active lines must be replaced immediately at the contractors expense. Lines that are to be relocated are to be located and protected until the new lines are ready to be put in service. Notify the Owner of any anticipated interruption of service.

### Clearing, Grubbing, and Stripping

1. The sequence of work under this section shall comply with the requirements of the Construction Sequence Schedule as shown on the Drawings (if any). All erosion control measures should be in place prior to clearing, grubbing and stripping.

2. After the building, paved and graveled areas, and graded areas are staked out, remove completely all obstructions within these areas. Dispose of all unsuitable material off the site.

3. Strip topsoil to its entire depth from areas where changes in existing grades are indicated. Stockpile topsoil and use exclusively for finished grading after site has been rough graded to required levels.

### Cutting, Filling, Grading

1. Cut, fill, and rough grade as required to bring areas outside the building(s) to proper subgrade levels. Make grades not otherwise indicated, at uniform levels or slopes between where elevations are given, or between such points and existing grades; and provide proper drainage from all areas.

2. Excavate as required to provide adequate soil bearing for footings. Assume existing soil to be undisturbed earth or suitable compacted fill with bearing capacity of 2,500 psf. Notify Architect if questionable. The Contractor shall provide the services of an approved testing laboratory service to inspect, test, approve and report on footing subgrade, backfilling compaction and compacted filling operations.

3. Fill material shall be obtained off the site. Material shall be suitable for compaction to 98%. Fill shall have a unit weight of not less than 90 pcf and shall have a plasticity index of less than 30.

4. All fill material shall be placed in accordance with Section 235 of the N.C. Department of Transportation Standard Specifications for Roads and Structures.

5. The Contractor will provide and pay for continuous supervision and testing of the filling operation by the testing laboratory.

6. Do not backfill against foundation walls until directed.

7. Fill material will be spread in successive, uniform and approximately horizontal layers not more that 6" thick for the full area of the the full area of the fill. The layers will be kept level and distributed over the full width of the fill.

8. Each layer of fill material will be thoroughly compacted before the next layer is placed. The compaction will be by tamping equipment equipment as required to achieve the specified compaction.

9. The entire earth fill and backfill shall be compacted to a density of at least 98 percent of the standard Proctor Density for the soil soil being compacted. Fill failing to meet these requirements will be be removed and then replaced at the expense of the Contractor. Mechanical tamping of areas near the structures shall be of a type approved by the Architect. Proctor tests and density determinations shall be performed by an approved testing laboratory and shall be paid for by the Contractor.

10. Fine grade the surrounding area disturbed by the building construction, leaving it free of debris, to finish grade levels and ready for grassing.

11. All aspects of the earthwork operation (proof-rolling, filling, etc.) are to be continuously observed and monitored by an approved testing laboratory.

12. Soil is to be dried, or moistened, to within +/- 3% of optimum content prior to compacting.

13. Proofrolling:
    a. All exposed materials shall be proof-rolled.
    b. Entire proof-rolling operation shall be observed by the Soils Engineer
    c. Proof-roll with a loaded dumptruck or similar pneumatic-tired vehicle with a minimum loaded weight of 25 tons.
    d. Proof-rolling procedure shall consist of four (4) complete passes of the exposed areas with two of the passes being in a direction in a direction perpendicular to the preceding ones.
    e. Soils observed to pump or deflect shall be undercut and replaced with properly compacted fill.

14. Lab inspect and approve all column and random wall footing bearing surfaces.

15. Restore and retest any disturbed footing subgrades prior to concrete placement.

16. Undercut and replace any unacceptable soil.
    a. After locating areas of soft surface soils, as required in paragraph on proof-rolling herein, undercut soft soil to firm soil, as directed by Soils engineer. to firm soil, as directed by Soils Engineer.
    b. In areas of unsuitable existing soil material, remove unsuitable material to the minimum depth necessary to provide firm, suitable soil necessary to provide firm suitable soil.
    c. After undercutting, all areas shall be approved by a soils engineer prior to placing engineered fill.

### Soil Treatment

1. Contractor shall poison the soil in and around the foundation of the new construction in accordance with the minimum standards of the NC Pest Control Commission and the insuring company. Provide water-based emulsion specifically formulated to prevent infestation of termites and fire ants. Fuel oil will not be permitted. Provide only soil treatment solutions which are not injurious to planting in landscape areas. Soil treatment must be in compliance with the EPA guidelines and all applicable codes. Unless otherwise prohibited, provide a working solution of one of the following chemical elements and concentrations:

   a. Heptachlor, 0.5%
   b. Chlordane, 1% solution
   c. Aldrin, 0.5% solution
   d. Dieldrin, 0.5% solution

2. Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations.

3. Apply soil treatment solution within the building area, with or without slabs on grade, and outside the building perimeter, under aprons, pads or paved extensions, at a rate of one (1) gallon per ten (10) square feet.

4. The contractor shall provide three (3) copies of written guarantee, certifying that chemicals having the required concentration and rate as herein specified have been applied and that the soil poisoning treatment will prevent attack by by subterranean termites for a period of five (5) years, and that if subterranean termite activity is discovered during the guarantee period, the contractor shall retreat the soil and also repair or replace damage caused by termite infestation. This guarantee shall include a repair bond and shall include provisions for the owner to renew the bond for an additional ten (10) years on an annual basis.

### Paving and Storm Drainage

1. All materials, methods and workmanship shall conform to applicable specifications of the NC Department of Transportation Standard Specifications and Structures latest edition, except as otherwise noted; and all section numbers referred to herein are taken from same.

2. The subgrade shall be properly shaped and thoroughly compacted so that it conforms to the lines and grades shown, and shall be brought to a firm, unyielding condition and proof-rolled before any crushed stone is placed thereon. Proof rolled before any crushed stone is placed thereon.

3. Provide concrete paving where indicated on the Drawings, using 4,000 psi concrete, of the thickness shown and with a floated, broom finish. See Division 3 for concrete specifications. Joints in sidewalks shall be hand tooled, not sawn.

4. Storm sewer pipe shall be schedule 40 PVC or reinforced concrete (as designated on plans). Catch basins and associated covers, grates and frames shall be as required to meet NCDOT standards.

5. Crushed stone base shall be placed on the subgrade, compacted and maintained in accordance with Section 520. The compacted thickness shall be as detailed on Plans.

6. Asphaltic surface course shall be as detailed on Plans.

7. Provide painting of lines, symbols, etc, in drive and parking areas as shown on site plans, using paint specifically formulated for use as pavement marking in automotive traffic areas and in the colors selected by the Architect from the standard colors of the approved manufacturers. Use proper masking, stencils and application equipment and install as recommended by the manufacturer.

8. Maintain finish grades as shown on the Site Plan and to provide good drainage. Provide good drainage.


alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534


ALLEY WILLIAMS CARMEN & KING, INC
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JOSE LUIS RODRIGUEZ
LICENSED ARCHITECT
4-21-2025
# 10611
NORTH CAROLINA

CONSULTANT JOB NO.

# BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.

6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

SPECIFICATIONS

DATE April 21, 2025

DRAWN BY: CHECKED:

JOB NO. 24060

SHEET NO.

SP1

OF

## DIVISION 3 -- CONCRETE

### Concrete Work:

1. Work in this section includes providing formwork and cast-in-place concrete consisting of Portland Cement, fine and coarse aggregate, selected admixtures, mixing, transporting, placing, finishing, and curing as specified herein. Work shall also include special premixed grouts.

2. Products and execution are specified in this section by reference to the following specifications or standards:
a) American Concrete Institute (ACI)
b) American Society for Testing and Materials (ASTM)

3. The latest edition of the following standard references and codes shall apply to the work of this section:

a) ACI 301 "Specifications for Structural Concrete"
b) ACI 302 "Guide for Concrete Floor and Slab Construction"
c) ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"
d) ACI 305 "Hot Weather Concreting"
e) ACI 306 "Cold Weather Concreting"
f) ACI 308 "Recommended Practice for Curing Concrete"
g) ACI 309 "Recommended Practice for Consolidation of Concrete"
h) ACI 318 "Building Code Requirements for Reinforced Concrete"
i) ACI 212 "Guide for Use of Admixtures in Concrete"
j) ACI 347 "Recommend Practice for Concrete Formwork"
k) ACI-117 "Standard Tolerances for Concrete Construction and Materials"

4. The following materials shall be included in this section:

a) Portland Cement - ASTM C-150, Type I. The same brand shall be used throughout unless changes are approved in writing by Engineer. The fineness of cement used shall not have less than 10% retained on a #325 mesh screen when thested in accordance with ASTM C430.

b) Aggregates - ASTM C-33
1) Fine Aggregate - clean, sharp, natural sand, free of deleterious substances.

2) Coarse Aggregate - clean, uncoated, granite processed from natural rock.

c) Water - potable

d) Admixtures - shall conform to the appropriate specification listed. Do not use admixtures which have not been incorporated and tested in the accepted mixes unless otherwise authorized in writing by the Architect.

1) Air-entraining Admixture - ASTM C-260

2) Water Reducing Admixture - ASTM C-494, Type A, chloride free.

3) High Range Water Reducers (Superplasticizers) - ASTM C-494, Type F, chloride free.

e) Special mortars and grout - equal to Masterflow 713 by Master Builders Technologies.

f) Premolded expansion joint filler - Asphalt Impregnated type, ASTM D-1751

g) Liquid curing materials for concrete shall exceed the requirements of ASTM C-309, Type I. Products acceptable shall provide a water retention rate not to exceed 0.02 grams per sq. cm. Liquid curing materials are to compatible with with floor finishes, adhesives, etc.

h) Curing Membranes:
1) Polyethylene membrane shall be 6 mil polyethylene film complying to ASTM C-171. Membrane is to meet or exceed test for water retention, ASTM C-156.

2) Burlap shall be free of sizing or any substances that are injurious to cement or can cause discoloration. Burlap shall be rinsed in water prior to use. Burlap shall be sufficient thickness to retain water without frequent wetting.

i) Formwork material is to be plywood. Provide high density overlay type plywood in largest practical sizes for exposed surfaces. Brace and shore formwork as required. Contractor is responsible for design of formwork. Remove formwork only after concrete is hardened sufficiently to prevent damage. Work shall also include installation into formwork, items furnished by others, such as anchors, plates, inserts and any other items embedded in concrete.

j) Joint sealing compound for sawn construction and control joints in interior slabs on grade shall be a semi-rigid epoxy having a minimum Shore D hardness of 55 and a minimum of 15% elongation. Joint sealant shall be equal to "Euco 700" as manufactured by by Euclid Chemical Company. Chemical Company.

k) Concrete Floor hardener shall be "Lapidolith" as manufactured by Sonneborn, Inc. or equal.

5. Prepare concrete mix designs in accordance with Section 4.3 (Field Experience) or Section 4.4 (Trial Batches) of ACI 318.

6. Except wall grout, proportion all concrete so that when produced it will have a maximum slump of 5 inches, and a minimum slump of 3-inches. Concrete wall grout shall contain high range water reducers. All concrete containing high range water reducers shall have a maximum slump of 8 inches. The concrete shall arrive at the site with a slump of 1" to 2", slump verified and recorded, and a high range water reducer added to increase the slump to the approved level. The addition of a high range water reducer shall be by a truck mounted mechanical dispenser or by a qualified certified concrete technician of the concrete supplier. The admixture shall not be manually dispensed by the concrete truck driver. After the addition of the high range water reducer, the concrete shall be rotated at maximum speed for a minimum of three minutes (45 revolutions minimum).

7. Concrete batch plants must comply with the requirements of ACI 304 with sufficient capacity to produce concrete of the quantity and quality as specified herein.

8. Ready-mix concrete shall comply with the requirements of ASTM C-94 and as specified herein unless otherwise noted. During hot weather or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C-94 will be required as follows: When air temperatures are between 80 Degrees F. and 90 Degrees F., reduce the mixing and delivery time from 1-1/2 hours to 1 hour. When temperatures are above 90 Degrees F., reduce the mixing and delivery time from 1-1/2 hours to 45 minutes. Concrete temperature is not to exceed 90 Degrees F.

9. Addition of water at the site for the purpose of retempering or increasing the slump beyond specified limits will not be permitted. Water is to be added at the jobsite only if the resulting slump will not exceed the specified limit, the design water-cement ratio will not be exceeded, and the concrete batcher authorizes in writing such addition. Concrete delivery to the site with a slump greater than the maximum specified shall be rejected by Contractor.

9.1. The following concrete types and strengths shall be used:

| Location | Mix | Minimum 28-Day Compressive Strengths & Max. w/c Ratio |
|---|---|---|
| Except as noted below, All Concrete | Normal Weight | 4000 psi (Max. w/c Ratio = .50) |
| Slabs on Grade/ Supported Slabs | Normal Weight | 3500 psi (Max w/c Ratio = .55) |
| Footings | Normal Weight | 4000 psi (Max w/c Ratio = .60) |
| Grout for Masonry | Normal Weight (3/8" Stone) | 3000 psi (Max w/c Ratio = .60) |
| Weather Exposed Concrete | Normal Weight | Air-entrained ( 6% ) 4000 psi (Max w/c Ratio = .45) |

(NOTE: High Range Water Reducer is not permitted in slabs on grade)

10. Thoroughly clean all surfaces to be occupied by concrete prior to casting concrete. Secure all reinforcement expansion joint material, anchors, and other embedded items prior to casting concrete.

11. Place concrete in compliance with the practices and recommendations of ACI 304. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, and tamping. Use of vibrators shall be in accordance with ACI 309.

12. Concrete floor slab on grade shall have Class A moisture barrier Stego Perminator or approved equal over 4" thick compacted clean stone, 3/8" minimum size, #78 stone. Restore any damaged subgrade areas to specified density immediately prior to installation of slab sub-base. Lab verify specified compaction. Install underslab membrane beneath stone, lapping joints 6 inches. Provide another layer of membrane over any punctures or tears, lapping edges of ruptured membrane at 12 inches. Tape all joints with duct tape. Turn up membrane at edges of all slabs, unless otherwise detailed. Deposit and consolidate concrete in slabs in a continuous operation, within the limits of construction joints until the placing of the entire section is complete. Placing shall be carried on at such a rate that the concrete being integrated with fresh concrete is still plastic. Concrete shall not be allowed to "free fall" a distance greater than 3'-0". Deposit concrete in walls in horizontal layers not to exceed 18" in thickness and in a manner to avoid cold joints.

13. Bring surface of slabs to the correct elevations with a straight edge and strike off. Use bull floats or derbies to smooth the surface, leaving it free of humps and hollows. Do not sprinkle water on the plastic concrete surface. Mechanically float all slab surfaces.

14. Concrete mixes may be pumped to the point of deposit with the following provisions:
a) Concrete pumps shall be a piston type pump.
b) Slumps shall not exceed the previously specified limits at the discharge end of the nozzle.

16. Notify Architect upon completion of installation of all reinforcing and other items in ample time to permit inspection of the work.

17. After floating, apply trowel finish to all interior surfaces (minimum three separate trowellings). Trowel with a power trowel as necessary to consolidate the concrete surface with the final troweling operation free of trowel marks and uniform in texture.

18. No water or free cement is to be added during the finishing operation. Finishing operations are not to be initiated while bleed water is present on surface. Exterior concrete landings, walks, pads, etc., shall be given a light broom finish.

19. Apply scratch finish to monolithic slab surfaces that are to receive mortar setting beds for the other bonded floor finish materials.

20. Cure "Exposed-to-view" slab surfaces by applying 6 mil polyethylene film on top of complete covering of saturated burlap as soon as troweling or floating has been complete. Maintain curing on slab for for seven days minimum.

21. Apply chemical hardener to all permanently exposed concrete surfaces. Apply in strict accordance with manufacturer's printed instructions. Apply evenly. Allow required drying between coats. After final coat has dried, remove surplus by scrubbing and mopping with water.
(Minimum three coats.)

22. The Contractor shall provide protection for fresh concrete, as follows:

a) Cold Weather Placing.

1) Protect all concrete work from physical damage or reduce strength which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.

2) Do not place concrete when temperature is 40 Degrees F. and falling when freezing weather is predicted within 24 hours.

3) "Cold Weather Concreting", ACI 306, shall be following for placing concrete in cold weather with the noted exceptions: No calcium chloride or "anti-freezes" shall be used. Only the specified and approved non-chloride accelerators shall be used. High early strength cement shall not be used. In addition to laboratory cured test specimens, additional concrete test specimens shall be cured under field conditions as required to check the adequacy of curing and protection of the concrete.

4) Adequate equipment shall be provided for heating the concrete material and protecting the concrete during the freezing weather. No frozen material containing ice shall be used. The length of protection and curing shall be in accordance with ACI 306.

b) Hot Weather Placing.

1) Cool reinforcing by wetting sufficiently so that the steel temperature will not exceed the ambient air temperature immediately before placing concrete. Use in approved admixture design to retard the rate of set when outside temperatures exceed 70 Degrees F. Admixtures shall be tested in the design mix prior to use. Admixtures shall not contain any chlorides.

2) Wet forms and subgrade thoroughly before placing concrete.

3) The concrete supplier shall make provision for cooling the coarse and fine aggregate during hot weather by pre-wetting the aggregates on the conveyor belt and/or maintaining stock piles covered with crushed ice.

4) The temperature of fresh concrete immediately prior to placement shall not exceed 90 degrees F.

5) The Contractor shall take measures recommended in A1\CI-305 to prevent plastic shrinkage cracking.

22. The Contractor shall employ a testing laboratory to perform tests on concrete as outlined and to submit results of tests to the Architect. The Contractor shall furnish access to the site, samples of the concrete, and casual labor as required to the testing agency.

23. All concrete will be sampled and tested during placement of concrete as follows:

a) Sampling Fresh Concrete - ASTM C-172, ASTM C-91
b) Slump - ASTM C-143, one test from each truck

c) Air Content - ASTM C-231, one test for each compression strength tst.

d) Unit weight, one test for each compression strength test.

e) Concrete temperature, test each truck when air temperature is 40 Degrees F. and below and when 80 Degrees F. and above; and each time a set of compression test specimen is made.

f) Compression Test Specimens - ASTM C-31, one set of four standard cylinders for each compressive strength test.

g) Compression Strength Tests - ASTM C-39, one set for each 100 cubic yards or fraction thereof of each concrete class placed in any one day. Test one cylinder at 7 days and 3 cylinders at 28 days.

24.

25. Concrete work that does not conform to specified requirements, including strength, tolerance and finishes shall be repaired or replaced at no additional cost to Owner.

### Concrete Reinforcement

1. Work in this section includes reinforcement and placement of reinforcement for cast-in-place concrete, including bars, welded wire fabric, ties and supports. Reinforcing shall conform to ASTM A615, Grade 60.

2. Products and execution are specified in this section by reference to the following specifications and standards:

a) American Concrete Institute (ACI)
b) American Society for Testing Materials (ASTM)
c) Concrete Reinforcing Steel Institute (CRSI)

3. The following standard references shall apply to the work of this section (latest editions):
a) ACI-315 Manual of Standard Practice for Detailing Reinforced Concrete Structures.
b) ACI-318 Building Code Requirements for Reinforced Concrete
c) "Manual of Standard Practice" by CRSI.
d) ASTM A-82 Specifications for Cold Drawn Steel Wire for Concrete Reinforcement
e) ASTM A-185 Specifications for Welded Steel Wire Fabric for Concrete Reinforcement - provide in mat form when #8 gage, or heavier.
f) ASTM A-615-SI Specifications for Deformed Billet-Steel Bars for Concrete Reinforcement.
g) ASTM A-617 Specifications for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement.
h) AWS D1.4 and AWS D1.1

4. Reinforcing steel and wire mesh delivered to the project site and not immediately placed shall be protected from mud, excessive rust producing conditions, oil, grease, or distortion. Reinforcing steel and wire mesh shall be stored off the ground.

5. Minimum concrete protective covering for reinforcement shall be as follows:
a) Concrete deposited against the ground: 3-inches
b) Concrete deposited for slabs and walls: 1-1/2-inch

6. All reinforcement, at the time concrete is placed, shall be free of mud, oil, scale, loose rust, or other materials that may adversely affect or reduce the bond.

7. All reinforcing bars shall be supported and wired together to prevent displacement by construction loads or the placing of concrete beyond the tolerances as previously set forth. Place to + 1/4" tolerance. Pull slab wire mesh into position and support on small mounds of fresh concrete, placed immediately prior to main concreting operation as to secure it into position as stated on drawings, as pour progresses. Place dowels by means of plywood templates.

8. Lap wire mesh minimum one full mesh width at splices.

9. The Architect shall always be notified of the concrete placement schedule in advance and in ample time prior to placement of concrete to inspect the reinforcement. Inspection of reinforcement will be made only after each section to be poured is complete. Inspections will not relieve contractor of responsibility of providing work in accordance with contract drawings.

10. Reinforcing shall be fabricated to shapes and dimensions indicated on drawings and in compliance with ACI 315 and ACI 318. Bars shall be cold beat in shop. No bars are to be bent in field. Bars are to be bent and sheared to a tolerance of + 1" except tolerance for stirrups and ties is to be + 1/4".

## DIVISION 4 -- MASONRY

1. Masonry block shall be standard size lightweight concrete masonry units, conforming to ASTM C-90, Grade N. Furnish corners, U-Blocks, headers, lintels, bullnose and other special shapes required. Units exposed to view on the exterior of the building (and elsewhere as noted on drawings) shall be custom masonry split-faced units. Exposed to view units shall be painted as specified in division 9.

2. Face brick shall be standard size units. An allowance of $600 per thousand for the purchase of face brick shall be included in the contractor's base bid. Selection of brick for use in the project shall be by owner and architect.

3. The Portland cement/lime mortar shall conform to ASTM C270, Type-S. Mortar color to be standard.

4. Joint reinforcing shall be Standard galvanized trussed Dur-O- Wal or approved equal for single wythe walls and composite walls.

5. Anchors for fastening brick veneer to masonry structure shall be Hickman No. 315 and No. 315c Anchor Rods and Anchor Straps with No. 316 Triangle Ties (or approved equal), spaced as noted on drawings.

6. Anchors for fasting brick veneer to wood or light gauge metal frame structure shall be manufacturers standard strap anchors, spaced in accordance with code requirements.

7. All concrete masonry units shall be laid in running bond. Lay units in full bed and head joints. Mason shall tool joints concave when thumbprint hard.

8. Build in all items of fabric flashing, metal lath, door frames, windows, anchors, bolts, lintels, pipe sleeves, etc.

9. Clean masonry with water, stiff brushes, and metal scrapers. Clean glazed masonry units with non-abrasive tools and chemicals as recommended by manufacturer. Hydrogen peroxide wash and sandblasting is not allowed. Point all holes and cut out and repoint all bad joints.

### Architectural Concrete Unit Masonry

1. Basis of Design: Lamina Stone, concrete masonry units, Echelon Masonry.
2. Compressive Strength: Min. 3,500 psi.
3. Dimensions: Varies
4. Pre-finished architectural block that meets ASTM C90.
5. Color: to be selected by Owner.
6. Mortar must include approved integral water repellent additive.
7. Portland cement: conforming to ASTM C 150, Type I
8. Aggregates: conforming to ASTM C 144 for mortar.
9. Pigments: conforming to ASTM C979.
10. Solid Jumper Ratio: 50 %
11. Weeps & Vents: weep holes & vents at proper intervals. Proper flashing per NCMA-TEK.

### Cast Stone Band Unit

1. Color: to be selected by Owner.

## DIVISION 5 -- METALS

### Structural Steel

1. All structural steel fabrication and erection shall comply with the AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", latest edition, and the AISC "Code of Standard Practice for Steel Bridges and Buildings", and the AWS "Code for Welding in Building Construction".

2. All structural steel shapes and plates shall conform to ASTM A-36, except tubing shall conform to ASTM A-500 and steel pipe shall conform to A-53, latest edition.

3. All foundation anchor bolts shall conform to ASTM A-307. Other bolted connections shall conform to AISC "Specifications for Structural Joints Using ASTM A-325 or A-490 Bolts". Tighten 3/4" dia. ASTM-325 bolts to 28,000 lbs. tension. Provide washers under all nuts.

4. Welding electrodes for arc-welding shall conform to E70 Series of the "Specifications for Mild Steel Arc-Welding Electrodes", ASTM A-233.

5. Non-shrink grout shall be Masterflow 713 as manufactured by the Master Builders Technologies of Cleveland, Ohio or approved equal.

6. Unless noted otherwise, all concealed structural steel shall receive minimum 2 mil DFT shop coat of red zinc primer paint and shall be touched up in the field after erection. Omit paint at field weld locations.

7. Submit shop drawings of all fabricated materials to be furnished and delivered to the site. Erection drawings to locate and identify members shall accompany shop drawings.

8. Do not use gas cutting torches in the field for correcting fabrication errors in structural framing.

9. All welds shall be made by certified welders.

10. No unapproved splices shall be made in steel shapes.

11. No field torch cutting will be allowed unless approved by Architect. Do not flame cut holes or enlarge holes by burning.

12. Contractor shall field verify all existing field conditions, dimensions and elevations prior to commencement of construction.

13. The Contractor shall use qualified personnel for all layout work.

14. Erect structure plumb and level within tolerances specified by AISC. Do final bolt tightening after structure is plumb and aligned.

15. Provide temporary shoring, guying and bracing as required until structure is permanently stabilized.

16. Member and Connection Design:

A. All details shown on drawings are typical. Similar details shall apply to similar conditions, unless indicated otherwise.

B. Promptly notify Architect whenever design of members and connections for any portion of the structure are not indicated clearly.

C. Design any connections not specifically detailed on drawings. Submit design for Architect's approval. Design shall be in accordance with latest AISC specifications.

### Miscellaneous Metal

1. Furnish all miscellaneous metal items, including stairs, railings, platforms, lintels, anchors, brackets, frames, plates, etc. All work shall be fully welded, ground smooth where exposed, and shop painted.

2. Railings for stairs and landings shall be 1-1/4" I.D. Standard weight Schedule 40 black steel pipe. Form railing as required by the Drawings. All connections to be welded and ground smooth. Provide pipe sleeves, and cast brackets and end caps.

3. Lintels for plumbing, mechanical and electrical openings shall be provided by the General Contractor.

## DIVISION 6 -- WOOD

### Rough Carpentry

1. Provide all necessary scaffolding, forming, furring, blocking, nailers, rough hardware and similar items required for the completion of the project.

2. Wood framing, blocking, nailers, etc., unless otherwise noted, shall be No. 2 Common Southern Yellow Pine, air dried to a moisture content of not over 19%. All sills, plates, etc., in contact with masonry and elsewhere as indicated shall be Wolmanized No. 2 Common Pine.

3. Interior plywood shall be INT-DFPA, and exterior plywood EXT DEPA,in thicknesses as shown and detailed on drawings.

4. Sills, blocking, bracing, and carpentry items shall be laid out as called for on the Drawings and as required by normal trade practices and shall be cut and fitted as required by the job conditions encountered. All work shall be connected with a sufficient quantity of nails, spikes, bolts, etc., to insure the rigidity of the work.

### Finish Carpentry

Cabinets

1. Construct cabinets as detailed and in locations shown on drawings.
2. Materials for cabinets shall meet the following standards: Hardwood plywood and Face venners - HPVA HP-1; Plastic Laminate - NEMA LD 3.
3. Cabinet hardware shall comply with BHMA A156.9. Hardware finishes shall comply with BHMA A156.18. Finish shall be stainless steel - BHMA 630.
4. Wood cabinets shall be of custom grade with flush overlay type construction, unless shown otherwise on drawings.

### Fiberglass Columns

1. Basis of Design: Melton Classics, Inc.
2. Thickness of FRP parts: 1/4" (6 mm).
3. Surface Coat: Ultraviolet inhibited NPG-ISO polyester, 20 mils (0.5 mm) thick.
4. Polyester Resin: Class A resin to meet ASTM E-84.
5. Glass Fiber: Glass cloth, matte and chop.
6. Reinforcement: Use of structural reinforcement where necessary for product rigidness.
7. Shaft Thickness: 1/4" (6 mm).

## DIVISION 7 -- THERMAL AND MOISTURE PROTECTION

### Metal Wall Panels

1. Basis of Design: Quadcore KS Series, Kingspan Insulated Panels.
2. Panel thickness: 2"
3. Panel width: 36"
4. Panel Joint Reveal (vertical): 1/8"
5. Exterior Gauge: 24
6. Interior Gauge: 24
7. Insulating core: Polyisocyanurate (Polyiso) core, ASTM C 591 Type IV, CFC & HCFC free. Panel shall have a nominal R-value of 8.0 hr ft² F / Btu per inch thickness when tested per ASTM C 518. Core is 95% closed cell in accordance to ASTM D6226.
8. Compressive stress: Panels shall have a compressive stress of 24 psi.
9. Panel Profile (Finish):Granitstone Flat
10. Panel Color: to be selected by Owner.
11. Fasteners: shall be corrosion resistant plated steel with noeprene washer, as recommended by manufacturer.
12. Perimeter Trim & Flashing: shall be same gauge, material and coating color as exterior face of insulated metal wall panel unless otherwise indicated by Architect / Owner.
13. Sealants: Butyl, non-skinning / curing type as recommended by manufacturer.
14. Warranty: Two (2) years from date of Substantial Completion.

### Batt Insulation

1. Where noted on drawings, provide kraft-faced or foil-faced fiberglass batt insulation. Insulation shall comply with ASTM C612, Class 1 and Class 2. Fit tightly and fasten securely with facing on warm side.

### Perimeter Foundation Insulation

1. Where perimeter foundation insulation is indicated install rigid, closed cell extruded polystyrene foam equal to Dow Styrofoam SM with R value of 15 or greater.

### Flashing and Sheet Metal

1. Work included: Provide flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior sheet of the building. Work of this section includes gutters, downspouts, flashing and trim.

2. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

3. In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in current edition of "Architectural Sheet Meta Manual" published by the Sheet Metal and Air-conditioning Contractors National Association (SMACNA).

4. Where sheet metal is required, and no material or gage is indicated on the Drawings, provide the highest quality and gauge commensurate with the referenced standards.

5. Materials:
A. Pre-finished aluminum:
1) .035 gauge pre-finished alumimum (white)

B. Nails, screws, bolts, rivets and other fastenings for concealed aluminum work shall be AISI type 304 or 305 stainless steel. Exposed fasteners for precoated aluminum work shall match adjacent finish and color. Nails shall be 12 ga. (minimum) flat head, annular-thread type of sufficient length to penetrate penetrate backing at least 3/4".

C. Provide other materials, not specifically described but required for a complete and proper installation as selected by the Contractor subject to the approval of the Architect.

6. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

7. Form sheet metal accurately and to the dimensions and shapes required, finishing molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, coping to an accurate fit. Unless otherwise specifically permitted by the Architect, turn exposed edges back 1/2". Work shall allow for thermal movement and with regard to relation to adjacent materials. Insulate dissimilar metals from each other to prevent galvanic action. Seal at all laps. Lap adjacent pieces of sheet metal flashing a minimum of 3". Seal joints between sheet metal work and adjacent work as necessary to provide resilient watertight condition.

8. After completion of installation of work of this Section, exposed work shall be cleaned thoroughly of all scrapes, stains, flux, oil and other materials which would damage the work. Clean metal in accordance with manufacturers printed instructions.

### Gutters and Downspouts

1. Where indicated on drawings, install aluminum gutters and downspouts. Metal color shall match parapet coping.

### Standing Seam Metal Roof System

1. Provide and install factory formed metal roof panels designed to be field assembled by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels with to supports using concealed clips to side laps. Include clips, cleats, pressure plates and accessories required for weather-tight installation.
2. Roof panel material shall be metallic-coated 24 gauge steel sheet with a two coat Fluoropolymer finish in color selected by architect from the manufacturer's full range of colors.
3. Joint type: 1-1/2" standing seam vertical rib
4. Panel coverage: 16 inch (+/-)
5. Uplift rating: UL 60
6. Install over self-adhering sheet underlayment. Apply primer if required by manufacturer.
7. Manufacturer: AEP, Architectural Building Components, ATAS International, Fabral, MBCI, Merchant & Evans and SteelOx Systems.

### Single Ply Roof System

1. Single ply roofing membrane shall be 60 mil scrim reinforced, flexible fabric backed, white TPO membrane.
2. Provide manufacturer's 15 year material and workmanship warranty.

### Roof Hatch

1. Basis of design: Type E-50TB Roof Hatch by The Bilco Company. Other manufacturers that meet the specification may be submitted for approval.
2. Furnish and install where indicated on drawings a 36"x36" metal roof hatch.
3. Roof hatch shall be single leaf and re-assembled from the manufacturer.
4. Cover and curb shall be thermally broken to prevent heat transfer between interior and exterior surfaces.
5. Cover shall be reinforced to support a minimum live load of 40 psf and 20 psf of wind uplift.
6. Entire hatch assembly shall be water tight with fully welded corner joints on cover and curb.

### Miscellaneous Roofing Accessories

1. Provide as indicated or required, roofing cement, metal flashing, elastomeric flashing, and expansion flashing.

2. Roofing cement shall be an elastic waterproofing, non- corrosive, adhesive, asphaltic product forming a tough outer skin over a permanently plastic inner course.

3. Metal flashing shall be .040 aluminum to match adjacent surfaces.

4. Elastomeric flashing shall be equal to Manville BTL Tedlar/Nitrile laminated sheet.

5. Expansion flashing shall be Manville Expand-O-Flash Style CF- EJ Type E, black.

### Sealing and Caulking

1. Seal joints in like or dissimilar materials that may be expected to move or expand or contract during normal building operations. Sealants shall be one of the following types:

| Manufacturer | Masonry Joints & Concrete | All Other Areas |
|---|---|---|
| General Electric | Silpruf | 1200 |
| Dow Corning | 790 | 786 |
| PRC | --- | 500 |

2. Caulk joints in like or dissimilar materials where expansion, contraction, or similar movement are not of consideration, and where the filling and closing of the joint is primarily for appearance. Caulk compound shall be architectural grade non-shrink elastic caulking compound conforming to Federal Specification TT-C-598.

3. Completely seal/caulk around inside and outside of exterior door and window frames, control joints, intersections of dissimilar materials, and elsewhere as indicated and/or required.

4. Flash all openings, lintels, beams ends, copings and elsewhere as indicated.

5. Provide premolded rubber compressible joint filler at all masonry control joints.

## DIVISION 8 -- GLASS, WINDOWS, DOORS & HARDWARE

### Wood Doors

1. Interior wood doors shall be 1-3/4" thick, solid particle core flush doors with premium grade, book matched white birch veneer face.
2. Interior wood doors shall have a 2 year manufacturer's warranty.

### Hollow Metal Doors, and Frames

1. Hollow metal doors and frames shall conform to requirements of Steel Door Institute and Commercial Standards CS 242. Doors and frames shall be as manufactured by Republic, or other approved equal.

2. Doors to be 1-3/4" thick, 18 gauge cold rolled steel, flush, insulated, stiffened doors prepared for scheduled hardware.

