

NCSU Apiculture Facility

Raleigh, NC

SCO ID: 22-24494-01A
NCSU: 202220007

Code: 42124

Item: 315

Bid Set

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01.10.2025

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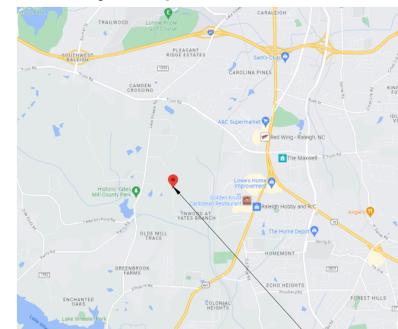
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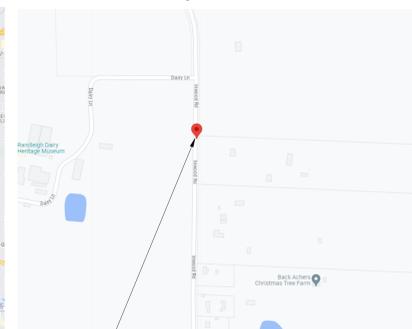
Revisions

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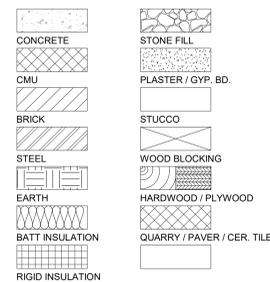
Vicinity Map



Location Map



Legend



Abbreviations

ACP	ACOUSTICAL CEILING PANEL	EQ.	EQUAL	N.T.S.	NOT TO SCALE
APS	ABOVE FINISH FLOOR	EXT.	EXTERIOR	O.C.	ON CENTER
A.F.F.	ALUMINUM BOARD	FIN. FL.	FINISH FLOOR	O.F.C.I.	OWNER FURNISHED, CONTRACTOR INSTALLED
ALLIM. BD.	ALUMINUM BOARD	F.D.	FLOOR DRAIN	O.H.	OPPOSITE HAND
BLDG.	BUILDING	F.E.(B)	FIRE EXTINGUISHER (BRACKET)	PTD.	PAINTED
E	CEILING	F.E.C.(R)	FIRE EXTINGUISHER CABINET (RECESSED)	PLAS.	PLASTIC LAMINATE
C.J.	CONTROL JOINT	F.E.C.(FR)	FIRE EXTINGUISHER CABINET (RATED & RECESSED)	RES.	RESILIENT
CEL.	CEILING	F.R.P.	FIBERGLASS REINFORCED PANEL	REQD.	REQUIRED
CER.	CERAMIC	F.S.	FLOOR SINK	R.D.	ROOF DRAIN
CMU	CONCRETE MASONRY UNIT	GALV.	GALVANIZED	R.L.	ROOF LADDER
COMP.	COMPOSITE	GA.	GAUGE	SCHED.	SCHEDULE
COL.	COLUMN	GYP.	GYPSUM	SHT.	SHEET
CONC.	CONCRETE	GW.	GRAYWATER	SIM.	SIMILAR
CONT.	CONTINUOUS	H.C.	HOLLOW CORE	S.C.	SOLID CORE
CPT.	CARPET	H.M.	HOLLOW METAL	S.S.	STAINLESS STEEL
DET.	DETAIL	INT.	INTERIOR	STRUCT.	STRUCTURE
DIA.	DIAMETER	JST. BRG.	JOIST BEARING	SUSP.	SUSPENDED
DMP.	DEMOUNTABLE PARTITION	JT.	JOINT	T.O. ()	TOP OF (ITEM)
DN.	DOWN	M.O.	MASONRY OPENING	TYP.	TYPICAL
DWG.	DRAWING	MAX.	MAXIMUM	U.O.N.	UNLESS OTHERWISE NOTED
E.W.C.	ELECTRIC WATER COOLER	MECH.	MECHANICAL	VERT.	VERTICAL
EA.	EACH	MET.	METAL	V.C.T.	VINYL COMPOSITE TILE
ELEC.	ELECTRICAL	MIN.	MINIMUM	V.W.C.	VINYL WALL COVERING
ELEV.	ELEVATOR	N.I.C.	NOT IN CONTRACT	W.W.F.	WELDED WIRE FABRIC
				WD.	WOOD

NCSU Apiculture Facility

Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

Title
Title Sheet

Sheet

G001

Plate

2018 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

Name of Project: Agriculture Facility
Address: 4325 Inwood Road, Raleigh, NC
Zip Code: 27603
Owner/Authorized Agent: Melissa Diamond
Phone #: 919.513.0973

Code Enforcement Jurisdiction: City: County: State

Table with 5 columns: DESIGNER, FIRM, NAME, LIC#, TELEPHONE #, Email. Lists various design firms and their contact information.

2018 NC CODE FOR: New Construction, Addition, Time Interior Completion, Shell/Enclosure, Shell/Enclosure - Shell/Enclosure

2018 NC EXISTING BUILDING CODE: Prescriptive, Alteration, Level I, Level II, Level III, Level IV, Chapter 14, Change of Use

CONSTRUCTED: RENOVATED, CURRENT OCCUPANCY (Ch. 3), RISK CATEGORY (Table 1604.5)

BASIC BUILDING DATA: Construction Type, Sprinklers, Standpipes, Fire District, Special Inspections Required

Table with 4 columns: FLOOR, EXISTING (SQ FT), NEW (SQ FT), RENOVALTER (SQ FT), SUB-TOTAL. Lists floor areas for various levels.

ALLOWABLE AREA: Primary Occupancy Classification, Accessory Occupancy Classification, Incidental Uses, Special Uses, Special Provisions

Mixed Occupancy: No Yes Separation: hr. Exception:
Non-Separated Use (508.3): The required type of construction for the entire building...
Separated Use (508.4): See below for area calculations for each story...

Table with 4 columns: Story No., Description and Use, (A) Bldg Area Per Story (Actual), (B) Table 506.2 Area, (C) Area for Frontage Increase, (D) Allowable Area Per Story or Unlimited

(1) Frontage area increases from Section 506.3 are computed that:
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) = (R)
d. W = Minimum width of public way = (W)
e. Percent of frontage increase = 100 [(F/P) - 0.25] / W100 = (I)
(2) Unlimited area applicable under conditions of Section 507.

Table with 4 columns: Section/Title/Note, Title. Lists sections and titles.

ALLOWABLE HEIGHT: Building Height in Feet (Table 504.3), Building Height in Stories (Table 504.4)

(1) Provide code reference if the 'Show on Plans' quantity is not based on Table 504.3 or 504.4.

Table with 6 columns: Building Element, Fire Separation Element (feet), Fire Rating (hr), Penetration (hr), Detail # and sheet, Design # for Code Assembly, Design # for Fire Penetration, Design # for Panel Joints

Table with 6 columns: Building Element, Fire Separation Element (feet), Fire Rating (hr), Penetration (hr), Detail # and sheet, Design # for Code Assembly, Design # for Fire Penetration, Design # for Panel Joints

Table with 4 columns: Fire Separation Distance (Feet from Property Line), Degree of Opening, Protection (Table 705.6), Allowable Area (%), Actual (Shown on Plans %)

LIFE SAFETY SYSTEM REQUIREMENTS: Emergency Lighting, Exit Signs, Fire Alarm, Smoke Detection Systems, Carbon Monoxide Detection

LIFE SAFETY PLAN CHECKLIST FOR COMPLIANCE: Life Safety Plan - Sheet #, Fire and/or smoke rated wall locations, Assumed and real property line locations, Exterior wall opening area with respect to distance to assumed property lines, Occupancy types for each area as it relates to occupant load calculation, Occupant loads for each area, Exit access travel distances, Common path of travel distances, Maximum calculated occupant load capacity each exit door, Actual occupant load for each exit door, Clear exit widths for each exit door, Maximum calculated occupant load capacity each exit door to accommodate based on egress width, 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, Location of doors with delayed egress locks and the amount of delay, Location of doors with electromagnetic egress locks, Location of doors equipped with hold-open devices, Location of emergency escape windows, The square footage of each fire area, The square footage of each smoke compartment, Occupancy Classification, A note any code exception or table notes that may have been utilized regarding the items above

Table with 2 columns: Section/Title/Note, Title. Lists sections and titles.

Table with 6 columns: TOTAL UNITS, ACCESSIBLE UNITS REQUIRED, ACCESSIBLE UNITS PROVIDED, TYPE A UNITS PROVIDED, TYPE B UNITS PROVIDED, TOTAL ACCESSIBLE UNITS PROVIDED. Lists accessible dwelling units.

Table with 5 columns: LOT OR PARKING AREA, TOTAL # OF PARKING SPACES, # OF ACCESSIBLE SPACES PROVIDED, TOTAL # ACCESSIBLE PROVIDED. Lists accessible parking.

Table with 6 columns: USE, WATER CLOSETS, URINALS, LAVATORIES, SHOWERS, DRINKING FOUNTAINS. Lists plumbing fixture requirements.

SPECIAL APPROVALS: Special approval: Local Jurisdiction, Department of Insurance, OSC, DR, DHS, ICC, ETC., describe below. City of Raleigh (Stormwater Only).

2018 NC Administrative Code and Policies

SEE STRUCTURAL SHEETS FOR STRUCTURAL SUMMARY
SEE MECHANICAL SHEETS FOR ENERGY SUMMARIES



Project Information: Energy Code: 90.1 (2010) Standard
Project Title: Apiculture Facility
Location: Raleigh, North Carolina
Climate Zone: 4a
Project Type: New Construction
Vertical Glazing / Wall Area: 13%

Table with 2 columns: Building Area, Floor Area. Lists building and floor areas.

Table with 6 columns: Assembly, Gross Area of Perimeter, Cavity R-Value, Cont. R-Value, Proposed U-Factor, Budget U-Factor. Lists envelope assemblies.

(a) Budget U-factors are used for software baseline calculations in table are F-factors.
(b) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 10% better than code

Envelope Compliance Statement: Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application.

Project Title: Apiculture Facility
Date filename: P102_Projects\01_Active\132 - NCSU Apiculture Facility\04_Drawings\Code\Exterior Envelope.c... Page 1 of 10

Ian Patrick; Partner 09.27.2024

2018 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS STRUCTURAL DESIGN

(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS: Importance Factors: Snow (Is) 1.00, Seismic (Is) 1.00

Live Loads: Roof 20 psf, Mezzanine N/A psf, Floor 100 psf

Ground Snow Load: 15 psf

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

SEISMIC DESIGN CATEGORY: A B C D

Risk Category (Table 1604.5) I II III IV, Spectral Response Acceleration Sa 15.8 %g, Sd 7.8 %g

Site Classification (ASCE 7) A B C D E F, Data Source: Field Test, Presumptive, Historical Data

Basic structural system: Bearing Wall, Dual w/Intermediate R/C or Special Steel, 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) 2,000 psf, Presumptive Bearing capacity N/A psf, Pile size, type, and capacity N/A psf



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01.10.2025

Drawn: IWP
Checked: IWP
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Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number: 132
Title: Appendix B and Energy Summary

Sheet: G002
Plate:



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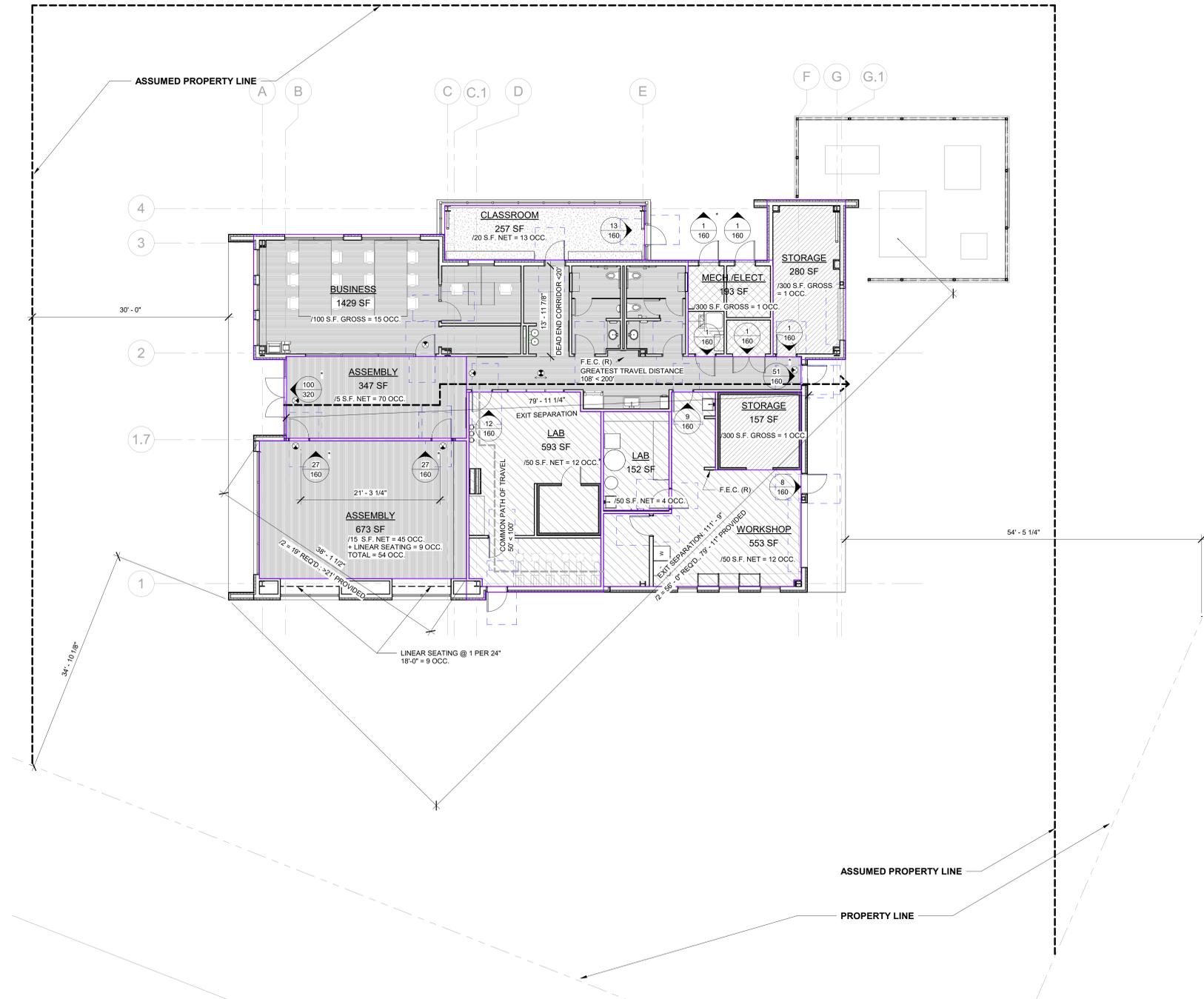
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Revisions



LIFE SAFETY PLAN LEGEND

- COMMON PATH OF TRAVEL
- > GREATEST EXIT ACCESS TRAVEL DISTANCE
- OCCUPANCY CATEGORY (SEE LEGEND FOR DESIGNATION)
- EXIT SIGN
- INDICATES PANIC HARDWARE
- ACTUAL NUMBER OF OCCUPANTS
- DIRECTION OF TRAVEL
- NUMBER OF OCCUPANTS THE EXIT CAN ACCOMMODATE
- DOOR APPROACH CLEARANCES (ADA/ANSI 117.1)

OCCUPANCY CATEGORY

- ACCESSORY
- ASSEMBLY
- BUSINESS
- CLASSROOM
- STORAGE
- VOCATIONAL

GENERAL LIFE SAFETY FLOOR PLAN NOTES

- FURNITURE AND EQUIPMENT IS SHOWN FOR REFERENCE ONLY (SEE FLOOR PLANS).
- EGRESS DOOR WIDTH IS SHOWN AS CLEAR WIDTH. 32" SHOWN ON PLANS EQUATES TO A 36" DOOR.
- SEE PLANS FOR LOCATION OF ALL FIRE EXTINGUISHER DEVICES.

1 LIFE SAFETY PLAN
G101 1/8" = 1'-0"

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Project Number 132
Title
Life Safety Plan

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G101
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Project Number 132

Title
GENERAL NOTES

Sheet
CO.10

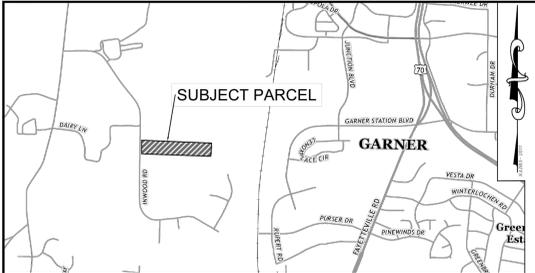
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GENERAL NOTES:	SITE NOTES:	UTILITY NOTES:	MATERIALS AND FURNISHINGS NOTES:
<p>1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE OFFICE OF STATE CONSTRUCTION, DEPARTMENT OF INSURANCE, NCDENR, AND ALL OTHER APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES. ALL UTILITY CONSTRUCTION SHALL COMPLY WITH APPLICABLE LOCAL JURISDICTIONAL STANDARDS AND SPECIFICATIONS.</p> <p>2. EXISTING SURVEY INFORMATION INCLUDING TOPOGRAPHIC INFORMATION PROVIDED BY STEWART, UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.</p> <p>3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL PROVIDE NOTICE OF EXCAVATION TO NC 811 AND FACILITY OWNERS (PER NC STATUTE) NO LESS THAN 3 BUSINESS DAYS AND NO MORE THAN 12 WORKING DAYS PRIOR TO BEGINNING DEMOLITION, EXCAVATION OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS. NO EXCAVATION OR DEMOLITION SHALL BE STARTED WITHOUT ALL UTILITIES BEING LOCATED.</p> <p>4. ALL SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.</p> <p>5. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.</p> <p>6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COORDINATING PERMITS, INSPECTIONS, CERTIFICATIONS AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT.</p> <p>7. THE CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS TO RECORD THE ACTUAL LOCATION OF ALL PIPING PRIOR TO CONCEALMENT, VALVE AND MANHOLE CHANGES, AND HARDSCAPE OR LANDSCAPE CHANGES. DRAWINGS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE AT REGULAR INTERVALS, OR AS REQUESTED THROUGHOUT THE PROJECT FOR RECORD KEEPING.</p> <p>8. IF DEPARTURES FROM THE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THERE OF SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.</p> <p>9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING UTILITY LINES REQUIRED TO COMPLETE ANY PORTION OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COORDINATION AND COSTS OF THE RELOCATION AND ASSOCIATED WORK.</p> <p>10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS AND RUBBISH CAUSED BY THE CONTRACTOR. ALL DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE ON A DAILY BASIS.</p> <p>11. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.</p> <p>12. ROADWAYS (TEMPORARY OR PERMANENT) MUST BE CAPABLE OF SUPPORTING FIRE FIGHTING APPARATUS (85,000 LBS) DURING ALL PHASES OF CONSTRUCTION ONCE VERTICAL CONSTRUCTION HAS BEGUN.</p>	<p>1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF THE CONSTRUCTION LAYDOWN AREA, PERIMETER FENCE, AND ASSOCIATED GATES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF THE CONSTRUCTION LAYDOWN AREA PERIMETER FENCE AND ASSOCIATED GATES AT THE COMPLETION OF THE PROJECT.</p> <p>2. THE CONTRACTOR SHALL REFERENCE THE DESIGN PLANS FOR DIMENSIONS, JOINT LOCATIONS, AND INLAY SPECIFICATIONS NEAR BUILDINGS AND IN COURTYARDS. CONTRACTOR SHALL PROVIDE JOINTS IN WALKWAYS AND HARDSCAPE PER DETAILS OR AS INDICATED ON LANDSCAPE/HARDSCAPE PLAN SHEETS.</p> <p>OR</p> <p>THE CONTRACTOR SHALL REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONS, JOINTS AND INLAY SPECIFICATIONS NEAR THE BUILDING AND COURTYARD. THE CONTRACTOR SHALL PROVIDE JOINTS IN WALKWAYS EVERY TEN (10) FEET MAXIMUM, OR AS INDICATED ON ARCHITECTURAL PLANS SHEETS.</p> <p>3. ALL CONSTRUCTION TRAFFIC SHALL ENTER SITE FROM INWOOD ROAD UNLESS OTHERWISE APPROVED IN WRITING FROM THE OWNER'S REPRESENTATIVE FOR AN ALTERNATE POINT OF ACCESS.</p> <p>4. REFER TO ARCHITECTURAL PLANS FOR BUILDING INFORMATION.</p> <p>5. ALL DIMENSIONS ARE IN DECIMAL FEET TO OUTSIDE FACE OF BUILDINGS, TO CENTERLINES, AND/OR FACE OF CURB UNLESS OTHERWISE NOTED.</p> <p>6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO ANY CONSTRUCTION.</p> <p>7. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.</p> <p>8. ALL UTILITIES WITH SURFACE ACCESS SHALL BE LOCATED WITHIN THE PAVING PATTERN AND SHALL BE COORDINATED WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION. REFER TO LAYOUT DRAWINGS.</p> <p>9. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.</p> <p>10. ALIGN ALL JOINTS, CORNERS, AND EDGES AS SHOWN</p> <p>11. CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AT ALL TIMES PRIOR TO AND DURING CONSTRUCTION.</p> <p>12. ALL CURB TAPERERS ARE SIX (6) FEET LONG UNLESS OTHERWISE SHOWN ON PLAN.</p> <p>13. WHERE NEW SIDEWALK ADJOINS EXISTING WALK, PROVIDE EXPANSION JOINT BY DRILLING INTO THE FACE OF THE EXISTING WALK FOR PLACEMENT OF DOWELS. THE NEW SIDEWALKS INTO NEAREST EXISTING PAVEMENT JOINT, MATCH WIDTH OF EXISTING WALKWAY.</p> <p>14. WHERE SIDEWALK OR WALKWAYS ARE ADJACENT TO PARKING SPACES THE WALKWAY SHALL BE A MINIMUM 6.5 WIDE AS MEASURED FROM THE FACE OF CURB.</p> <p>15. MAXIMUM RUNNING SLOPE FOR WALKING SURFACES CANNOT BE GREATER THAN 1:20 AND CROSS SLOPES CANNOT BE GREATER THAN 1:48. HANDICAP SPACES SURFACE SLOPES SHALL NOT EXCEED 1:48 IN ALL DIRECTIONS.</p> <p>16. SIGHT TRIANGLES - NOTHING OVER 30" HIGH SHALL BE ALLOWED WITHIN THE SIGHT DISTANCE TRIANGLES.</p> <p>17. THE SITE SHALL BE FULLY STABILIZED (90% COVERAGE) PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY OR PROJECT APPROVAL.</p> <p>18. HANDICAP RAMPS SHALL BE INSTALLED PER LATEST EDITION OF THE NC BUILDING CODE AND ANSI 117.11 WITH DETECTABLE WARNING DOMES WITH A COLOR CONTRAST OF 70% MINIMUM. SEE DETAILS AND GRADING SPOT ELEVATIONS. IF THE EXISTING CONDITIONS PRECLUDE THE ABILITY TO PROVIDE A MAXIMUM SLOPE 1:12 FOR 6 FEET OR A MAXIMUM CROSS SLOPE OF 1:48 AND A 36" MINIMUM LANDING, THE CONTRACTOR SHALL NOTIFY ENGINEER OR OWNER REPRESENTATIVE PRIOR TO INSTALLATION.</p> <p>OR</p> <p>HANDICAP RAMPS SHALL BE INSTALLED PER THE PLANS AND SPECIFICATIONS AND THE NC BUILDING CODE. A MAXIMUM SLOPE OF 1:12 FOR 6 FEET AND A MAXIMUM CROSS SLOPE OF 1:48 SHALL BE PROVIDED. IF EXISTING CONDITIONS PRECLUDE THIS REQUIREMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.</p> <p>19. THE TESTING AGENCY SHALL BE RESPONSIBLE FOR PROVIDING THE ASPHALT AND CONTRACTOR CERTIFICATION MEMO TO NCDOT FOR ALL ROADWAY IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY.</p>	<p>1. UNLESS OTHERWISE NOTED, ALL MANHOLES SHALL BE PRE-CAST CONCRETE STRUCTURES.</p> <p>2. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF UNDERGROUND UTILITIES (WATER, SEWER, STORM, ELECTRICAL, GAS, OR OTHER) FOR THIS PROJECT WITH THE BUILDING PLANS. THE UTILITY CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE INSTALLATION OF ALL UTILITY SERVICES TO WITHIN FIVE (5) FEET OF THE BUILDING CONNECTION POINT.</p> <p>3. THE CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON SITE AND UTILITY PROVIDERS DURING CONSTRUCTION TO ENSURE SMOOTH TRANSITION BETWEEN DISCIPLINES.</p> <p>4. THE CONTRACTOR SHALL COORDINATE ALL PEDESTRIAN AND VEHICULAR INTERRUPTIONS WITH OWNERS REPRESENTATIVE AT LEAST 72 HOURS PRIOR TO BEGINNING WORK.</p> <p>5. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK INSIDE THE PUBLIC RIGHT OF WAY PRIOR TO RECEIPT AND COMPLIANCE WITH ALL APPLICABLE NCDOT PERMITS. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FLAGGERS AND TRAFFIC CONTROL DURING ALL WORK INSIDE THE PUBLIC RIGHTS OF WAY.</p> <p>6. THE CONTRACTOR SHALL NOT RE-USE ANY FIRE HYDRANT REMOVED AS PART OF THIS PROJECT. ANY FIRE HYDRANT SHOWN TO BE REMOVED OR RELOCATED SHALL BE REPLACED WITH A NEW FIRE HYDRANT MEETING THE LOCAL JURISDICTIONAL REQUIREMENTS AND STANDARDS.</p> <p>7. ALL EXISTING SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. DEPTHS OF EXISTING UTILITIES SHOWN IN PROFILE VIEWS ARE BASED ON STANDARD ASSUMPTIONS. THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION, DEPTH, SIZE AND MATERIAL OF ANY AND ALL SUB-SURFACE CONDITIONS REFERENCED IN THESE PLANS PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.</p> <p>8. ELEVATIONS OF UTILITIES ARE GIVEN TO THE EXTENT OF INFORMATION AVAILABLE. WHERE ELEVATIONS ARE NOT GIVEN AT POINTS OF EXISTING UTILITY CROSSINGS, SUCH ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND REPORTED TO THE ENGINEER. WHEN UNKNOWN LINES ARE EXPOSED, THEIR LOCATIONS AND ELEVATIONS SHALL ALSO BE REPORTED TO THE ENGINEER.</p> <p>9. UNDERGROUND UTILITIES SHOWN ON THIS PLAN SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION OF PARKING AREA DRIVES, CURBS OR CUTTER OR CONCRETE WALKS / PADS. IF UTILITIES SHOWN ON THIS PLAN CANNOT BE INSTALLED PRIOR TO INSTALLATION OF IMPERVIOUS (ASPHALT / CONCRETE) CONDUIT SHALL BE INSTALLED FOR THE "FUTURE" UTILITY INSTALLATION.</p> <p>10. AS-BUILT DOCUMENTATION REQUIREMENTS: PRIOR TO APPROVAL FROM LOCAL JURISDICTION OR ENGINEER THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS IN BOTH PAPER AND ELECTRONIC FORMAT (CAD / PDF) PREPARED AND SEALED BY A PROFESSIONAL LAND SURVEYOR SHOWING ALL UTILITY INSTALLATION, HORIZONTAL AND VERTICAL INFORMATION SHALL BE PROVIDED FOR WATER, SEWER, STORM INCLUDING ALL STRUCTURES, VALVES, HYDRANTS, AND OTHER APPURTENANCES.</p>	<p>1. ABBREVIATIONS FOR SPECIFIC HARDSCAPE MATERIALS AND FURNISHINGS ARE LISTED IN THE LEGEND AND ARE USED THROUGHOUT THE DRAWING SETS HARDSCAPE & FURNISHINGS PLANS, PAVING PATTERN PLANS AND SITE DETAILS.</p> <p>2. REFER TO RELATED SPECIFICATION SECTION FOR SPECIFIC SUBMITTALS OF PRODUCT DATA, SAMPLES, SHOP DRAWINGS, QUALITY ASSURANCE REQUIREMENTS, EXECUTION REQUIREMENTS, AND FOR FURTHER PRODUCT INFORMATION NOT INCLUDED IN THIS SCHEDULE.</p> <p>3. CONTRACTOR TO SUBMIT COLOR SAMPLES AND PROVIDE MOCK-UPS FOR ALL CAST IN PLACE CONCRETE FOR APPROVAL BY LANDSCAPE ARCHITECT.</p>
<p>EXISTING CONDITION NOTES:</p> <p>1. THIS SURVEY MAP IS INTENDED TO REPRESENT THE EXISTING CONDITIONS/TOPOGRAPHY ON A PORTION OF THE PROPERTY AND ALL ENCUMBRANCES UPON THE PROPERTY MAY NOT BE SHOWN.</p> <p>2. HORIZONTAL DATUM IS NAD 83-2011 AND VERTICAL DATUM IS NAVD88.</p> <p>3. THIS DRAWING DOES NOT CONFORM TO N.C. GS47-30 AND THEREFORE IS NOT FOR RECORDATION.</p> <p>4. UTILITIES SHOWN HEREON ARE BASED ON ABOVE GROUND VISIBLE EVIDENCE AND UTILITY DESIGNATION / MARKING SERVICES PERFORMED BY STEWART INC. AND THE AVAILABLE RECORD INFORMATION. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION.</p> <p>OR</p> <p>5. SURVEY INFORMATION BASED ON FIELD SURVEY BY BARRY M. BROWN, PLS COMPLETED ON 04/14/2023.</p> <p>6. TREES SHOWN HEREON MAY NOT REPRESENT ALL VEGETATION ON THE SUBJECT PROPERTY.</p> <p>7. THE SUBJECT PROPERTY LIES IN ZONES X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANGE AND FUTURE CONDITIONS 1% ANNUAL CHANGE FLOOD PLAIN), BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720781038 DATED JULY 15, 2022.</p> <p>8. NO WETLANDS HAVE BEEN IDENTIFIED WITHIN THE PROJECT OR PARCEL SHOWN.</p>	<p>GRADING AND STORM DRAINAGE NOTES:</p> <p>1. CONTRACTOR SHALL REPORT ANY GRADE DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.</p> <p>2. THE MAXIMUM SLOPE ALONG ANY HANDICAP ACCESSIBLE PATHWAY SHALL NOT EXCEED 5.0% AND SHALL NOT EXCEED A 2.0% CROSS SLOPE. HANDICAP RAMPS INDICATED ON PLANS SHALL BE A MAXIMUM OF 1:12 SLOPES WITH A MAXIMUM RISE OF 30" BETWEEN LANDINGS. NON-CURB CURB RAMPS SHALL HAVE HANDRAILS AND GUARDS PER DETAILS WITH 6" LANDINGS AT THE BOTTOM AND TOP OF RAMP.</p> <p>3. ALL PROPOSED ELEVATIONS SHOWN ARE EDGE OF PAVEMENT ELEVATIONS UNLESS OTHERWISE SPECIFIED.</p> <p>4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL NEWLY CONSTRUCTED STORM DRAINAGE IMPROVEMENTS AND RECEIVING STORM DRAINAGE SYSTEMS REMAIN CLEAR OF SEDIMENT AND DEBRIS. PRIOR TO OWNER ACCEPTANCE OF SYSTEM, THE CONTRACTOR SHALL COORDINATE AND PROVIDE A VISUAL OBSERVATION VIDEO OF ALL STORM DRAINAGE IMPROVEMENTS 12" AND LARGER. THE VISUAL OBSERVATION SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE TWO (2) DVD COPIES OF THE ENTIRE DRAINAGE VISUAL OBSERVATION.</p> <p>5. PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THE VIDEO INSPECTION OF THE STORM SEWER SYSTEM (BOTH PUBLIC AND PRIVATE). THIS SUBMITTAL MAY NEED TO BE REVIEWED AND ACCEPTED BY THE LOCAL JURISDICTION PRIOR TO THE ISSUANCE OF THE BUILDING CD.</p> <p>6. REFER TO THE EROSION CONTROL DETAILS SHEET FOR THE SEQUENCE OF CONSTRUCTION</p> <p>7. INTERM GRADING SHALL BE PROVIDED THAT ENSURES THE PROTECTION OF STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, AND WASHOUT.</p> <p>8. INTERM GRADING SHALL BE PROVIDED TO DIRECT WATER AWAY FROM BUILDINGS AND PREVENT PONDING</p> <p>9. THE ROOF LEADERS WHERE POSSIBLE TO UNDERGROUND STORM SYSTEM. CONTRACTOR TO FIELD VERIFY LOCATE AND INSTALL WHERE POSSIBLE OR AS SHOWN ON PLANS. WHERE ROOF LEADERS DAYLIGHT AT GRADE A SPLASH BLOCK APPROVED BY THE OWNER'S REPRESENTATIVE SHALL BE INSTALLED.</p> <p>10. MAXIMUM SLOPE ACROSS ANY HANDICAPPED PARKING SPACE AND AISLE SHALL NOT EXCEED 2% IN ANY DIRECTION.</p> <p>11. PROPOSED CONTOURS ARE APPROXIMATE. SPOT ELEVATIONS AND ROADWAY PROFILES SHALL BE USED IN CASE OF DISCREPANCY.</p> <p>12. PLACE BACKFILL AND FILL MATERIALS IN LAYER NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTOR EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS. PLACE BACKFILL AND FILL MATERIALS EVENLY ON ALL SIDES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. COMPACT SOIL TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL, UP TO TWO FEET OF FINISHED GRADE. COMPACT SOIL TO NOT LESS THAN 98 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL FOR THE FINAL TWO FEET.</p> <p>13. SITE GRADING IMMEDIATELY ADJACENT TO FOUNDATION OF BUILDING SHALL SLOPE NOT LESS THAN 1:20 AWAY FOR MINIMUM DISTANCE OF 10 FEET. ALTERNATIVE METHOD SHALL BE PROVIDED TO DIVERT WATER AWAY FROM FOUNDATION VIA SWALES SLOPED AT A MINIMUM OF 2% OR IMPERVIOUS SURFACES SLOPED AWAY A MINIMUM OF 2% AWAY FROM BUILDING.</p> <p>14. CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, METERS, VALVES, ETC. AS REQUIRED TO MEET NEW FINISHED GRADES.</p> <p>15. CONTRACTOR SHALL SLOPE GRADES TO ASSURE POSITIVE STORMWATER FLOW TO KEEP WATER FROM POOLING ALONG CURBS AND WALLS.</p> <p>16. TOP OF WALL ELEVATIONS INDICATE THE ELEVATION AT THE TOP OF THE CAP. UNLESS OTHERWISE NOTED.</p> <p>17. BOTTOM OF WALL ELEVATIONS INDICATE THE ELEVATION OF THE FINISHED GRADE.</p>	<p>PROPOSED UTILITY SEPARATION:</p> <p>1. WATER MAINS SHALL BE LAID AT LEAST 18" FEET HORIZONTALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT HORIZONTAL SEPARATION IN WHICH CASE:</p> <p>a. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR</p> <p>b. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE OF A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.</p> <p>2. CROSSING A WATER MAIN OVER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER. UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AT LEAST 18 INCH VERTICAL SEPARATION, IN WHICH CASE THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.</p> <p>3. CROSSING A WATER MAIN UNDER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.</p> <p>4. SEPARATION OF SANITARY SEWERS AND STORM SEWERS:</p> <p>a. A 18" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND SANITARY SEWER LINES OR BOTH THE SANITARY AND THE STORM LINES SHALL BE CONSTRUCTED OF FERROUS MATERIALS.</p>	<p>PAVING PATTERN NOTES:</p> <p>1. END ALL UNIT PAVING PATTERNS WITH A FULL OR HALF SIZE PAVER UNLESS OTHERWISE NOTED. USE OVERSIZE PAVERS WHERE PATTERN ENDS ON A UNIT SMALLER THAN HALF SIZE.</p> <p>2. LAYOUT OF UNIT PAVING PATTERNS AND CONCRETE JOINTS AS INDICATED ON THIS PLAN. REFERENCE LAYOUT PLANS FOR FURTHER PAVING LAYOUT INFORMATION.</p> <p>3. PAVERS ABUTTING TRUNCATED DOMES SHALL BE A CONTRASTING COLOR.</p> <p>4. ALIGN ALL TRUNCATED DOME PAVER JOINTS WITH ABUTTING PAVER JOINTS.</p> <p>5. PROVIDE CONTINUOUS EXPANSION JOINTS BETWEEN BACK OF CURB AND ADJOINING PAVEMENT.</p> <p>6. PROVIDE CONTINUOUS EXPANSION JOINT BETWEEN ALL VERTICAL SURFACES AND ADJOINING PAVEMENT.</p> <p>7. ALL DIMENSIONS MEASURED TO CENTERLINE OF JOINTS.</p> <p>8. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.</p> <p>9. ALL ANGLES 90 DEGREES UNLESS OTHERWISE NOTED.</p> <p>10. ALIGN ALL JOINTS, CORNERS AND EDGES AS SHOWN.</p> <p>11. FINAL LAYOUTS TO BE APPROVED BY LANDSCAPE ARCHITECT.</p>
		<p>SEWER NOTES:</p> <p>1. SANITARY SEWER CLEANOUTS LOCATED IN PAVEMENT AREAS SHALL BE HEAVY DUTY TRAFFIC BEARING CASTINGS.</p> <p>2. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER MANHOLES ARE 4" DIA.</p> <p>3. MANHOLES LOCATED IN PAVEMENT, CONCRETE OR OTHER TRAFFIC AREAS SHALL BE SET AT GRADE. MANHOLES LOCATED IN OTHER AREAS (I.E. GRASS OR WOODED AREAS) SHALL HAVE THEIR RIMS RAISED SIX INCHES ABOVE THE SURROUNDING GRADE. MANHOLES SUBJECT TO POSSIBLE WATER INFILTRATION SHALL HAVE WATERTIGHT, BOLTED LIDS.</p> <p>4. MINIMUM REQUIRED SLOPES FOR SEWER SERVICES:</p> <p>4" SEWER SERVICE - 2.00% SLOPE 6" SEWER SERVICE - 1.00% SLOPE 8" SEWER SERVICE - 0.50% SLOPE</p> <p>5. UNLESS OTHERWISE NOTED, LOCATE SANITARY SERVICE CLEANOUTS AT ALL HORIZONTAL OR VERTICAL CHANGES IN DIRECTION. MAXIMUM SPACING BETWEEN CLEANOUTS SHALL BE 75 FEET.</p> <p>6. SEWER LINES LESS THAN 3 FEET OF COVER SHALL BE CLASS 50 DUCTILE IRON PIPE. SEWER LINES WITH GREATER THAN 3 FEET OF COVER SHALL BE AS NOTED BELOW:</p> <p>4" SEWER SERVICE - SCH 80 6" SEWER SERVICE - SCH 80 8" SEWER SERVICE - SDR-35</p> <p>7. SEWER LINES UNDER CONSTRUCTION SHALL BE PROTECTED FROM DIRT, DEBRIS OR OTHER CONTAMINANTS ENTERING THE NEW SYSTEM. A MECHANICAL PLUG SHALL BE UTILIZED BOTH IMMEDIATELY UPSTREAM OF THE NEW CONSTRUCTION AND AT THE FIRST MANHOLE DOWNSTREAM IN THE EXISTING SYSTEM. EXISTING STRUCTURES, PIPING AND APPURTENANCES SHALL BE PROTECTED FROM ANY INFLOW OF WATER, DIRT OR DEBRIS DUE TO NEW CONSTRUCTION CONNECTING TO OR IN THE VICINITY OF THE EXISTING SYSTEM. CONTRACTOR TO REMOVE DEBRIS AND PLUG PRIOR TO OCCUPANCY.</p> <p>8. ALL MANHOLES COVERS SHALL BE PAINTED TO LOCAL JURISDICTIONAL REQUIREMENTS.</p>	<p>SIGNAGE, STRIPING AND MARKING NOTES:</p> <p>1. ALL INTERNAL SIGNAGE SHALL BE COORDINATED WITH OWNER FOR ACTUAL LOCATION AT TIME OF INSTALLATION. SIGNAGE LEADING INTO PUBLIC THROUGHFARE SHALL BE INSTALLED AT RIGHT OF WAY PER DOT STANDARDS</p> <p>2. ALL PAVEMENT STRIPING (EXCEPT INDIVIDUAL PARKING BAY STRIPING) SHALL BE THERMOPLASTIC REFLECTIVE PAINT. MATERIALS AND DIMENSIONS SHALL CONFORM TO NCDOT STANDARDS AND SPECIFICATIONS. PARKING BAY STRIPING SHALL BE WHITE REFLECTIVE PAINT.</p> <p>3. CROSSWALKS SHALL BE CONSTRUCTED OF THERMOPLASTIC MATERIALS AND CONSTRUCTED IN ACCORDANCE WITH STATE DOT SPECIFICATIONS. CONTRACTOR TO INSTALL CROSSWALKS IN SUCH A MANNER THAT CROSSWALKS ARE ALIGNED BETWEEN HANDICAP/WALKWAY ACCESS POINTS OR PERPENDICULAR TO THE ROADWAY / DRIVE LANE.</p> <p>4. ADA SYMBOLS SHOWN THESE DRAWINGS ARE FOR LOCATION PURPOSES ONLY AND NOT INTENDED TO BE PAINTED. CONTRACTOR RESPONSIBLE FOR INSTALLING ALL REQUIRED ADA SIGNAGE.</p>
<p>DEMOLITION NOTES:</p> <p>1. THE CONTRACTOR SHALL REMOVE CONCRETE (WHERE REQUIRED) TO THE FIRST COLD JOINT OR SAW CUT TO OBTAIN A CLEAN EDGE.</p> <p>2. THE CONTRACTOR SHALL SAWCUT EXISTING ASPHALT (WHERE REQUIRED) TO OBTAIN A CLEAN EDGE.</p> <p>3. CLEANOUTS AND WATER VALVES LOCATED IN AREAS OF DEMOLITION OR SUBSEQUENT CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND RAISED TO BE FLUSH WITH NEW GRADE.</p> <p>4. ANY UTILITY SERVICES SHOWN TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY PROVIDER. CONTRACTOR IS RESPONSIBLE FOR APPROPRIATE SEQUENCING OF UTILITY DEMOLITION WITH THE RESPECTIVE UTILITY AGENCIES.</p> <p>5. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES PRIOR TO BEGINNING DEMOLITION OPERATIONS. NOTIFY "NORTH CAROLINA ONE CALL" (TELEPHONE 1-800-432-4949) AT LEAST 48 HOURS PRIOR TO START OF DEMOLITION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCAL SERVICES PRIOR TO COMMENCEMENT OF "NORTH CAROLINA ONE CALL".</p> <p>6. CLEAN SOILS SHALL BE UTILIZED FOR BACKFILL. COMPACTION OF THESE SOILS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.</p> <p>7. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING ALL SUBGRADE MATERIALS DIRECTLY ASSOCIATED WITH ITEMS TO BE REMOVED.</p> <p>8. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE DISPOSED OF LEGALLY OFF-SITE UNLESS OTHERWISE NOTED ON THIS PLAN.</p> <p>9. REFER TO LANDSCAPE AND EROSION CONTROL DRAWINGS FOR TREE PROTECTION PLAN AND REQUIREMENTS.</p> <p>10. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL JURISDICTIONAL CODES OR REQUIREMENTS.</p> <p>11. TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO BEGINNING DEMOLITION</p> <p>12. EROSION CONTROL PERMIT SHALL BE OBTAINED AND ONSITE PRIOR TO BEGINNING DEMOLITION.</p> <p>13. ITEMS DESIGNATED TO BE SALVAGED AND/OR RE-USED SHALL BE REMOVED BY THE CONTRACTOR AND PROVIDED TO THE OWNER. COORDINATE STORAGE LOCATION WITH OWNERS REPRESENTATIVE.</p> <p>14. WHERE UTILITIES ("TO BE REMOVED") IMPACT THE FOOTPRINT OF THE NEW BUILDING, THE CONTRACTOR SHALL EXECUTE AND REMOVE AN ADDITIONAL 2 FEET OF SOILS TO EITHER SIDE OF THE PIPE, AND 1 FOOT BELOW. CLEAN SUITABLE SOIL SHALL BE UTILIZED FOR BACKFILL AND COMPACTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.</p> <p>15. DEMOLITION AND SUBSEQUENT CONSTRUCTION OF STORM DRAINAGE PIPING SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES REMOVED DO NOT IMPACT DRAINAGE UPSTREAM OR THE SYSTEM. PROVISIONS SHALL BE MADE TO MAINTAIN STORM WATER DRAINAGE PATTERNS DURING CONSTRUCTION.</p> <p>16. DEMOLITION AND SUBSEQUENT CONSTRUCTION OF UTILITIES (WATER, SEWER, ETC) SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES REMOVED DO NOT IMPACT OR MINIMIZE SERVICE INTERRUPTION TO EXISTING FACILITIES TO REMAIN. PROVISIONS SHALL BE MADE TO MAINTAIN SERVICE DURING CONSTRUCTION.</p> <p>17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL DAMAGES TO THE EXISTING DRIVEWAY, PARKING LOT, SIDEWALK, AND CURB AND CUTTER AS A RESULT OF CONSTRUCTION ACTIVITY AND TRAFFIC. CONTRACTOR SHALL MAINTAIN A PRE-CONSTRUCTION VIDEO OR PHOTO DOCUMENTATION TO SHOW NO DAMAGES OCCURRED.</p> <p>18. ALL MATERIALS, FURNISHINGS, UTILITIES, AND PAVEMENT THAT ARE NOT SCHEDULED TO BE DEMOLISHED AND ARE DAMAGED BY THE CONTRACTOR AS A RESULT OF THE DEMOLITION OR CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.</p> <p>19. WHERE UTILITIES ARE SHOWN TO BE "REMOVED", CONTRACTOR SHALL INCLUDE NECESSARY PLUG OR VALVES TO ENSURE UTILITY LINES TO REMAIN WILL CONTINUE TO BE IN SERVICE. COORDINATE NECESSARY SHUT DOWN AND REMOVE WITH THE LOCAL JURISDICTION OR UTILITY OWNER.</p> <p>20. CONTRACTOR SHALL PROVIDE PEDESTRIAN INGRESS / EGRESS TO ALL EXISTING BUILDINGS, PARKING LOTS, AND PATHS OF PEDESTRIAN TRAVEL THROUGHOUT THE CONSTRUCTION PERIOD. CONTRACTOR SHALL PROVIDE VEHICULAR INGRESS/EGRESS TO ALL EXISTING BUILDINGS AND PARKING LOTS THROUGHOUT THE CONSTRUCTION PERIOD.</p>		<p>WATER NOTES:</p> <p>1. AS INDICATED, ALL WATERLINES SHALL BE DUCTILE IRON PIPE MEETING THE REQUIREMENTS OF ANSI-AWWA C151 PRESSURE CLASS 350 OR SOFT COPPER TYPE K PIPE PER ASTM 888. IF PVC WATERLINE IS INDICATED ON THE PLANS IT SHALL MEET THE REQUIREMENTS OF AWWA C-900; CLASS 200.</p> <p>2. ALL WATERLINES SHALL HAVE A MINIMUM OF 3.5 FEET OF COVER.</p> <p>3. TESTING NOTES: PRESSURE: LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600. MINIMUM TEST PRESSURE SHALL BE 150 PSI FOR DOMESTIC AND 200 PSI FOR FIRE PROTECTION. BACTERIOLOGICAL: TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTING PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.</p> <p>4. THE CHLORINE IN HEAVILY CHLORINATED WATER FLUSHED FROM MAINS NEEDS TO BE NEUTRALIZED BEFORE DISCHARGE. CONTRACTORS SHALL NEUTRALIZE HEAVILY CHLORINATED WATER FLUSHED FROM MAINS PRIOR TO DISCHARGE OR TRANSPORT ALL HEAVILY CHLORINATED WATER OFFSITE FOR PROPER DISPOSAL.</p> <p>5. PAINT VALVE COVERS, FIRE HYDRANTS AND OTHER WATER APPARATUS TO MEET THE LOCAL JURISDICTIONAL REQUIREMENTS.</p>	<p>LANDSCAPE NOTES:</p> <p>1. VERIFY ALL QUANTITIES AND REPORT ANY DISCREPANCIES OR INACCURACIES IN THE PLANS TO THE OWNER'S REPRESENTATIVE PRIOR TO PLANTING.</p> <p>2. LANDSCAPE WORK SHALL INCLUDE THE FURNISHING, INSTALLATION, AND WARRANTY OF ALL PLANTING MATERIALS WITHIN THE PROJECT AREA.</p> <p>3. THE LANDSCAPE CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL EXISTING AND NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION FOR PLANTING. DAMAGES TO UTILITIES CAUSED BY THE LANDSCAPE OPERATION SHALL BE CORRECTED BY THE LANDSCAPE CONTRACTOR AT NO COST TO THE OWNER.</p> <p>4. LANDSCAPING SHALL REMAIN CLEAR FROM ANY FIRE HYDRANTS ON THE SITE.</p> <p>5. ALL TREES TO BE A MINIMUM OF 2" IN CALIPER AND MUST MEET THE AMERICAN STANDARD FOR NURSERY STOCK.</p> <p>6. TREE PROTECTION NOTE: TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT AND SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ARBOLES."</p> <p>7. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED AREA.</p> <p>8. ROOT ZONE PROTECTION AREA, VARIES BASED ON LOCAL JURISDICTION HAVING AUTHORITY. CONTRACTOR SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS. NO DISTURBANCE ALLOWED WITHIN THIS AREA. AREA MUST BE PROTECTED WITH BOTH TREE PROTECTION FENCING AND WARNING SIGNS.</p> <p>9. SEED BED PREPARATION: ALL AREAS TO BE SEEDED ARE TO BE RECEIVE A MINIMUM OF 2" OF APPROVED TOPSOIL. ALL DEBRIS, ROCKS, ETC. LARGER THAN 2" ARE TO BE REMOVED. ALL LARGE CONCENTRATIONS OF GRAVEL & DEBRIS REGARDLESS OF SIZE ARE TO BE REMOVED PRIOR TO SEEDING OR PLANTING.</p> <p>10. ALL PLANT BED AREAS ARE TO RECEIVE A MINIMUM OF 6" OF APPROVED TOPSOIL.</p> <p>11. SOIL SHOULD BE TESTED AND AMENDED WITH LIME AND FERTILIZER FOR HARDWOOD TREES ACCORDING TO NCSU PROCEDURES. SCARIFY PLANT PIT WALLS. CONSULT LANDSCAPE ARCHITECT FOR ALTERNATE COMPLIANCE.</p> <p>12. SHREDDED HARDWOOD MULCH 3" DEEP EXCEPT AT CROWN OF PLANT UNLESS OTHERWISE NOTED. FLARE AT CROWN SHOULD BE REVEALED. BACKFILL CONSISTS OF THOROUGHLY BROKEN UP NATIVE SOIL. TOTAL VOLUME OF BACKFILL SHOULD BE AMENDED WITH UP TO ONE THIRD PINE BARK MULCH. PIECES SHOULD BE NO LARGER THAN WHAT PASSES THROUGH A ONE INCH SCREEN. IF ADDITIONAL SOIL IS REQUIRED FOR BACKFILL DUE TO DETRIMENTAL SUBSOIL DRAINAGE CONDITIONS, USE SOIL SIMILAR TO EXISTING NATIVE SOIL. ADDITIONAL SOIL TO BE APPROVED BY LANDSCAPE ARCHITECT. MAXIMUM SAUCER HEIGHT IS 6 INCHES.</p> <p>13. TOP OF ROOTBALL TO BE RAISED 2-3 INCHES ABOVE EXISTING GRADE.</p> <p>14. FOR BAB PLANTS, NATURAL FIBER BURLAP SHOULD BE TURNED DOWN BY 1/3 TOTAL HEIGHT OF ROOT BALL. PLASTIC FIBER BURLAP AND WIRE BASKETS SHOULD BE REMOVED TO 2/3 OF TOTAL HEIGHT OF ROOT BALL.</p> <p>15. CONTRACTOR IS RESPONSIBLE FOR KEEPING THE TREE UPRIGHT AND PLUMB THROUGHOUT THE WARRANTY PERIOD. IF STABILIZATION IS NECESSARY SEE STAKING IN TREE DETAIL. ORANGE FLAGGING TAPE SHOULD BE ATTACHED TO SUPPORT WIRE. STAKING SHOULD BE REMOVED BY CONTRACTOR AT END OF ONE YEAR WARRANTY PERIOD OR AS DIRECTED BY GROUNDNS MANAGEMENT.</p> <p>16. USE STANDARD "GATOR" BAGS FOR WATERING TREES IN AREAS NOT UNDER IRRIGATION. INCORPORATE TERRA-SORB (OR EQUAL) AS PER MANUFACTURERS RECOMMENDATIONS, FOR AREAS NOT UNDER IRRIGATION.</p> <p>17. USE "BIO-BARRIER" OR EQUIVALENT ACCORDING TO MANUFACTURERS RECOMMENDATION FOR TREES THAT WILL BE PLANTED WITHIN 10' OF PAVEMENT</p> <p>18. LANDSCAPING/C.O. STANDARDS NOTE: ALL LANDSCAPING MUST BE IN PLACE PRIOR TO REQUEST FOR A CERTIFICATE OF COMPLIANCE.</p>



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 NC LA Corporate License: C-303

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 Raleigh, NC 27617
 NC Certificate of Licensure: C-1125



VICINITY MAP
 SCALE: 1" = 2000'

SURVEY CONTROL / GRID TIE NOTES
 Class of Survey: Class A
 Positional Accuracy: 0.10'
 Type of GNSS Field Procedure: Network RTK
 Date of GNSS Survey: 01/26/2023
 Horizontal Datum/EPOCH: NAD83 (2011) 2010.00
 Vertical Datum: NAVD88
 Published/Fixed Control Used: NC VRS CORS- NCRD
 GEOID Model: Geoid18
 Combined Grid Factor: 0.99990429 (Not Applied)
 Units: US Survey Foot
 GNSS Antenna: Trimble R10-2

GENERAL NOTES:

- The property shown hereon is subject to easements of record identified by a completed title report. This survey has been prepared without the benefit of a title report, as such, this survey may not represent a complete record of all encumbrances affecting this property. A completed title report may identify additional easements affecting this property.
- Property lines shown are based upon field monumentation and compiled property records: DB 8489 PG 2023, DB 8489 PG 2026, DB2877 PG 458, BM 2022 PG 1988, BM1980 PG 935. A boundary survey was not performed and was not requested.
- A QL-B Underground Utility Survey was conducted to show detectable utilities in accordance with ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.
- Upon examination of Flood Insurance Rate Map, Panel Number 0791 of Community Number 370243, bearing Map # 3720079100K, revised date of July 19, 2022. The subject property lies in Zone X, and Panel Number 0791 of Community Number 370243, bearing Map # 3720079100K, revised date of July 19, 2022. The subject property lies in Zone X. This flood determination is not a recommendation by Draper Aden Associates to not purchase or purchase flood insurance coverage and does not imply that the referenced property will or will not be free from flood damage.
- Area(s) calculated by computer

I, Barry M. Brown, certify that this plat was drawn from an actual survey made under my supervision from deeds referenced hereon; that the boundaries not surveyed are clearly indicated as such; that the Grid Tie shown hereon was from an actual GNSS survey made under my supervision; that this is a Class A Horizontal and Class C Vertical Topographic Survey; That the survey is of an existing parcel or parcels of land or one or more existing easements and does not create a new street or change an existing street; that this plat was prepared in accordance with 21 NCAC 56.1600. Witness my original signature, license number and seal.



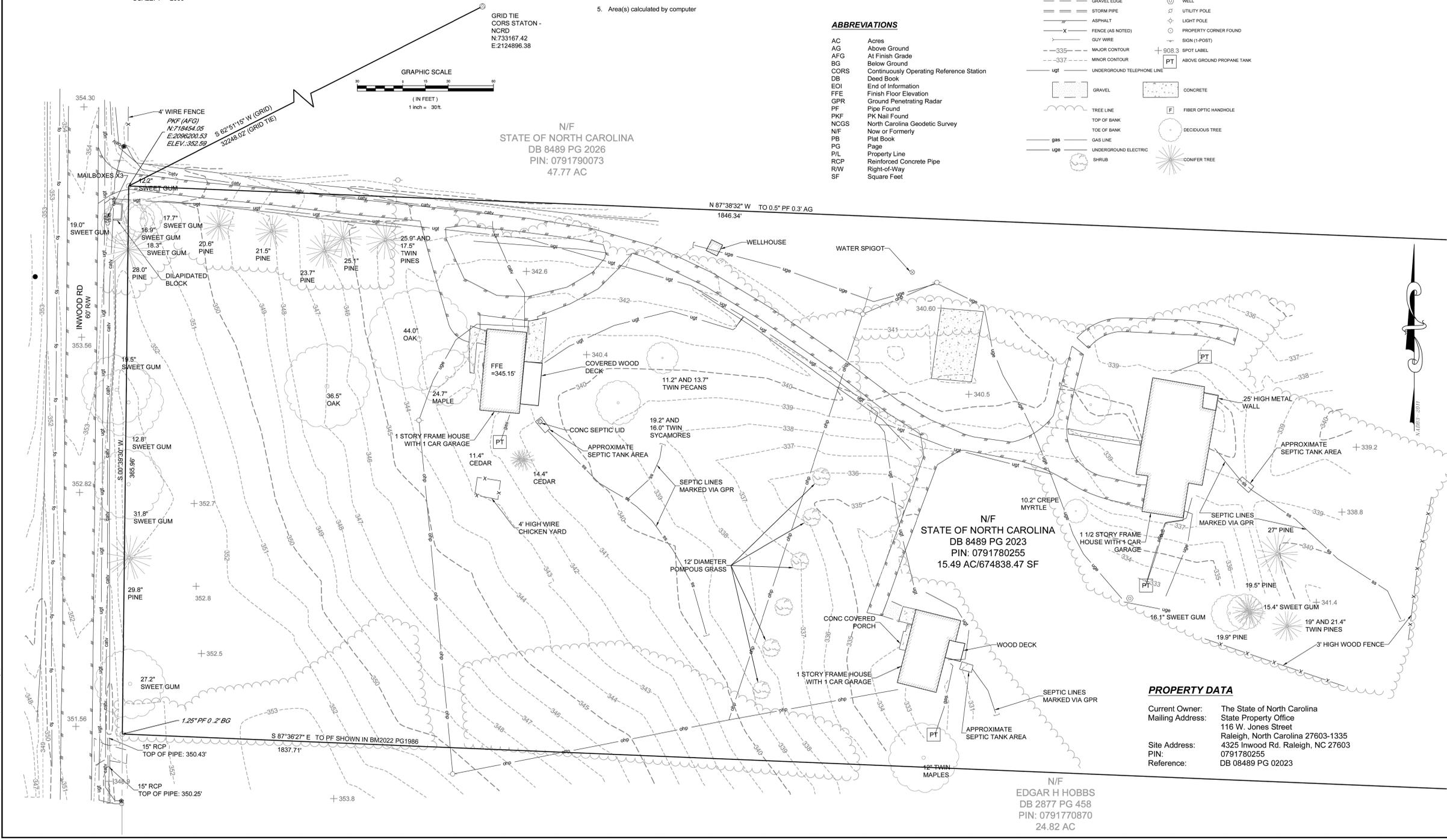
Barry M. Brown
 Barry M. Brown, PLS NC License No.: L-4453
 04/14/2023

LEGEND

ohp	OVERHEAD POWER	TV LINE PEDESTAL
---	GRAVEL EDGE	WELL
---	STORM PIPE	UTILITY POLE
---	ASPHALT	LIGHT POLE
X	FENCE (AS NOTED)	PROPERTY CORNER FOUND
---	GUY WIRE	SIGN (I-POST)
---	MAJOR CONTOUR	SPOT LABEL
---	MINOR CONTOUR	ABOVE GROUND PROPANE TANK
ugt	UNDERGROUND TELEPHONE LINE	CONCRETE
---	GRAVEL	FIBER OPTIC HANDHOLE
---	TREE LINE	DECIDUOUS TREE
---	TOP OF BANK	CONIFER TREE
---	TOE OF BANK	
---	GAS LINE	
---	UNDERGROUND ELECTRIC	
---	SHRUB	

ABBREVIATIONS

AC	Acres
AG	Above Ground
AFG	At Finish Grade
BG	Below Ground
CORS	Continuously Operating Reference Station
DB	Deed Book
EOI	End of Information
FFE	Finish Floor Elevation
GPR	Ground Penetrating Radar
PF	Pipe Found
PK	PK Nail Found
NCGS	North Carolina Geodetic Survey
N/F	Now or Formerly
PB	Plat Book
PG	Page
PIL	Property Line
RCP	Reinforced Concrete Pipe
R/W	Right-of-Way
SF	Square Foot



TRC
 114 Edinburg S Dr, Suite 200
 Cary, NC 27511
 757-500-2386
 www.trccompanies.com

**TOPOGRAPHIC SURVEY OF
 NCSU APICULTURE FACILITY SITE
 REID: 0070717, PIN# 0791780255
 RALEIGH, NC**

REVISIONS

DESIGNED BY:	N/A
DRAWN BY:	PMP
CHECKED BY:	BMB
SCALE:	1"=30'
DATE:	04/14/2023
PROJECT NUMBER:	531155
1 OF 1	

PROPERTY DATA

Current Owner: The State of North Carolina
 Mailing Address: State Property Office
 116 W. Jones Street
 Raleigh, North Carolina 27603-1335
 Site Address: 4325 Inwood Rd. Raleigh, NC 27603
 PIN: 0791780255
 Reference: DB 08489 PG 02023

Drawn	--
Checked	--
Date	01.10.2025
Revisions	

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NCSU Apiculture Facility
 Raleigh, NC
 SCO ID No.: 23-24494-01A
 Code: 42124 Item: 315
 NCSU: 202220007

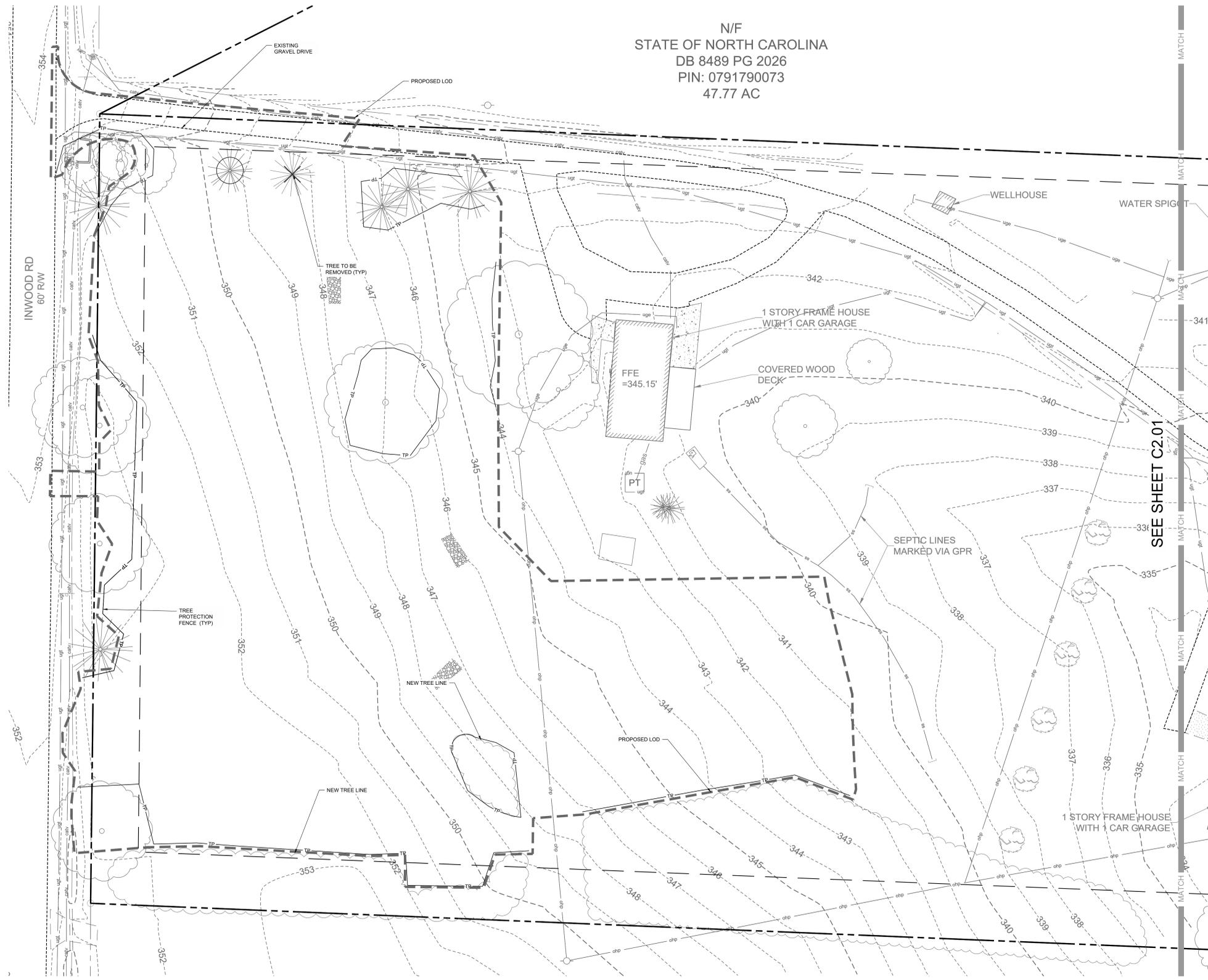
Project Number 132
 Title

SURVEY

Sheet
C1.00

Plate

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N/F
STATE OF NORTH CAROLINA
DB 8489 PG 2026
PIN: 0791790073
47.77 AC

LINETYPE LEGEND:	
SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
---	RIPARIAN BUFFER (50')
---	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

DEMOLITION LEGEND:	
SYMBOL	DESCRIPTION
[Solid Black]	REMOVE BUILDING
[Diagonal Hatching]	REMOVE ASPHALT
[Stippled]	REMOVE GRAVEL
[Cross-hatched]	REMOVE BRICK
[Dotted]	REMOVE CONCRETE
[Grid]	REMOVE RIPRAP
[Dotted with Circles]	REMOVE VEGETATION
[Circle with X]	REMOVE TREE
[Square with X]	REMOVE SIGN
[Circle with X]	COORDINATE LIGHT POLE REMOVAL
[Line with Tick]	REMOVE CURB & GUTTER
[Line with W]	REMOVE WATER LINE
[Line with SS]	REMOVE SANITARY SEWER LINE
[Line with X]	REMOVE STORM DRAINAGE
[Line with X]	REMOVE FENCE

NOTES:
1. SEE SHEET C0.10 FOR GENERAL AND DEMOLITION NOTES.
2. FINE GRADING, LANDSCAPING, MULCH PATHS, AND SEATING IS BY NCSU.