3. Frames to be 16 gauge formed cold rolled steel with welded joints and anchors 16" o.c. Provide 4" headers where indicated.

4. Provide openings for glazing with steel glazing beads.

### Sectional Overhead Door

1. Sectional overhead doors shall be electrically operated sectional door as manufactured by Clopay Corporation, Cookson or Cornell.
2. Sections will be 2" thick sandwich construction of exterior and interior steel pressure bonded to expanded polystyrene core. Door will have one full view section located in panel three.
3. Door operator shall be capable of fully opening door in a minimum of 12 seconds.
4. Doors shall be as shown on drawings.

### Aluminum Sliding Windows

1. Window framing system shall be factory fabricated with AAMA Designation, HS-AW.
2. Glazing shall be 1" insulating unit.
3. Anodized finish: ASTM B 209.
4. Color: to be selected by Owner.
5. Hardware: standard adjustable roller in stainless steel housing.
6. Fasteners: to be ANSI 300 series, stainless steel.
7. Protect adjacent surfaces work areas and finish surfaces from damage during installation.
8. Protect aluminum members in contact with masonry, steel, concrete or dissimilar materials.
9. Warranty: one (1) year after substantial date of completion.
10. Basis of Design: YKK AP YSW Horizontal Sliding windows.

### Finish Hardware

1. See door schedule for listing of primary hardware requirements. Provide all hardware required for complete installation.

2. Hardware Supplier shall be a recognized builders hardware supplier who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or employs an experienced hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor. The hardware supplier shall prepare a schedule of hardware, as described below, for approval by the Architect, and shall provide copies and templates to the Contractor for use on the project.

3. Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80. Provide only hardware which has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors; UL labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

4. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks. Provide keys of nickel silver only. Furnish 3 change keys for each lock; 5 master keys for each master system.

5. Provide matching finishes for hardware units as each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch- lock sets) for color and texture. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze and aluminum, except as otherwise indicated.

6. Provide products complying with the following standards and requirements:

| | |
|---|---|
| Butts and Hinges: | ANSI A156.1 |
| Locks and Lock Trim | ANSI A156.2 Grade 1 |
| Exit Devices: | ANSI A156.3 Grade 1 |
| Door Controls - Closers | ANSI A156.4 |
| Auxiliary Locks: | ANSI A156.5 |
| Architectural Door Trim: | ANSI A156.6 |
| Template Hinge Dimensions: | ANSI A156.7 |
| Finish: | US26D |

7. Hinges shall be five knuckle, full mortise, ball bearing type, suitable for standard weight/medium frequency applications. Provide steel hinge pins, non-removable on exterior doors and non-rising on interior doors. Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height. Unless noted otherwise, locksets shall be mortise-type, heavy duty, with lever operators, of style as selected from approved manufacture's standard designs.

8. Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set. Provide armored latchguard where scheduled.

9. Closers: Except as otherwise specifically indicated, comply with manufacturer's specifications for size of door control unit, depending upon size of door, exposure to weather, and anticipated frequency of use. Provide parallel arms for all overhead closers unless other-wise indicated or required for proper operation. Where parallel arms are used, provide closer unit one size larger than recommended for use with standard arms.

10. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations comply with governing regulations and except as otherwise directed by Architect. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

11. Set units level, plumb and true to line and location adjust and reinforce the attachment substrate as necessary for proper installation and operation. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

12. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

13. Final adjustment: Wherever hardware installation is made more than one week prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance of occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment. Instruct Owner's personnel proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF ORANGE GROVE VOLUNTEER FIRE CO., INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

ALLEY WILLIAMS CARMEN & KING, INC. REGISTERED ENGINEERING CORPORATION NO. 28 BURLINGTON NC

JORGE LUIS RODRIGUEZ SEAL LICENSED ARCHITECT 4-21-2025 #10611 NORTH CAROLINA

CONSULTANT JOB NO.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

SPECIFICATIONS

DATE April 21, 2025

DRAWN BY: CHECKED:

JOB NO. 24060

SHEET NO. SP2 OF

R:\2024\24060_Orange Grove F.S. #2_Hillsborough\CD_Final Dwgs\24060_SP1-SP2-SP3.dwg, 5/30/2025 11:59:30 AM, \\DC01.AWCK.local\KIP 7170K

DIVISION 9 -- FINISHES

## Light Gauge Metal Framing

1. Steel studs shall be cold-rolled from galvanized steel, and designed for screw attachment of wallboard, DWS type. Provide floor and ceiling runners of 20 gauge material. Provide 20 gauge stud material where required and where recommended by Manufacturer for specific location and loading. For remaining stud framing, provide minimum 25 gauge material.
2. Carrying channels shall be 3/4" and 1-1/2", 16 gauge cold rolled steel channels, asphalt painted.
3. Furring channels shall be hat shaped, formed of 25 gauge electro-galvanized steel, 2-3/4" wide by 7/8" deep, with 1/2" wing flanges.
4. Unless otherwise called for on Drawings, partition stud spacing shall be 1'-4" on center. Furring channel spacing: 2'-0" on center.
5. Provide metal furring channels for walls and metal suspension system including hanger wires, runner channels, and furring channels where required.
6. Provide additional framing as required at anchorage points for wall mounted fixtures, accessories, etc.
7. Set perimeter studs and floor runners in two continuous 1/4" beads of sealant for sound attenuation.
8. Light gauge floor, ceiling and roof framing shall be of size and gauge recommended by manufacturer.

## Gypsum Board

1. Standard gypsum wallboard shall be 5/8" thick, 48" wide, tapered edge sheetrock complying with ASTM - C36.
2. Fire rated gypsum wallboard shall be 5/8" thick, 48" wide, tapered edge type "X" (Firecode) sheetrock complying with ASTM - C36. Materials shall bear fire rating label and fire classification numbers.
3. Water resistant gypsum wallboard shall be self-furring, 5/8" thick, 48" wide, complying with ASTM - C36.
4. High Abuse rated gypsum wallboard shall be equal to National gypsum's "Hi-Abuse" brand wallboard.
5. Corner beads and casing beads shall be standard galvanized steel section, manufactured for use with drywall construction.
6. Nails shall be annular ring nails conforming to ASTM - C380.
7. Screws shall be self-drilling, corrosion resistant screws with phillips heads.
8. Joint treatment products shall include fiber reinforced tape and ready mixed joint and topping compound of the type recommended by wallboard manufacturer.
9. Gypsum wallboard shall be installed by an approved, experienced drywall applicator normally engaged in this trade.
10. Water resistant gypsum wallboard shall be applied to walls in men's and women's toilet rooms. Fire-rated gypsum board shall be applied to walls as noted or scheduled. All other areas shall receive standard gypsum wallboard. The application of fire rated gypsum wallboard shall conform to U.L. rated design.
11. Board of maximum practical length shall be used so that an absolute minimum number of end joints occur. Boards shall be brought into contact with each other, but shall not be forced into place. Wallboard joints at opening shall be located so that no end joint will align with edges of opening. All end joints shall be staggered.
12. Apply gypsum wallboard with the length at right angles to the supporting members. Center abutting ends or edges over supports.
13. Fasteners shall be spaced not less than 3/8" from ends and edges of wallboard. Wallboard shall be held in firm contact with support member while fasteners are being placed. Heads shall be dimpled slightly below the surface of the wallboard, with care being taken not to break the paper face.
14. Apply gypsum wallboard with fasteners spaced at 12" on center in the filed and 8" on center along the vertical edges.
15. Corner beads shall be applied to all external corners. Casing beads shall be applied around all wall or ceiling openings. All joints, internal angles, dimpled corners and edges shall be reinforced and finished using the 3-coat system. Allow 24 hours for drying between applications of cement. Sand the cement after each coat is dry to a smooth surface, effectively concealing the joints or fasteners.

## Acoustical Ceiling

1. Acoustical ceiling system shall be mineral fiber, 24" x 24", painted, lay-in ceiling panels in a suspended exposed T-grid system, complete with all accessories including perimeter angle moulding. All exposed-to-view portions and edge mouldings of grid system shall have a factory applied aluminum finish.
2. Installation of the suspension system shall comply with ASTM C636, and be installed in accordance with the manufacturer's printed instructions and shall conform to the reflected ceiling plan. Use #12 Galvanized wire hanger at 48" o.c. maximum. Provide any additional hangers or furring necessary for grid and at each corner of lay-in light fixtures and ceiling diffusers and grilles. Ceiling grid shall be leveled to within 1/8" in 12 feet prior to placing acoustical units.
3. Ceiling contractor shall perform all cuts for penetrations through ceiling.
4. Upon completion of work, clean all exposed surfaces of acoustical ceilings, including trim, edge mouldings and suspension members. Comply with manufacturer's instructions for cleaning, and touch-up minor damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
5. In addition to the furnishing and installation of all acoustical materials required to complete the project, an extra carton of each type and size of acoustical ceiling unit used in the project shall be included in the contract and shall be turned over to the owner upon completion of the project.
6. Provide acoustical tiles complying with the following:
   a. Color: white
   b. Light Reflectance coefficient: not less than LR 0.70
   c. Noise Reduction Coefficient: NRC 0.70
   d. Edge detail: Beveled
   e. Thickness: 3/4"

DIVISION 9 -- FINISHES

## INTERIOR WALL PANELING

GENERAL
1. Basis of Design:US MgO Company.
2. Type: Magnesium Oxide (MgO) boards.
3. Thickness: 1/2"
4. Panel size: 48" x 96"
5. Panel edges: square
6. Flame Spread Index: 0-25
7. Fasteners: corrosion resistant type with bugle countersunk heads or approved by panel manufacturer.
8. Fiberglass Mesh Tape: Polymer-coated fiberglass mesh.
9. Joint compound: ASTM C 475.
10. Install in accordance to manufacturer's instructions. Install without gaps or voids. If used for racking the panel edges must be backed with framing or blocking.

DIVISION 9 - FINISHES

## RESILIENT TILE FLOORING

1. Luxury vinyl tile (LVT) and luxury vinyl plank (LVP) shall have a minimum thickness of 6mm with a wear thickness of at least 20mil of color and pattern as selected by Owner from manufacturer's standard palette. LVT shall be 18"x18" and LVP shall be 6"x48". See finish schedule on drawings for locations and types.
2. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement- or blended hydraulic cement-based formulation provided or approved by flooring manufacturer for applications indicated.
3. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
4. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.
5. Lay out tiles and planks from center marks established with principal walls, discounting minor offsets, so widths at opposite edges of room are equal to one another and are at least one-half of a tile. Match tiles and planks for color and pattern by selecting from cartons in same sequence as manufactured and packaged. Lay in pattern as directed by Architect.
6. Provide tiles complying with the following:
   a. Color & patterns: As selected by the Owner.
   b. Tile standard: ASTM F 1066, Class 1, solid color or Clas 2, through pattern tile.

## RESILIENT WALL BASE AND ACCESSORIES

WALL BASE:
1. Rubber,FS SS-W-40, Type I, of color selected by Architect and Owner for manufacturer's full pallet. Style: Cove with top-set toe. Height 4 inches (101.6 mm). Lengths: Cut lengths 48 inches (1219.2 mm) long or coils in lengths standard with manufacturer, but not less than 96 feet (29.26 m). Outside and Inside Corners: Premolded. Surface: Smooth.
2. Adhesively install resilient wall base and accessories. Install wall base in maximum lengths possible. Apply to walls, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.
3. Factory pre-formed corners only.
4. Install reducer strips at edges of flooring that otherwise would be exposed.

## Ceramic Tile

1. Tiles shall comply with ANSI A137.1 - 2022, "American National Standard Specifications for Ceramic Tile", for types, compositions, and other characteristics indicated.
2. Provide 12" x 12" x 5/16" thick ceramic floor tile, unglazed, equal to Daltile Keystones.
   Provide 4" x 6" ceramic tile cove base, equal to Daltile Classic.
   Provide 4" x 4" x 5/16" glazed ceramic wall tile, equal to Daltile Classic.
3. Thin set tile is to be set in latex modified thin set mortar and grouted. Bed set tile shall be laid in sand-cement setting bed and grouted.
4. Install, clean and protect tile in accordance with the recommendations of the Tile Council of North America (TCNA) - Handbook for Ceramic, Glass, and Stone Tile Installation - 2024.

## Painting

1. See schedules for areas to be painted. Unless noted otherwise, paint all unfinished exposed-to-view surfaces, except as follows. Aluminum, stainless steel, bronze, chrome plated, nickel, monel metal, lead, lead coated copper, and other surfaces with factory finishes shall not be painted or finished, except as otherwise scheduled. Paint exposed-to- view plumbing, mechanical and electrical items, including, but not limited to roof vents exhaust fans and roof caps, interior piping, ductwork, conduit electrical service equipment electrical panel fronts, etc. Unless directed otherwise these surfaces are to match the adjacent surface colors. Interior painting of all new work, and all required exterior painting, including of new and existing cast concrete panels, CMU, brick, concrete walls, metal facade, planter walls, bollards, are a part of this contract.
2. Provide finish coats which are compatible with prime paints used. Review painting schedule to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use to insure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Contractor shall inspect painted surfaces and determine compatible coatings prior to beginning work. Provide barrier coats over incompatible primers and existing coatings or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the specified coating systems. Prior to applying final coat of paint contractor shall verify the surface has been properly prepared. Painting of surfaces that have not been properly filled, sanded or in any other not properly prepared shall be re-finished at no cost to the owner.
3. Provide the best quality grade of the various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying the manufacturer's identification as a standard, best-grade product will not be acceptable.
4. Provide undercoat paint produced by the same manufacturer as the finish coats. Lightly sand trim surfaces between coats. Use only thinners and additives approved by the paint manufacturer, and use only within recommended limits.
5. Schedule of Painting and Varnishing: Consult architect for required colors, textures, and sheen.
6. Surfaces to be painted shall be clean, smooth, free from scratches and dust, thoroughly dry and well sanded before painting work is started.
7. On wood and drywall surfaces, after prime coat is applied, nail holes shall be filled with putty, colored to match the finish. Putty shall be brought flush with the surface.
8. Prepare cementitious surfaces to be painted by removing all efflorescence, chalk, dust, dirt, grease, oils and by roughening as required to remove glaze. Do not paint over surfaces where the moisture content exceeds that permitted in the manufacturer's printed directions. On masonry walls point up mortar joints and "rub" CMU joints to remove excess mortar.
9. Metal surfaces shall be cleaned of rust, scale, dirt, oil and welding flux prior to priming.
10. Paint shall be applied in the number of coats specified and at the minimum square foot coverage stated in the paint manufacturer's printed specifications. If not indicated, then of not less than 5.0 mils for the entire coating system of three (3) coat work or not less than shall cover to the satisfaction of the architect, or additional coats shall be applied at the contractor's expense until approval is obtained.
11. Paint shall not be applied when the temperature falls below 45 degrees, or in damp, rainy weather.
12. Paint shall be evenly spread and well brushed. The finish coats shall be free from noticeable laps, brush marks, and streaks. Contractor shall scrape roller as clean as possible final rinsing to limit waste.
13. Upon completion, all touching-up as required shall be done, and paint removed from all surfaces which are not specified to be painted.
14. Painting Schedule:

    Interior and Exterior Metal
    (Pretreat Galvanized Metal)
    1st Coat - Rust Inhibitive Primer
    2nd & 3rd Coats - Alkyd Enamel

    Interior Gypsum Wallboard, Painted:
    1st Coat - Latex Wall Primer
    2nd and 3rd Coats - Eggshell Latex Wall Paint

    Concrete and Masonry, Interior:
    1st Coat - Water Base acrylic /epoxy blockfiller
    2nd and 3rd Coats - Gloss acylic enamel

    Interior and exterior wood, Painted:
    1st Coat - Latex Wall Primer
    2nd and 3rd Coats - Semi-gloss enamel

    Interior Ferrous Metal (including exposed structure):
    1st Coat - Zinc-rich primer on all surfaces not shop coated
    2nd and 3rd Coats - Semi-gloss enamel

DIVISION 10 -- SPECIALTIES

## TOILET PARTITIONS

GENERAL

Panel, Pilaster, and Door Material: As follows:
1. Solid-Plastic, Polymer Resin: High density polyethylene (HDPE) with homogenous color throughout. Provide material not less than 1 inch thick with seamless construction and eased edges.
2. Color as selected by architect from manufacturer's full range of colors.
3. Pilaster Shoes and Sleeves (Caps): Stainless steel or solid plastic, polymer resin, not less than 3 inches (75 mm) high.
4. Brackets: Stirrup or Continuous.
5. Toilet Compartments: Overhead braced and floor anchored.
6. Urinal Screens: Wall hung.
7. Solid-Plastic, Polymer-Resin Units: Provide aluminum heat-sink strips at exposed bottom edges of panels and doors.
8. Doors: Unless otherwise indicated, 24-inch (610 mm) wide in-swinging doors for standard toilet compartments and 36-inch (914 mm) wide out-swinging doors with a minimum 32-inch (813 mm) wide clear opening for compartments indicated to be accessible to the disabled.
9. Door Hardware: Clear anodic aluminum, or cast-zinc alloy (zamac), stainless steel or chrome-plated brass. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to the disabled.
10. Hinges: Self-closing type, adjustable to hold door open at any angle up to 90 degrees.
11. Latches and Keepers: Recessed unit designed for emergency access and with combination rubber-faced door strike and keeper.
12. Coat Hook: Combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
13. Door Bumper: Rubber-tipped bumpers at out-swinging doors or entrance screen doors.
14. Door Pull: Provide at out-swinging doors. Provide units on both sides of doors at compartments indicated to be accessible to the disabled.

## TOILET ROOM ACCESSORIES

1. Provide stainless steel accessories as indicated on the Toilet Accessory Schedule on the Drawings.
2. Install accessories using fasteners appropriate to substrate indicated and recommended by the unit manufacturer. Install units level, plumb and firmly anchored in locations and at heights indicated and as required to comply with NC Building Code 2018
3. Install grab bars to withstand a downward load of at least 250 lbf when tested according to method in ASTM F 446.
4. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items. Remove all temportay labels and protective coatings.

## Corner Guards

1. Corner guards shall be Construction Specialties' DeCrovin LG- 200, clear.
2. Install per manufacturer recommendations on all outside drywall corners.

## SIGNAGE

1. Except where otherwise indicated or specified, Contractor shall furnish and install interior and exterior signage.
2. Locate signs as directed by architect and the NC State Building Code 2018.
3. Signs shall be secured to walls with tamper-proof fasteners. Sign materials shall be suitable for exterior installations.
4. Submit samples of signs for approval before installation.
5. Provide signs, at each toilet, that comply with North Carolina State Building Code 2018 and ANSI ICC A117.1-2009 (Accessibility Code)
6. Install per manufacturer recommendations.

## FIRE PROTECTION SPECIALTIES

## SECTION REQUIREMENTS

1. Submittals: Product Data.
2. Fire Extinguishers: NFPA 10, listed and labeled for the type, rating, and classification of extinguisher, UL Listed.

## 3. FIRE EXTINGUISHERS AND CABINETS

1. Where indicated on drawings supply and install portable dry chemical fire extinguishers equal to JL Industries Cosmic 10E. Provide extinguisher fire cabinet equal to JL Industries Clear Vu 1526F25. Where required due to fire rating of wall, install with FX Option.
2. Fire Protection Cabinets: semirecessed and surface-mounted cabinets for fire extinguisher.
   a. Trim Style: Square trim
   b. Door and Trim Material: Stainless steel.
   c. Door Glazing: Tempered float glass
   d. Door Style: Fully glazed with frame
   e. Accessories: Mounting brackets

## Installation

A. Install cabinets and brackets at heights indicated or, if not indicated, at heights to comply with applicable regulations of authorities.

B. Adjust final location of cabinets as directed by local Fire Marshal and as confirmed by the Architect jurisdiction.

## METAL LOCKERS

1. Sizes: 18" width by 18" depth by 78" height.
2. Locker arrangement: see drawings
3. Body:
   a. Top, bottom & intermediate dividers: .060"
   b. Back & sides: .048"
   c. Shelves: .060"
   d. Frames: channel formed fabricated from .060 "
   e. 4" High Closed base: .075" thickness
   f. Hooks: aluminum, minimum of 4
4. Material: Cold rolled or Metallic coated steel sheet.
5. Door style: Vented panel.
6. Hinges: Continuous
7. Finish: Powder coat.
8. Door Handle & Latch: Stainless steel strike plate with integral pull, with steel padlock loop.
9. Include locker identification system & number sequence.
10. Approved manufacturers: ASI, AJW Architectural Products, WEC Manufacturing.

DIVISION 10 -- SPECIALTIES

## FLAGPOLE

1. Max. Flagpole Height: 24'-0"
2. Aluminum Flagpole: Fabricate from seamless, extruded tubing complying with ASTM B 241, alloy 6063, with a minimum wall thickness of 3/16". Heat treat after fabrication to comply with ASTM B 597, temper T6.
3. Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.

   Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20; and seal aluminum surfaces with clear, hasr-coat wax.
4. Foundation Tube: Galvanized corrugated-steel foundation tube, 0.0635", minimum wall thickness, sized to suit flagpole and installation. Provide with 3/16" steel bottom plate and support plate; 3/4" ø, steel ground spike; and steel centering wedges all welded together.
5. Hinged Baseplate: Cast-metal tilting baseplate or shoe base and anchored plate joined by permanently secured pivot pin. Provide with stainless steel screws for securing tilting base to anchored plate when not tilted, and provide with anchor bolts.
   a. Provide aluminum base or aluminum flashing collar; finish to match flagpole.
   b. Provide ground spike at pavement-mounted flagpoles.
6. Finial Ball: Manufacturer's standard flush-seam ball, sized as indicated or, if not indicated, to match pole-butt diameter. Finish to match flagpole.
7. Internal Halyard, Winch Sytem: Manually operated winch with control stop device and removable handle, stainless steel cable halyard, and concealed revolving truck assembly with plastic-coated counterweight and sling. Provide 2 halyards and 2 cleats.

DIVISION 32 -- SPECIALTIES

## TACTILE WARNING SURFACING

GENERAL
1. Basis of Design: Cast-In_Place Replaceable Warning Surface Panels, ADA Solutions.
2. Warranty: Seven (7) years from the date of Final Completion.
3. Finish: Matte finish exterior grade homogeneous glass and carbon reinforced polyster. Truncated domes must contain fiberglass reinforcement. Uniform color throughout thickness of product is required.
4. Domes: Raised truncated domes of 0.2 " nominal height, base diameter of 0.9" and top diameter of 0.45".
5. Dome Spacing: 2.35" or 2.4" dome spacing in square grid pattern.
6. Color: Yellow.
7. Panel size: 24" x 24"
8. Compliance with ADA Accessibility Guidelines (ADAAG) and International Code Council (ICC A117.1 - 2009 Accessible and Usable Buildings and Facilities.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

ALLEY WILLIAMS CARMEN & KING INC
REGISTERED ARCHITECTURAL ENGINEERING CORPORATION NO. 28
BURLINGTON NC

JORGE LUIS RODRIGUEZ SEAL
LICENSED ARCHITECT
4-21-2025
#10621
NORTH CAROLINA

CONSULTANT JOB NO.

BUILDING ADDITION TO EXISTING
FIRE STATION # 2 PROPERTY OF
**ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

SPECIFICATIONS

DATE April 21, 2025

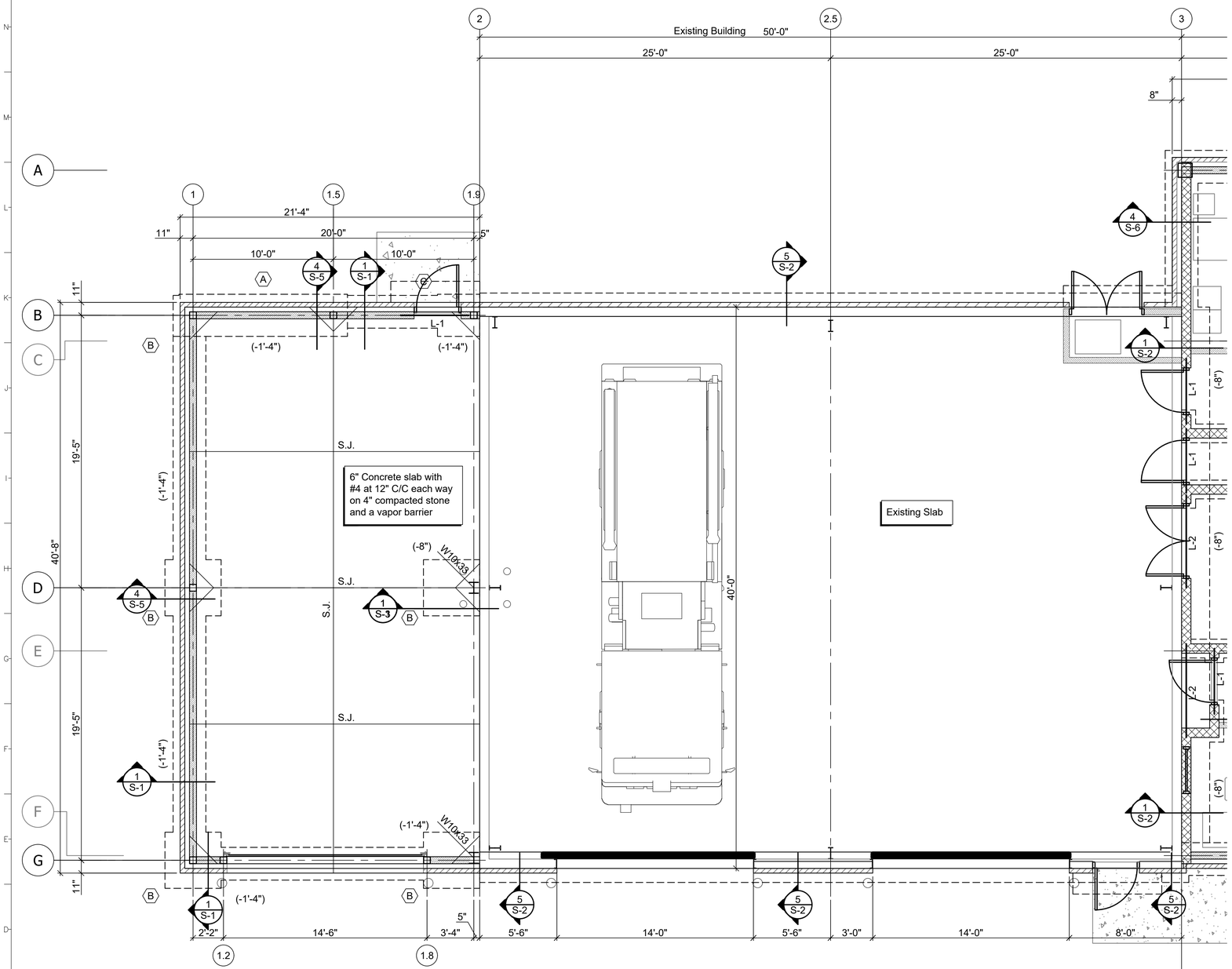
DRAWN BY: | CHECKED:

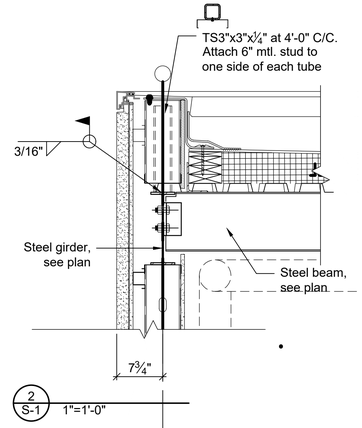
JOB NO. 24060

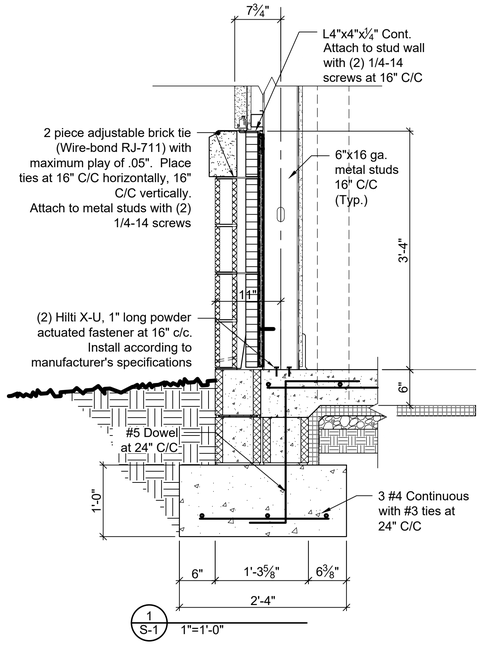
SHEET NO.

SP3

OF




N
Plan

# NEW AND EXISTING APPARATUS BAY FOUNDATION PLAN

¼" = 1'-0"
_Elevations noted (+- ) are top foundation elevations relative to finish floor elevation 0.00'
_All tube columns TS6"x6"x¼" unless noted otherwise

| FOOTING SCHEDULE | | | |
|---|---|---|---|
| Mark | Size | Bottom Reinforcing | Top Reinforcing |
| A | 12'-6 X 3'-0 X 1'-6 | 4 # 5 Long Way<br>12 # 5 Short Way | 4 # 5 Long Way<br>12 # 5 Short Way |
| B | 4'-0 X 4'-0 X 1'-0 | 5 # 5 Each Way | |
| C | 3'-0 X 3'-0 X 1'-0 | 3 # 5 Each Way | |
| D | 5'-0 X 5'-0 X 1'-0 | 6 # 5 Each Way | |

PROFESSIONAL ENGINEER SEAL 14919 ROBERT C. LANDWEHRMANN 5-27-25

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534

rclengineer.com
Landwehrmann Engineering, PLLC
3702 WINDSPRAY CT.
SUMMERFIELD, NC 27358
336.373.0608
NC License No. P-0244

CONSULTANT JOB NO.
25-002

BUILDING ADDITION TO EXISTING
FIRE STATION # 2 PROPERTY OF
**ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

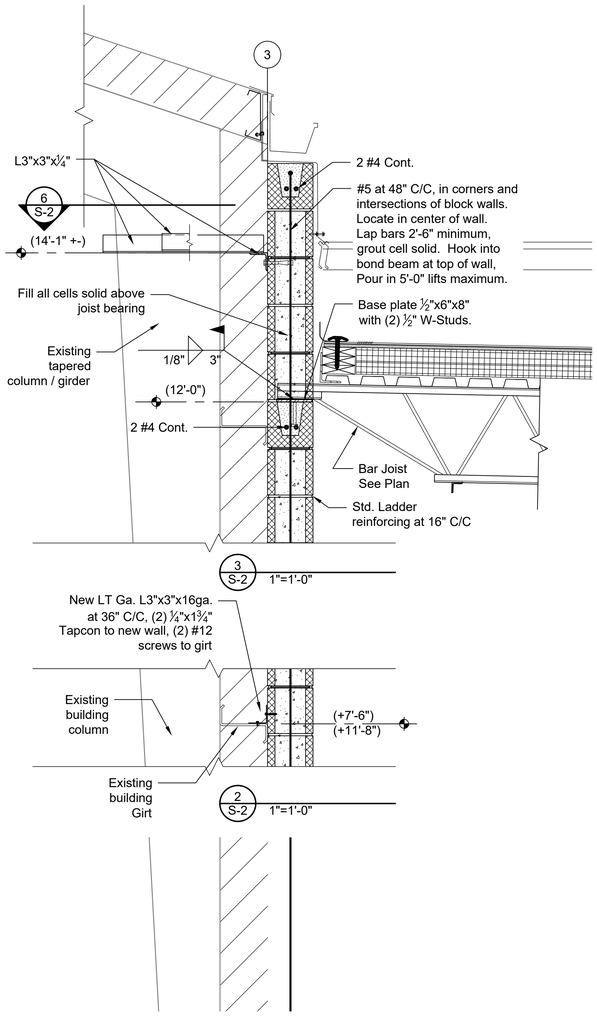
FOUNDATION
PLAN
APPARATUS BAY

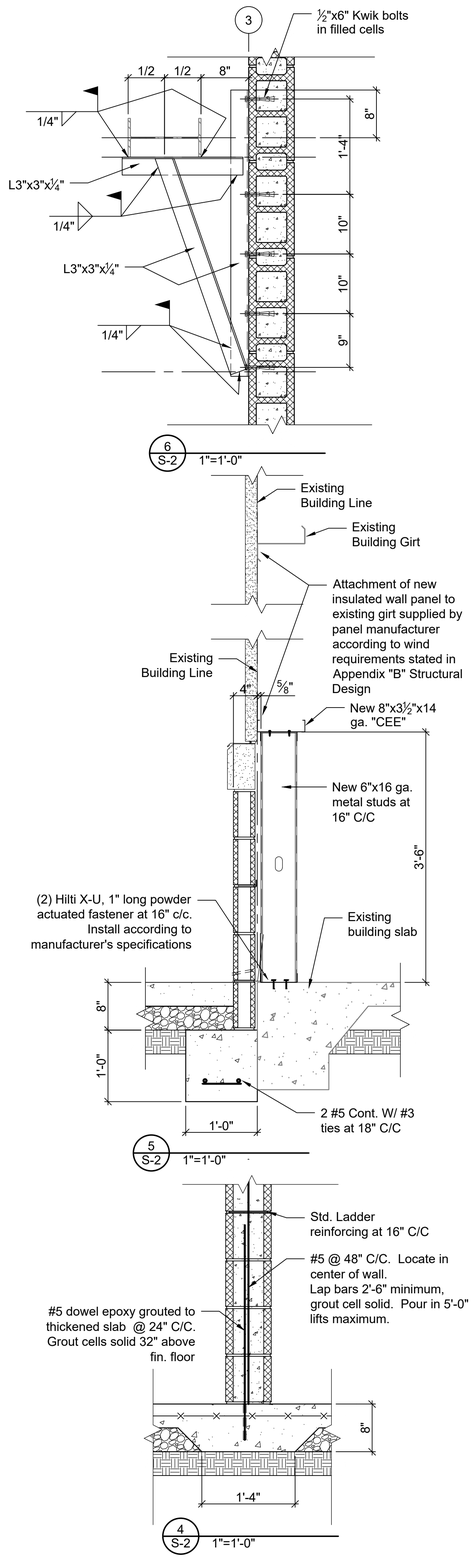
DATE
May 29, 2025

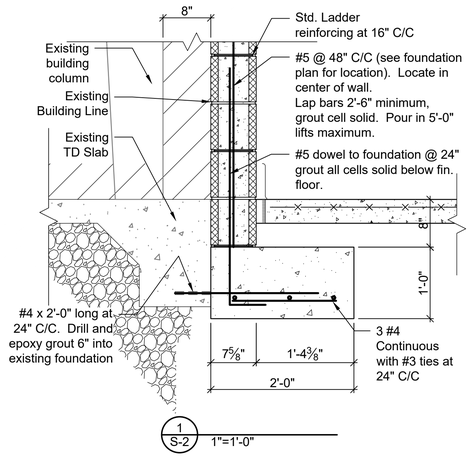
DRAWN BY: | CHECKED:

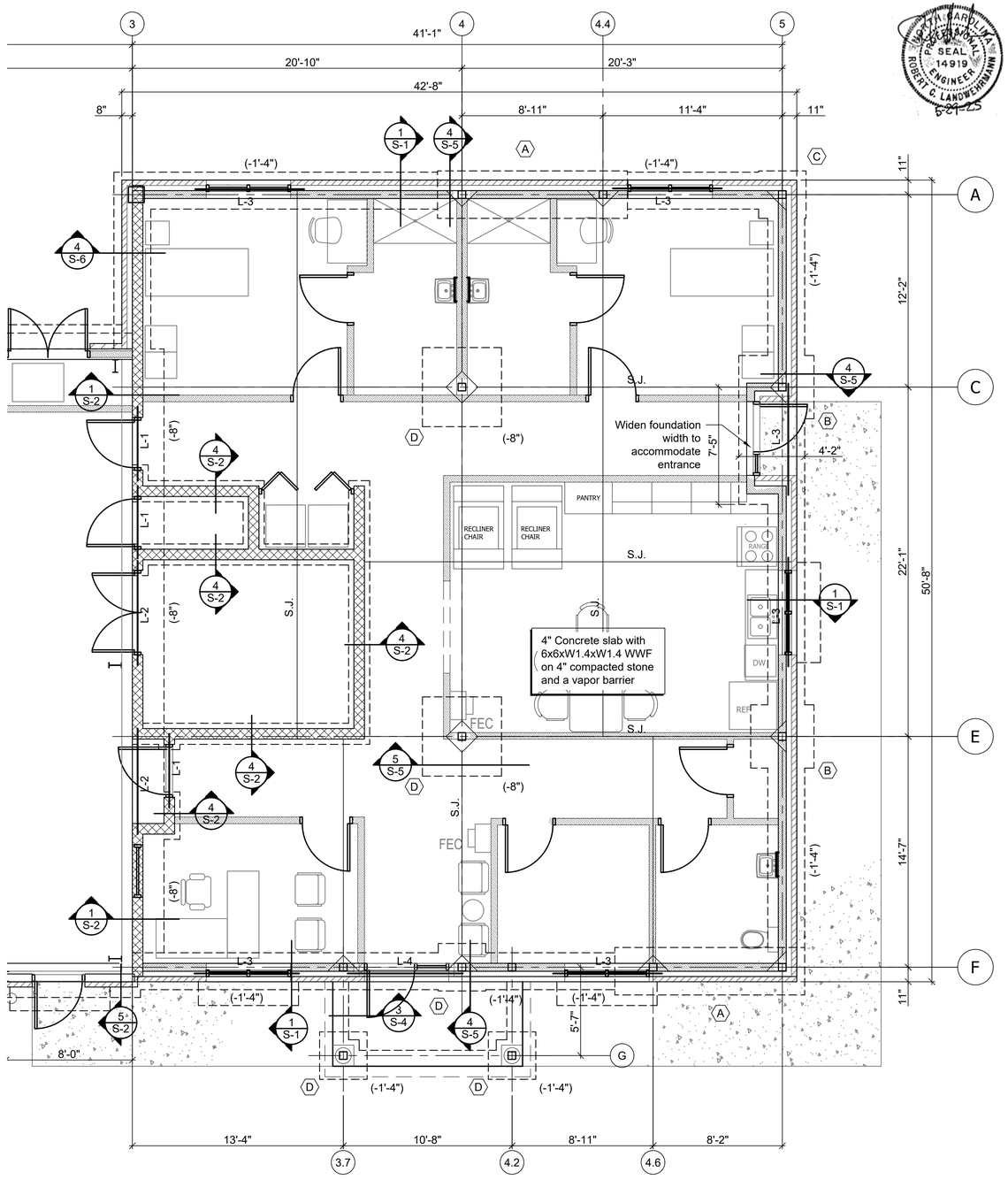
JOB NO.
24060

SHEET NO.
S-1
OF 6




# NEW OFFICE ADDITION FOUNDATION PLAN

N Plan

¼" = 1'-0"

_Elevations noted (+- ) are top foundation elevations relative to finish floor elevation 0.00'

_All tube columns TS6"x6"x¼" unless noted otherwise

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534

rclengineer.com
Landwehrmann Engineering, PLLC
3702 WINDSPRAY CT.
SUMMERFIELD, NC 27358
336.373.0608
NC License No. P-0244

CONSULTANT JOB NO.
25-002

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

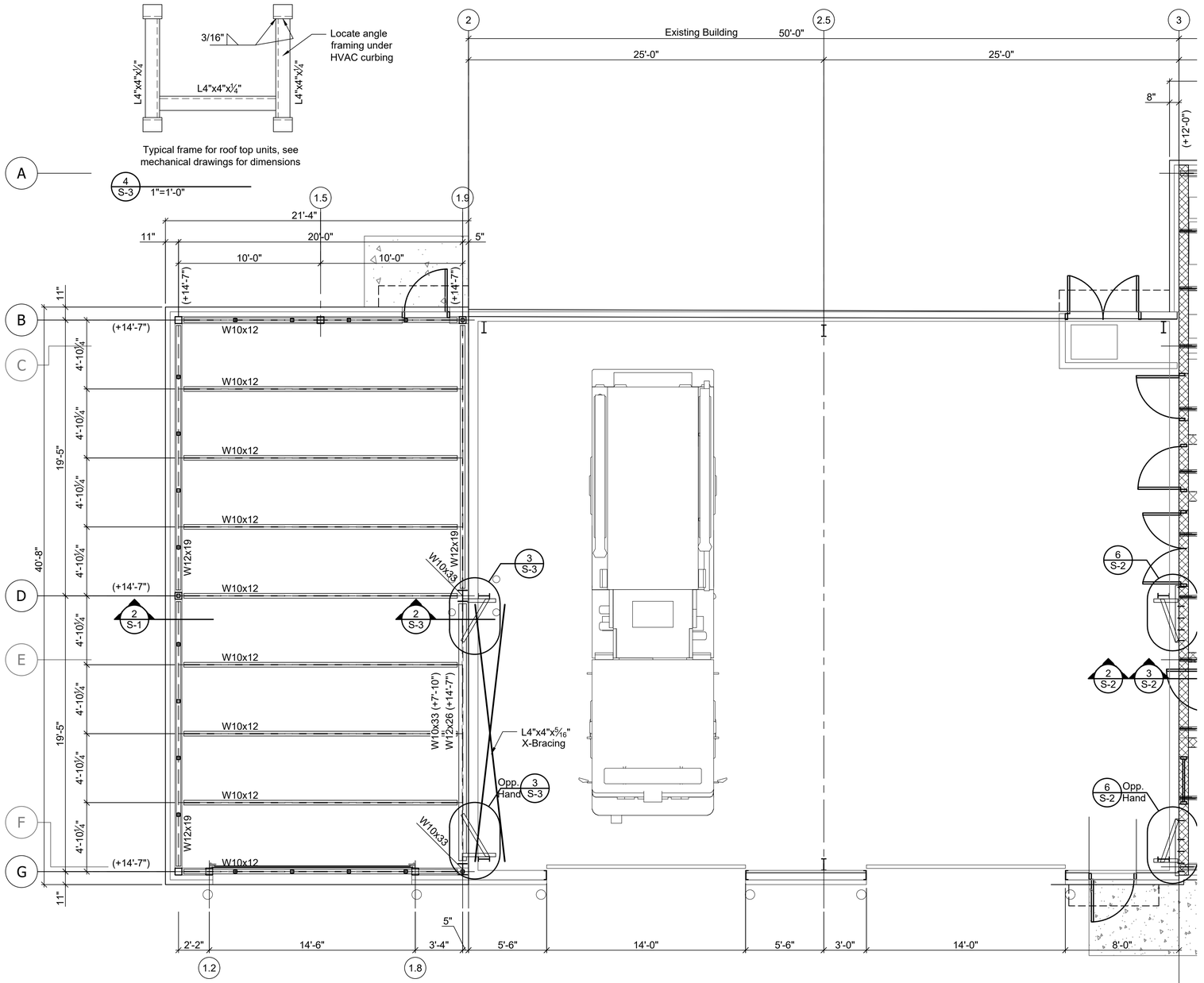
REVISIONS

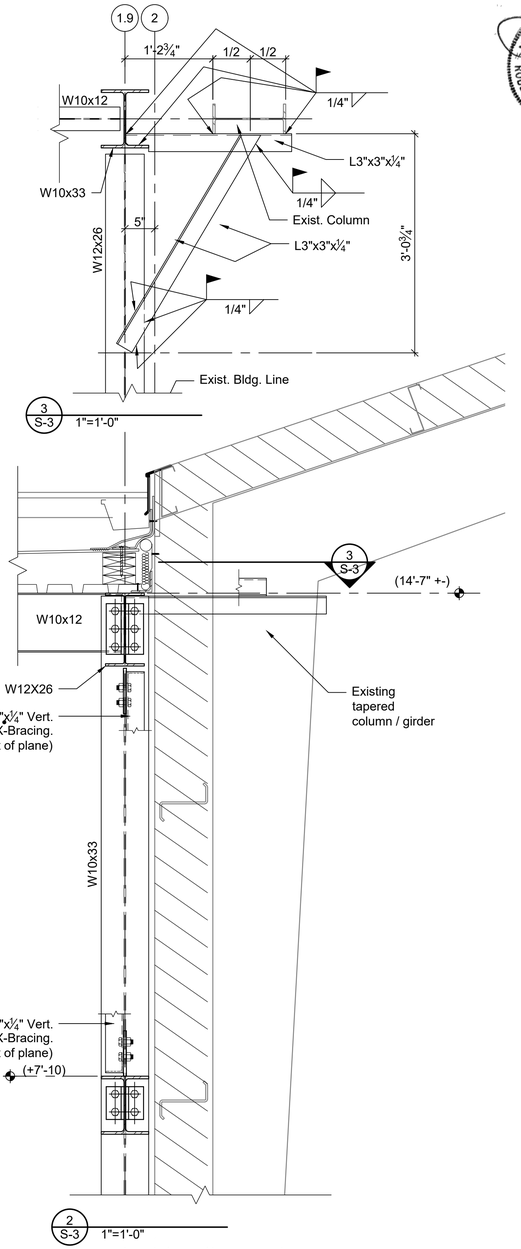
FOUNDATION PLAN
NEW OFFICE

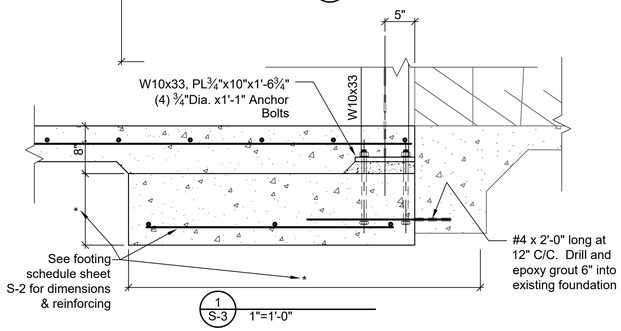
DATE May 29, 2025
DRAWN BY: CHECKED:
JOB NO. 24060

SHEET NO.
S-2
OF 6

Typical frame for roof top units, see mechanical drawings for dimensions




# NEW AND EXISTING APPARATUS BAY ROOF FRAMING PLAN

N Plan

¼" = 1'-0"

_Elevations noted (+- ) are top of steel / joist bearing relative to finish floor elevation 0.00'

All tube columns TS6"x6"x¼" unless noted erwise

e 5/8" exterior grade fireproof sheathing as specified by Architect. Attached to
" c/c at all supported edges & 12" c/c along intermediate support members in center
o structure with #12 screws at 6" c/c at all supported edges & 6" c/c along
embers within 2 feet of perimeter of canopy and ridge.
entified with a grade-trademark as per the latest APA Specifications. Panel
group number, span index or identification index shall be equal to or better than the
he APA in the Plywood Construction Guide.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534

rclengineer.com
Landwehrmann Engineering, PLLC
3702 WINDSPRAY CT.
SUMMERFIELD, NC 27358
336.373.0608
NC License No. P-0244

CONSULTANT JOB NO.
25-002

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

ROOF FRAMING PLAN APPARATUS BAY

DATE May 29, 2025

DRAWN BY: | CHECKED:

JOB NO. 24060

SHEET NO.

S-3

OF 6

## GENERAL NOTES

### FOUNDATIONS
1. All footings shall be founded on solid undisturbed soil or on field controlled, compacted fill. Footings bearing surfaces shall be mechanically tamped to consolidate the bearing soil. A presumptive allowable soil bearing pressure of 2000 psf was used to design foundations. A Geotechnical Engineer prior to the start of construction shall verify the soil bearing capacity. The General Contractor shall inform the Engineer with the Geotechnical Engineer's recommendations before proceeding.
2. All fill in area of building shall be select fill material. Fill shall be placed in 8" maximum loose lifts and Compacted to a minimum of 95 % maximum dry density (Standard Proctor Method).

### CONCRETE
1. All unexposed concrete shall have a minimum compressive strength of 3000 psi in 28 days.
2. All concrete exposed to the weather shall have a minimum compressive strength of 4000 psi in 28 days and shall be 6% air entrained.
3. All concrete slabs shall have a minimum compressive strength of 4,000 psi in 28 days
4. All concrete and concrete work shall conform to the latest A.C.I. standard building code for reinforced concrete [A.C.I. 318 and A.C.I. 301] and job specifications.

### REINFORCING
1. All reinforcing steel bars shall be intermediate grade, new billet steel deformed bars conforming to ASTM A-615 grade 60. All detailing shall be done in accordance with the A.C.I. manual of standard practice for detailing reinforcement concrete structures and the A.C.I. building code and as shown on plans.
2. All masonry walls shall be reinforced horizontally with ladder-type masonry reinforcing. Unless otherwise noted, standard utility brick walls, bond beams, retaining walls, shear walls, and all other reinforced brick walls to be reinforced with standard #9 wire masonry reinforcing and shall be installed in every other horizontal block course (16"o/c) with 6" minimum end and corner laps. There shall be 4 horizontal runs of wire in a wall comprising of 8" block with block and brick veneer, 3 horizontal runs in the 8" block with brick veneer, 2 horizontal runs in 8" or 12" block.
3. All masonry reinforcing to be ASTM A641 or A153 galvanized wire manufactured in accordance with ASCE/ACI 530 Building Code Requirements for Masonry Structures.

### MASONRY
1. Block to comply with ASTM C90 type II with a compressive strength of 1,500 psi.
2. Bond beams, pilasters, retaining walls, shear walls and all other reinforced brick walls shall be poured with high slump, pea gravel, concrete grout mix with a compressive strength of 3,000 psi in 28 days.
3. Cement-lime mortar shall be type "S" with a minimum compressive strength of 1,800 psi in 28 days.

### STRUCTURAL STEEL
1. Design, fabrication, and erection shall conform with the latest A.I.S.C. specifications for buildings. Unless otherwise noted, all wide flange structural steel shall conform to ASTM A 992, "dual grade". Miscellaneous steel shall conform to ASTM A-36 and ASTM A-53 grade "B" for steel pipes, ASTM A-500 grade "B" for tubes.
2. Shop connections may be welded or bolted. All welding shall be in accordance with A.W.S. welding code by experienced welders, who are qualified to weld on structural steel building construction. Bolts shall be 3/4" ASTM A-325 high strength bolts. High strength bolts shall be installed as per the latest Specification for Structural Joints Using ASTM A325 or A490 Bolts.
3. Steel joist design, fabrication, and erection shall conform to the latest SJI Joist specifications. Joist to be series "K" and "KCS"as noted on plans. The bridging shall be securely attached to the sidewalls in accordance with the latest specification for joist.

### ROOF SHEATHING
1. Roof sheathing shall be 5/8" exterior grade fireproof sheathing as specified by Architect. Attached to structure with #12 at 6" c/c at all supported edges & 12" c/c along intermediate support members in center of canopy. Attached to structure with #12 screws at 6" c/c at all supported edges & 6" c/c along intermediate support members within 2 feet of perimeter of canopy and ridge.
2. All plywood shall be identified with a grade-trademark as per the latest APA Specifications. Panel thickness, grade, and group number, span index or identification index shall be equal to or better than the recommendations of the APA in the Plywood Construction Guide.

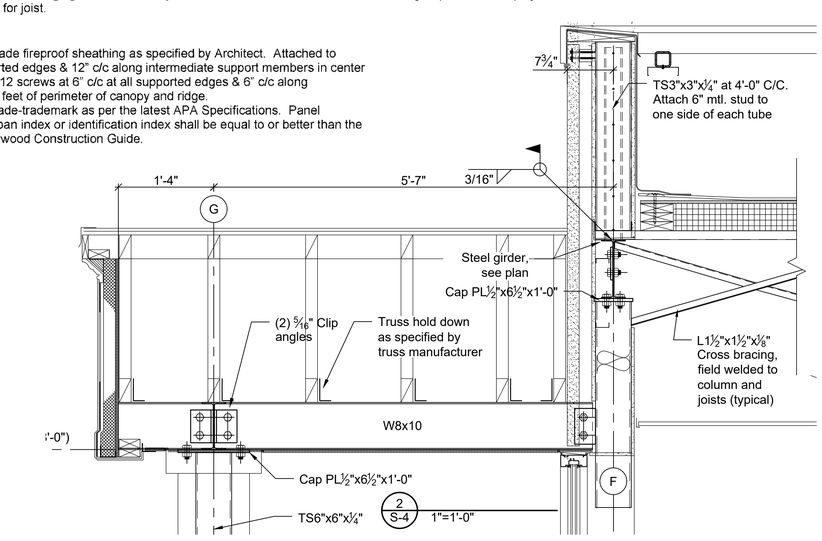
### METAL DECK
1. Metal roof deck shall be (Vulcraft or approved equal )[1 1/2"] deep type "B" 22 gage painted; See plans.
2. The metal roof deck shall be securely fastened to steel beams / bar joists with 5/8" dia. Puddle welds in a 36/4 pattern and 3 #10 tek screw side lap fastener per span in the interior area of the building. The metal roof deck shall be securely fastened to steel beams / bar joists with 5/8" dia. Puddle welds in a 36/7 pattern and 3 #10 tek screw side lap fastener per span within 10 feet of the building perimeter.

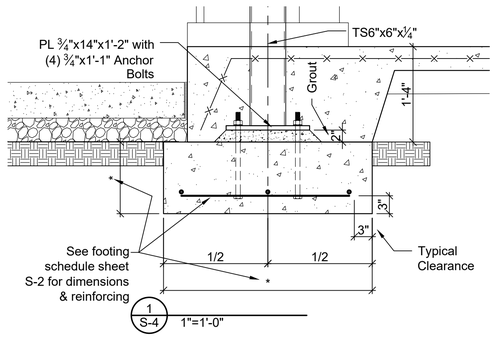
### COLD FORMED STEEL
1. All studs and accessories shall conform to the type, size, gauge and spacing shown on the drawings and shall be manufactured by Marino-Ware or approved equal. Structural studs and joists shall conform to the Marino-Ware SW series with 1 5/8" widths
2. All structural members shall be designed and fabricated in accordance with the American Iron and Steel Institute (AISI) "Specifications for the Design of Cold-Formed Steel Structural Members".
3. All structural members shall be formed from corrosion-resistant steel corresponding to the requirements of ASTM A446, with a minimum yield of 33 ksi (50 ksi for 16 ga. Material and thicker) and shall have a zinc coating meeting ASTM A525 requirements.
4. Metal ties for masonry veneer shall be 2 piece, 3/16" diameter adjustable ties with metal backing, spaced 16" c/c horizontally and 16" c/c vertically. Metal ties shall be embedded at least 2 in. into the brick wythe. Ties should be hot-dipped galvanized in accordance with ASTM A 153, Class B-3. In addition, ties should not have mechanical play in excess of .05 in. and should not deform over .05 in. for 100-lb. load in either tension or compression.
5. An Engineer registered in the state of North Carolina shall design roof trusses. Sealed design drawings shall be submitted for approval. Design of steel trusses, including bridging and all necessary framing for roof mounted equipment shall be provided by the truss manufacturer and shall conform to the following minimum base roof loading along with the importance factors listed in Appendix "B":
   i. Live Load..... 20 psf
   ii. Dead Load, top chord..... 15 psf
   iii. Dead Load, bottom chord..... 10 psf
   iv. Total Truss Loading.....45 psf
6. Limit roof truss live load deflection to L/360.
7. Provide all temporary and permanent truss bracing as per truss manufacturer's requirements
7. Limit roof truss live load deflection to L/360.
8. Trusses to be designed to resist a net uplift of 15 psf.
9. Truss manufacturer to supply hold downs and lateral load resisting straps.

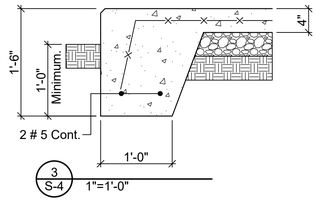
### INSULATED WALL PANEL
1. Attachment of insulated wall panel to structural steel shall be according to manufacturer's specifications. Wall panels and connections shall meet the requirements specified in the North Carolina State Building Code, 2018 edition, for wind loading on components and cladding in an ultimate design wind speed of 120 mph, three second gust wind event. General Contractor to supply design information.

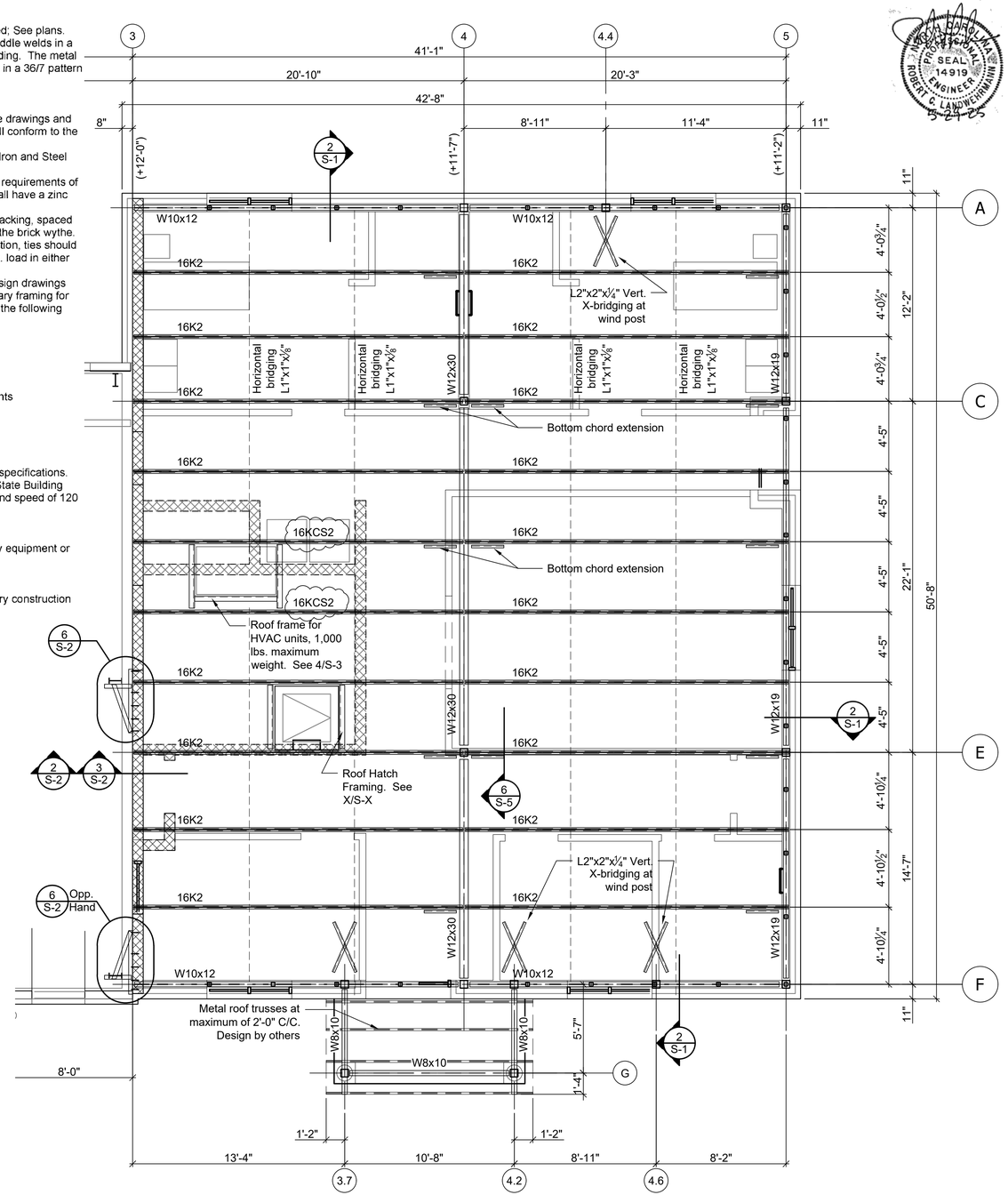
### MECHANICAL STRUCTURAL REQUIREMENTS
It will be the responsibility of the mechanical and general contractors to check the effect of any equipment or opening changes on the structure.

### TEMPORARY BRACING
It shall be the responsibility of the general contractor to design and provide adequate temporary construction bracing required for this project.




N Plan

# NEW OFFICE ADDITION ROOF FRAMING PLAN

¼" = 1'-0"
_Elevations noted (+- ) are top of steel / joist bearing relative to finish floor elevation 0.00'
_All tube columns TS6"x6"x¼" unless noted otherwise

Joist notes:
1. Horizontal and vertical X-bridging shall be as noted on plan.
2. A run of horizontal bridging shall be located on top of bottom chord of the joist at the first panel point for uplift requirements.
3. Net uplift, 15 psf.

NORTH CAROLINA PROFESSIONAL SEAL 14919 ENGINEER ROBERT C. LANDWEHRMANN 5-24-25


awgk
alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

Landwehrmann Engineering, PLLC
rclengineer.com
336.373.0608
NC License No. P-0244
3702 WINDSPRAY CT.
SUMMERFIELD, NC 27358


CONSULTANT JOB NO.
25-002

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

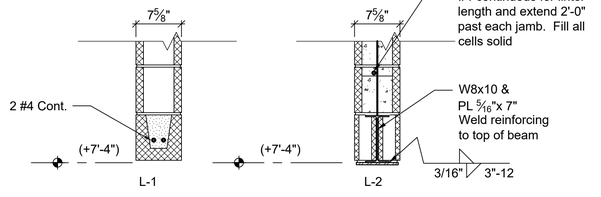
ROOF FRAMING PLAN OFFICE

DATE May 29, 2025

DRAWN BY: CHECKED:

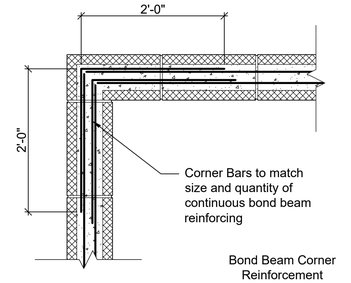
JOB NO. 24060

SHEET NO. S-4

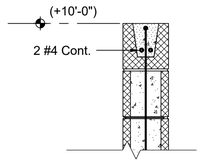



Lintel Notes:
_All steel beams shall bear a minimum of 8" at each end. All steel angle lintels shall bear a minimum of 6" at each end.
_All masonry lintels shall bear a minimum of 2'-0" at each end.
_Provide 8" minimum bearing and grout cell solid including a #4 rebar from foundation to top of wall on each side of opening. Reinforcing may offset steel beam centerline with holes in top and bottom flanges. Lap bars 2'-0" minimum and pour in 5'-0" lifts maximum.

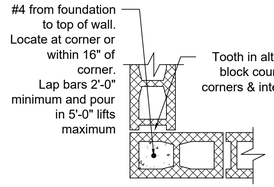
3 / S-5 1"=1'-0"



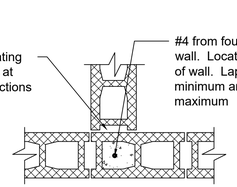

Bond Beam Corner Reinforcement



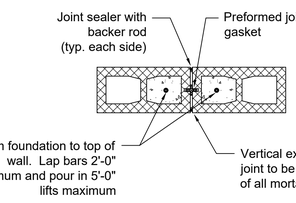

Typical top of wall bracing for all interior masonry walls

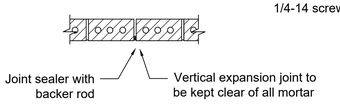



Typical masonry block corner reinforcing



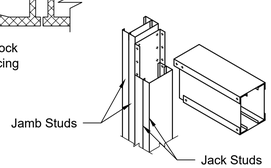

Typical masonry block intersection reinforcing

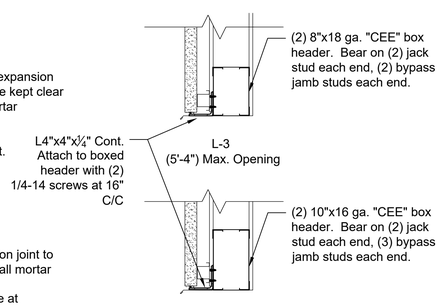


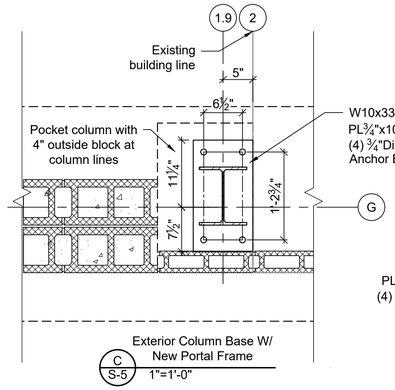

Typical exterior brick expansion joint. Locate at 30' maximum spacing

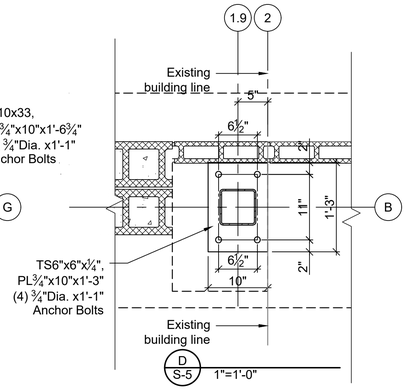
1 / S-5 Typical Masonry Details 1"=1'-0"

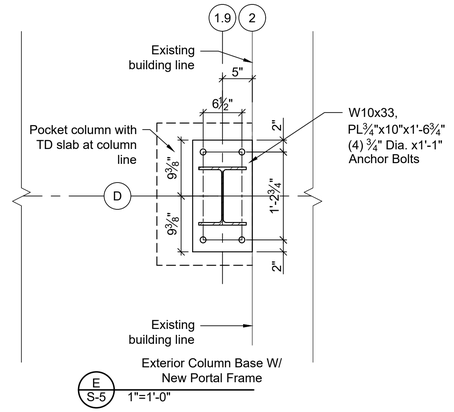


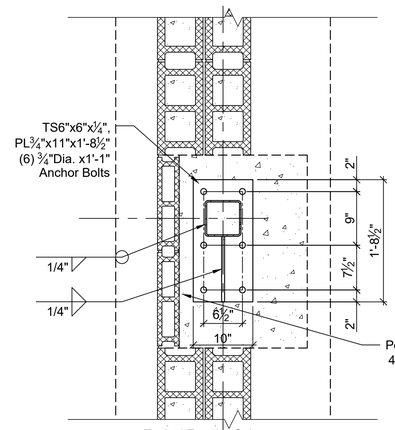




2 / S-5 Boxed Headers 1"=1'-0"

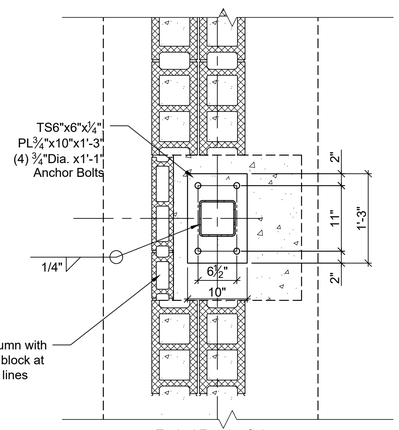


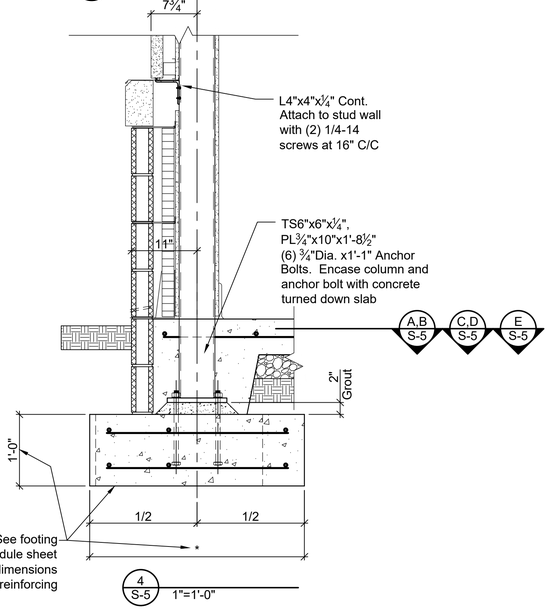



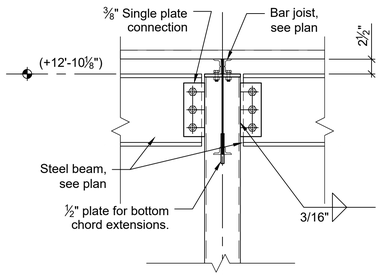

A / S-5 Typical Exterior Column Base W/ Bracing 1"=1'-0"



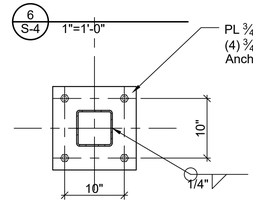

B / S-5 Typical Exterior Column Base W/O Bracing 1"=1'-0"



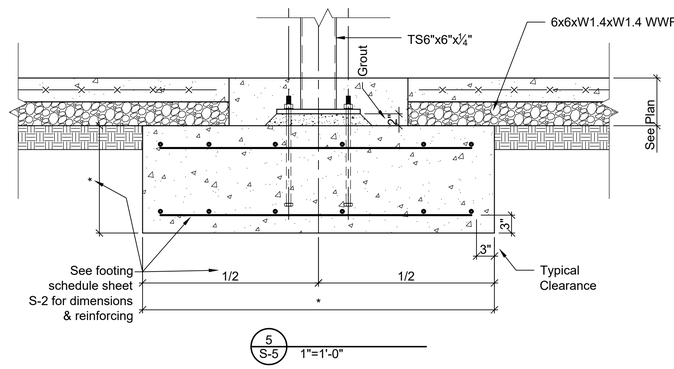

4 / S-5 1"=1'-0"




5 / S-5 1"=1'-0"




6 / S-4 1"=1'-0"





alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534



rclengineer.com
Landwehrmann Engineering, PLLC
3702 WINDSPRAY CT.
SUMMERFIELD, NC 27358
336.373.0608
NC License No. P-0244


CONSULTANT JOB NO. 25-002

BUILDING ADDITION TO EXISTING FIRE STATION # 2 PROPERTY OF **ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECTS WRITTEN APPROVAL.