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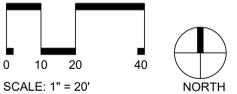
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 704.248.2922
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Plumbing, Mechanical, and Electrical Engineer:
 RMF Engineering
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 NC Certificate of Licensure: C-1125



Drawn	CO
Checked	BAH
Date	01.10.2025
Revisions	



SCALE: 1" = 20'
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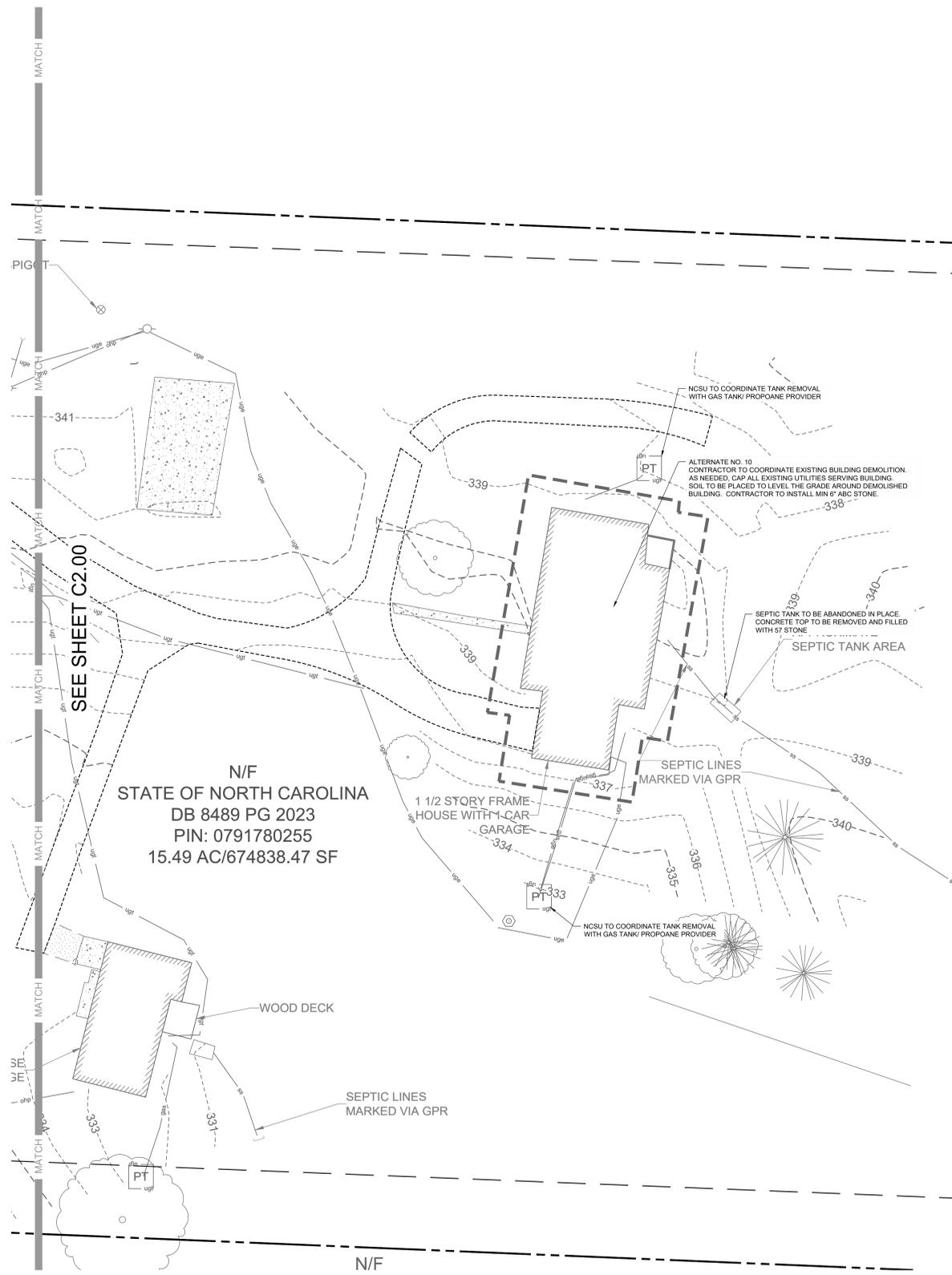
NCSU Apiculture Facility
 Raleigh, NC
 SCO ID No.: 23-24494-01A
 Code: 42124 Item: 315
 NCSU: 202220007

Project Number 132
DEMOLITION PLAN

Sheet
C2.00

Plate
 of

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SEE SHEET C2.00

N/F
STATE OF NORTH CAROLINA
DB 8489 PG 2023
PIN: 0791780255
15.49 AC/674838.47 SF

N/F

LINETYPE LEGEND:	
SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
	RIPARIAN BUFFER (50')
	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

DEMOLITION LEGEND:	
SYMBOL	DESCRIPTION
	REMOVE BUILDING
	REMOVE ASPHALT
	REMOVE GRAVEL
	REMOVE BRICK
	REMOVE CONCRETE
	REMOVE RIPRAP
	REMOVE VEGETATION
	REMOVE TREE
	REMOVE SIGN
	COORDINATE LIGHT POLE REMOVAL
	REMOVE CURB & GUTTER
	REMOVE WATER LINE
	REMOVE SANITARY SEWER LINE
	REMOVE STORM DRAINAGE
	REMOVE FENCE

NOTES:

- SEE SHEET C0.10 FOR GENERAL AND DEMOLITION NOTES.
- FINE GRADING, LANDSCAPING, MULCH PATHS, AND SEATING IS BY NCSU.

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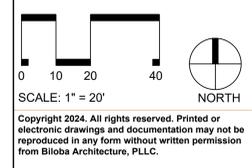
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 NC Certificate of Licensure: C-1125



Drawn: CO
 Checked: RPL
 Date: 01.10.2025
 Revisions:



NCSU Apiculture Facility
 Raleigh, NC
 SCO ID No.: 22-24494-01A
 Code: 42124 Item: 315
 NCSU: 202220007

Project Number 132
DEMOLITION PLAN II

Sheet
C2.01

Plate
 of



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Raleigh, NC 27617
NC Certificate of Licensure: C-1125



Drawn CO
Checked BAH
Date 01.10.2025
Revisions

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
---	RIPARIAN BUFFER (50')
---	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

SITE LEGEND:

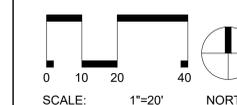
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[Pattern]	PROPOSED BRICK SIDEWALK
[Pattern]	PROPOSED HEAVY DUTY PAVEMENT
[Pattern]	PROPOSED CONCRETE PAVERS
[Pattern]	PROPOSED GRAVEL
[Pattern]	PROPOSED CURB & GUTTER
[Pattern]	PROPOSED STOP BAR
[Pattern]	PROPOSED CROSSWALK
[Pattern]	PROPOSED 6' WIDE STANDARD CROSSWALK
[Pattern]	PROPOSED 10' WIDE HIGH VISIBILITY CROSSWALK
[Symbol]	PROPOSED SIGN
[Symbol]	PROPOSED ADA PARKING SPACE
[Symbol]	PROPOSED KEYSTONE WALL
[Symbol]	PROPOSED CIP WALL
[Symbol]	PROPOSED WHEEL STOP
[Symbol]	PROPOSED GRAVEL TRAIL
[Symbol]	PROPOSED ASPHALT TRAIL
[Symbol]	PROPOSED TREELINE
[Symbol]	PROPOSED FENCE
[Symbol]	PROPOSED VEHICLE GATE (X' WIDE)
[Symbol]	PROPOSED LIGHT
[Symbol]	PROPOSED BIKE RACK
[Symbol]	PROPOSED BENCH
[Symbol]	PROPOSED BOLLARD
[Symbol]	PROPOSED PEDESTRIAN STEEL PLATE
[Pattern]	LIMITS OF DISTURBANCE

NOTES:

- SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.
- FINE GRADING, LANDSCAPING, MULCH PATHS, AND SEATING IS BY NCSU.

SITE DATA

PROJECT NAME:	NCSU APICULTURE FACILITY
COUNTY:	WAKE
PARCEL PIN #:	0791780255
PARCEL OWNER:	STATE OF NORTH CAROLINA
PARCEL AREA:	15.70 AC
CURRENT ZONING:	R-1
FLOOD PLAIN DATA:	ZONE X
RIVER BASIN:	SWIFT CREEK TRIBUTARY
PLANNING JURISDICTION:	CITY OF RALEIGH
PROPOSED BUILDING:	1 STORY FRAME HOUSE WITH 1 CAR



SCALE: 1"=20' NORTH
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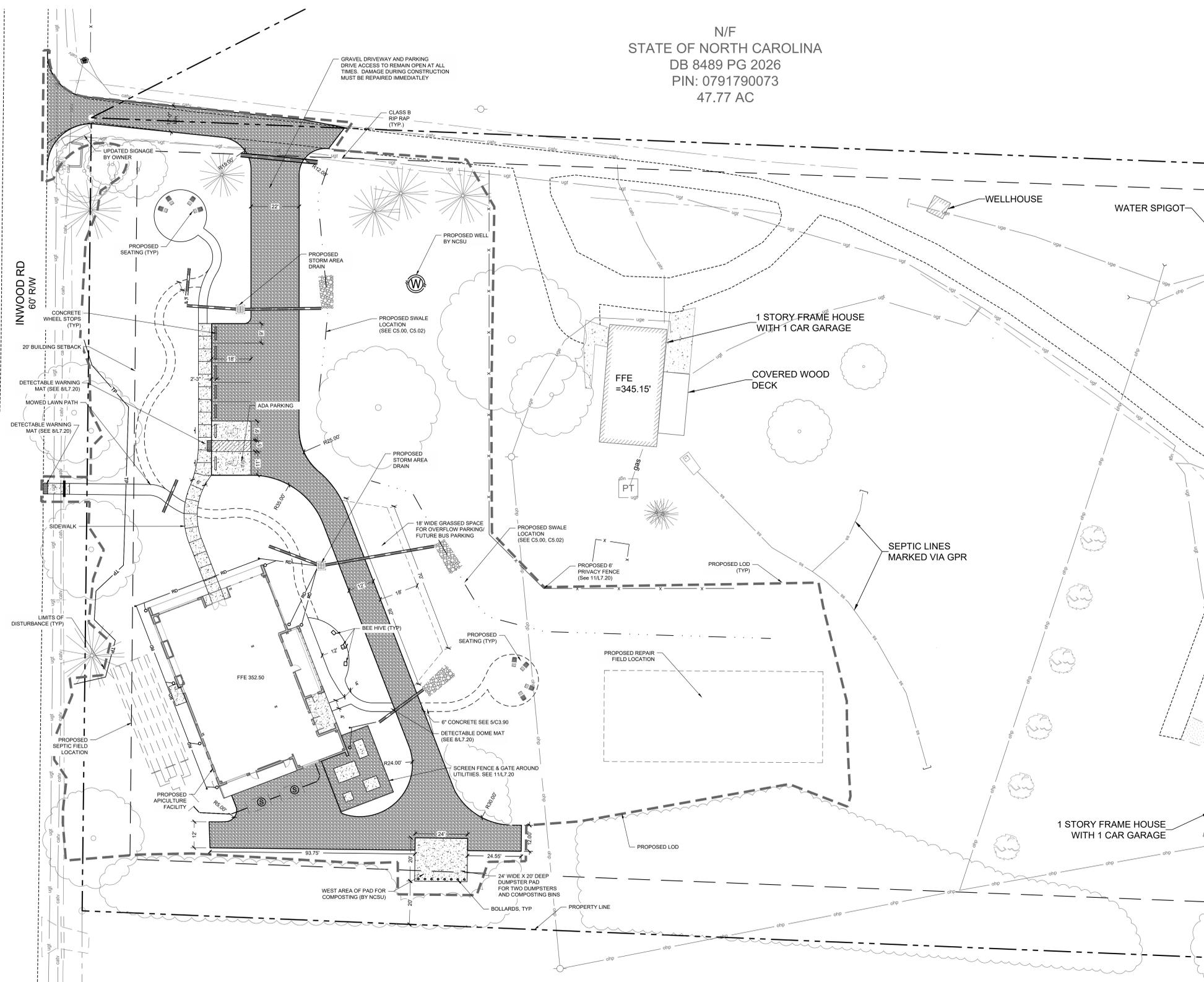
NCSU Apiculture Facility
Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132
Title **SITE PLAN**

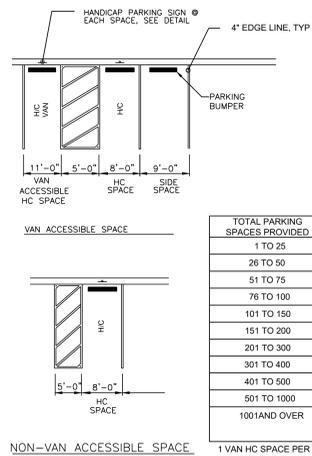
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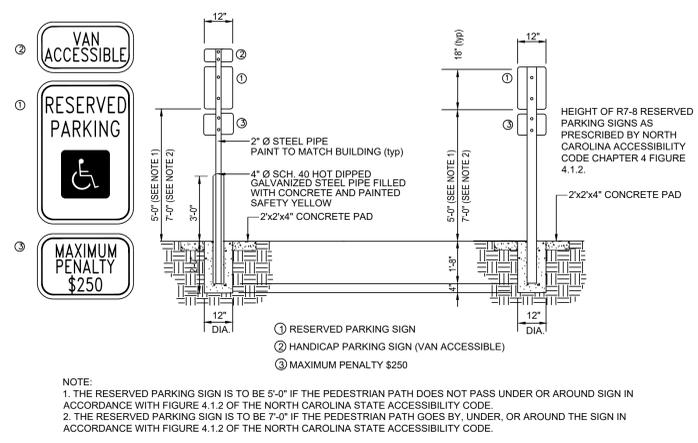
N/F
STATE OF NORTH CAROLINA
DB 8489 PG 2026
PIN: 0791790073
47.77 AC



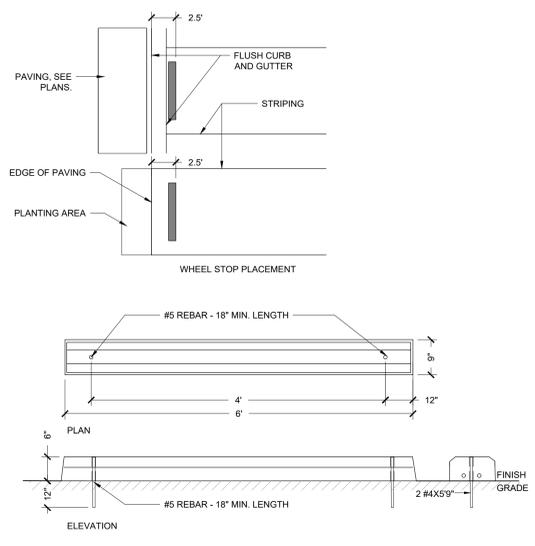
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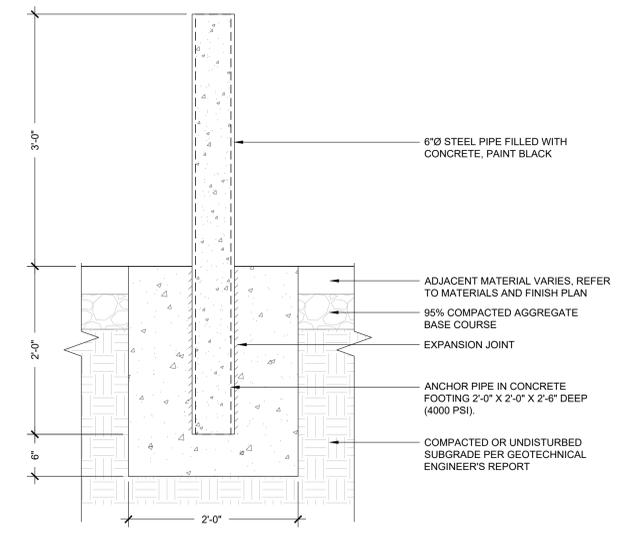
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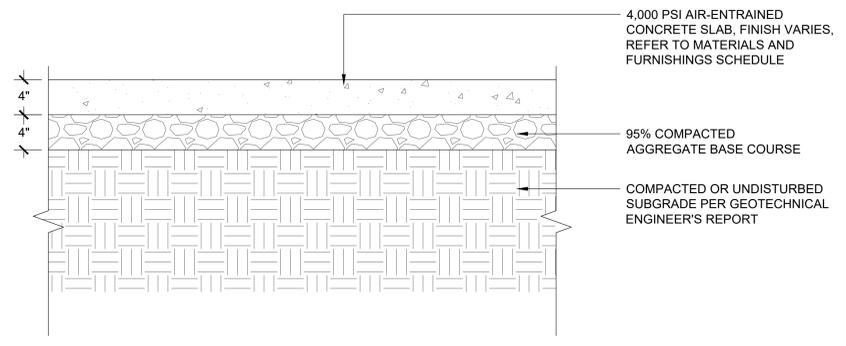
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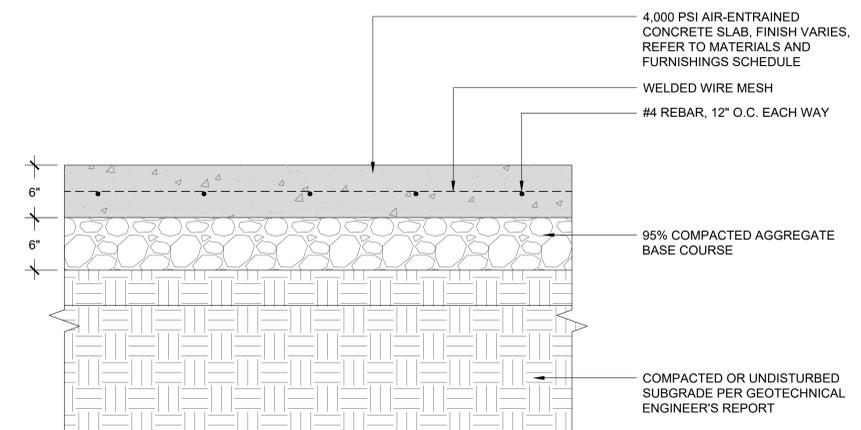
3 WHEEL STOP NTS



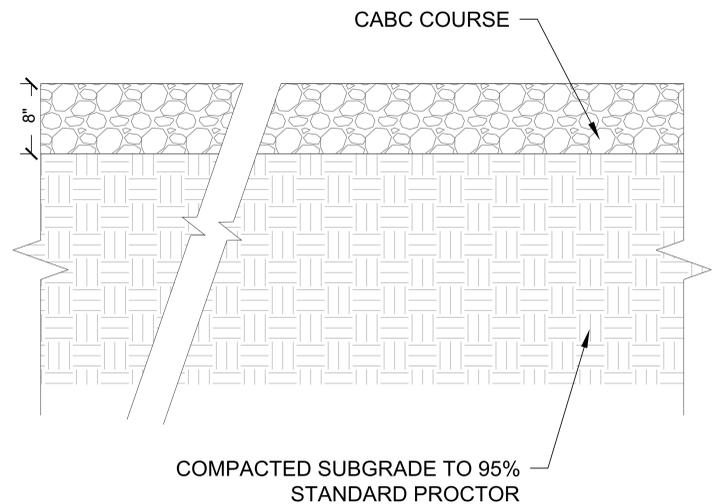
5 BOLLARD NTS



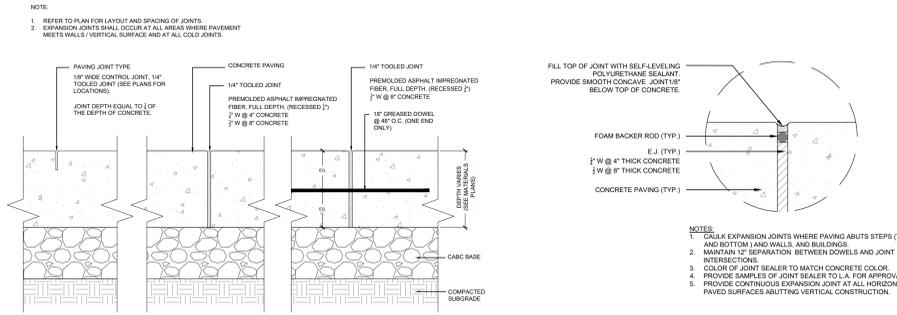
4 CONCRETE PAVEMENT - PEDESTRIAN NTS



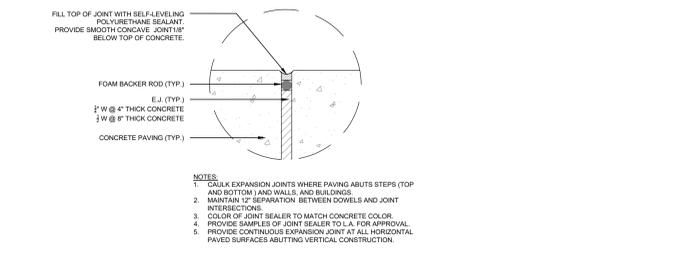
5 CONCRETE PAVEMENT - DUMPSTER PAD NTS



6 GRAVEL DRIVE NTS



7 CONCRETE PAVING JOINT NTS



8 EXPANSION JOINT WITH SEALANT NTS



Drawn	CO
Checked	BAH
Date	01.10.2025
Revisions	

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L:\Projects\2022\C22062 - NCSU Apiculture Facility\DWGS\PERMITTING\3-Sheets\C22062-C4.00 Erosion Control Plan.dwg, Jan 06, 2025, 3:13pm

SEEDING PREPARATION:

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONED, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY ALL AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
- CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, REASONABLY UNIFORM 4 TO 6 INCHES DEEP SEEDBED IS PREPARED.
- SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE-ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES AND LANDSCAPING PLANS.
- SEE LANDSCAPING PLANS FOR PERMANENT SEEDING, MULCHING, AND FERTILIZING RATES. ALL AREAS NOT DESIGNATED TO RECEIVE PLANTS SHALL BE SEEDED PER THE LANDSCAPING PLANS.

TEMPORARY SEEDING PREPARATION:

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL THREE INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO SIX INCHES DEEP.
- REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS, LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE ADMIXTURE BELOW).
- CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED FOUR TO SIX INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RE-SEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE-ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- CONSULT S&C ENVIRONMENTAL ENGINEERS ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

SEEDING SCHEDULE

SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE 25 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE ***BROWNTOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE

SLOPES (3:1 TO 2:1)

DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	***BROWNTOP MILLET	50 LBS/ACRE
(MAR 1 - APR 15)	ADD TALL FESCUE OR ADD HULLED COMMON BERMUDAGRASS	120 LBS/ACRE (MAR 1 - JUN 30) 25 LBS/ACRE
JUN 1 - SEP 1	***TALL FESCUE AND ***BROWNTOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SEP 1 - MAR 1	ANNUAL RYE AND TALL FESCUE ADD ABRUZZI RYE	70 LBS/ACRE 120 LBS/ACRE (NOV 1 - MAR 1) 25 LBS/ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING. OTHERWISE FESCUE MAY BE SHADED OUT.

ADMIXTURES:

AGRICULTURAL LIMESTONE: 2 TONS/ACRE
 FERTILIZER: 1,000 LBS/ACRE - 10-10-10
 SUPERPHOSPHATE: 500 LBS/ACRE - 20% ANALYSIS
 MULCH: 2 TONS/ACRE - SMALL GRAIN STRAW
 ANCHOR: ASPHALT EMULSION AT 300 GALS/ACRE

EROSION CONTROL NOTES:

- REFER TO C3.00 FOR GENERAL NOTES.
- ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN BEST LOCATION BASED ON FIELD CONDITIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONSTRUCTION ENTRANCES AS NECESSARY TO PREVENT THE TRACKING OF SEDIMENT OFF-SITE. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL PERMANENT EROSION CONTROL METHODS AFTER CONSTRUCTION IS COMPLETE. IF ANY PERMANENT METHODS ARE REQUIRED.
- APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
- THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
- DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE LIMITS OF DISTURBANCE (L.O.D.) SHALL BE PERMITTED. THE L.O.D. SHALL BE MAINTAINED BY THE ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
- THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEANING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
- THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
- THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT. COPIES OF THE WRITTEN INSPECTION REPORTS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE TWICE PER WEEK AND AFTER RAINS OF GREATER THAN 0.1" RAIN GAUGE REQUIRED ON SITE.
- ANY AREAS OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR FOURTEEN DAYS SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERINGS, ETC.).
- THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN FORTY EIGHT (48) HOURS FOLLOWING A STORM EVENT.
- AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE A MINIMUM THICKNESS OF 2 TO 3 INCHES.
- INTERM SLOPES MAY BE GRADED TO A MAXIMUM SLOPE OF 2:1 (HORIZONTAL:VERTICAL); CUT SLOPES SHALL BE LIMITED TO A MAXIMUM SLOPE OF 1.5:1.
- THE SURFACE OF AREAS SLOPES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL THAT ARE TO RECEIVE INTERIM FILL SHALL BE PLOWED, FURROWED, TILLED OR BROKEN UP PRIOR TO PLACING FILL SO THAT FILL MATERIAL WILL BOND WITH EXISTING SURFACE. INTERIM FILL SHALL BE PLACED AS SPECIFIED FOR PERMANENT FILLS AND IN LIFTS NOT GREATER THAN 6".
- PROVIDE DUST CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, WETTING DOWN TO CONTROL DUST ON SITE, IN ORDER TO PREVENT ANNOYANCE/AND OR DAMAGE TO ADJACENT SITES. CALCIUM CHLORIDE OR ANY OTHER CHEMICAL MATERIAL MAY NOT BE USED ON SUBGRADES TO BE SEEDED OR PLANTED.
- SEDIMENT LADEN RUNOFF FROM EXCAVATIONS SHALL NOT BE PUMPED DIRECTLY TO STORM DRAINAGE.
- INSPECTOR REFERS TO LOCAL JURISDICTIONAL (CNDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
- CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
- NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM: THE PERSON RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES IS REQUIRED TO INSPECT THE PROJECT AFTER EACH PHASE OF THE PROJECT AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B-01.01 TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FORM [HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML](http://www.dlr.enr.state.nc.us/PAGES/SEDIMENTATION_NEW.HTML)

SEQUENCE OF CONSTRUCTION ACTIVITIES:

- OBTAIN GRADING PERMIT.
- DETERMINE AND MARK LIMITS OF DISTURBANCE.
- A PRE-CONSTRUCTION CONFERENCE MUST BE HELD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE EROSION CONTROL INSPECTOR, ARCHITECT, ENGINEER, AND CONTRACTOR SHALL BE PRESENT TO SATISFY REQUIREMENTS.
- INSTALL CONSTRUCTION ENTRANCE, TREE PROTECTION FENCING, SILT FENCE, PERIMETER EROSION CONTROL DEVICES AND ALL REQUIRED BASINS AND TRAPS.
- SCHEDULE SITE INSPECTION.
- UPON APPROVAL TO PROCEED BY THE EROSION CONTROL INSPECTOR, HARVEST ANY TIMBER.
- CONSTRUCT REMAINING EROSION CONTROL MEASURES AS REQUIRED.
- REMOVE AND/OR STORE TOPSOIL.
- BEGIN GRADING OPERATIONS.
- CLEAN SEDIMENT BASINS/TRAPS WHEN ONE-HALF FULL.
- ALL STREETS SURROUNDING THE PROJECT SHALL BE KEPT CLEAN AT ALL TIMES.
- PLACE TEMPORARY SEEDING ON ALL DISTURBED AREAS THAT WILL BE IDLE 14 DAYS OR LONGER.
- PERMANENT SURFACE STABILIZATION SHALL BE INSTALLED FOR ALL AREAS WITHIN 14 DAYS AFTER FINAL GRADE HAS BEEN REACHED. AS NECESSARY, FERTILIZE, WATER AND RESEED AS REQUIRED TO ESTABLISH AND MAINTAIN A VIGOROUS STAND OF GRASS.
- AFTER COMPLETION OF CONSTRUCTION AND THE SITE IS STABILIZED, REMOVE ALL ACCUMULATED SEDIMENT FROM SEDIMENT TRAPPING MEASURES AND DISPOSE BY MEANS DEEMED ACCEPTABLE BY THE ENGINEER. SCHEDULE SITE INSPECTION. UPON APPROVAL BY THE EROSION CONTROL INSPECTOR, REMOVE TEMPORARY EROSION CONTROL MEASURES, SMOOTH AREA AND APPLY APPROPRIATE STABILIZATION.
- STORMWATER PERMIT INSPECTION REPORTS SHALL BE PERFORMED BY THE CONTRACTOR UNTIL NOTIFIED OTHERWISE BY THE EROSION CONTROL INSPECTOR.

NOTES:

- INSPECTOR REFERS TO LOCAL JURISDICTIONAL (CNDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
- CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
- NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM: THE PERSON RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES IS REQUIRED TO INSPECT THE PROJECT AFTER EACH PHASE OF THE PROJECT AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED. IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B-01.01 TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FORM [HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML](http://www.dlr.enr.state.nc.us/PAGES/SEDIMENTATION_NEW.HTML)

TREE PROTECTION NOTES:

- TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT. OR OBTAIN A GRADING PERMIT THEN TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE.
- TREE PROTECTION FENCING SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ARBOLES."
- PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE ON THE TREE ROOTS OUTSIDE OF THE TREE SAVE AREA. THIS SHALL OCCUR AT THE SAME TIME THAT OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE.
- NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED TREE AREA.
- TREE PROTECTION AREA: EQUALS ONE FOOT OF RADIUS FOR EVERY INCH OF DIAMETER OF EXISTING TREES, OR SIX FOOT RADIUS, WHICHEVER IS GREATER. NO DISTURBANCE ALLOWED WITHIN THIS AREA.

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TOTAL AREA OF DISTURBANCE
1.859 AC / 80,977 SF

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NCSU Apiculture Facility
Raleigh, NC

SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132
Title
EROSION CONTROL NOTES

Sheet
C4.00

Plate



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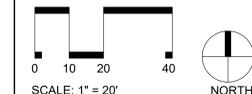
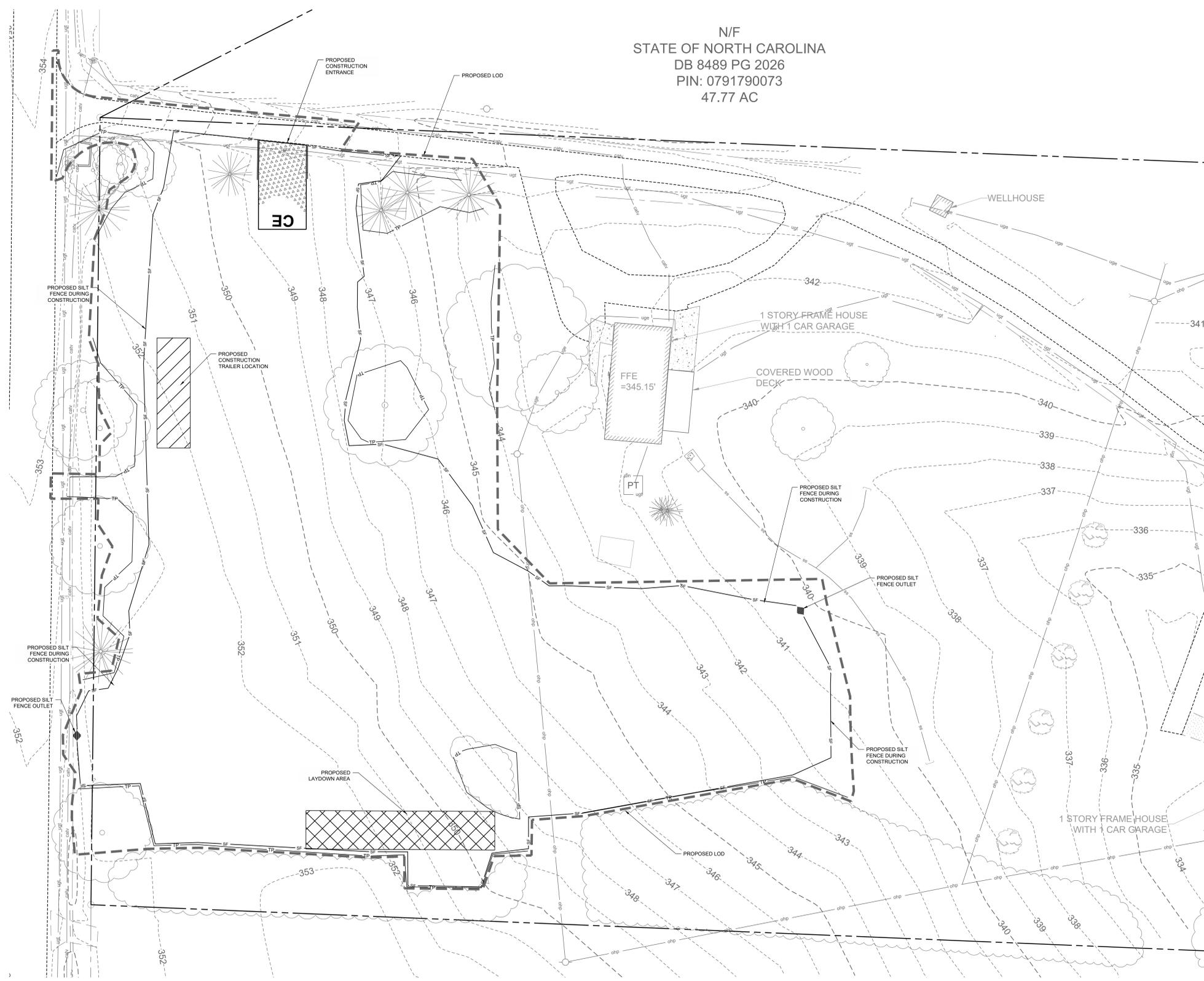


Drawn CO
Checked RPL
Date 01.10.2025
Revisions

LINETYPE LEGEND:	
SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

EROSION CONTROL LEGEND:	
SYMBOL	DESCRIPTION
[Symbol]	BLOCK & GRAVEL INLET PROTECTION
[Symbol]	SILT FENCE & WIRE INLET PROTECTION
[Symbol]	HORSESHOE INLET PROTECTION
[Symbol]	SILT FENCE OUTLET
[Symbol]	CHECK DAM
[Symbol]	FLARED END SECTION
[Symbol]	SEDIMENT TRAP
[Symbol]	RIP RAP DISSIPATER
[Symbol]	TEMPORARY CONSTRUCTION ENTRANCE
SF	SILT FENCE
DD	DIVERSION DITCH
---	100 YEAR FLOOD ELEVATION

- NOTES:**
- SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.
 - SEE SHEET C4.00 FOR EROSION CONTROL NOTES.
 - ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS.
 - ALL GRADING, LANDSCAPING, MULCH PATHS, AND SEATING IS BY NCSU.



SCALE: 1" = 20'
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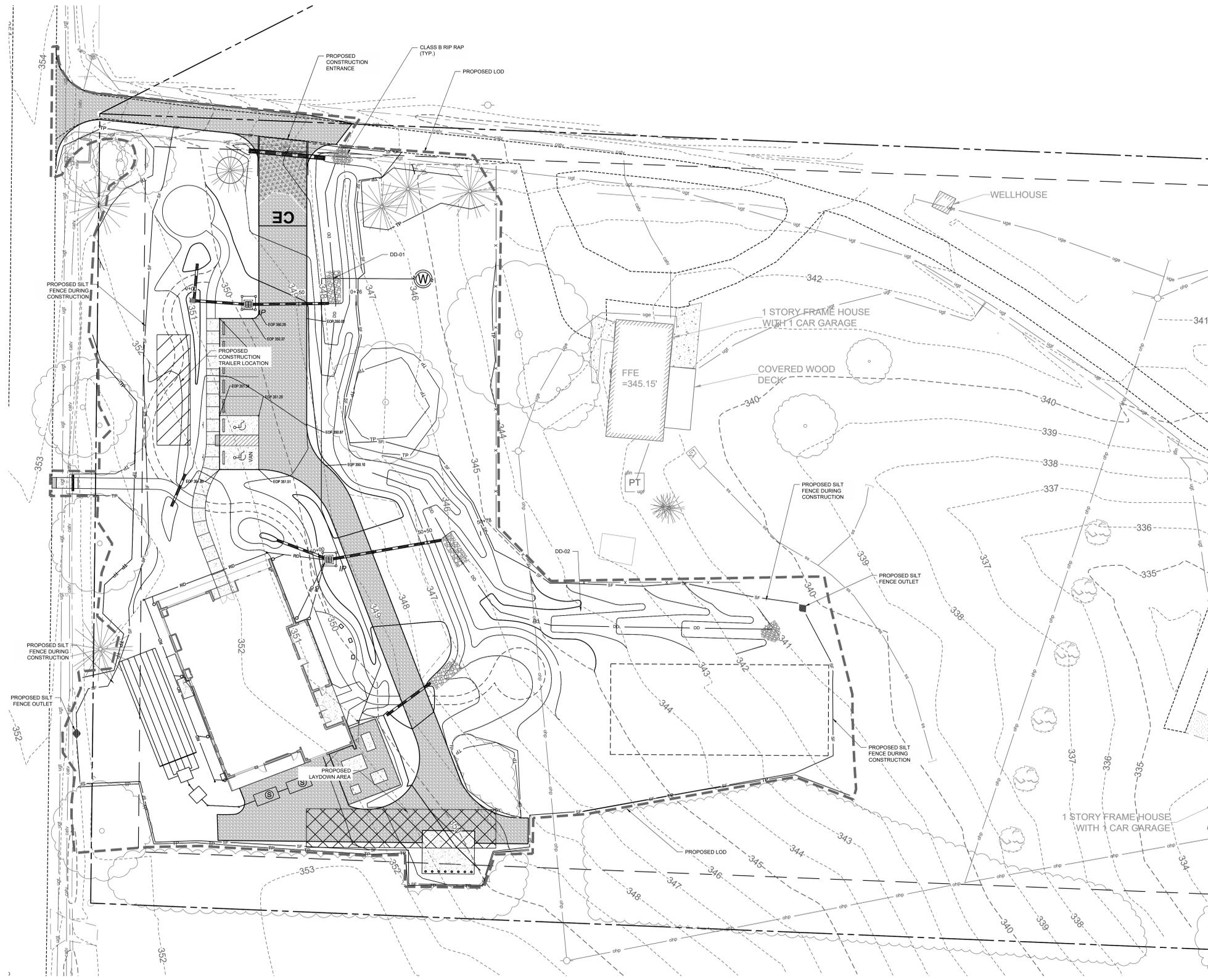
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Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132
Title
EROSION CONTROL PLAN (PHASE I)

Sheet
C4.01

Plate

L:\Projects\2022\2022062 - NCSU Apiculture Facility\DWGS\2-PERMITTING\3-Sheets\C20062-C4.00 Erosion Control Plan.dwg, Jan 06, 2025 - 3:13pm



LINETYPE LEGEND:	
SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
---	RIPIARIAN BUFFER (50')
---	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

EROSION CONTROL LEGEND:	
SYMBOL	DESCRIPTION
[Symbol]	BLOCK & GRAVEL INLET PROTECTION
[Symbol]	SILT FENCE & WIRE INLET PROTECTION
[Symbol]	HORSESHOE INLET PROTECTION
[Symbol]	SILT FENCE OUTLET
[Symbol]	CHECK DAM
[Symbol]	FLARED END SECTION
[Symbol]	SEDIMENT TRAP
[Symbol]	RIP RAP DISSIPATER
[Symbol]	TEMPORARY CONSTRUCTION ENTRANCE
---	SILT FENCE
---	DIVERSION DITCH
---	100 YEAR FLOOD ELEVATION

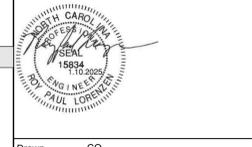
- NOTES:**
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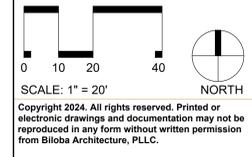
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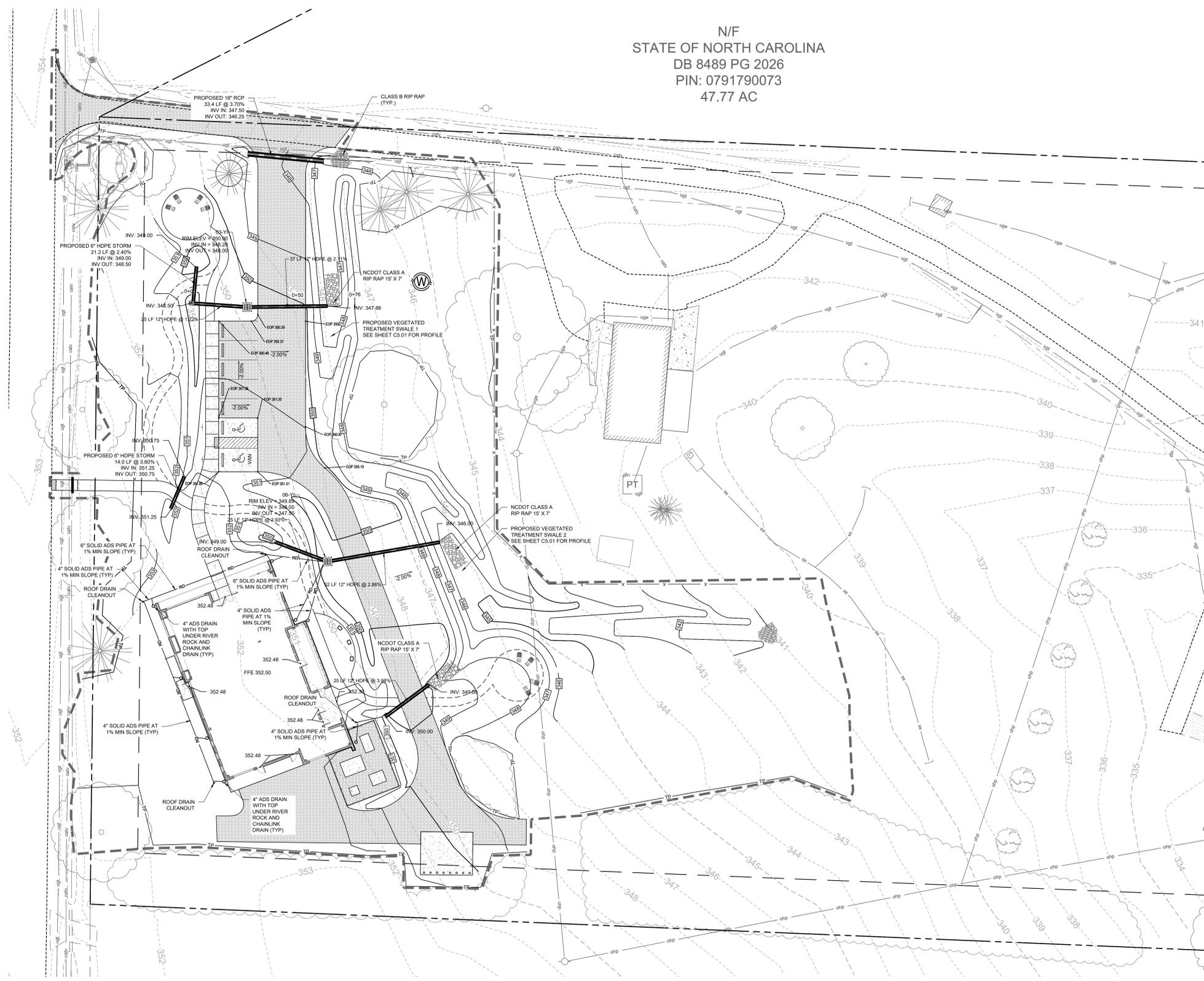
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 SCO ID No.: 22-24494-01A
 Code: 42124 Item: 315
 NCSU: 202220007

Project Number 132
EROSION CONTROL PLAN (PHASE II)

Sheet
C4.02

Plate

L:\Projects\2022\220202 - NCSU Apiculture Facility\DWGS\2-PERMITTING\3-Sheets\C22062-C5.00 Grading & Storm Drainage Plan.dwg Jan 06, 2025 - 3:13pm



N/F
STATE OF NORTH CAROLINA
DB 8489 PG 2026
PIN: 0791790073
47.77 AC

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
---	RIPIARIAN BUFFER (50')
---	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

GRADING LEGEND:

SYMBOL	DESCRIPTION
⊙	PROPOSED JUNCTION BOX
⊞	PROPOSED CATCH BASIN
⊞	PROPOSED AREA DRAIN
⊞	RIPRAP DISSIPATOR
→	FLOW DIRECTION
---	PROPOSED ELEVATION
---	TOP/BOTTOM OF CURB
---	TOP/BOTTOM OF WALL
---	PROPOSED STORM DRAINAGE
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR

NOTES:

- SEE SHEET C0.10 FOR GENERAL AND GRADING NOTES.
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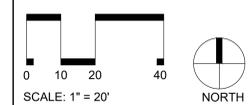
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Project Number 132
 Title
GRADING & STORM DRAINAGE PLAN

Sheet
C5.00

Plate

LINETYPE LEGEND:	
SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
	BZ RIPARIAN BUFFER (50')
	TP TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

GRADING LEGEND:	
SYMBOL	DESCRIPTION
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	PROPOSED CATCH BASIN
	PROPOSED AREA DRAIN
	RIPRAP DISSIPATOR
	FLOW DIRECTION
	PROPOSED ELEVATION
	TOP/BOTTOM OF CURB
	TOP/BOTTOM OF WALL
	PROPOSED STORM DRAINAGE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR

NOTES:

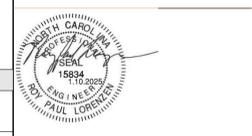
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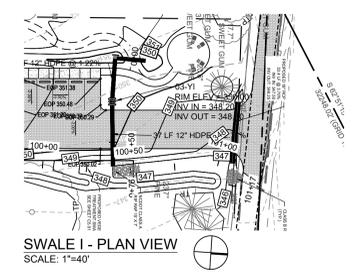
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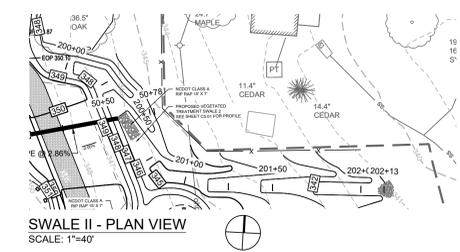
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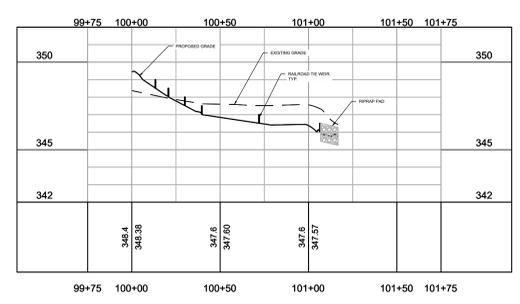
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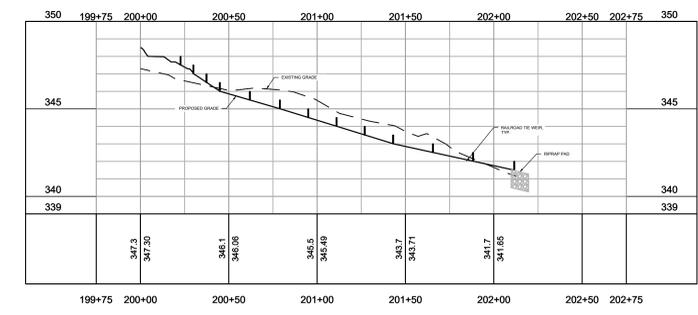
SWALE I - PLAN VIEW
 SCALE: 1"=40'



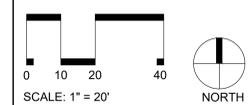
SWALE II - PLAN VIEW
 SCALE: 1"=40'



SWALE I - PROFILE VIEW
 SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)



SWALE II - PROFILE VIEW
 SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)



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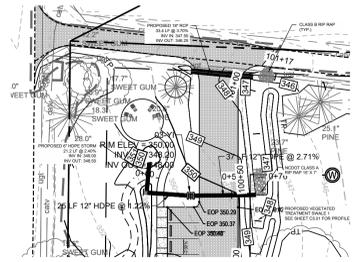
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 Raleigh, NC
 SCO ID No.: 22-24494-01A
 Code: 42124 Item: 315
 NCSU: 202220007

Project Number 132

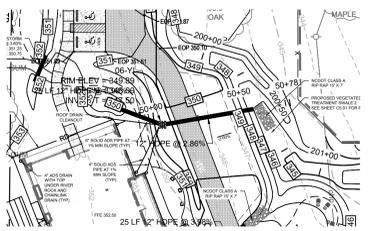
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STORM PROFILES

Sheet
C5.01

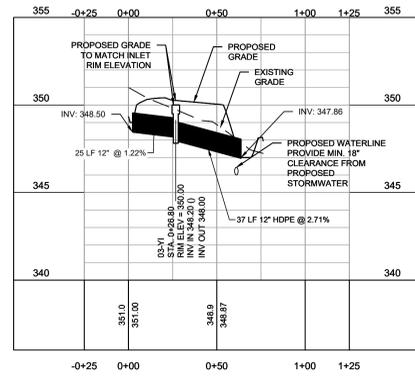
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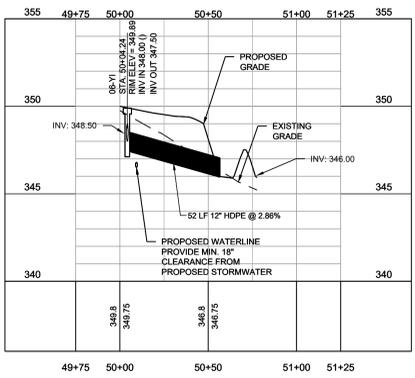
STORMWATER PLAN VIEW - NORTH
SCALE: 1"=40'



STORMWATER PLAN VIEW - SOUTH
SCALE: 1"=40'



STORMWATER PROFILE VIEW - NORTH
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)



STORMWATER PROFILE VIEW - SOUTH
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
---	RIPARIAN BUFFER (50')
---	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

GRADING LEGEND:

SYMBOL	DESCRIPTION
⊙	PROPOSED JUNCTION BOX
⊠	PROPOSED CATCH BASIN
⊡	PROPOSED AREA DRAIN
⊣	RIPRAP DISSIPATOR
→	FLOW DIRECTION
—	PROPOSED ELEVATION
—	TOP/BOTTOM OF CURB
—	TOP/BOTTOM OF WALL
---	PROPOSED STORM DRAINAGE
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR

- NOTES:**
- SEE SHEET C0.10 FOR GENERAL AND GRADING NOTES.
 - FINE GRADING, LANDSCAPING, MULCH PATHS, AND SEATING IS BY NCSU.

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RMF Engineering
8081 Arco Corporate Dr Suite 300
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NC Certificate of Licensure: C-1125



Drawn	CO
Checked	RPL
Date	01.10.2025
Revisions	

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NCSU Apiculture Facility
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SCO ID No.: 22-24494-01A
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Project Number 132
Title
STORM DRAINAGE PROFILES

Sheet
C5.02

Plate
of



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NC Certificate of Licensure: C-1125



Drawn CO
Checked RPL
Date 01.10.2025
Revisions

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
---	LIMITS OF DISTURBANCE
---	PROPERTY LINE
---	EASEMENT
---	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
---	ACCESSIBLE ROUTE

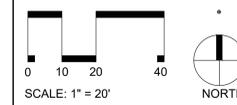
UTILITY LEGEND:

SYMBOL	DESCRIPTION
⊕	PROPOSED FIRE HYDRANT
⊗	PROPOSED WATER VALVE
⊙	EXISTING SANITARY SEWER MANHOLE
⊚	PROPOSED SANITARY SEWER MANHOLE
⊙	PROPOSED CLEANOUT
⊙	PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
⊙	PROPOSED BACKFLOW METER
PIV	PROPOSED POST INDICATOR VALVE (PIV)
⊙	PROPOSED GREASE INTERCEPTOR
---	EXISTING WATER LINE
---	PROPOSED WATER LINE
---	EXISTING SANITARY SEWER LINE
---	PROPOSED SANITARY SEWER LINE
---	300' HYDRANT COVERAGE CIRCLE

- NOTES:**
- SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.
 - ALL GRADING, LANDSCAPING, MULCH PATHS, AND SEATING IS BY NCSU.

- DOMESTIC WELL DESIGN PARAMETER:**
- WELL SYSTEM CONSTRUCTION TP NE NJ NC STATE AND WILL BE EXISTING AT THE TIME OF PROJECT CONSTRUCTION.
 - DESIGN USAGE FOR THE WELL IS 40 GPM AND 300 GAL PER DAY.
 - CONTRACTOR WILL BE RESPONSIBLE TO COORDINATE WITH NC STATE AND TO CONNECT TO THE WELL WITH A NEW 2" PVC WATERLINE FROM BUILDING TO NOTED WELL.

- DOMESTIC SEPTIC SEWER SYSTEM DESIGN PARAMETERS:**
- NOTE: PROVIDE 2" DIAMETER RISERS TO 6-INCHES MIN. ABOVE GRADE FOR ALL SEPTIC TANK AND PUMP TANK MANHOLE OPENINGS.
- SEPTIC SYSTEM BASIC CRITERIA (CALCULATIONS TO REVIEW AGENCIES PROVIDED SEPARATELY):
- SEPTIC SYSTEM SHALL COMPLY WITH LATEST EDITION OF 15A NCAC 18E - WASTEWATER TREATMENT AND DISPERSAL SYSTEMS
 - SEPTIC SYSTEM DESIGN FLOW IS 444 GALLONS PER DAY
 - SEPTIC TANK SIZE IS 1,000 GALLONS MIN.
 - LONG TERM ACCEPTANCE RATE FROM SOIL SCIENTIST IS 0.4 GALLONS PER DAY PER SQUARE FEET
 - DUE TO LIMITED SPACE AVAILABLE FOR NITRIFICATION DISPERSAL FIELD, DISPERSAL FIELD IS DESIGNED USING PPPPS BED SYSTEM AS MANUFACTURED BY T&J PANEL OR EQUIVALENT SYSTEM ALLOWING 50% REDUCTION IN NITRIFICATION DISPERSAL AREA BY NC ON-SITE WASTEWATER RULES
 - PUMP DOSING IS BETWEEN 250 AND 280 GALLONS, APPROXIMATELY 2 DOSES PER DAY
 - PUMP SHALL BE A QUICK DISCONNECT GRINDER PUMP ON A RAIL SYSTEM MOUNTED INSIDE THE PUMP TANK
 - PUMP DRAWDOWN TIME IS APPROXIMATELY 5 MINUTES WITH A FLOW OF 50 GPM AGAINST A TOTAL DYNAMIC HEAD OF APPROXIMATELY 12 FEET.
 - IT IS PROPOSED TO USE A SEPTIC TANK EFFLUENT FILTER.

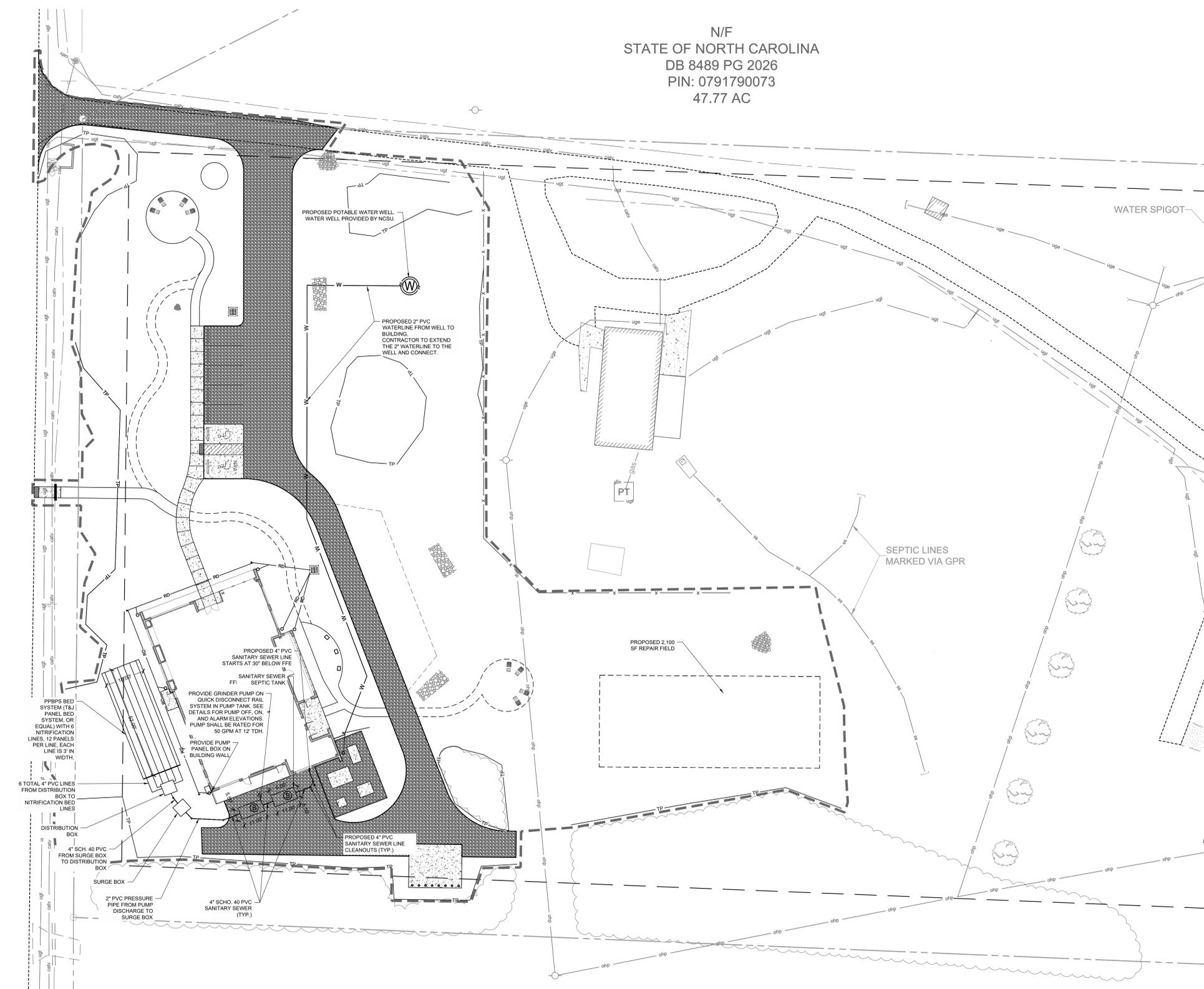


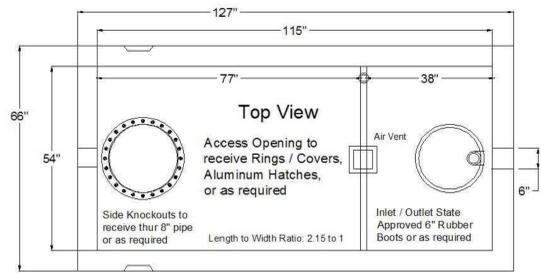
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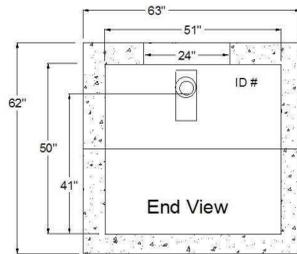
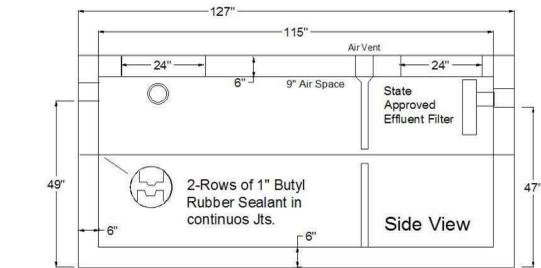
Project Number 132
Title
UTILITY PLAN
Sheet
C6.00
Plate

N/F
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DB 8489 PG 2026
PIN: 0791790073
47.77 AC

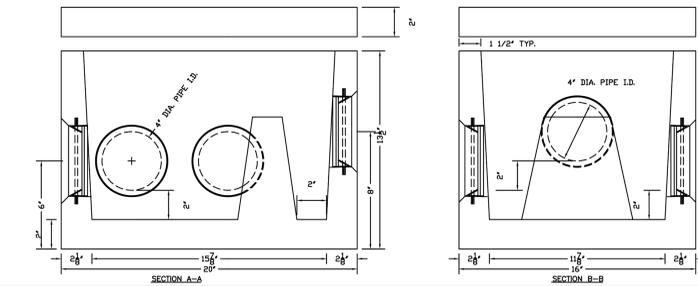
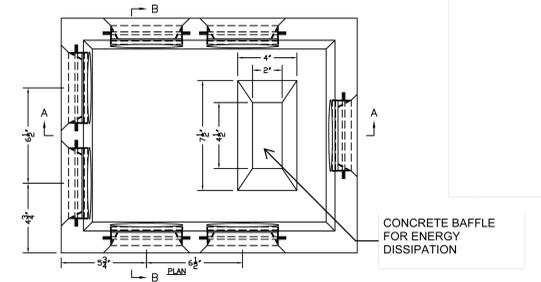




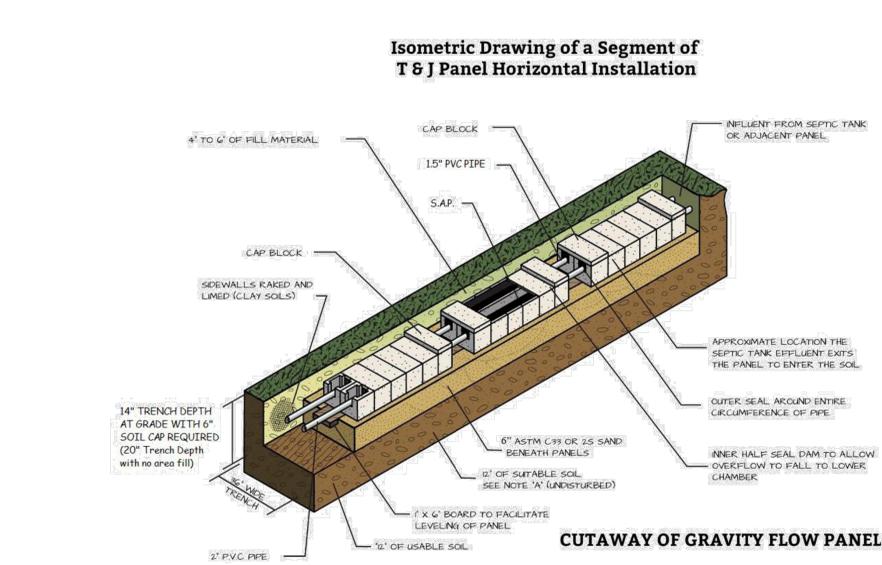
STB - 374
 Traffic Rated
 Liquid Capacity 1000 Gallons
 Reinforcing : See Engineering Schedule
 4500 PSI Concrete w/ State Approved Structural Fiber
 5.0 yds. Est Weight 18,000 lbs.



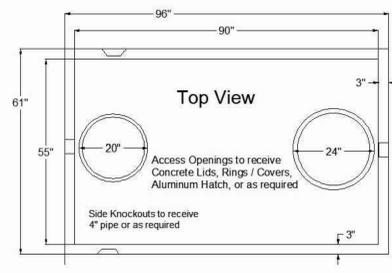
1 SEPTIC TANK DETAIL NTS



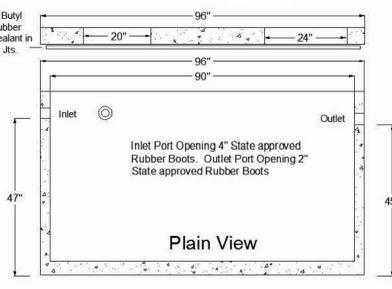
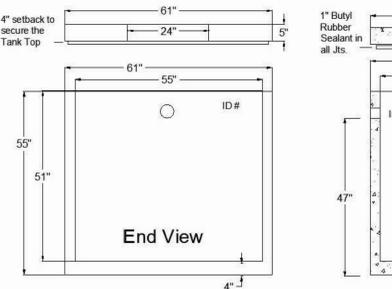
3 DISTRIBUTION BOX DETAIL NTS



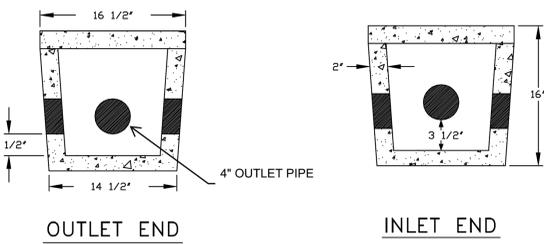
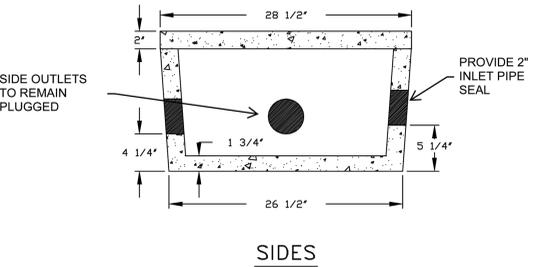
5 T&J PANEL INSTALLATION DETAIL NTS



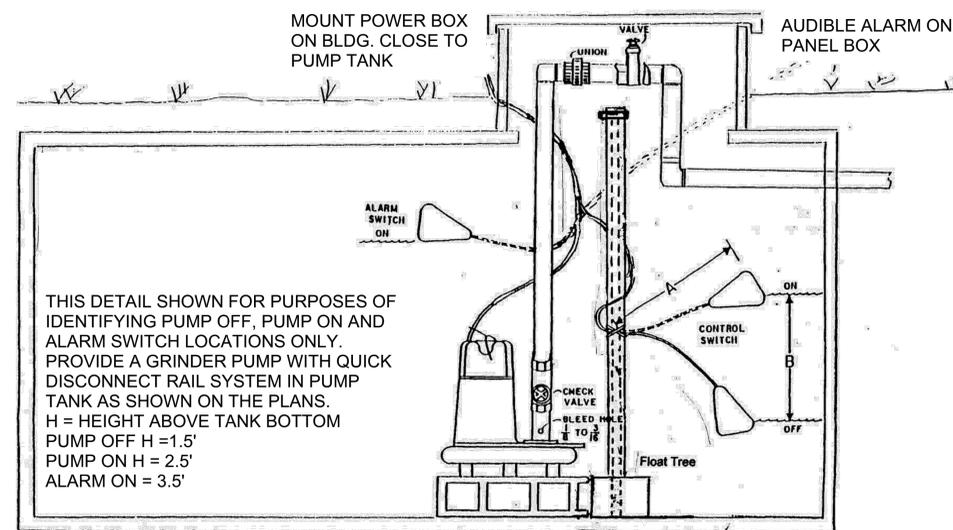
PT - 214
 Date: 12-16-93
 Non Traffic Rated
 Liquid Capacity 1,028 Gallons
 18 gals. per inch
 Reinforcing Schedule: # 3 Grade 60 Rebar
 4500 PSI Concrete w/ State Approved Structural Fiber
 2 yds. Est Weight 8200 lbs



2 SEPTIC PUMP DETAIL NTS



4 SURGE BOX DETAIL NTS



6 WET WELL DETAIL NTS



Drawn	-
Checked	RPL
Date	01.10.2025
Revisions	

L:\Projects\2022\C220692 - NCSU Apiculture Facility\DWGS\2-PERMITTING\3-Sheets\C220692-C6.90 Utility Details.dwg, Jan 06, 2025, 3:14pm

- NOTES:**
- SEE SHEET L7.01 FOR GENERAL AND PLANTING NOTES.
 - PLANTINGS TO BE PROVIDED BY NCSU.

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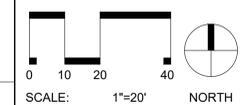


Drawn SP
 Checked CEH
 Date 01.10.2025
 Revisions

PLANT SCHEDULE PLANTING							
SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	CALIPER	HEIGHT	NOTES
TREES							
IA	3		LEF OPACA AMERICAN HULLY	888		7.0'	SPECIMEN FULL TO GROUND
JE	11		JAPANESE VIBURNUM SARTERI DECIDUA	888		7.0'	SPECIMEN FULL TO GROUND
MG	1		MAGNOLIA GRANDIFLORA ELAEDIA WANNAMAKER CLAUDIA WANNAMAKER SOUTHERN MAGNOLIA	888		10'-12'	SPECIMEN FULL TO GROUND
UNDERSTORY TREES							
AG2	5		AMELANCHIER X GRANDIFLORA AUTUMN BRILLIANCE AUTUMN BRILLIANCE APPLE SERVICEBERRY	888		7.0'	SPECIMEN MULTI-STEM
CC	1		CEPIS CANADENSIS JAP THE PRINCE OF WALES REDBUD	888		7.0'	SPECIMEN MULTI-STEM
HC	4		HALESIA CAROLINA BELFRIBLE	888		6'	SPECIMEN
HV	4		HAMAMELIS VIRGINIANA COMMON WITCH HAZEL	888		4.5'	SPECIMEN MULTI-STEM
OA	8		DOXYDENIUM VIRBICUM KAWAIIA TREE	888		4.5'	
VIA ADJACENT TO LOT TREES							
LT	1		LIRIODENDRON TULIPIFERA TULIP POPULAR	888	2.5" N	12-14'	FULL
FALL/WINTER BLOOMING SHRUBS							
EC	7		EGONIA OBTUSIFOLIA CHRYSANTHA PAPERBUSH	CONT.		3.5'-4'	
OP	35		OMNITHLUS FRAGRANS SWEET OLIVE	CONT.		3.5'-4'	
SPRING/SUMMER BLOOMING SHRUBS							
BS	13		BUECHLEIA DAVIDI PETITE INDIGO PETITE BUTTERFLY BUSH	CONT.		24" MIN	
CH	37		CLETHRA ALNIFOLIA 'FLAMMINGO' FLAMINGO CANNONBREEZ	CONT.		15-18"	
IV	8		IREA VIRGINICA 'HENRY'S GARNET' HENRY'S GARNET SWEETSPICE	CONT.		15-18"	FULL
SHRUB AREAS							
BL	97		BOENNINGHUSIA COPALIFERA LITTLE BLUESTEM	CONT.			PLANTED BETWEEN RIVER STONE
SPRING/SUMMER BLOOMING PERENNIALS							
AL	11		ACHILLEA MILLEFOLIUM ACERONIA LITTLE MONDOUSE COMMON YARROW	#1			
AL3	40		ASTER NOVAE ANGLIAE 'GRACE COLBY' GRACE COLBY NEW ENGLAND ASTER	#1			
EW	29		ECHINACEA PURPUREA 'PASTORAL' POWDERWILD BERRY CONEFLOWER	#1			
PA	62		PEROVSKIA ATRIPLEXIFOLIA PRIME TIME PRIME TIME RUSSIAN SAGE	#1			
PS	20		SALVIA BALDUNGENSIS 'SALSA PURPLE' SALSA PURPLE SAGE	#1			
SB	46		SCABIOSA COLUMBANA 'SICA PINK' SICA PINK SCABIOSA	#1			
GROUND COVERS							
CT	17,355 SF		CYNODON DACTYLON 'TUFF' TUFF BERMUDGRASS	300			
GRM	1,363 SF		DECOMPOSED GRANITE				4" DEEP, TO BE APPROVED BY LANDSCAPE ARCHITECT. GREY COLOR
STN	484 SF		DECORATIVE STONE 3/4" RIVERSTONE				TYPE 100 APPROVED BY LANDSCAPE ARCHITECT
MM	24,063 SF		DEER RESISTANT MEADOW MIX BERMUDA	SEED			BY EARNEST SEEDS
MLO1	8,483 SF		MULCH TRIPLE BREEDDED HARDWOOD				4" DEEP, NATURAL COLOR

- NOTES:**
- ALL PATHS, PLANT BED PREPARATION, LANDSCAPING AND SITE FURNISHINGS BY OWNER.
 - CONTRACTOR IS RESPONSIBLE TO PREPARE SITE FOR TURNOVER TO OWNER WITH PLANTED AREAS FREE OF CONSTRUCTION DEBRIS.
 - PLANTED AREAS TO BE GRADED, DECOMPACTED, SCARIFIED AND PREPARED FOR PLANTING SOIL PRIOR TO SITE TURNOVER TO OWNER.

- SCO NOTES:**
- ALL HARDSCAPES MUST BE PROTECTED BY 3/4" THICK 4" X 8" PLYWOOD. THE CONTRACTOR MUST PROVIDE ADEQUATE PROTECTION OF EXISTING CONCRETE, ASPHALT, AND BRICK.
 - ALL DAMAGE MUST BE REPAIRED BY THE CONTRACTOR TO ENSURE EQUAL MATERIAL SUBSTITUTION.
 - LCS WILL PROVIDE TREE PROTECTION AS NEEDED IN ALL AREAS THAT MAY HAVE POTENTIAL IMPACT.
 - NO STORING OF MATERIAL OR EQUIPMENT ON LANDSCAPED AREAS, INCLUDING MULCH BEDS AND LAWN.
 - ALL EXCESS MATERIALS SHALL BE REMOVED FROM THE SITE INCLUDING ASPHALT, ROCKS, ET CETERA UPON COMPLETION.
 - ALL VEHICULAR TRAFFIC ON HARDSCAPES IS BY PERMIT ONLY AND NOT ALLOWED ON SOFTSCAPES. ALL DAMAGES MADE TO HARDSCAPES/SOFTSCAPES MUST BE REPAIRED BY THE CONTRACTOR.

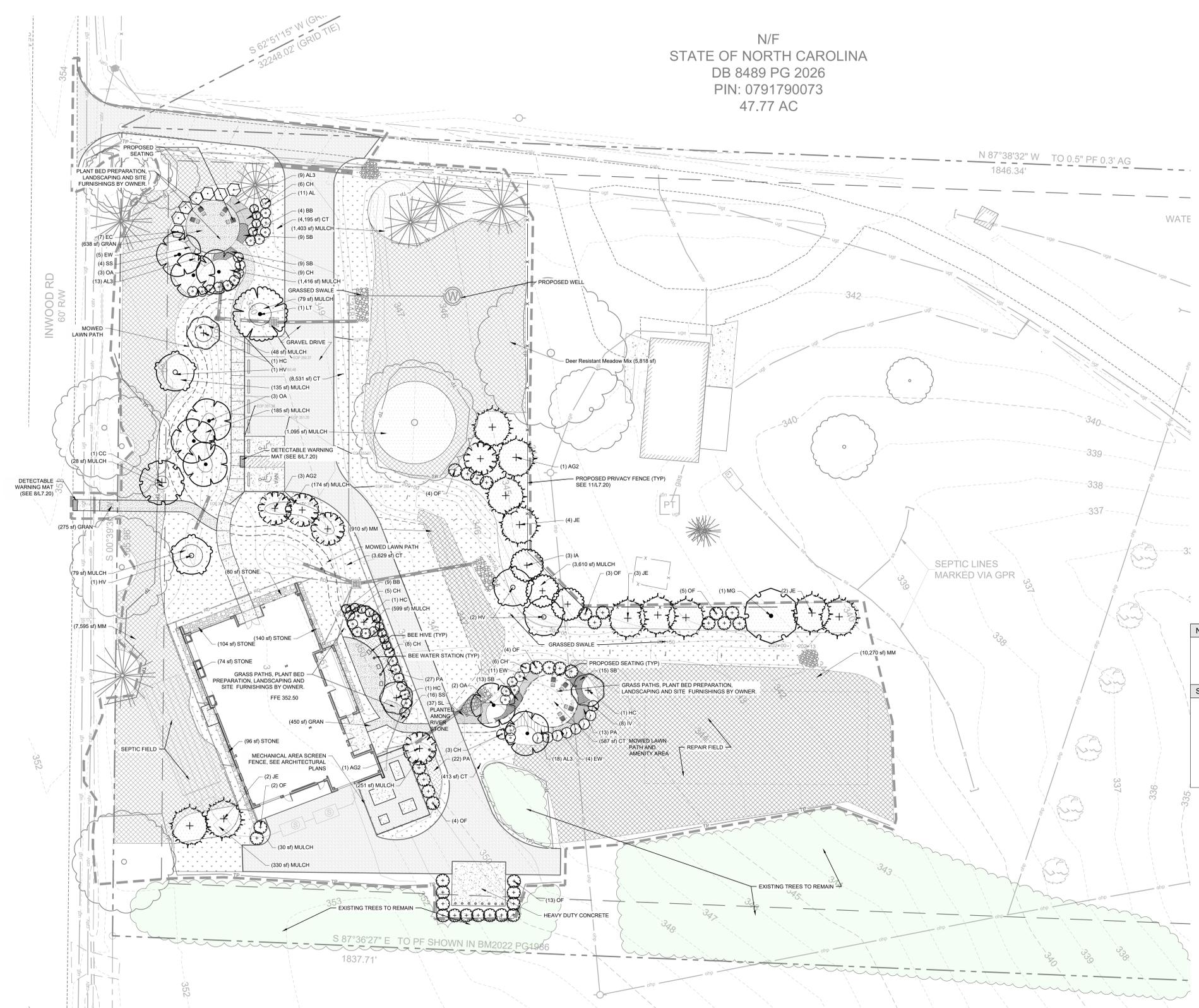


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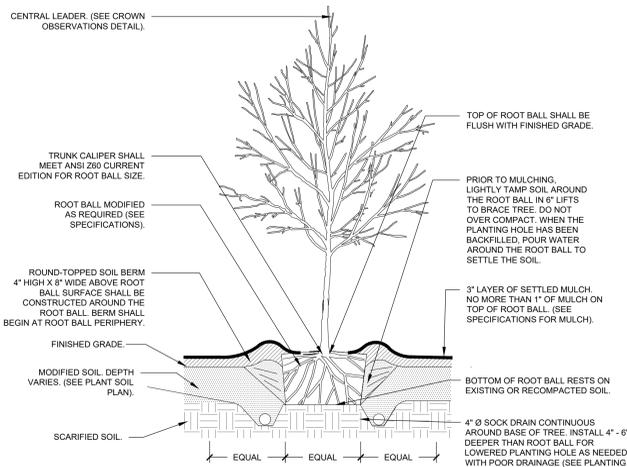
NCSU Apiculture Facility
 Raleigh, NC
 SCO ID No.: 23-24494-01A
 Code: 42124 Item: 315
 NCSU: 202220007

Project Number C22062
 Title **PLANTING PLAN**
 Sheet **L7.00**
 Plate

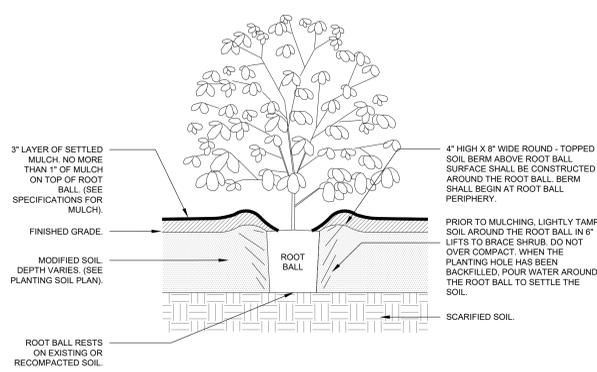
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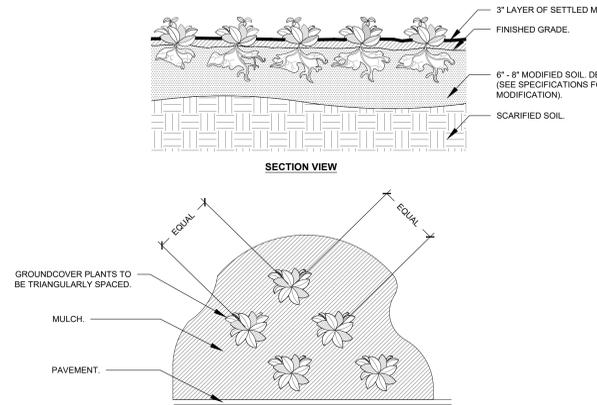
L:\Projects\2022\2022062 - NCSU Apiculture Facility\DWGS\2-PERMITTING\3-Sheets\C22062.L7.00 Overall Planting Plan.dwg Jan 06, 2025 - 3:15pm



1 TREE (TYPICAL) SECTION NTS

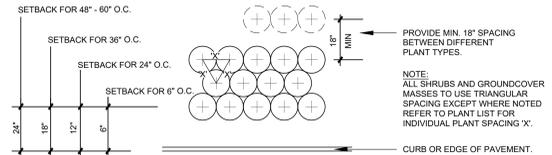


2 SHRUB (TYPICAL) SECTION NTS

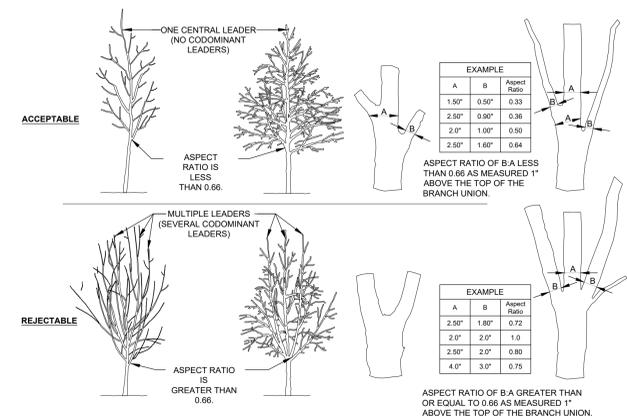


3 GROUNDCOVER PLANTING (TYPICAL) SECTION NTS

- NOTES:**
- SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE AND SPACING DIMENSION.
 - SMALL ROOTS (1/2\"/>
 - SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.
 - WHEN GROUNDCOVER PLANTINGS ARE USED IN MASSES, ENTIRE BED SHALL BE EXCAVATED AND FILLED WITH SOIL AMENDMENTS PER SPECIFICATIONS.
 - CONTRACTORS SHALL ASSURE PERCOLATION OF A ALL PLANTING PITS PRIOR TO INSTALLATION.



4 SHRUB AND GROUNDCOVER SPACING SECTION NTS



5 CROWN OBSERVATIONS - HIGH BRANCHED SECTION NTS

- PLANTING NOTES:**
- DO NOT STAKE TREES EXCEPT WHERE SPECIFIED BY LANDSCAPE ARCHITECT. STAKING IS REQUIRED FOR TREES PLANTED ON SLOPES.
 - WHERE SEVERAL TREES WILL BE PLANTED CLOSE TOGETHER SUCH THAT THEY WILL LIKELY SHARE ROOT SPACE, TILL IN SOIL AMENDMENTS TO A DEPTH OF 4-6\"/>
 - FOR CONTAINER GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL. THEN CUT OR PULL APART ANY ROOTS CIRCULING THE PERIMETER OF THE CONTAINER.
 - FOR FIELD GROWN TREES, CUT BURLAP, ROPE AND WIRE BASKET AWAY FROM TOP AND SIDES OF ROOT BALL.
 - THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
 - THE PLANTING PROCESS IS SIMILAR FOR DECIDUOUS AND EVERGREEN TREES.
 - DO NOT WRAP TRUNK, MARK NORTH SIDE OF TREE IN THE NURSERY AND LOCATE TO THE NORTH IN THE FIELD.
 - WIDTH OF PLANTING HOLE IS 3X ROOT BALL AT THE SURFACE.
 - BEFORE PLANTING, ADD 3-4\"/>
 - PERFORM PERCOLATION TEST FOR EACH TREE PIT TO CONFIRM THAT WATER DRAINS OUT OF THE SOIL. PROVIDE GRAVEL, SUMP FILTER FABRIC & VENT PIPE IF DRAINAGE DOES NOT OCCUR WITHIN 24 HOURS. INCLUDE ALL SUMPS IN BASE BID. SHOULD SUMPS NOT BE NECESSARY AFTER PERCOLATION TEST, PROVIDE CHANGE ORDER DEDUCT TO OWNER.
 - IF PLANTING HOLES ARE DUG WITH A LARGE AUGER BREAKING DOWN THE SIDES WITH A SHOVEL CAN ELIMINATE GLAZING AND CREATE THE PREFERRED SLOPING SIDE.
 - TREES SHALL HAVE SINGLE LEADERS. TREES WITH 2 LEADERS WILL BE REJECTED.
 - DO NOT PLACE MULCH IN CONTACT WITH TRUNK.
 - PROVIDE GATOR BAGS FOR ALL TREES WHERE IRRIGATION IS NOT PROVIDED.

6 PLANTING NOTES SECTION NTS

PERMANENT SEEDING: MEADOW MIX

Species List:

Botanic Name:	Common Name:	Percentage:
<i>Sorghastrum nutans</i>	Indiangrass	30%
<i>Scirpochloa acuticarpa</i>	Late Bluestem	30%
<i>Planicum virginicum</i>	Switchgrass	10%
<i>Elymus virginicus</i>	Virginia Wild Rye	10%
<i>Rutbeckia hirta</i>	Black-eyed Susan	10%
<i>Echinacea purpurea</i>	Purple Coneflower	10%

Seed: Seed to be Pure Live Seed (PLS) at a rate of 5-6 lbs./1,000 sq'. Contractor shall provide empty bags upon request to verify proper product is used.

Soil Amendments: Follow recommendations of soil tests, soil pH to be 6.0 to 7.0. Apply ground agricultural limestone and 10-10-10 fertilizer as recommended to achieve optimum soil conditions.

Seeding:

- Prior to seeding, eradicate all existing vegetation with an approved herbicide, i.e. glyphosate (Roundup) by a licensed spray technician. A second application may be required two weeks later if first application is insufficient. If excess dead plant material remains on the surface, raking and removal may be necessary to achieve good seed-to-soil contact and sunlight penetration.
- Organic matter shall be added to soils containing high levels of clay. Organic material shall be worked into the top 6\"/>
- Smooth soil by raking.
- Add all soil amendments and fertilizers.
- Apply half of the seed over entire area and a second pass with remaining seed at a right angle to the first pass to ensure equal coverage.
- Plant seed no more than 1/2\"/>
- Apply mulch and tack as required.
- Seed to be supplied by Roundstone Native Seed (www.roundstoneseed.com). Ernst Conservation Seeds at (www.ernstseed.com) or approved equal.

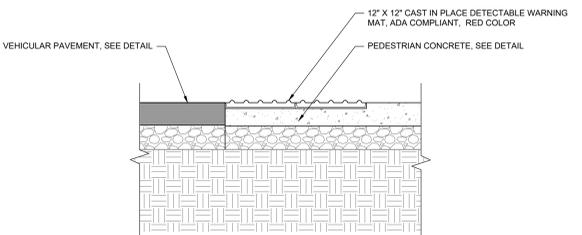
Seeding Dates: April 1 - June 1

Mulch: Apply 4,000 lbs/acre straw. Anchor straw by tacking with asphalt, netting or mulch anchoring tool.

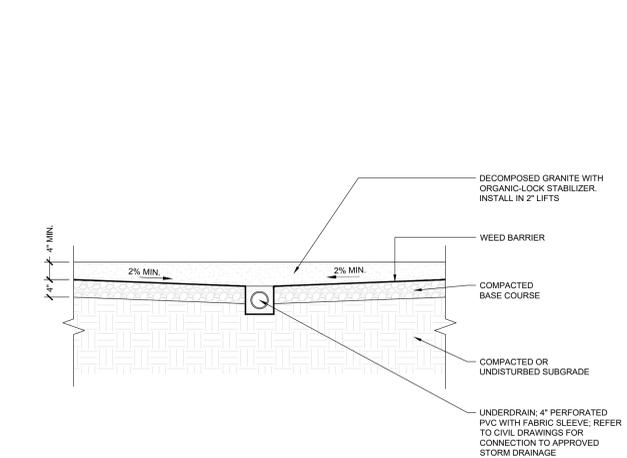
Maintenance:

- Re-fertilize if growth is not fully adequate.
- Re-seed, fertilize and mulch immediately following erosion or other damage.
- Meadows are to be mowed only three (3) times per year: Mid-Spring around April 15th, Mid-Summer around July 15th and once again in late fall around November 1st at a height no lower than 12\"/>

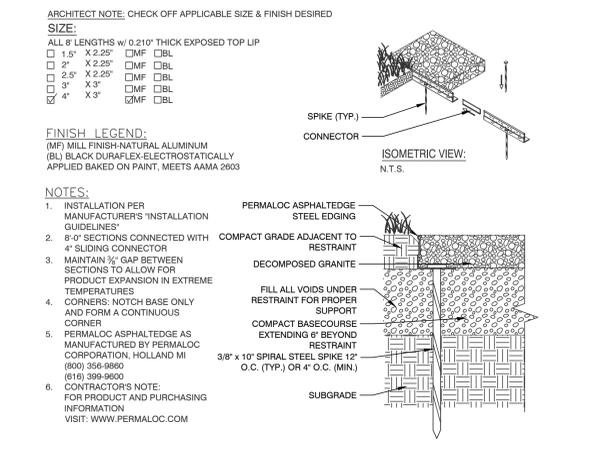
7 MEADOW MIX NOTES SECTION NTS



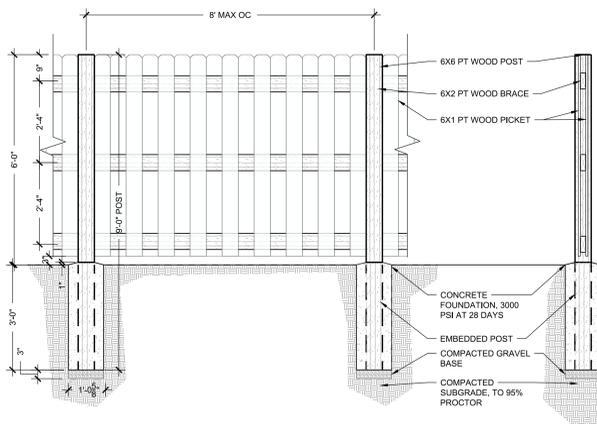
8 CIP ADA WARNING MAT SECTION 1\"/>



9 DECOMPOSED GRANITE PAVING SECTION 3/4\"/>



10 METAL EDGING BY OWNER SECTION NTS



11 6' HEIGHT WOOD FENCE PLAN 1/2\"/>

12 NOT IN USE PLAN NTS



Drawn	SP
Checked	CEH
Date	01.10.2025
Revisions	

L:\Projects\2022\C22062 - NCSU Apiculture Facility\DWGS\2-FERMITTING\3-Sheets\C220062 L7.20 Planting & Soils Details.dwg, Jan 06, 2025, 3:15pm

GENERAL	
1.	THESE GENERAL NOTES ARE NOT INTENDED TO REPLACE SPECIFICATIONS (IF PROVIDED), SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO THE GENERAL NOTES.
2.	DO NOT SCALE DIMENSIONS FROM DRAWINGS, THE CONTRACTOR SHALL REQUIRE NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS.
3.	WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.
4.	WHERE A CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS OCCURS THE MORE STRINGENT REQUIREMENT SHALL APPLY.
5.	IF ANY BIDDER IS IN DOUBT AS TO THE INTENT OF THE DRAWINGS OR SPECIFICATIONS, THEY SHALL REQUEST AN INTERPRETATION IN WRITING AT LEAST 7 DAYS PRIOR TO THE SCHEDULED BIDDING WITH TIME FOR THE DESIGN TEAM TO PROVIDE A RESPONSE.
6.	THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND GRADE CONDITIONS (BOTH NEW AND EXISTING), REPORTING ANY DISCREPANCIES TO THE ENGINEER OF RECORD PRIOR TO FABRICATION OR PROCEEDING WITH STRUCTURAL WORK.
7.	THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL DRAWINGS, AND REPORT ANY DISCREPANCIES TO THE ENGINEER OF RECORD PRIOR TO FABRICATION OR PROCEEDING WITH STRUCTURAL WORK.
8.	SEE ARCHITECTURAL DRAWINGS FOR FLOOR ELEVATIONS, FLOOR SLOPES, AND THE LOCATION OF DEPRESSED FLOOR AREAS.

CONTRACTOR RESPONSIBILITY	
1.	THE STRUCTURAL DRAWINGS AND SPECIFICATIONS (IF PROVIDED) REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE. ALL APPLICABLE SAFETY REGULATIONS TO BE FOLLOWED STRICTLY.
2.	THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATIONS OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE. DURING ERECTION AND UNTIL ALL PERMANENT CONNECTIONS ARE MADE, THE CONTRACTOR MUST PROVIDE TEMPORARY BRACING FOR THE STRUCTURE IN ALL DIRECTIONS UNTIL THE STRUCTURAL WORK IS COMPLETE.
3.	ALL INTERIOR HANGING COMPONENTS (CEILING, DUCTWORK, PIPING, EQUIPMENT, ETC.) SHALL BE COORDINATED BY THE CONTRACTOR TO ENSURE LOADS APPLIED TO THE STRUCTURE DO NOT EXCEED THE LIMITS SHOWN IN THE DESIGN CRITERIA OR ELSEWHERE IN THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY OF THE CONNECTIONS TO THE SUPPORTING STRUCTURAL ELEMENTS AND THE ADEQUACY OF THE HANGING SYSTEM TO SUPPORT THE COMPONENTS.
4.	ALL ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND PLUMBING COMPONENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT FRAME TO THE UNDERSIDE OF STRUCTURE ABOVE, SHALL BE DETAILED AND FRAMED BY THE CONTRACTOR TO ALLOW FOR DEFLECTION OF THE STRUCTURAL FRAMING. SEE THE DESIGN CRITERIA FOR THE LIMITS USED IN THE DESIGN.
5.	PRINCIPAL OPENINGS IN THE STRUCTURE ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ALL REQUIRED OPENINGS. SUPPORT FRAMING FOR ALL OPENINGS SHALL BE PROVIDED AND INSTALLED PER TYPICAL DETAILS HEREIN WHETHER SHOWN ON THESE DRAWINGS OR NOT. THE CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH ALL SUBCONTRACTORS AND THEIR APPROVED SHOP DRAWINGS PRIOR TO CONSTRUCTION.
6.	ALL EXTERIOR WALL AND ROOF COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR COMPONENTS AND CLADDING WIND LOADS NOTED IN THE DESIGN CRITERIA.
7.	ALL ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND PLUMBING COMPONENTS ARE TO BE ATTACHED AS REQUIRED BY ASCE/SEI 7 CHAPTER 13, "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". EACH INDIVIDUAL CONTRACTOR RESPONSIBLE FOR THE COMPONENT MUST PROVIDE PROJECT SPECIFIC DESIGN AND DOCUMENTATION PREPARED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED. CHAPTER 13 DEFINES THE FORCE REQUIRED TO SUPPORT THE COMPONENT FOR THE ANCHORAGE AND BRACING. THE COST OF PREPARING THIS INFORMATION AND DESIGN SHALL BE INCLUDED IN EACH CONTRACTOR'S BID THAT IS PROVIDING THE COMPONENT.
8.	SEVERAL ITEMS NOTED HEREIN (WHERE CHECKED) AND IN THE SPECIFICATIONS REQUIRE THE CONTRACTOR TO ENGAGE A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED, TO PROVIDE DESIGN AND/OR DETAILING OF STRUCTURAL ELEMENTS. SEE INDIVIDUAL NOTES AND SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. DELEGATED DESIGN ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO: <ul style="list-style-type: none"> <input type="checkbox"/> SPECIALTY FOUNDATION SYSTEM <input type="checkbox"/> POST-TENSIONED CONCRETE (LAYOUT AND STRESSING) <input type="checkbox"/> STRUCTURAL PRECAST CONCRETE <input type="checkbox"/> ARCHITECTURAL PRECAST CONCRETE <input checked="" type="checkbox"/> STRUCTURAL STEEL (CONNECTIONS) <input type="checkbox"/> PREFABRICATED METAL BUILDING <input type="checkbox"/> STEEL STAIRS AND RAILINGS <input checked="" type="checkbox"/> STEEL JOISTS AND STEEL JOIST GIRDERS <input type="checkbox"/> ROOF ANCHORS <input checked="" type="checkbox"/> NON-LOAD BEARING COLD-FORMED STEEL <input type="checkbox"/> LOAD BEARING COLD-FORMED STEEL <input checked="" type="checkbox"/> LIGHT GAUGE COLD-FORMED STEEL TRUSSES <input type="checkbox"/> PREFABRICATED WOOD TRUSSES <input type="checkbox"/> ANCHOR TIE-DOWN SYSTEM FOR WOOD SHEAR WALLS

DESIGN CRITERIA																																																
1.	PROJECT LOCATION: INWOOD RD. RALEIGH, NC 27603																																															
2.	APPLICABLE CODES: <ul style="list-style-type: none"> 2018 NORTH CAROLINA BUILDING CODE (2015 INTERNATIONAL BUILDING CODE WITH REVISIONS) MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE/SEI 7-10) BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) BUILDING CODE REQUIREMENTS/SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530/530.1-13) SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-10) NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (ANSI/AWC NDS-2015) NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI S100-12) 																																															
3.	RISK CATEGORY: II																																															
4.	DEFLECTION: <ul style="list-style-type: none"> FLOOR FRAMING L/240 FOR TOTAL LOADING (1.50" FOR 30' SPAN), L/360 FOR LIVE LOADING (1.00" FOR 30' SPAN) ROOF FRAMING L/180 FOR TOTAL LOADING (2.00" FOR 30' SPAN), L/240 FOR LIVE LOADING (1.50" FOR 30' SPAN) STRUCTURAL DRIFT LIMITS SEISMIC, PER ASCE 7 12.12. 																																															
5.	LIVE LOADS: <table border="1" style="width: 100%;"> <thead> <tr> <th>TYPICAL FLOOR</th> <th>UNIFORM (PSF)</th> <th>CONCENTRATED (LB)</th> </tr> </thead> <tbody> <tr> <td>ROOF</td> <td>20</td> <td>300</td> </tr> <tr> <td>STORAGE</td> <td>125</td> <td>NA</td> </tr> </tbody> </table> <p>* ADDITIONAL 15 PSF PARTITION LOAD INCLUDED</p>	TYPICAL FLOOR	UNIFORM (PSF)	CONCENTRATED (LB)	ROOF	20	300	STORAGE	125	NA																																						
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6.	BASE OF DASH: <ul style="list-style-type: none"> $p_u = 15$ PSF $I_s = 1.00$ 																																															
7.	WIND LOAD: <ul style="list-style-type: none"> BASIC DESIGN WIND SPEED $V = 115$ MPH (ALLOWABLE STRESS DESIGN WIND SPEED, $V_{all} = 89$ MPH) EXPOSURE CATEGORY C INTERNAL PRESSURE COEFFICIENTS ± 0.18 BASE SHEAR (1.0xW) $V_u = 17k$ $V_s = 35k$ 																																															
8.	COMPONENTS AND CLADDING - <ul style="list-style-type: none"> ALL EXTERIOR WALL AND ROOF COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR COMPONENTS AND CLADDING WIND LOADS AS DETERMINED PER THE GOVERNING BUILDING CODE FOR THE ULTIMATE DESIGN WIND SPEED AND EXPOSURE CATEGORY LISTED ABOVE. ALTERNATIVELY, THE COMPONENT MANUFACTURER MAY USE THE WORST-CASE PRESSURES (PSF) BELOW: <table border="1" style="width: 100%;"> <thead> <tr> <th>ZONE</th> <th>10</th> <th>50</th> <th>100</th> <th>500</th> </tr> </thead> <tbody> <tr> <td rowspan="4">ROOF</td> <td>1</td> <td>+18</td> <td>+16</td> <td>+16</td> </tr> <tr> <td></td> <td>-44</td> <td>-37</td> <td>-33</td> </tr> <tr> <td>2</td> <td>+18</td> <td>+16</td> <td>+16</td> </tr> <tr> <td></td> <td>-70</td> <td>-49</td> <td>-41</td> </tr> <tr> <td rowspan="4">WALL</td> <td>3</td> <td>+18</td> <td>+16</td> <td>+16</td> </tr> <tr> <td></td> <td>-75</td> <td>-51</td> <td>-51</td> </tr> <tr> <td>4</td> <td>+31</td> <td>+28</td> <td>+25</td> </tr> <tr> <td></td> <td>-33</td> <td>-31</td> <td>-28</td> </tr> <tr> <td>5</td> <td>+31</td> <td>+28</td> <td>+25</td> </tr> <tr> <td></td> <td>-41</td> <td>-35</td> <td>-32</td> </tr> </tbody> </table>	ZONE	10	50	100	500	ROOF	1	+18	+16	+16		-44	-37	-33	2	+18	+16	+16		-70	-49	-41	WALL	3	+18	+16	+16		-75	-51	-51	4	+31	+28	+25		-33	-31	-28	5	+31	+28	+25		-41	-35	-32
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	-41	-35	-32																																													
9.	FUTURE LOADS: <ul style="list-style-type: none"> UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS. 																																															

FOUNDATIONS	
1.	FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT BY: WSP, DATED MARCH 4, 2024 (PROJECT #6468-23-0125) THE DESIGN NET ALLOWABLE SOIL BEARING PRESSURE IS 2,000 PSF BASED ON THIS REPORT.
2.	ALL RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL INVESTIGATION REPORT AND AS NOTED ON THE DRAWINGS MUST BE FOLLOWED IN PREPARATION OF THE SUBGRADE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD. THE CONTRACTOR SHALL OBTAIN THE REPORT FROM THE OWNER AND BE FAMILIAR WITH THE RECOMMENDATIONS CONTAINED THEREIN PRIOR TO THE START OF CONSTRUCTION. IF CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE DESCRIBED IN THE REPORT, THE OWNER SHALL NOTIFY THE GEOTECHNICAL ENGINEER OF RECORD SO THE RECOMMENDATIONS CAN BE REEVALUATED.
3.	FOOTINGS SHALL BE CARRIED TO LOWER ELEVATIONS THAN THOSE SHOWN ON THE DRAWINGS IF REQUIRED BY THE GEOTECHNICAL ENGINEER OR TESTING LAB TO REACH SOIL CAPABLE OF PROVIDING THE DESIGN NET ALLOWABLE SOIL BEARING PRESSURE. ALL PLASTIC, EXPANSIVE AND/OR LOOSE SOILS BELOW STRUCTURAL FOUNDATIONS SHALL BE REMOVED AND REPLACED AS DIRECTED HEREIN.
4.	MINIMUM SUBGRADE PREPARATION REQUIREMENTS ARE AS FOLLOWS: <ol style="list-style-type: none"> 1. PREPARE SUBGRADE AND UNDERFLOOR FILL TO A POINT THAT EXTENDS 3'-0" (MINIMUM) BEYOND THE LIMITS OF THE FOUNDATIONS. 2. COMPACT ALL FILL UNDER BUILDING TO 98% MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698. 3. PLACE IN LIFTS OF 8" (MAXIMUM) LOOSE THICKNESS WHEN USING LARGE RIDING COMPACTORS (REDUCE THICKNESS AS NECESSARY FOR SMALLER EQUIPMENT) 4. SLABS ON GRADE SHALL BE SUPPORTED ON A BASE LAYER OF POROUS FILL (WASHED STONE OR CLEAN SAND) WITH A MINIMUM THICKNESS OF 4".
5.	FIELD COMPACTION SHALL BE VERIFIED WITH AT LEAST ONE TEST PER 2,500 SQUARE FEET PER LIFT (AT LEAST ONE PER LIFT), IN ACCORDANCE WITH ASTM D1556 (SAND-CONE METHOD), ASTM D6938 (NUCLEAR METHODS, SHALLOW DEPTH), ASTM D2167 (RUBBER BALLOON METHOD), AND/OR ASTM D2937 (DRAVE-CYLINDER METHOD). SEE SPECIFICATIONS FOR OTHER TESTING REQUIREMENTS.
6.	FOOTINGS SOIL HAVE BEEN DESIGNED UTILIZING THE FOLLOWING PARAMETERS: <ul style="list-style-type: none"> COEFFICIENT OF FRICTION 0.35
7.	UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL SUCH CONDITIONS PRIOR TO CONSTRUCTION.
8.	FOOTINGS ARE TO BE CONSTRUCTED, AND THE EXCAVATION BE EXTENDED TO FINAL GRADE AS SOON AS POSSIBLE TO MITIGATE THE POTENTIAL DAMAGE TO BEARING SOILS PER GEOTECHNICAL RECOMMENDATIONS.

CONCRETE / REINFORCING STEEL	
1.	ALL CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REFERENCED EDITION OF THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318).
2.	CONCRETE MIXTURES AS REQUIRED (BASED ON CLASS DESIGNATION): <ul style="list-style-type: none"> CLASS A - FOOTINGS NWC 3,000 PSI CLASS C - INTERIOR SLABS ON GRADE NWC 4,500 PSI CLASS F - EXTERIOR SLABS ON GRADE, PADS, TOPPING NWC 4,500 PSI
3.	REINFORCING: <ul style="list-style-type: none"> TYPICAL - ASTM A615, GRADE 60 REINFORCING TO BE WELDED - ASTM A706 DEFORMED BAR ANCHORS - ASTM A496 WELDED WIRE FABRIC - ASTM A1064 (FLAT SHEETS ONLY)
4.	GROUT UNDER BASE PLATES TO BE HIGH STRENGTH (5,000 PSI), NON-SHRINK.
5.	REFER TO THE DRAWINGS FOR REINFORCING LAP REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP PER ACI 318 OR CRSI STANDARDS.
6.	LAP WELDED WIRE FABRIC SHEETS 8" MINIMUM.
7.	CLEAR COVER FROM FACE OF CONCRETE: <ul style="list-style-type: none"> CAN IN PLACE CONCRETE (MEASURE TO OUTERMOST REINFORCING) - CONCRETE CAST AGAINST AND EXPOSED TO EARTH 3" CONCRETE EXPOSED TO EARTH/WEATHER 2" FOR #6 BARS AND LARGER, 1 1/2" ELSE CONCRETE NOT EXPOSED TO EARTH/WEATHER 3/4" FOR SLABS AND WALLS, 1 1/2" (TO TIES) FOR BEAMS AND COLUMNS
8.	PROVIDE REINFORCING IN SLABS ON GRADE, 1-1/2" FROM TOP OF SLAB: <ul style="list-style-type: none"> 4" SLABS 6x6-W2.1xW2.1 5" SLABS 6x6-W2.9xW2.9 6" SLABS #3@12"OC EACH WAY
9.	WHERE SCHEDULED BARS ARE NOT PRESENT, PROVIDE CONTINUOUS #5 TOP AND BOTTOM BARS TO SUPPORT STIRRUPS AS REQUIRED FOR THE LENGTH OF THE STIRRUP SPACING IN ALL BEAMS.
10.	WALL FOOTING REINFORCING SHALL BE CONTINUOUS THROUGH ADJACENT COLUMN FOOTINGS.
11.	PROVIDE VERTICAL DOVETAIL SLOTS AT 24"OC WITH TIES AT 16"OC VERTICALLY IN ALL CONCRETE WALLS BACKING-UP MASONRY VENER.
12.	BAR SUPPORTS FOR CONCRETE EXPOSED TO VIEW SHALL HAVE PLASTIC COATED LEGS OR BE HOT-DIP GALVANIZED AFTER FABRICATION.
13.	MECHANICAL AND ELECTRICAL CONDUIT IN SLABS ON GRADE SHALL RUN UNDER TOP LAYER OF SLAB REINFORCING. PROVIDE A MINIMUM OF 1-1/2" CLEAR BETWEEN CONDUITS AND BETWEEN REINFORCING AND ADJACENT CONDUITS PARALLEL TO REINFORCING. IF MAXIMUM SIZE OF CONDUIT EXCEEDS ONE THIRD OF THE SLAB DEPTH, ADDITIONAL FRAMING OR REINFORCING MAY BE NECESSARY AT ENGINEER'S DISCRETION.
14.	CONCRETE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A108, GRADES 1010, 1015, 1017, OR 1020. STUDS SHALL BE AUTOMATICALLY END WELDED IN THE SHOP OR FIELD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15.	EMBED PLATES MUST BE SET IN THE FORM BEFORE POURING CONCRETE, NOT PLACED INTO TOP OF WET CONCRETE. THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CORRECTIVE DETAILS FOR ANY EMBED PLATES LEFT OUT OF CONCRETE POURS.
16.	THE CONTRACTOR SHALL NOTIFY THE ARCHITECT ENGINEER FAR ENOUGH IN ADVANCE (48 HOURS) OF EACH CONCRETE POUR TO ALLOW AMPLE TIME TO CHECK THE LAYOUT OF THE STEEL BEFORE THE BEGINNING OF THE ACTUAL POUR, BUT NOT PRIOR TO 90% OF THE STEEL HAVING BEEN PLACED.

CONCRETE CONSTRUCTION JOINTS	
1.	CONTRACTOR SHALL PROVIDE NECESSARY CONSTRUCTION JOINTS IN MONOLITHIC CONCRETE POURS SO THAT THE QUALITY OF PLACEMENT AND FINISH MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A PLAN SHOWING THE LOCATION OF ALL CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER FOR APPROVAL.
2.	THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS. ALL VERTICAL CONSTRUCTION JOINTS IN SLABS AND BEAMS SHALL BE MADE WITH BULKHEADS. ADDITIONAL REINFORCING AT CONSTRUCTION JOINTS SHALL BE AS SPECIFIED BY THE STRUCTURAL ENGINEER. SEE TYPICAL CONSTRUCTION JOINT DETAILS.

STRUCTURAL STEEL	
1.	DESIGN, FABRICATION, AND ERECTION SHALL BE PER THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (ANSI/AISC 360).
2.	STRUCTURAL STEEL MATERIALS: <ul style="list-style-type: none"> WIDE FLANGE SHAPES (W SECTIONS) - ASTM A992, GRADE 50 (Fy=50 KSI) CHANNELS AND ANGLES - ASTM A36 (Fy=36 KSI) PLATES AND BARS - ASTM A36 (Fy=36 KSI) OR ASTM A572, GRADE 50 (Fy=50 KSI) AS INDICATED ON THE DRAWINGS. SQUARE AND RECTANGULAR TUBES - ASTM A500, GRADE B (Fy=46 KSI) PIPES OR ROUND TUBES - ASTM A53, GRADE B (Fy=35 KSI) OR ASTM A500, GRADE B (Fy=42 KSI)
3.	A QUALIFIED FABRICATOR SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN FABRICATING STRUCTURAL STEEL LIKE THAT INDICATED FOR THIS PROJECT AND SUFFICIENT CAPACITY TO FABRICATE THE STRUCTURAL STEEL WITHOUT DELAYING THE WORK, AND SHALL MEET ONE OF THE FOLLOWING: <ul style="list-style-type: none"> A. FABRICATOR PARTICIPATES IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS DESIGNATED AN AISC-CERTIFIED PLANT, CATEGORY (BU) OR IS ACCREDITED BY THE IAS FABRICATOR INSPECTION PROGRAM FOR STRUCTURAL STEEL (ACCREDITATION CRITERIA 112). B. FABRICATOR HAS AN ESTABLISHED AND MAINTAINED QUALITY CONTROL PROGRAM TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS IN ANSI/AISC 303, ANSI/AISC 360, AND THE CONTRACT DOCUMENTS. PROGRAM SHALL AT A MINIMUM ADDRESS <ul style="list-style-type: none"> 1. INSPECTION OF THE ITEMS NOTED IN ANSI/AISC 360 N2.
4.	A QUALIFIED ERECTOR SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN ERECTING STRUCTURAL STEEL LIKE THAT INDICATED FOR THIS PROJECT AND SUFFICIENT CAPACITY TO ERECT THE STRUCTURAL STEEL WITHOUT DELAYING THE WORK, AND SHALL MEET ONE OF THE FOLLOWING: <ul style="list-style-type: none"> A. ERECTOR PARTICIPATES IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS DESIGNATED AN AISC-CERTIFIED ERECTOR, CATEGORY (CSE). B. ERECTOR HAS AN ESTABLISHED AND MAINTAINED QUALITY CONTROL PROGRAM TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS IN ANSI/AISC 303, ANSI/AISC 360, AND THE CONTRACT DOCUMENTS. PROGRAM SHALL AT A MINIMUM ADDRESS INSPECTION OF THE ITEMS NOTED IN ANSI/AISC 360 N2.
5.	BEAM SIMPLE SHEAR, BRACED FRAME, AND ALL MOMENT CONNECTIONS NOT DETAILED ON STRUCTURAL DRAWINGS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER RETAINED BY THE STEEL SUPPLIER AND REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. THE CONNECTION ENGINEER SHALL SUBMIT A SIGNED AND SEALED LETTER STATING THEY HAVE REVIEWED THE STEEL SHOP DRAWINGS AND THE CONNECTIONS ARE CONSISTENT WITH THEIR CALCULATIONS AND INTENT.
6.	THE CONNECTIONS FOR NON-COMPOSITE BEAMS SHALL BE DESIGNED FOR REACTIONS SHOWN ON DRAWINGS OR FOR REACTIONS DETERMINED BY USING THE MAXIMUM TOTAL UNIFORM LOAD TABULATED IN PART 3 OF THE AISC STEEL CONSTRUCTION MANUAL FOR THE SECTION, SPAN, AND STRENGTH OF STEEL SPECIFIED. THE CONNECTIONS FOR COMPOSITE BEAMS SHALL BE DESIGNED FOR REACTIONS SHOWN ON DRAWINGS OR AS DICTATED BY THE TYPICAL COMPOSITE SLAB DETAIL.
7.	SIMPLE SHEAR CONNECTIONS SHALL BE MADE WITH ASTM A325 3/4"Ø BOLTS (MINIMUM), TIGHTENED TO A SNUG-TIGHT CONDITION PER AISC REQUIREMENTS.
8.	ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE. USE E70 SERIES ELECTRODES FOR ALL STRUCTURAL STEEL WELDS. WHERE STEEL MEMBERS ARE WELDED AND NO SIZE IS SPECIFIED, PROVIDE FULL LENGTH FILLET WELDS BOTH SIDES OF MEMBER. SIZE OF FILLETS SHALL BE 3/16" FOR MEMBER THICKNESS UP TO 5/16", AND THE MEMBER THICKNESS MINUS 1/16" FOR ALL THICKER MATERIALS.
9.	ANCHOR AND THREADED RODS SHALL CONFORM TO ASTM F1554, GRADE 36, 55, OR 1015 AS INDICATED ON THE DRAWINGS. CONTRACTOR TO COORDINATE INSTALLATION OF ITEMS TO BE EMBEDDED IN OR ATTACHED TO OTHER CONSTRUCTION WITHOUT DELAYING THE WORK.
10.	STEEL SHALL BE PRIMED WITH FABRICATOR'S STANDARD LEAD- AND CHROMATE-FREE, NON-ASPHALTIC, RUST-INHIBITING PRIMER COMPLYING WITH NESHOPS (MINIMUM COR 2.5 MILS, MAXIMUM COR 5 MILS). CONTRACTOR TO COORDINATE SELECTION OF PRIMER WITH TOPCOATS TO BE APPLIED TO ENSURE THE TWO ARE COMPATIBLE. MEMBERS TO RECEIVE FIREPROOFING OR TO BE ENCASED IN CONCRETE SHALL NOT BE PRIMED.
11.	SEE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL ITEMS REQUIRED TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
12.	STRUCTURAL STEEL SHALL BE PUNCHED FOR WOOD BLOCKING, NAILERS, CLIPS AND TIES IN ACCORDANCE WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
13.	CAP ALL OPEN HSS OR PIPE MEMBERS OUTSIDE THE BUILDING ENVELOPE WITH A 1/4" (MINIMUM) FITTED PLATE, UNO.
14.	ERECTOR SHALL SET STRUCTURAL STEEL IN LOCATIONS AND TO ELEVATIONS IN ACCORDANCE WITH ANSI/AISC 303 AND 360. MAINTAIN THE FRAME WITHIN ERECTION TOLERANCES PER ANSI/AISC 303.
15.	PROMPTLY PACK SHRINKAGE-RESISTANT GROUT SOLIDLY BETWEEN BEARING SURFACES AND PLATES SO NO VOIDS REMAIN.
16.	SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWINGS WILL BE REJECTED. THERMAL CUTTING MAY NOT BE USED IN THE FIELD DURING ERECTION.
17.	QUALITY CONTROL INSPECTION TASKS SHALL BE PERFORMED BY BOTH THE FABRICATOR AND ERECTOR IN ACCORDANCE WITH ANSI/AISC 360 NS. NON-DESTRUCTIVE TESTING (NDT) OF WELDED JOINTS PROVIDED DURING FABRICATION SHALL BE IN ACCORDANCE WITH NS.5 AND PERFORMED BY AN INDEPENDENT AND QUALIFIED TESTING AGENCY OR THE FABRICATOR'S QCI. ALL TESTING REPORTS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.
18.	AT THE COMPLETION OF FABRICATION AND ERECTION, THE FABRICATOR AND ERECTOR SHALL EACH SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER STATING THE MATERIALS SUPPLIED AND WORK PERFORMED ARE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
19.	NON-DESTRUCTIVE TESTING (NDT) OF WELDED JOINTS PROVIDED DURING ERECTION SHALL BE IN ACCORDANCE WITH NS.5 AND PERFORMED BY AN INDEPENDENT AND QUALIFIED TESTING AGENCY. ALL TESTING REPORTS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.
20.	ALL STEEL EXPOSED TO VIEW SHALL BE CLASSIFIED AS ARCHITECTUREL EXPOSED STRUCTURAL STEEL (AESS) AS DEFINED BY ANSI/AISC 303 AND SHALL BE TREATED AS SUCH.