REVISIONS

DETAILS

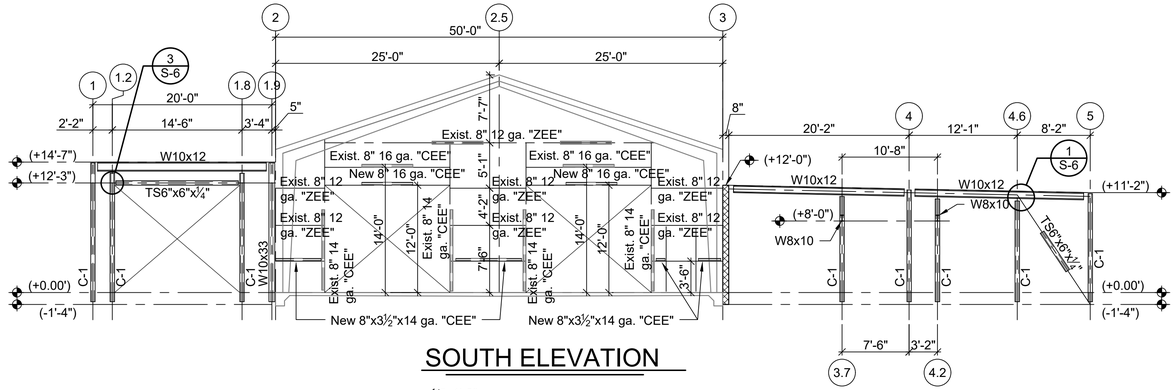
DATE May 29, 2025

DRAWN BY: | CHECKED:

JOB NO. 24060

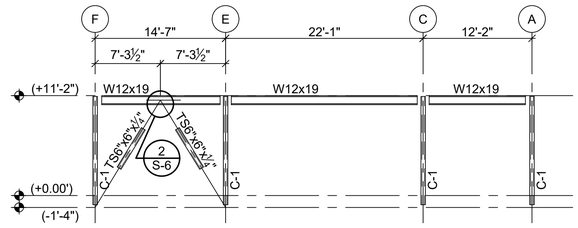
SHEET NO. S-5

OF 6



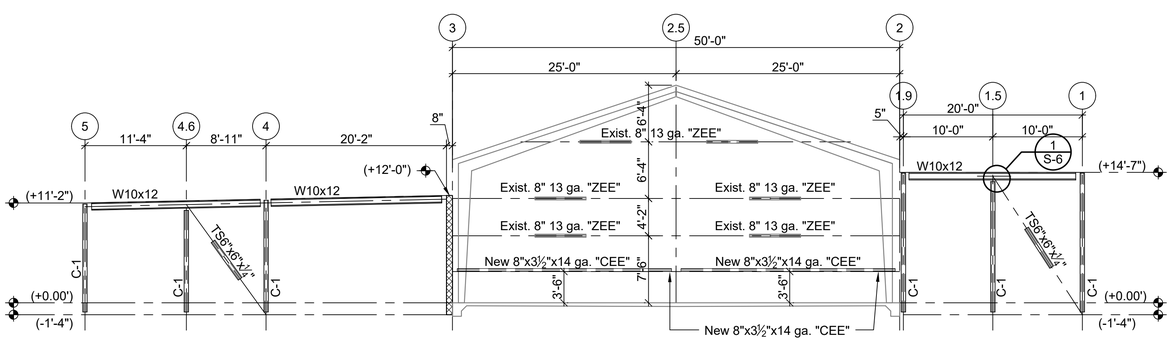

## SOUTH ELEVATION

_⅛"=1'-0"
_Dimensions noted (+ - ) are top of footing elevations relative to finish floor elevation 0.00'
_C-1 is a TS 6"x6"x¼"



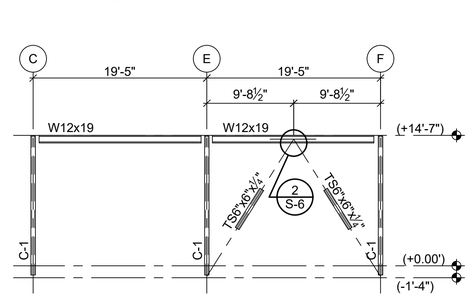

## OFFICE ADDITION EAST ELEVATION

_⅛"=1'-0"
_Dimensions noted (+ - ) are top of footing elevations relative to finish floor elevation 0.00'
_C-1 is a TS 6"x6"x¼"



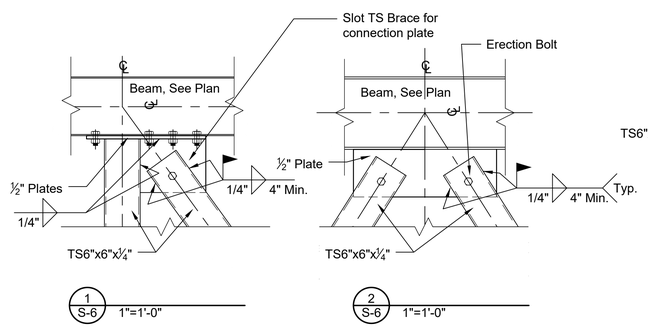

## NORTH ELEVATION

_⅛"=1'-0"
_Dimensions noted (+ - ) are top of footing elevations relative to finish floor elevation 0.00'
_C-1 is a TS 6"x6"x¼"



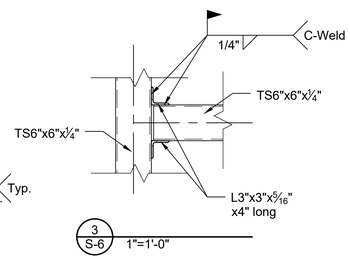

## APPARATUS ADDITION WEST ELEVATION

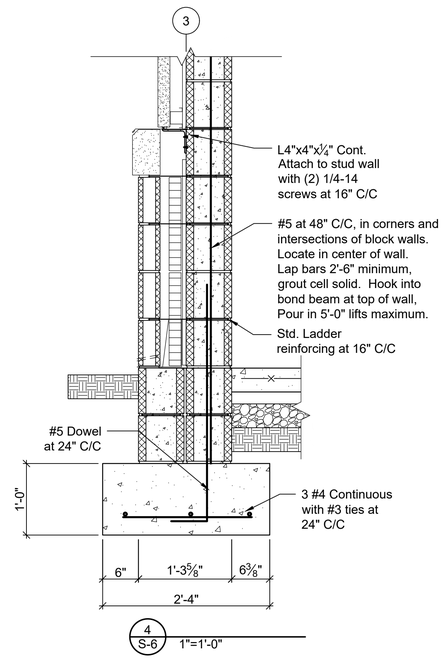
_⅛"=1'-0"
_Dimensions noted (+ - ) are top of footing elevations relative to finish floor elevation 0.00'
_C-1 is a TS 6"x6"x¼"










alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road
burlington, n.c. 27215
p.o. box 1179
336/226-5534

rclengineer.com
Landwehrmann Engineering, PLLC
3702 WINDSPRAY CT.
SUMMERFIELD, NC 27358
336.373.0608
NC License No. P-0244

CONSULTANT JOB NO.
25-002

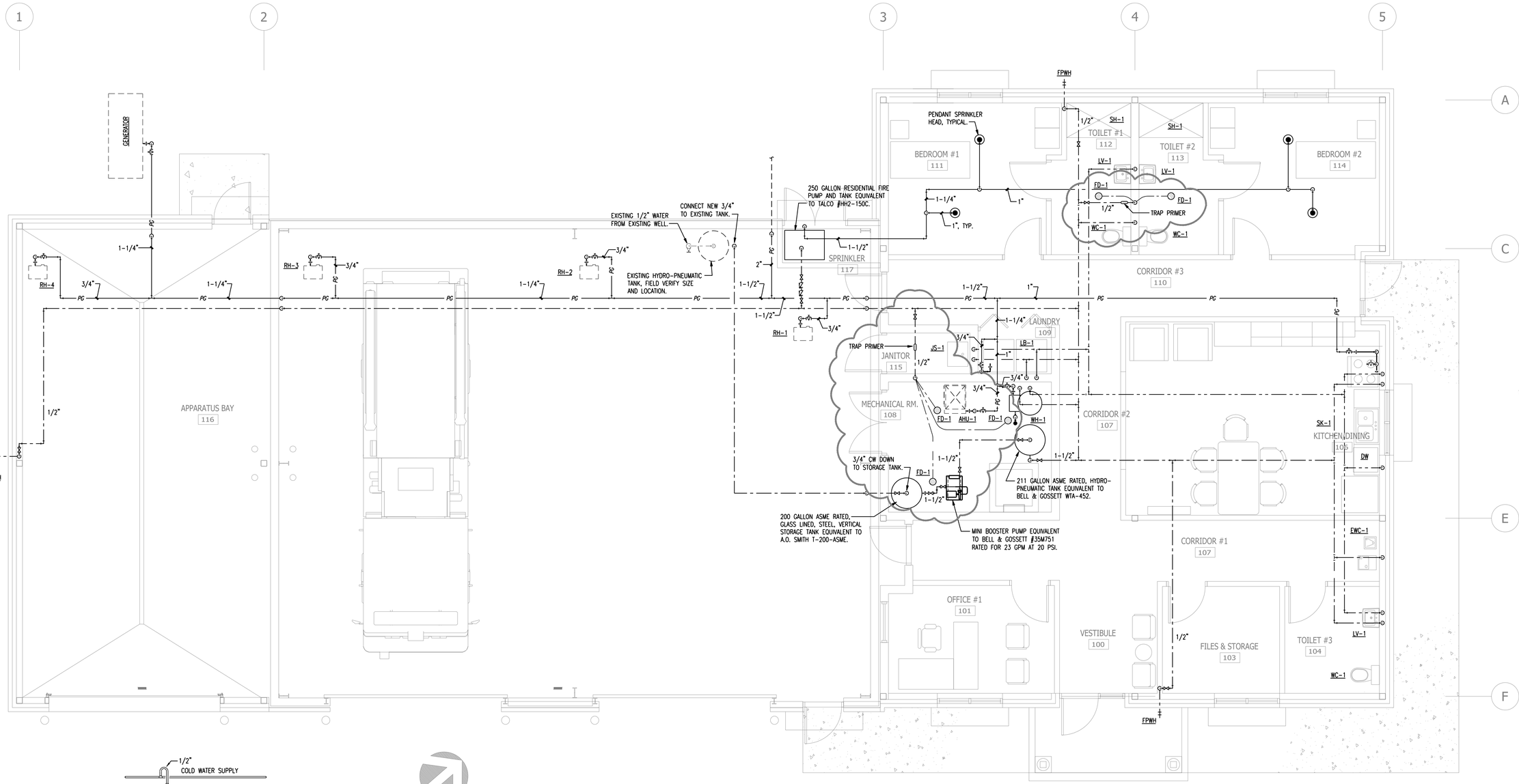
BUILDING ADDITION TO EXISTING
FIRE STATION # 2 PROPERTY OF
**ORANGE GROVE VOLUNTEER FIRE CO.**, INC.
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

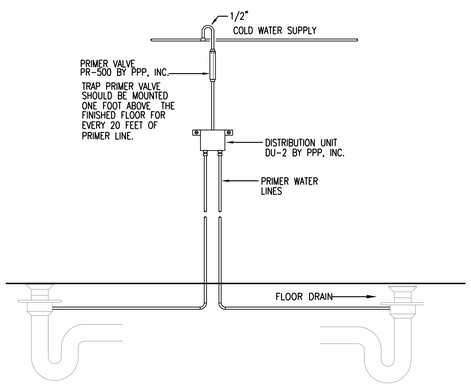
ELEVATIONS

DATE May 29, 2025
DRAWN BY: CHECKED:
JOB NO. 24060
SHEET NO. S-6
OF 6




## 1 P-1 SUPPLY FLOOR PLAN

1/4"=1'-0"




## 2 P-1 TRAP PRIMER DETAIL

NOT TO SCALE

### GENERAL NOTES:

1 - ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL CODES.

2 - THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL PIPING AND EQUIPMENT WITH ALL OTHER TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.

3 - FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, WATER ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.

4 - PLANS AND ISOMETRICS ARE DIAGRAMMATIC. THERE IS NO INTENT TO INDICATE ALL AND FITTINGS REQUIRED. GENERALLY, PIPING SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO AND PLUMB WITH WALL CONSTRUCTION. SPECIAL CARE SHALL BE TAKEN TO COORDINATE EQUIPMENT AND PIPING LOCATIONS WITH ALL OTHER TRADES. IF INTENT OF DESIGN IS NOT CLEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

5 - ON FLOOR PLAN DRAWINGS, SOIL AND WASTE AND RAINWATER PIPING IS SHOWN BELOW FLOOR. DOMESTIC WATER, VENTS, AND OTHER SUPPLY PIPING (UNLESS NOTED OTHERWISE) IS ABOVE CEILING OR AS HIGH AS POSSIBLE IN SPACE.

6 - SOIL AND WASTE PIPING SHALL BE LAID ON MINIMUM 1/4" PER FT. SLOPE FOR PIPE SIZES LESS THAN 4", AND MINIMUM 1/8" PER FT. FOR PIPE 4" AND LARGER.

7 - UNLESS OTHERWISE NOTED, PLUMBING CONTRACT SHALL TERMINATE AT A POINT FIVE (5) FEET OUTSIDE THE BUILDING. FOR WORK BY OTHER CONTRACTORS OUTSIDE THE 5 FOOT TERMINATION, REFER TO SITE UTILITY DRAWINGS.

8 - CONSTRUCTION INTERFACE BETWEEN PLUMBING AND OTHER SUB-CONTRACTS (I.E. SITE WORK, HVAC EQUIPMENT, ELECTRICAL WORK, ETC.) SHALL BE CLOSELY COORDINATED WITH OTHER DRAWINGS INCLUDED WITH THESE DOCUMENTS.

9 - VALVES AND DEVICES INSIDE CHASES OR WALLS OR ABOVE NON-ACCESIBLE CEILINGS SHALL BE PROVIDED WITH APPROPRIATELY SIZED ACCESS PANEL COMPATIBLE WITH SURROUNDING FINISHES. SUCH ACCESS PANELS SHALL BE FURNISHED BY THE PLUMBING CONTRACTOR FOR INSTALLATION BY THE GENERAL CONTRACTOR.

10 - PLUMBING VENT PIPING PENETRATING ROOF SHALL BE INSTALLED BY THE PLUMBING CONTRACTOR. CUTTING OF HOLES AND FLASHING OF PENETRATIONS SHALL BE BY THE GENERAL CONTRACTOR.

11 - REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS AND PARTITIONS AND FOR PARTITION THICKNESS AND CONSTRUCTION MATERIALS.

12 - REFER TO STRUCTURAL DRAWINGS FOR DIMENSIONED COLUMN AND STRUCTURE LOCATIONS.

### SYMBOLS SCHEDULE

| | |
|---|---|
| AFF | ABOVE FINISHED FLOOR |
| UNO | UNLESS NOTED OTHERWISE |
| SAN | SANITARY SEWER |
| FD | FLOOR DRAIN |
| WCO | WALL CLEAN OUT |
| FCO | FLOOR CLEAN OUT |
| — — — | DOMESTIC COLD WATER |
| — — — | DOMESTIC HOT WATER |
| V | VENT |
| ø | DIAMETER OR POWER PHASE |
| | PIPE ELBOW |
| | PIPE ELBOW DOWN |
| | UNION |
| | PIPE TEE |
| | ISOLATION VALVE |

1. All seismic load calculations for this project shall be based upon a 1 second spectral response acceleration of, SD1= 0.079%; a short period spectral response acceleration of, SDS=0.158%; a seismic design category B; a seismic use group II and an importance factor of 1.0. These seismic design parameters were provided by the Structural Engineer, Landwehrmann Engineering, PLLC.
2. All seismic restraining device designs are to be executed, signed and sealed by a Registered North Carolina Engineer.
3. All plumbing and fire protection piping and it's associated attachments and supports shall be designed to meet the force and displacement requirements of chapter 16 of the North Carolina Building Code.
4. The simplified analysis procedures of ASME 31.9, Section 919.4.1(a) shall not be used for design of plumbing piping and it's associated attachments and supports.

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 19293 ENGINEER MICHAEL B. SPRAGUE 4521-25

BLACK MOUNTAIN ENGINEERING, PA REGISTERED ENGINEERING CORPORATION CERT. NO. C-1553 NORTH CAROLINA GREENSBORO, NC


alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

720 Liberty Main Street
Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.blackmtn.net

BLACK MOUNTAIN ENGINEERING, PA
Plumbing and Mechanical Design


CONSULTANT JOB NO.
24-125

# ADDITION TO EXISTING ORANGE GROVE VOLUNTEER FIRE STATION

6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

| | |
|---|---|
| 1 | 8/19/25: PERMIT REVIEW COMMENTS |

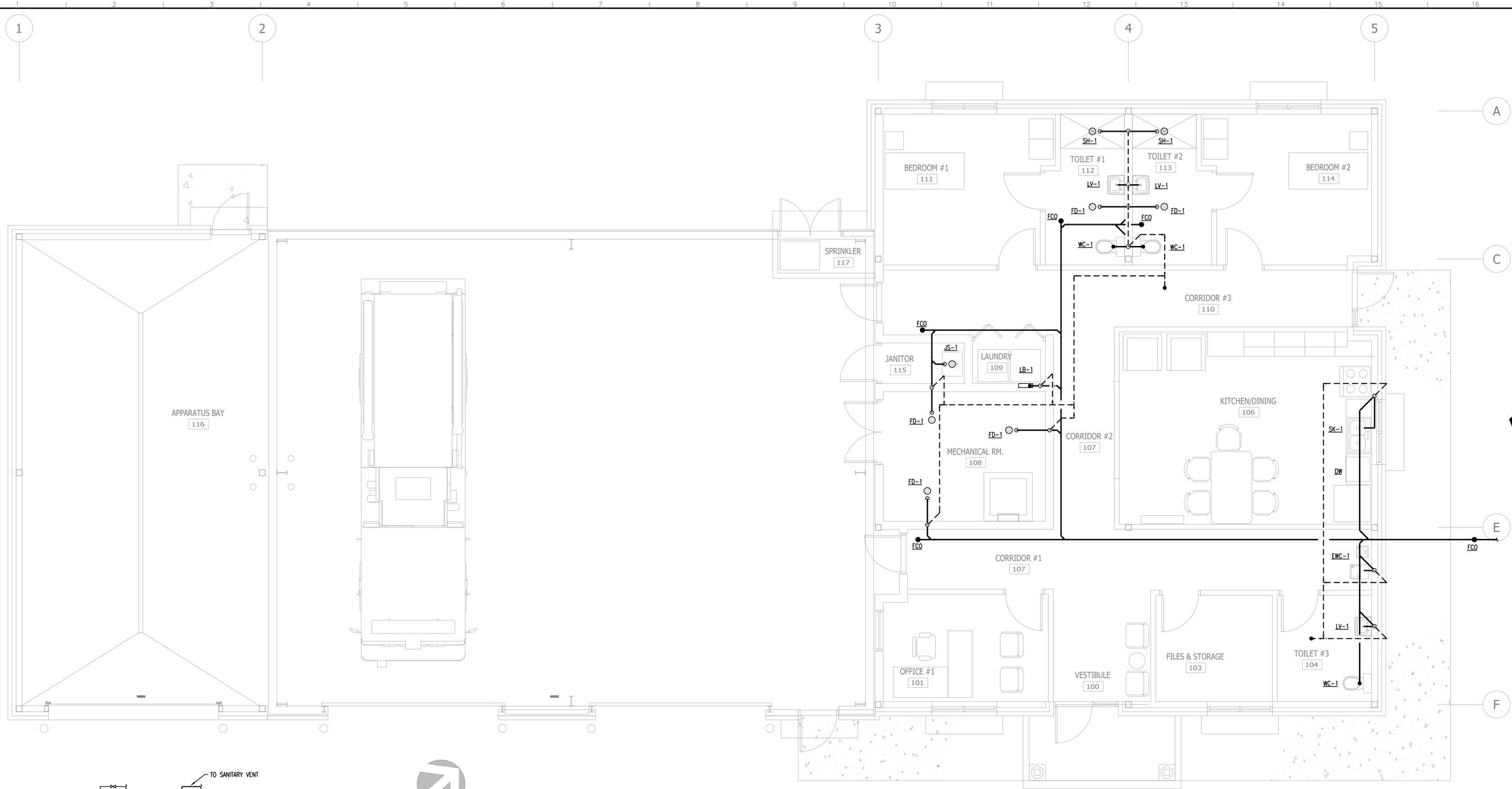
SUPPLY PIPING FLOOR PLAN, NOTES & DETAILS

DATE: APRIL 21, 2025

DRAWN BY: MBS | CHECKED: MBS

JOB NO. 24039

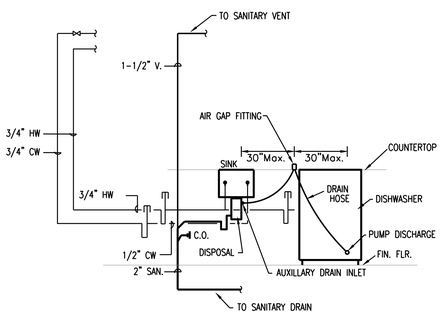
SHEET NO. P-1




1 P-2

## WASTE & VENT FLOOR PLAN

1/4"=1'-0"




## DISPOSAL SCHEDULE

| MARK | MOTOR | POWER | MANUFACTURER | MODEL |
|---|---|---|---|---|
| DISPOSAL | 3/4 HP/8.1 AMPS/60 HZ/1725 RPM | 115V/1ø | IN SINK ERATOR | ISE 444 |

2 P-2

## DISHWASHER/DISPOSAL/SINK PLUMBING

NOT TO SCALE

## WASTE AND WATER CALCULATIONS

| FIXTURE TYPE | QUANTITY | WASTE FIXTURE UNITS | | HOT WATER FIXTURE UNITS | | COLD WATER FIXTURE UNITS | | TOTAL WATER FIXTURE UNITS | |
|---|---|---|---|---|---|---|---|---|---|
| | | PER UNIT | EXTENSION | PER UNIT | EXTENSION | PER UNIT | EXTENSION | PER UNIT | EXTENSION |
| WATER CLOSET - TANK | 3 | 4 | 12 | 0 | 0 | 5 | 15 | 5 | 15 |
| LAVATORY | 3 | 1 | 3 | 1.5 | 4.5 | 1.5 | 4.5 | 2 | 6 |
| SHOWER | 2 | 2 | 4 | 3 | 6 | 3 | 6 | 4 | 8 |
| ELECTRIC WATER COOLER | 1 | 0.5 | 0.5 | 0 | 0 | 0.25 | 0.25 | 0.25 | 0.25 |
| KITCHEN SINK | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1.4 | 1.4 |
| JANITOR SINK | 1 | 2 | 2 | 2.25 | 2.25 | 2.25 | 2.25 | 3 | 3 |
| FLOOR DRAIN | 5 | 2 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| WASHING MACHINE | 1 | 2 | 2 | 2.25 | 2.25 | 2.25 | 2.25 | 3 | 3 |
| DISH WASHER | 1 | 2 | 2 | 1.4 | 1.4 | 0 | 0 | 1.4 | 1.4 |
| TOTAL | | | 37.5 | | 17.4 | | 31.25 | | 38.05 |

## PLUMBING FIXTURE SCHEDULE

| ITEM NO. | FIXTURE DESCRIPTION | MANUFACTURER | MODEL NO. | CONNECTION SIZES | | | REMARKS |
|---|---|---|---|---|---|---|---|
| | | | | C.W. | H.W. | WASTE | |
| WC-1 | WATER CLOSET - TANK TYPE | AMERICAN STANDARD | 731A001S | 1/2" | -- | 4" | 1.6 GPF, ADA HEIGHT RIM |
| LV-1 | WALL HUNG LAVATORY | AMERICAN STANDARD | 0356.012 | 1/2" | 1/2" | 1-1/2" | SINGLE LEVER FAUCET, TRUEBRO COVERS |
| SK-1 | DOUBLE COMPARTMENT SINK | JUST | DL-1933-B-GR | 1/2" | 1/2" | 1-1/2" | SINGLE LEVER FAUCET, TRUEBRO COVERS |
| SH-1 | SHOWER | CLARION | MP6036 | 1/2" | 1/2" | 2" | -- |
| JS-1 | JANITOR SINK | STERN WILLIAMS | HL-1800-SB-2 | 1/2" | 1/2" | 2" | -- |
| EWC-1 | ELECTRIC WATER COOLER | EBCO OASIS | P8AMSL | 1/2" | -- | 1-1/2" | SPLIT LEVEL ELECTRIC WATER COOLER |
| HB-1 | INTERIOR HOSE BIBB | WATTS | HB-1 | 1/2" | -- | -- | -- |

FIXTURE MODEL NUMBERS LISTED ARE FOR DESCRIPTION ONLY. FIXTURES BY KOHLER, SLOAN, TOTO AND ZURN ARE ALSO ACCEPTABLE. DRAINS BY JAY R. SMITH OR OTHER COMPARABLE MANUFACTURER ARE ACCEPTABLE.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19293 MICHAEL B. SPRAGUE 4-21-25

BLACK MOUNTAIN ENGINEERING, PLLC CERT. NO. C-1553 GREENSBORO, NC

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

720 Lake Main Street
Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.blackmtn.net

Plumbing and Mechanical Design

CONSULTANT JOB NO.
24-125

ADDITION TO EXISTING
ORANGE GROVE
VOLUNTEER FIRE STATION
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

WASTE & VENT FLOOR PLAN, ISCHEDULES & DETAILS

DATE: APRIL 21, 2025

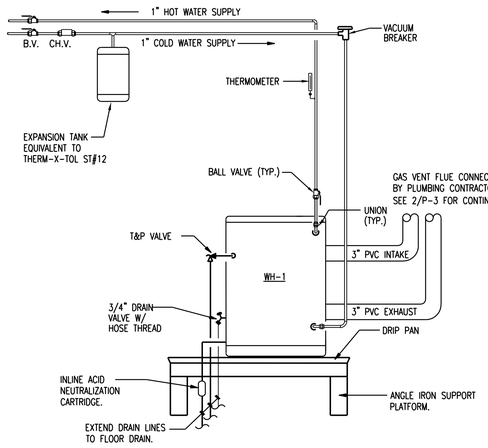
DRAWN BY: MBS | CHECKED: MBS

JOB NO. 24039

SHEET NO. P-2

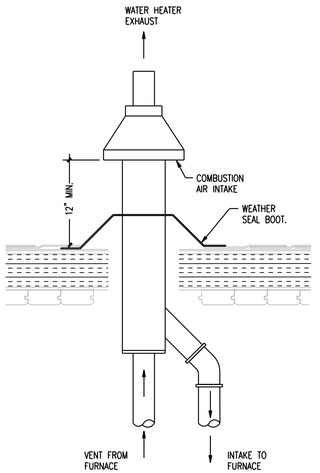
# GAS WATER HEATER SCHEDULE

| MARK | TANK VOLUME | RECOVERY | MINIMUM OUTPUT | MINIMUM EFFICIENCY | POWER | MANUFACTURER | MODEL |
|---|---|---|---|---|---|---|---|
| WH-1 | 55 GALLON | 113 GPH | 94.0 MBH | 94% | 120V/1ø | RHEEM | #HE55-100 |

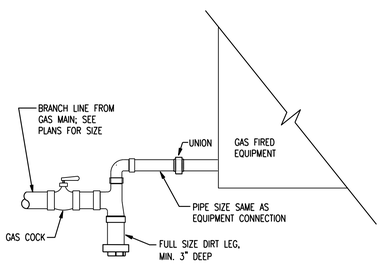



WH-1 WATER HEATER SHALL BE MODEL #HE55-100 AS MANUFACTURED BY RHEEM OR EQUIVALENT. WATER HEATER SHALL BE OF GLASS-LINED DESIGN, AND GAS-FIRED, EQUIPPED TO BURN NATURAL GAS AND DESIGN CERTIFIED BY THE AMERICAN GAS ASSOCIATION, AND SHALL BE APPROVED BY THE NATIONAL SANITATION FOUNDATION. HEATERS MUST MEET ALL APPLICABLE CODES. HEATER SHALL BE SUITABLE FOR SEALED COMBUSTION DIRECT VENTING. THE CONDENSING FLUE COIL SHALL BE COATED ON THE FLUE GAS SIDE WITH ACID RESISTANT GLASS LINING DESIGNED FOR USE IN CONDENSING HEATERS. HEATER SHALL HAVE A WORKING PRESSURE OF 160 PSI. HEATER SHALL BE PROVIDED WITH AN AUTOMATIC SHUTOFF DEVICE AND SAFETY SHUTOFF IN EVENT OF FLAME FAILURE; A GAS PRESSURE REGULATOR SET FOR THE TYPE OF GAS SUPPLIED, AND EXTRUDED ANODE ROD RIGIDLY SUPPORTED FOR CATHODIC PROTECTION. AN A.G.A./ASME RATED PRESSURE AND TEMPERATURE RELIEF VALVE SHALL BE FURNISHED AND INSTALLED BY MANUFACTURER. THE TANK SHALL BE FOAM INSULATED. THE OUTER JACKET SHALL HAVE A BAKED ENAMEL FINISH OVER A BONDERIZED UNDERCOATING. ALL INTERNAL SURFACES OF THE HEATER EXPOSED TO WATER SHALL BE GLASS-LINED WITH AN ALKALINE BOROSILICATE COMPOSITION THAT HAS BEEN FUSED TO STEEL BY FIRING AT A TEMPERATURE RANGE OF 1400° TO 1600°F. HEATER SHALL HAVE A THREE YEAR LIMITED WARRANTY AGAINST CORROSION AND TANK FAILURE DUE TO SEDIMENT BUILD-UP AS OUTLINE IN WRITTEN WARRANTY. HEATER SHALL BE DESIGN CERTIFIED BY A.G.A.

1 / P-3 GAS WATER HEATER DETAIL
NOT TO SCALE




2 / P-3 COMBINATION GAS VENT/INTAKE DETAIL
NOT TO SCALE




3 / P-3 GAS DIRT LEG DETAIL
NOT TO SCALE

# PLUMBING SPECIFICATIONS

General:

Provide all materials, equipment, manpower etc. required to install a complete and functioning system as specified, shown or implied herein on this sheet.

Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

Obtain and pay for all required permits,request and arrange for all required inspections. Deliver all certificates of inspection to the Architect. Final pay application will not be approved until all inspections are complete and a Certificate of Occupancy has been issued.

All work and materials shall be in compliance with applicable state, local and national codes. Code provisionsshall be the absolute minimum standards, where provisions herein exceed code requirements the contractor shall provide the work as specified.

Thoroughly review the entire set of construction documents and coordinate work with the work of all other trades to avoid conflicts and interference.

The contractor shall visit the site prior to bid, and shall verify every aspect of the proposed work and existing field conditions which might affect the completion of the work. Failure or neglect to throughly investigate the contract documents and/or the site shall not be sufficient cause for additional compensation to the contractor.

The contractor shall be responsible for all cutting and patching required for the proper installation of his or her work and shall be responsible for any damaged caused by himself or his workmen. All patching and repairs shall be done by individuals regularly engaged in the installation of like materials or systems.

All materials and equipment shall be new and shall be listed and labeled by Underwriters Laboratories, Inc. (UL) or Electronics Testing Labs, Inc. (ETL) for it's intended use.

The drawings are diagrammatic in nature and are not intended to include every detail of construction. Contractor shall coordinate actual installation with the work of other trades and existing site conditions. Finish dimensions shall be taken in the field in lieu of scaling from the plans.

The contractor shall warrant all materials and workmanship to be free from defect for a period of one year. The warranty period shall start upon time of acceptance by the owner. If within the warranty period any work or equipment is found to be defective, the contractor shall correct the defect promptly at no cost to the owner.

All final utility connections (electrical, water, gas, etc.) to equipment shall be by the contractor providing the equipment requiring the utilities. Coordinate utility connections with mechanical and electrical contractors.

Supports and Hangers:

All pipes sizes 1/2" to 1-1/2" shall be supported with carbon steel adjustable swivel split ring hangers.

All pipes sizes 2" and larger shall be supported with carbon steel adjustable clevis hangers.

Uninsulated copper pipe shall be supported with hangers as noted above with a PVC coating.

Pipe supports for insulated pipe shall be provided with either pipe shields or pipe saddles to protect the insulation. All pipe supports for insulated cold water piping shall be provided with pipe shields. All pipe supports for hot water pipe sizes 2-1/2" or greater shall be provided with steel pipe saddles.

Install hangers within 12" of all horizontal elbows.

Support horizontal cast iron pipe adjacent to each hub, with a maximum spacing of five feet between hangers. Support vertical cast iron pipe at each hub and at each floor. PVC drain piping shall have a maximum spacing between the hangers of six feet.

All other piping shall be supported with a maximum spacing between hangers as follows:

| Pipe size | Maximum Hanger Spacing |
|---|---|
| 1/2" to 1-1/4" | 6'-6" |
| 1-1/2" to 6" | 10'-0" |

Piping Insulation:

Insulation shall be installed by a contractor specializing in applying pipe insulation with a minimum of three years experience.

Deliver materials to the site in original factory packaging, labeled with manufacturer's indentification, including product density and thickness. Store insulation in original wrapping to protect from weather and construction traffic. Any damaged insulation will be replaced by the contractor at no additional expense to the owner.

Insulation shall not be installed unless ambient temperatures and conditions meet the requirements of the manufacturers of adhesives, mastics, and insulation cements. Maintain ambient temperature for 24 hours (minimum) after installation of insulation.

Insulate all hot & cold domestic water with 1" thick fiberglass pipe insulation with ASJ jacket.

All insulation shall have a maximum flame spread/smoke developed rating of 25/50.

Piping:

All valves shall have manufacturer's name and pressure rating stamped on valve body.

Conform to City of Hillsborough department of Water Resources requirements for installation of backflow prevention devices.

Accept valves on site in shipping containers with labeling in place. Inspect for damage. Provide temporary protective coating on cast iron and steel valves.

Provide temporary end caps and closures on piping and fittings. Maintain in place until installation. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of the completed system.

Underground sanitary and storm drainage piping with-in five feet of building shall be service weight cast iron pipe with hub & spigot joints sealed with neoprene gaskets. Contractor may, at his option, use PVC DWV piping in lieu of cast iron pipe.

Above grade sanitary and storm drainage piping shall be service weight cast iron no-hub pipe and fittings. No-hub gaskets shall be a heavy duty coupling equivalent to Charlotte Pipe and Foundry Co. Fig. No. HD-1. Contractor may, at his option except in return air plenums, use PVC DWV piping in lieu of cast iron pipe for sanitary system. All piping in return air plenums shall be cast iron.

Domestic water piping shall be copper tubing with wrought copper or bronze fittings. Below grade piping shall be type "K" tubing. Joints shall be kept to a minimum below grade. No joints will be permitted below building slab. Above grade piping shall be type "L" tubing.

Install piping to conserve building space and not interfere with the use of the space. Group piping at common elevations whenever practical. Install piping to allow for expansion and contraction without stressing pipe, joints or connected equipment. Provide clearance for installation of insulation and access to valves and fittings.

Provide access doors where valves or equipment are not exposed.

Provide unions downstream of valves and at equipment or apparatus connections.

Provide brass male adapters each side of valves in copper piped systems. Sweat solder adapters to pipe.

Provide ball valves for shut-off and to isolate equipment, part of system, and where indicated on the plans on domestic water systems.

Provide ball or globe valves for flow control in water recirculating systems where indicated.

Disinfect domestic water system after verifing that the system is complete. Ensure PH of water to be treated is between 7.4 and 7.6 by adding caustic soda, soda ash, or hydrochloric acid. Inject chlorine throughout system to obtain 50 to 80 mg/L residual. Bleed water from outlets to ensure distribution of disinfectant. Maintain disinfectant in system for 24 hours. If final disinfectant residual tests less than 25 mg/L, repeat treatment. Flush disinfectant from system until residual is equal to that of incoming water or 1.0 mg/L.

Before commencing with sanitary or storm drainage piping, field verify invert elevations of existing sewers. Confirm inverts are adequate to maintain proper pitch and cover for new sanitary and storm drainage systems. Notify architect if inverts do not appear to be adequate.

Plumbing Fixtures:

Fixtures shall be delivered to the site in factory packaging. The contractor shall inspect fixtures upon delivery and replace any damaged fixtures. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place until final clean-up.

Verify that field measurements are as indicated on the shop drawings and confirm that millwork is constructed with adequate provision for the installation of sinks.

Provide one year warranty for all plumbing fixtures to be free from material or manufacturing defect.

Provide two extra sets of faucet washers for each sink at completion of the project.

Water Closet (WC-1)
Provide a floor mounted tank type toilet with elongated bowl, everclean antimicrobial surface, 16-1/2" rim hieght and champion 4 flushing system with 4" non-adjustable piston action accelerator flush valve equivalent to American Standard Champion #731AA001S, 16.5"H EL 1.6/PA with 1/2"x 3/8" stop equivalent to Maguire #2165LX. Acceptable manufacturers: American Standard, Kohler, Sloan and Zurn.

Lavatory: (LV-1)
Bowl: Wall hung vitreous china lavatory equivalent to American Standard Lucerne #0356.012. Mount with top rim 34" A.F.F.. Acceptable manufacturers: American Standard, Kohler, and Zurn.
Faucet: Brass single lever handle lavatory faucet with 4" handle, 4" spout and 1/2 gpm vandal resistant aerator equivalent to Moen 8416F05. Acceptable manufacturers: Delta HDF, Moen, and Zurn.
Trim: Chrome plated 17 Gauge P-trap with pre-wraped protective cover and offset grid strainer equivalent to McGuire #PW 2125-WC. Angle wheel handle stops equivalent to McGuire #175 with 12" long 1/2" o.d. riser, and 3/8" o.d. inlet.
Carrier: Cast iron and steel frame with tubular legs, lugs for the floor and wall attachment, concealed arm support, bearing plate and studs equivalent to Zurn #Z-1231. Acceptable Manufactureres: Jay R. Smith, Josam and Zurn.

Sink (SK-1)
Bowl: Double Compartment with 14 X 14 X 7 compartments, 20 Gauge 304 Stainless Steel equivalent to Just # DL-1933-B-GR. Acceptable Manufacturers: Elkay, Just and Moen.
Faucet: Single handle kitchen faucet with 4" handle with shanks on 8" centers, 12" wall form spout, and grid waste assembly equivalent to Moen # 8712. Acceptable manufacturers: Delta HDF, Moen, and Zurn.
Trim: Chrome plated 17 Gauge P-trap Equivalent to McGuire #8912. Angle wheel handle stops equivalent to McGuire #175 with 12" long 1/2" o.d. riser, and 3/8" o.d. inlet.

Shower (SH-1):

Shower:
Molded open top, gel coated acrylic, one piece ADA compliant shower stall, with slip-resistant bottom surface, padded seat, and grab bars. Stall to be constructed from a molded acrylic. Stall shall have an inside clear dimension of 60" x 36" (1525 mm x 915 mm) equivalent to Clarion #MP6036. Color as selected by Architect. Acceptable manufacturer: Acryline USA, Inc, Aquarius Bathware, Clarion Bathware, Kohler and Praxis Industries.

Trim:
Concealed shower supply with pressure balanced mixing valves, bent shower arm with integral service stops, adjustable spray ball joint shower head, diverter valve, wall/hand shower head with integral vacuum breaker, and 30" slide bar, equivalent to Symmons Industries, Inc. Model 25-500-B30-V. Acceptable manufacturers: Leonard Valve Co., Symmons Industries, Inc. and Zurn Industries.

Mop Sink (JS-1)
Basin: Terrazzo 24X24X12 floor mounted service sink equivalent to Stern Williams #HL1800-SB-2 with 3" drain, and an integral cast one-piece 20 gage stainless steel cap. Acceptable Manufacturers: Fiat, Florstone and Stern Williams.
Faucet: Two handled cast brass service sink faucet with vacuum breaker and wall bracket equivalent to Moen #8124. Acceptable manufacturers: Delta, Moen, Stern Williams, and Symmons.
Trim: Two 12" high stainless steel back panels, 24" long stainless steel mop hanger with 3 spring loaded grips, 36" long hose and stainless steel wall bracket.

Electric Water Cooler (EWC-1)
Provide a wall mounted split level water cooler equivalent to an Ebco Oasis Model P8AMSL with McGuire #8902C chrome plated 17 gauge p-trap and McGuire #175 angle wheel stops. Cooler capacity to equal 8.0 GPH 50° water. 120 volt electrical outlet is required in concealed apron area of cooler. Color to be selected by the Architect.

Double Check Assembly - Potable (1/2" to 2")

A Double Check Valve assembly shall be installed at each noted location. The assembly shall consist of two positive seating check modules with captured springs and rubber seat discs. The check module seats and seat discs shall be replaceable. Service of all internal components shall be through a single access cover secured with stainless steel bolts. The Double Check Valve assemblies shall be constructed using Lead Free* cast
copper silicon alloy. Lead Free* Double Check Valve assemblies shall comply with state codes and standards, where applicable, requiring reduced lead content. The assembly shall also include two resilient seated isolation valves; four top mounted, resilient seated test cocks. The assembly shall meet the requirements of ASSE Standard 1015 and AWWA Standard C510. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Assembly shall be equivalent to Watts Series LF007.

Floor Drain (FD-1)
Provide an adjustable floor drain with Dura-Coated cast iron body, bottom outlet, combination invertible membrane clamp and "Type N" deep flange grate, equivalent to Zurn #ZB-415-N. Acceptable manufacturers: Jay R. Smith, Josam, and Zurn.

Laundry Box: (LB-1)
Box: 8-3/4" X 7-1/2" X 3-5/8" polystyrene box with 2" center drain, and two 1/2" MIP valves equivalent to Oatey Model # 38735. Provide 2" cast iron P-trap below floor.

Internal Hose Bibb (HB-1)
Model HB-1 by Watts or equivalent. Brass body type hose bibb with built in vacuum breaker. 1/2" male I.P. Meets ASSE Std. 1011.

Freezeless Wall Hydrant: (FPWH-1)
Provide a wall mounted, non-freeze, anti-siphon, automatic draining, with bronze casing and all bronze interior parts, equivalent to Zurn model Z-1310 with loose operating key. Acceptable manufacturers: Jay R. Smith, Josam, and Zurn.

Cleanouts: Floor cleanout shall be equivalent to Zurn #ZB-1400. Wall cleanouts shall be equivalent to Zurn #Z-1442. Yard cleanouts in paved areas shall be equivalent to Zurn #Z-1400-HD. Yard cleanouts in non-paved areas shall be equivalent to Zurn #Z-1474 with a #Z-1400 ferrule. Acceptable manufacturers: Jay R. Smith, Josam and Zurn.

## GAS EQUIPMENT SCHEDULE

| MARK | DESCRIPTION | BTU/hr. |
|---|---|---|
| AHU-1 | FURNACE | 100,000 |
| RH-1 | RADIANT HEATERS | 50,000 |
| RH-2 | RADIANT HEATERS | 60,000 |
| RH-3 | RADIANT HEATERS | 60,000 |
| RH-4 | RADIANT HEATERS | 60,000 |
| GENSET | ELECTRICAL GENERATOR | 521,300 |
| HD-1 | DRYER | 165,000 |
| RANGE | RANGE/GRILLE/OVEN | 268,000 |
| WH-1 | WATER HEATER | 100,000 |
| | TOTAL | 1,384,300 |

PIPE SIZE BASED ON PROPANE GAS THRU STEEL SCHEDULE PIPE WITH AN INLET PRESSURE OF 11" W.C. AND A MAXIMUM EQUIVALENT PIPE LENGTH OF 125 FEET.


alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

BLACK MOUNTAIN ENGINEERING, PA
720 Lake Moon Street
Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.blckmtn.net
Plumbing and Mechanical Design


CONSULTANT JOB NO.
24-125

ADDITION TO EXISTING ORANGE GROVE VOLUNTEER FIRE STATION
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

PLUMBING SPECIFICATION AND DETAILS

DATE: APRIL 21, 2025

DRAWN BY: MBS | CHECKED: MBS

JOB NO. 24039

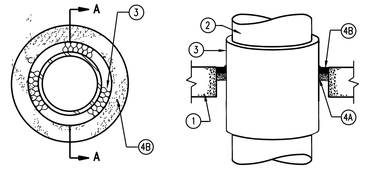
SHEET NO. P-3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19293 4-21-25 MICHAEL B. SPRAGUE

BLACK MOUNTAIN ENGINEERING, PA MECHANICAL ENGINEERING CORPORATION CERT. NO. C-1553 NORTH CAROLINA GREENSBORO, NC

## SYSTEM No. C-AJ-5001

F Ratings – 1-1/2, 2 and 3 hr (See Item 4)
T Ratings – 0, 1/2, 3/4 and 1 hr (See Items 1A and 4)
L Rating At Ambient – 2 CFM per sq ft
L Rating At 400 °F – less than 1 CFM per sq ft




SECTION A-A

1. **Floor or Wall Assembly** – Min. 2-1/2 in thick reinforced lightweight or normal weight (100-150) pcf concrete. Wall may also be constructed of any UL Classified **Concrete Blocks*** Max. diam. of opening is 18 in. See **Concrete Blocks** (CAZT) catergory in the Fire Resistance Directory for names of manufacturers

1A. **Steel Sleeve** – (optional, not shown) – Nom. 9 in. (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 2 in. above top of floor or beyond either surface of wall. Sleeve may be used only when floor or wall assembly is min 4-1/2 in. thick. **T Rating is 0 hr when sleeve is used.**

2. **Through Penetrant** – Nom. 4 in. diam. (or smaller) Type L (or heavier) copper pipe, nom 12 diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe or nom. 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe centered in the opening and rigidly supported on both sides of the floor or wall assembly.

3. **Pipe Covering*** – Nom. 1 or 2 in. thick hollow cylindrical heavy density (min. 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt strip tape supplied with the product.

4.A. See **Pipe and Equipment Covering – Materials*** (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking a with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

**Firestop System** – The details of the firestop system shall be as follows:

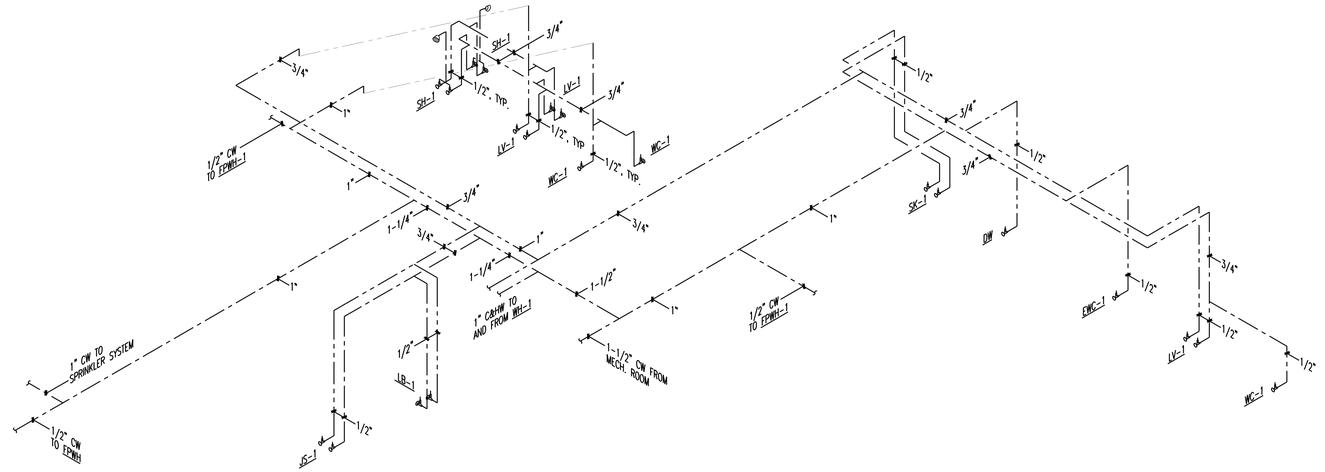
B. **Packing Material** – Min. 1 in. thickness of firmly packed mineral wool batt insulation used as a permanent form. Packing material to be recessed from top surface of floor or sleeve ot both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item B).

**Fill, Void or Cavity Material* – Caulk** – Applied to fill the annular space flush with the top surface of the floor or sleeve flush with both surfaces of wall. When nom. pipe covering thickness is 2 in., min. thickness of caulk fill material is 2 in. When nom. pipe covering thickness is 1 in., min. thickness of caulk fill material is 1 in. The hourly F and T ratings of the firestop system are dependent upon the thickness of the floor or wall, the size of the pipe, the thickness of pipe covering material and the size of the annular space (between the pipe covering material and the edge of the circular through opening), as shown in the following table:

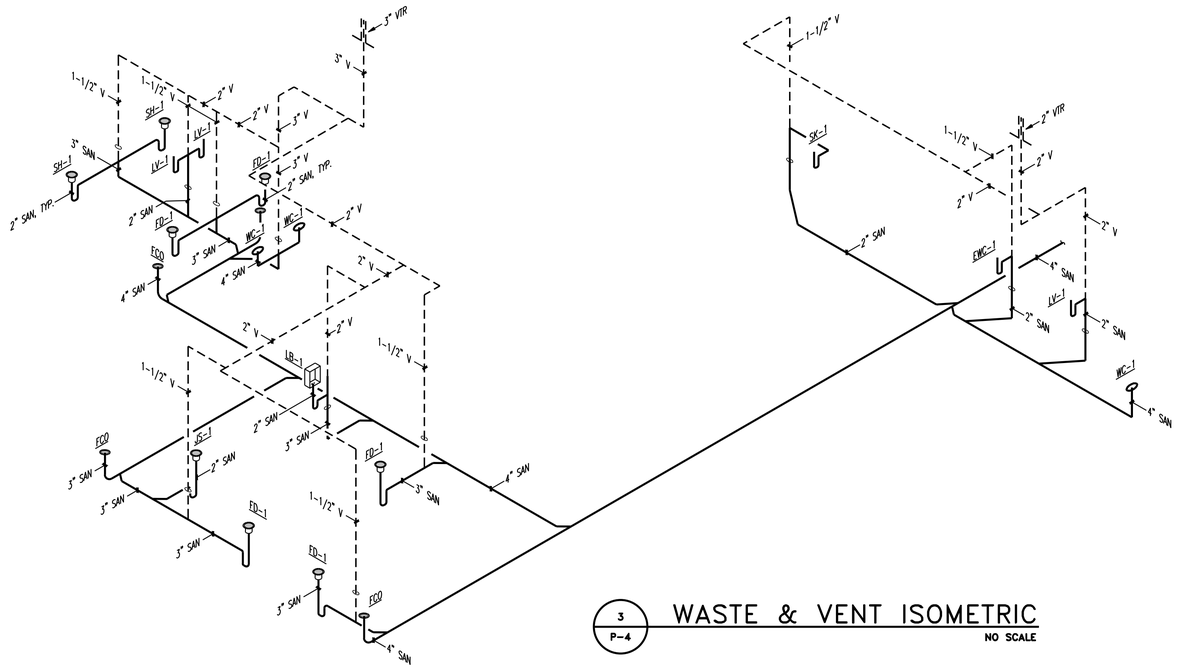
| Min. Floor or Wall Thkns In. | Max. Pipe Diam, In. | Nom. Pipe Covering Thickness In. | Annular Space, In | F Rating Hr | T Rating, Hr |
|---|---|---|---|---|---|
| 2-1/2 | 4 | 1 | 1/2 to 2-3/8 | 2 | 1 |
| 4-1/2 | 4 | 2 | 1/4 to 3-5/8 | 2 | 1-1/2 |
| 2-1/2 | 12 | 1 | 1/2 to 1-1/2 | 2 | 1/2 |
| 4-1/2 | 12 | 1 | 1/2 to 2-3/8 | 3 | 1 |

**Minnesota Mining & Mfg. Co.** – CP 25WB+.
* Bearing the UL Classification Marking

1 / P-4 FIRE PENETRATION DETAIL
NOT TO SCALE



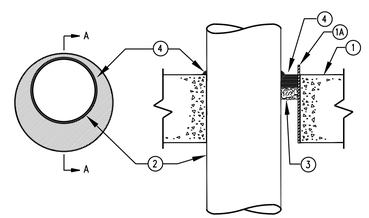

2 / P-4 SUPPLY PIPING ISOMETRIC
NO SCALE




3 / P-4 WASTE & VENT ISOMETRIC
NO SCALE

## SYSTEM No. C-AJ-1001

F Rating – 3 hr
T Ratings – 0 hr




SECTION A-A

1. **Floor or Wall Assembly** – Min 4-1/2 in. thick lightweight or normal weight (100-150pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of circular through opening is 22-1/2 in.
See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

1A. **Steel Sleeve** – (Optional, not shown) – Nom. 12 in. diam (or smaller) Schedule 40 (or heavier) steel pipe sleeve cast into concrete floor or wall. Sleeve to be flush with or project max 2 in. from top surface of floor or from both surfaces of wall.

2. **Pipe or Conduit** – Nom 20 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe, nom. 6 in. diam. ( or smaller) rigid steel conduit or Type L (or heavier) copper tube, nom. 4 in. diam. (or smaller) cast iron pipe or steel EMT. Max one pipe or conduit per through opening. Max annular space between pipe or conduit and edge of through opening not to exceed 2-1/2 in. Min. annular space between pipe or conduit and edge of through opening is zero in. (point contact). Pipe or conduit to be rigidly supported on both sides of floor or wall assembly.

3. **Packing material** – Polyethylene backer rod or nom. 1 in. thickness of tightly-packed ceramic (alumina silica) fiber blanket, mineral wool batt or glass fiber insulation material used as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of solid concrete or concrete block wall as required to accommodate the required thickness of caulk fill material (Item4). As an alternate when max pipe size is 10 in. diam. And when max annular space is 1 in., a min. 1 in. thickness of tightly-packed ceramic fiber blanket or mineral wool batt packing material may be recessed min. ½ in. from bottom surface of floor or from either side of solid concrete wall.

4. **Fill, Void, or Cavity Materials* – Caulk** – Applied to fill the annular space to the min thickness shown in the following table:

| Max Pipe Diam In | Max Annular Space In | Packing Material Type (a) | Min Caulk Thkns In |
|---|---|---|---|
| 10 | 1 | BR, CF, GF, or MW | 1/2 (b) |
| 10 | 1 | CF or MW | 1/2 (c) |
| 20 | 2-1/2 | BR, CF, GF, or MW | 1 (b) |

(a) BR=Polyethylene backer rod, GF=Glass fiber insulation.
CF=Cermaic fiber blanket. MW=Mineral-wool batt.
(b) Caulk installed flush with top surface of floor or both surfaces or wall.
(c) Caulk installed flush with bottom surface of floor or one surface of solid (non-concrete block) wall.

**Minnesota Mining & Mfg. Co.** – CP 25N/S
* Bearing the UL Classification Marking

4 / P-4 FIRE PENETRATION DETAIL
NOT TO SCALE


alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534

BLACK MOUNTAIN ENGINEERING PA
Mechanical, Plumbing, and Mechanical Design
720 Liberty Main Street Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.blckmtn.net


CONSULTANT JOB NO.
24-125

ADDITION TO EXISTING
ORANGE GROVE
VOLUNTEER FIRE STATION
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

PLUMBING ISOMETRICS AND DETAILS

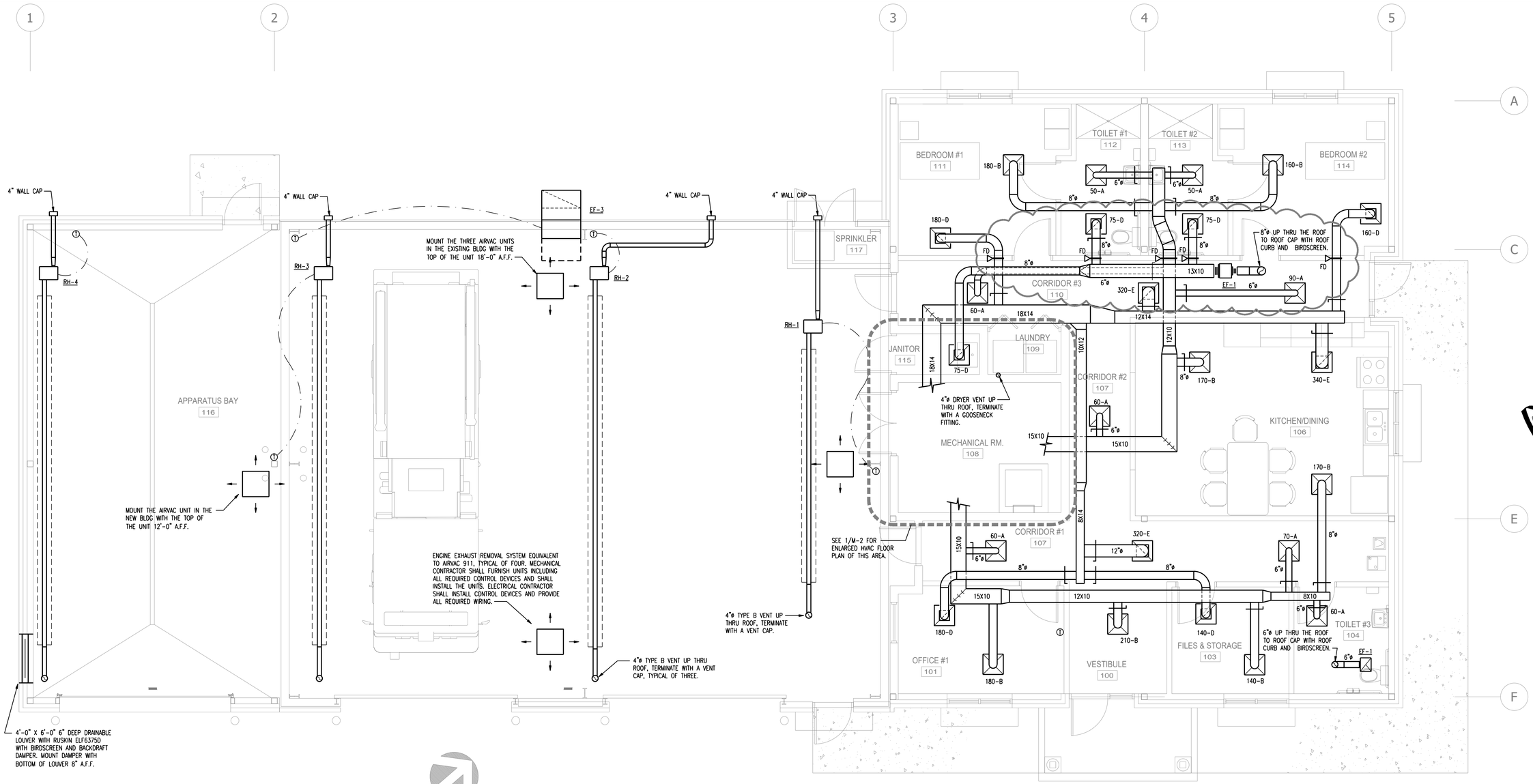
DATE: APRIL 21, 2025
DRAWN BY: MBS | CHECKED: MBS
JOB NO. 24039

SHEET NO.
**P-4**



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19293 MICHAEL B. SPRAGUE 4-21-25

BLACK MOUNTAIN ENGINEERING PA MECHANICAL ENGINEERING CORPORATION CERT. NO. C-1553 NORTH CAROLINA GREENSBORO, NC




## HVAC FLOOR PLAN

2 / M-1

1/8"=1'-0"

1. All seismic load calculations for this project shall be based upon a 1 second spectral response acceleration of, SD1= 0.079%; a short period spectral response acceleration of, SDS=0.158%; a seismic design category B; a seismic use group II and an importance factor of 1.0. The seismic design parameters were provided by the Structural Engineer, Landwehrmann Engineering, PLLC.
2. All seismic restraining device designs are to be executed, signed and sealed by a Registered North Carolina Engineer.
3. All ductwork shall be fabricated and installed in accordance with SMACNA standards, including SMACNA-HVAC, SMACNA-SEISMIC and SMACNA seismic restraint manual guidelines for mechanical systems.
4. S – Shall be restrained using seismic cable restraints which consist of galvanized steel aircraft cables sized to resist seismic loads with a minimum safety factor of two and arranged to provide all directional restraint. Cables must be pre stretched to achieve a certified minimum medullas of elasticity. Cable end connections shall be steel assemblies that swivel to final installation angle and utilize two clamping bolts to provide proper cable engagement. Cables must not be allowed to bend across sharp edges. Cable assemblies shall have an anchorage pre approval "R" number from OSHPD in the State of California verifying the maximum certified load ratings.
5. CU – Shall be mounted on rigid mount seismic (non isolated) roof curbs & rails. Curbs & rails shall be 12" tall and constructed using structural channel welded or bolted together, 1-½ X 2 wood nailer for attachment of roofing. Provisions for insulation and the attachment of the curb to the roof and the equipment to the curb shall be designed to resist seismic and wind forces by a licenced engineer registered in the State of North Carolina with sealed calculations to be included as part of the submittal. These calculations shall include details indicating method for attaching the curbs to the roof and the equipment to the curb.
6. All piping and it's associated attachments and supports shall be designed to meet the force and displacement requirements of chapter 16 of the North Carolina Building Code.
7. The simplified analysis procedures of ASME 31.9, Section 919.4.1(a) shall not be used for design of piping and it's associated attachments and supports.

## GENERAL NOTES:

1 – SMOKE DETECTORS SHALL BE HARD WIRED TO THEIR RESPECTIVE AIR HANDLING UNITS TO SHUT OFF THE FAN ON ALARM OF THE DETECTOR.

2 – ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL CODES.

3 – ALL DUCT SIZES DENOTED ON THE FLOOR PLAN ARE INSIDE CLEAR DIMENSIONS. THE CONTRACTOR SHALL INCREASE METAL SIZES OF DUCTWORK TO ACCOMMODATE DUCT LINER WHERE APPLICABLE.

4 – DUCT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE INTENT OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL TRANSITIONS, OFFSETS, OR TURNS, IN THE DUCTWORK AND/OR PIPING, NOT SHOWN BUT REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

5 – THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL DUCTWORK AND PIPING WITH ALL OTHER TRADES TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.

6 – ALL DUCTWORK SHALL BE INSTALLED TIGHT AGAINST THE STRUCTURE UNLESS OTHERWISE NOTED OR SHOWN.

7 – AIR DISTRIBUTION LOCATIONS SHOWN ON MECHANICAL PLANS ARE APPROXIMATE. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR ACTUAL LOCATIONS.

8 – FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, WATER ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.

## SYMBOLS AND ABBREVIATIONS LEGEND

| | | | |
|---|---|---|---|
| T | THERMOSTAT | U.N.O. | UNLESS NOTED OTHERWISE |
| | CEILING SUPPLY DIFFUSER | G | NATURAL GAS |
| | CEILING RETURN GRILLE | | PIPE ELBOW |
| | CEILING EXHAUST GRILLE | | PIPE ELBOW DOWN |
| | MANUAL BALANCING DAMPER | | UNION |
| | SIDEWALL SUPPLY DIFFUSER | | PIPE TEE |
| | SIDEWALL RETURN OR EXHAUST GRILLE | ø | DIAMETER OR POWER PHASE |
| | EXISTING PIPE, DUCT OR EQUIPMENT | C.T.E. | CONNECT TO EXISTING |
| | NEW PIPE, DUCT OR EQUIPMENT | M.O.D. | MOTOR OPERATED DAMPER |
| | SUPPLY DUCT SECTION | O.A. | OUTSIDE AIR |
| | RETURN DUCT SECTION | R.A. | RETURN AIR |
| | EXHAUST DUCT SECTION | S.A. | SUPPLY AIR |
| | RECTANGULAR ELBOW WITH TURNING VANES | A.F.F. | ABOVE FINISHED FLOOR |
| N.I.C. | NOT IN CONTRACT | S | EMERGENCY STOP SWITCH |

## GAS FIRED RADIANT HEATER SCHEDULE

| MARK | MANUFACTURER | TYPE | MODEL NO. | SERVES | MOUNTING HEIGHT | MIN. OUTPUT | MIN. EFF. | POWER | LENGTH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| RH-1 | RE-VERBER-RAY | LOW INTENSITY STRAIGHT TUBE | DX3L20-50P | APARATUS | 14'-0" A.F.F. | 40.0 MBH | 80% | 120V/1ø | 20 FEET | 1 |
| RH-2 | ↓ | ↓ | DX3L30-60P | ↓ | 18'-0" A.F.F. | 48.0 MBH | ↓ | ↓ | 30 FEET | 1 |
| RH-3 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | 1 |
| RH-4 | ↓ | ↓ | ↓ | ↓ | 12'-0" A.F.F. | ↓ | ↓ | ↓ | ↓ | 1,2 |

REMARKS:
1 – PROVIDE WITH LINE VOLTAGE THERMOSTAT, ROOF VENT, AND INTAKE WALL CAP
2 – MOUNT UNIT WITH REFLECTOR AT A 45 DEGREE ANGLE AWAY FROM THE EXTERIOR WALL.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

BLACK MOUNTAIN ENGINEERING, PLLC
720 Lake Main Street
Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.blckmtn.net
Plumbing, and Mechanical Design

ADDITION TO EXISTING
ORANGE GROVE
VOLUNTEER FIRE STATION
6801 ROCKY RIDGE RD. HILLSBOROUGH, NORTH CAROLINA 27258

CONSULTANT JOB NO.
24-125

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

| | | |
|---|---|---|
| 1 | 8/19/25: PERMIT REVIEW COMMENTS | |

HVAC FLOOR PLAN, NOTES & SCHEDULES

DATE: APRIL 21, 2025

DRAWN BY: MBS | CHECKED: MBS

JOB NO. 24039

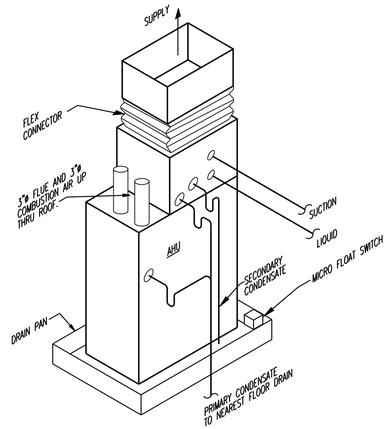
SHEET NO.

M-1

OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19293 MICHAEL B. SPRAGUE 8-19-25

BLACK MOUNTAIN ENGINEERING, PLLC REGISTERED ENGINEERING CORPORATION CERT. NO. C-1553 GREENSBORO, N.C.




2 M-2 AIR HANDLER/FURNACE DETAIL

NOT TO SCALE

## SPLIT SYSTEM A/C UNIT WITH GAS FURNACE SCHEDULE

| MARK | MANUFACTURER | INDOOR UNIT MODEL NO. | INDOOR COIL MODEL NO. | INDOOR UNIT POWER | OUTDOOR UNIT MODEL NO. | OUTDOOR UNIT POWER | SUPPLY FAN DATA | | | | COOLING CAPACITY | | | GAS HEATING CAPACITY | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | AIR FLOW | O.A. FLOW | E.S.P. | MOTOR SIZE | SENSIBLE | TOTAL | MIN. EFF. | MIN. OUTPUT | MIN. EFF. | |
| AHU/CU-1 | TRANE | S9X1C100U5PSBB | 4PXCCU60BS3CAB | 120V/1ø | 4TTR4060 | 230V/1ø | 1800 CFM | 370 CFM | 0.9" W.G. | 1 H.P. | 38.4 MBH | 53.1 MBH | 14 SEER2 | 58.3 MBH | 92 % AFUE | 1,2,3 |

REMARKS:
1 - PROVIDE HIGH EFFICIENCY FURNACE WITH SEALED COMBUSTION CHAMBER.
2 - PROVIDE UNIT WITH PROGRAMABLE ON, OFF, AUTO THERMOSTAT WITH AUTO CHANGEOVER BETWEEN HEATING AND COOLING MODES, AND PLEATED MEDIA, MERV 8 THROWAWAY FILTER.
3 - PROVIDE UNIT STAND ALONE SMOKE DETECTOR IN RETURN DUCT. PROVIDE AUDIBLE AND VISIBLE ALARM IN THE OCCUPIED PART OF THE BUILDING.