STEEL JOISTS	
1.	ALL STEEL JOISTS SHALL BE OPEN-WEB TYPE CONFORMING TO THE LATEST EDITION OF "STANDARD SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES FOR STEEL JOISTS AND JOIST GIRDERS" PUBLISHED BY THE STEEL JOIST INSTITUTE.
2.	PROVIDE BRIDGING PER STEEL JOIST INSTITUTE STANDARD SPECIFICATION. ALL BRIDGING SHALL BE BOLTED OR WELDED AT ALL JOISTS AND AT ALL CROSSINGS AND ANCHORED TO SPANDREL MEMBERS. ALL BRIDGING FOR JOISTS USED AS SPANDREL MEMBERS (AT EDGE OF DECK) SHALL BE 3" BRIDGING. SIZE OF BRIDGING SHALL BE DETERMINED BY THE JOIST SUPPLIER. JOIST SUPPLIER TO PROVIDE ADDITIONAL BRIDGING AS REQUIRED FOR UPLIFT LOADS.
3.	ALL JOISTS SHALL HAVE ANGLE BOTTOM CHORD MEMBERS UNLESS OTHERWISE APPROVED.
4.	ALL K-SERIES JOISTS SHALL BE WELDED TO SUPPORT STEEL WITH A MINIMUM OF 2" OF 1/2" FILLET WELD AT BOTH SIDES OF JOIST SEAT.
5.	WHERE JOISTS FRAME TO COLUMNS, JOISTS SHALL BE FIELD BOLTED TO COLUMNS WITH (2)1/2"Ø A307 BOLTS AT EACH END OF THE JOIST TO PROVIDE LATERAL STABILITY DURING CONSTRUCTION.
6.	PROVIDE BOLTED DIAGONAL BRIDGING WHERE REQUIRED PER STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS. JOIST SHOP DRAWINGS SHALL INDICATE LOCATION AND DETAILING FOR BRIDGING.
7.	JOIST MANUFACTURER SHALL BE PREPARED TO SUBMIT CALCULATIONS FOR ALL JOISTS AT ARCHITECT'S OR ENGINEER'S REQUEST. CALCULATIONS SHALL HAVE LOAD DIAGRAMS FOR EACH MEMBER CLEARLY INDICATING SPAN, UNIFORM AND CONCENTRATED LOADS. ALL CALCULATIONS SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8.	JOISTS SHALL BE DESIGNED FOR A NET WIND UPLIFT LOAD OF 22PSF UNLESS NOTED OTHERWISE. (SERVICE LEVEL LOAD)

LIGHT GAUGE COLD-FORMED STEEL TRUSSES	
1.	ALL TRUSSES AND STRUCTURAL MEMBERS SHALL CONFORM TO THE REFERENCED BUILDING CODE AND SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REFERENCED EDITION OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE.
2.	ROOF TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING MINIMUM LOADS: <ul style="list-style-type: none"> TOP CHORD DL = 10 PSF (AT ROOF) LL = SEE DESIGN CRITERIA BOTTOM CHORD DL = 10 PSF DL = 250 LB AT ANY POINT (NFA-13)
3.	TRUSS SUPPLIER SHALL CALCULATE UPLIFT LOADS BASED ON THE WIND LOAD CRITERIA LISTED IN THESE GENERAL NOTES. AT A MINIMUM THE TRUSSES SHALL BE DESIGNED FOR A NET WIND UPLIFT LOAD OF 22 PSF (SERVICE LEVEL LOAD) UNLESS NOTED OTHERWISE.
4.	GABLE END WALL TRUSSES SHALL BE DESIGNED FOR THE COMPONENTS AND CLADDING LOADS OF 22 PSF (SERVICE LEVEL LOAD). DEFLECTION OF THE VERTICAL SUPPORT MEMBERS SHALL BE LESS THAN L/360. SUPPLY BRACING AS REQUIRED FOR LOADS AND DEFLECTION. SEALED CALCULATIONS SHALL BE PROVIDED BY THE TRUSS ENGINEER FOR ALL GABLE END WALL TRUSSES.
5.	ALL STEEL SHALL CONFORM TO ASTM A446 WITH G-60 GALVANIZING.
6.	ALL REQUIRED BRIDGING SHALL BE DESIGNED AND SUPPLIED BY THE TRUSS MANUFACTURER.
7.	SUBMIT SHOP DRAWINGS FOR ALL COLD-FORMED STEEL TRUSSES. SHOP DRAWINGS SHALL INDICATE PLACING OF ALL FRAMING MEMBERS SHOWING TYPE, SIZE, GAUGE, NUMBER, LOCATION AND SPACING. THEY SHALL ALSO INDICATE SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION.
8.	SHOP DRAWINGS SHALL SHOW SIZE AND LENGTH OF WELDS FOR ALL WELDED CONNECTIONS AND TYPE, SIZE AND NUMBER OF SCREWS FOR ALL SCREWED CONNECTIONS. SUBMIT MANUFACTURER'S DATA GIVING STRENGTH VALUES FOR SCREWS USED.
9.	SHOP DRAWINGS SUBMITTED MUST BE PREPARED UNDER THE SUPERVISION OF AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
10.	ALL LIGHT GAUGE COLD-FORMED STEEL TRUSSES AND CONNECTIONS SHALL BE DESIGNED BY THE SUPPLIER'S ENGINEER.
11.	TEMPORARY BRACING, WHERE REQUIRED, SHALL BE PROVIDED UNTIL THE ERECTION IS COMPLETE.

NON-LOAD BEARING COLD-FORMED STEEL (METAL STUDS)	
1.	ALL STRUCTURAL MEMBERS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REFERENCED EDITION OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE.
2.	ALL COLD-FORMED LIGHT GAUGE METAL FRAMING AND CONNECTIONS SHALL BE DESIGNED BY THE SUPPLIER'S ENGINEER. AT ARCHITECT'S OR ENGINEER'S REQUEST CONTRACTOR SHALL SUBMIT CALCULATIONS FOR ALL COLD-FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING.
3.	ALL MEMBERS SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI AND BE FORMED FROM STEEL HAVING A G-60 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A653 AND C955.
4.	ALL THE COLD-FORMED STEEL STRUCTURAL MEMBERS SHALL COME FROM A SINGLE SOURCE MANUFACTURER. ONLY MANUFACTURERS WHO ARE MEMBERS OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) OR THE STEEL FRAMING INDUSTRY ASSOCIATION (SFIA) WILL BE ACCEPTED. THE INSTALLATION SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS.
5.	SUBMIT SHOP DRAWINGS FOR ALL COLD-FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING. SHOP DRAWINGS SHALL INDICATE PLACING OF ALL FRAMING MEMBERS SHOWING TYPE, SIZE, GAUGE, NUMBER, LOCATION AND SPACING. THEY SHALL ALSO INDICATE HEADED CONCRETE ANCHORS AND FOOTING REINFORCING. SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION.
6.	SHOP DRAWINGS SHALL SHOW SIZE AND LENGTH OF WELDS FOR ALL WELDED CONNECTIONS AND TYPE, SIZE AND NUMBER OF SCREWS FOR ALL SCREWED CONNECTIONS. SUBMIT MANUFACTURER'S DATA GIVING STRENGTH VALUES FOR SCREWS USED.
7.	SHOP DRAWINGS SUBMITTED MUST BE PREPARED UNDER THE SUPERVISION OF AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8.	ALL STRUCTURAL FRAMING ACCESSORIES SHALL BE FORMED FROM STRUCTURAL QUALITY STEEL WITH A MINIMUM YIELD STRENGTH OF 50 KSI AND HAVE MINIMUM PROTECTIVE COATING EQUAL TO ASTM A653 G-60 GALVANIZED COATING.
9.	VERTICAL DEFLECTION CLIPS ARE REQUIRED TO BE CAPABLE OF ACCOMMODATING UPWARD AND DOWNWARD VERTICAL DISPLACEMENT OF THE STRUCTURE THROUGH POSITIVE MECHANICAL ATTACHMENT TO STUD WEB. MECHANICAL ATTACHMENT TO STRUCTURE AND SCREW ATTACHMENT TO STUD WEB USING STEP-BUSHINGS TO PERMIT FRICTIONLESS VERTICAL MOVEMENT. CONNECTORS MUST BE TESTED IN ACCORDANCE TO ICC AC261 CRITERIA AND HOLD A VALID ICC-ES EVALUATION SERVICE REPORT TO BE ACCEPTABLE.

ADHESIVE AND MECHANICAL POST-INSTALLED ANCHORS	
1.	ANCHOR BOLTS, REINFORCING STEEL, THREADED RODS, STAIR HANDRAILS, AND OTHER EMBEDDED STEEL ITEMS SHALL BE SET INTO HARDENED CONCRETE WITH ADHESIVE OR MECHANICAL POST-INSTALLED ANCHORS ONLY WHERE DETAILED ON THE DRAWINGS OR WHERE APPROVED BY THE ENGINEER OF RECORD.
2.	PRE-APPROVED MANUFACTURERS ARE HILTI, SIMPSON STRONG-TIE, AND DEWALT. WHERE DETAILS INDICATE SPECIFIC ADHESIVE OR MECHANICAL POST-INSTALLED ANCHORS, IT IS ACCEPTABLE AT THE CONTRACTOR'S OPTION TO SUBMIT AN ALTERNATE SIMILAR PRODUCT PROVIDED BY A DIFFERENT MANUFACTURER AS LONG AS THE MANUFACTURER'S DATA PROVIDES EQUIVALENT LOAD CAPACITY TO THE ANCHOR SPECIFIED. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS THAT DEMONSTRATE THE ALTERNATE PRODUCT IS CAPABLE OF MEETING THE PERFORMANCE OF THE SPECIFIED ANCHOR. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC-ES SHOWING COMPLIANCE WITH THE GOVERNING BUILDING CODE FOR SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND THE AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, MOISTURE CONDITION OF CONCRETE, AND DRILLING METHODS.
3.	BASIS OF DESIGN FOR ADHESIVE ANCHORS DETAILED ON THE DRAWINGS INCLUDES THE FOLLOWING PARAMETERS: CRACKED CONCRETE; WATER-SATURATED CONCRETE; BASE MATERIAL BETWEEN 25 AND 100 DEGREES FAHRENHEIT; AND HOLES MADE BY HAMMER DRILL, HOLLOW DRILL BIT SYSTEM, OR CORE-DRILLING.
4.	INSTALL ANCHORS PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING. HEED ALL LABEL WARNINGS. INSTALL IN ACCORDANCE WITH APPLICABLE SAFETY LAWS. ALL HOLES SHALL BE DRILLED WITH A DIAMETER NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE ANCHOR BEING INSTALLED. ALL HOLES SHALL BE CLEANED WITH COMPRESSED AIR AND SHALL BE DRY PRIOR TO INSTALLATION OF ADHESIVE. HOLES SHALL BE FREE OF ALL DELETERIOUS MATERIAL SUCH AS LAITANCE, DUST, DIRT, AND OIL.
5.	ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
6.	WHERE ADHESIVE ANCHORS ARE TO BE INSTALLED IN HOLLOW MATERIAL WITH UNKNOWN CAPACITY, THE CONTRACTOR SHALL INSTALL THE ANCHOR IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THE ADHESIVE SHALL BE INSTALLED IN THE HOLLOW BASE MATERIAL USING SCREEN TUBES SUPPLIED BY THE MANUFACTURER. THE ADHESIVE SHALL BE CAPABLE OF SUSTAINING MINIMUM TENSION AND SHEAR LOAD CAPACITIES NOTED ON THE DRAWINGS MULTIPLIED BY A FACTOR OF SAFETY OF 1. ALL HARDWARE AND MATERIAL SHALL BE SUPPLIED BY THE ANCHOR MANUFACTURER.
7.	CONTRACTOR PERFORMING ADHESIVE WORK SHALL BE AN APPROVED CONTRACTOR BY THE MANUFACTURER FURNISHING THE ADHESIVE MATERIALS, AND SHALL HAVE NO LESS THAN FIVE YEARS EXPERIENCE IN THE VARIOUS TYPES OF ADHESIVE RELATED WORK REQUIRED IN THIS PROJECT. ALTERNATIVELY, THE CONTRACTOR SHALL ARRANGE FOR A REPRESENTATIVE OF THE ANCHOR MANUFACTURER TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ANCHOR PRODUCTS SPECIFIED. DOCUMENTATION THAT ALL PERSONNEL INSTALLING ANCHORS ARE TRAINED SHALL BE SUBMITTED TO THE ENGINEER OR RECORD PRIOR TO THE COMMENCEMENT OF ANCHOR INSTALLATION.

REPRODUCTION	
1.	THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR

ABBREVIATIONS			
@	AT	HD	HEADED
&	AND	HI	HIGH
Ø	DIAMETER	HORIZ	HORIZONTAL
AB	ANCHOR BOLTS	HSS	HOLLOW STRUCTURAL SECTION
ACI	AMERICAN CONCRETE INSTITUTE	INT	INTERIOR
ADDL	ADDITIONAL	JT	JOINT
ADH	ADHESIVE	K	KIP(S)
AFF	ABOVE FINISHED FLOOR	KB	KNEE BRACE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	KSI	KIPS PER SQUARE INCH
AISI	AMERICAN IRON AND STEEL INSTITUTE	LB	LONG BAR
ALT	ALTERNATE	LBS	POUNDS
ARCH	ARCHITECT'S / ARCHITECTURAL	LLH	LONG LEG HORIZONTAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LLV	LONG LEG VERTICAL
AWS	AMERICAN WELDING SOCIETY	LO	LOW
B/ or BOT	BOTTOM	LOC	LOCATION
BCK	BOTTOM CHORD EXTENSION	LSH	LONG SIDE HORIZONTAL
BFB	BOTTOM FLANGE BRACE	LSV	LONG SIDE VERTICAL
BFF	BELOW FINISHED FLOOR	LWC	LIGHT WEIGHT CONCRETE
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MC	MOMENT CONNECTION
BOS	BOTTOM OF STEEL	MCI	MASONRY CONTROL JOINT
BRG	BEARING	MECH	MECHANICAL
BTWN	BETWEEN	MFR	MANUFACTURER
CANT	CANTILEVER	MID	MIDDLE
CJ	CONTROL JOINT	MIN	MINIMUM
CL	CENTERLINE	MISC	MISCELLANEOUS
CLR	CLEAR	MOW	MIDDLE OF WALL
CMU	CONCRETE MASONRY UNIT	MP	MASONRY PILASTER
COL	COLUMN	No or #	NUMBER
CONC	CONCRETE	NS	NEAR SIDE
CONN	CONNECTION	NTS	NOT TO SCALE
CONST JT	CONSTRUCTION JOINT	NWC	NORMAL WEIGHT CONCRETE
CONT	CONTINUOUS	OC	ON CENTER
CONTR	CONTRACTOR	OPNG	OPENING
COORD	COORDINATE	OPP	OPPOSITE HAND
CTRD	CENTERED	PAP	POWDER ACTUATED FASTENER
d	NAILS (PENNY)	PED	PEDESTAL
DBA	DEFORMED BAR ANCHOR	PL	PLATE
DEFL	DEFLECTION	PSF	POUNDS PER SQUARE FOOT
DEPR	DEPRESSION / DEPRESSED	PSI	POUNDS PER SQUARE INCH
DET	DETAIL	PT	PRESSURE TREATED
DIAG	DIAGONAL	P-T	POST-TENSIONED
DIM	DIMENSION	REF	REFERENCE
DIST	DISTANCE	REINF	REINFORCING
DWG(S)	DRAWING(S)	REQD	REQUIRED
DWL(S)	DOWEL(S)	SB	SHORT BAR
EA	EACH	SCHD	SCHEDULE
EE	EACH END	SIM	SIMILAR
EF	EACH FACE	SOG	SLAB ON GRADE
EJ	EXPANSION JOINT	SPEC(S)	SPECIFICATION(S)
ELEV	ELEVATION	SQ	SQUARE
EMBED	EMBEDDED / EMBEDMENT	STD	STANDARD
ENGR	ENGINEER	STIFF	STIFFENER
EOD	EDGE OF DECK	STIRR	STIRRUP(S)
EOS	EDGE OF SLAB	STL	STEEL
EQ	EQUAL	STR	STRUCTURAL
EQUIP	EQUIPMENT	T/	TOP
EW	EACH WAY	TCX	TOP CHORD EXTENSION
EXIST	EXISTING	TOC	TOP CHORD CONCRETE
EXP	EXPANSION	TOF	TOP OF FOOTING
EXT	EXTERIOR	TOS	TOP OF STEEL
FDN	FOUNDATION	TOW	TOP OF WALL
FEE	FINISHED FLOOR ELEVATION	TYP	TYPICAL
FOM	FACE OF MASONRY	UNO	UNLESS NOTED OTHERWISE
FOW	FACE OF WALL	VERT	VERTICAL
FS	FAR SIDE	VIF	VERIFY IN FIELD
FTG	FOOTING	W/	WITH
GA	GAUGE	WWF	WELDED WIRE FABRIC
GALV	GALVANIZED	WP	WORK POINT
GT	GIRDER TRUSS		

SYMBOL LEGEND	
SYMBOL	MEANING
	SPOT ELEVATION. ELEVATION RELATIVE TO REFERENCE ELEVATION.
<No>	TOP OF FOOTING, GRADE BEAM, PILE CAP, OR DRILLED PIER. ELEVATION RELATIVE TO REFERENCE ELEVATION.
	STEP IN TOP OF FOOTING ELEVATION. SEE "TYPICAL STEP IN WALL FOOTING" DETAIL. ELEVATION RELATIVE TO REFERENCE ELEVATION.
	DEPRESSED OR RAISED SLAB ELEVATION. SEE "TYPICAL STEP IN SLAB ON GRADE" DETAIL. ELEVATION RELATIVE TO REFERENCE ELEVATION.
[No]	TOP OF WALL OR PEDESTAL. ELEVATION RELATIVE TO REFERENCE ELEVATION.
(No) [+No]	TOP OF STEEL/JOIST BEARING ELEVATION TOP OF STEEL ABOVE STEEL/JOIST BEARING ELEVATION.
	SLOPED STEPPED SLAB.
F#	SPREAD FOOTING TYPE, SEE SCHEDULE.
P#	CONCRETE PEDESTAL TYPE, SEE SCHEDULE.
PC#	PILE CAP TYPE, SEE SCHEDULE.
G# Wx D	CONCRETE GRADE BEAM TYPE, SEE SCHEDULE. "W" INDICATES BEAM WIDTH AND "D" INDICATES BEAM DEPTH (IN INCHES).
CB# Wx D	CONCRETE BEAM TYPE, SEE SCHEDULE. "W" INDICATES BEAM WIDTH AND "D" INDICATES BEAM DEPTH (IN INCHES).
CJ# Wx D	CONCRETE JOIST TYPE, SEE SCHEDULE. "W" INDICATES NOMINAL JOIST WIDTH AND "D" INDICATES JOIST DEPTH (IN INCHES).
PCB Wx D	PRECAST CONCRETE BEAM. "W" INDICATES ASSUMED BEAM WIDTH AND "D" INDICATES ASSUMED BEAM DEPTH (IN INCHES).
PT# Wx D	POST-TENSIONED CONCRETE BEAM TYPE, SEE SCHEDULE. "W" INDICATES BEAM WIDTH AND "D" INDICATES BEAM DEPTH (IN INCHES).
	STUD RAIL REINFORCING TYPE, SEE "ELEVATED SLABS STUD RAILS" DETAIL.
CSW#	CONCRETE SHEAR WALL TYPE, SEE SCHEDULE.
MP#	MASONRY PILASTER TYPE, SEE "TYPICAL MASONRY PILASTERS" DETAIL.
ML#	MASONRY LINTEL TYPE, SEE "TYPICAL LOAD BEARING LINTELS" DETAIL.
BP#	STEEL BEARING PLATE TYPE, SEE "TYPICAL STEEL BEAM BEARING" DETAIL.
MSW#	MASONRY SHEAR WALL TYPE, SEE SCHEDULE.
	SPAN DIRECTION OF METAL ROOF DECK, SEE "TYPICAL 1 1/2" METAL ROOF DECK" DETAIL. CONSTRUCTION SHALL BE 1 1/2"-22GA METAL ROOF DECK.
	SPAN DIRECTION OF METAL ROOF DECK, SEE "TYPICAL 3" METAL ROOF DECK" DETAIL. CONSTRUCTION SHALL BE 3"-18GA METAL ROOF DECK.
	SPAN DIRECTION OF COMPOSITE SLAB, SEE "TYPICAL COMPOSITE SLAB" DETAIL. CONSTRUCTION SHALL BE 3 1/4" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE METAL DECK (5 1/4" TOTAL THICKNESS). TOP OF STEEL ELEVATION 5 1/4" BELOW FINISHED FLOOR ELEVATION, UNO.
	SPAN DIRECTION OF COMPOSITE SLAB, SEE "TYPICAL COMPOSITE SLAB" DETAIL. CONSTRUCTION SHALL BE 4 1/2" NORMAL WEIGHT CONCRETE ON 2"-20GA COMPOSITE METAL DECK (6 1/2" TOTAL THICKNESS). TOP OF STEEL ELEVATION 6 1/2" BELOW FINISHED FLOOR ELEVATION, UNO.
W10	COMPOSITE W10x15 STEEL BEAM WITH HEADED STUDS @24"OC.
W12	COMPOSITE W12x16 STEEL BEAM WITH HEADED STUDS @24"OC.
V#, M#, L#, A#, T#, TF#	STEEL BEAM DESIGN END REACTIONS (WHERE APPLICABLE). "V" INDICATES VERTICAL SHEAR, "M" INDICATES BENDING MOMENT, "L" INDICATES LATERAL SHEAR, "A" INDICATES AXIAL TENSION/COMPRESSION, "T" INDICATES TORSION, AND "TF" INDICATES TRANSFER FORCE THROUGH CONNECTION ON BOTH SIDES OF FRAMING JOINT. ALL LOADS ARE FACTORED FOR STRENGTH DESIGN IN UNITS OF KIP AND KIP-FT. ALL LOADS SHALL BE CONSIDERED REVERSIBLE, UNO.
	STEEL BEAM MOMENT CONNECTION.
	VERTICAL FRAME TYPE, SEE ELEVATIONS.
SSW#	METAL STUD SHEAR WALL TYPE, SEE SCHEDULE.
C#	WOOD COLUMN TYPE, SEE SCHEDULE. ALL COLUMNS ARE TO BE EXTENDED TO THE FOUNDATION WHETHER SHOWN ON PLAN OR NOT.
H#	WOOD HEADER TYPE, SEE SCHEDULE.
WSW#	WOOD SHEAR WALL TYPE, SEE SCHEDULE.

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01/10/2025

Drawn: LWW
Checked: TWM
Date: 01/10/2025

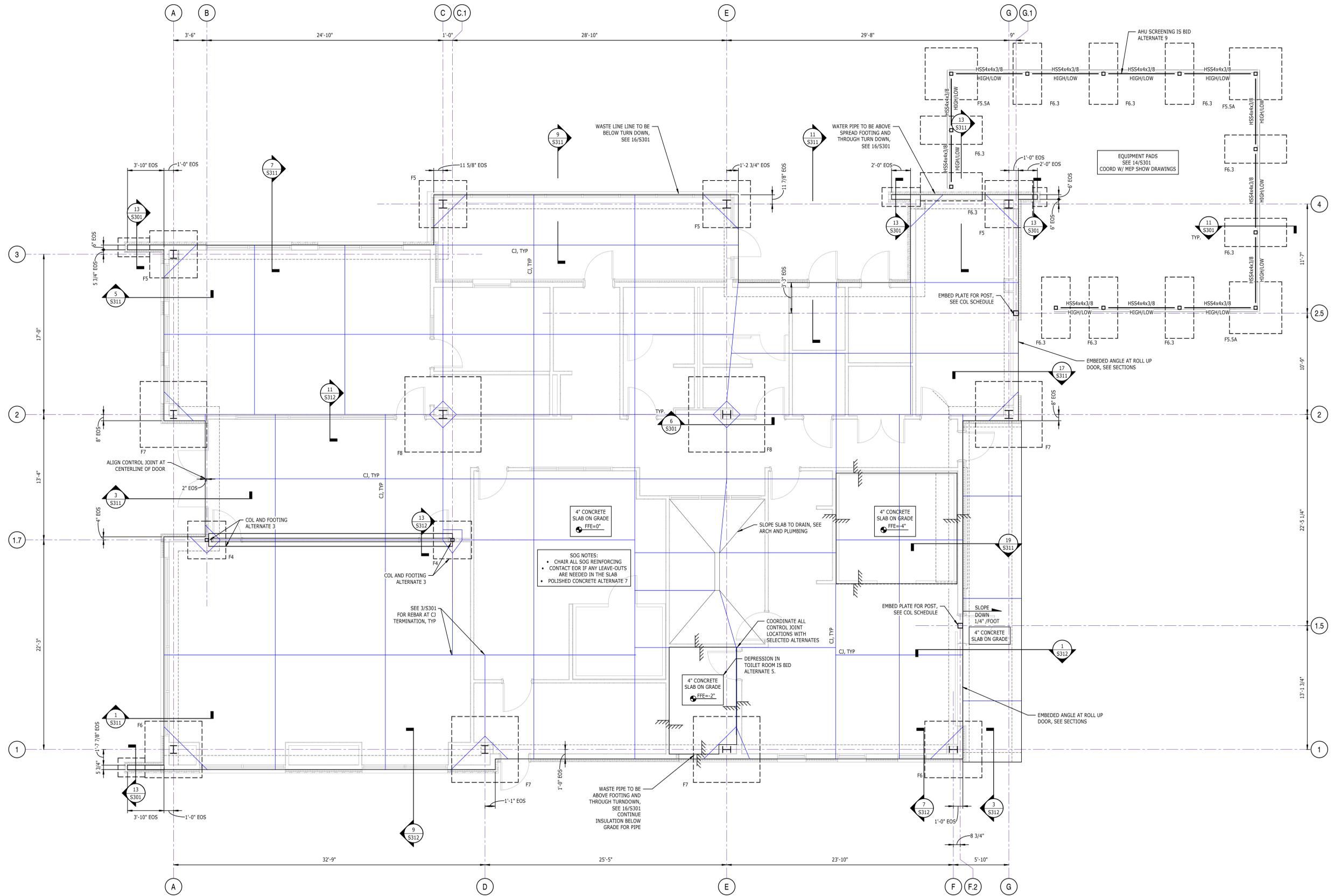
Revisions

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Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number: 132
Title:
ABBREVIATIONS AND SYMBOL LEGEND

Sheet:
S002
Plate



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01/10/2025

Drawn	LWW
Checked	TWM
Date	01/10/2025
Revisions	

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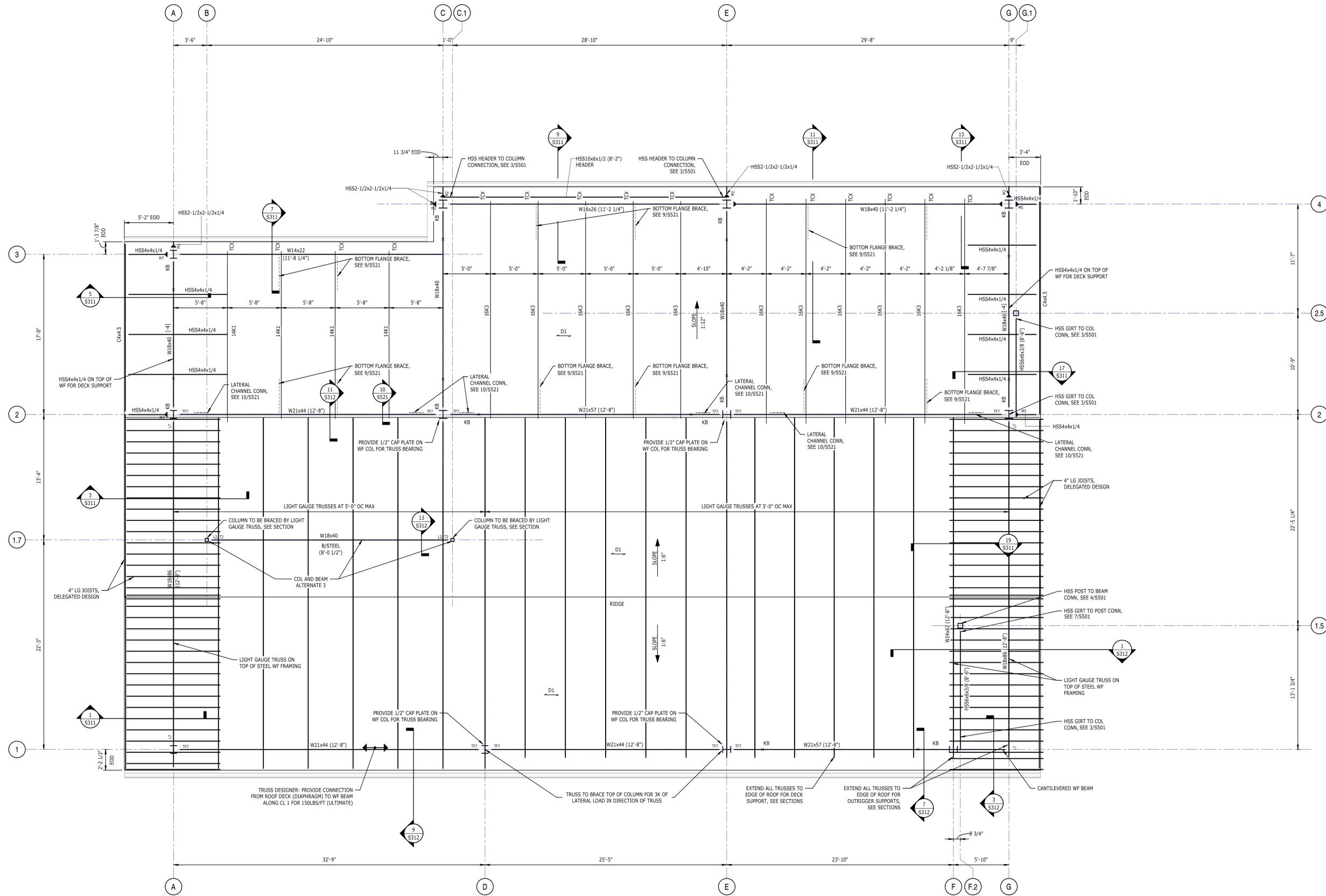
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 Code: 42124 Item: 315
 NCSU: 202220007

Project Number 132
 Title **FOUNDATION PLAN**

Sheet **S101**
 Plate

- 1 FOUNDATION PLAN**
 1/4" = 1'-0"
- FOUNDATION PLAN NOTES:**
- SEE S001 & S002 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOL LEGEND.
 - REFERENCE FINISHED FLOOR ELEVATION 0'-0". ACTUAL ELEVATION IS 352.50'
 - SEE S301 FOR TYPICAL SLAB CONSTRUCTION DETAILS.
 - SEE S501 FOR STEEL COLUMN SCHEDULE.
 - TOP OF FOOTING ELEVATION 2'-0" BELOW FINISHED FLOOR ELEVATION, UNO.
 - SLOPE EXTERIOR SLABS, SIDEWALKS, AND PAVING AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
 - ALTERNATE 7 - POLISHED CONCRETE (UNPOLISHED BASE BID).

MARK	SIZE			REINFORCEMENT (EACH WAY)	
	WIDTH	LENGTH	DEPTH	TOP	BOTTOM
F4	4'-0"	4'-0"	1'-0"	NA	(5)#5
F5	5'-0"	5'-0"	1'-2"	NA	(6)#5
F5.5A	5'-6"	5'-6"	1'-6"	#5@12 OC	#5@12 OC
F6	6'-0"	6'-0"	1'-2"	NA	(7)#5
F6.3	3'-0"	6'-6"	1'-6"	#5@12 OC	#5@12 OC
F7	7'-0"	7'-0"	1'-3"	NA	(8)#7
F8	8'-0"	8'-0"	1'-3"	NA	(9)#5



1 ROOF FRAMING PLAN
1/4" = 1'-0"

- ROOF FRAMING PLAN NOTES:
- SEE S001 & S002 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOL LEGEND.
 - "KB" INDICATES KNEE BRACE, SEE S251.
 - SEE S521 FOR TYPICAL STEEL ROOF FRAMING DETAILS.
 - SEE S501 FOR STEEL COLUMN SCHEDULE.
 - DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING, UNO. REFER TO ARCHITECTURAL DRAWINGS FOR ALL WALL LOCATIONS AND DIMENSIONS.
 - SEE ARCHITECTURAL DRAWINGS FOR ALL ROOF SLOPES.

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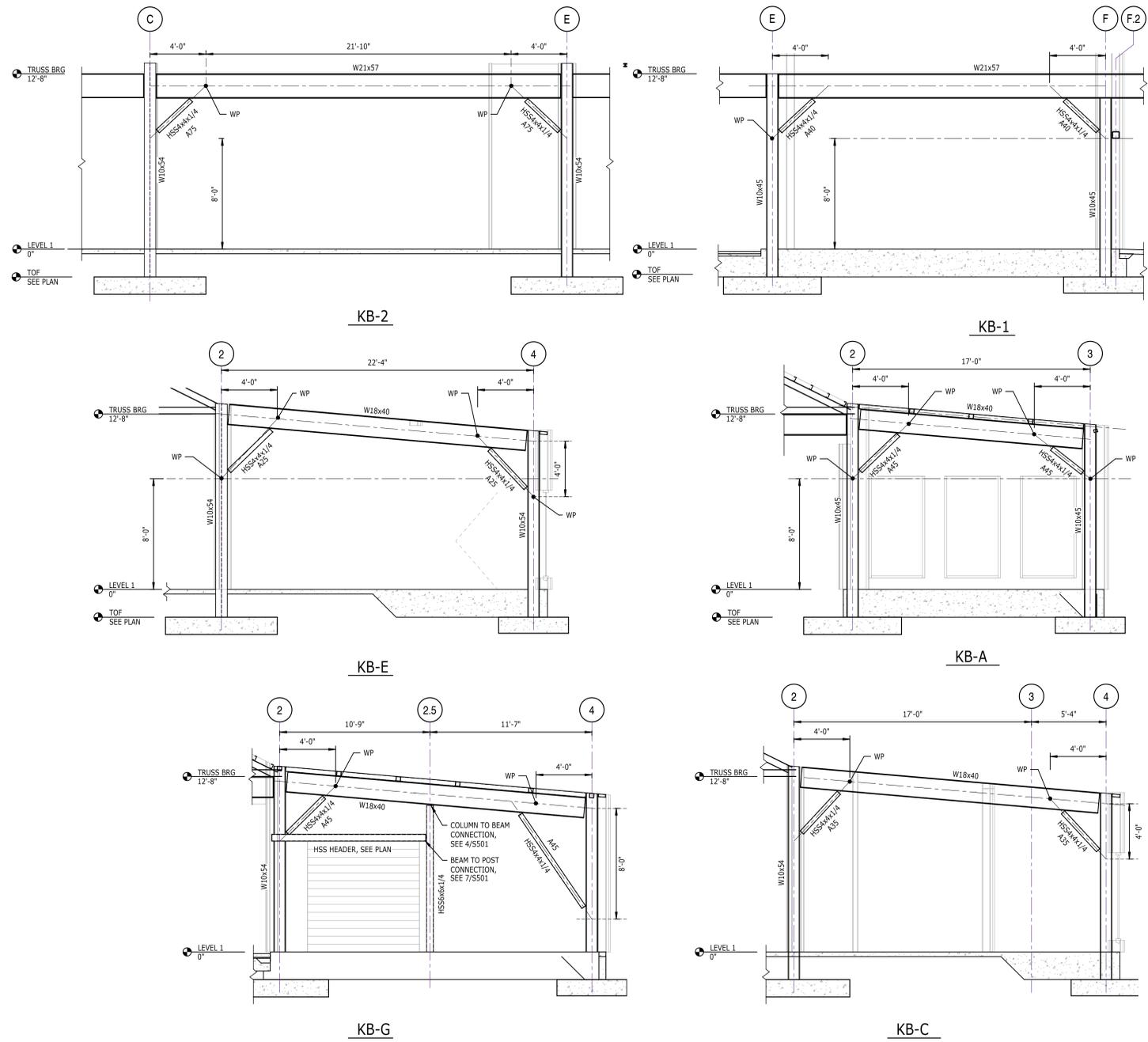
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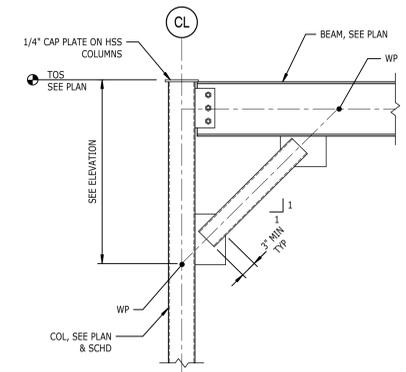
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 Code: 42124 Item: 315
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- NOTES:
 1. CENTROIDS OF MEMBERS SHALL COINCIDE, UNO.
 2. FABRICATOR SHALL DESIGN ALL BEAM TO COLUMN CONNECTIONS WITHIN VERTICAL FRAME TO SUPPORT THE HORIZONTAL AND VERTICAL COMPONENTS OF THE BRACE FORCE SHOWN ON THE ELEVATION.
 ALLOWABLE STRESS INCREASES OR LOAD REDUCTIONS ARE NOT PERMITTED.

1 VERTICAL FRAME & KNEE BRACE ELEVATIONS
 S251 NTS



4 TYPICAL KNEE BRACE
 S251 3/4" = 1'-0"



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 Code: 42124 Item: 315
 NCSU: 20222007

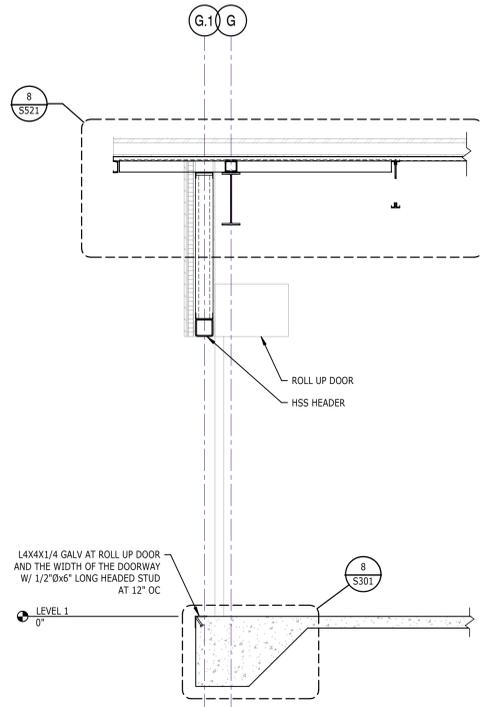
Project Number: 132

Title:
VERTICAL FRAME ELEVATIONS AND DETAILS

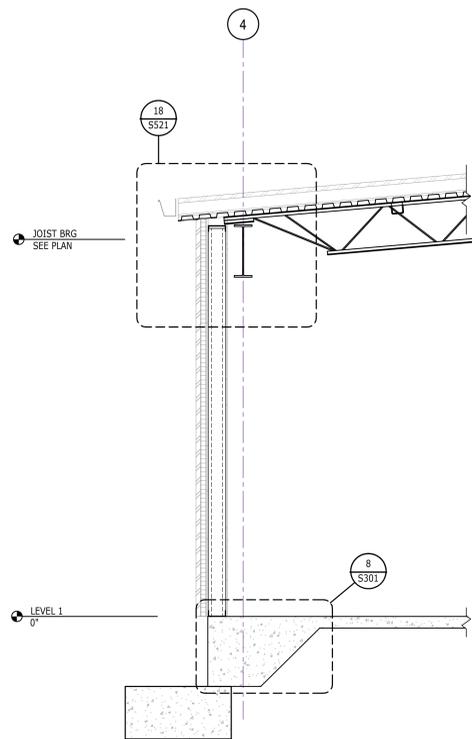
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S251

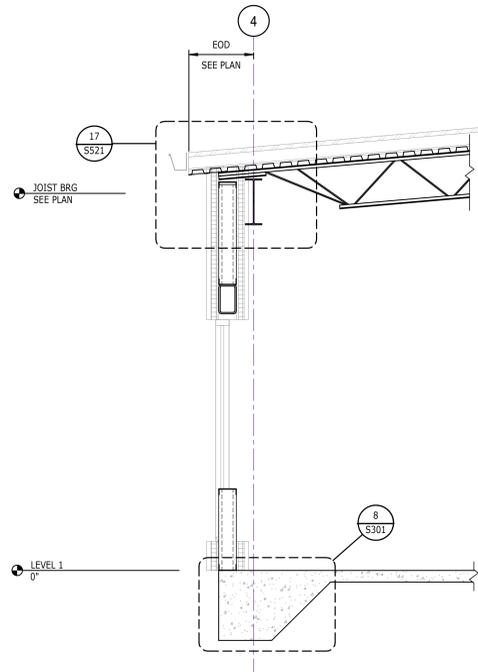
Plate



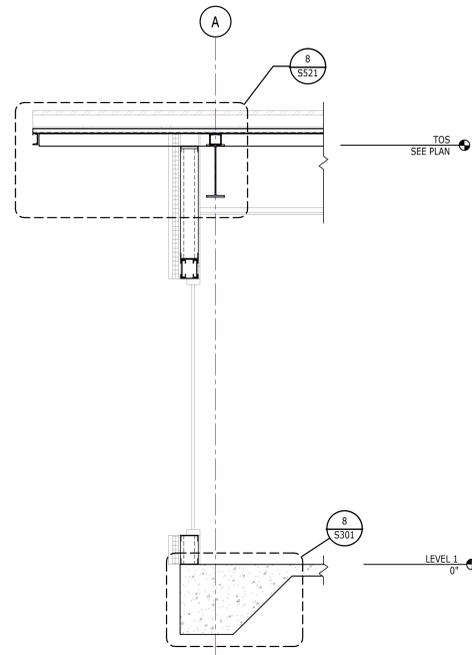
17 SECTION
S311 1/2" = 1'-0"



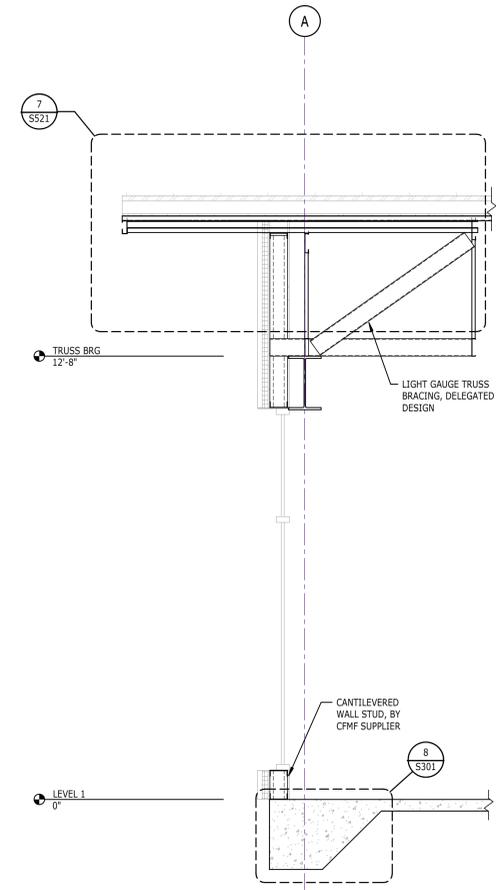
13 SECTION
S311 1/2" = 1'-0"



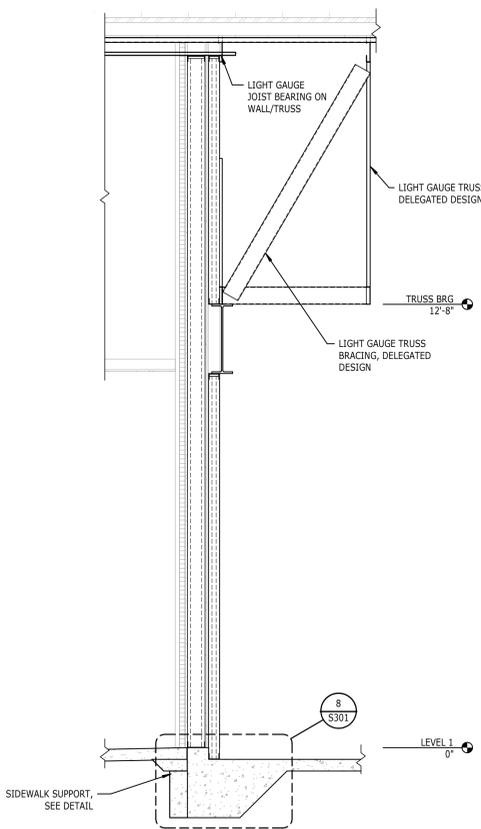
9 SECTION
S311 1/2" = 1'-0"



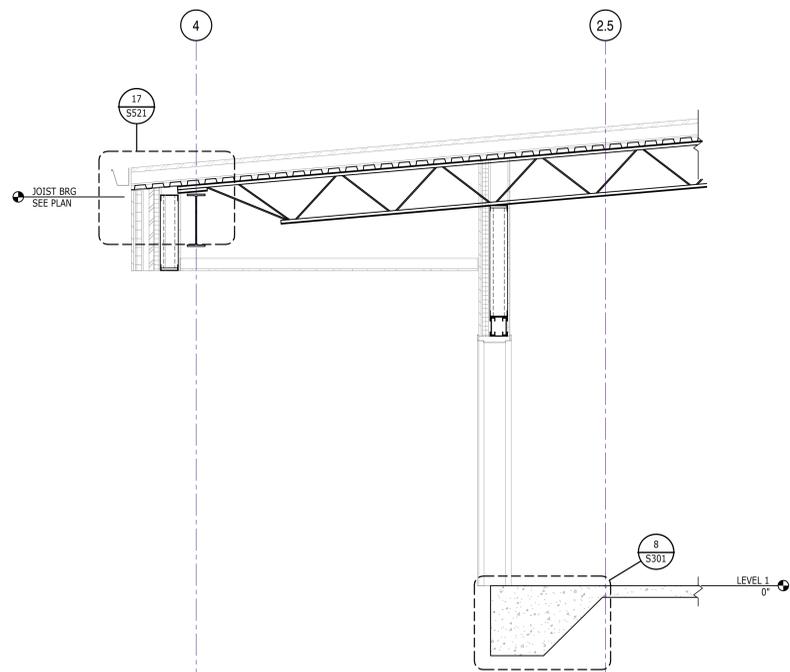
5 SECTION
S311 1/2" = 1'-0"



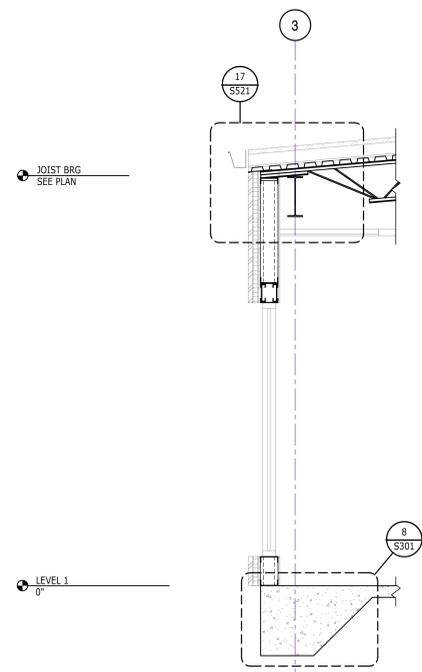
1 SECTION
S311 1/2" = 1'-0"



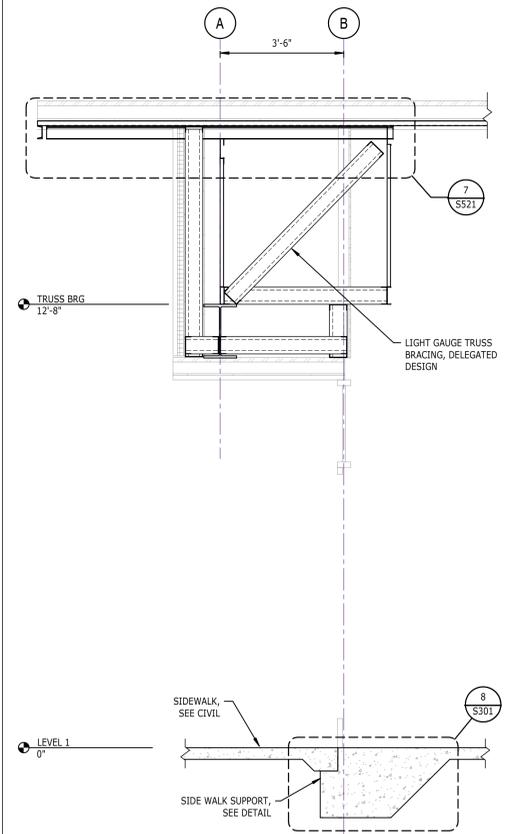
19 SECTION
S311 1/2" = 1'-0"



11 SECTION
S311 1/2" = 1'-0"



7 SECTION
S311 1/2" = 1'-0"



3 SECTION
S311 1/2" = 1'-0"



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BID SET



01/10/2025

Drawn: LWW

Checked: TWM

Date: 01/10/2025

Revisions

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NCSU Apiculture Facility

Raleigh, NC

SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

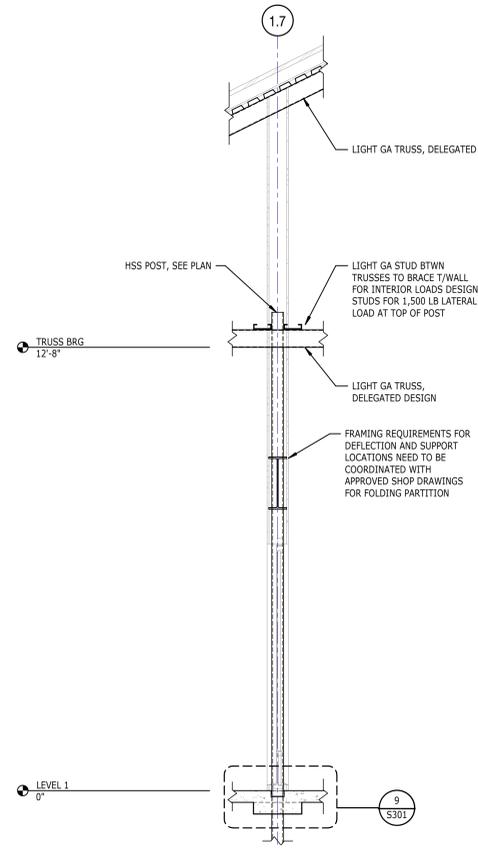
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SECTIONS

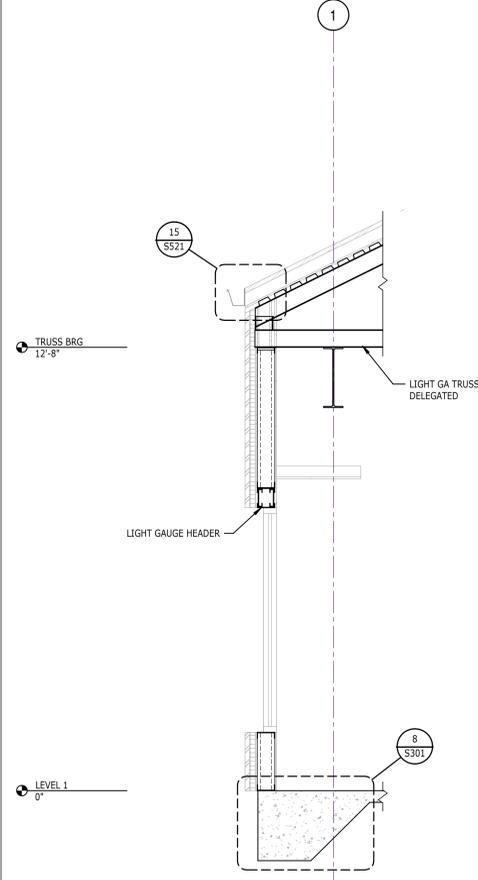
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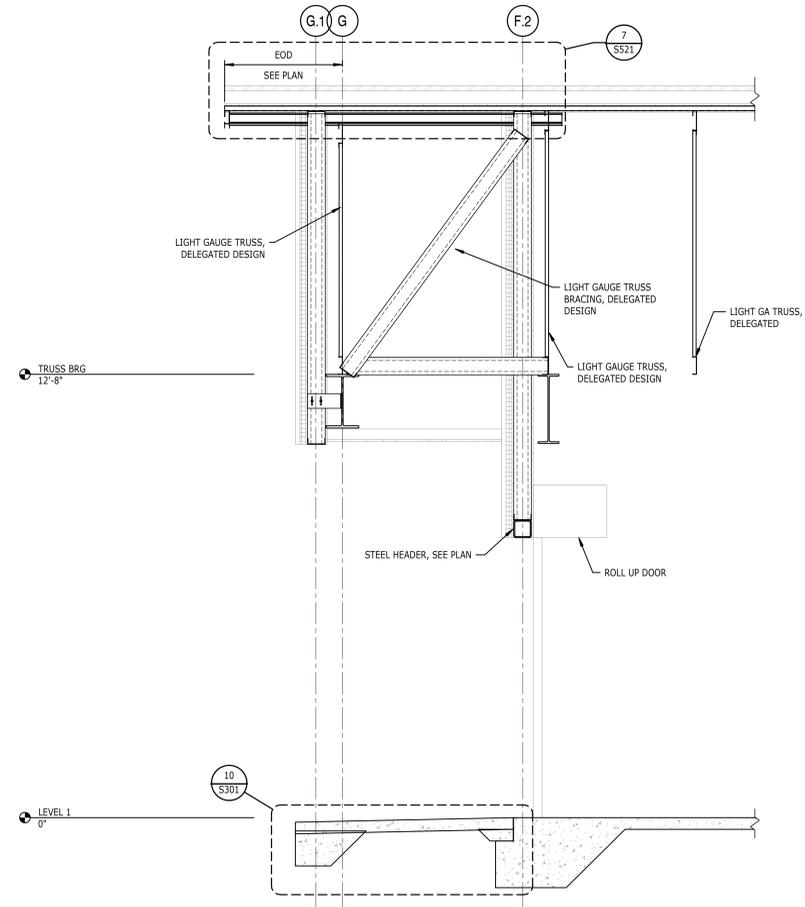
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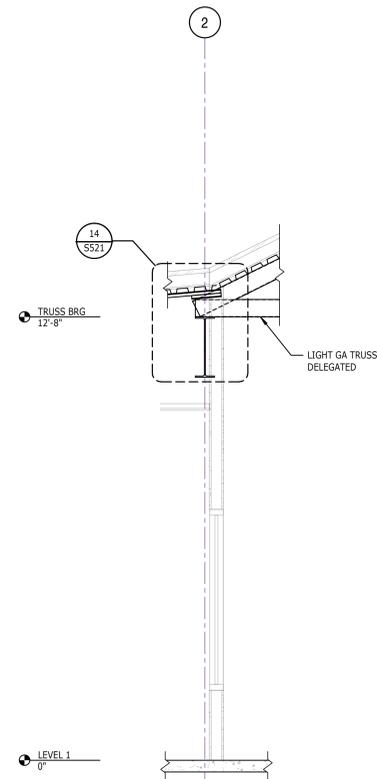
13 SECTION
S312 1/2" = 1'-0"



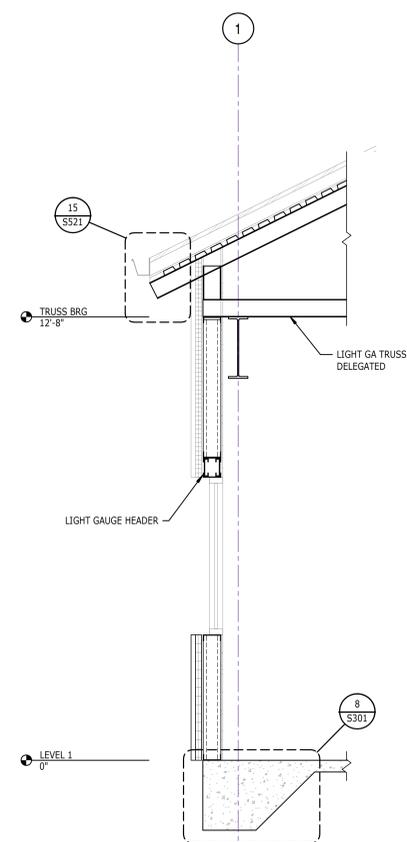
9 SECTION
S312 1/2" = 1'-0"



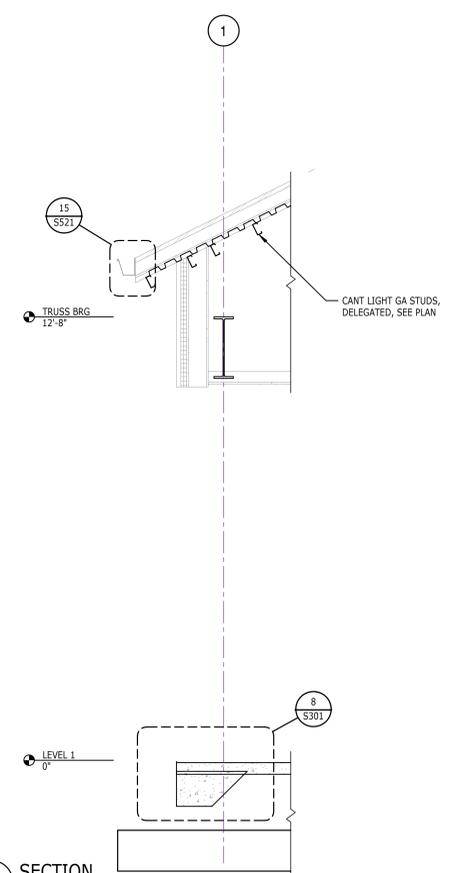
1 SECTION
S312 1/2" = 1'-0"



11 SECTION
S312 1/2" = 1'-0"



7 SECTION
S312 1/2" = 1'-0"



3 SECTION
S312 1/2" = 1'-0"



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NCSU: 202220007

Project Number 132

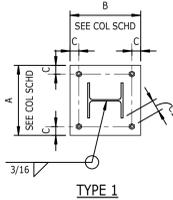
Title
SECTIONS

Sheet

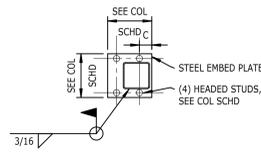
S312

Plate

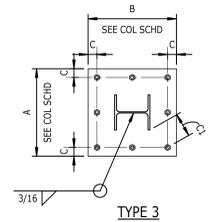
STEEL COLUMN SCHEDULE												
TRUSS BRG												TRUSS BRG
12'-8"												12'-8"
LEVEL 1	W10x33	W10x45	W10x45	HSS4x4x3/8	W10x54	W10x54	W10x45	W10x54	W10x45	HSS6x6x1/4	HSS6x6x1/4	LEVEL 1
0"												0"
Column Locations	A-1, D-1	A-2	A-3	B-1.7, C.1-1.7	C-2	C-4, E-4, G-4	E-1	E-2, G-2	F-1	F.2-1.5	G.1-2.5	



TYPE 1

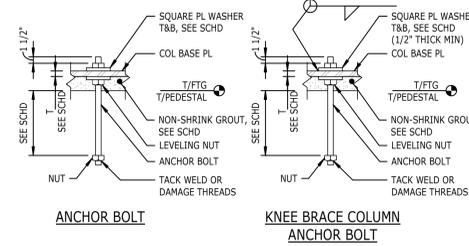


TYPE 2



TYPE 3

STEEL COLUMN BASE PLATE SCHEDULE						
LOCATION	SIZE	BASE PLATE SIZE	ANCHOR BOLTS	PATTERN TYPE	EMBEDMENT DEPTH	
A-1	W10x33	1'x16"x16"	(4)3/4"Ø	1	9"	
A-2	W10x45	1'x18"x18"	(8)1"Ø	3	9"	
A-3	W10x45	1'x18"x18"	(8)1"Ø	3	9"	
B-1.7	HSS4x4x3/8	1'x10"x10"	(4)3/4"Ø	1	7"	
C-2	W10x54	1'x18"x18"	(8)1"Ø	3	9"	
C-4	W10x54	1'x18"x18"	(8)1"Ø	3	9"	
C.1-1.7	HSS4x4x3/8	1'x10"x10"	(4)3/4"Ø	1	7"	
D-1	W10x33	1'x16"x16"	(4)3/4"Ø	1	9"	
E-1	W10x45	1'x18"x18"	(8)1"Ø	3	9"	
E-2	W10x54	1'x18"x18"	(8)1"Ø	3	9"	
E-4	W10x54	1'x18"x18"	(8)1"Ø	3	9"	
F-1	W10x45	1'x18"x18"	(8)1"Ø	3	9"	
F.2-1.5	HSS6x6x1/4	1/2"x10"x10"	(4)3/4"Ø	2	6"	
G-2	W10x54	1'x18"x18"	(8)1"Ø	3	9"	
G-4	W10x54	1'x18"x18"	(8)1"Ø	3	9"	
G.1-2.5	HSS6x6x1/4	1/2"x10"x10"	(4)3/4"Ø	2	6"	



ANCHOR BOLT

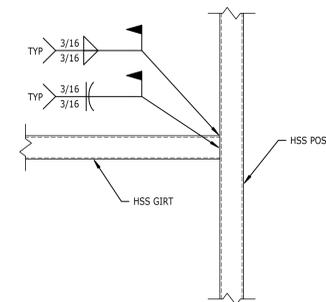
KNEE BRACE COLUMN ANCHOR BOLT

BOLT SIZE	3/4"Ø	1"Ø
BOLT GRADE	36 KSI	36 KSI
DIMENSION "C"	1 1/2"	2"
SQUARE PL WASHER SIZE	1/4"x2"	3/8"x3"
GROUT THICKNESS	2"	2"
TIGHTENING CLEARANCE "C1"	1 3/16"	1 3/8"

NOTE:
1. "C1" DIMENSION IS MINIMUM FOR BASE PLATE SIZE. DETAILER TO LAYOUT ANCHOR BOLTS BASED ON "C" DIMENSION FROM EDGE OF BASE PLATE DIMENSION IN COLUMN SCHEDULE.