## FAN SCHEDULE

| MARK | MANUFACTURER | MODEL | TYPE | CFM | SP | MOTOR | POWER | RPM | SONES | CONTROL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EF-1 | GREENHECK | CSP-A290 | IN-LINE CABINET FAN | 225 | 1/4" W.G. | 102 W | 120V/1ø | 1050 | 2 | LIGHT SWITCH | 1 |
| EF-2 | | SP-A90 | CEILING FAN | 75 | | 15 W | | 870 | 1 | LIGHT SWITCH | 1 |
| EF-3 | | SB-2L30-7 | SIDEWALL PROP FAN | 9500 | 1/8" W.G. | 3/4 HP | | 645 | 18 | HOA/T-STAT | 2,3,4 |

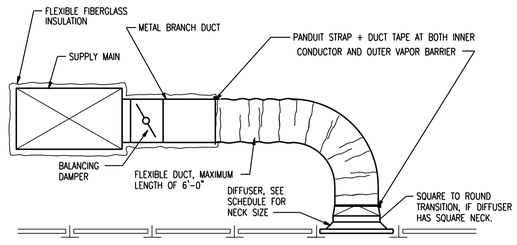
REMARKS:
1 - PROVIDE UNIT WITH INTEGRAL DISCONNECT SWITCH, VIBRATION ISOLATION HANGERS, AND BACK DRAFT DAMPER.
2 - PROVIDE UNIT WITH WALL COLLAR, OSHA MOTOR GUARD, DAMPER GUARD AND 45 DEGREE WEATHER HOOD.
3 - PROVIDE UNIT WITH COMBINATION STARTER/DISCONNECT WITH HOA SWITCH. PROVIDE LINE VOLTAGE THERMOSTAT ON AUTOMATIC LEG.
4 - MOUNT FAN 18'-6" A.F.F..

## AIR DISTRIBUTION SCHEDULE

| MARK | MANUFACTURER | NECK SIZE | PANEL SIZE | CFM RANGE | USE | TYPE | MODEL |
|---|---|---|---|---|---|---|---|
| A | PRICE | 6"ø | 24X24 | 1-120 | SUPPLY | LOUVERED CEILING DIFFUSER | ASCD |
| B | | 8"ø | 24X24 | 130-210 | | | |
| C | | 10X6 | - | 0-200 | | DOUBLE DEFLECTION CEILING GRILLE | 720D |
| D | | 8"ø | 24X24 | 1-180 | RETURN | PERFORATED RETURN GRILLE | APDDR |
| E | | 12"ø | 24X24 | 190-470 | | | |
| F | | | | | | | |
| G | | 14"ø | 24X24 | 480-700 | | | |
| H | | 15X15 | 24X24 | 710-1000 | | | |
| K | | 14X4 | - | 0-240 | | SINGLE FIXED 45° BLADE GRILLE | 630D |

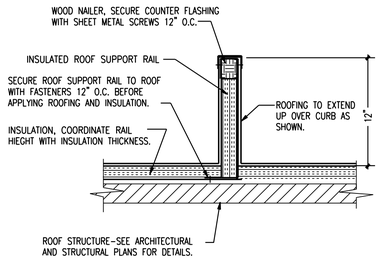
## MINIMUM VENTILATION CALCULATION

| ZONE NAME | AREA | OCCUPANT DENSITY | PEOPLE | VENTILATION RATE | | O.A. REQUIRED | O.A. SPECIFIED |
|---|---|---|---|---|---|---|---|
| OFFICE | 119 | 5 PEOPLE/1000 SQ. FT. | 1 | 5 CFM/PERSON | 0.06 CFM/SQ. FT. | 13 CFM | 37 CFM |
| CORRIDOR/STORAGE | 850 | - | - | - | 0.06 CFM/SQ. FT. | 51 CFM | 159 CFM |
| BREAKROOM | 328 | 50 PEOPLE/1000 SQ. FT. | 17 | 5 CFM/PERSON | 0.06 CFM/SQ. FT. | 105 CFM | 71 CFM |
| BEDROOM | 329 | 10 PEOPLE/1000 SQ. FT. | 4 | 5 CFM/PERSON | 0.06 CFM/SQ. FT. | 40 CFM | 70 CFM |
| RESTROOMS | 226 | - | - | - | - | 0 CFM | 33 CFM |
| TOTAL OUTSIDE AIR | | | | | | 209 CFM | 370 CFM |




3 M-2 SUPPLY DIFFUSER DETAIL

NOT TO SCALE




4 M-2 ROOF SUPPORT RAIL DETAIL

NOT TO SCALE

## MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

### METHOD OF COMPLIANCE

Prescriptive _X_ Energy Cost Budget
Thermal Zone: 4A

Exterior design conditions:
Winter dry bulb 14 degrees Fahrenheit
Summer dry bulb 91 degrees Fahrenheit

Interior design conditions:
Winter dry bulb 70 degrees Fahrenheit
Summer dry bulb 74 degrees Fahrenheit
Relative humidity 50 Percent

Building heating load: 28.8 MBH

Building cooling load: 3.5 Tons

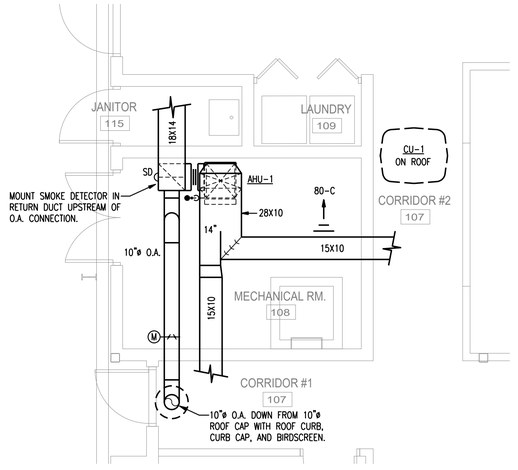
Mechanical Space Conditioning System Description:

Unitary
Description of unit: Air Cooled Split System < 65,000 Btu/Hr with gas fired furnace < 225,000 Btu/Hr
Heating efficiency: 92% AFUE
Heat output of unit: 73.6 MBH
Cooling efficiency: 14.0 SEER
Cooling Output of unit 4 Tons

Boiler: n/a
Chiller: n/a

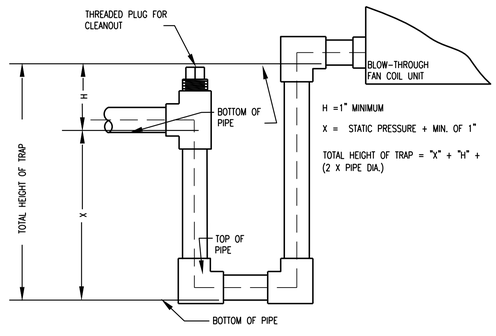
List Equipment efficiencies:
Equipment schedules with motors:
See schedules on drawings.
All motors efficiencies are part of packaged equipment efficiecies noted above.

DESIGNERS STATEMENT:
To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina Energy Code.



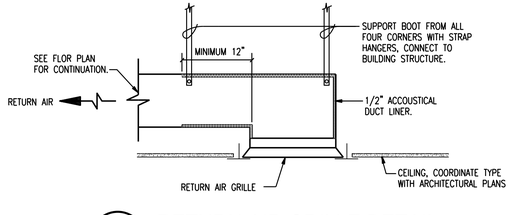

1 M-2 ENLARGED MECHANICAL ROOM

1/4" = 1'-0"



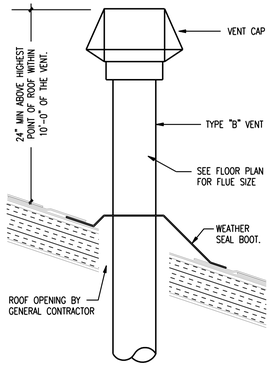

5 M-2 POS. PRESS. P-TRAP DETAIL

NOT TO SCALE



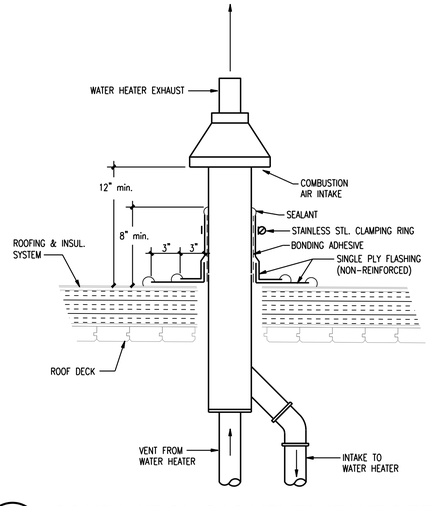

6 M-2 RETURN AIR GRILLE DETAIL

NOT TO SCALE



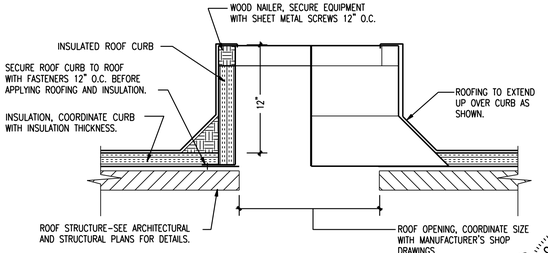

7 M-2 GAS VENT THROUGH ROOF DETAIL

NOT TO SCALE




8 M-2 COMBINATION GAS VENT/INTAKE DETAIL

NOT TO SCALE




9 M-2 ROOF CURB DETAIL

NOT TO SCALE

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

720 Lake Main Street
Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.blackmtn.net

BLACK MOUNTAIN ENGINEERING, PA
Plumbing, and Mechanical Design

CONSULTANT JOB NO.
24-125

ADDITION TO EXISTING ORANGE GROVE VOLUNTEER FIRE STATION
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

EQUIPMENT ROOM FLOOR PLAN, SCHEDULES & DETAILS

DATE: APRIL 21, 2025

DRAWN BY: MBS | CHECKED: MBS

JOB NO. 24039

SHEET NO. M-2

OF 3

NORTH CAROLINA SEAL 19293 ENGINEER MICHAEL B. SPRAGUE 4-21-25

BLACK MOUNTAIN ENGINEERING, PA REGISTERED ENGINEERING CORPORATION CERT. NO. C-1553 NORTH CAROLINA GREENSBORO, N.C.

# MECHANICAL SPECIFICATIONS

General:

Provide all materials, equipment, manpower etc. required to install a complete and functioning HVAC system as specified, shown or implied herein on Mechanical sheets.

Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

Obtain and pay for all required permits, and request, and arrange for all required inspections. Deliver all certificates of inspection to the Architect. Final pay application will not be approved until all inspections are complete and a Certificate of Occupancy has been issued.

All work and materials shall be in compliance with applicable state, local and national codes. Code provisions shall be the absolute minimum standards, where provisions herein exceed code requirements the contractor shall provide the work as specified.

Thoroughly review the entire set of construction documents and coordinate HVAC work with the work of all other trades to avoid conflicts and interference.

The contractor shall visit the site prior to bid, and shall verify every aspect of the proposed work and existing field conditions which might affect the completion of the HVAC work. Failure or neglect to thoroughly investigate the contract documents and/or the site shall not be sufficient cause for additional compensation to the contractor.

The contractor shall be responsible for all cutting and patching required for the proper installation of his or her work and shall be responsible for any damage caused by himself or his workmen. All patching and repairs shall be done by individuals regularly engaged in the installation of like materials or systems.

All materials and equipment shall be new and shall be listed and labeled by Underwriters Laboratories, Inc. (UL) or Electronics Testing Labs, Inc. (ETL) for it's intended use.

The drawings are diagrammatic in nature and are not intended to include every detail of construction. The Contractor shall coordinate actual installation with the work of other trades and existing site conditions. Finish dimensions shall be taken in the field in lieu of scaling from the plans.

The contractor shall warrant all materials and workmanship to be free from defect for a period of one year. The warranty period shall start upon time of acceptance by the owner. If within the warranty period any work or equipment is found to be defective, the contractor shall correct the defect promptly at no cost to the owner.

The system shall be balanced in accordance with AABC and reported on standard AABC or NEBB forms by a technician certified by AABC or NEBB and having a minimum of three years experience.

Electrical Requirements:

All conduit and wire shall be installed as per the electrical specifications on Sheet E3-1. Mechanical contractor shall provide all motor starters, and unless otherwise noted the electrical contractor shall provide all disconnect switches. Power wiring to the load side of the disconnect switch shall be provided by the electrical contractor. Power wiring from the disconnect switch through the starter and to the terminal block on the mechanical equipment shall be provided by the mechanical contractor.

Split System A/C Units with High Efficiency Gas Furnace:

Indoor unit shall be a self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heater, controls, air filter and refrigerant coil.

Indoor unit cabinet shall be Galvanized steel with baked enamel finish, with easily removed secured access doors. Supply fan shall be centrifugal type rubber mounted with belt drive, adjustable pitch motor pulley. Air filters shall be 1" thick glass fiber disposable type arranged for easy replacement. Evaporator Coil shall be copper tube with aluminum fin assembly with galvanized positively sloped drain pan, drain connection, refrigerant piping connections and factory installed thermostatic expansion valve. Filters shall be 1" thick pleated media throw away filter. High efficiency sealed combustion natural gas heater with soft mounted inducer, 3 pass 20 gauge corrosion resistant aluminized steel primary heat exchanger and a secondary heat exchanger with an interior polypropylene laminate coating.

Outdoor unit shall be self-contained, packaged, factory assembled and pre-wired units suitable for outdoor use consisting of cabinet, condensing coils and fans, controls, liquid receiver, and screens.

Outdoor unit cabinet shall constructed with a welded steel frame with galvanized steel panels with weather resistant, baked enamel finish. Mount starters. and controls in weather proof panel provided with full opening access doors.

Condenser coil shall be aluminum fins mechanically bonded to seamless copper tubing. Air test under water to 425 psig, and dehydrate. Seal with holding charge of nitrogen. Condenser fans shall be vertical discharge direct driven propeller type with fan guard on discharge. Provide weatherproof motors suitable for outdoor use, with permanent lubricated bearings and built-in thermal overload protection.

Compressor shall be a scroll type mounted on rubber isolators.

Provide initial and cooling season startup, and winter season shut down for first year of operation, including routine servicing and check out.

Supply initial charge of refrigerant and oil for each refrigeration circuit. Inspect and test for refrigerant leaks every four months, and replace losses of refrigerant and oil, during the first year of operation.

Acceptable Manufacturers: Carrier, Johnson Controls, Trane, and York.

Insulation:

All low pressure ductwork, (supply, return, and outside air) shall be insulated with 3" thick glass fiber duct wrap with 1.0 lb/cu ft density and kraft paper vapor barrier jacket. All joints shall be taped with kraft paper reinforced with glass fiber yarn and bonded to aluminized film. Insulation shall be continuous through walls, sleeves, hangers and other duct penetrations.

Insulate entire duct system including all fittings, joints, flanges, fire dampers, flexible connections and expansion joints.

Insulate suction refrigerant piping with 1/2" thick cellular elastomeric pipe insulation with a minimum "K" value of .27 at 75 degrees Fahrenheit. Seal all joints with air dried, contact adhesive, compatible with insulation.

Provide galvanized steel shields and 6" long inserts at all pipe hangers. Inserts shall be hydrous calcium silicate insulation or other heavy density insulating material. Install inserts between support shields and piping and under finish jacket.

Refrigerant Piping:

ACR hard drawn copper tubing - ASTM B280, with ASME B16.22 wrought fittings. Joints shall be silver brazed, grade 95TA solder. Provide moisture indicator, filter dryer, and packed angle service valves with each circuit. Slope piping 1% for oil return to compressor. Test in accordance with ASME B31.5 and fully charge after testing.

Pipe Hangers:

Hangers for pipe 1/2" to 1-1/2" shall be Carbon steel adjustable swivel, split ring type, with a maximum spacing of 8'-0" on centers.

Hangers for cold pipe 2" and over shall be carbon steel adjustable clevis type. Hanger spacing for pipes 2-1/2" and smaller shall not exceed 10'-0" on centers. Hangers spacing for pipes 3" through 5" shall not exceed 12'-0" on centers.

Hangers for copper piping shall be PVC coated Carbon Steel. Type, and spacing, of hangers shall be as specified above.

Provide clearance in hangers from structure and other equipment for installation of insulation and access to valves and fittings.

Install hangers with 5'-0" of all changes in direction of piping.

Prime coat all exposed steel hangers.

Air Outlets and Inlets:

Louver Face Directional Diffusers shall be aluminum with a minimum of three removable fixed cones. Diffusers furnished with opposed blade dampers shall have provisions to adjust the damper through the face of the grille with removing the inner core of the diffuser. Finish diffusers with an off-white electro-depostition paint.

Perforated ceiling return grilles shall be aluminum flush face type.

Sidewall grilles shall be double deflection aluminum grilles with adjustable blades and 3/4" spacing between the blades.

Acceptable Manufacturers: Carnes, E. H. Price, Metal Industries, Nailor Industries, or Tuttle & Bailey.

Install diffusers and grilles with air tight connections.

Provide balancing dampers on duct takeoff to diffusers, and grilles regardless of whether dampers are specified as part of the diffuser or grille.

Low Pressure Ductwork:

All ductwork shall be constructed with galvanized sheet steel, lock forming quality, having zinc coating of 1.25 oz. per square foot on each side in conformance with ASTM 90.

Fabricate and support in accordance with SMACNA Low Pressure Duct Construction Standards and ASHRAE Handbooks. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

Construct bends, and elbows with a full radius not less than one and a half times the width of duct on center line Where not possible to install a full radius bend, or where noted on the plans provide turning vanes.

Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

Connect diffusers or troffer boots to low pressure ducts with a maximum of 6 feet of flexible duct. Secure flexible duct to rigid ductwork with strap or clamp plus duct sealing tape at both inner conductor and outer vapor barrier

Connect duct to equipment with canvas flexible connectors.

Fabricate volume control dampers in accordance with SMACNA Low Pressure Duct Construction Standards. Single blade dampers may be used in branch duct. Multi-blade opposed blade dampers shall be used for volume control in rectangular main or trunk duct. Splitter dampers shall not be permitted. Provide all manual dampers with locking, indicating, quadrant regulators.

Fabricate fire dampers in accordance with NFPA 90A and UL 555. Provide multiple blade static Type "B" fire dampers with 20 gage galvanized steel frame and 24 gage galvanized steel blades and plated steel concealed linkage, stainless steel closure spring, blade stops and lock. Fusible links shall separate at 160 degrees Fahrenheit. Furnish damper with steel sleeve and retaining angles by damper manufacturer. be in strict accordance with manufacturer's U.L. listed instructions.

Provide balancing dampers and fire dampers where indicated.

Provide access duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 8" x 8" door for hand access and a minimum 18" x 18" door for shoulder access. Access doors shall be rigid and close fitting doors of galvanized steel with sealing gaskets, quick fastening locking device, and hinges. For insulated ductwork, install minimum one inch thick insulation with sheet metal cover.

Provide flexible connections between ductwork and fan driven equipment. Flexible connectors shall be fabricated with UL listed fire retardant neoprene coated woven glass fiber fabric, minimum density of 20 oz per square yard.

Provide duct test holes where required for testing and balancing.

Ceiling Exhaust Fans:

Provide factory assembled packaged unit consisting of fan wheel, housing, motor, and accessories as indicated in the schedule on the plans. Exhaust fans shall be centrifugal direct drive type.

The fan wheel shall be forward curve twin double width wheels constructed of galvanized steel with separate galvanized steel scrolls, and inlet cone. Wheels shall be dynamically balanced.

Fan housing shall be constructed of corrosion resistant galvanized steel.

Motors shall be sized to match fan loads, have thermal overload protection, and be mounted on vibration isolators.

Acceptable Manufacturers: ACME, Carnes, Greenheck, Loren Cook and Penn Ventilator.

Wall Mounted Supply & Exhaust Fans:

Provide factory assembled packaged unit consisting of fan, housing, motor, motor guard, and discharge damper. Propellers shall be constructed with fabricated steel, fabricated aluminum, or cast aluminum blades and hubs. A standard square key and set screw or tapered bushing shall lock propeller to the motor shaft. All propeller shall be statically and dynamically balanced to AMCA standard 204-05.

Motors shall be permanently lubricated, heavy duty type, carefully matched to the fan load furnished at the specified RPM, voltage, phase and enclosure.

Motor drive frame assemblies and fan panels shall be galvanized steel or painted steel. Drive frame assemblies shall be welded wire and formed channels and fan panels shall have prepunched mounting holes, formed flanges, and deep formed inlet venturi. Drive frames and panels shall be bolted construction or welded construction.

The axial exhaust or supply fans shall bear the ACMA Certified Ratings Seals for sound and air performance.

Weather hood shall be a 45 degree turned down hood constructed with galvanized steel furnished with wire mesh birdscreen and prepunched mounting holes matched with associated wall collar. Dampers shall be fiberglass with a quiet closure. Motor Guard shall be PVC coated galvanized steel wire and comply with OSHA safety specifications.

Acceptable Manufacturers: American Coolair, and Greenheck.

Engine Exhaust Removal System:

Unit shall be a self-contained, packaged, factory assembled, pre-wired exhaust removal system consisting of cabinet, recirculation fan, four stage filter pack, and controls.

Unit cabinet shall be fabricated with 16 gage steel with gray baked enamel powder coat finish, with hinged access doors.

Air filters shall include a three ply polyester pre-filter, a high efficiency particulate air filter (HEPA MAX 3000) UL rated at 95% to 99.7% efficiency, and a two stage carbon gas phase extractor (MULTISORB 3000) for both high weight molecular gases (benzene, octane, methanol and more) and a gas phase extractor to treat light weight gases (sulphur dioxide, nitrogen dioxide, and formaldehyde). Combined MERV rating of filter pack shall be a minimum of 16.

Controls shall include a single control panel to control all four units, with a ON-OFF-AUTO selector and an Illuminated Pushbutton. In the ON position, the AVEC units shall be energized. In the OFF position the AVEC units shall be de-energized. In the AUTO position, the AVEC units shall energize in groups of two until all units are energized. Illuminated pushbutton will illuminate when AVEC units are energized. Controls shall also include Outdoor Infrared Double Beam Sensors and Track mounted switch for overhead doors. Infrared sensor shall be installed in each corner of the Apparatus Room and Track Mounted switches shall be installed all overhead doors.

Support unit with 5/8" threaded rod from all four corners of the AVEC units as per the Manufacturers recommendations. Prime coat all exposed steel supports.

Gas Fired Radiant Heaters:

Provide self-contained, packaged, factory assembled, pre-wired two stage infared-red tube heater including but not limited to two stage burner, reflector, controls, and two stage thermostat.

Units shall have a minimum thermal efficiency of 80%.

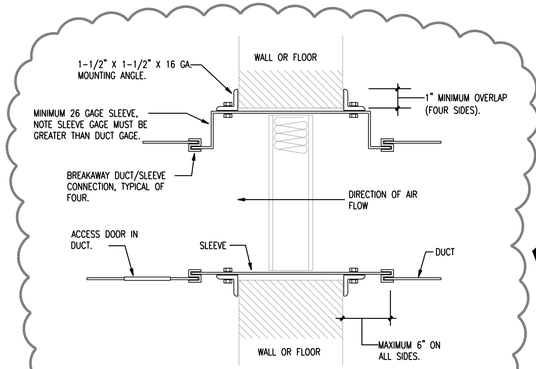
Burner shall be fan assisted type with a power blower certified for use with a Type "B" vent pipe.

Safety controls shall include, but not be limited to, 100% shut off intermittent pilot ignition, and two safety pressure switches that assures proper venting conditions.

Heaters control housing shall be totally enclosed with a enameled steel exterior. Heater's combustion chamber and radiant emitter tube shall be 4" o.d. 16ga. aluminized steel finished with high emissivity rated, corrosion resistant, black coating. Reflectors shall be of .025 polished aluminum with reflector end caps, and shall rotate from 0 to 45 degrees when required. Heaters shall be equipped with a sight glass allowing visual inspection of ignitor and burner operation from the floor.

Heaters shall be provided with an air intake collar such that outside combustion air may be supplied directly to the unit.

Acceptable Manufacturers: Detroit Radiant Products Company, Combustion Research Corp., and Gas-Fired Products, Inc..




NOTE:
FIRE DAMPER SHALL BE UL LABELED OR LISTED, OR PART OF AN ASSEMBLY HAVING THE REQUIRED HOURLY RATING OF UL TESTS, AND BE INSTALLED IN ACCORDANCE WITH THE LISTING. COORDINATE DAMPER RATING WITH ARCHITECTURAL PARTITION SCHEDULE.

1 / M-3 FIRE DAMPER DETAIL
NOT TO SCALE


alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

BLACK MOUNTAIN ENGINEERING, P.A.
Plumbing, and Mechanical Design
790 Lake Main Street
Suite A
Jamestown, NC 27282
336-454-0887
fax 336-454-0892
www.bmemp.net


CONSULTANT JOB NO.
24-125

ADDITION TO EXISTING
ORANGE GROVE
VOLUNTEER FIRE STATION
6801 ROCKY RIDGE RD, HILLSBOROUGH, NORTH CAROLINA 27258


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

| | | |
|---|---|---|
| 1 | 8/19/25: PERMIT REVIEW COMMENTS | |

HVAC SPECIFICATIONS

DATE: APRIL 21, 2025

DRAWN BY: MBS | CHECKED: MBS

JOB NO. 24039

SHEET NO.

M-3

OF 3

NORTH CAROLINA SEAL 19293 ENGINEER MICHAEL B. SPRAGUE 8-19-25

BLACK MOUNTAIN ENGINEERING, P.A. REGISTERED ENGINEERING CORPORATION CERT. NO. C-1553 NORTH CAROLINA GREENSBORO, NC

## ELECTRICAL SPECIFICATIONS :

1. THE EC SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, AND SERVICES NECESSARY FOR THE PROPER COMPLETION OF ALL ELECTRICAL WORK AS SHOWN ON THE ENTIRE SET OF DRAWINGS AND SPECIFICATIONS. THIS SHALL ALSO INCLUDE, BUT NOT BE LIMITED TO, THE FURNISHING, HANDLING, INSTALLATION, AND FINAL CONNECTION OF ALL REQUIRED COMPONENTS.

THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO INCLUDE EVERY DETAIL OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ACTUAL INSTALLATION WITH THE WORK OF OTHER TRADES AND EXISTING SITE CONDITIONS. FINISH DIMENSIONS SHALL BE TAKEN IN THE FIELD IN LIEU OF SCALING FROM THE PLANS.

THE ENTIRE PROJECT SET OF SPECIFICATIONS AND DRAWINGS ARE COMPLIMENTARY AND ARE TO BE TAKEN TOGETHER FOR A COMPLETE INTERPRETATION OF THE WORK.

2. ALL WORK SHALL MEET OR EXCEED ANY FEDERAL/STATE/COUNTY/LOCAL CODES, AND LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70). WHERE PROVISIONS HEREIN EXCEED CODE REQUIREMENTS, THE EC SHALL PROVIDE THE WORK AS SPECIFIED, UNLESS SPECIFICALLY CLARIFIED BY ADDENDUM. ALL MATERIALS USED IN THIS PROJECT SHALL BE NEW, AND SHALL BE UL LISTED. EXISTING CONDUIT, OF SUITABLE TYPE, SIZE AND CONDITION, MAY BE REUSED.

3. A LICENSED CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, AND FEES. DELIVER ALL CERTIFICATES OF INSPECTION TO THE OWNER.

4. ANY WALL OR FLOOR PENETRATIONS MADE BY THE EC, SHALL BE SEALED TO PROVIDE FIRE-PROOFING AFTER THE REQUIRED CONDUIT/EQUIPMENT HAS BEEN INSTALLED TO MAINTAIN FIRE RATING. FIRE-PROOFING MATERIALS SHALL BE UL LISTED FOR THE TYPE OF PENETRATION. THE ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF SMOKE AND/OR FIRE-RATED WALLS/CEILINGS/PARTITIONS. ALL PENETRATION SEALS SHALL COMPLY WITH THE LATEST EDITION OF THE U.L. FIRE RESISTANCE DIRECTORY. AT NO TIME SHALL A 4 HR. WALL BE PENETRATED WITHOUT THE WRITTEN APPROVAL OF THE LOCAL AHJ.

5. WHERE ELECTRICAL EQUIPMENT PENETRATES EXTERIOR WALLS OR THE ROOF, THEY SHALL BE PROPERLY WATER SEALED IN ACCORDANCE WITH THE SPECIFICATIONS. SUBMIT DETAIL OF PROPOSED WORK.

6. WHERE PENETRATIONS ARE MADE THROUGH A REQURED FIRE-RESISTIVE WALL, FLOOR OR PARTITION FOR THE PURPOSE OF ROUTING RACEWAY CARRYING ELECTRICAL, VOICE/DATA/A/V OF LOCAL COMMUNICATION AND/OR SIGNAGE CIRCUITS, THE OPENING AROUND THE RACEWAY SHALL BE FIRE STOPPED PER TEH STATE BUILDING CODE. COORDINATION W/ THE GC SHALL BE MAINTAINED TO ENSURE THIS FIRE STOPPING IS ACCOMPLISHED. USE APPROVED ASSEMBLIES SUCH AS THE ONES BELOW. ALL PENETRATION SEALS SHALL COMPLY WITH THE LATEST EDITION OF THE U.L. FIRE RESISTANCE DIRECTORY.

- CONDUIT PENETRATIONS OF 1, 2, 3 & 4 HOUR GYPSUM BOARD WALLS – U.L. #W-L-1001
- CONDUIT PENETRATIONS OF 2, 3 & 4 HOUR CONCRETE OR BLOCK WALLS – U.L. #C-AJ-1001
- CONDUIT PENETRATIONS OF 2, 3 & 4 HOUR CONCRETE FLOORS – U.L. #C-AJ-1001
- CONDUIT PENETRATIONS OF 1 HOUR GYPSUM BOARD CEILING ASSEMBLY – U.L. #L526
- MULT. CONDUIT PENETRATIONS OF 2, 3 & 4 HOUR CONCRETE OR BLOCK WALL OR FLOOR – UL #C-AJ-1042

7. UON, ALL WIRE SHALL BE PROPERLY PHASE & COLOR CODED AND SHALL BE COPPER, TYPE THHN (INTERIOR) OR THHN-2/XHHW-2 (EXTERIOR), RATED 600 VOLTS, 90°C, SIZE #12 (MINIMUM). UON, ALUMINUM WIRING MAY NOT BE USED. ALL WIRE #8 AND LARGER SHALL BE STRANDED. UNLESS DERATING FACTORS ARE APPLIED AND WIRING IS SIZED ACCORDINGLY, MAX (3) CURRENT CARRYING CONDUCTORS PLUS GROUND IN ANY ONE CONDUIT. (REFER TO NOTE 23 BELOW FOR FURTHER INFORMATION). MULTI-PHASE CONDUCTORS SHALL BE CONNECTED TO CONSECUTIVE ODD OR CONSECUTIVE EVEN-NUMBERED CIRCUIT BREAKERS. ALL WIRING ABOVE PLENUM RATED CEILINGS SHALL BE SUITABLE FOR PLENUM USAGE (I.E. PLENUM RATED CABLE).

8. THE FOLLOWING RACEWAY TYPES (1/2" MINIMUM) ARE ACCEPTABLE FOR USE IAW THEIR APPLICABLE ARTICLES OF THE NEC:

| | | |
|---|---|---|
| RGS, IMC, PVC | : | OUTDOOR AREAS |
| PVC | : | IN OR BELOW CONCRETE |
| PVC, EMT, ENT | : | IN CONCRETE ABOVE GRADE |
| EMT, MC | : | IN HOLLOW WALL SPACES AND/OR ABOVE CEILINGS |
| EMT, MC | : | SURFACE MOUNTED WHERE EXPOSED |
| MC LUMINARY | : | MC CABLE W/ POWER & LV WIRING FOR 0-10V DIMMING |

MC CABLE MAY BE USED IN DEVICE WIRING WHERE INSTALLED IN A WORKMANLIKE MANNER AND PARALLEL / PERPENDICULAR TO BUILDING LINES. MC CABLE SHALL NOT BE USED FOR HOMERUNS OR IN EXPOSED AREAS. MC CABLE SHALL HAVE FULL SIZED GROUND. EC SHALL OBSERVE BEND RADIUS AND SUPPORT REQUIREMENTS. USE CONDUIT SEAL-OFFS IN CLASSIFIED AREAS. USE EXPANSION FITTINGS WHEN CROSSING EXPANSION JOINTS.

9. CONDUCTORS FOR BRANCH CIRCUITS SHALL BE SIZED TO PREVENT A VOLTAGE DROP EXCEEDING THREE PERCENT (3%) AT THE FARTHEST OUTLET OF POWER, LIGHTING OR HEATING LOADS, OR ANY COMBINATION OF SUCH LOADS. THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS & BRANCH CIRCUITS TO THE FARTHEST OUTLET SHALL NOT EXCEED FIVE PERCENT (5%). (TYPICAL) WHERE THE CONDUCTOR LENGTH FROM THE PANEL TO THE FIRST DEVICE EXCEEDS 50 FT (120V) OR 125 FT (277V), THE BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST DEVICE SHALL NOT BE SMALLER THAN #10 AWG.

10. MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES SHALL BE COORDINATED/VERIFIED WITH ARCHITECTURAL ELEVATIONS, PTRI. GROUPS OF DEVICES, IN THE SAME GENERAL AREA, SHALL BE INSTALLED TOGETHER AND ALIGNED AT THEIR APPROPRIATE MOUNTING HEIGHTS, UON BY SPECIFIC DRAWING ANNOTATIONS.

11. LOCATIONS OF MECHANICAL EQUIPMENT ARE APPROXIMATE. THE ELECTRICAL AND MECHANICAL CONTRACTORS SHALL VERIFY AND COORDINATE EXACT LOCATIONS/INSTALLATION OF ALL EQUIPMENT. VERIFY ELECTRICAL REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR, PTRI.

12. ALL FINAL CONNECTIONS BETWEEN MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE MADE USING AN 18" TO 36" SECTION OF FLEXIBLE CONDUIT, GREENFIELD FOR INDOORS, LIQUID-TIGHT FOR OUTDOORS. USE INSULATED THROAT, MACHINED STEEL TO 1" SIZE AND MALLEABLE IRON ON LARGER SIZES.

13. WIRING DEVICES SHALL BE THREE-WIRE, SPECIFICATION GRADE, 20A MINIMUM, DUAL VOLTAGE SWITCHES, DUPLEX RECEPTACLES AND GROUND-FAULT CIRCUIT INTERRUPTING RECEPTACLES. PROVIDE COVER PLATES (FINISH DETERMINED BY OWNER/ARCHITECT) FOR FINISHED AREAS. PROVIDE GASKETED WEATHERPROOF COVER PLATES FOR EXTERIOR AREAS. COVER PLATES SHALL BE INSTALLED ON ALL SWITCHES, DUPLEX RECEPTACLES, TELEPHONE AND OTHER OUTLETS. WIRING DEVICES SHALL MATCH IN COLOR AND MANUFACTURER. SPECIAL DEVICES SHALL BE PROVIDED AS INDICATED ON DRAWINGS.

14. SEPARATE ELECTRICAL OUTLETS ON OPPOSITE SIDES OF 1 OR 2 HOUR RATED WALLS A MINIMUM OF 24" HORIZONTALLY.

15. ALL SWITCHGEAR AND ELECTRICAL EQUIPMENT SHALL MATCH IN BRAND NAME, AND SHALL BE BY ONE OF THE FOLLOWING MANUFACTURERS, OR FUNCTIONAL EQUIVALENT: (THE LISTING IS ALPHABETICAL, AND DOES NOT INDICATE ANY PREFERENCE)

A. CUTLER-HAMMER
B. GENERAL ELECTRIC
C. SIEMENS
D. SQUARE D

ALL EQUIPMENT SHALL BE LABELED WITH THE BRAND NAME AS SHOWN ABOVE. PROVIDE MAX FAULT CURRENT LABEL FOR SERVICE EQUIPMENT IAW NEC 110.24(A).