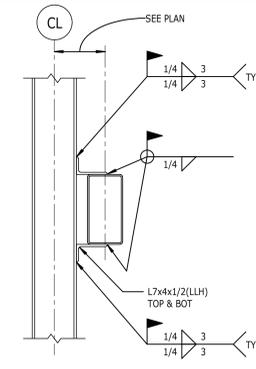
1 STEEL COLUMN BASE PLATE SCHEDULE

S501 NTS



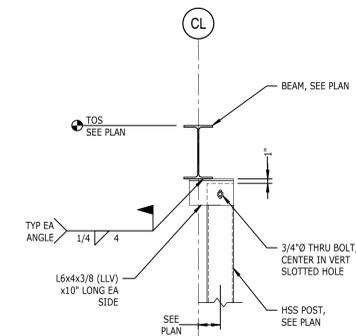
7 HSS GIRT TO HSS COL CONNECTION

S501 NTS



3 HSS TO COLUMN CONNECTION

S501 NTS



NOTES:
1. DO NOT WELD CLIP ANGLES TO HSS POST.

4 HSS TO BEAM CONNECTION

S501 NTS

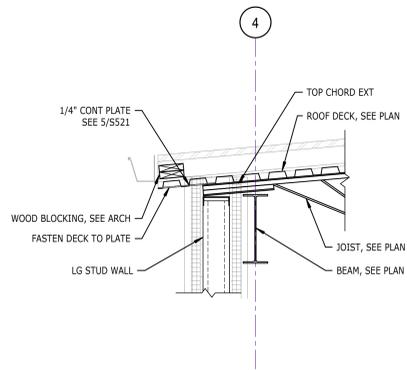
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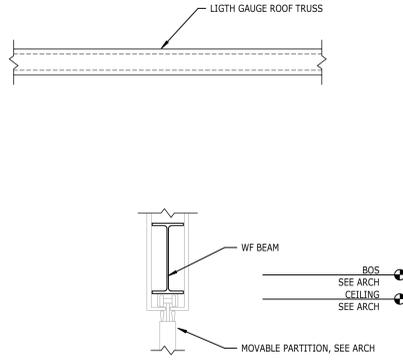
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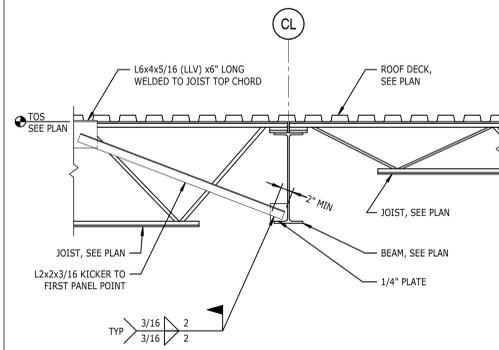
Revisions



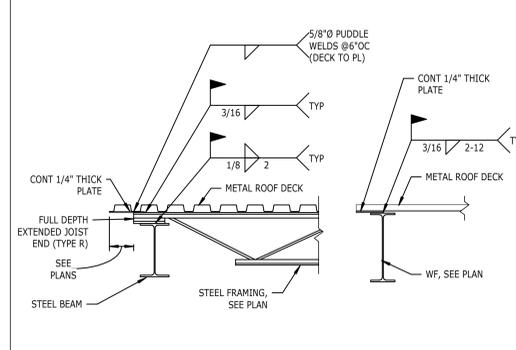
17 TYPICAL LOW ROOF EDGE SECTION
S521 3/4" = 1'-0"



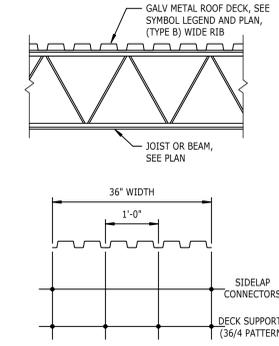
13 TYPICAL MOVABLE PARTITION SECTION
S521 3/4" = 1'-0"



9 TYPICAL BEAM BOTTOM FLANGE BRACING
S521 NTS



5 TYPICAL EDGE OF DECK
S521 NTS

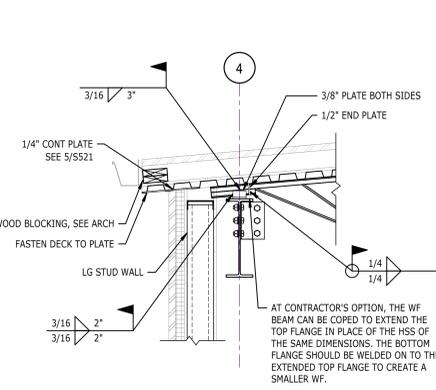


ROOF DECK ATTACHMENT DETAIL

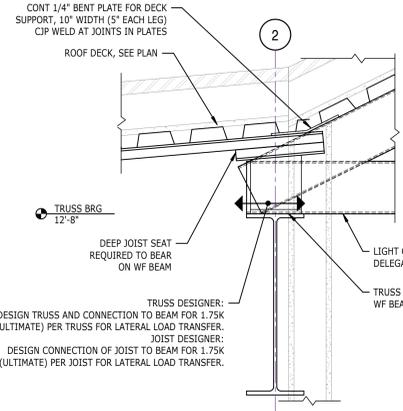
- NOTES:
- ATTACH DECK TO SUPPORTING MEMBERS WITH SELF-DRILLING SELF-TAPPING HEX WASHER HEAD SCREWS, USE #12-24 FOR DECK ATTACHMENT TO SUPPORTS AND #10-16 FOR SIDELAP ATTACHMENT.
 - AT DECK BEARING SUPPORTS, PROVIDE SCREWS @12"OC (36/4 PATTERN).
 - AT SUPPORTS PARALLEL TO DECK SPAN, PROVIDE SCREWS @12"OC, TYPICAL.
 - AT DECK SIDELAPS/PERIMETER EDGE, PROVIDE SCREWS @12"OC, TYPICAL. WELDING OF SIDELAPS IS NOT PERMITTED FOR 22GA DECK.
 - ALL DECK ENDS TO BE LAPED ON BOTH ENDS. DO NOT BUTT JOINTS.
 - DECK SECTION MINIMUM PROPERTIES: SEE TABLE BELOW.
 - DECK SHALL BE CONTINUOUS OVER (2) OR MORE SPANS, TYPICAL.
 - 5/8"Ø PUDDLE WELDS MAY BE USED FOR DECK ATTACHMENT TO SUPPORTS AT SAME SPACING SPECIFIED ABOVE. SIDELAP FASTENING MUST BE SCREENED AS DESCRIBED ABOVE.
 - CONTRACTOR OPTION TO SUBMIT MECHANICAL FASTENERS BY HILTI, SIMPSON STRONG-TIE, OR APPROVED EQUAL. SUBSTITUTION REQUESTS FOR PRODUCTS MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD (EOR) FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS THAT MEET THE CODE REQUIREMENTS FOR DECK ATTACHMENT, POSSESS A FM GLOBAL APPROVAL AND POSSESS A CODE REPORT (ICC-ES) RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES OF THE DESIGN BASIS PRODUCT. CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR PRODUCT INSTALLATION TRAINING AND A LETTER SHALL BE SUBMITTED TO THE EOR INDICATING TRAINING HAS TAKEN PLACE. FASTENERS SHALL BE COLLATED AND INSTALLED USING THE MANUFACTURER'S DELIVERY TOOL AND FOLLOWING MANUFACTURER'S INSTRUCTIONS.

DECK TYPE	DESIGN THICKNESS (in)	DECK WEIGHT (psf)	I_x (in ⁴ /ft)	S_x (in ³ /ft)	I_y (in ⁴ /ft)	S_y (in ³ /ft)	V_x (lbs/ft)	F_y (ksi)
B24	0.0239	1.46	0.107	0.120	0.135	0.131	2634	60
B22	0.0295	1.78	0.155	0.186	0.183	0.192	1818	33
B20	0.0358	2.14	0.201	0.234	0.222	0.247	2193	33
B19	0.0418	2.49	0.246	0.277	0.260	0.289	2546	33
B18	0.0474	2.82	0.289	0.318	0.295	0.327	2870	33
B16	0.0598	3.54	0.373	0.408	0.373	0.411	3578	33

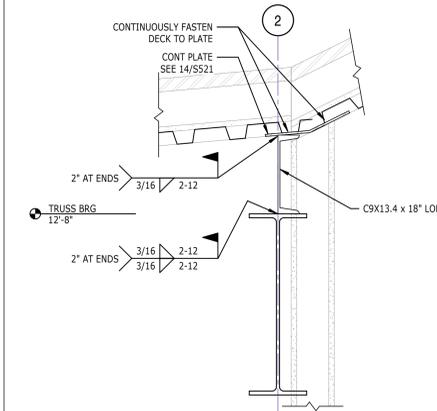
1 TYPICAL 1 1/2" METAL ROOF DECK
S521 NTS



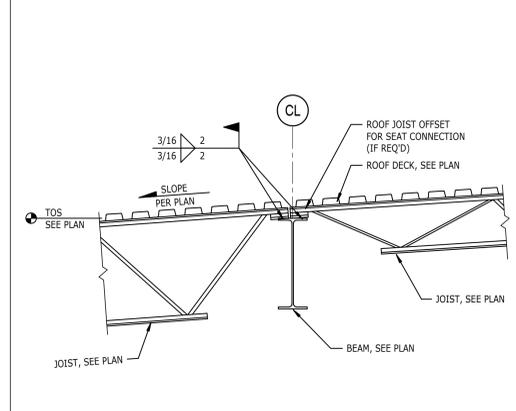
18 TYPICAL CANTILEVER HSS OVER ROOF BEAM
S521 3/4" = 1'-0"



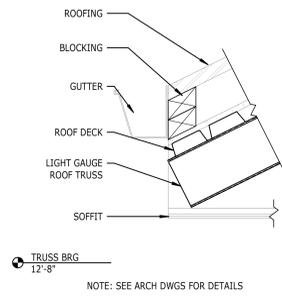
14 SECTION AT ROOF TRANSITION
S521 1 1/2" = 1'-0"



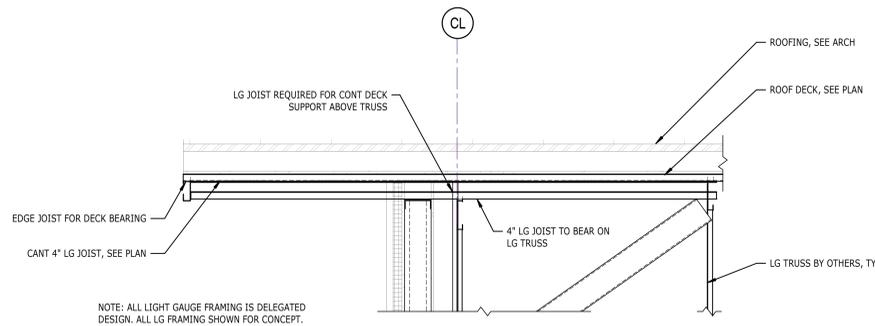
10 SECTION AT ROOF TRANSITION LATERAL CONN
S521 1 1/2" = 1'-0"



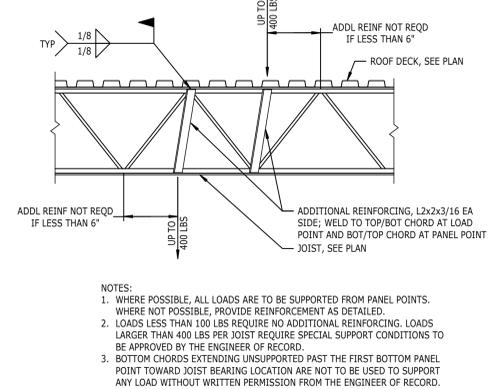
6 TYPICAL JOIST BEARING AT GIRDER
S521 NTS



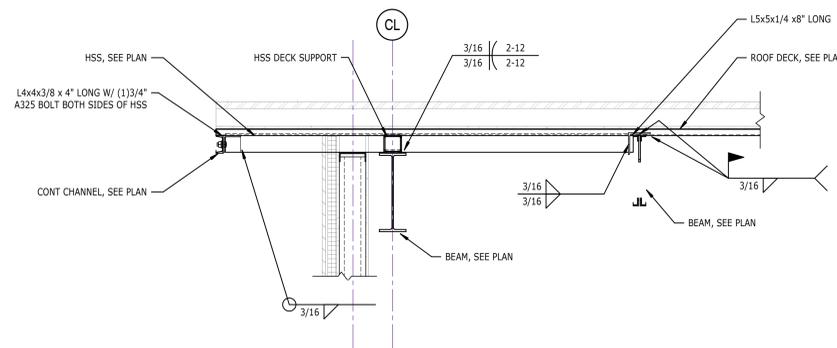
15 TYPICAL ROOF DECK EDGE AT TRUSS
S521 1 1/2" = 1'-0"



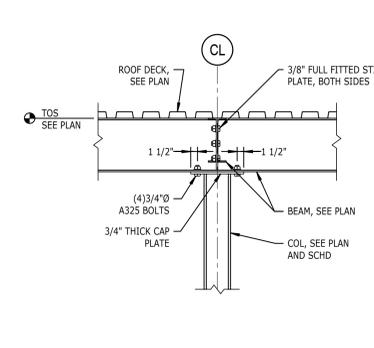
7 SECTION AT TYPICAL GABLE ROOF OVERHANG
S521 3/4" = 1'-0"



3 TYPICAL JOIST REINFORCING AT POINT LOADS
S521 NTS



8 SECTION AT TYPICAL LOW ROOF OVERHANG
S521 3/4" = 1'-0"



4 TYPICAL BEAM CANTILEVERED OVER COLUMN
S521 NTS

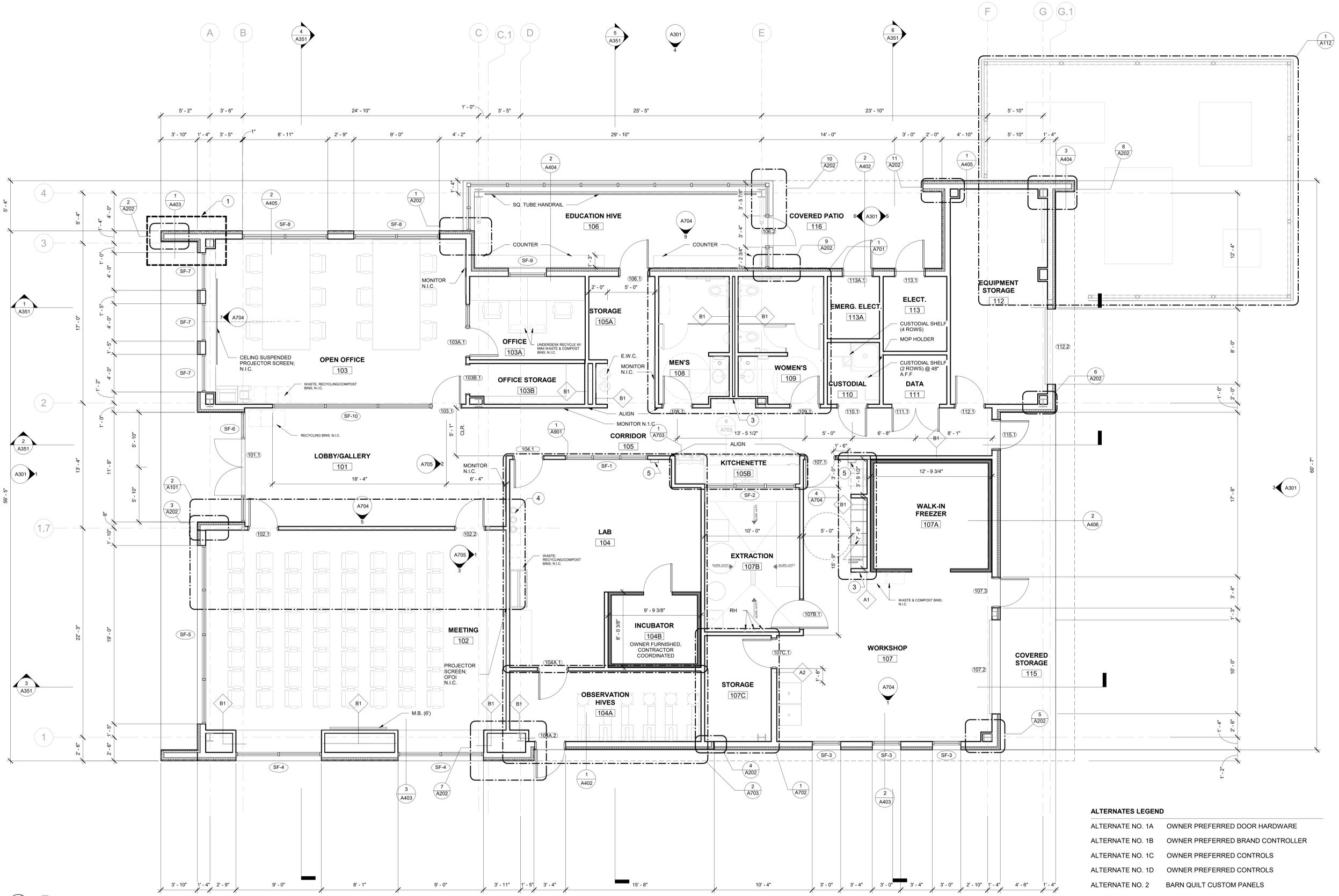
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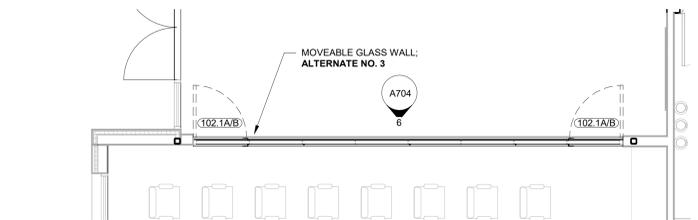
01/10/2025

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Date: 01/10/2025

Revisions



1 FLOOR PLAN - BASE BID
1/4" = 1'-0"



2 FLOOR PLAN - ALTERNATE NO. 3
1/4" = 1'-0"

GENERAL FLOOR PLAN NOTES

- DIMENSIONS ARE TO COLUMN CENTERLINES OR FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR TYPES AND THICKNESSES.
- ALL PARTITION TYPES ARE TO BE "A1" UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR TYPES AND THICKNESSES.
- SEE ENLARGED PLANS FOR PARTITION TYPES NOT SHOWN ON FLOOR PLAN.

GENERAL FLOOR PLAN LEGEND

(B1) PARTITION TYPE (SEE SHEET A201)

(101) DOOR NUMBER (SEE SHEET A251)

(SF-#) STOREFRONT TYPE

M.B. (#) MARKERBOARD (LENGTH)

NEW WORK KEYNOTES	
NUMBER	DESCRIPTION
1	INTEGRATED EXTERIOR MOCKUP TO INCLUDE WALL SYSTEM, FENESTRATION, FINISHES, ROOF AND SOFFIT
2	UNDER BASE BID, INFILL WITH 5/8" GYP. BD. ON 2 1/2" STUDS
3	RECESSED FIRE EXTINGUISHER CABINET
4	NEW WALL MOUNT CYLINDER RACK (USA SAFETY # GB401FS OR APPROVED EQUAL)
5	GLOVE DISPENSER

ALTERNATES LEGEND

ALTERNATE NO. 1A	OWNER PREFERRED DOOR HARDWARE
ALTERNATE NO. 1B	OWNER PREFERRED BRAND CONTROLLER
ALTERNATE NO. 1C	OWNER PREFERRED CONTROLS
ALTERNATE NO. 1D	OWNER PREFERRED CONTROLS
ALTERNATE NO. 2	BARN QUILT CUSTOM PANELS
ALTERNATE NO. 3	MOVEABLE GLASS WALL
ALTERNATE NO. 4	CERAMIC WALL TILE (BASE BID - HIGH PERFORMANCE COATING HPC-1)
ALTERNATE NO. 5	TOILET ROOM 107C (BASE BID - STORAGE ROOM 107C)
ALTERNATE NO. 6	EMERGENCY GENERATOR
ALTERNATE NO. 7	POLISHED CONCRETE (BASE BID - UNPOLISHED CONCRETE)
ALTERNATE NO. 8	FRP AND PVC ROLL PRODUCT FLOORING (BASE BID - HIGH PERFORMANCE COATING HPC-1 AND UNPOLISHED CONCRETE FLOOR CON-1)
ALTERNATE NO. 9	AHU SCREENING (BASE BID - OMIT SCREENING)
ALTERNATE NO. 10	EXISTING HOUSE & SEPTIC DEMOLITION
ALTERNATE NO. 11	LAB CASEWORK (BASE BID - OMIT LAB CASEWORK)

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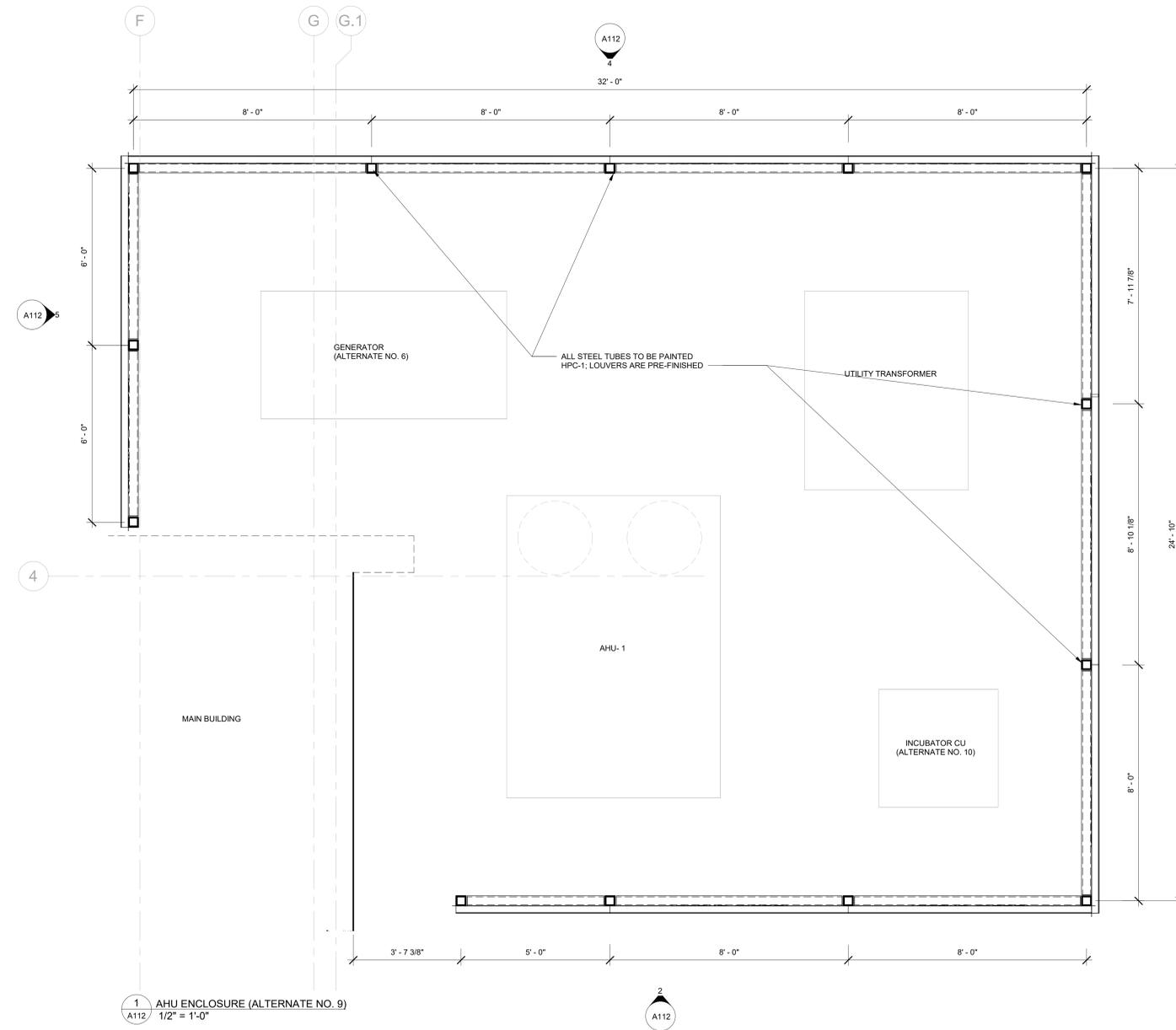
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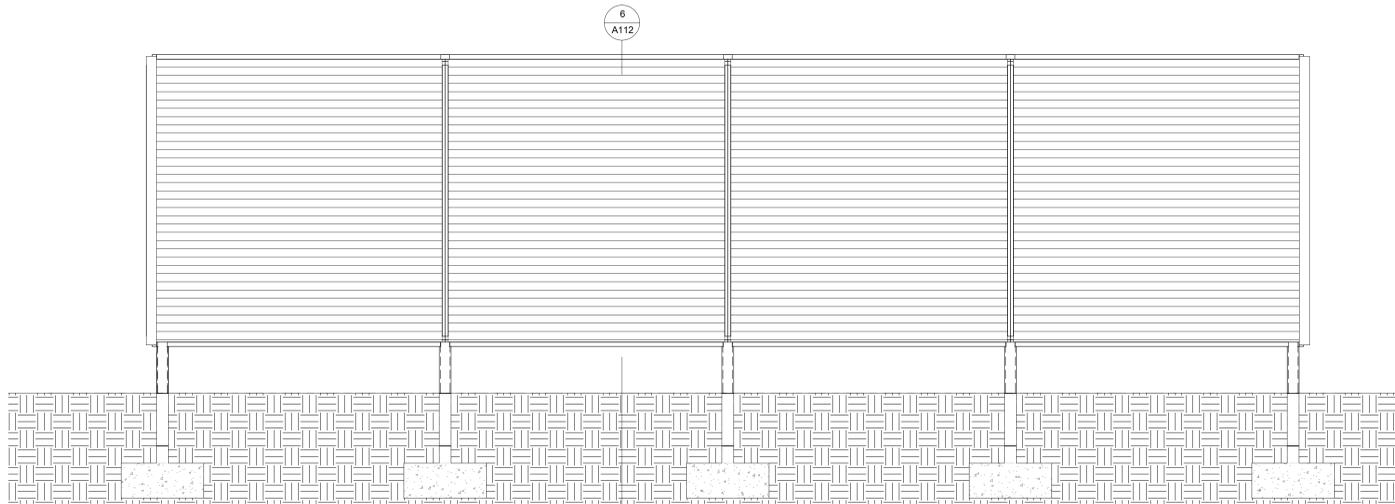
Project Number 132
Title

First Floor Plan

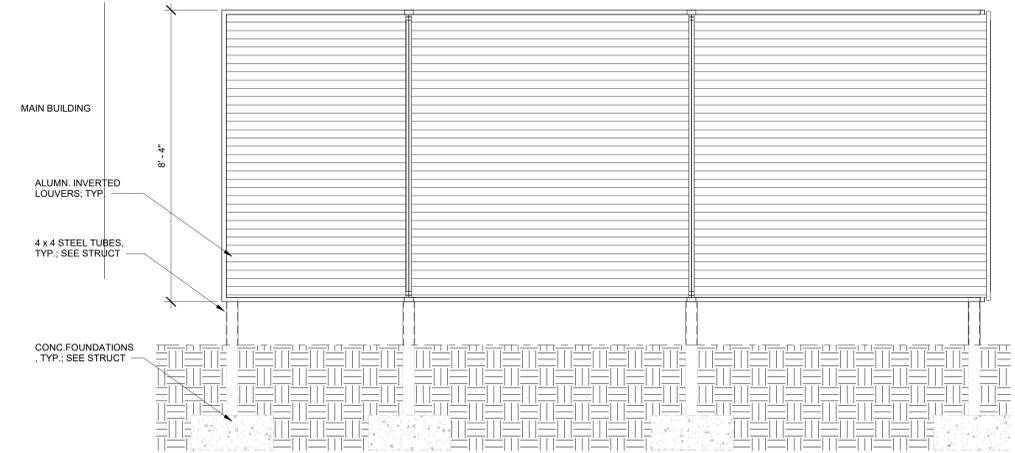
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A101
Plate



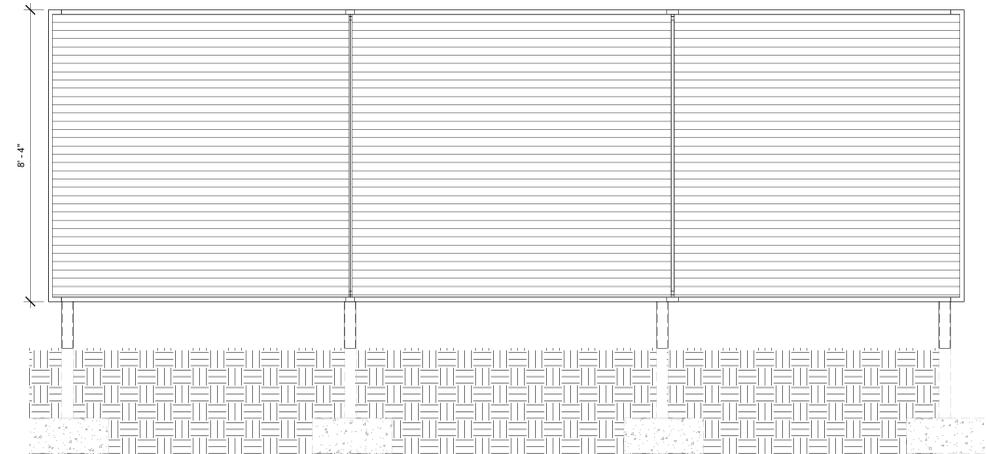
1 AHU ENCLOSURE (ALTERNATE NO. 9)
A112 1/2" = 1'-0"



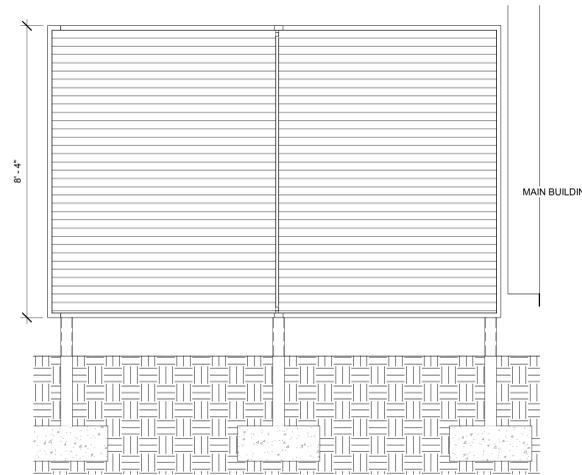
4 ELEVATION (ALTERNATE NO. 9)
A112 1/2" = 1'-0"



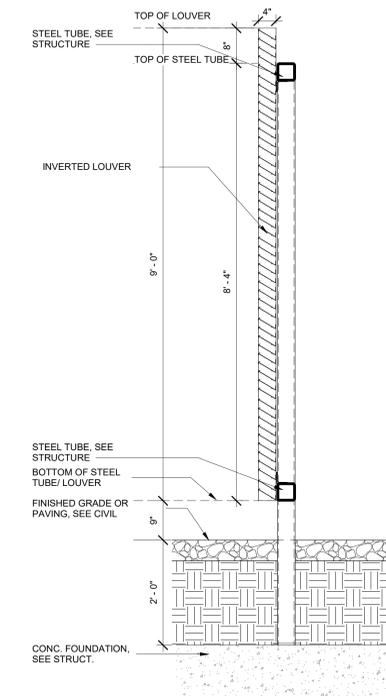
2 ELEVATION
A112 1/2" = 1'-0"



3 ELEVATION (ALTERNATE NO. 9)
A112 1/2" = 1'-0"



5 ELEVATION (ALTERNATE NO. 9)
A112 1/2" = 1'-0"

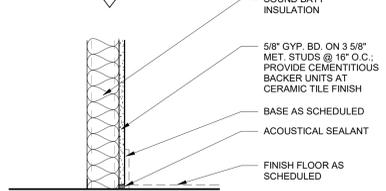
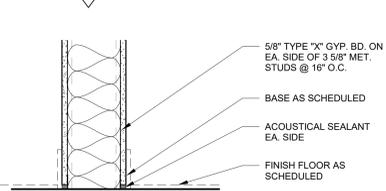
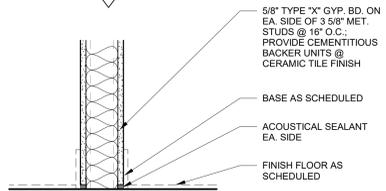
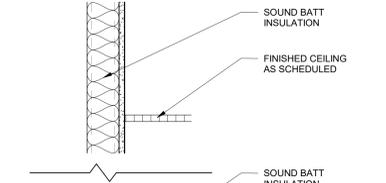
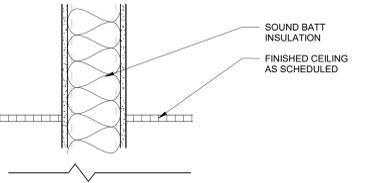
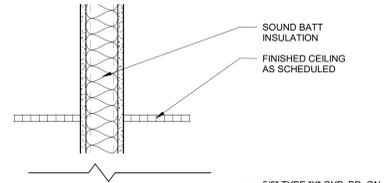
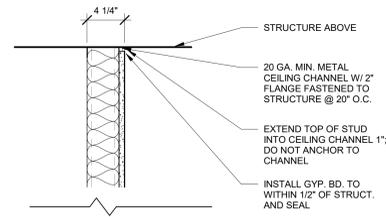
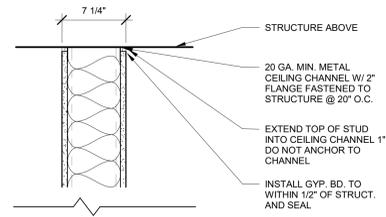
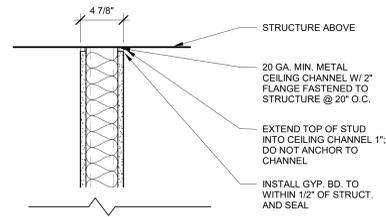


6 LOUVER DETAIL (ALTERNATE NO. 9)
A112 3/4" = 1'-0"



01.10.2025

Drawn	Author
Checked	Checker
Date	01/10/2025
Revisions	



TYPE "A1" NON-RATED PARTITION

STC RATING: 44

TYPE "A2" NON-RATED PARTITION: SAME AS "A1" EXCEPT USE 6\"/>

TYPE "A2" NON-RATED PARTITION

STC RATING: 44

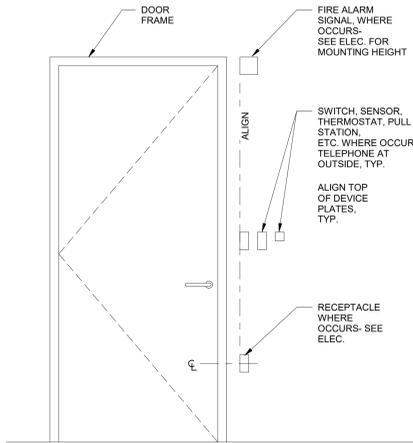
TYPE "B1" NON-RATED PARTITION

TYPE "B2" NON-RATED PARTITION: SAME AS B1 EXCEPT USE 1 5/8\"/>

LEGEND:

A1 PARTITION TYPE DESIGNATIONS AS INDICATED ON FLOOR PLANS

1 PARTITION TYPES
A201 1 1/2" = 1'-0"



2 TYPICAL DEVICE LOCATIONS
A201 3/4" = 1'-0"



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RMF Engineering
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Date 01/10/2025

Revisions

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NCSU Apiculture Facility
Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

Title
Partition Types

Sheet
A201

Plate



01.10.2025

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Date 01/10/2025
Revisions

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NCSU Apiculture Facility
Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 20222007

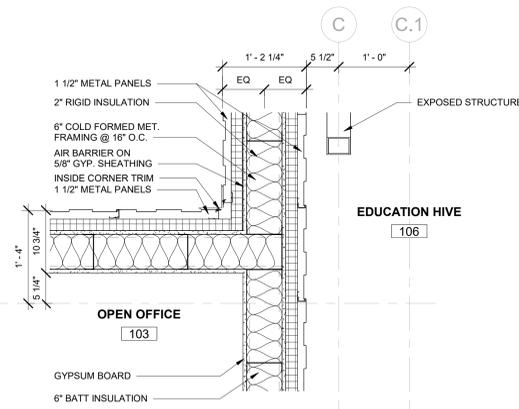
Project Number 132

Title
Plan Details

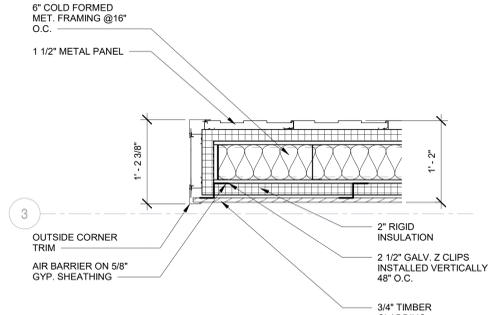
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A202

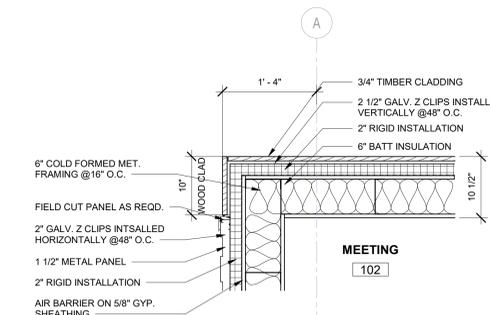
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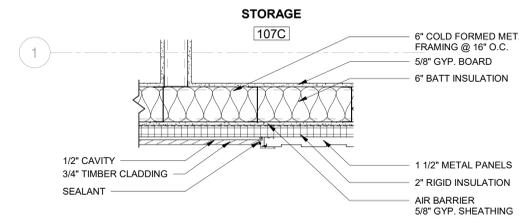
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A202 1" = 1'-0"



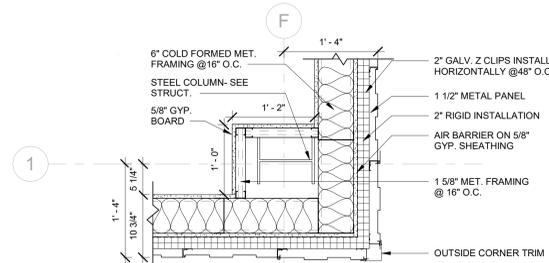
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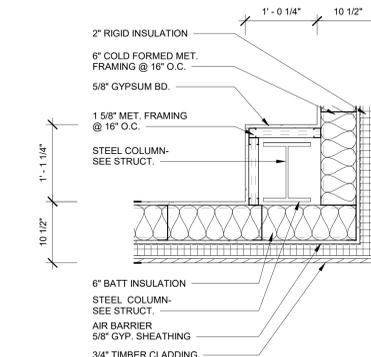
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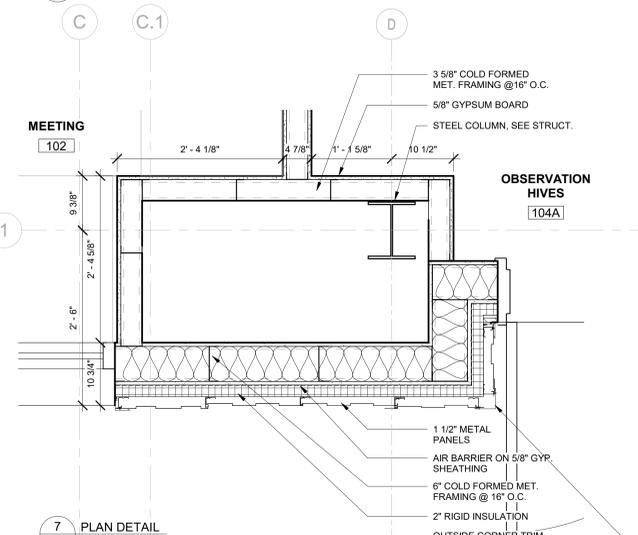
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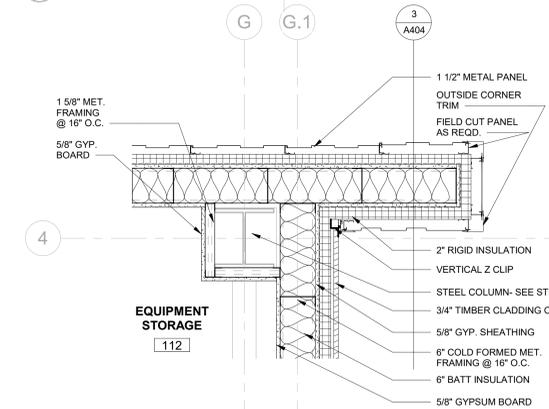
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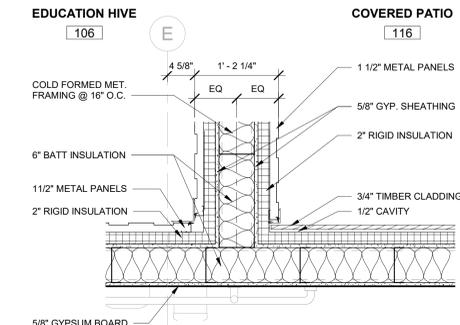
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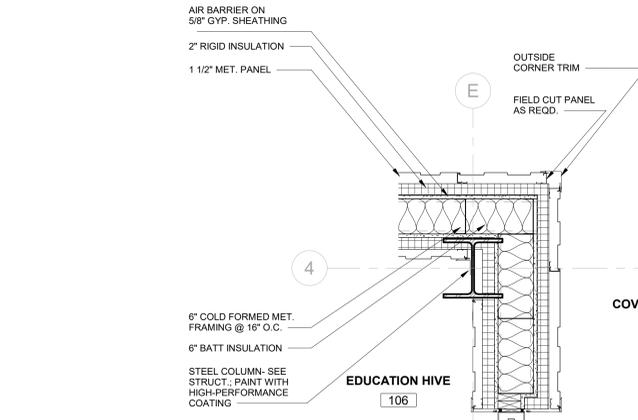
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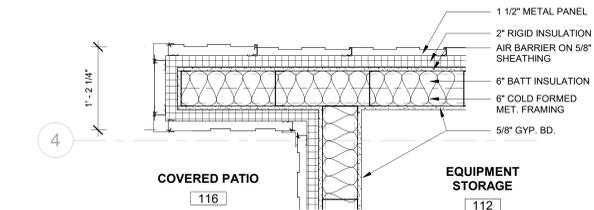
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A202 1" = 1'-0"



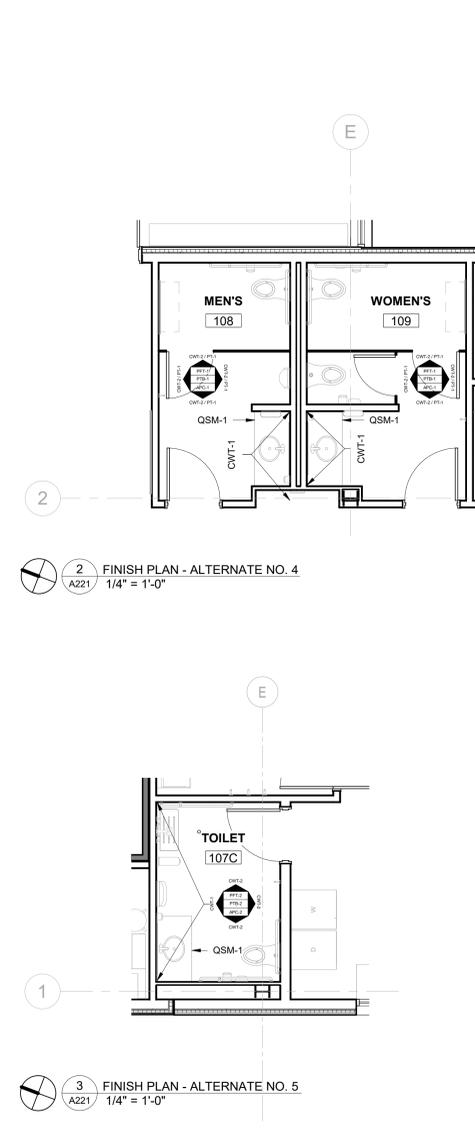
9 PLAN DETAIL
A202 1" = 1'-0"



10 PLAN DETAIL
A202 1" = 1'-0"



11 PLAN DETAIL
A202 1" = 1'-0"



1 FINISH PLAN
A221 1/4" = 1'-0"

FINISH NOTES

- ALL INTERIOR FINISHES SHALL COMPLY WITH NC STATE BUILDING CODE CHAPTER 8.
- MANUFACTURER'S NAME AND STOCK NUMBERS ARE PROVIDED TO IDENTIFY THE PATTERN, COLOR, AND TEXTURE DESIRED (BASIS OF DESIGN). OTHER MANUFACTURERS' PRODUCTS MEETING THE REQUIREMENTS SPECIFIED AND HAVING SIMILAR PATTERN, COLOR AND TEXTURE MAY BE ACCEPTABLE. SEE SPECS FOR LISTING OF ALTERNATE MANUFACTURERS.
- ALL WALLS TO BE PAINTED PT-1 U.N.O.
- ALL NEW GYP. BD. CEILINGS TO BE PAINTED PT-1 U.N.O.
- PROVIDE MANUAL ROLLER SHADES FOR ROOM 103-OPEN OFFICE EAST WINDOWS AND ROOM 102-MEETING WEST WINDOWS.
- ALL DOOR FRAMES TO BE PAINTED SAME AS ADJACENT WALL COLOR U.N.O.
- A METAL SCHLUTER STRIP (VMPRO-U IN BRUSHED CHROME, OR APPROVED EQUAL) SHALL BE PROVIDED AT LVT TO CONC FLOOR TRANSITIONS.
- EXPOSED STRUCTURE AND MECHANICAL TO BE PAINTED IN DRY FOG.

FINISH SYMBOL LEGEND



FINISH LEGEND

APC	ACOUSTICAL PANEL CEILING
AWP	ACOUSTICAL WALL PANEL
CON	CONCRETE FLOOR POLISHED
CONP	CONCRETE FLOOR POLISHED
CWT	CERAMIC WALL TILE
FRP	FIBERGLASS REINFORCED PLASTIC
FRPC	FIBERGLASS REINFORCED PLASTIC CEILING
HPC	HIGH PERFORMANCE COATING
MDF	MEDIUM DENSITY FIBERBOARD WALL PANELS
PT	PAINT
PFT	PORCELAIN FLOOR TILE
PFTM	PAPER PHENOLIC MATERIAL
PTB	PORCELAIN TILE BASE
PLAM	PLASTIC LAMINATE
PVCR	POLYVINYL CHLORIDE ROLL
PVCRB	POLYVINYL CHLORIDE ROLL BASE (INTEGRAL)
QSM	QUARTZ SURFACE MATERIAL
RES	RESILIENT RUBBER BASE
SSM	SOLID SURFACE MATERIAL
VWC	VINYL WALL COVERING

WALL FINISH:

PT-1	MATERIAL: PAINT MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW7004 COLOR: SNOWBOUND GLOSS: EGGSHELL
PT-2	MATERIAL: PAINT MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW6682 COLOR: LUNE DRY GLOSS: EGGSHELL
PT-3	MATERIAL: PAINT MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW6684 COLOR: BEFORE THE STORM GLOSS: EGGSHELL
PT-4	MATERIAL: PAINT MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW9685 COLOR: AFTER THE STORM GLOSS: EGGSHELL
HPC-1	MATERIAL: HIGH PERFORMANCE COATING MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW7004 COLOR: SNOWBOUND
HPC-2	MATERIAL: HIGH PERFORMANCE COATING MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW6683 COLOR: BEE
HPC-3	MATERIAL: HIGH PERFORMANCE COATING MANUFACTURER: SHERWIN-WILLIAMS PRODUCT NO: SW7069 COLOR: IRON ORE
FRP-1	MATERIAL: FIBERGLASS REINFORCED PLASTIC MANUFACTURER: CRANE COMPOSITES PRODUCT NO: GLASBOARD COLOR: BLACK FINISH: DIMPLED
FRP-2	MATERIAL: FIBERGLASS REINFORCED PLASTIC MANUFACTURER: CRANE COMPOSITES PRODUCT NO: GLASBOARD COLOR: WHITE FINISH: DIMPLED
CWT-1	MATERIAL: CERAMIC WALL TILE MANUFACTURER: UMORE PRODUCT NO: BOLOGNA COLOR: JUNIPER - MIXED FINISH SIZE: HEXAGON MOSAIC
CWT-2	MATERIAL: CERAMIC WALL TILE MANUFACTURER: UMORE PRODUCT NO: SOLENO COLOR: LACE MATTE SIZE: 2.5" X 16"
MDF-1	MATERIAL: MEDIUM DENSITY FIBERBOARD WALL PANELS MANUFACTURER: ARCHITECTURAL SYSTEMS, INC. PRODUCT NO: CHIZEL BLACK MDF PANELS COLOR: BLACK - WPFNS06 THICKNESS: 12.5MM

WALL FINISH (CONTINUED):

MDF-2	MATERIAL: MEDIUM DENSITY FIBERBOARD WALL PANELS MANUFACTURER: ARCHITECTURAL SYSTEMS, INC. PRODUCT NO: CHIZEL WOOD PANELS COLOR: WOOD - WPFNS195 THICKNESS: 12.5MM
AWP-1	MATERIAL: ACOUSTICAL WALL PANEL MANUFACTURER: ARCHITECTURAL SYSTEMS, INC. PRODUCT NO: WOOD SLAT WALL - ACOUSTICAL COLOR: WALNUT NATURAL WPFVF495
VWC-1	MATERIAL: VINYL WALL COVERING MANUFACTURER: DREAMSCAPE WALLS PRODUCT NO: TYPE 1 COMMERCIAL WALLCOVERINGS COLOR: GRAPHIC TBD BY OWNER
PFT-1	MATERIAL: PORCELAIN FLOOR TILE MANUFACTURER: DAL TILE PRODUCT NO: BEE HIVE MEDLEY COLOR: CUBE POSITIVE P047 SIZE: 8 1/2" X 10" HEXAGON
PFT-2	MATERIAL: PORCELAIN FLOOR TILE MANUFACTURER: UMORE PRODUCT NO: TIVOLI COLOR: MIDNIGHT SIZE: 10" X 11" HEX MOSAIC
PFT-3	MATERIAL: PORCELAIN FLOOR TILE MANUFACTURER: DAL TILE PRODUCT NO: ACREAGE COLOR: PALAMINO AC11 SIZE: 9" X 45" MATTE
PVCR-1	MATERIAL: POLYVINYL CHLORIDE ROLL MANUFACTURER: ALTRO PRODUCT NO: SYMPHONIA COLOR: AYANA SY120034
PVCR-2	MATERIAL: POLYVINYL CHLORIDE ROLL MANUFACTURER: ALTRO PRODUCT NO: SYMPHONIA COLOR: FESTUCA SY120010
CON-1	MATERIAL: CONCRETE FLOOR FINISH: SEALED
PCON-1	MATERIAL: CONCRETE FLOOR FINISH: POLISHED
RES-1	MATERIAL: RESILIENT RUBBER BASE MANUFACTURER: JOHNSONITE PRODUCT NO: BASEWORKS THERMOSET RUBBER (TYPE TS) COLOR: 48 GREY SIZE: 6"
PTB-1	MATERIAL: PORCELAIN TILE BASE MANUFACTURER: DAL TILE PRODUCT NO: COLOR WHEEL LINEAR COLOR: MATTE ARCTIC WHITE SIZE: 4" X 12" FLAT TOP COVE BASE

WALL BASE (CONTINUED):

PTB-2	MATERIAL: PORCELAIN TILE BASE MANUFACTURER: UMORE PRODUCT NO: TIVOLI COLOR: MIDNIGHT SIZE: 4" CUT TILE BASE (USE SCHLUTER DILEX-AHK IN SATIN NICKEL AT)
PVCRB-1	MATERIAL: POLYVINYL CHLORIDE ROLL BASE MANUFACTURER: ALTRO PRODUCT NO: SYMPHONIA COLOR: AYANA SY120034 SIZE: 6" (INTEGRAL COVE BASE)
PVCRB-2	MATERIAL: POLYVINYL CHLORIDE ROLL BASE MANUFACTURER: ALTRO PRODUCT NO: SYMPHONIA COLOR: FESTUCA SY120010 SIZE: 6" (INTEGRAL COVE BASE)
APC-1	MATERIAL: ACOUSTICAL PANEL CEILING MANUFACTURER: ARMSTRONG PRODUCT NO: CALLA 680 COLOR: WHITE SIZE: 2' X 2' X 1"
APC-2	MATERIAL: ACOUSTICAL PANEL CEILING MANUFACTURER: ARMSTRONG PRODUCT NO: CERAMAGUARD 605 COLOR: WHITE SIZE: 2' X 4' X 5/8"
APC-3	MATERIAL: ACOUSTIC PET MATERIAL CEILING MANUFACTURER: ALTRISPACE PRODUCT NO: ACOUSTIC SHAPES, HEXAGON COLOR: WHITE SIZE: 30" X 30" X 2"
FRPC-1	MATERIAL: FIBERGLASS REINFORCED PLASTIC CEILING MANUFACTURER: NIUDO PRODUCT NO: FIBERLITE FRP COLOR: WHITE 151 SIZE: 24" X 24" FINISH: SMOOTH
PLAM-1	MATERIAL: PLASTIC LAMINATE MANUFACTURER: FENIX PRODUCT NO: FENIX NTM COLOR: NERO INGO J0720 FINISH: MATTE - THROUGH COLOR
PLAM-2	MATERIAL: PLASTIC LAMINATE MANUFACTURER: FENIX PRODUCT NO: FENIX NTM COLOR: BLU FES J0754 FINISH: MATTE - THROUGH COLOR
PPM-1	MATERIAL: PAPER PHENOLIC MATERIAL MANUFACTURER: RICHITE PRODUCT NO: CASCADE COLOR: HOOD (HONED FINISH)

MILLWORK / COUNTERTOPS (CONTINUED):

PPM-2	MATERIAL: PAPER PHENOLIC MATERIAL MANUFACTURER: RICHITE PRODUCT NO: STRATUM COLOR: BAMBOO BLACK DIAMOND (HONED FINISH)
QSM-1	MATERIAL: QUARTZ SURFACE MATERIAL MANUFACTURER: CORIAN PRODUCT NO: QUARTZ SURFACE COLOR: PORTORO
QSM-2	MATERIAL: QUARTZ SURFACE MATERIAL MANUFACTURER: CORIAN PRODUCT NO: QUARTZ SURFACE COLOR: SNOW WHITE

EXTERIOR FINISH NOTES

- SEE EXTERIOR ELEVATIONS FOR METAL PANEL COLOR LOCATIONS.
- RED STANDING SEAM METAL ROOF: METAL ROOFING SYSTEMS, INC. - REGAL RED
- RED METAL FASCIA: MBCI - SIGNATURE 300 BRITE RED
- RED METAL PANEL: MBCI DESIGNER SERIES FLUTED - SIGNATURE 300 BRITE RED
- BROWN METAL TRIM: MBCI - SIGNATURE 200 KOKO BROWN
- WHITE METAL PANEL: MBCI DESIGNER SERIES FLUTED - SIGNATURE 300 BONE WHITE
- RED METAL GUTTER WITH RAINCHAINS: MBCI - SIGNATURE 300 BRITE RED
- TIMBER CLADDING: RESAWN TIMBER CO. - ACCOYA WATSON 1C
- AHU ENCLOSURE: MCB - SIGNATURE 200 KOKO BROWN

ALTERNATES LEGEND

ALTERNATE NO. 1A	OWNER PREFERRED DOOR HARDWARE
ALTERNATE NO. 1B	OWNER PREFERRED BRAND CONTROLLER
ALTERNATE NO. 1C	OWNER PREFERRED CONTROLS
ALTERNATE NO. 1D	OWNER PREFERRED CONTROLS
ALTERNATE NO. 2	BARN QUILT CUSTOM PANELS
ALTERNATE NO. 3	MOVEABLE GLASS WALL
ALTERNATE NO. 4	CERAMIC WALL TILE (BASE BID - HIGH PERFORMANCE COATING HPC-1)
ALTERNATE NO. 5	TOILET ROOM 107C (BASE BID - STORAGE ROOM 107C)
ALTERNATE NO. 6	EMERGENCY GENERATOR
ALTERNATE NO. 7	POLISHED CONCRETE (BASE BID - UNPOLISHED CONCRETE)
ALTERNATE NO. 8	FRP AND PVC ROLL PRODUCT FLOORING (BASE BID - HIGH PERFORMANCE COATING HPC-1 AND UNPOLISHED CONCRETE FLOOR CON-1)
ALTERNATE NO. 9	AHU SCREENING (BASE BID - OMIT SCREENING)
ALTERNATE NO. 10	EXISTING HOUSE & SEPTIC DEMOLITION
ALTERNATE NO. 11	LAB CASEWORK (BASE BID - OMIT LAB CASEWORK)

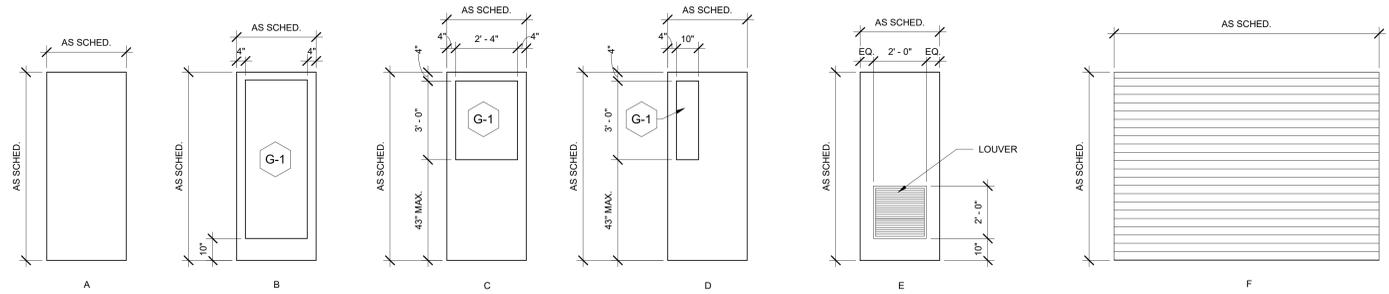
Civil and Structural Engineer, Landscape Architect:
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Raleigh, NC 27603
NC Certificate of Licensure: C-1051

Plumbing, Mechanical, and Electrical Engineer:
RMF Engineering
5520 Research Park Drive, Ste 300
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NC Certificate of Licensure: C-1125

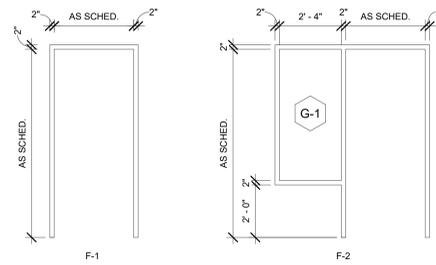


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DOOR SCHEDULE - BASE BID													
DOOR NO.	DOOR TYPE	DOOR MATERIAL	FIRE RATING	HARDWARE SET	DOOR WIDTH	DOOR HEIGHT	DOOR THICK	FRAME TYPE	FRAME MATERIAL	HEAD	JAMB	THOLD	COMMENTS
101.1	B	ALUM.	-	1	6'-0"	8'-0"	0'-1 3/4"	SF-6	ALUM.			10/A251	
102.1	B	WD.	-	3	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
102.1A/B	B	ALUM.	-	3	24'-4"	7'-0"	0'-1 25/32"	-	ALUM.	3/A254			MEETING ROOM- STACKING DOOR ALTERNATE NO. 3
102.2	B	WD.	-	3	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
103.1	B	WD.	-	5	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
103A.1	C	WD.	-	6	3'-0"	7'-0"	0'-1 3/4"	F-2	H.M.	3/A251	8/A251		
103B.1	-	-	-	-	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		CASED OPENING
104.1	B	WD.	-	5	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
104.1	D	WD.	-	7	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
104A.2	D	H.M.	-	4	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	6/A251	14/A251		
106.1	D	H.M.	-	4	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	4/A251	15/A251		
106.2	B	H.M.	-	4	3'-0"	7'-0"	0'-1 3/4"	-	ALUM.				
107.1	C	H.M.	-	5	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
107.2	F	STEEL	-	-	10'-0"	8'-0"	0'-3"	-	-	7/A251			OVERHEAD COILING DOOR
107.3	A	H.M.	-	4	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	4/A251	15/A251		
107B.1	D	STEEL	-	BY MANUF.	3'-0"	7'-0"	0'-1 3/4"	F-1	STEEL	3/A251	8/A251		TRAFFIC DOOR
107C.1	A	H.M.	-	11	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
108.1	A	WD.	-	8	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	11/A251	12/A251		
109.1	A	WD.	-	8	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	11/A251	12/A251		
110.1	A	WD.	-	9	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
111.1	A	WD.	-	10	5'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
112.1	A	WD.	-	5	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	3/A251	8/A251		
112.2	F	STEEL	-	-	8'-0"	8'-0"	0'-3"	-	-	7/A251			OVERHEAD COILING DOOR
113.1	E	H.M.	-	4	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	6/A251	14/A251		
113A.1	E	H.M.	-	2B	3'-0"	7'-0"	0'-1 3/4"	F-1	H.M.	6/A251	14/A251		
115.1	B	ALUM.	-	2A	3'-0"	7'-0"	0'-1 3/4"	F-1	ALUM.	4/A251	15/A251	10/A251	



1 DOOR ELEVATIONS
A251 3/8" = 1'-0"

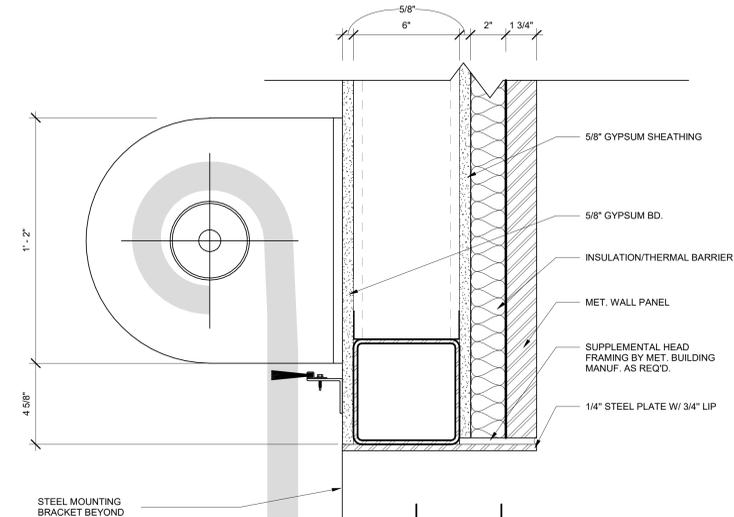


2 DOOR FRAME ELEVATIONS
A251 3/8" = 1'-0"

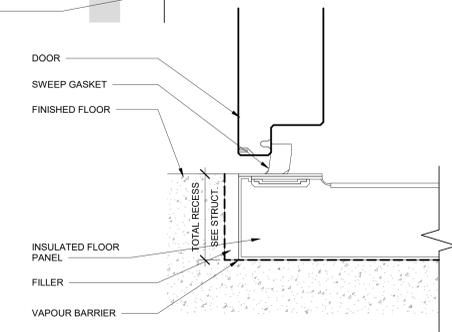
GLAZING SCHEDULE

G-1	1/4" CLEAR ANNEALED TEMPERED FLOAT GLASS
G-2	1" INSULATING GLAZING UNIT

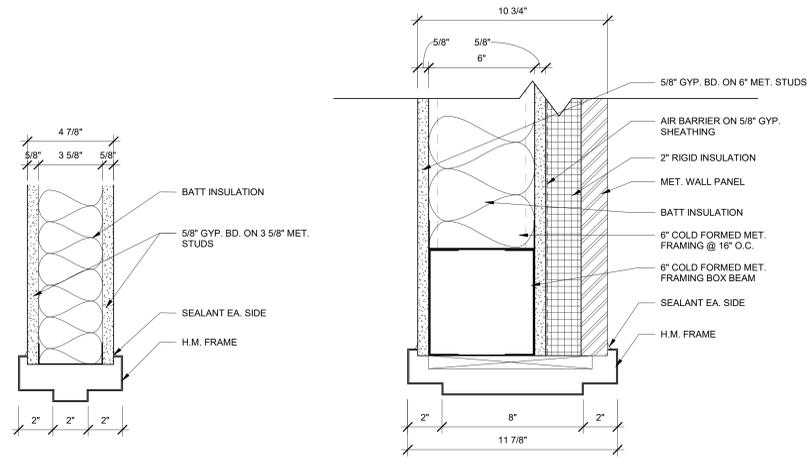
SEE SPECIFICATIONS FOR MORE INFORMATION ON GLAZING TYPES



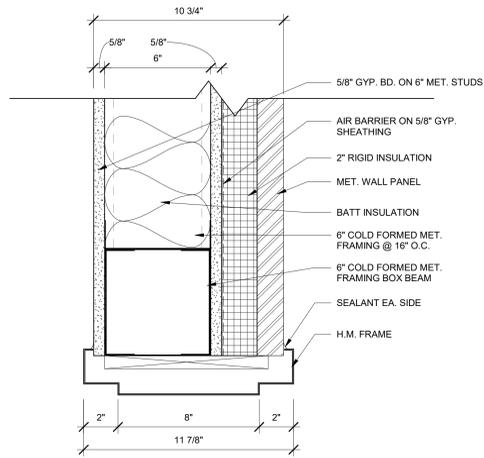
7 HEAD
A251 3" = 1'-0"



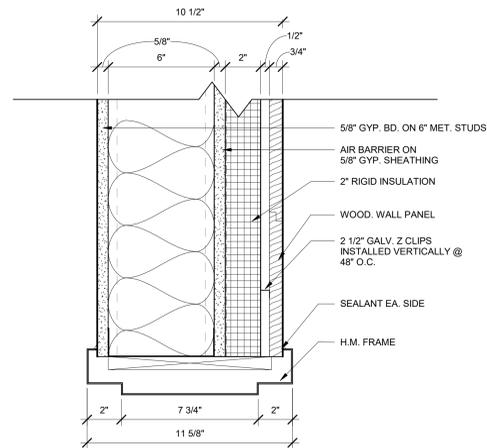
13 DETAIL- WALK IN FREEZER
A251 3" = 1'-0"



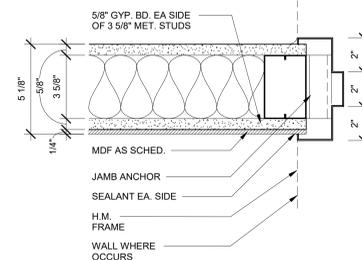
3 HEAD
A251 3" = 1'-0"



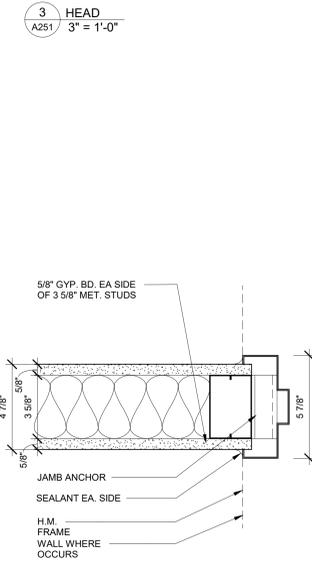
4 HEAD
A251 3" = 1'-0"



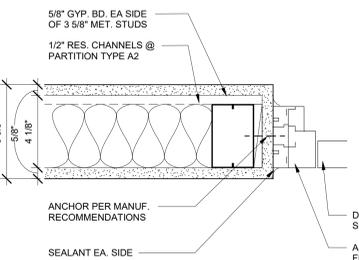
6 HEAD
A251 3" = 1'-0"



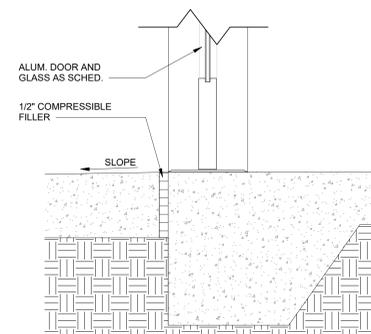
12 JAMB
A251 3" = 1'-0"



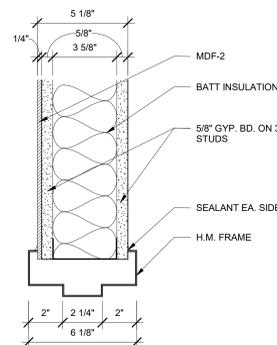
8 JAMB
A251 3" = 1'-0"



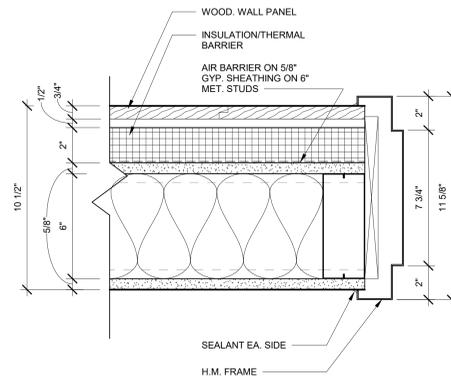
9 JAMB
A251 3" = 1'-0"



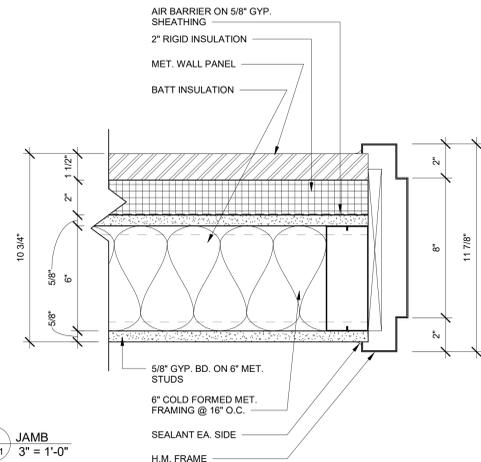
10 THRESHOLD DETAIL
A251 3" = 1'-0"



11 HEAD
A251 3" = 1'-0"



14 JAMB
A251 3" = 1'-0"



15 JAMB
A251 3" = 1'-0"



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Code: 42124 Item: 315
NCSU: 202220007

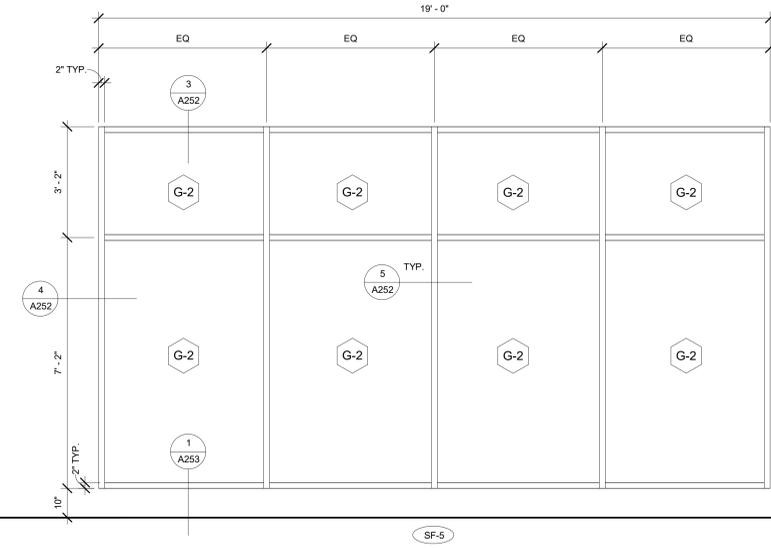
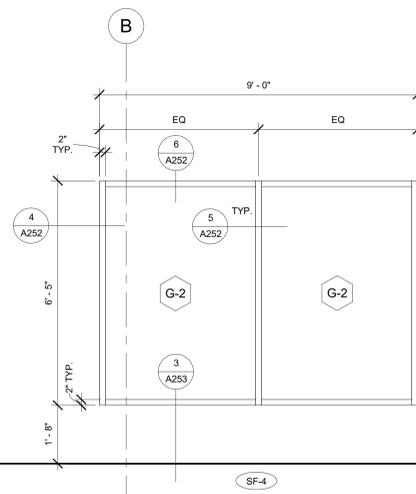
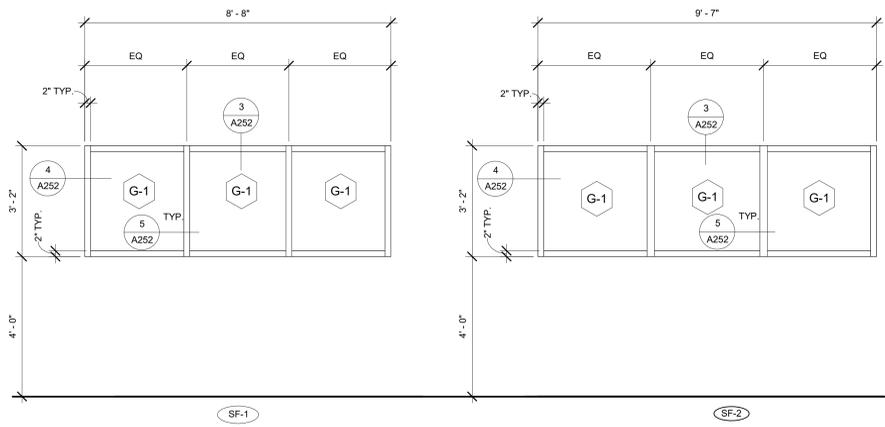
Project Number 132

Door Schedule, Frame Elevations, and Details

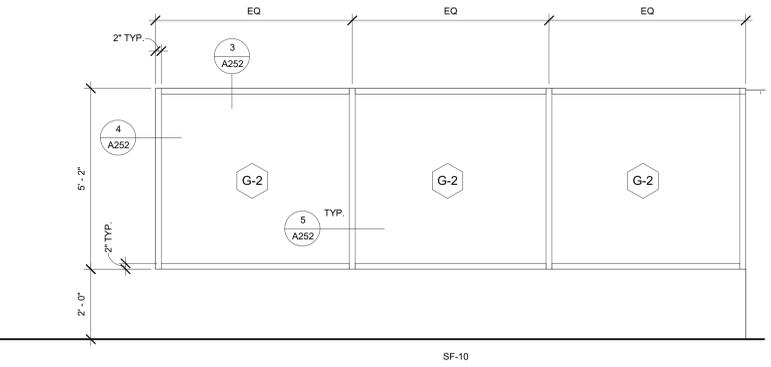
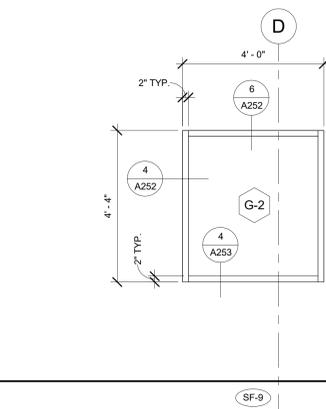
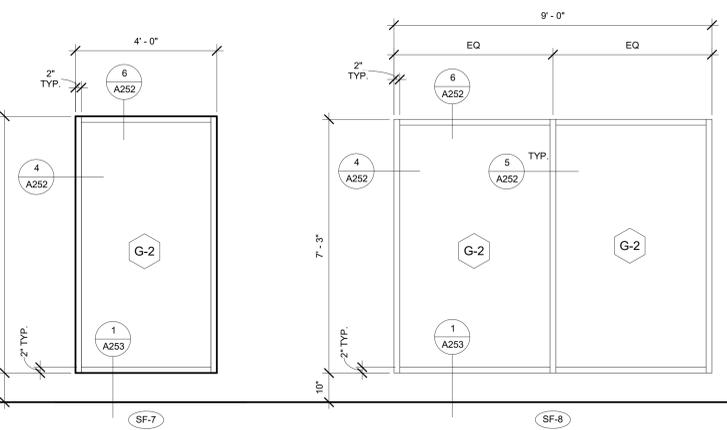
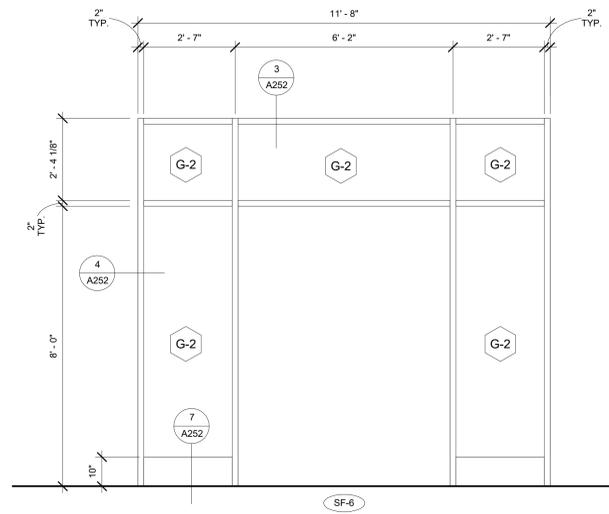
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A251

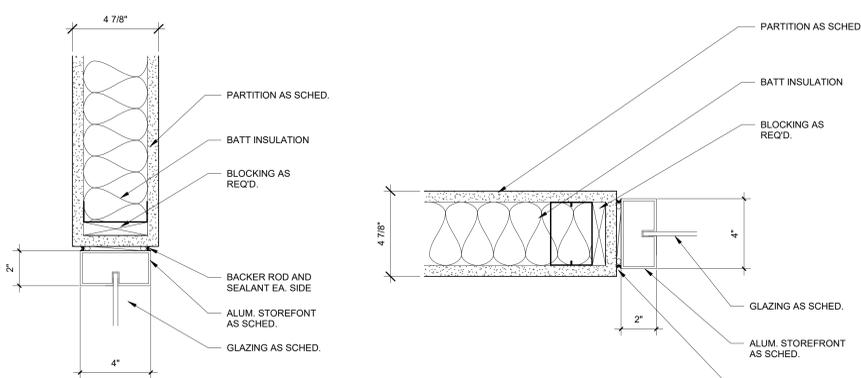
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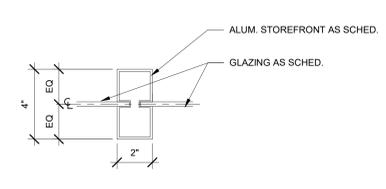
1 STOREFRONT ELEVATIONS
A252 1/2" = 1'-0"



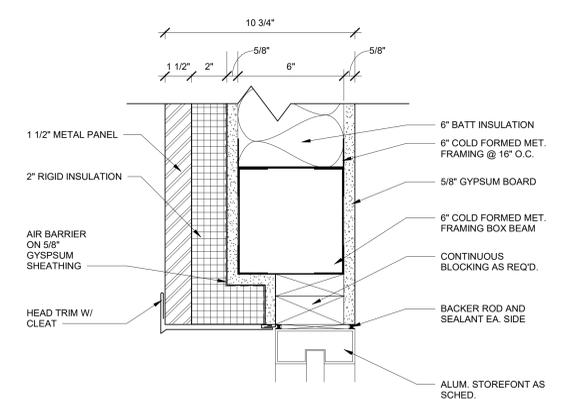
2 STOREFRONT ELEVATIONS
A252 1/2" = 1'-0"



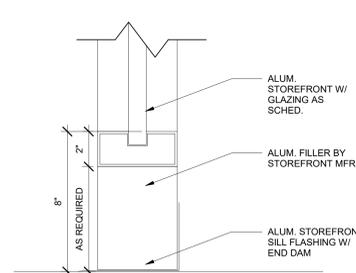
4 JAMB
A252 3" = 1'-0"



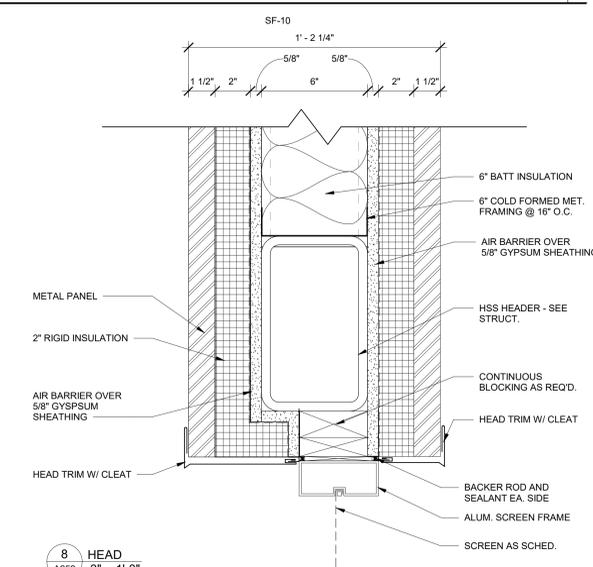
5 JAMB
A252 3" = 1'-0"



6 HEAD
A252 3" = 1'-0"



7 SILL
A252 3" = 1'-0"



8 HEAD
A252 3" = 1'-0"



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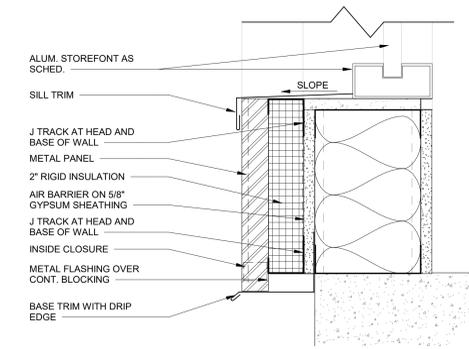
Project Number 132

Title
**Storefront and Window
Sectional Details**

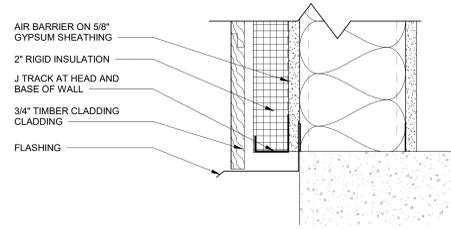
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A253

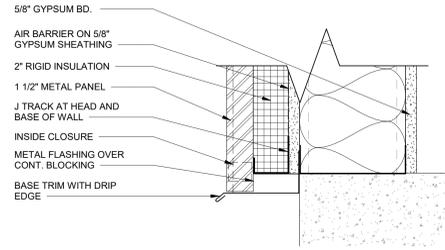
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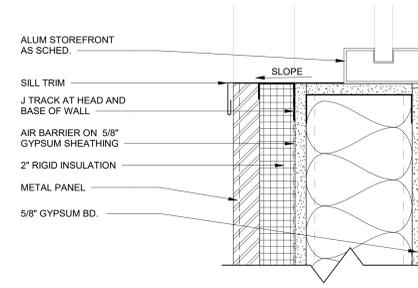
1 SILL AND WALL BASE
A253 3" = 1'-0"



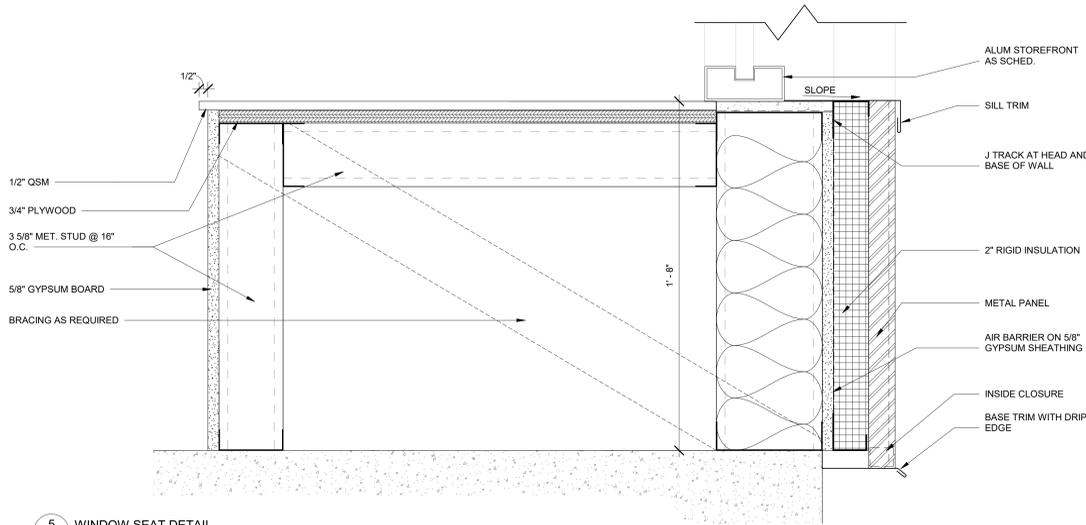
2 WALL BASE
A253 3" = 1'-0"



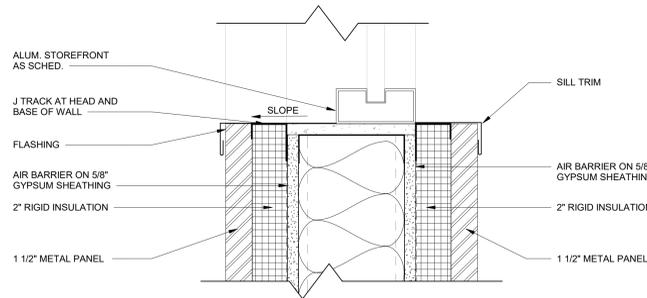
3 WALL BASE
A253 3" = 1'-0"



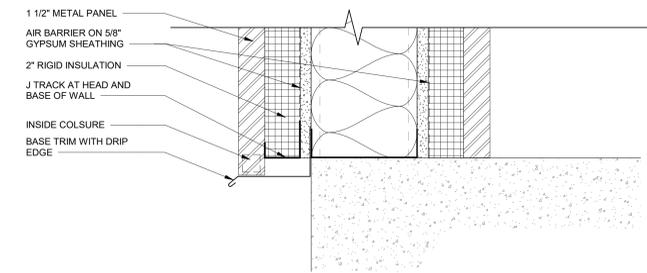
4 SILL
A253 3" = 1'-0"



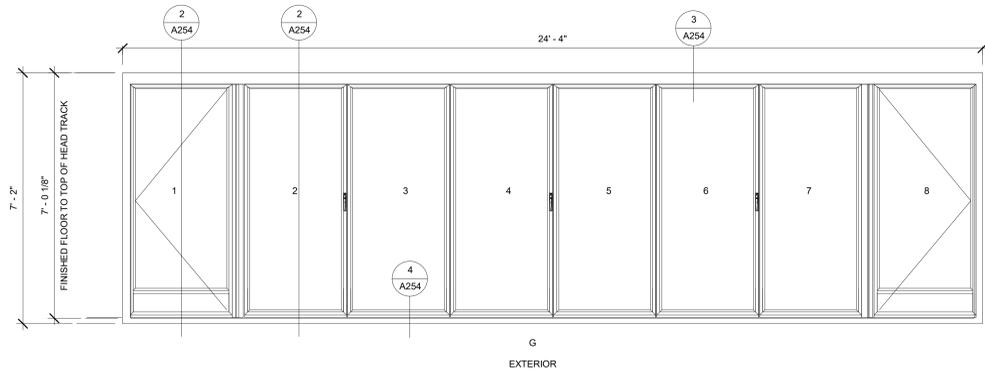
5 WINDOW SEAT DETAIL
A253 3" = 1'-0"



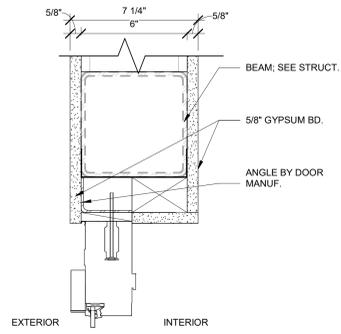
6 SILL DETAIL
A253 3" = 1'-0"



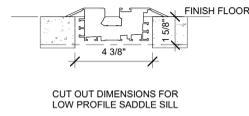
7 WALL BASE
A253 3" = 1'-0"



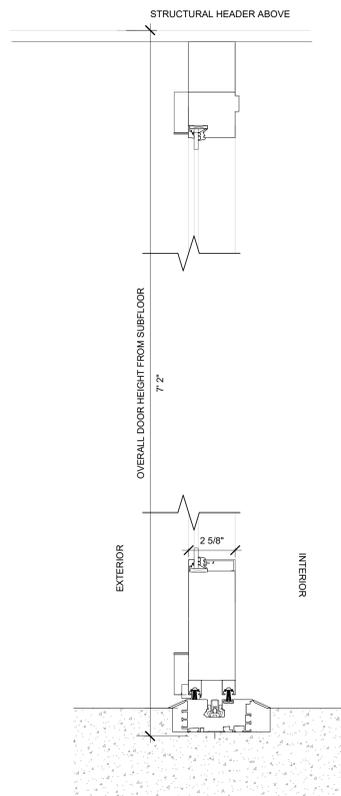
1 ELEVATION- MEETING ROOM
1/2" = 1'-0"



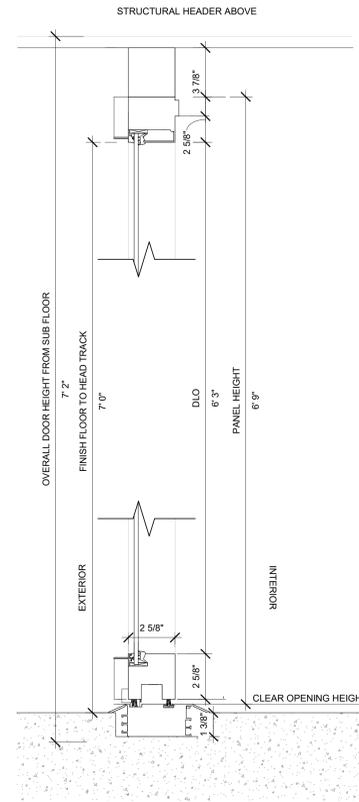
3 HEAD TRACK
3" = 1'-0"



4 SILL TRACK
3" = 1'-0"



2 DOOR SECTION- STACKING
3" = 1'-0"



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Project Number 132

Title
**Door Elevations and
Details (Alternate No. 3)**

Sheet

A254

Plate



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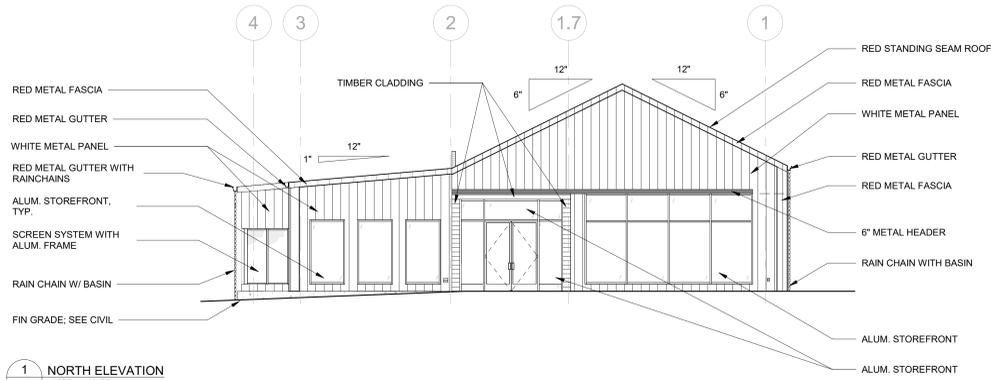
Project Number 132

Title Elevations

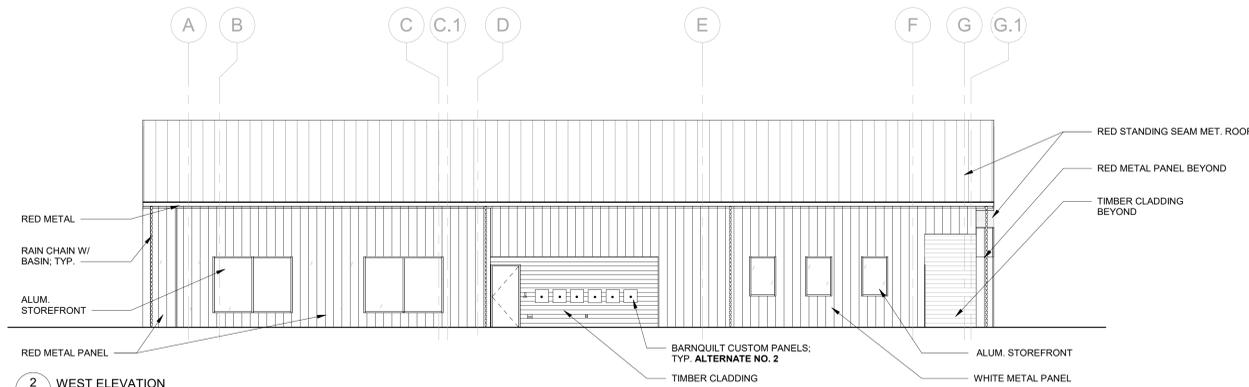
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A301

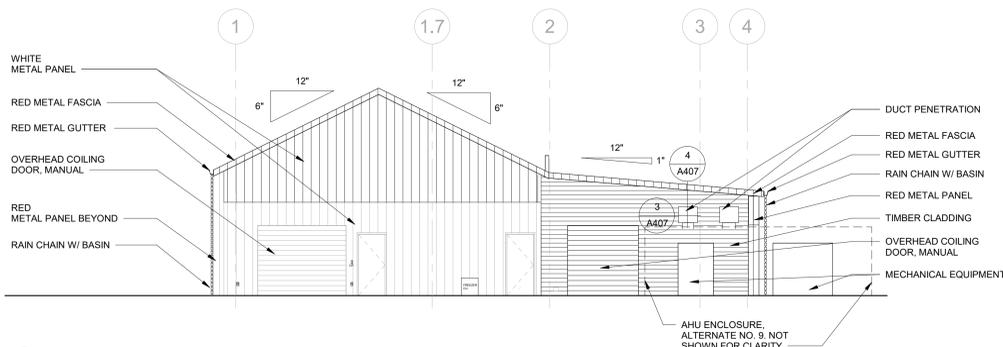
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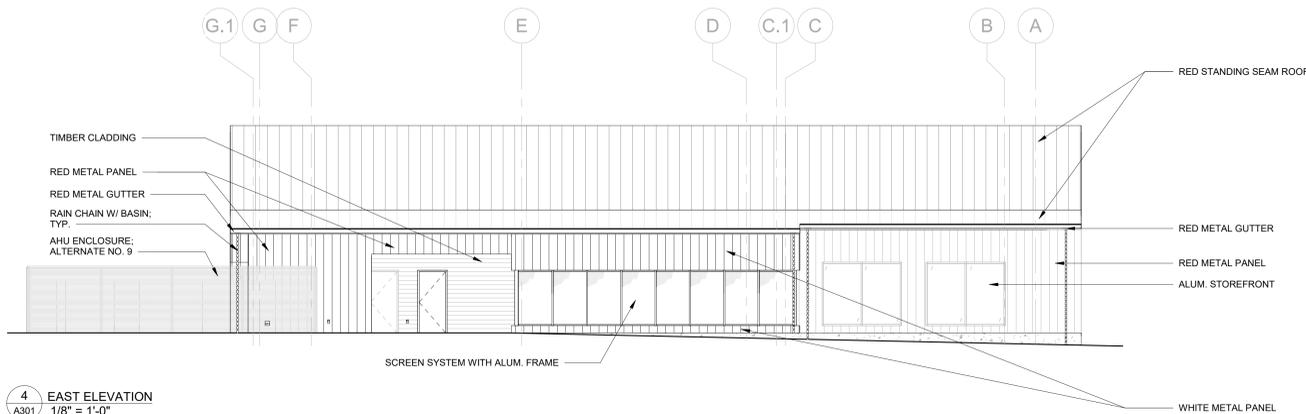
1 NORTH ELEVATION
A301 1/8" = 1'-0"



2 WEST ELEVATION
A301 1/8" = 1'-0"



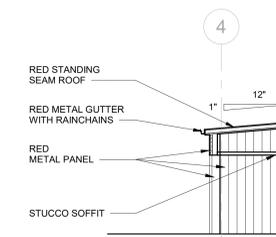
3 SOUTH ELEVATION
A301 1/8" = 1'-0"



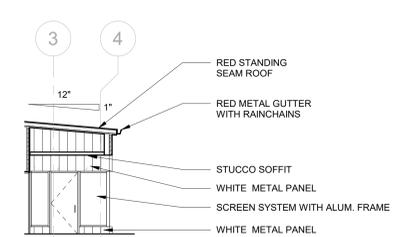
4 EAST ELEVATION
A301 1/8" = 1'-0"

FIXTURE LEGEND

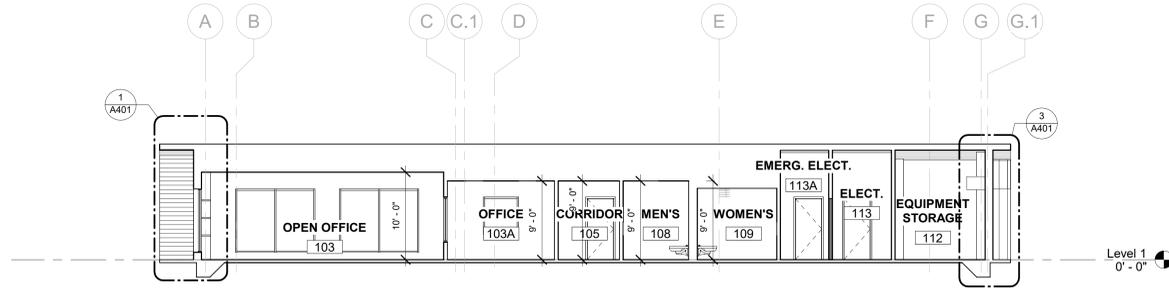
- WH EXTERIOR WALL HYDRANT
- R RECEPTACLE
- CR CARD READER



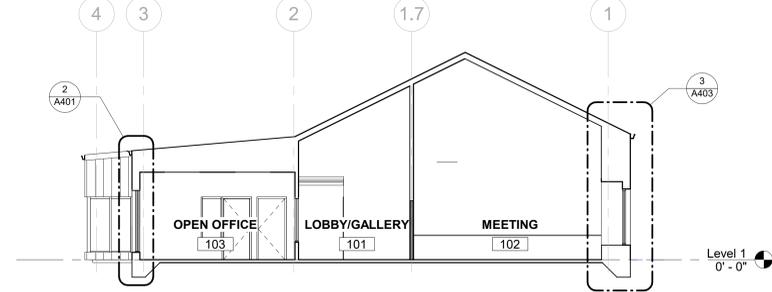
5 ELEVATION
A301 1/8" = 1'-0"



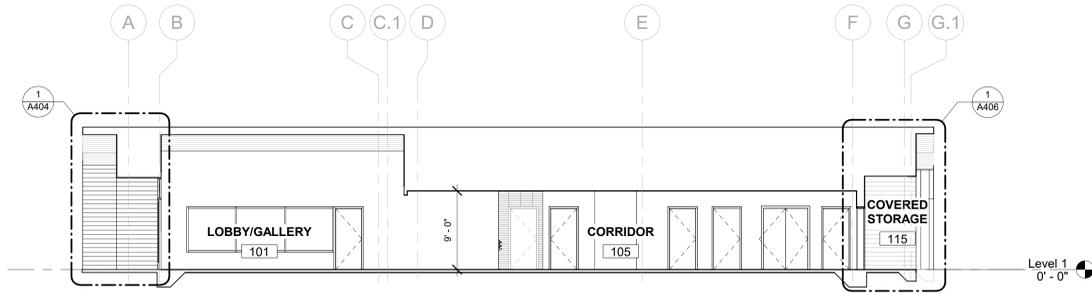
6 ELEVATION
A301 1/8" = 1'-0"



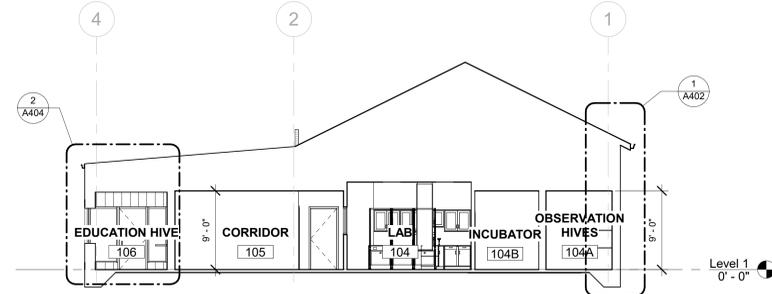
1 LONGITUDINAL BUILDING SECTION
A351 1/8" = 1'-0"



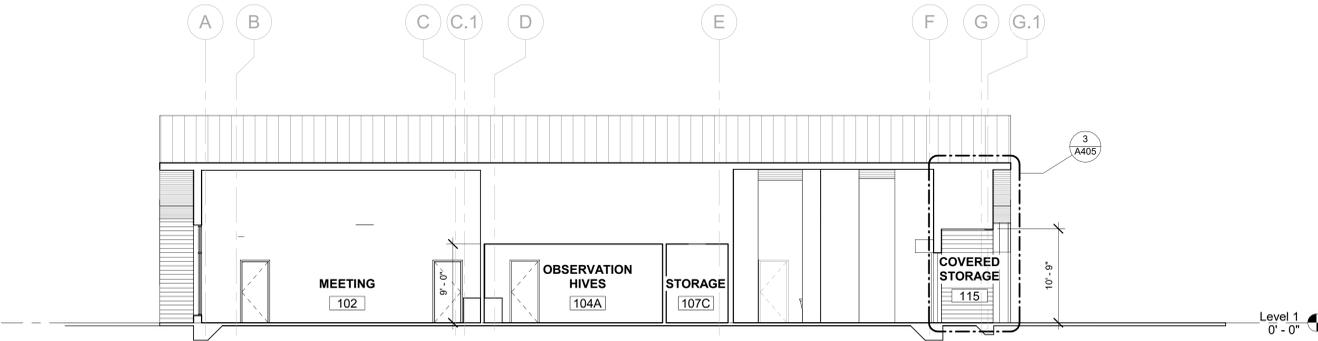
4 TRANSVERSE BUILDING SECTION
A351 1/8" = 1'-0"



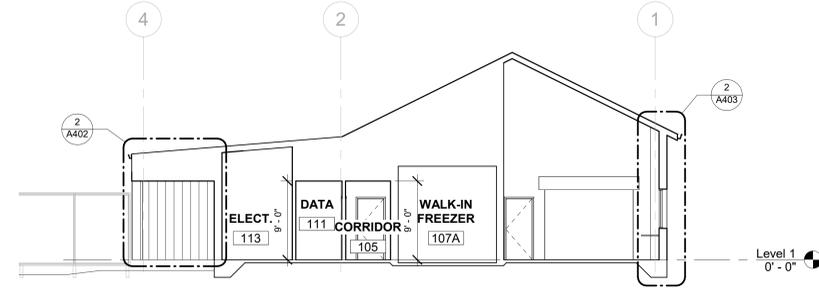
2 LONGITUDINAL BUILDING SECTION
A351 1/8" = 1'-0"



5 TRANSVERSE BUILDING SECTION
A351 1/8" = 1'-0"



3 LONGITUDINAL BUILDING SECTION
A351 1/8" = 1'-0"



6 TRANSVERSE BUILDING SECTION
A351 1/8" = 1'-0"



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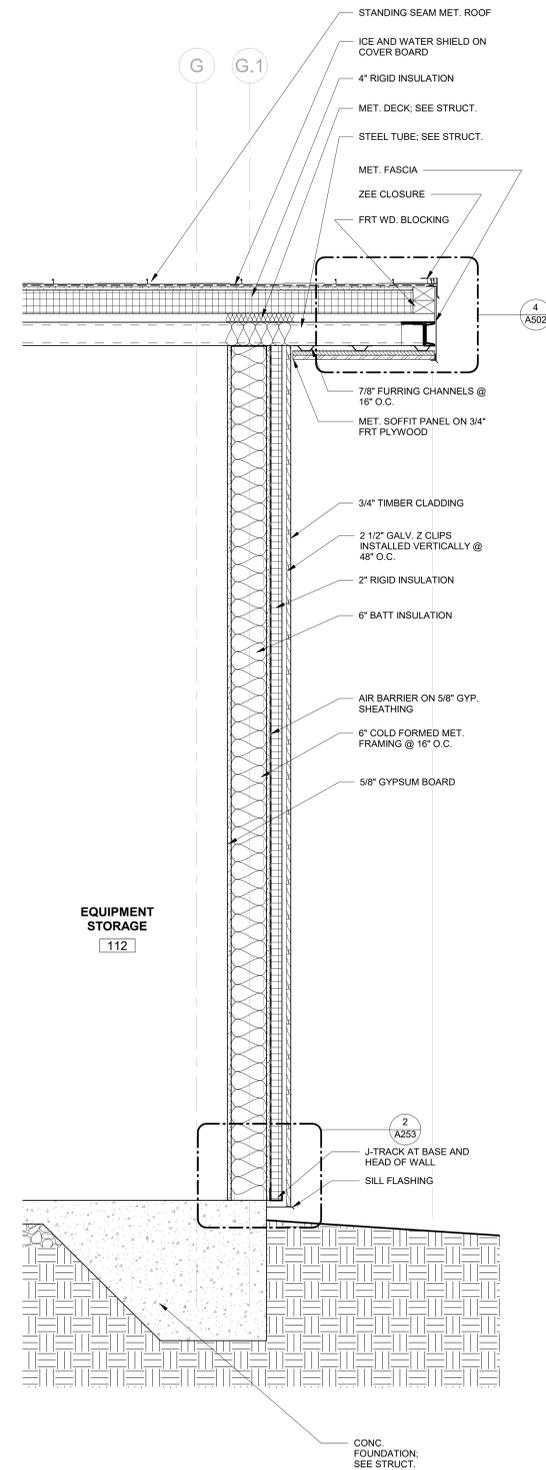
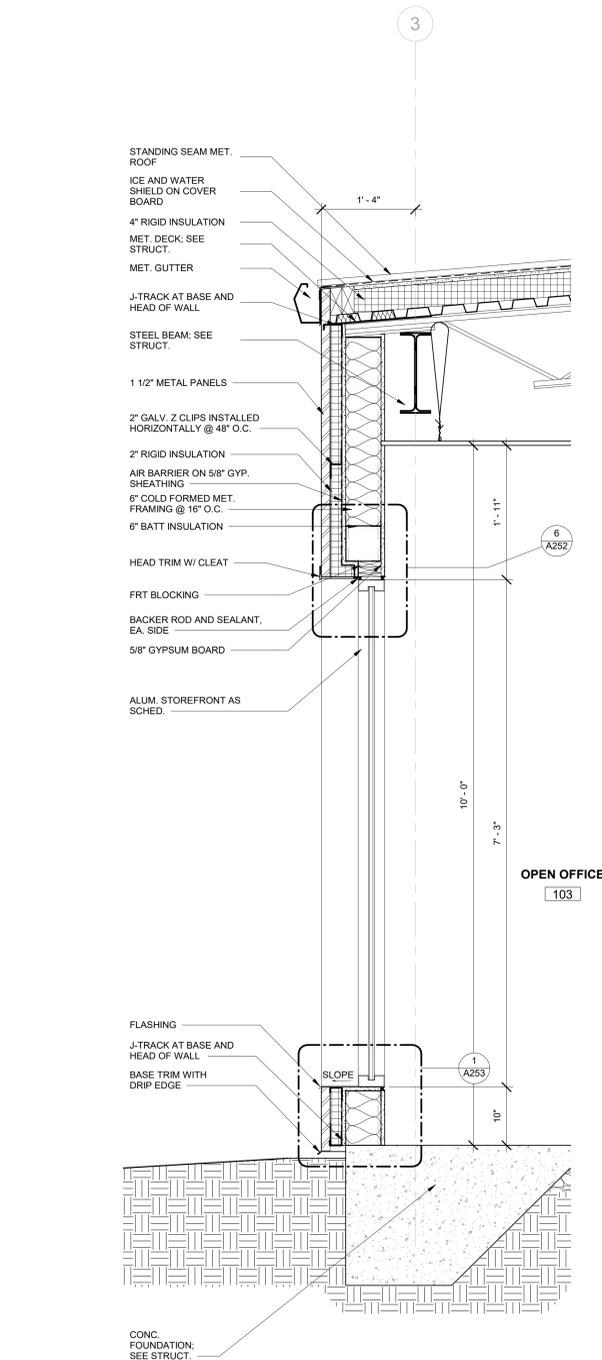
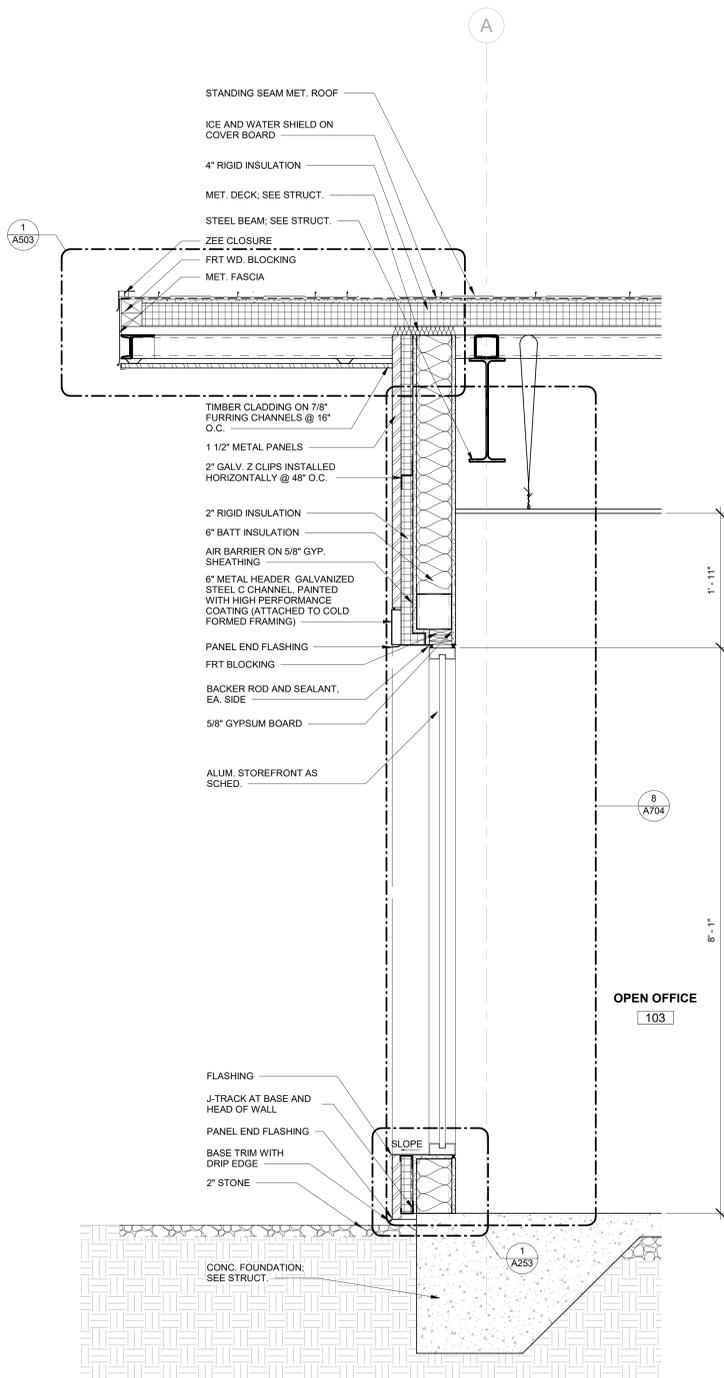
Project Number 132

Title
Wall Sections

Sheet

A401

Plate





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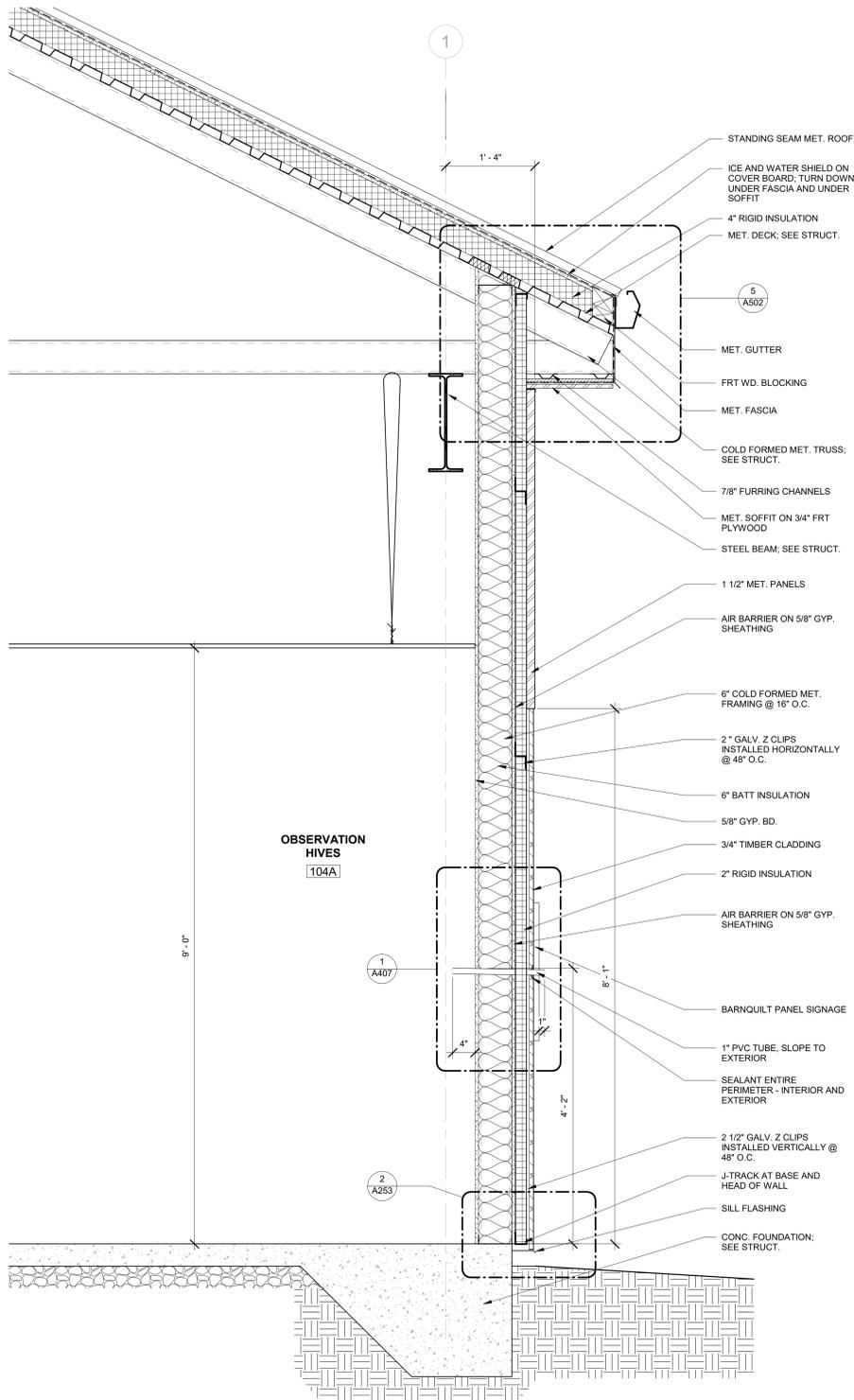
Project Number 132

Title **Wall Sections**

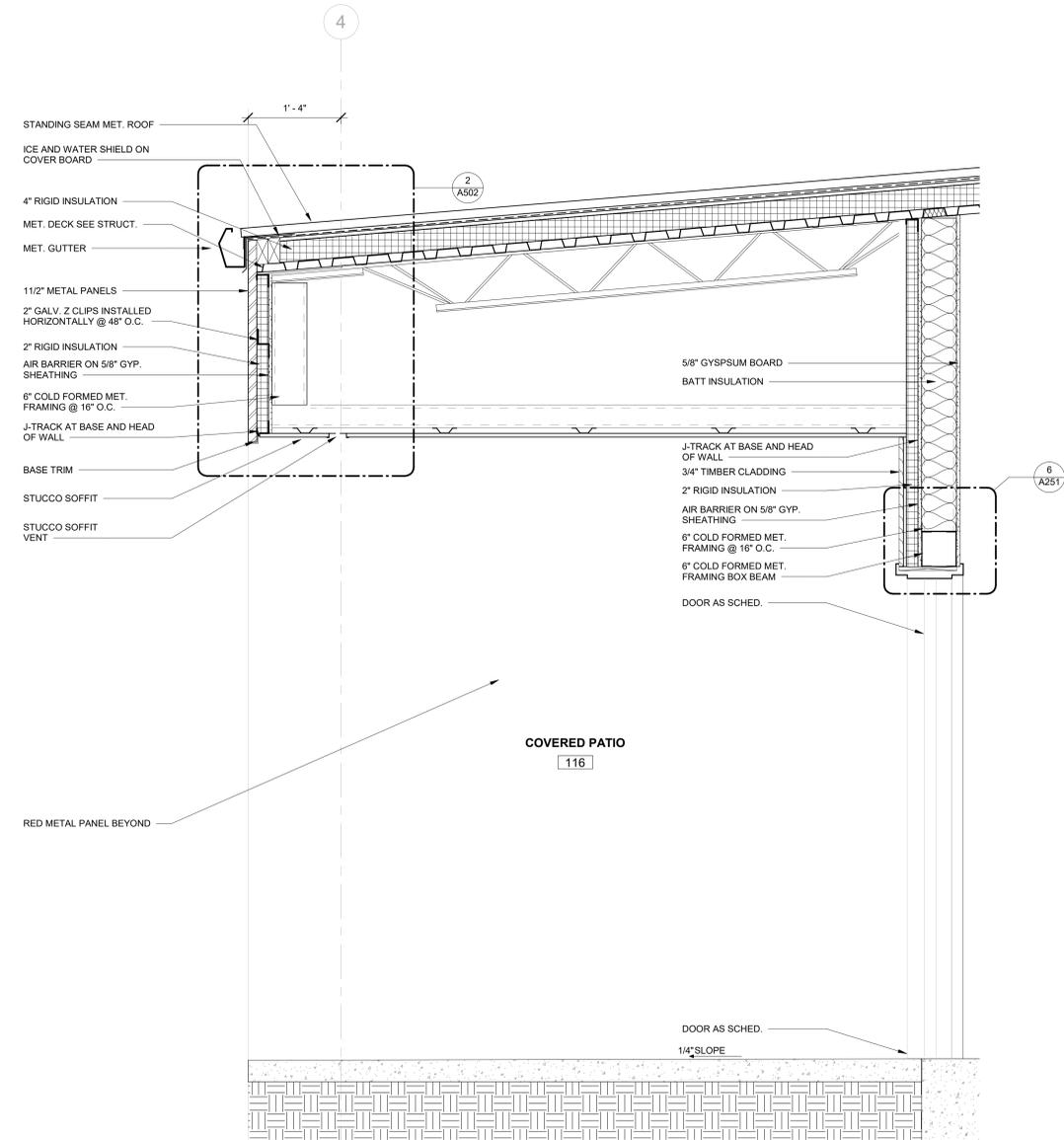
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A402

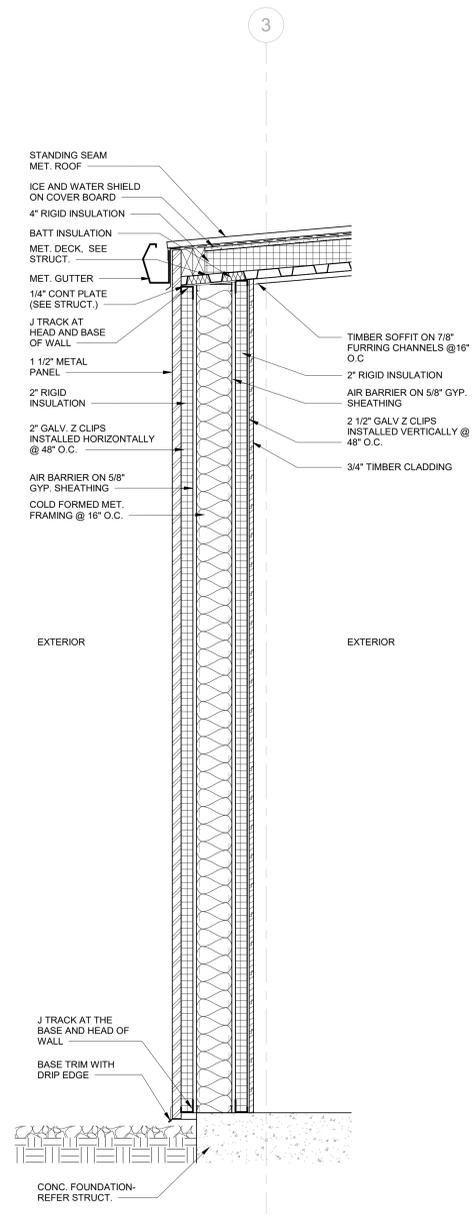
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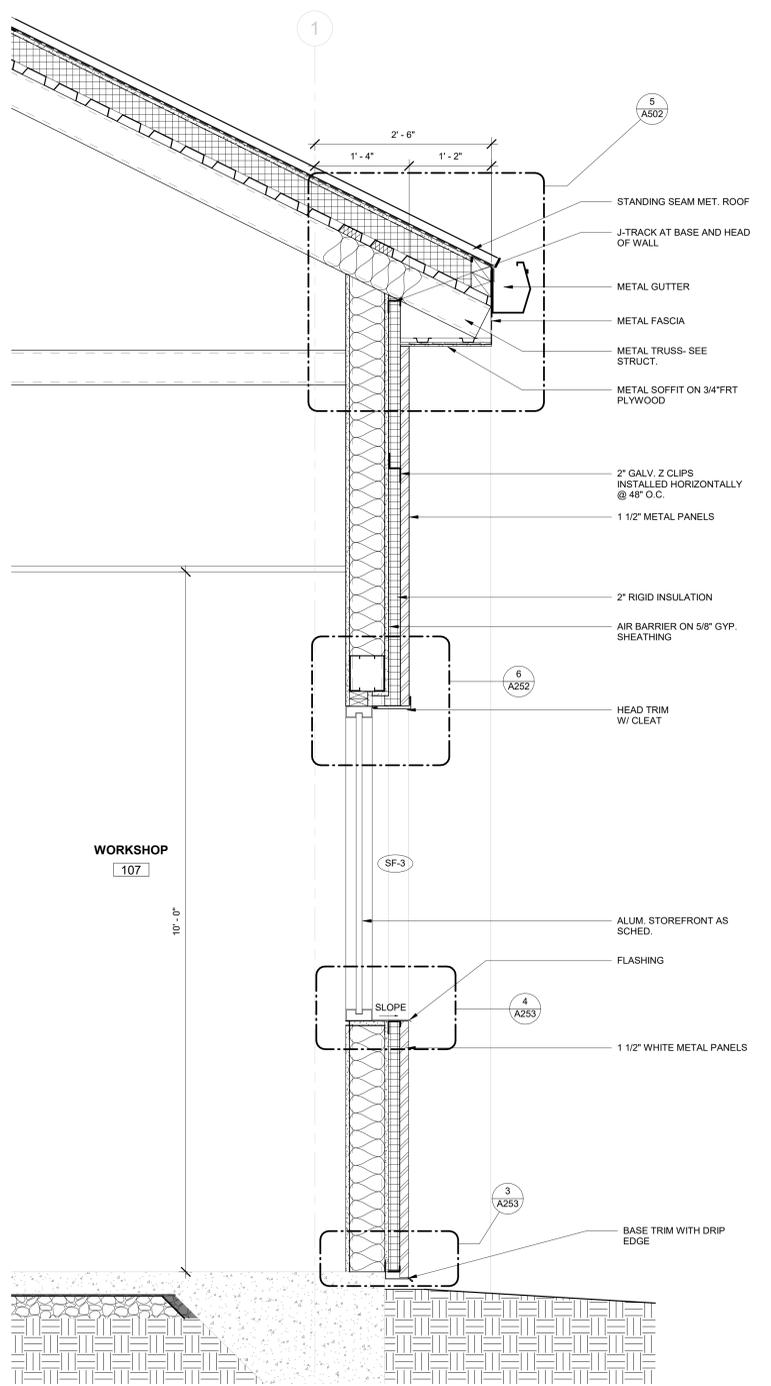
1 WALL SECTION
1" = 1'-0"