16. DISCONNECTS SHALL BE 3P4W SOLID NEUTRAL FOR THREE-PHASE AND 2P3W SOLID NEUTRAL FOR SINGLE-PHASE. WHERE A NEUTRAL WIRE IS NOT PRESENT, BOND THE NEUTRAL TO GROUND AND USE THE NEUTRAL BAR AS A GROUND BAR. FUSE TYPE AND AMPACITY ARE AS DENOTED ON DRAWINGS.

17. TERMINATIONS (LUGS, TERMINAL BLOCKS, ETC.) IN DISCONNECT SWITCHES, CIRCUIT BREAKERS, SWITCHGEAR, LIGHTING CONTACTORS, ETC. SHALL BE RATED FOR 75°C, MINIMUM. IF EQUIPMENT TERMINATIONS SUCH AS A/C UNITS, HEAT PUMPS, WATER HEATERS, ETC. ARE RATED AT 60°C ONLY (NOT DUAL RATED 60°/75°), THEN THE CONDUCTORS SHALL BE DERATED AND USED IN ACCORDANCE WITH NEC TABLE 310.15(B)(16) AND SIZED IN ACCORDANCE WITH THE 60°C COLUMN RATINGS.

18. ALL FUSES SHALL BE INSTALLED RIGHT-SIDE UP, AND WITH THE AMPERAGE LABEL FACING OUTWARD. FUSES OUTDOORS SHALL BE INSTALLED USING OXIDATION INHIBITING COMPOUND (PENETROX OR EQUAL) IN THE FUSEHOLDERS.

19. PANELBOARDS SHALL BE AS SPECIFIED IN PANEL SCHEDULES AND PROVIDED W/ TYPEWRITTEN DIRECTORIES. LABEL FACEPLATES OF ALL RECEPTACLES AND DEVICES WITH CIRCUIT #.

20. ALL PANELS, DISCONNECT SWITCHES, CONTACTORS, STARTERS, TIMERS, SHALL BE PERMANENTLY LABELED. ALL LABELS SHALL INDICATE THE DEVICE NAME OR FUNCTION ON THE FIRST LINE, AND VOLTAGE AND PHASING ON THE SECOND LINE. EXAMPLE: PANEL A
208Y/120V, 3Ø, 4W

THE LABELS SHALL BE SIZED APPROPRIATELY FOR THE REQUIRED LETTERING. SECURE LABELS TO FRONT COVER. JUNCTION BOX COVERS SHALL BE LABELED WITH PERMANENT MARKER.

21. ALL CONNECTIONS OUTDOORS SHALL BE MADE USING OXIDATION INHIBITING COMPOUND, PENETROX OR EQUAL. THIS INCLUDES POWER AND GROUNDING CONNECTIONS INSIDE PANELS, WIRING TROUGHS, BOXES, DISCONNECT SWITCHES AND OTHER SWITCHGEAR, ELECTRICAL AND MECHANICAL EQUIPMENT, AND LIGHTING FIXTURE POLES (BUT NOT THE ACTUAL LIGHTING FIXTURES).

22. FOR MULTIPLE-GANG BOXES WITH CIRCUITS OF DIFFERING VOLTAGES (I.E., 120V AND 277V) OR SYSTEMS WHICH ARE REQUIRED BY CODE TO BE SEPARATED, PROVIDE THE CODE-REQUIRED SEPARATION USING A FULL HEIGHT AND DEPTH, METALIC BARRIER PLATE.

23. ALL CONDUCTOR & CONDUIT SIZES ARE CALCULATED BASED ON INSTALLATION OF NO MORE THAN (3) CURRENT CARRYING CONDUCTORS PER CONDUIT, NEUTRAL(S) INCLUDED. UON, CONTRACTOR SHALL NOT INSTALL MORE THAN (3) CURRENT CARRYING CONDUCTORS PER CONDUIT W/ THE FOLLOWING EXCEPTION: UP TO (9) CURRENT CARRYING CONDUCTORS, NEUTRALS INCLUDED, MAY BE USED IN A SINGLE RACEWAY WHERE PERMITTED BY THE NEC 310.15(C) WHEN MINIMUM #12 AWG (THWN 90°C) IS USED & WHEN ALL INCLUDED CIRCUITS ARE PROTECTED UPSTREAM BY 20A OVERCURRENT PROTECTION DEVICES & NO OTHER DERATING CONDITIONS EXIST. ADJUST CONDUIT SIZE, AS NECESSARY, FOR MAX 40% FILL.

24. MULTIWIRE BRANCH CIRCUITS SHALL HAVE A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUITS ORIGINATE. SIMULTANEOUS DISCONNECTING OF ALL UNGROUNDED CONDUCTORS CAN BE BY EITHER USE OF A MULTI-POLE CIRCUIT BREAKER OR MULTIPLE SINGLE-POLE BREAKERS WITH A COMMON MULTI-TRIP HANDLE TIE.

25. LOCATIONS OF LIGHTING FIXTURES SHALL BE COORDINATED WITH THE REFLECTED CEILING PLAN AND WITH WORK OF OTHER TRADES TO AVOID CONFLICT. THE EC SHALL VERIFY ALL CEILING TYPES AND FINISHES BEFORE PURCHASE OF ANY LIGHT FIXTURES SO THE PROPER TRIM AND MOUNTING HARDWARE WILL BE PROVIDED FOR THE CEILING TO BE INSTALLED.

26. EC TO COORDINATE WITH OTHER TRADES BEFORE ORDERING CONDUCTORS, FUSES, DISCONNECTS, CONDUIT, CIRCUIT BREAKERS, ETC. TO ENSURE COMPLIANCE WITH THE ACTUAL EQUIPMENT BEING INSTALLED. IF ANY PIECE OF EQUIPMENT IS PROVIDED WHICH IS DIFFERENT FROM WHAT WAS SPECIFIED, AND CAUSES A CHANGE IN THE ELECTRICAL CONTRACT, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR SUPPLYING THE EQUIPMENT TO COMPENSATE THE EC FOR THESE CHANGES.

27. TELEPHONE AND DATA SYSTEMS: EC TO PROVIDE A (UON) 3/4" EMPTY CONDUIT W/ NON-CORROSIVE PULLSTRING, BOXES AND PLATES WHERE SHOWN ON DRAWINGS. CONDUIT TO BE STUBBED AND BUSHED INTO CEILING SPACE OR TO THE NEAREST ACCESSIBLE AREA.

28. NO FIRE ALARM DESIGN. ANY FA DESIGN REQUESTED AND/OR REQUIRED BY OWNER AND/OR LOCAL AHJ SHALL BE BY OTHERS.

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| AC | ABOVE COUNTER/CABINET | LF | LINEAR FOOT (W/O ELEV CHANGE) |
| AFF | ABOVE FINISHED FLOOR | LTS | LIGHTS |
| AHJ | AUTHORITY HAVING JURISDICTION | LV | LOW-VOTAGE |
| BOD | BASIS OF DESIGN | MC | MECHANICAL CONTRACTOR |
| CB | CIRCUIT BREAKER | NF | NON-FUSED |
| CM | CEILING MOUNTED | NIC | NOT IN CONTRACT |
| DE | DUAL ELEMENT, TIME DELAY FUSE | OCPD | OVERCURRENT PROTECTION DEVICE |
| EC | ELECTRICAL CONTRACTOR OR EMPTY CONDUIT | PC | PHOTOCELL OR PLUMBING CONTRACTOR |
| ECB | ENCLOSED CIRCUIT BREAKER | PROVIDE | FURNISH & INSTALL |
| FM | FLOOR MOUNTED | PTO | PRIOR TO ORDER |
| FPN | FUSE PER NAMEPLATE | PTRI | PRIOR TO ROUGH-IN |
| G, GFI | GROUND FAULT INTERRUPTING DEVICE | RCPT | RECEPTACLE |
| GC | GENERAL CONTRACTOR | SMR | SURFACE MOUNT RACEWAY |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTOR | TC | TIMECLOCK |
| HACR | HEATING, AIR CONDITONING & REFRIGERATION | UC | UNDER COUNTER/CABINET |
| HVAC | HEATING, VENTILATION & AIR CONDITIONING | UG | UNDERGROUND |
| IAW | IN ACCORDANCE WITH | UON | UNLESS OTHERWISE NOTED |
| IC | IN CABINET | WM | WALL MOUNTED |
| Ifc | FAULT CURRENT | WP | WEATHERPROOF |
| Ifca | FAULT CURRENT AVAILABLE | | |

## SPECIAL SYSTEMS INSTRUCTIONS

**THIS DRAWING ONLY DEPICTS THE RACEWAY INFRASTRUCTURE FOR SPECIAL SYSTEMS (ACCESS CONTROL, INTERCOM, VOICE/DATA, SECURITY ALARM, ETC.). ANY CABLING, JACKS, RACKS, EQUIPMENT, OR OTHER RELATED ITEMS TO BE PROVIDED BY OTHERS, AS DIRECTED BY OWNER.**

## LUMINAIRE SCHEDULE

### EC TO ORDER FIXTURES AS SPECIFIED BELOW OR EQUAL BY PHILIPS OR ELITE.

| TYPE | MANUF. | MODEL # | LAMPS | INPUT WATTS | DESCRIPTION | VOLTS |
|---|---|---|---|---|---|---|
| A2 | CURRENT HLI | CBT22-A-LSCS-EDD (EM): ADD OPTION (ELL14) | LED 3400 LMS | 24 28 38 | 2'x2' LED BACK-LIT TROFFER. FROSTED TEXTURED LENS. SELECTABLE LUMENS (2850/3400/4600) & CCT (3500/4000/5000). 80% CRI. 0-10V DIMMING TO 1%. DAMP LABEL. (EM): WHERE DENOTED, FURNISH W/ 10W EMERG. BATT. BACKUP, FACTORY INSTALLED. | 120/277 |
| A4 | CURRENT HLI | CBT24-A-LSCS-EDD (EM): ADD OPTION (ELL14) | LED 4600 LMS | 28 38 48 | 2'x4' LED BACK-LIT TROFFER. FROSTED TEXTURED LENS. SELECTABLE LUMENS (3450/4600/5800) & CCT (3500/4000/5000). 80% CRI. 0-10V DIMMING TO 1%. DAMP LABEL. (EM): WHERE DENOTED, FURNISH W/ 10W EMERG. BATT. BACKUP, FACTORY INSTALLED. | 120/277 |
| D4 | CURRENT HLI | LBRST-4RD-MLS-CS9-WH | LED 750 | 9 | 4" ROUND RECESSED LED DOWNLIGHT. CANLESS INSTALLATION. SELECTABLE LUMENS (750/1100/1500) & CCT (3000/4000/5000). 90% CRI. TRI-DIMMING). WHITE. IC & WET RATED. | 120/277 |
| D6 | CURRENT HLI | LBRST-6RD-MLS-CS9-WH | LED 1500 | 18 | 6" ROUND RECESSED LED DOWNLIGHT. CANLESS INSTALLATION. SELECTABLE LUMENS (1100/1500/2500) & CCT (3000/4000/5000). 90% CRI. TRI-DIMMING). WHITE. IC & WET RATED. | 120/277 |
| D6E | CURRENT HLI | LBRST-6RD-MLS-CS9-WH-EMR | LED 1500 | 18 | SAME AS TYPE "D6", EXCEPT W/ EMERG. BATT. BACKUP KIT, REMOTE TEST SWITCH & 6" MOUNTING PAN. | 120/277 |
| EM | DUAL-LITE | EV4I | LED | 1 | LED THERMOPLASTIC EMERG. LIGHT. NiMH BATTERY. (2) 1W LED HEADS. WHITE. SELF DIAGNOSTICS. REMOTE CAPACITY. AIM TO ILLIMINATE EGRESS PATH. DAMP LABEL. | 120/277 |
| EMR | DUAL-LITE | EV0D | LED | 1 | GASKETED, THERMOPLASTIC DUAL LED REMOTE HEAD. (1) 1W LED HEADS. WHITE. CIRCUIT TO NEARBY EMERG. LIGHT W/ REMOTE CAPACITY. WET RATED. | 120/277 |
| EMX | DUAL-LITE | EVCURWD4I | LED/LED | 2 | THERMOPLASTIC COMBO (LED EXIT / EM) UNIT. LITHIUM IRON PHOSPHATE BATTERY. (2) 1W LED HEADS. WHITE W/ RED LETTERS. 2-LAMP REMOTE CAPACITY. SELF DIAGNOSTICS. ADJUST CHEVRONS AS DESIGNATED. AIM TO ILLUMINATE EGRESS PATH. DAMP LABEL. | 120/277 |
| F2 | CURRENT HLI | LCL2-40ML-EU | LED 2849 LMS | 24 | 2' WALL/CLNG MOUNT LED STRIP. FROSTED PRISMATIC LENS. NOMINAL LUMENS (AS SPEC'D). 4000K, 80CRI. DAMP LABEL. | 120/277 |
| F4 | CURRENT HLI | LCL4-40ML-EU | LED 5411 LMS | 42 | 4' WALL/CLNG MOUNT LED STRIP. FROSTED PRISMATIC LENS. NOMINAL LUMENS (AS SPEC'D). 4000K, 80CRI. DAMP LABEL. | 120/277 |
| F4W | ALPHALITE | CBW-4L(40/34/28S2)/840 | LED 4420 LMS | 34 | 4' CLNG MOUNT LED CURVED WRAP STRIP. CURVED LENS. SELECTABLE LUMENS (5200/4420/3640). 4000K, 80CRI. 0-10V DIMMING. DAMP LABEL. | 120/277 |
| G | LEGION | 193G2 DS2 UNV | LED 17769 | 117 | LED LINEAR ADJUSTABLE HIGH BAY. DIE-FORMED, CODE GAUGE STEEL. PAINTED WHITE. FROSTED LENS W/ ROTATABLE OPTICS (UP TO 135°). (DIM: 12"x26"). SELECTABLE LUMENS (15000/18000/24000) & CCT (4000/5000). 0-10V DIMMABLE TO 10%. >80CRI. DAMP LABEL. CHAIN MOUNTING W/ V-HOOKS. COORDINATE MOUNTING HEIGHT TO AVOID INTERFERENCE W/ WORK OF OTHER TRADES. | 120/277 |
| V | OWNER SELECTED | OWNER SELECTED | LED LAMP (60W EQUIV) | 13 | (OWNER SELECTED) VANITY LED WALL SCONCE | 120 |
| WP | BEACON | LNC2-48L-45-5K7-4W-UNV-BLT-PC-F(120V)-CS | LED 5600 LMS | 45 | SMALL LED LITEPAK. DIE-CAST HOUSING, BLACK MATTE TEXTURED FINISH. 5000°K, TYPE 4 WIDE OPTICS. INTEGRAL PHOTOCELL. COMFORT SHIELD. MOUNTING HEIGHT INDICATED ON DRAWINGS. WET RATED. | 120/277 |
| X1 | DUAL-LITE | EVEURWEI | LED | 1.5 | THERMOPLASTIC LED EMERGENCY EXIT SIGN. SINGLE FACE. NiMH BATTERY. WHITE W/ RED LETTERS. ADJUST CHEVRONS AS SHOWN. DAMP LABEL. | 120/277 |
| X2 | DUAL-LITE | EVEURWEI | LED | 1.5 | THERMOPLASTIC LED EMERGENCY EXIT SIGN. DUAL FACE. NiMH BATTERY. WHITE W/ RED LETTERS. ADJUST CHEVRONS AS SHOWN. DAMP LABEL. | 120/277 |
| X | ISOLITE | RLP-R-U-WH-MTEB | LED LIGHT BAR 184 LUMEN OUTPUT | 8 | THERMOPLASTIC COMBO (LED EXIT / EM) UNIT. WHITE W/ RED LETTERS. MAINT. FREE NICKEL CADMIUM BATTERY. 184 LUMEN LED LIGHT BAR. ADJUST CHEVRONS AS SHOWN. AIM TO ILLUMINATE EGRESS PATH. DAMP LABEL. REMOTE CAPACITY. | 120/277 |

Referenced Notes :
1 - Where fixtures are specified with selectable lumen packages, CCT, etc., the (Default) setting is underlined in the product description. Field adjust luminaire settings in accordance with owner preference, if different from default. Input VA shown is based on default settings.

General Notes :
1. The electrical contractor shall be responsible for coordinating each fixture location with the architectural drawings and reflected ceiling plans. The electrical contractor shall verify and provide the required mounting system for each fixture, including, but not limited to, plaster frames, wall brackets, supports, and other appurtenances as required. The catalog numbers listed above shall be modified slightly to accommodate the various mounting configurations and voltages.
2. Verify fixture, lamp, and voltage compatibilities. Notify Engineer where listed manufacturer has no equivalent product.
3. When handling fixtures with exposed reflective surfaces, clean gloves should be worn to prevent fingerprints. Plastic shipping bags, where used, should be left on to prevent marks until interior finish work is complete. The electrical contractor shall clean all marks (dust, fingerprints, etc.) from reflective surfaces prior to final punchlist.

## GENERATOR / ATS SPECS:

BASIS OF DESIGN (BOD): GENERAC PROTECTOR SERIES LIQUID PROPANE STANDBY GENERATOR. APPROVED EQUALS BY CURTIS POWER SOLUTIONS, KOHLER:

- BOD – GENERATOR: MODEL XC04045 W/ ALUMINUM ENCLOSURE
- STATIONARY EMERGENCY-STANDBY RATED (NOT SEPARATELY DERIVED). GENSET TO START & SUPPLY CONNECTED LOAD IN 10 SECONDS OR LESS.
- 40 KW RATING (1.0PF, 40kVA), WIRED FOR 120/240VAC, 1Ø, 3W, 60 HZ. SURGE CAPACITY 267A @ 30% VOLTAGE DIP
- 240V, 200A, 2P CIRCUIT BREAKER FACTORY INSTALLED
- LIQUID PROPANE VAPOR FUEL SYSTEM TO BE PROVIDED BY PC FOR OPERATION ASSUMING 100% LOAD. (FUEL CONSUMPTION: 5.7GPH @ 100% LOAD)
- WEATHER/SOUND ENCLOSURE. CORROSION RESISTANT, ALUMINUM, ELECTRO GALVANIZED BASEFRAME COMPONENTS & STAINLESS STEEL EXHAUST SYSTEM. (TYP) 67dBA SOUND PRESSURE LEVEL, FULL LOAD @ 7M DISTANCE. PROVIDE
- OPTIONAL FIELD-INSTALLABLE FEATURES (TO BE FURNISHED) : PUSH-BUTTON EMERGENCY STOP, COLD WEATHER OPERATION HEATERS & SEISMIC ANCHORING
- QUIET TEST MODE
- UL2200 LISTING, EPA EMISSIONS CERTIFIED
- GENERAC POWER ZONE 410 CONTROLLER
- EC TO PROVIDE BATTERY IAW MANUF. RECOMMENDATION (TYP FLOODED LEAD ACID, GRP 31, 750 CCA (MINIMUM). 12/24V.
- 5A BATTERY CHARGER
- STD SET OF 3 MANUALS, STANDARD 5-YEAR/2000 HR LIMITED WARRANTY

GENERAC AUTOMATIC TRANSFER SWITCH CONSISTING OF THE FOLLOWING FEATURES AND ACCESSORIES:

- 200 AMP, NEMA 3R, 2PSN, 120/240VAC, 1Ø, 3W, 60 HZ. SE RATED W/ SPD
- OPEN TRANSITION, SERVICE RATED.
- 200A, 240V, 2P (UTILITY) CIRCUIT BREAKER
- IN-PHASE ONLY TRANSFER
- SURGE PROT. DEVICE
- ETLUS LISTED
- NEMA 3R ENCLOSURE
- (TYP) 22KA ANY BREAKER WITHSTAND RATING
- 3 OWNER'S MANUALS, STANDARD 5-YEAR LIMITED WARRANTY

INCLUDES:

- START-UP INSPECTION AND TESTING
- SHIPPING AND HANDLING
- NFPA 110 SITE TESTING

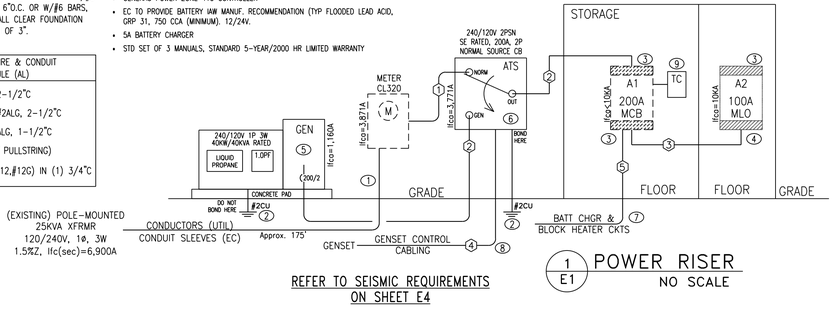
GENSET CONCRETE PAD DEPTH CALC.

D (ft) = $\frac{C \times W \times L}{150}$ (TYPICAL)

D: DEPTH OF FOUNDATION (8" MIN)
C: TOTAL WET WT. OF GENSET (LB)
W: FOUNDATION WIDTH (FT)
L: FOUNDATION LENGTH (FT)
150: CONC. DENSITY (LB/CUFT)

(TYPICAL)
GENERATOR FOUNDATION: CONCRETE MIXTURE 1:2:3 (CEMENT:SAND:AGGREGATE) W/ MAX 4" SLUMP W/ 28 DAY COMPRESSION STRENGTH OF 3000 PSI. REINFORCE FOUNDATION W/#8 STEEL WIRE FABRIC, 6"O.C. OR W/#6 BARS, 12" O.C. BARS SHALL CLEAR FOUNDATION SURFACE A MINIMUM OF 3".

| RISER (MIN) WIRE & CONDUIT SCHEDULE (AL) | |
|---|---|
| ① | 3#250AL, 2-1/2"C |
| ② | 3#250AL, #2ALG, 2-1/2"C |
| ③ | 3#1AL, #6ALG, 1-1/2"C |
| ④ | 1" EC (W/ PULLSTRING) |
| ⑤ | 2 RUNS(2#12,#12G) IN (1) 3/4"C |



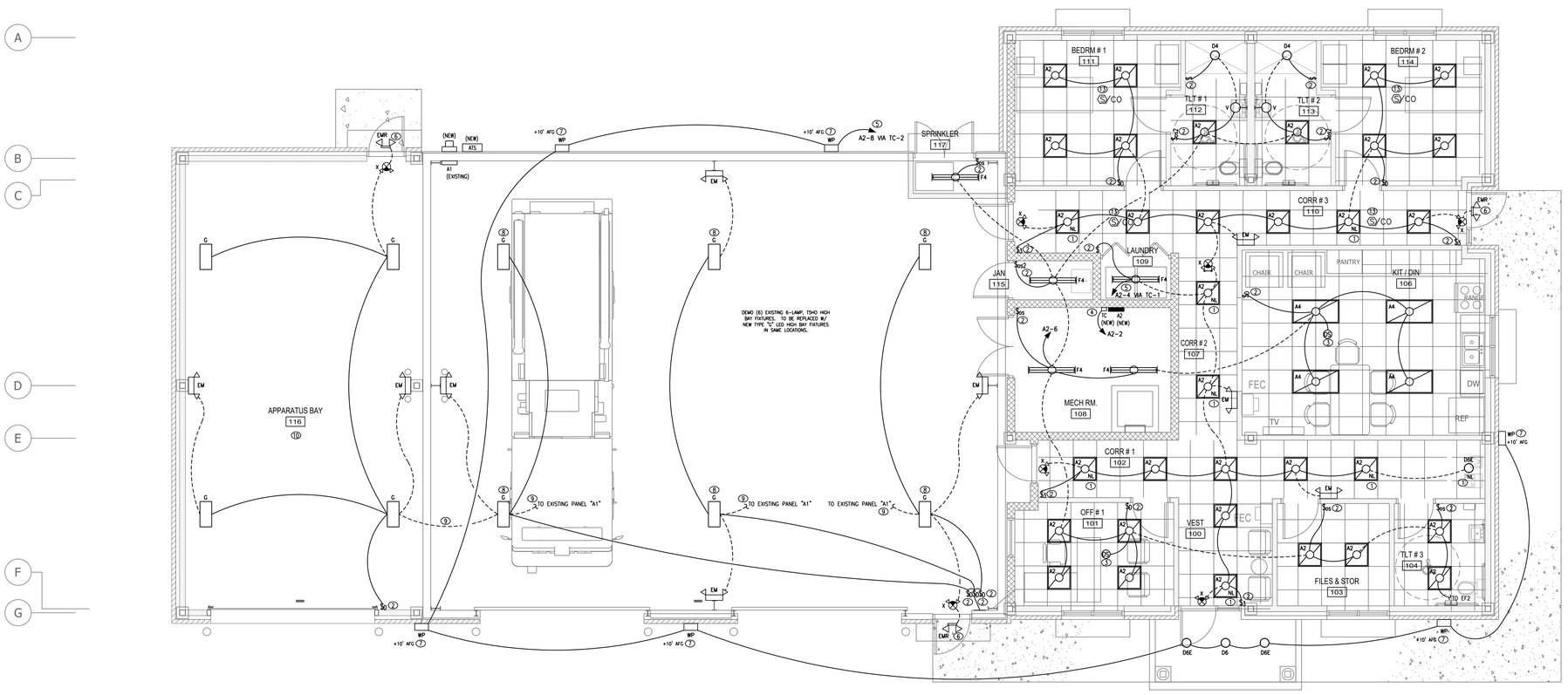

REFER TO SEISMIC REQUIREMENTS ON SHEET E4

1 E1 POWER RISER
NO SCALE

## ELECTRICAL SYMBOL LEGEND (NOT ALL ARE USED)

NOTE: ALL REFERENCED DIMENSIONS (AFF/AFC) TO DEVICE BOTTOM.

| | |
|---|---|
| | BRANCH CIRCUIT. CONDUIT CONCEALED ABOVE CEILING AND/OR IN WALL. MIN 2#12,#12G,1/2"C., UON. "DASHED" LINE DENOTES CIRCUIT IS UNSWITCHED. |
| | HOMERUN TO PANELBOARD. CONDUIT CONCEALED. MIN 2#12, #12G, 1/2"C., UON. |
| | DUPLEX RECEPTACLE. MOUNT 16"AFF, UON. "U" INDICATES PROVIDE DUPLEX RECEPTACLE WITH USB OUTLET, "UO" INDICATES TO PROVIDE 4-PORT USB ONLY OUTLET. |
| | DUPLEX RECEPTACLE. MOUNT 4" ABOVE COUNTER BACKSPLASH. COORDINATE WITH MILLWORK. |
| | DOUBLE DUPLEX (QUAD) RECEPTACLE. MOUNT 16"AFF, UON. "U" INDICATES PROVIDE QUAD RECEPTACLE W/ USB OUTLET. |
| | DOUBLE DUPLEX (QUAD) RECEPTACLE. MOUNT 4" ABOVE COUNTER BACKSPLASH. COORDINATE WITH MILLWORK. |
| | SPECIAL OUTLET. COORDINATE WITH EQUIPMENT FURNISHED OR AS NOTED ON PLANS. |
| | FLOOR BOX W/ DUPLEX RCPT & COVERPLATE W/ FLIP LID. SUITABLE FOR ON-GRADE USE. (TYP: LEGRAND RFB2-OG). |
| | FLOOR MOUNTED JUNCTION BOX FOR TELE/DATA/POWER/A/V CONNECTIONS. PROVIDE COVERPLATE W/ FLIP LIDS SUITABLE FOR INSTALLATION IAW FLOOR TYPE. BOX TO HAVE FULL-HEIGHT SEPARATION BETWEEN POWER & TELE/DATA/A/V SECTIONS. REFER TO POWER NOTES (SHEET E3) FOR FURTHER DETAIL. |
| | TELEPHONE/DATA OUTLET. 4" SQ. BOX W/ SINGLE GANG PLASTER RING, PULLSTRING, AND 1" EMPTY CONDUIT STUBBED AND BUSHED ABOVE DROP CEILING OR TO NEAREST ACCESSIBLE AREA. MOUNT 16"AFF, UON. "HASH" INDICATES 4" ABOVE COUNTER BACKSPLASH. "#": # OF PORTS (DEFAULT=1). "W": WALL MOUNT. |
| | DATA OUTLET. 4" SQ. BOX W/ SINGLE GANG PLASTER RING, PULLSTRING, AND 1" EMPTY CONDUIT STUBBED AND BUSHED ABOVE DROP CEILING OR TO NEAREST ACCESSIBLE AREA. MOUNT 16"AFF, UON. "HASH" INDICATES 4" ABOVE COUNTER BACKSPLASH. "#": # OF PORTS (DEFAULT=1). "W": WALL MOUNT. |
| | TELEPHONE OUTLET. 4" SQ. BOX W/ SINGLE GANG PLASTER RING, PULLSTRING, AND 1" EMPTY CONDUIT STUBBED AND BUSHED ABOVE DROP CEILING OR TO NEAREST ACCESSIBLE AREA. MOUNT 16"AFF, UON. "HASH" INDICATES 4" ABOVE COUNTER BACKSPLASH. "#": # OF PORTS (DEFAULT=1). "W": WALL MOUNT. |
| $ | HEAVY-DUTY TOGGLE SWITCH W/ DEVICE PLATE. COORDINATE FINISH W/ OWNER (TYP: LT GRAY W/ STAINLESS STEEL, MID-SIZE PLATE). 120-277V AC, 20A. HUBBELL CAT. #122x SERIES, OR EQUAL.<br>BLANK – SINGLE POLE SWITCH<br>2 – DOUBLE POLE, SINGLE THROW SWITCH. WRITE CIRCUIT NUMBERS INSIDE PLATE.<br>3 – THREE WAY SWITCH<br>4 – FOUR WAY SWITCH<br>B – BLANK SWITCH PLATE. WIRE SWITCH LEG SOLID FOR CONTINUOUS LIGHTING.<br>K – KEY OPERATED SWITCH W/ KEY. HUBBELL CAT. #HBL122xL, OR EQUAL.<br>P – SINGLE POLE PILOT LIGHT W/ SWITCH ON. HUBBELL CAT. #HBL1221PLC, OR EQUAL.<br>D – SLIDER TYPE DIMMER SWITCH. ON/OFF/PRESET. SINGLE/THREE-WAY. MATCH SWITCH TYPE W/ LTG LOAD




1 LIGHTING PLAN
E2 SCALE: 3/16" = 1'-0"

REFER TO SEISMIC REQUIREMENTS ON SHEET E4

REFERENCED ELECTRICAL LIGHTING NOTES: (-)

- REFER TO GENERAL LIGHTING NOTES (THIS SHEET)

1. UTILIZE LUMINAIRE AS A NIGHT-LIGHT. CONNECT UNSWITCHED TO THE LOCAL LIGHTING CIRCUIT. DO NOT DIM.
2. PROVIDE WALL-MOUNTED SWITCH (OF TYPE SPEC'D) CONTROL OF LIGHTING IN LOCAL AREA. REFER TO SYMBOL LEGEND FOR DESCRIPTION OF WALL SWITCH (I.E. D, OS or OS2). WHERE 0-10V DIMMING IS REQ'D, PROVIDE PURPLE/GRAY WIRING
3. PROVIDE CEILING-MOUNTED OCCUPANCY SENSOR (INCL POWER PACK) FOR CONTROL OF LIGHTING IN LOCAL AREA. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR WIRING OF MULTIPLE SENSORS TO CONTROL LIGHTING IN ONE SPACE. SET MOTION DETECTORS TO TURN LIGHTS OFF MAXIMUM OF 30 MINUTES AFTER ROOM IS LEFT VACANT. LOCATIONS SHOWN ARE DIAGRAMMATIC. ADJUST LOCATIONS (AS REQUIRED) FOR OPTIMAL OPERATION AND TO MINIMIZE FALSE-TRIGGERS.
4. (AUTOMATIC LIGHTING CONTROL) PROVIDE ASTRONOMICAL TIMECLOCK (TC). REFER TO RISER NOTES FOR TIMECLOCK SPEC. TIMECLOCK SPECIFIED HAS DUSK-TO-DAWN FEATURE (SEPARATE PHOTOCELL NOT REQUIRED). PROVIDE PHOTOCELL IF ALTERNATE TC IS PROVIDED. COORDINATE W/ OWNER FOR TIME-SETTINGS FOR EACH CIRCUIT.
5. ROUTE CIRCUIT THROUGH TIMECLOCK SPECIFIED.
6. EXTERIOR DUAL LED REMOTE UNIT PROVIDES "EMERGENCY EGRESS" ILLUMINATION. MOUNT ABOVE REAR DOOR & CIRCUIT, UNSWITCHED, TO TYPE "X" FIXTURE AS SHOWN.
7. EXTERIOR WALL PACK TO BE PROVIDED WITH INTEGRAL PHOTOCELL CONTROL DEVICE. MOUNT AT HEIGHT INDICATED.
8. REPLACE THE EXISTING HIGH BAY LIGHTING FIXTURE W/ NEW LED HIGH BAY LIGHTING FIXTURE AS SPECIFIED. FIXTURES TO BE INSTALLED IN SAME RELATIVE LOCATION & HEIGHT AS EXISTING.
9. CONNECT NEW HIGH BAY LIGHTING TO THE EXISTING LIGHTING CIRCUIT CURRENTLY SERVING THIS SPACE. DO NOT ROUTE THE HIGH BAY LIGHTING THROUGH TIMECLOCK CONTROLS. AUTOMATIC LIGHTING CONTROL IS NOT REQUIRED FOR THIS SPACE DUE TO EMERGENCY AND SECURITY OPERATIONS.
10. REFER TO SHEET E3 FOR COORDINATION NOTE REGARDING SEPARATION OF INFRARED HEATERS FROM LIGHTING IN APPARATUS BAY.

## ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:

| | | |
|---|---|---|
| Energy Code: | ■ Prescriptive | ☐ Performance |
| ASHRAE 90.1: | ☐ Prescriptive | ☐ Performance |

Lighting schedule (each fixture type)

- Lamp type required in fixture: SEE LUM. SCHED. (SHEET E1)
- Number of lamps in fixture: SEE LUM. SCHED. (SHEET E1)
- Ballast type used in fixture: SEE LUM. SCHED. (SHEET E1)
- Number of ballasts in fixture: SEE LUM. SCHED. (SHEET E1)
- Total wattage per fixture: SEE LUM. SCHED. (SHEET E1)
- Total interior wattage specified vs. allowed: 1,372W vs 3,350W
- Total exterior wattage specified vs. allowed: 342W vs 1,010W

Additional Prescriptive Compliance

- ☐ C406.2 More efficient HVAC equipment performance
- ■ C406.3 Reduced Lighting Power Density
- ☐ C406.4 Enhanced digital lighting controls
- ☐ C406.5 On-site renewable energy
- ☐ C406.6 Dedicated outdoor air system
- ☐ C406.7 Reduced energy use in service water heating

## GENERAL LIGHTING NOTES:

- LUMINAIRE SPECIFICATIONS SHALL BE IAW LUMINAIRE SCHEDULE, OR EQUAL, TO ENSURE COMPLIANCE W/ NCECC.
- EC TO COORDINATE EXACT LOCATIONS OF ALL LIGHT SWITCHES, FIXTURE HEIGHT/LOCATION, ETC. W/ OWNER, PTRI.
- EC TO COORDINATE W/ WORK OF OTHER TRADES TO AVOID CONFLICTS BETWEEN LIGHTING & OTHER EQUIPMENT, DUCTWORK, PIPING, ETC.
- CONNECT NIGHTLIGHTS, EXIT SIGNS/EMERG. LTS, UNSWITCHED (I.E. AHEAD OF ALL LIGHTING CONTROL DEVICES), TO LOCAL LIGHTING CIRCUIT IN AREA SERVED OR TO CIRCUIT SPECIFIED. AIM EMERGENCY LIGHTS TO ILLUMINATE PATH OF EGRESS. UNIT EQUIPMENT BRANCH CIRCUITS SHALL COMPLY W/ NEC 700.12(I)(2)(3).
- COORDINATE ALL DEVICE(S) AND FACEPLATE(S) (BOTH PWR & LTG) FINISHES W/ OWNER/ARCH, PTO. (TYP: LT. ALMOND W/ MATCHING PLATES).

SOLE SOURCE ENGINEERING, P.C. CERT. NO. C-2317 GIBSONVILLE, NC

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
740 chapel hill road p.o. box 1179
burlington, n.c. 27215 336/226-5534

NORTH CAROLINA REGISTERED SEAL 027431 ENGINEER JIMMY L. PEACOCK

SOLE SOURCE ENGINEERING, P.C.
207 EAST MAIN STREET
GIBSONVILLE, NC 27244
PHONE: 336-446-6911
E-MAIL: ssengr@triad.rr.com

CONSULTANT JOB NO.
SSE: 25014

# RENOVATION / ADDITION FOR ORANGE GROVE FIRE STATION #2

HILLSBOROUGH, NORTH CAROLINA

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

| | |
|---|---|
| | |
| | |
| | |
| | |
| | |

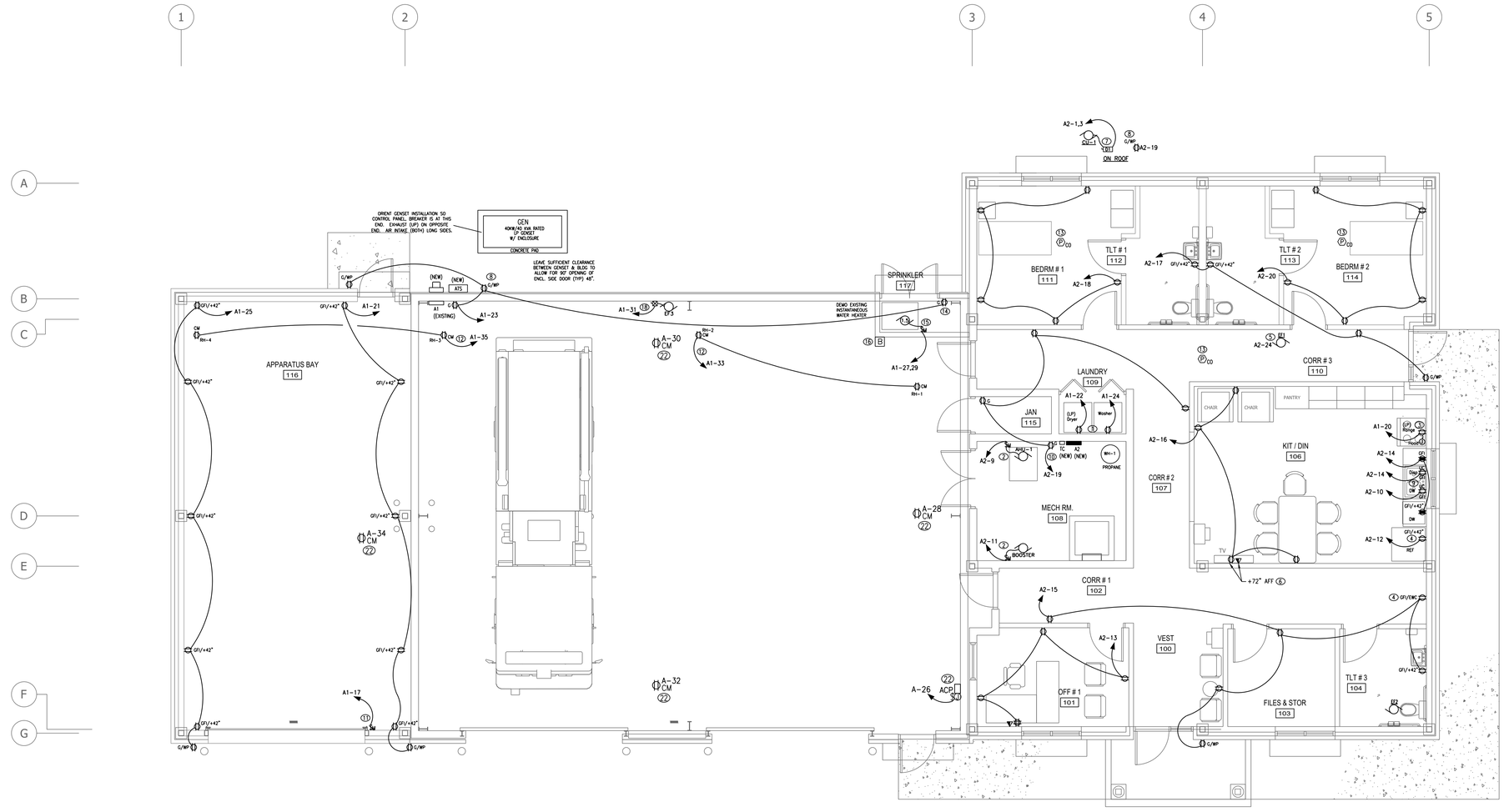
LTG PLANS & NOTES

DATE 4/21/25 (FOR CONSTR.)

DRAWN BY: RES | CHECKED: JLP

JOB NO. 24039

SHEET NO. E2 OF




REFERENCED ELECTRICAL POWER NOTES:

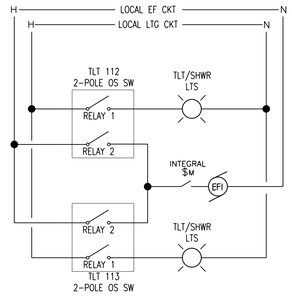
- REFER TO GENERAL POWER NOTES (THIS SHEET)
- COORDINATE ALL ELECTRICAL INSTALLATION W/ WORK OF OTHER TRADES TO AVOID INTERFERENCE

1. PROVIDE GFI BREAKERS FOR WASHER/(LP)DRYER. (DRYER BOD: 120V, 12.5A)
2. PROVIDE 120V, 20A RATED, 1P TOGGLE SWITCH FOR AHU1 & BOOSTER PUMP. CIRCUIT AS SHOWN & EXTEND TO EQUIPMENT.
3. PROVIDE GFI CB FOR (LP) RANGE. (BOD: 120V, 15A). COORDINATE LOCATION W/ MANUF. INSTALLATION INSTRUCTIONS.
4. LOCATE GFI RECEPTACLE SO THAT IT IS ACCESSIBLE FOR EASE OF RESET.
5. REFER TO DETAIL 2/E3 FOR WIRING. EF1 TO OPERATE IF EITHER WM SENSOR IN TLT 112 OR 113 DETECTS OCCUPANCY.
6. PROVIDE OUTLETS AT 72" FOR TV MONITOR. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
7. PROVIDE HVAC DISCONNECTS. COORDINATE LOCATIONS & ALL ELECTRICAL CONNECTIONS W/ EQUIPMENT SUPPLIED, PTRI. CIRCUIT AS SPEC'D & EXTEND TO UNIT. SEE PANEL SCHED'S FOR COND. SIZES.
8. PROVIDE GFI/WP RECEPTACLE FOR SERVICE/HVAC EQUIPMENT.
9. PROVIDE GFI RECEPTACLES UNDER SINK TO ACCOMMODATE DISHWASHER & DISPOSAL. FOR DISPOSAL, PROVIDE A SWITCH (ABOVE CNTR) FOR OPERATION. COORDINATE PLACEMENT IN FIELD PTRI.
10. PROVIDE DUPLEX RECEPTACLE TO SERVICE PROPANE WATER HEATER. COORDINATE LOCATION & ALL ELECTRICAL CONNECTIONS W/ EQUIPMENT SUPPLIED, PTRI. CIRCUIT AS SPEC'D & EXTEND TO WATER HEATER. SEE PANEL SCHED'S FOR COND. SIZES.
11. PROVIDE 120V, 30A RATED, 1P TOGGLE SWITCH FOR GARAGE OPENER. CIRCUIT AS SHOWN & EXTEND TO OPENER. PROVIDE ALL LV CABLING (AS REQ'D) BETWEEN OPENER & ACCESSORIES. COORDINATE ALL WORK W/ THE GARAGE DOOR INSTALLER PTRI. (BOD) 120V, 15A
12. PROVIDE CM RECEPTACLE FOR (LP) RADIANT HEATERS (RH1/RH2). COORDINATE LOCATIONS & ALL ELECTRICAL CONNECTIONS W/ EQUIPMENT SUPPLIED, PTRI. CIRCUIT AS SPEC'D. PROVIDE WIRING FROM UNITS TO LINE-VOLTAGE THERMOSTAT'S (BY MC). COORDINATE ALL WORK W/ MC & FOLLOW MANUFACTURER'S INSTRUCTIONS FOR PROPER INSTALLATION. COORDINATE W/ MC SO BOTH LTG & HEATERS ARE INSTALLED AT SAME HEIGHT (TYP: 16/17"AFF). MAINTAIN (MIN) 36" SPACING BETWEEN HEATERS & LTG.
13. PROVIDE COMBINATION SMOKE PLUS CARBON MONOXIDE DETECTOR WITH ALARM (KIDDE OR EQUAL). HARDWIRED WITH 10-YEAR BACKUP BATTERY. CONNECT TO CIRCUIT "A2-21".
14. PROVIDE DUPLEX RECEPTACLE TO SERVICE SPRINKLER ROOM HEATER. COORDINATE LOCATION & ALL ELECTRICAL CONNECTIONS W/ EQUIPMENT SUPPLIED, PTRI.
15. PROVIDE ELECTRICAL CONNECTION TO RESIDENTIAL HOME HYDRANT PUMP. COORDINATE EXACT LOCATION WITH PC, PTRI. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.
16. PROVIDE 120V ELECTRICAL CONNECTION FOR BELL NOTIFICATION DEVICE/ALARM TO BE ACTIVATED BY THE HOME HYDRANT SPRINKLER SYSTEM. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.
17. PROVIDE CM DUPLEX RECEPTACLE W/ DEDICATED CIRCUIT FOR EACH AIRVAC 911 EXHAUST REMOVAL FAN. CIRCUIT AS SHOWN. COORDINATE EXACT LOCATION W/ EACH UNIT TO FACILITATE CORD/PLUG CONNECTION. PROVIDE 120V, 20A DEDICATED CIRCUIT, W/ 20A, 1P RATED TOGGLE DISCONNECT, TO AIRVAC 911 CONTROL PANEL (ACP). EC TO ROUTE WIRING BETWEEN EACH EXHAUST REMOVAL FAN & CONTROL PANEL, AS WELL AS WIRING FROM PHOTO EYES & TRACK-MOUNTED DOOR SWITCHES TO CONTROL PANEL. EC TO INSTALL AIRVAC 911 CONTROL PANEL AS WELL AS PHOTO-EYES & TRACK-MOUNTED DOOR SWITCHES. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR PROPER INSTALLATION.
18. PROVIDE DEDICATED CIRCUIT FOR VENTILATION FAN. MC TO PROVIDE COMBINATION DISCON/STARTER. WIRE TO DISCON/STARTER & EXTEND TO FAN. COORDINATE LOCATION W/ MC.

DISCONNECT SCHEDULE:
D1: 240/60/2/NF/3R
D2: 240/30/2/NF/3R
D3: 240/60/2/NF/1
D4: 240/30/2/NF/1
D5: 240/100/2/NF/1

1/E3 POWER PLAN
SCALE: 3/16" = 1'-0"

REFER TO SEISMIC REQUIREMENTS ON SHEET E4




NOTE: WIRING SHOWN IS NOTIONAL. COORDINATE W/ ACTUAL DEVICES PROVIDED TO ENSURE PROPER INSTALLATION. NEUTRAL & GND CONNECTIONS ARE NOT SHOWN FOR EASE OF ILLUSTRATION. COORDINATE SWITCH SETTINGS W/ OWNER.

Toilets 112/113
2/E3 (TYP) LTS/EF WIRING
NO SCALE

GENERAL POWER NOTES:

- EC TO SCHEDULE A FIELD COORDINATION MEETING W/ ARCH/OWNER/GC TO COORDINATE ALL OUTLET, DEVICE & EQUIPMENT LOCATIONS, MOUNTING HEIGHTS, ETC., PTRI. PRIOR TO LOCATING ANY & ALL DEVICES AT CASEWORK, COUNTERTOPS, ETC., REFER TO ARCHITECTURAL CASEWORK ELEVATIONS & SHOP DRAWINGS TO VERIFY MOUNTING HEIGHTS & LOCATIONS. WHERE UC RCPT'S/DEVICES ARE SHOWN, PROVIDE GROMMETED CASEWORK OPENINGS FOR EASE OF CABLE ROUTING.
- PROVIDE GFCI PROTECTION FOR PERSONNEL IAW 210.8(B) THRU (E). IN PARTICULAR, IN THE FOLLOWING AREAS:
  - 210.8(B)(2): ALL OUTLETS (AS SPEC'D BY CODE) INSTALLED IN KITCHEN
  - 210.8(B)(5): ALL OUTLETS (AS SPEC'D BY CODE) W/I 6' OF SINK (TOP INSIDE EDGE)
  - 210.8(E): EQUIPMENT REQUIRING SERVICE (SEE ALSO 210.63).
  - 422.5(2): DRINKING WATER COOLERS & BOTTLE FILL STATIONS.
  - 422.5(5): VENDING MACHINES
  - 422.5(7): DISHWASHERS
- COORDINATE ALL DEVICE(S) & FACEPLATE(S) (BOTH PWR & LTG) FINISHES W/ OWNER/ARCH, PTO. (TYP: LT. ALMOND W/ MATCHING PLATES).
- COORDINATE EXACT LOCATIONS & PWR REQT'S OF ALL MECH. AND/OR PLUMBING EQUIPMENT W/ MC & PC, PTRI & PTO OF DISTRIBUTION EQUIPMENT.

alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

SOLE SOURCE ENGINEERING, P.C.
207 EAST MAIN STREET
GIBSONVILLE, NC 27244
PHONE: 336-446-6911
E-MAIL: ssengr@triad.rr.com

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 027431 JIMMY L. PEACOCK

CONSULTANT JOB NO.
SSE: 25014

RENOVATION / ADDITION
FOR
ORANGE GROVE FIRE STATION #2
HILLSBOROUGH, NORTH CAROLINA

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.

REVISIONS

| | |
|---|---|
| | |
| | |
| | |
| | |

PWR PLANS & NOTES

DATE 4/21/25 (FOR CONSTR.)

DRAWN BY: RES | CHECKED: JLP

JOB NO. 24039

SHEET NO. E3 OF

SOLE SOURCE ENGINEERING, P.C. CERT. NO. C-2317 GIBSONVILLE, NC

## PANEL A1 (EXISTING)

Voltage: 240V, 1Ø, 3W | MLO: | X | Equipment Ground Bus | Mfg: Surface | Min AIC Rating: 10k | SE Rated
Main Bus: 200A | X | MCB: 200A | Isolated Ground Bus | Constr: Load-Ctr | Neutral Rating: 100% | Lockable Cover | X
Location: STORAGE | UL Listed Feed-Thru Lugs | NEMA Rating: 1

| Ckt # | Description | Notes | Load (VA) | P | Breaker Trip | Branch Circuit* | Phase A | Phase B | Branch Circuit* | P | Breaker Trip | Load (VA) | Notes | Description | Ckt # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EXISTING | | | 2 | 20 | EXISTING | | | EXISTING | 2 | | | | EXISTING | 2 |
| 3 | | | | | | | | | | | | | | | 4 |
| 5 | EXISTING | | | 1 | 20 | EXISTING | | | EXISTING | 2 | | | | EXISTING | 6 |
| 7 | EXISTING | | | 1 | 20 | EXISTING | | | | | | | | - | 8 |
| 9 | EXISTING | | | 2 | 20 | EXISTING | | | EXISTING | 2 | | | | EXISTING | 10 |
| 11 | | | | | | | | | | | | | | | 12 |
| 13 | EXISTING | 3 | | 1 | 20 | EXISTING | | | EXISTING | 20 | 1 | | | EXISTING | 14 |
| 15 | SPARE | | | 1 | 20 | | | | EXISTING | 20 | 1 | | | EXISTING | 16 |
| 17 | GARAGE DOOR | NB | 1000 | 1 | 20 | | 1000 | | EXISTING | 20 | 1 | | | EXISTING | 18 |
| 19 | SPARE | NB | | 1 | 20 | | | 1500 | | 20 | 1 | 1500 | NB,3 | RANGE/HOOD | 20 |
| 21 | GARAGE REC | NB | 1080 | 1 | 20 | | 2280 | | | 20 | 1 | 1200 | NB,3 | DRYER | 22 |
| 23 | GARAGE REC | NB | 720 | 1 | 20 | | | 1920 | | 20 | 1 | 1200 | NB,3 | WASHER | 24 |
| 25 | GARAGE REC | NB | 1080 | 1 | 20 | | 1580 | | | 20 | 1 | 500 | NB,3 | AIRVAC CNTRL | 26 |
| 27 | HOME HYDRANT SPRK PUMP | NB | 900 | 2 | 20 | | | 2340 | | 20 | 1 | 1440 | NB | AIRVAC EF | 28 |
| 29 | | | 900 | | | | 2340 | | | 20 | 1 | 1440 | NB | AIRVAC EF | 30 |
| 31 | EF3 | NB | 1440 | 1 | 20 | | | 2880 | | 20 | 1 | 1440 | NB | AIRVAC EF | 32 |
| 33 | RH1, RH2 | NB | 708 | 1 | 20 | | 2148 | | | 20 | 1 | 1440 | NB | AIRVAC EF | 34 |
| 35 | RH3, RH4 | NB | 708 | 1 | 20 | | | 708 | | 20 | 1 | | NB | SPARE | 36 |
| 37 | SPARE | NB | | 1 | 20 | | 9427.25 | | SEE RISER | 100 | 2 | 9427 | NB | PANEL A2 | 38 |
| 39 | SPARE | NB | | 1 | 20 | | | 9336.05 | | | | 9336 | | - | 40 |
| * ALL WIRING TO BE 2-#12, 1-#12G IN 1/2"C, UON. | | | | ** | | | 20033 | 19942 | (VA/Phase) | | | | | | |
| | | | | | | | 167 | 166 | (Amps/Phase) | | | | | | |

**Referenced Notes:**
1 Provide HACR Circuit Breaker
2 Provide Arc-Fault Circuit Interrupter Protection law NEC 210.12(A)
3 Provide Ground-Fault Protected Circuit Breaker.
4 Furnish Breaker w/ Locking Device. Lock in "ON" Position
5 Furnish Breaker w/ Permanent Locking Device.

** includes new loads plus Peak Demand load per NEC 220.87 x 125%, minus deleted loads.

| TOTAL LOAD | | |
|---|---|---|
| KVA | AMPS | LOAD DESCRIPTION |
| 40.0 | 167 | CONNECTED |
| 36.2 | 151 | CALCULATED |

## PANEL A2 (NEW-FED FROM PANEL A1)

Voltage: 240V, 1Ø, 3W | X | MLO: | X | Equipment Ground Bus | Mfg: Surface | Min AIC Rating: 10k | SE Rated
Main Bus: 100A | | MCB: | | Isolated Ground Bus | Constr: Load-Ctr | Neutral Rating: 100% | Lockable Cover | X
Location: STORAGE | | | | | | NEMA Rating: 1

| Ckt # | Description | Notes | Load (VA) | P | Breaker Trip | Branch Circuit* | Phase A | Phase B | Branch Circuit* | P | Breaker Trip | Load (VA) | Notes | Description | Ckt # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CU-1 (MCA:28 / MOCP:50) | | 2630 | 2 | 50 | 2#10, #10G 3/4"C | 2730 | | | 20 | 1 | 100 | | TIMECLOCK "TC" | 2 |
| 3 | | | 2630 | | | | | 3316 | | 20 | 1 | 686 | | CORR/BEDROOM LTG VIA TC | 4 |
| 5 | DISPOSAL | | 500 | 1 | 20 | | 1186 | | | 20 | 1 | 686 | | OFFICE/RR/EQ RM LIGHTING | 6 |
| 7 | SPARE | | | 1 | 20 | | | 342 | | 20 | 1 | 342 | | EXTERIOR LTG VIA TC | 8 |
| 9 | AHU1 | | 1351 | 1 | 15 | | 2351 | | | 20 | 1 | 1000 | | REFRIGERATOR | 10 |
| 11 | BOOSTER PUMP | | 1656 | 1 | 20 | | | 2156 | | 20 | 1 | 500 | | DISHWASHER | 12 |
| 13 | OFF 101 RCPT | | 900 | 1 | 20 | | 1260 | | | 20 | 1 | 360 | | KITCHEN RECEPTACLES | 14 |
| 15 | CORR 102 RCPTS | | 1080 | 1 | 20 | | | 1800 | | 20 | 1 | 720 | | KITCHEN/DINING 106 RCPTS | 16 |
| 17 | CORR./RR/EXTERIOR RCPTS | | 900 | 1 | 20 | | 1800 | | | 20 | 1 | 900 | | BEDROOM 111 RCPTS | 18 |
| 19 | CORR/EQ. RM RCPTS | | 720 | 1 | 20 | | | 1620 | | 20 | 1 | 900 | | BEDROOM 112 RCPTS | 20 |
| 21 | SMOKE/CO2 DETECTORS | 4 | 100 | 1 | 20 | | 100 | | | 20 | 1 | | | SPARE | 22 |
| 23 | SPARE | | | 1 | 20 | | | 102 | | 15 | 1 | 102 | | EF1 | 24 |
| 25 | SPARE | | | 1 | 20 | | | | | 20 | 1 | | | SPARE | 26 |
| 27 | SPARE | | | 1 | 20 | | | | | 20 | 1 | | | SPARE | 28 |
| 29 | SPARE | | | 1 | 20 | | | | | 20 | 1 | | | SPARE | 30 |
| 31 | SPARE | | | 1 | 20 | | | | | 20 | 1 | | | SPARE | 32 |
| 33 | SPACE ONLY | | | | | | | | | | | | | SPACE ONLY | 34 |
| 35 | SPACE ONLY | | | | | | | | | | | | | SPACE ONLY | 36 |
| 37 | SPACE ONLY | | | | | | | | | | | | | SPACE ONLY | 38 |
| 39 | SPACE ONLY | | | | | | | | | | | | | SPACE ONLY | 40 |
| * ALL WIRING TO BE 2-#12, 1-#12G IN 1/2"C, UON. | | | | | | | 9427 | 9336 | (VA/Phase) | | | | | | |
| | | | | | | | 79 | 78 | (Amps/Phase) | | | | | | |

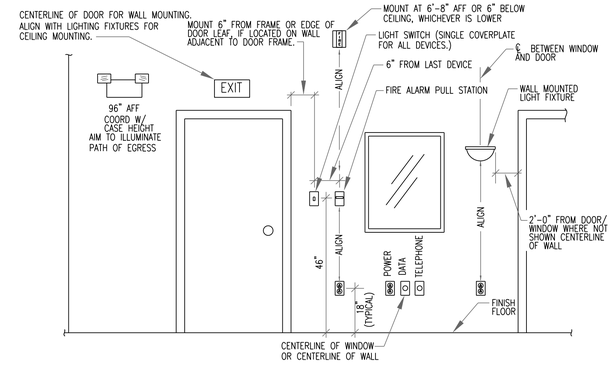
**Referenced Notes:**
1 Provide HACR Circuit Breaker
2 Provide Arc-Fault Circuit Interrupter Protection law NEC 210.12(A)
3 Provide Ground-Fault Protected Circuit Breaker.
4 Furnish Breaker w/ Locking Device. Lock in "ON" Position
5 Furnish Breaker w/ Permanent Locking Device.

*ROUTE CIRCUIT VIA TIMECLOCK "TC"

| TOTAL LOAD | | |
|---|---|---|
| KVA | AMPS | LOAD DESCRIPTION |
| 18.8 | 78 | CONNECTED |
| 19.2 | 80 | CALCULATED |

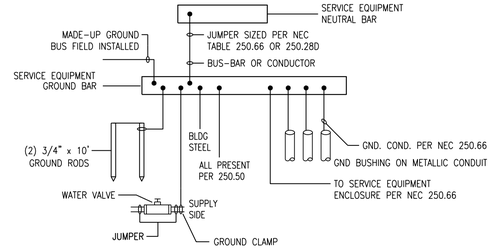
## GENERAL PANEL SCHEDULE NOTES:

1. UON, PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR ALL CIRCUITS. SIZE PER NEC ARTICLE 250.
2. UON, SIZE RACEWAY BASED ON CONDUCTOR FILL & TYPE OF RACEWAY USED (EMT, RIGID METAL CONDUIT, ETC.).
3. FOR 240V, 1ø CIRCUITS, PROVIDE NEUTRAL CONDUCTOR IF REQUIRED BY EQUIPMENT SERVED.
4. DO NOT MODIFY PANEL RATINGS / SIZE WITHOUT PRIOR APPROVAL OF DESIGN ENGINEER.
5. IN EXISTING PANELS, RECONFIGURE AS SPECIFIED IN PANEL SCHEDULE. FIELD VERIFY EXISTING PANEL CONFIGURATION, PRIOR TO BID.

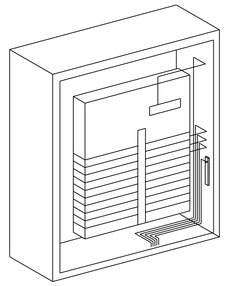



NOTE: ANY SPECIFIC DIMENSIONING OR INSTRUCTIONS GIVEN ELSEWHERE ON THE DRAWINGS SHALL SUPERSEDE THESE INSTRUCTIONS.

1 / E4 MOUNTING HEIGHTS AND ALIGNMENT CRITERIA
NO SCALE

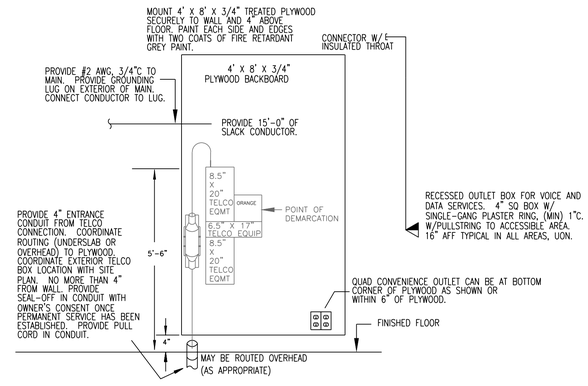



2 / E4 SERVICE ENTRANCE GROUNDING
NO SCALE



NOTES:
1. ALL BENDS IN CONDUCTORS #10 AND SMALLER SHALL BE 90 DEGREES STRAIGHT AND TRUE. BENDS IN LARGER SIZE CONDUCTORS SHALL HAVE A UNIFORM RADIUS.
2. BEND CONDUCTORS TOWARD THE BACK CORNERS OF THE PANEL CAN. BEND CONDUCTORS FORWARD TO CONNECT TO CIRCUIT BREAKERS.
3. TIE WRAP CONDUCTORS TO FORM NEAT AND ORDERLY BUNDLES. AVOID EXCESSIVE USE OF TIE WRAPS.
4. NO CONDUCTORS SHALL TOUCH PANEL CAN.
5. FINISHED PANEL SHALL PRESENT A CLEAN, SHARP, AND ORDERLY APPEARANCE.
6. EACH ELECTRICAL PANEL SHALL HAVE:
   a. AN ENGRAVED NAMEPLATE PERMENANTLY ATTACHED TO THE EXTERIOR COVER,
   b. A TYPEWRITTEN CIRCUIT DIRECTORY INSIDE EACH DOOR,
   c. A TYPEWRITTEN WIRING COLOR CODE INSIDE EACH DOOR.
7. EACH CIRCUIT SHALL HAVE A LOOP WITH 6" OF SLACK FOR REVISIONS.

3 / E4 TYPICAL PANELBOARD WORKMANSHIP
NO SCALE




4 / E4 (TYP) COMMUNICATION DIAGRAM
NO SCALE

SEISMIC NOTES:

BASED ON STRUCTURAL DESIGN PARAMETERS PROVIDED IN STRUCTURAL DRAWINGS (PROVIDED VIA EMAIL ON 5/1/25) FROM LANDWEHRMANN ENGINEERING, PLLC. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS ARE AS FOLLOWS:

$S_{DS}$ = 0.1685g (DESIGN SPECTRAL RESPONSE ACCELERATION, SHORT PERIOD)
$S_{DI}$ = 0.1264g (DESIGN SPECTRAL RESPONSE ACCELERATION, 1 SECOND PERIOD)

ADDITIONAL DESIGN PARAMETERS PROVIDED BY AND/OR DETERMINED USING INFORMATION FURNISHED BY STRUCTURAL ENGINEER:
RISK CATEGORY = IV — SITE CLASS = D
SEISMIC DESIGN CATEGORY = C — IMPORTANCE FACTOR = 1.5

1. BASED ON ABOVE PARAMETERS, EC TO USE MECHANICAL VIBRATION CONTROLS & SEISMIC RESTRAINT MEASURES IAW PROVISIONS OF NC BLDG CODE 2018, ASCE 7-05 & OTHER APPLICABLE CODES/STANDARDS, AS REQ'D, TO MITIGATE THE EFFECTS OF VERTICAL AND/OR HORIZONTAL, MOVEMENT OF ELECTRICAL SYSTEM COMPONENTS DURING A SEISMIC EVENT.

2. ELECTRICAL COMPONENTS REQUIRING MECHANICAL VIBRATION CONTROLS & SEISMIC RESTRAINTS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
- CONDUIT (>2.5"D). CONDUITS, CABLE TRAYS & TRAPEZE ASSEMBLIES WEIGHING MORE THAN 10lbs/ft
- CONDUIT SUSPENDED BY INDIVIDUAL HANGARS > 12" IN LENGTH FROM TOP OF CONDUIT TO BOTTOM OF HANGAR SUPPORT
- SWITCHBOARDS, PANELBOARDS, DISCONNECTS
- LUMINAIRES (INCL EXIT SIGNS AND/OR EMERG. LTS), LIGHTING CONTROL PANELS & ASSOCIATED EQUIPMENT
- TRANSFORMERS (EXCLUDING UTILITY TRANSFORMERS)
- GENERATORS, FUEL TANKS & ASSOCIATED AUTOMATIC AND/OR MANUAL TRANSFER SWITCHES
- NETWORK EQUIPMENT (UPS, TELE/DATA RACKS & EQUIPMENT)
- FIRE ALARM (LIFE SAFETY COMPONENTS)

3. EC SHALL PROVIDE SUBMITTALS & PRODUCT DATA TO ILLUSTRATE & INDICATE TYPES, STYLES, MATERIALS, STRENGTHS, FASTENING PROVISIONS & FINISH FOR EACH TYPE & SIZE OF SEISMIC RESTRAINT COMPONENTS USED. ALL SEISMIC RESTRAINING DEVICE DESIGNS TO BE EXECUTED, SIGNED & SEALED BY A REGISTERED NC PROFESSIONAL ENGINEER.

4. PROVIDE PRODUCT CERTIFICATES, SIGNED BY MANUFACTURES OF SEISMIC RESTRAINTS CERTIFYING COMPLIANCE OF PRODUCTS FURNISHED.

5. FURNISH ALL MATERIALS, EQUIPMENT & LABOR NECESSARY TO TEST & DEMONSTRATE TO THE OWNER & ENGINEER ALL ELECTRICAL COMPONENTS (SPECIFIED ABOVE) HAVE BEEN INSTALLED, SUPPORTED & BRACED TO MEET MECHANICAL VIBRATION & SEISMIC RESTRAINT REQUIREMENTS OF APPLICABLE CODES/STANDARDS. ALL TESTING SHALL BE CONDUCTED BY A TESTING AGENCY, ACCEPTABLE TO THE LOCAL AHJ WITH THE EXPERIENCE & CAPABILITY TO CONDUCT THE TESTING REQ'D.

6. EC TO COORDINATE THE LAYOUT & INSTALLATION OF SEISMIC BRACING WITH THE BUILDING STRUCTURAL SYSTEM & ARCHITECTURAL FEATURES & WITH MECHANICAL, FIRE-PROTECTION, ELECTRICAL & OTHER BUILDING FEATURES IN THE VICINITY. CONCRETE BASES SHALL BE COORDINATED WITH BLDG STRUCTURAL SYSTEMS.


alley, williams, carmen & king, inc.
ENGINEERS & ARCHITECTS
p.o. box 1179
740 chapel hill road
burlington, n.c. 27215
336/226-5534

SOLE SOURCE ENGINEERING, P.C.
207 EAST MAIN STREET
GIBSONVILLE, NC 27244
PHONE: 336-446-6911
E-MAIL: ssengr@triad.rr.com


CONSULTANT JOB NO.
SSE: 25014

RENOVATION / ADDITION
FOR
ORANGE GROVE FIRE STATION #2
HILLSBOROUGH, NORTH CAROLINA


THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE AND AS SUCH REMAIN THE PROPERTY OF THE ARCHITECT. PUBLISH OR USE THEM ONLY WITH ARCHITECT'S WRITTEN APPROVAL.


REVISIONS

| | | |
|---|---|---|
| 1 | 6/13/23 | Design Revs |
| | | |
| | | |
| | | |
| | | |

PANEL SCHEDULES, DETAILS

DATE 4/21/25 (FOR CONSTR.)

DRAWN BY: RES | CHECKED: JLP

JOB NO. 24039

SHEET NO. E4

OF

SOLE SOURCE ENGINEERING, P.C. — CERT. NO. C-2317 — GIBSONVILLE, NC