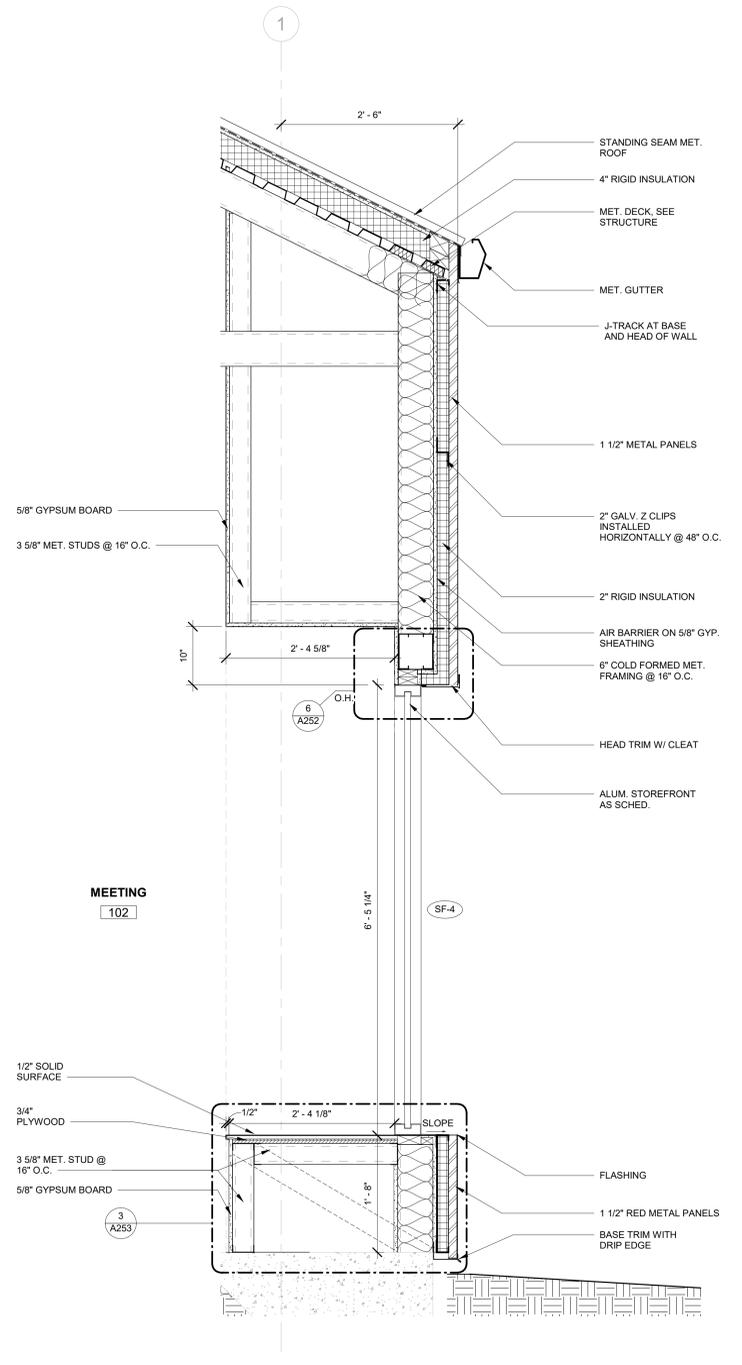
2 WALL SECTION
1" = 1'-0"



1 WALL SECTION (WING WALL)
1" = 1'-0"



2 WALL SECTION
1" = 1'-0"



3 WALL SECTION
1" = 1'-0"



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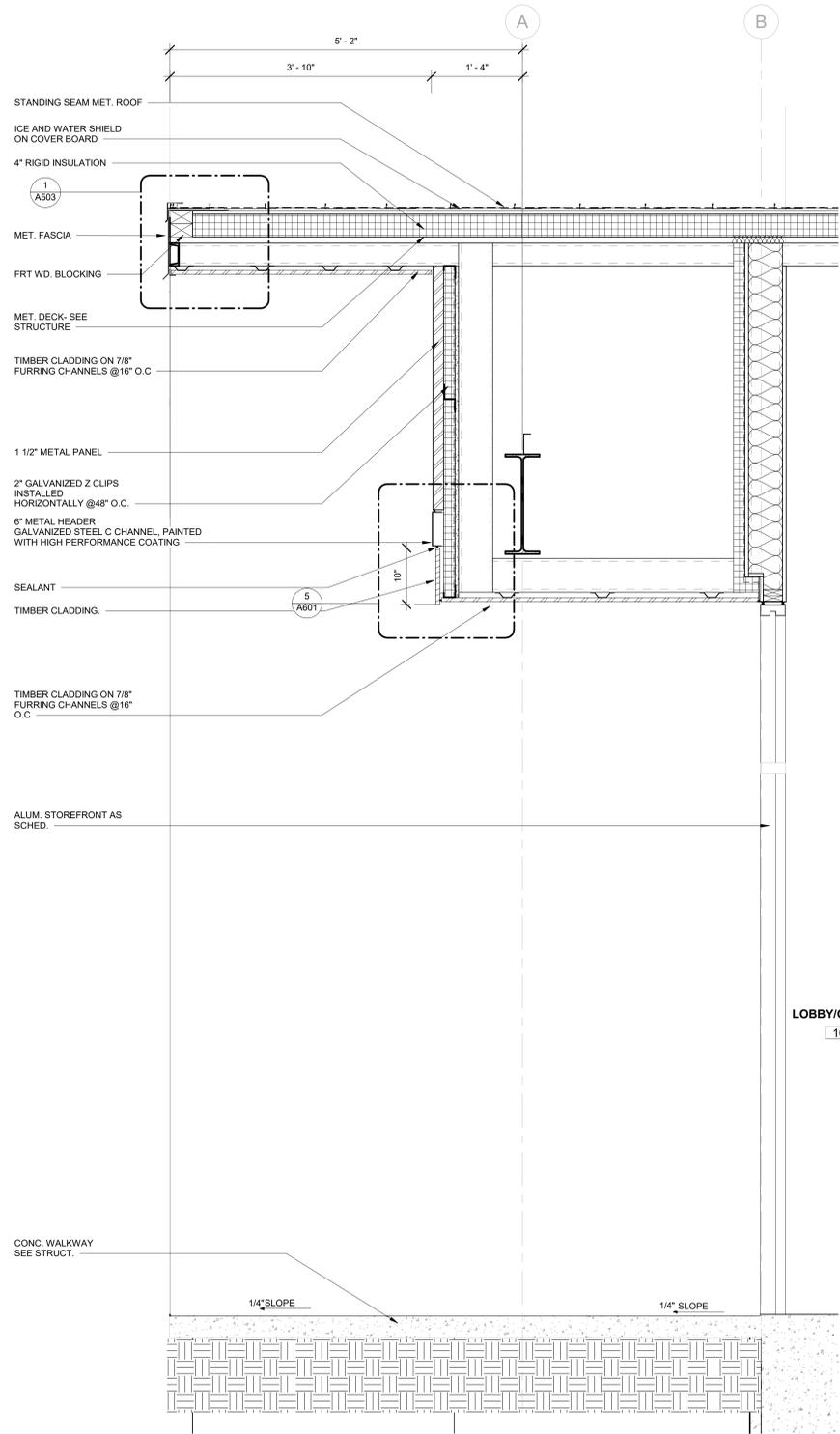
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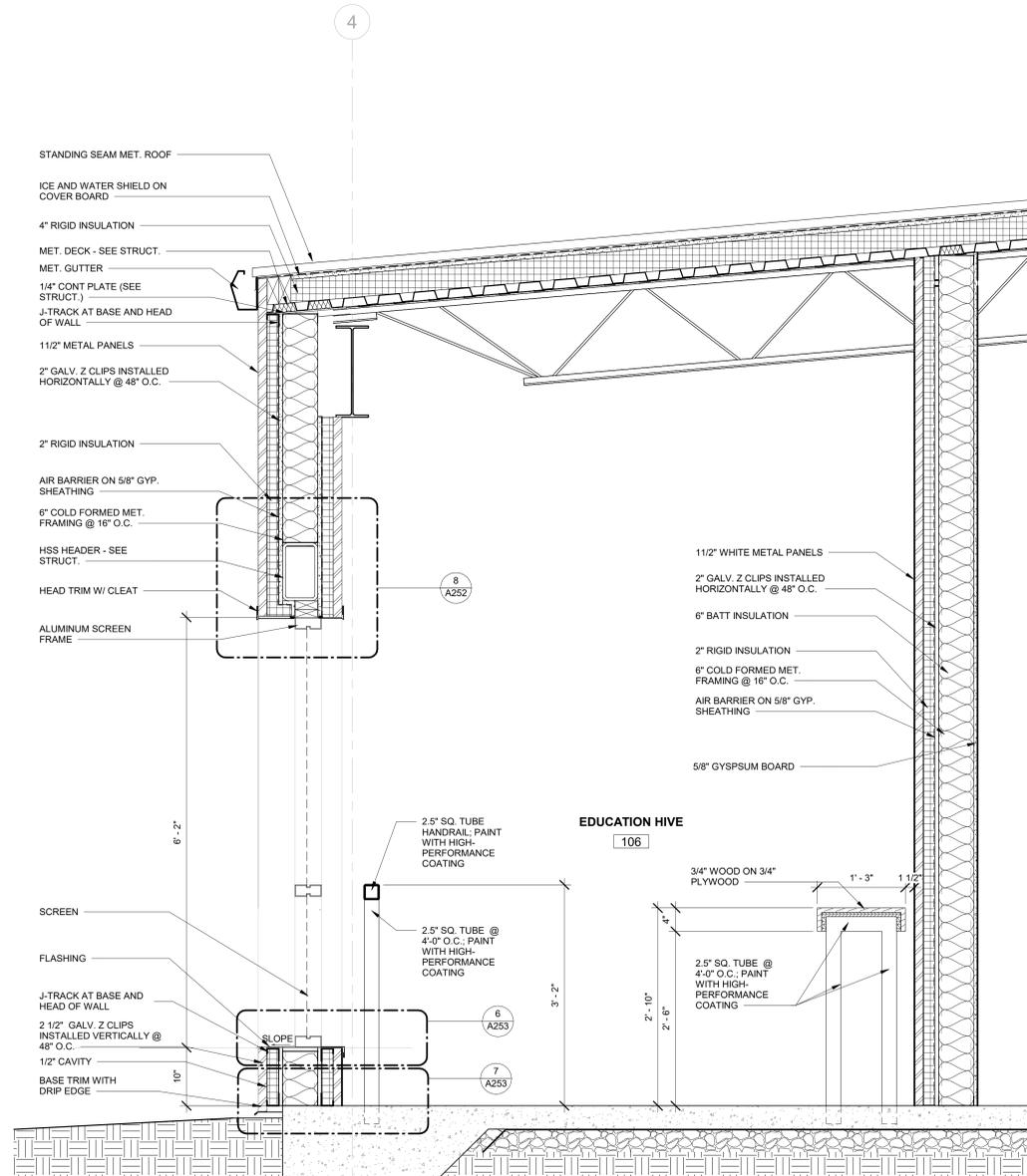
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SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132
Title
Wall Sections

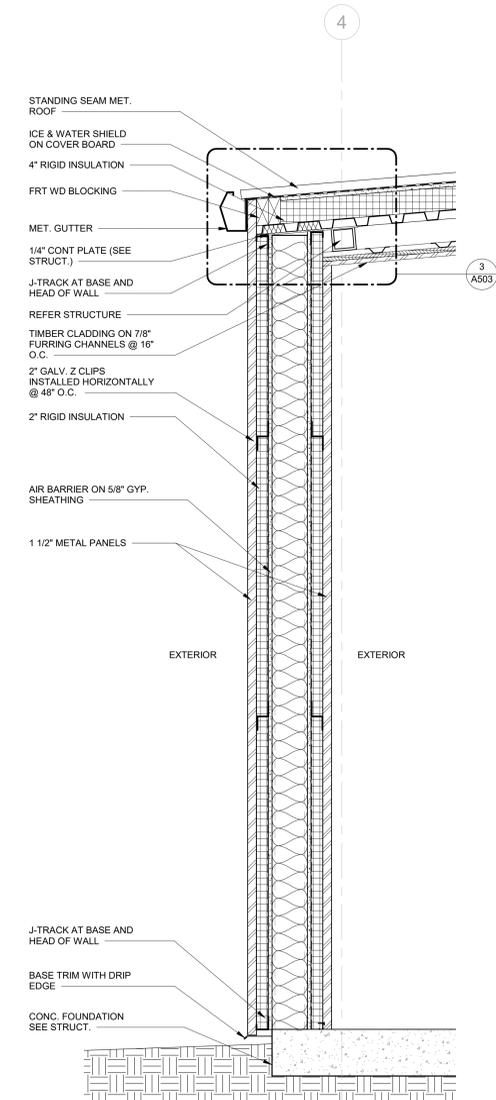
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A403
Plate



1 WALL SECTION
A404 1" = 1'-0"



2 WALL SECTION
A404 1" = 1'-0"



3 WALL SECTION
A404 1" = 1'-0"



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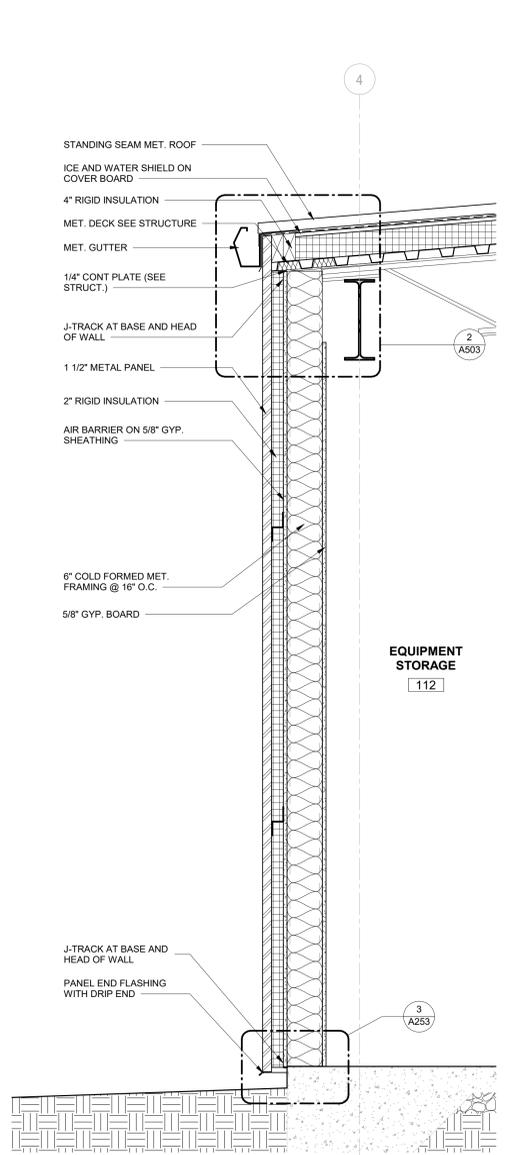
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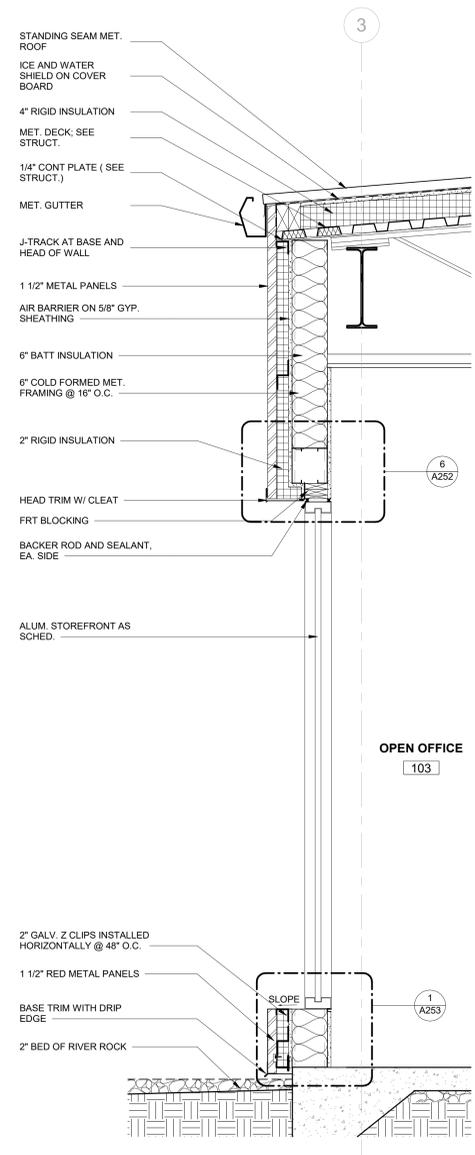
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SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 20222007

Project Number 132
Title
Wall Sections

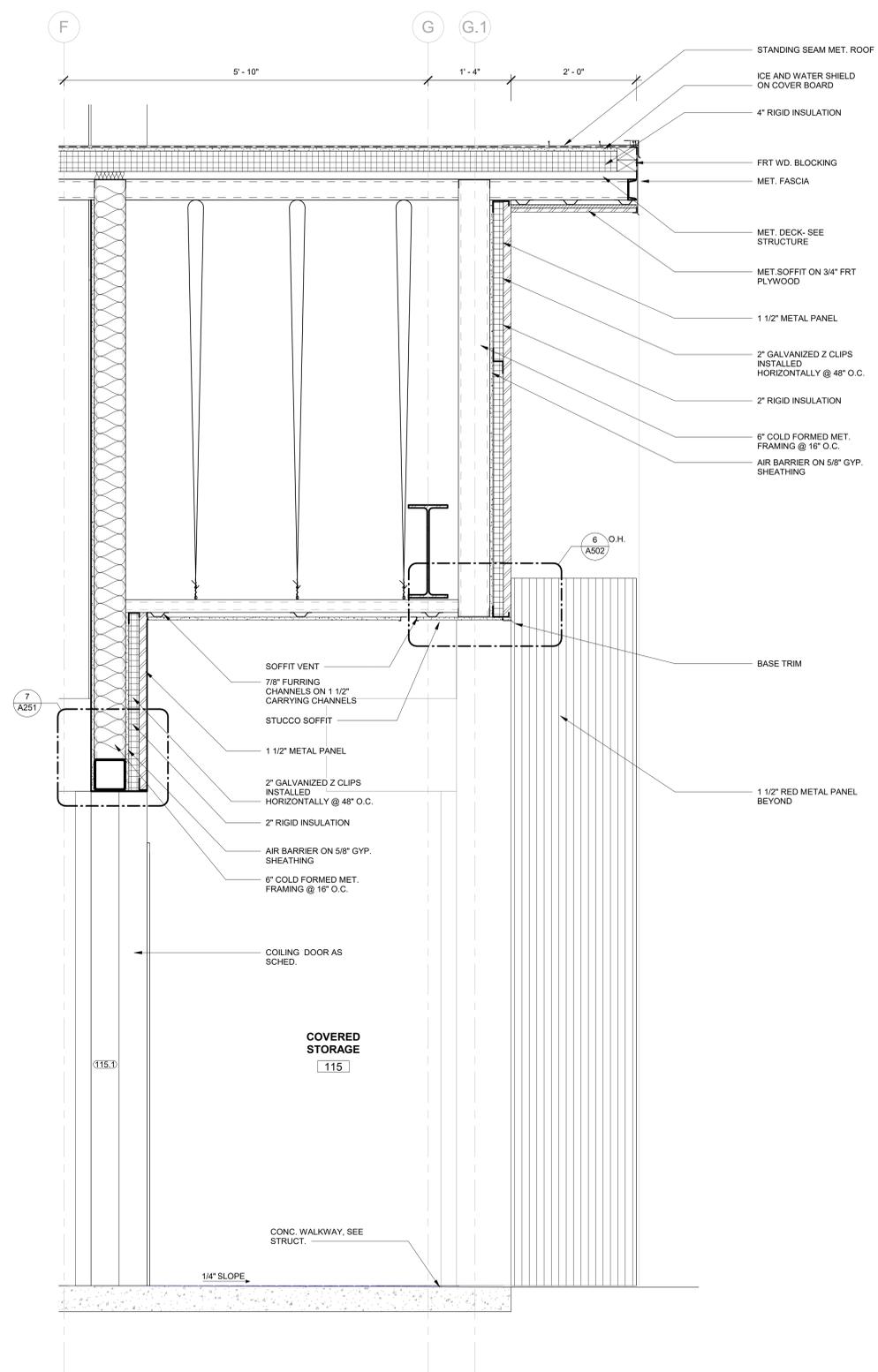
Sheet
A405
Plate



1 WALL SECTION
A405 1" = 1'-0"



2 WALL SECTION
A405 1" = 1'-0"



3 Wall Section
A405 1" = 1'-0"



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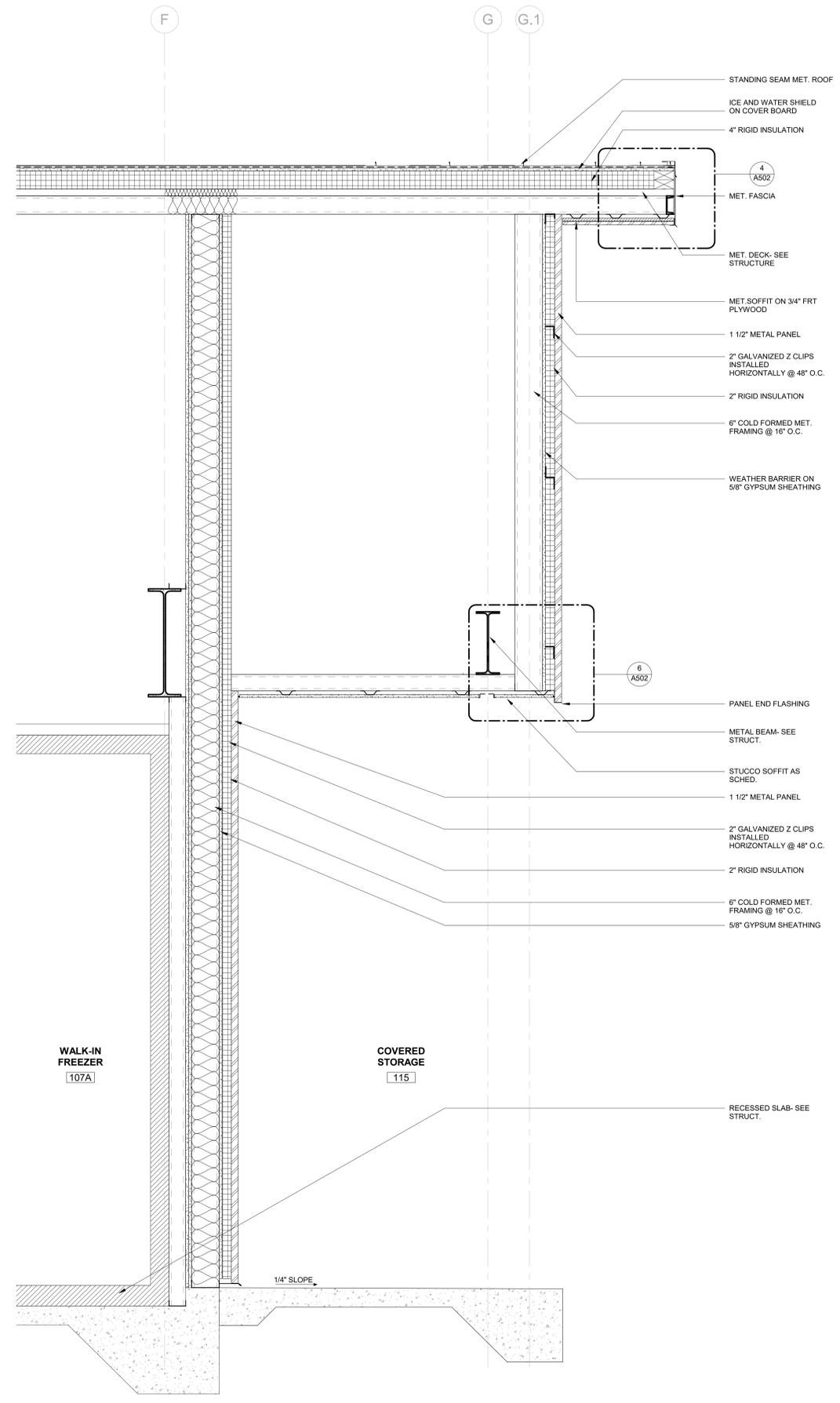
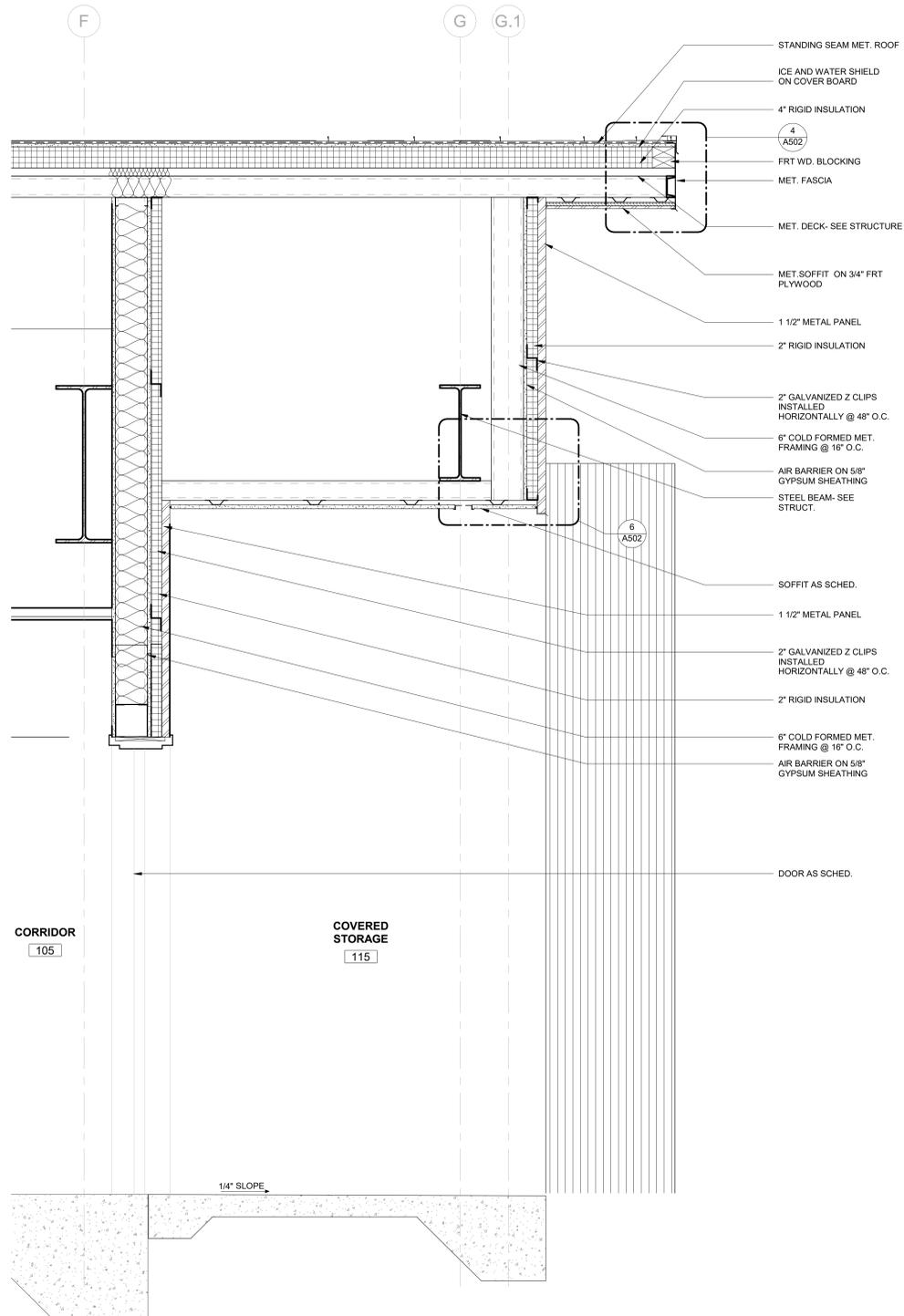
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SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

Title **Wall Sections**

Sheet

A406

Plate



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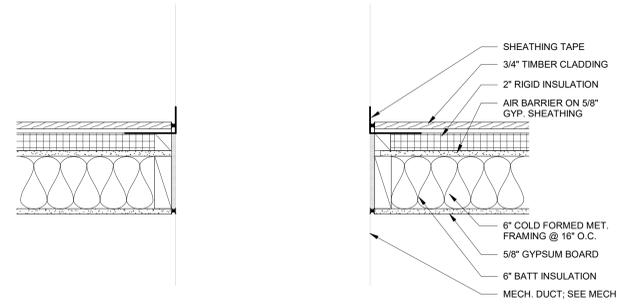
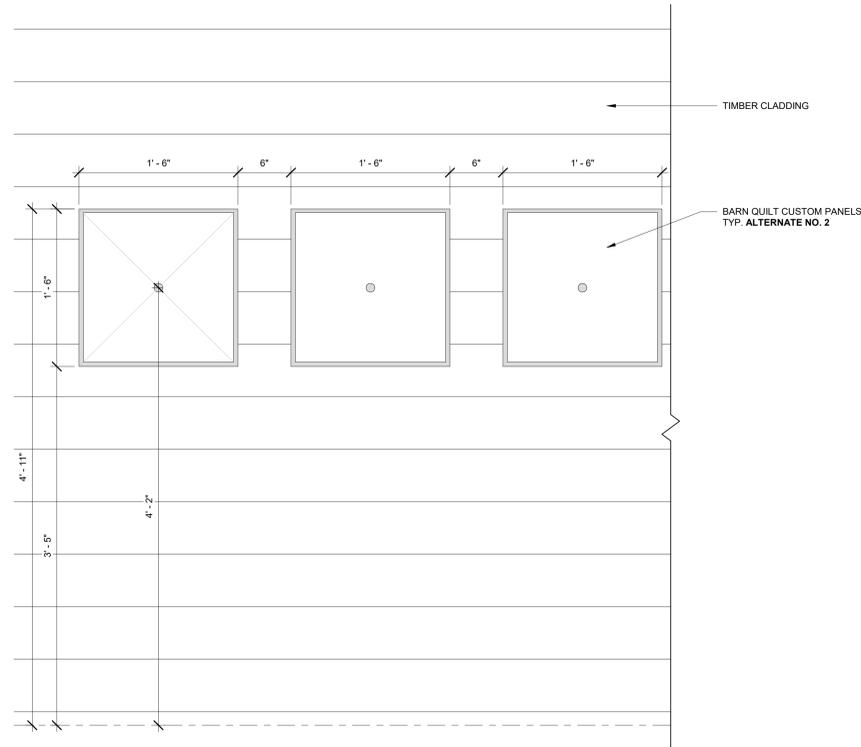
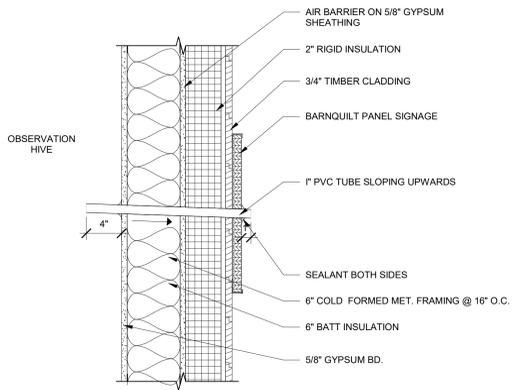
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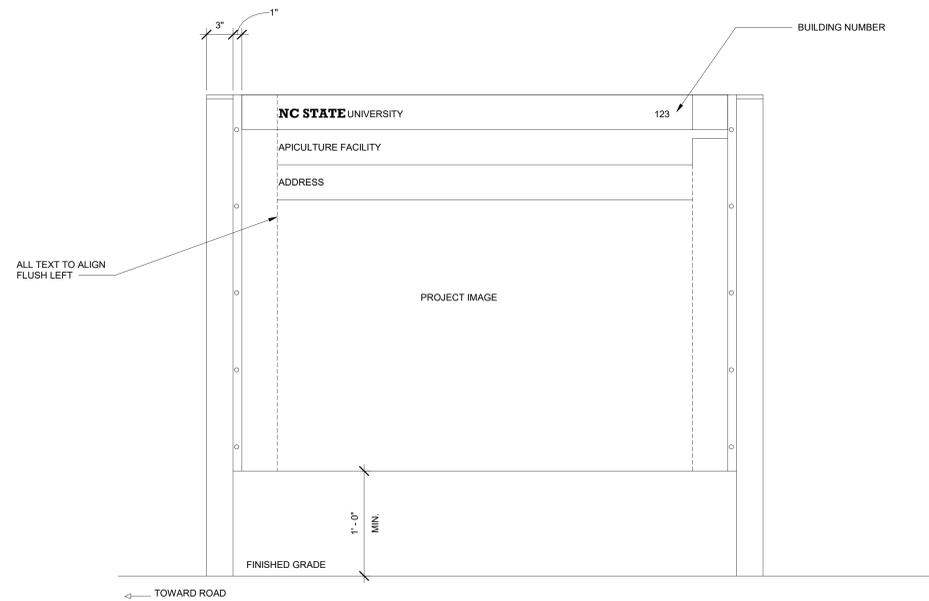
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3 MECH. DUCT PENETRTION DETAIL
A407 1 1/2" = 1'-0"

1 APIAN ENTRY DETAIL
A407 1 1/2" = 1'-0"

2 CUSTOM PAINTED SIGNAGE
A407 1 1/2" = 1'-0"



REFER NC STATE UNIVERSITY SIGNAGE
GUIDE FOR FONTS, SPACINGS,
GRAPHICS AND OTHER GUIDELINES

4 MECH. DUCT PENETRTION DETAIL
A407 1 1/2" = 1'-0"

6 CONSTRUCTION SIGN
A407 1 1/2" = 1'-0"

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NCSU: 202220007

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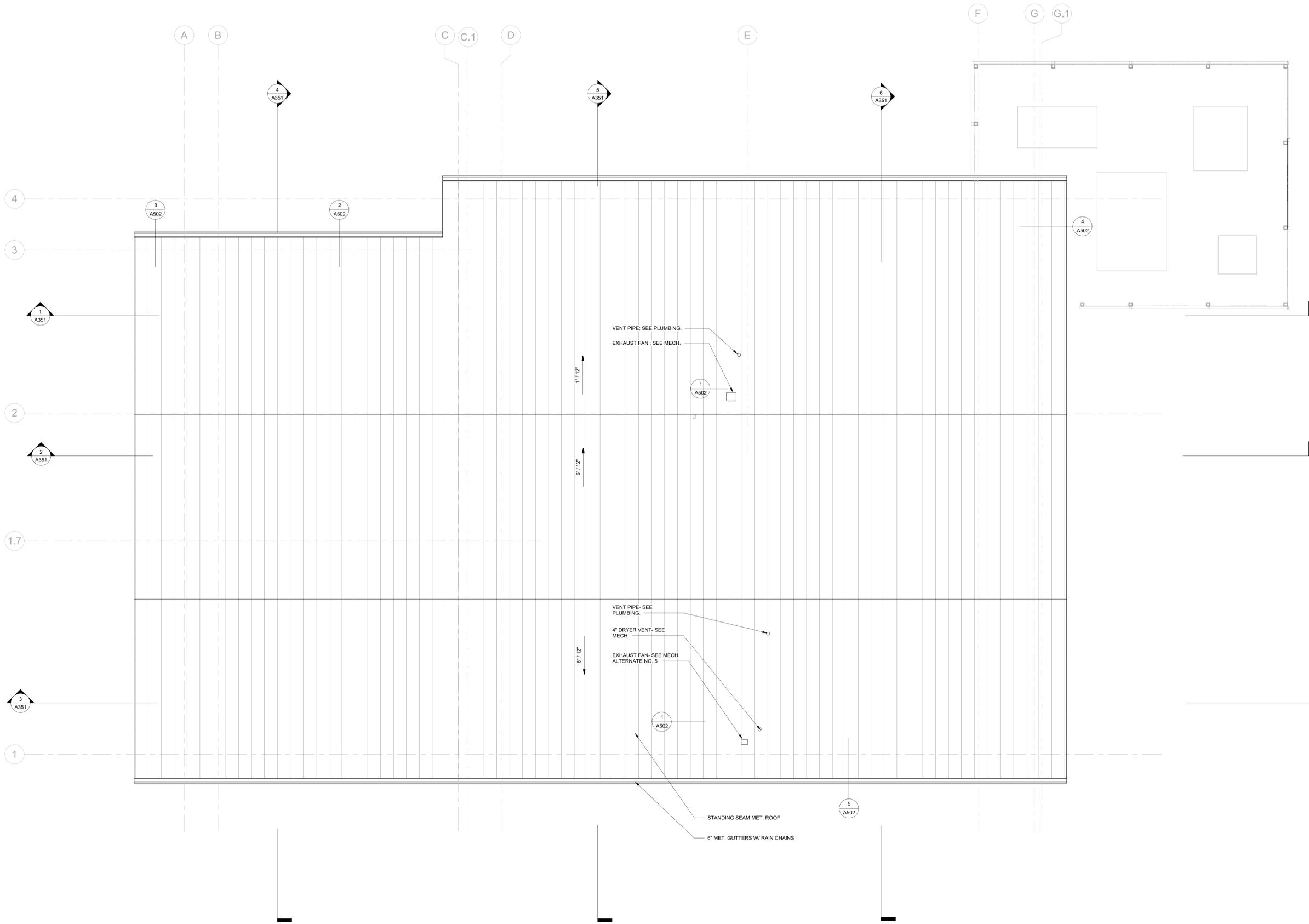
Title
Details

Sheet

A407

Plate

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1 ROOF PLAN
 A501 / 1/4" = 1'-0"

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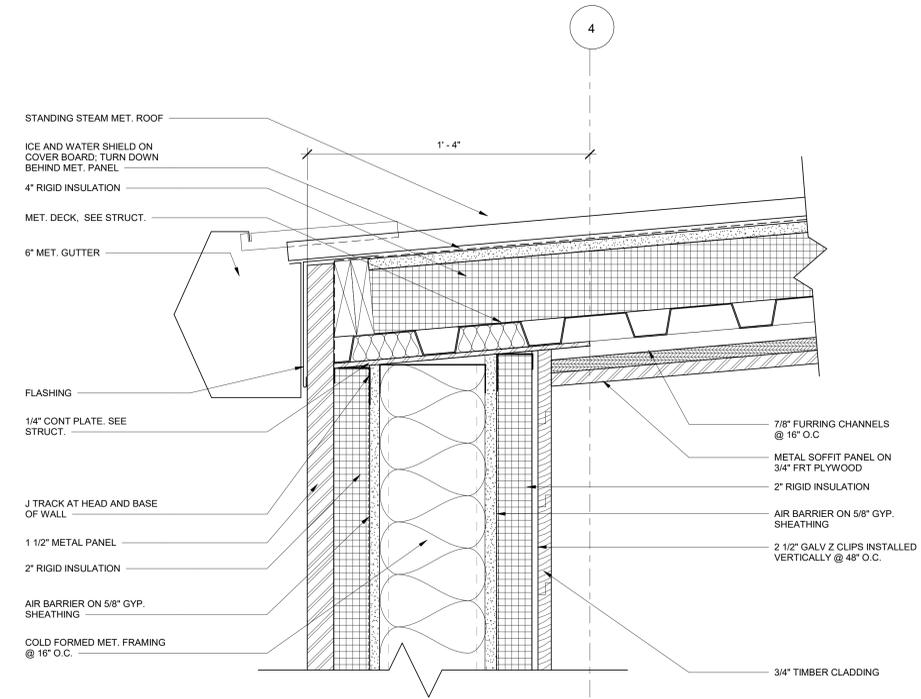
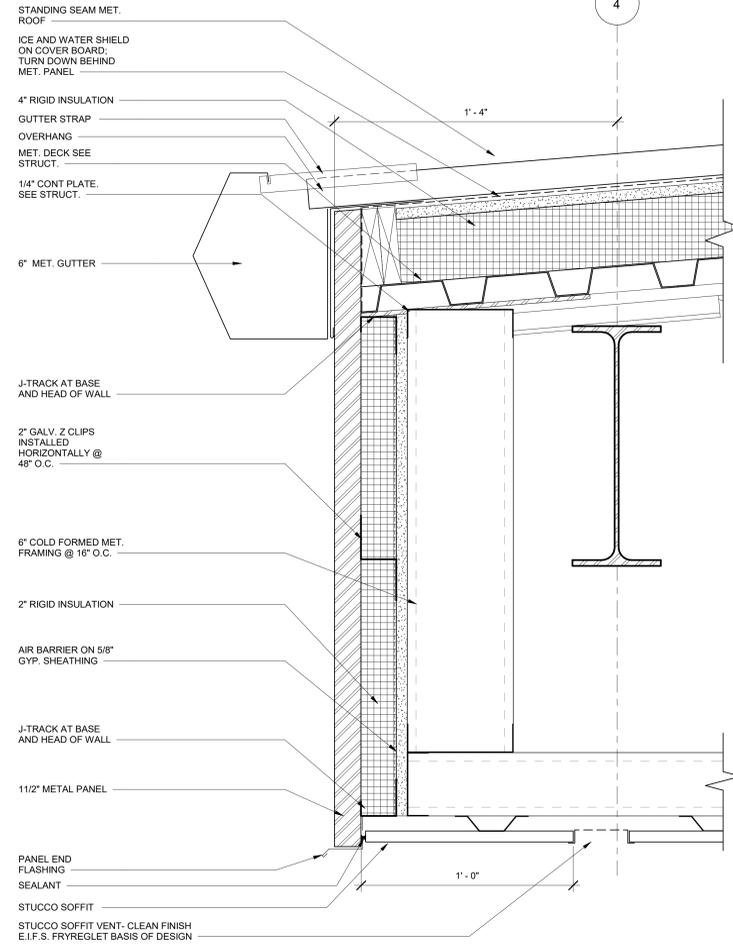
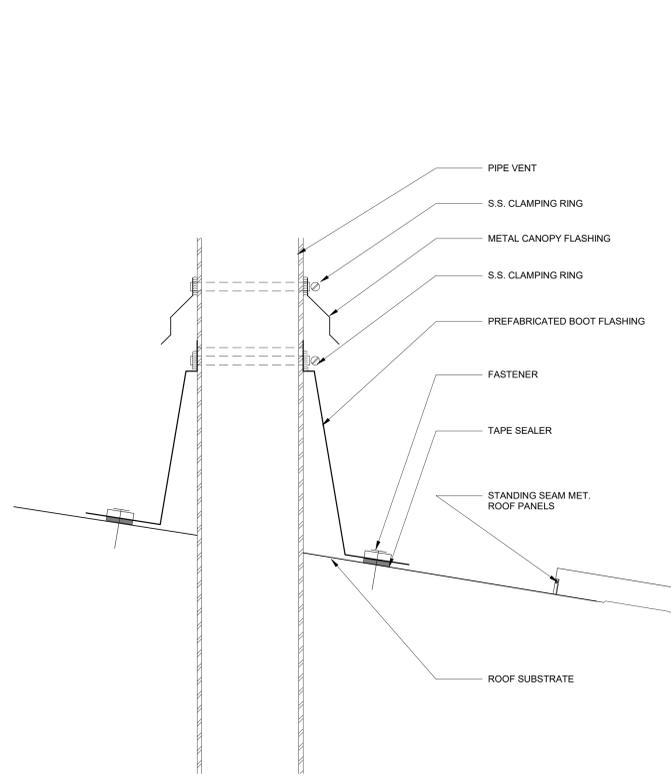
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Title
Roof Plan

Sheet

A501

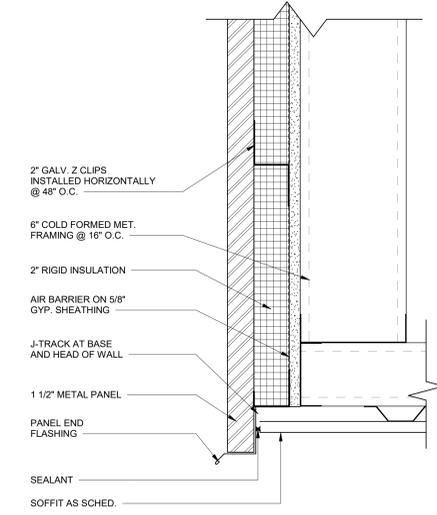
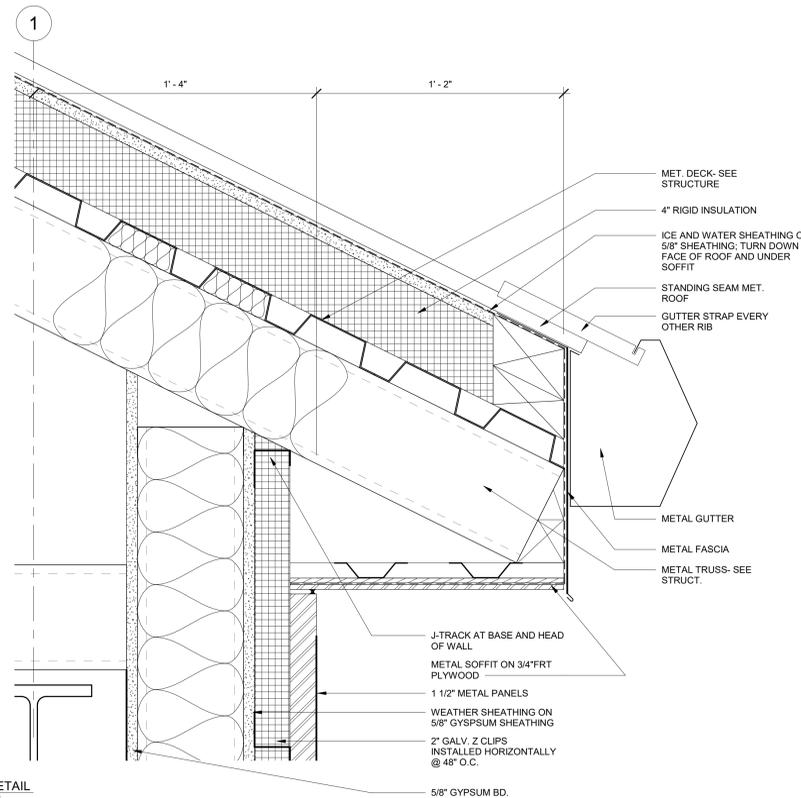
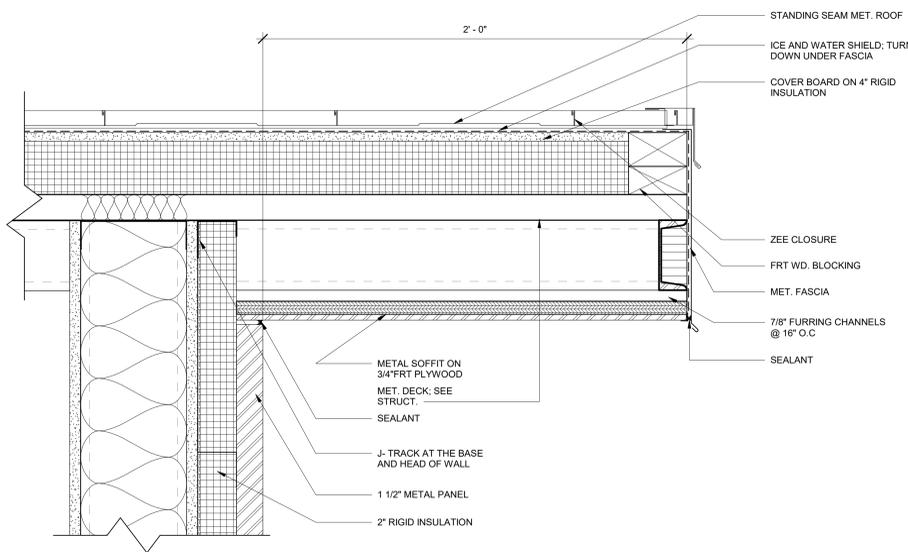
Plate



1 ROOF DETAILS- PENETRATION DETAIL
A502 3" = 1'-0"

2 ROOF DETAIL
A502 3" = 1'-0"

3 ROOF DETAIL
A502 3" = 1'-0"



4 ROOF DETAIL
A502 3" = 1'-0"

5 ROOF DETAIL
A502 3" = 1'-0"

6 SOFFIT DETAIL
A502 3" = 1'-0"



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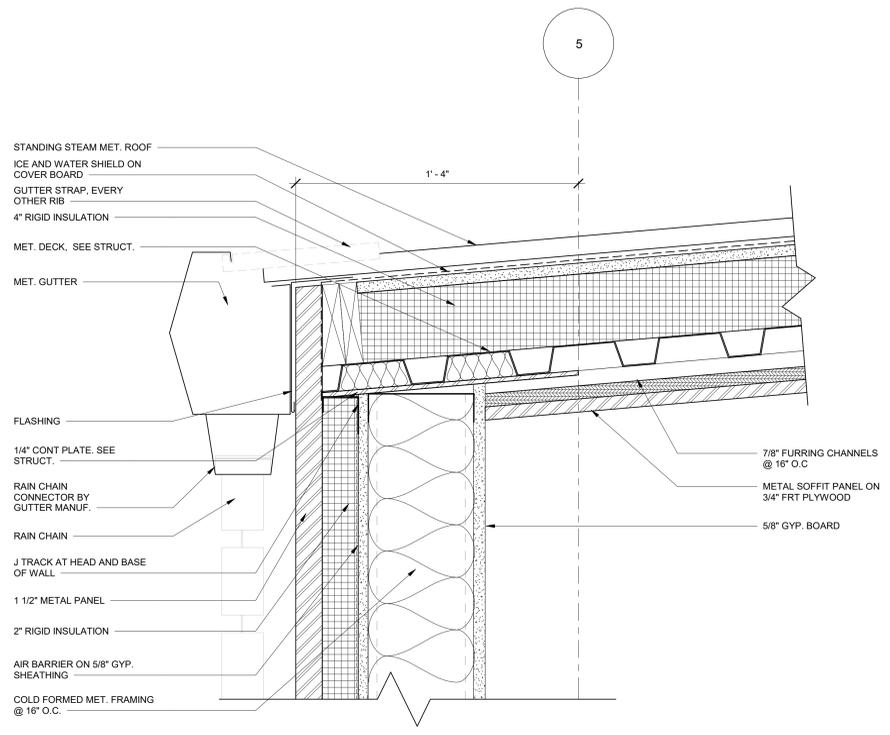
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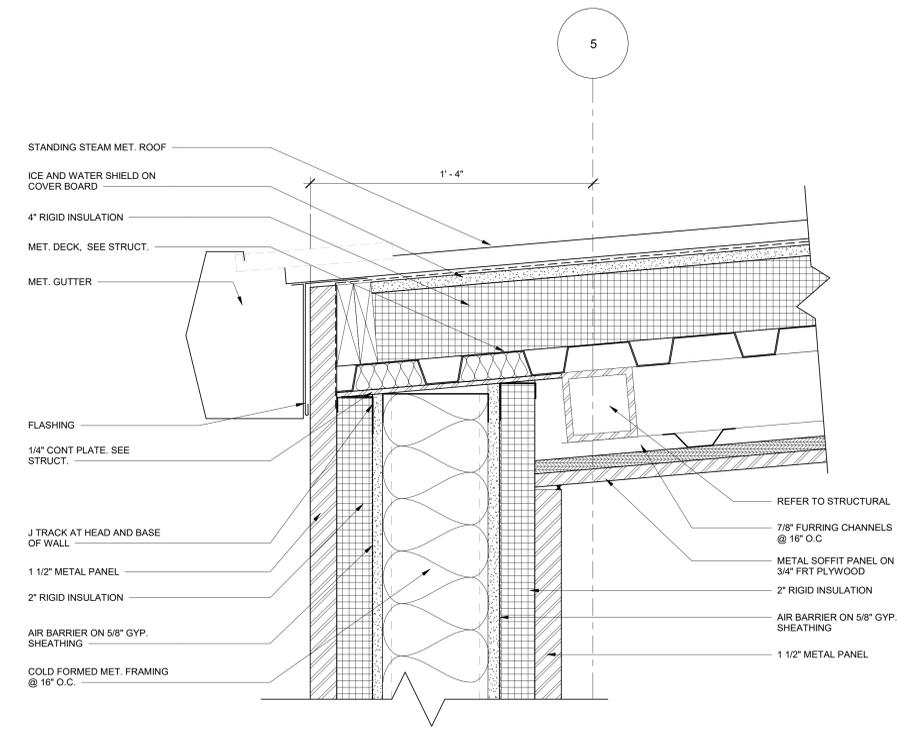
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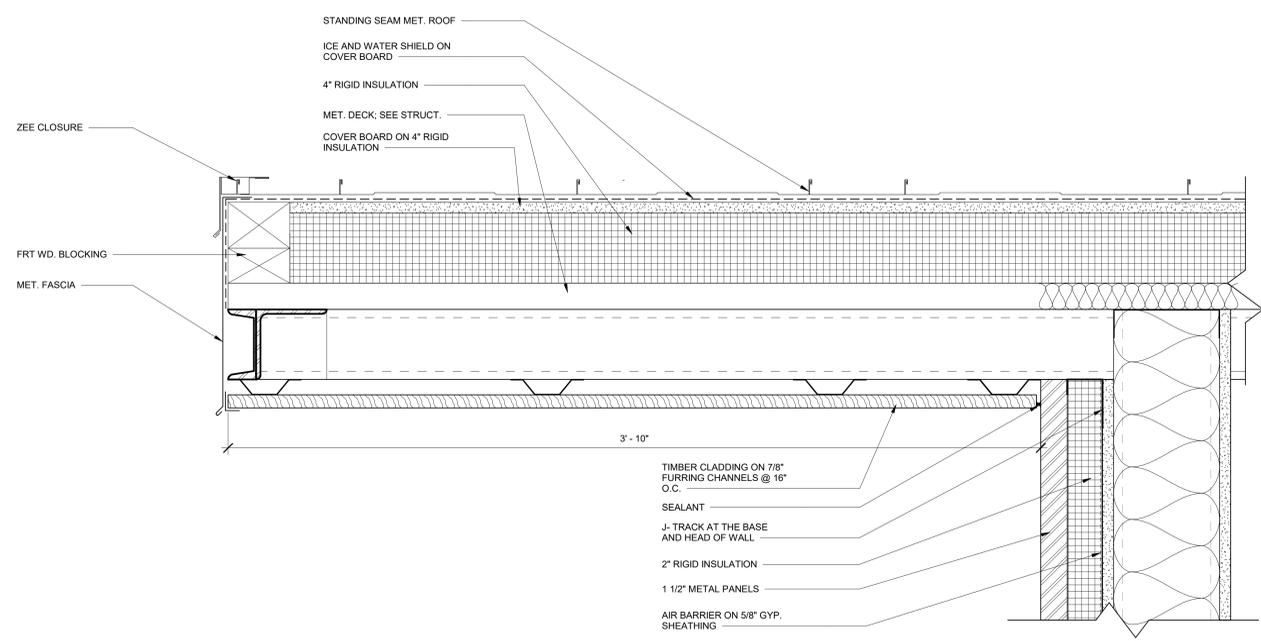
Plate



2 ROOF DETAIL
A503 3" = 1'-0"



3 ROOF DETAIL
A503 3" = 1'-0"



1 ROOF DETAIL
A503 3" = 1'-0"



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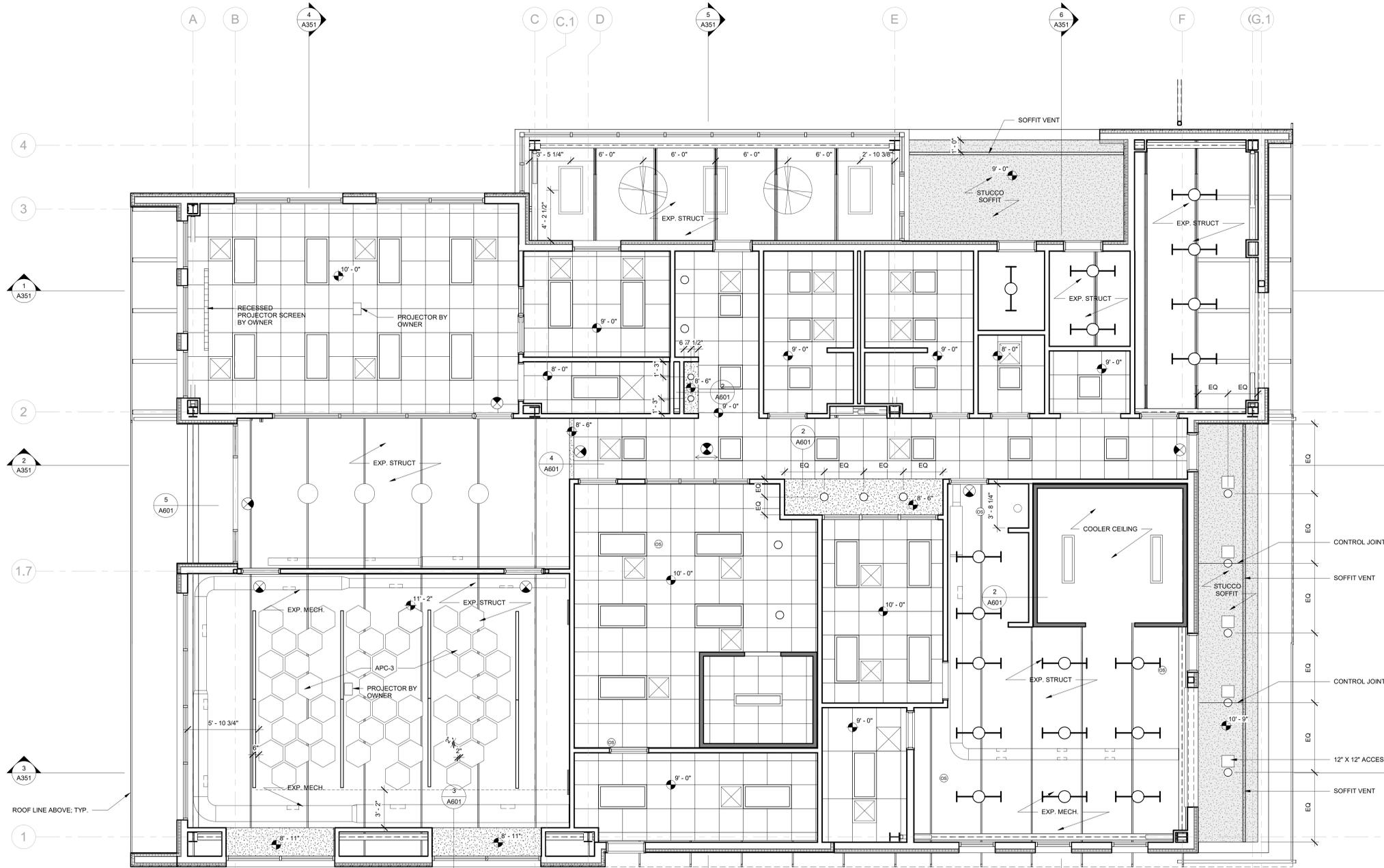
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Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

Title
Roof Details

Sheet
A503

Plate



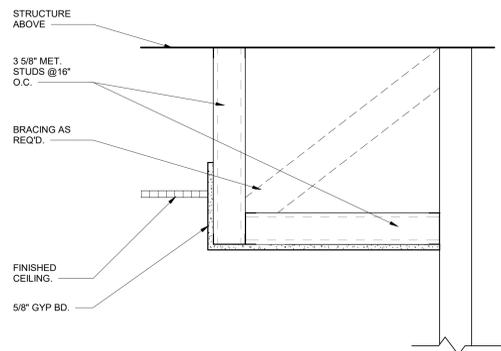
1 REFLECTED CEILING PLAN
A601 1/4" = 1'-0"

GENERAL NOTES

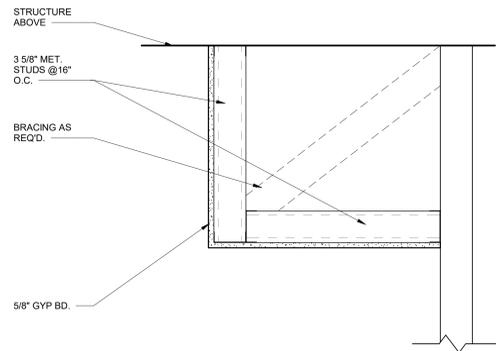
1. CEILING HEIGHT DIMENSIONS ARE FROM FINISH FLOOR. SEE FINISH SCHEDULE SHEET A221.
2. ALL CEILING ELEMENTS (LIGHT FIXTURES, DIFFUSERS, SPRINKLER HEADS, SMOKE AND HEAT DETECTORS, EXIT SIGNS, AND OTHER DEVICES) ARE TO BE INSTALLED IN THE CENTER OF CEILING PANELS UNLESS OTHERWISE NOTED. SEE MECHANICAL, FIRE PROTECTION, AND ELECTRICAL DRAWINGS FOR TYPE, QUANTITY, AND CONNECTION INFORMATION.
3. CEILING PANELS ARE TO BE CENTERED WITHIN THE SPACE AND SYMMETRICALLY CUT AT WALLS UNLESS INDICATED GRAPHICALLY OR NOTED OTHERWISE.
4. FOR WALL MOUNTED DEVICES, SEE INTERIOR ARCHITECTURAL ELEVATIONS AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
5. PAINT ALL DUCTWORK VISIBLE ABOVE SUPPLY AND RETURN GRILLES AND LINEAR BAFFLE CEILING MATTE BLACK.

REFLECTED CEILING PLAN LEGEND

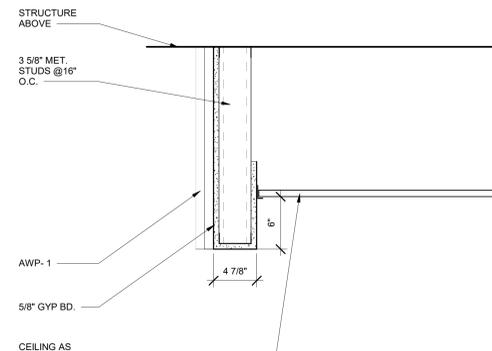
- ACOUSTICAL PANEL CEILING
- GYP. BD. CEILING/SOFFIT
- STUCCO SOFFIT
- SUPPLY AIR GRILLE
- RECESSED DOWNLIGHT
- INDUSTRIAL LIGHTING FIXTURE
- 2' X 2' CEILING LIGHT
- 1' X 4' CEILING LIGHT
- 2' X 4' CEILING LIGHT
- PENDANT LIGHT FIXTURE
- EXIT SIGN- CEILING MOUNTED
- OCCUPANCY SENSOR
- CEILING FAN



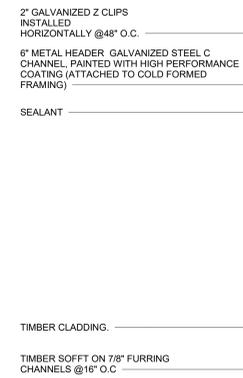
2 BULKHEAD DETAIL
A601 1 1/2" = 1'-0"



3 BULKHEAD DETAIL
A601 1 1/2" = 1'-0"



4 BULKHEAD DETAIL
A601 1 1/2" = 1'-0"

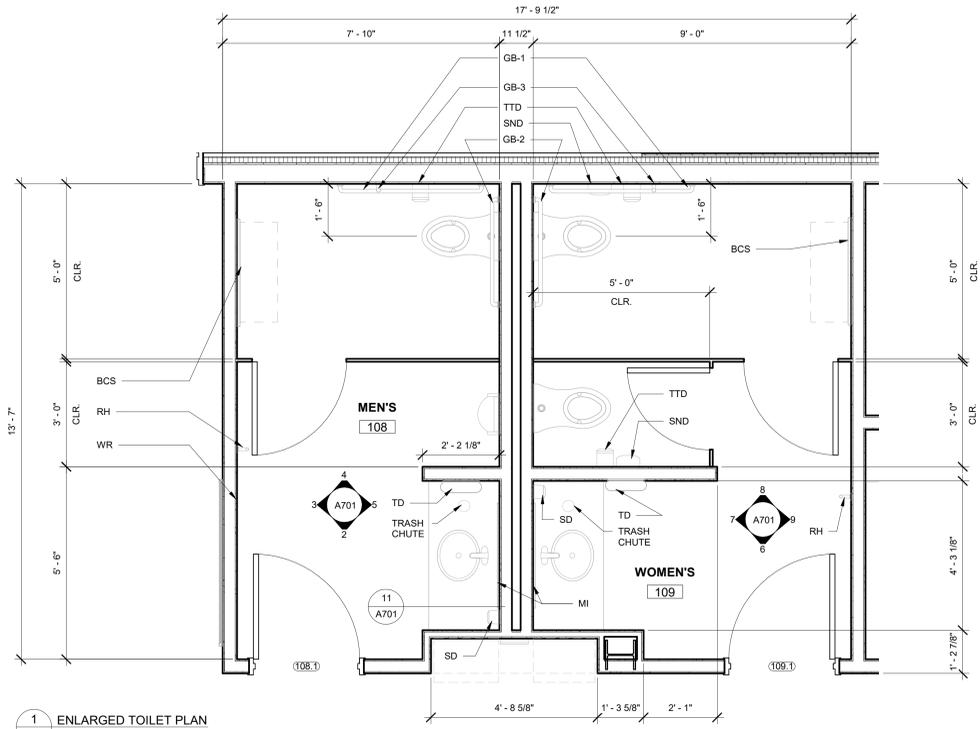


5 SOFFIT DETAIL
A601 3" = 1'-0"

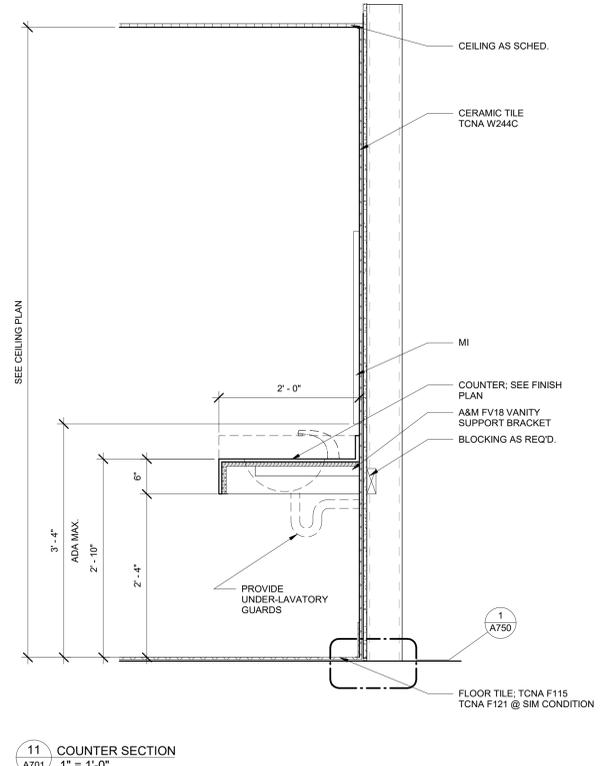
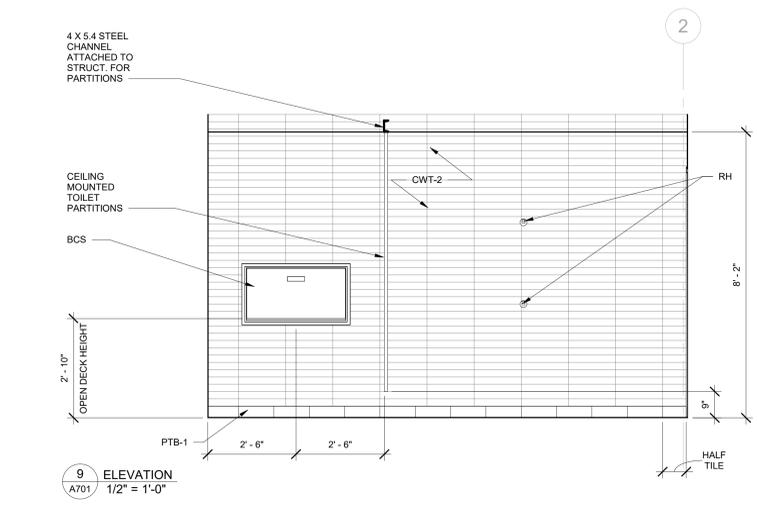
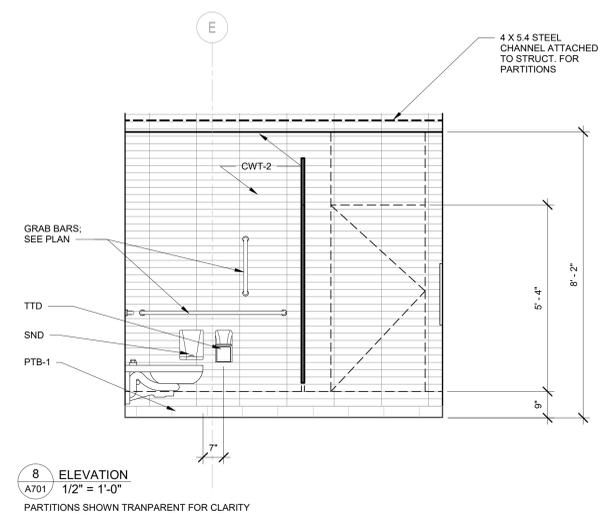
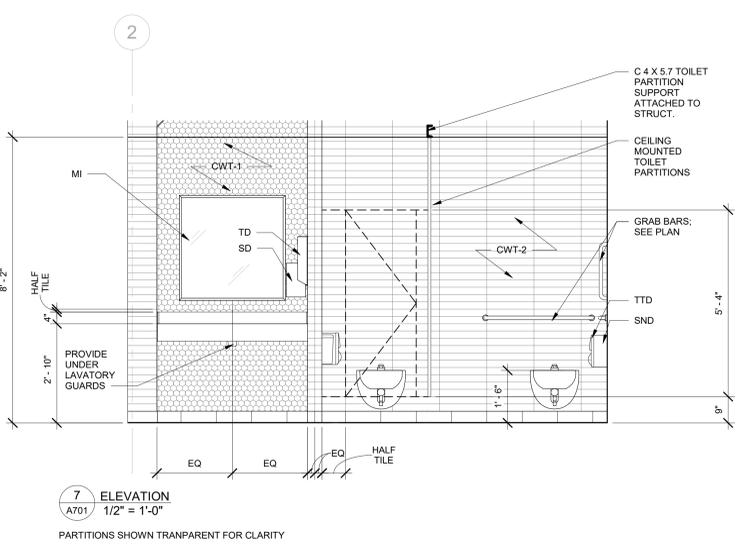
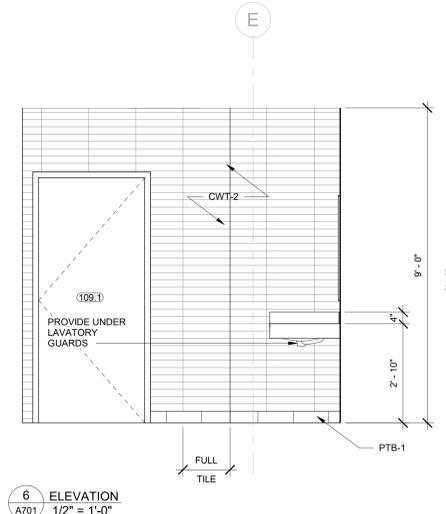
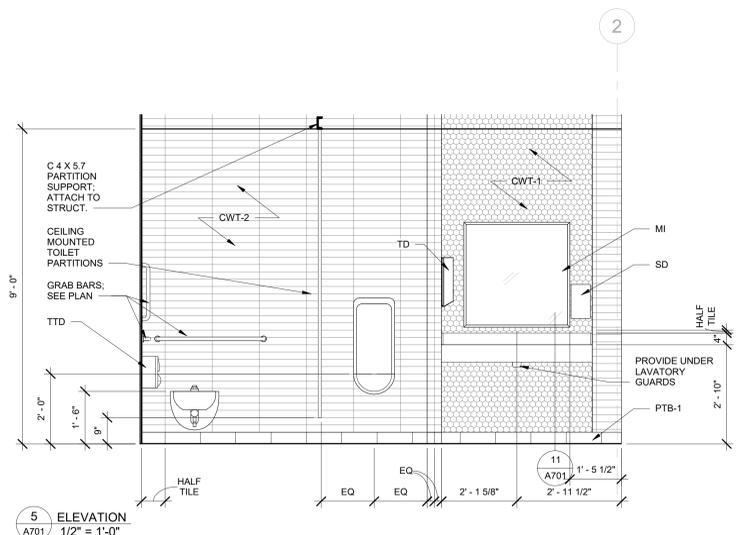
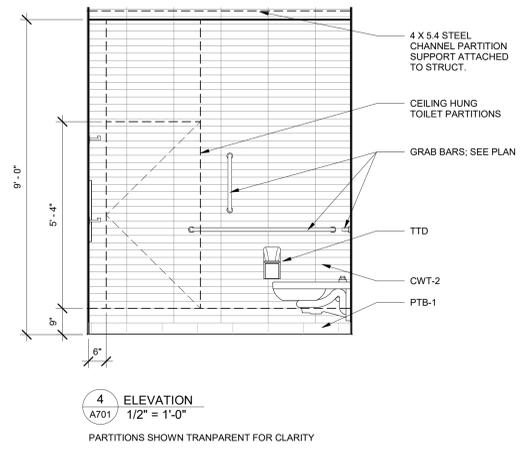
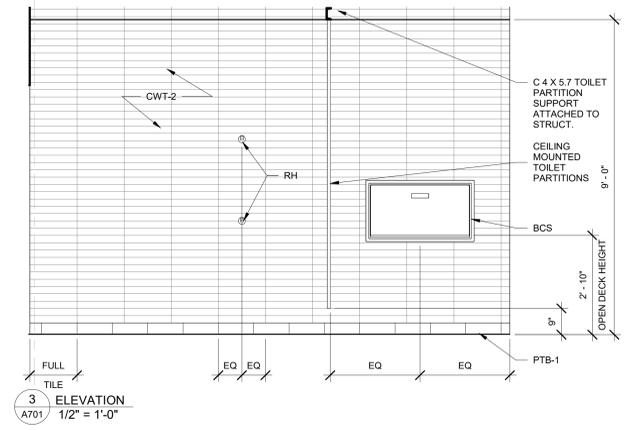
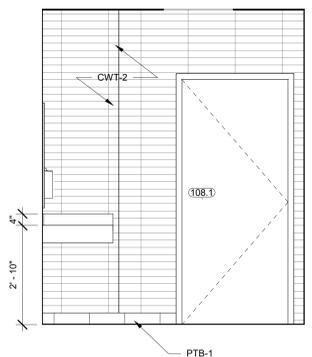
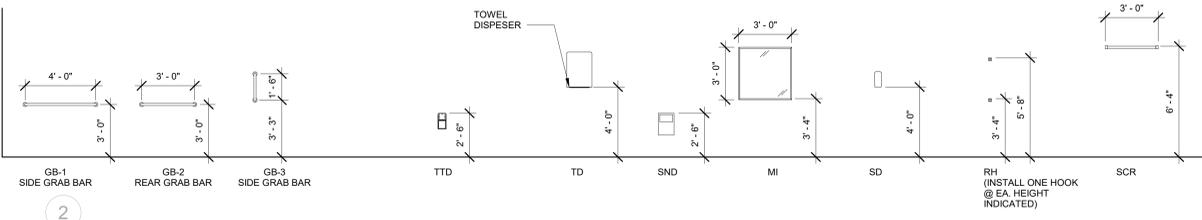


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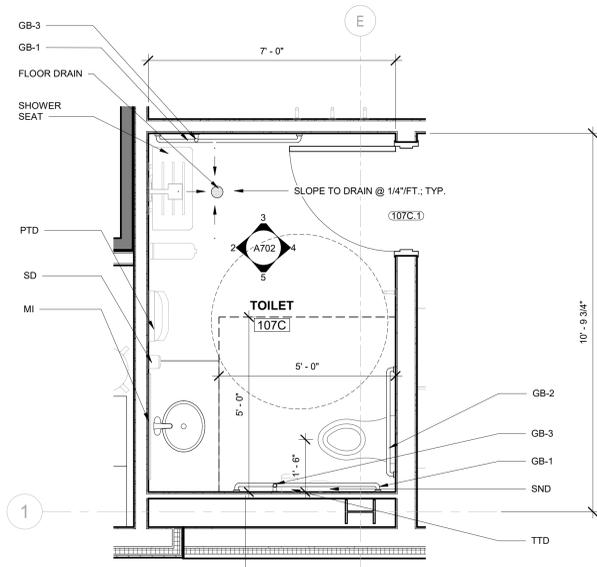


- TOILET AND BATH ACCESSORY LEGEND**
- BCS BABY CHANGING STATION
 - GB-1 GRAB BAR, 48"
 - GB-2 GRAB BAR, 36"
 - GB-3 GRAB BAR, 18"
 - GB-4 GRAB BAR, 24"
 - MI MIRROR, WALL MOUNTED
 - SND SOAP DISPENSER, WALL MOUNTED
 - TTD TISSUE DISPENSER
 - TD TOILET TISSUE DISPENSER
 - UTILITY / COAT / ROBE HOOK
 - WR WASTE RECEPTACLE AND TOWEL DISPENSER, RECESSED
 - SCR SHOWER CURTAIN ROD

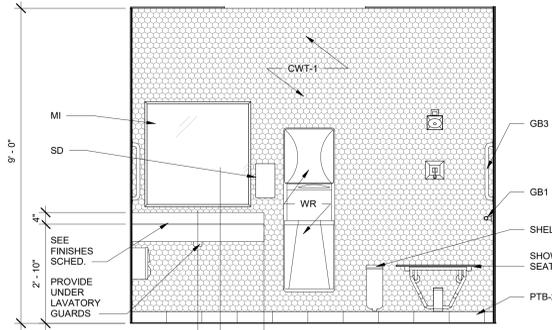


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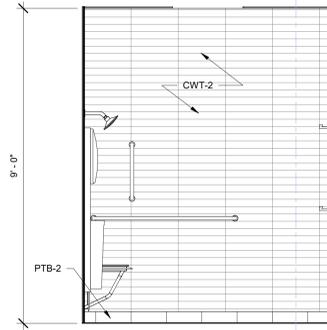
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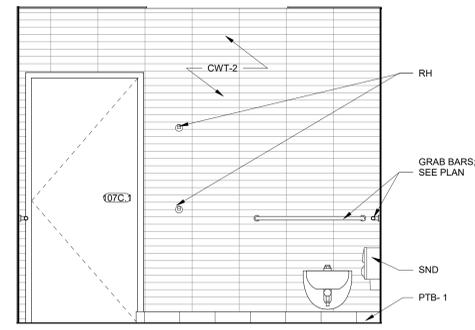
1 ENLARGE PLAN- ALTERNATE NO. 4
A702 / 1/2" = 1'-0"



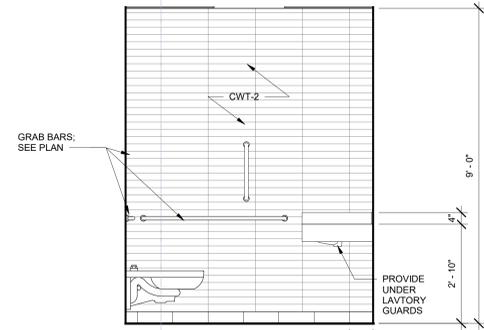
2 ELEVATION
A702 / 1/2" = 1'-0"



3 ELEVATION
A702 / 1/2" = 1'-0"



4 ELEVATION
A702 / 1/2" = 1'-0"



5 ELEVATION
A702 / 1/2" = 1'-0"

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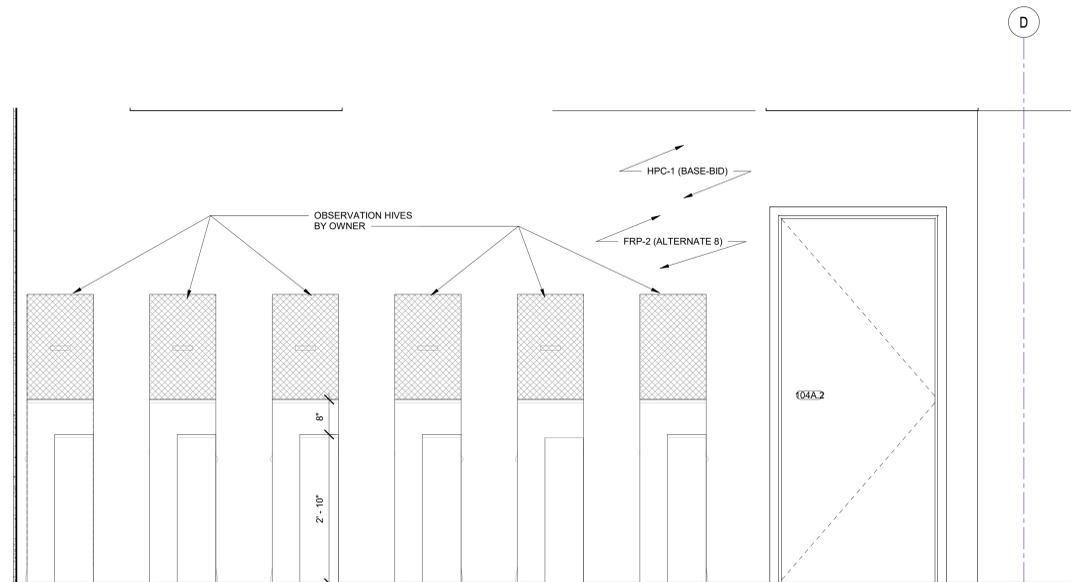
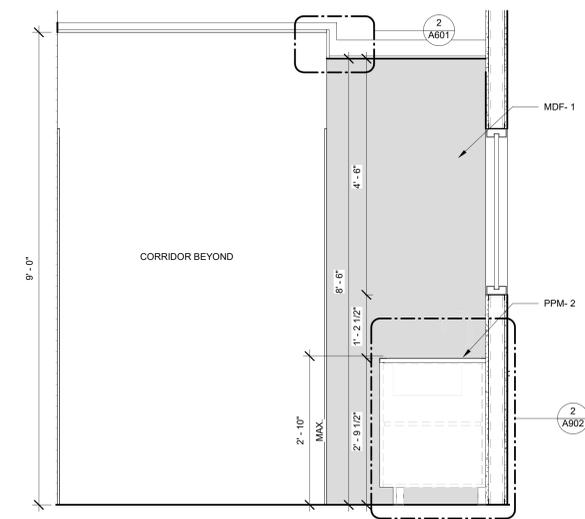
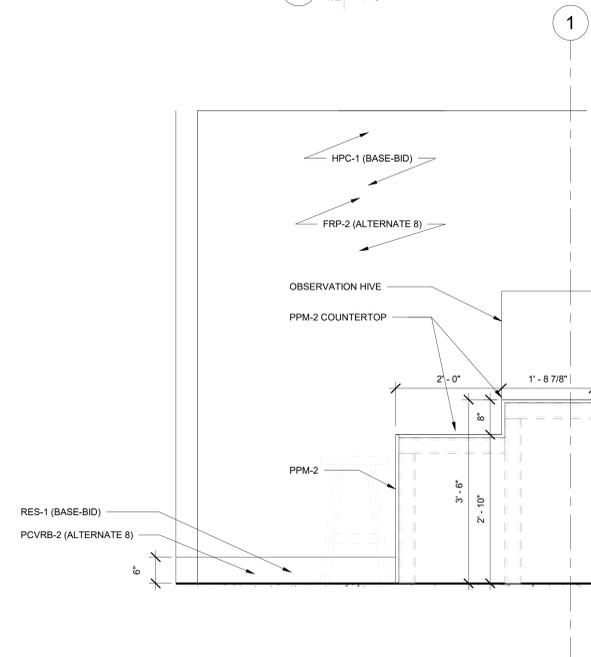
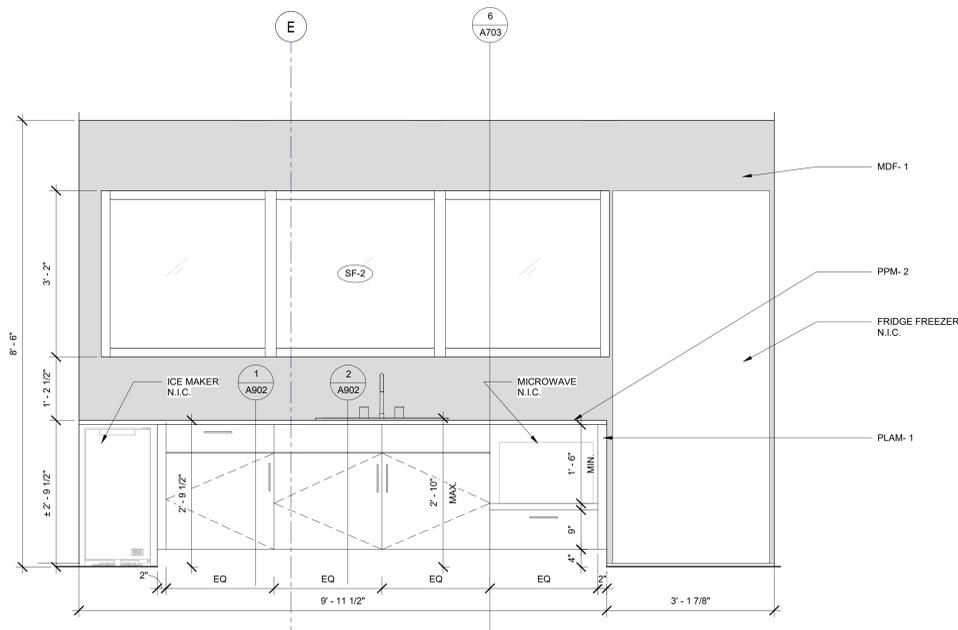
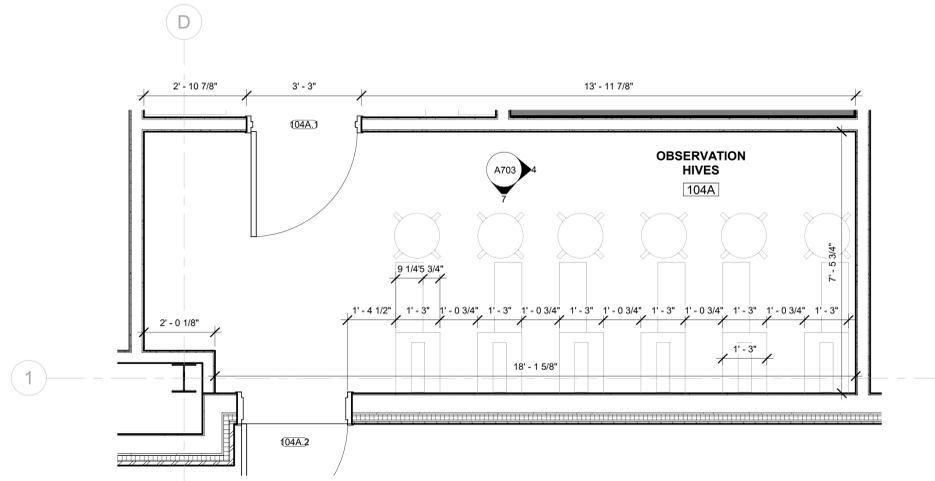
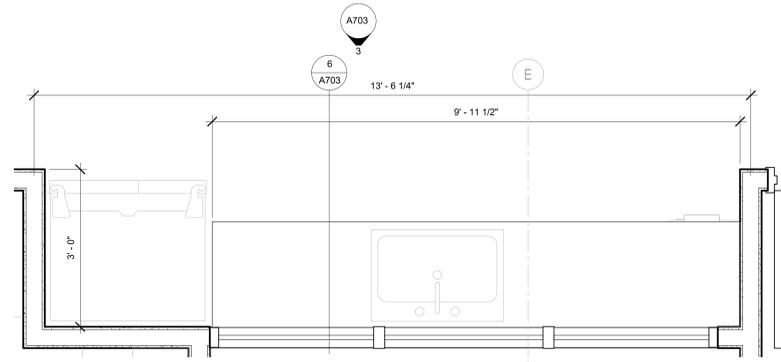
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Title
Interior Elevations and Details

Sheet

A702

Plate



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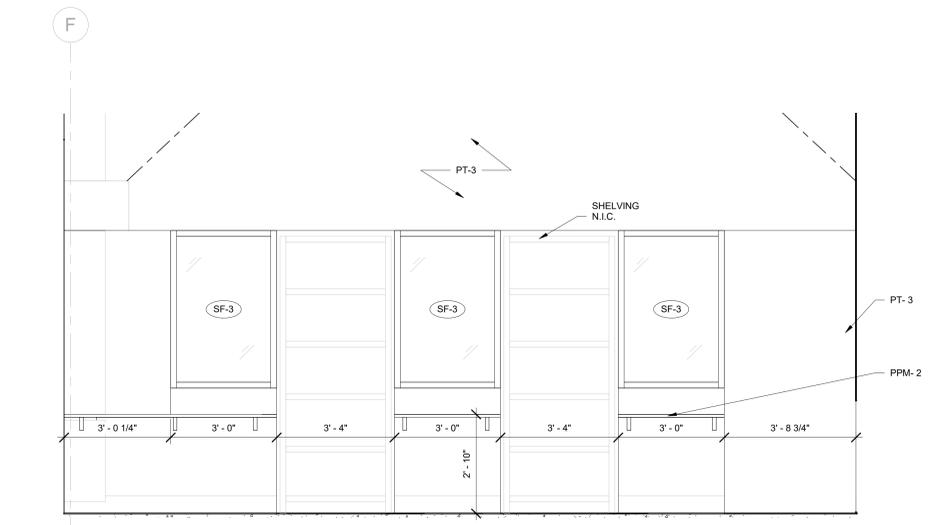
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Interior Elevations and Details

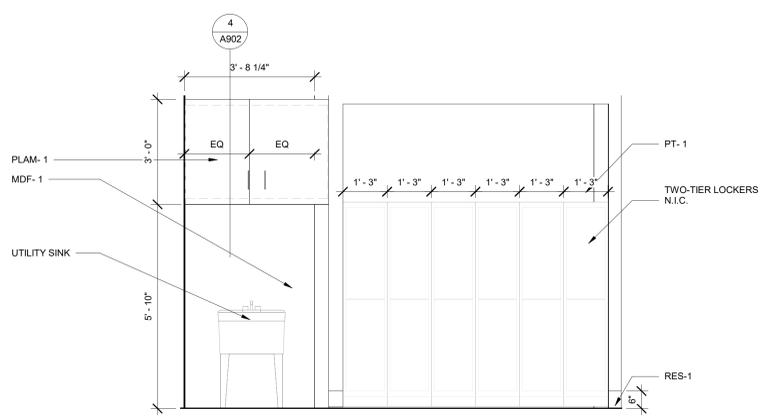
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A704

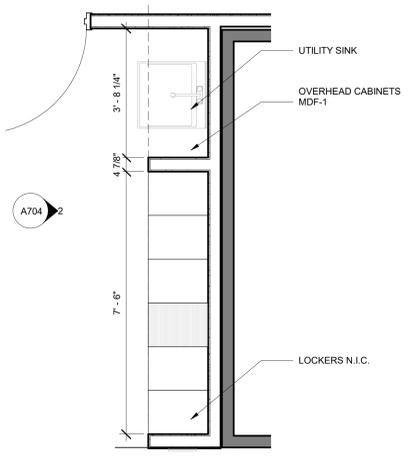
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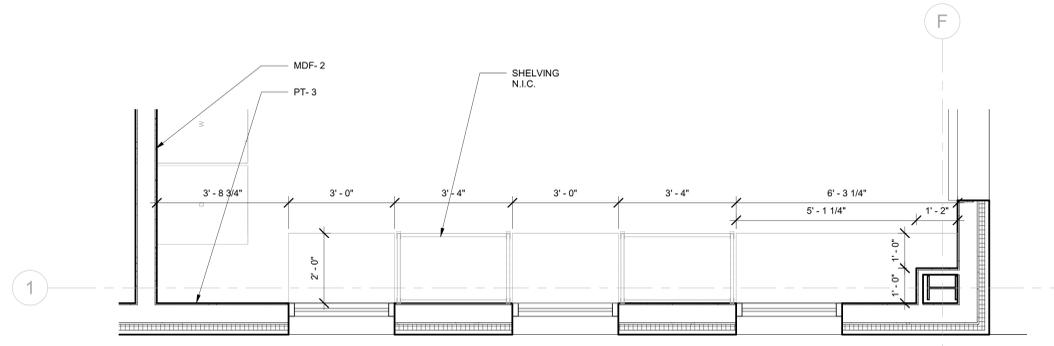
1 ELEVATION
A704 1/2" = 1'-0"



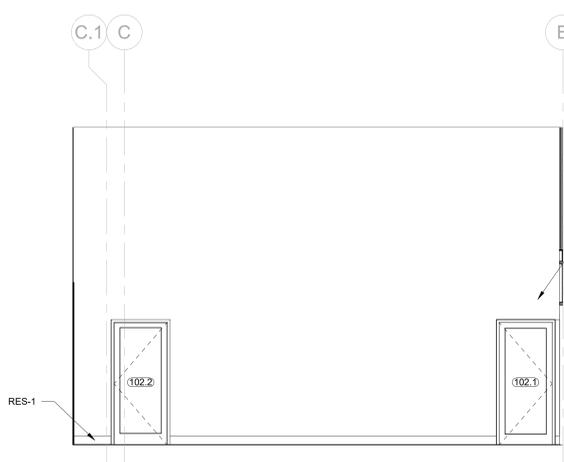
2 ELEVATION
A704 1/2" = 1'-0"



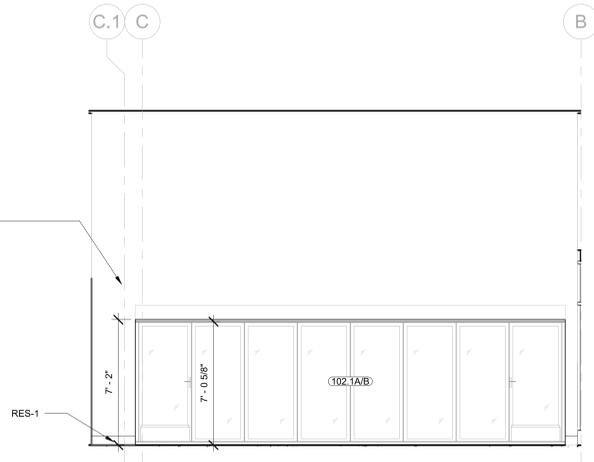
4 01-LEVEL 1 PLAN - WORKSHOP- ENT LOCKERS
A704 1/2" = 1'-0"



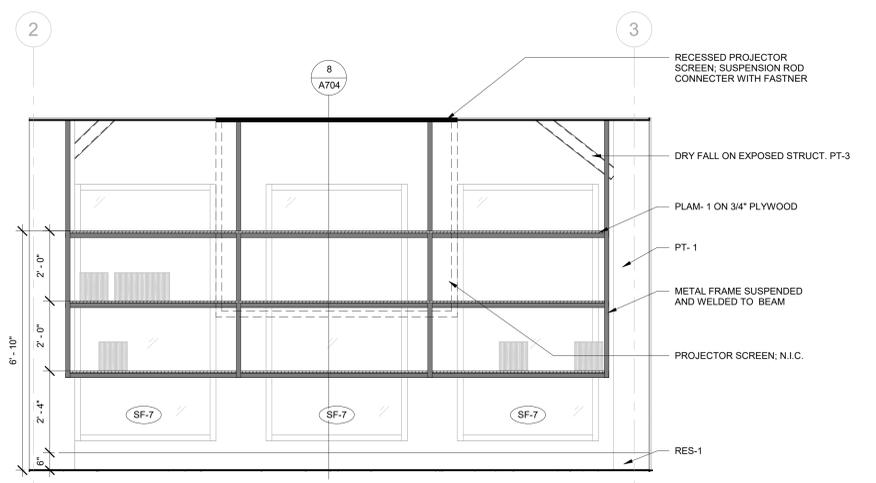
3 PLAN - WORKSHOP
A704 1/2" = 1'-0"



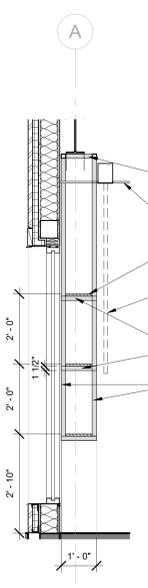
5 ELEVATION (BASE BID)
A704 1/4" = 1'-0"



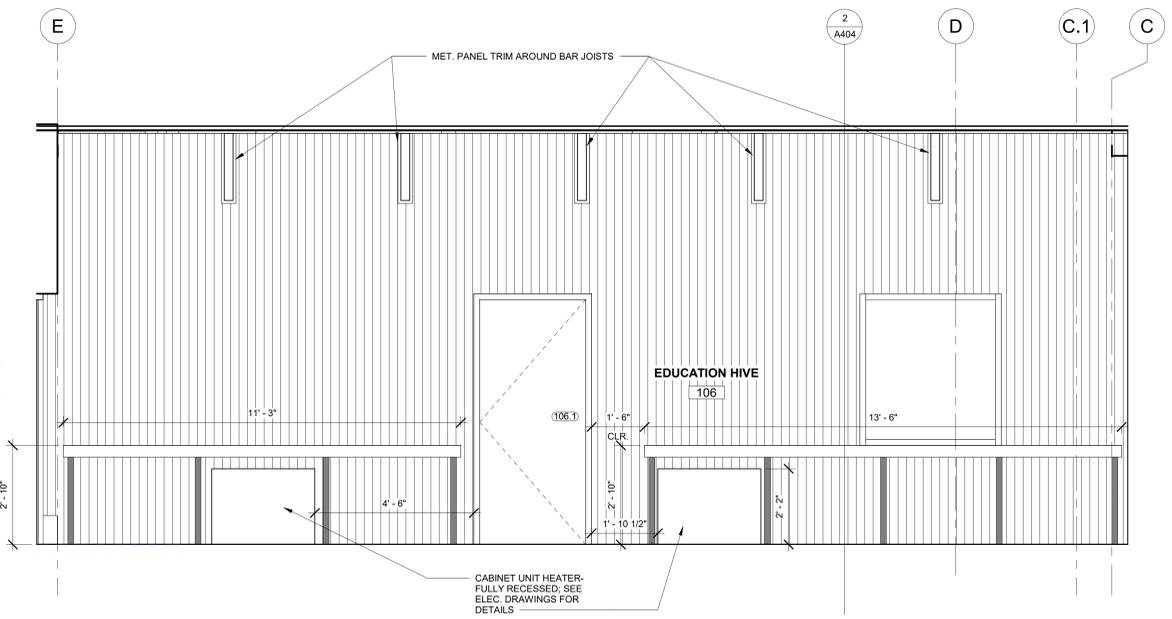
6 ELEVATION (ALTERNATE NO. 3)
A704 1/4" = 1'-0"



7 ELEVATION
A704 1/2" = 1'-0"



8 SECTION
A704 1/2" = 1'-0"



9 ELEVATION
A704 1/2" = 1'-0"



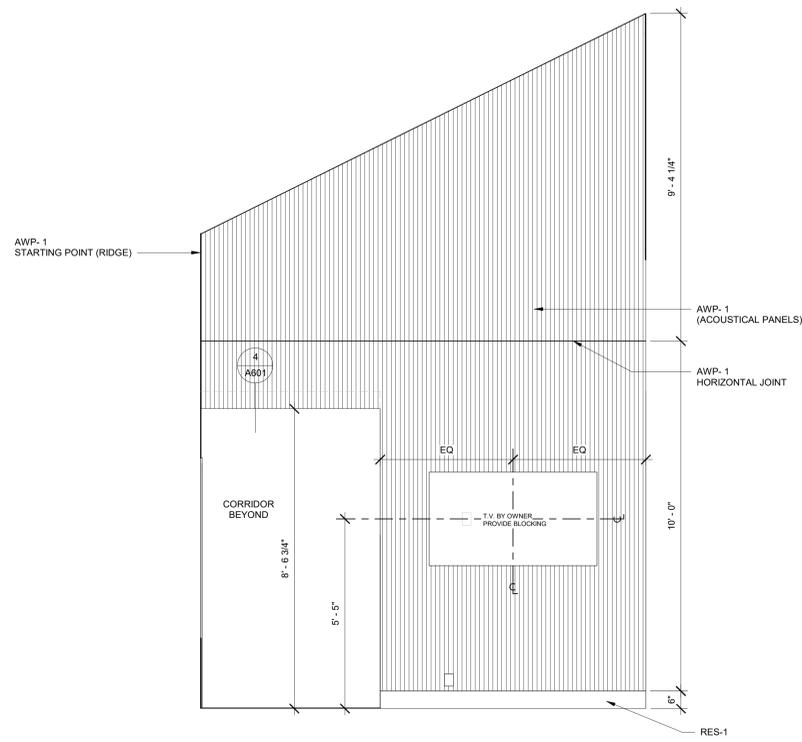
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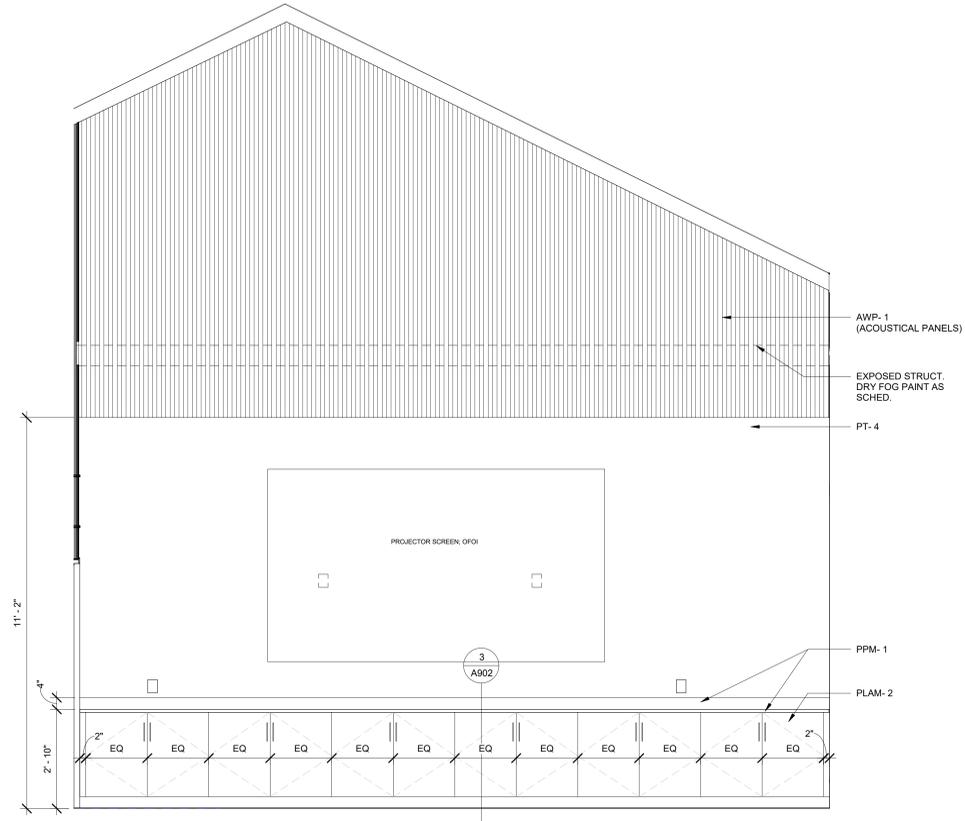
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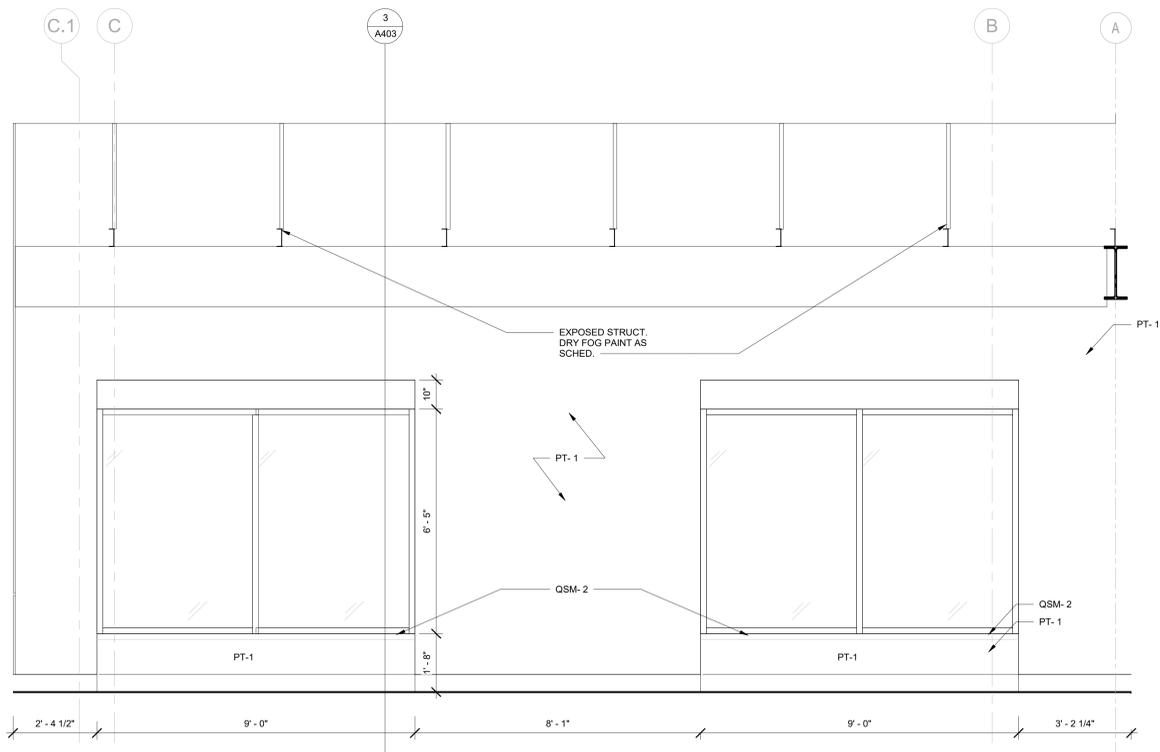
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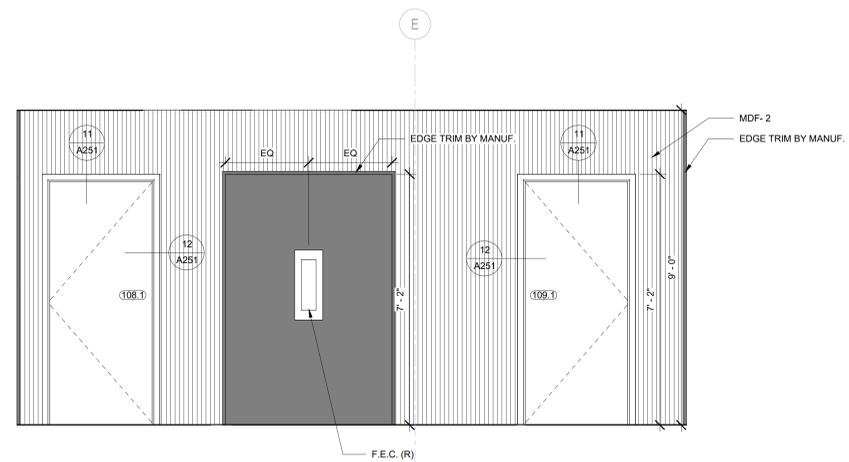
2 ELEVATION
A705 1/2" = 1'-0"



1 ELEVATION
A705 1/2" = 1'-0"



3 ELEVATION
A705 1/2" = 1'-0"



4 ELEVATION
A705 1/2" = 1'-0"

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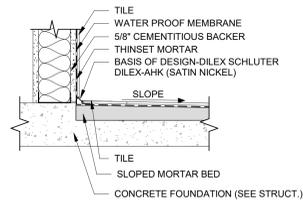
Project Number 132

Title
Interior Elevations and Details

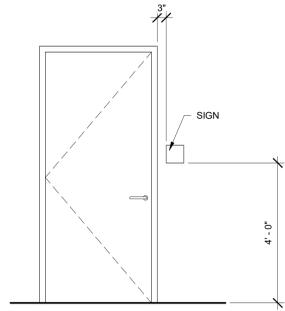
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A705

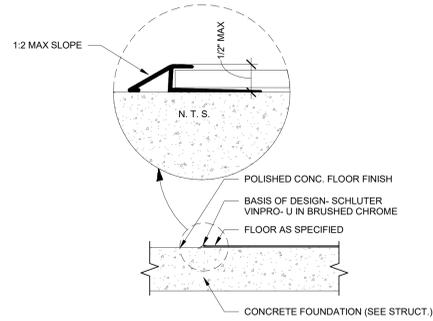
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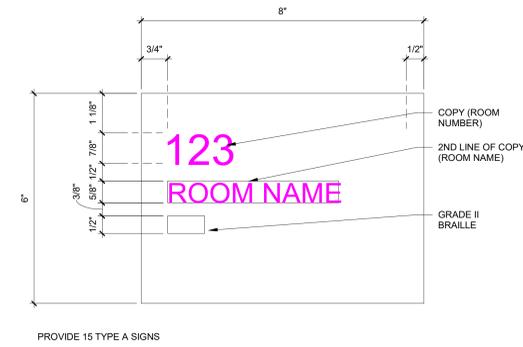
1 FLOOR TRANSITION DETAIL- PTB (WET AREA)
1 1/2" = 1'-0"



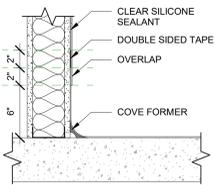
5 ROOM SIGN MOUNTING LOCATION
1/2" = 1'-0"



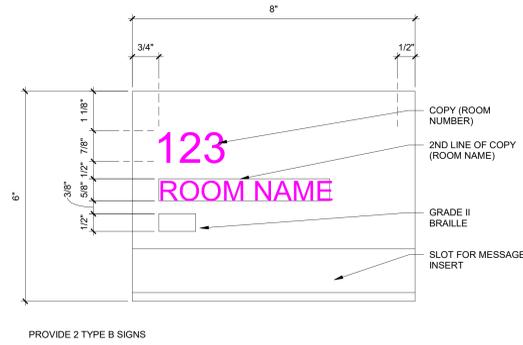
3 FLOOR TRANSITION DETAIL
1 1/2" = 1'-0"



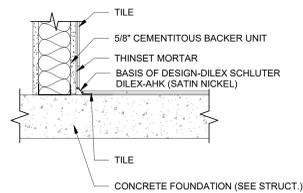
6 ROOM IDENTIFICATION SIGNAGE
6" = 1'-0"



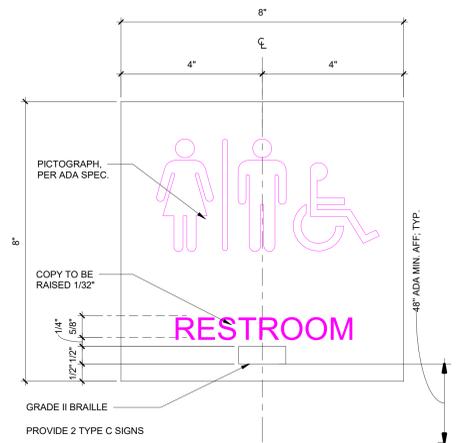
4 FLOOR TO WALL PVCRB
1 1/2" = 1'-0"



7 ROOM IDENTIFICATION SIGNAGE
6" = 1'-0"

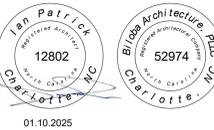


2 FLOOR TRANSITION DETAIL- PTB
1 1/2" = 1'-0"



8 ROOM IDENTIFICATION SIGNAGE
6" = 1'-0"

Room Signage Schedule			
Name	Number	Sign Type	Copy
LOBBY/GALLERY	101		
MEETING	102	A	102 MEETING ROOM
OPEN OFFICE	103	B	103 OFFICE
OFFICE	103A	B	103A OFFICE
OFFICE STORAGE	103B	A	103B OFFICE STORAGE
LAB	104	A	04 LAB
OBSERVATION HIVES	104A	A	104A OBSERVATION HIVES
INCUBATOR	104B	A	104B INCUBATOR
CORRIDOR	105		
STORAGE	105A		
KITCHENETTE	105B		
EDUCATION HIVE	106	A	106 EDUCATION HIVE
WORKSHOP	107	A	107 WORKSHOP
WALK-IN FREEZER	107A	A	107A WALK IN FREEZER
EXTRACTION	107B	A	107B EXTRACTION
STORAGE	107C	A	107C STORAGE
MEN'S	108	C	MEN'S RESTROOMS
WOMEN'S	109	C	WOMEN'S RESTROOMS
CUSTODIAL	110	A	110 CUSTODIAL
DATA	111	A	111 DATA
EQUIPMENT STORAGE	112	A	112 EQUIPMENT STORAGE
ELECT.	113	A	113 ELECTRICAL
EMERG. ELECT.	113A	A	113A EMERGENCY ELECTRICAL



01.10.2025
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PROJECT SEALANT SCHEDULE			
SEALANT TYPE	DESCRIPTION	LOCATIONS	COLOR
SILICONE, S, NS, 50, NT	Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.	Intersection of exterior walls and door and window frames. All other exterior joint locations.	As selected by Architect from manufacturer's full range
SILICONE, MILDEW RESISTANT, ACID CURING, S, NS, 25, NT	Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT	Intersection of plumbing fixtures and walls and countertops. Other joints not listed but indicated on Drawings. Top of vinyl roll flooring cove base.	Clear.
ACRYLIC LATEX	Acrylic latex or siliconized acrylic latex, ASTM C334, Type OP, Grade NF	Intersection of interior walls and door and window frames.	White or Grey
URETHANE, S, NS, 25, T, NT	Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 25, Uses T and NT	Wall and floor tile expansion joints	-
BUTYL	Butyl-rubber based	Door thresholds. Intersection of dissimilar metals	Black

ALL EXTERIOR GAPS, SEAMS OR PENETRATIONS SHALL BE SEALED WITH SILICONE SEALANT TO PREVENT INSECT INTRUSION.



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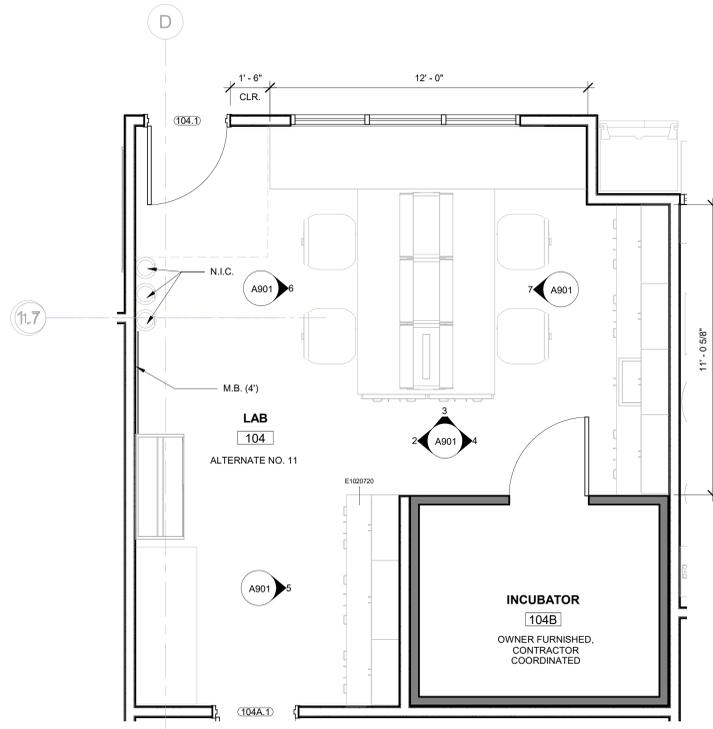
Civil and Structural Engineer, Landscape Architect:
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Raleigh 223 S. West Street, Suite 1100
Raleigh, NC 27603
NC Certificate of Licensure: C-1051

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RMF Engineering
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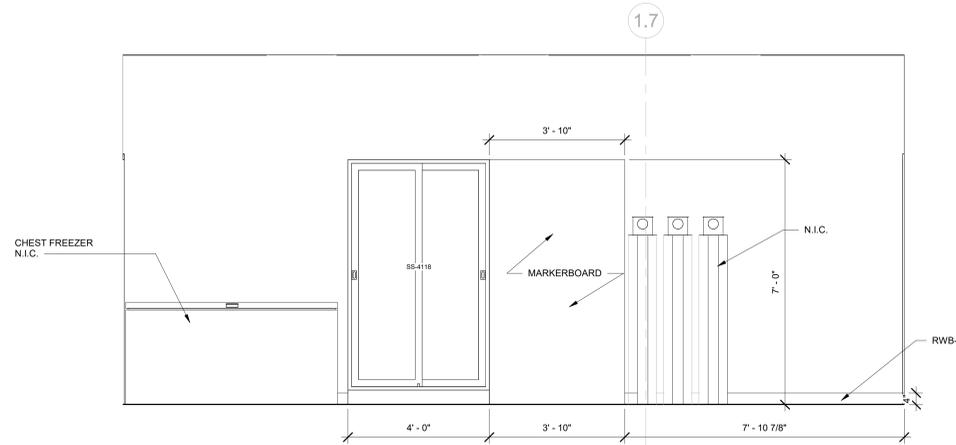


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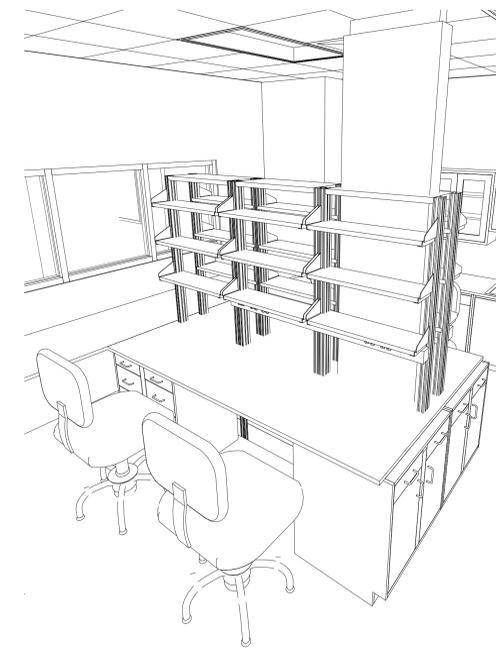
Drawn IWP
Checked ELL
Date 01/10/2025
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1 ENLARGED FLOOR PLAN - LAB
3/8" = 1'-0"
ALTERNATE NO. 11



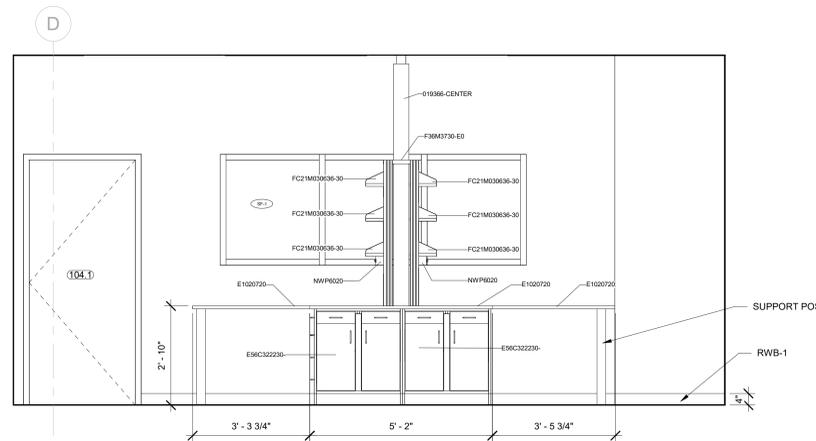
2 CABINET ELEVATION
1/2" = 1'-0"



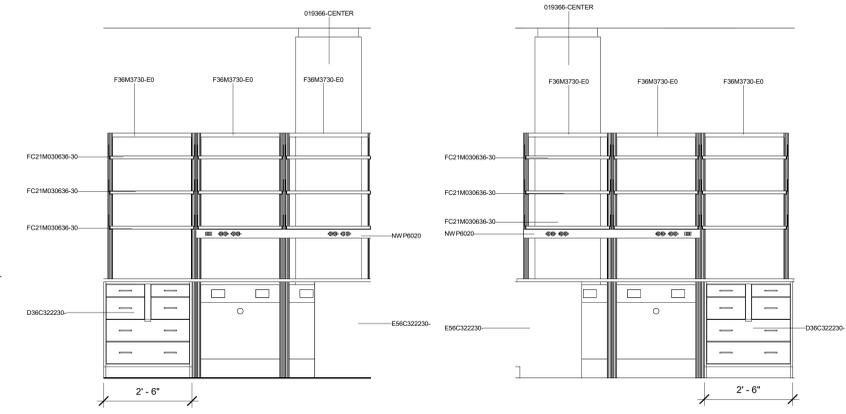
8 3D WORKBENCH

CASEWORK SCHEDULE:

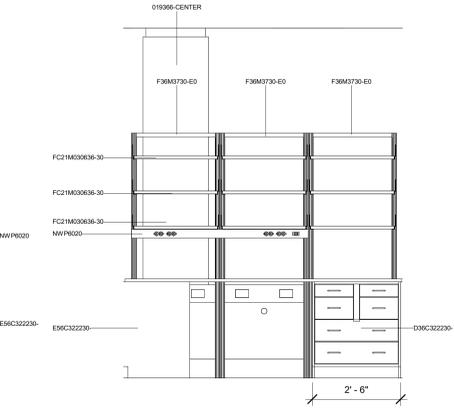
ASSEMBLY	MODEL NUMBER	ROOM	MANUF.
FULL HEIGHT CABINET	D39C322230	104	KEWAUNEE SCIENTIFIC CORP.
BASE CABINET 2 DRAWERS, SWING DOUBLE	E56C322230	104	KEWAUNEE SCIENTIFIC CORP.
BASE CABINET 6 DRAWERS	D39C322230	104	KEWAUNEE SCIENTIFIC CORP.
BASE CABINET 2 DRAWERS, SWING DOUBLE	E56C322236	104	KEWAUNEE SCIENTIFIC CORP.
BASE CABINET SINK ADA, SWING DOUBLE	G03C322230	104	KEWAUNEE SCIENTIFIC CORP.
WALL CABINET, GLASS DOOR, SWING DOUBLE	W20M301336	104	KEWAUNEE SCIENTIFIC CORP.
WALL CABINET, GLASS DOOR, SWING DOUBLE	W20M301330	104	KEWAUNEE SCIENTIFIC CORP.
WALL CABINET, GLASS DOOR, SWING DOUBLE	W20M241330	104	KEWAUNEE SCIENTIFIC CORP.
WORK TOP	E1020720	104	KEWAUNEE SCIENTIFIC CORP.
POWER RECEPTACLE	NWP6020	104	KEWAUNEE SCIENTIFIC CORP.
ADJUSTABLE SHELF	FC21M030636-30	104	KEWAUNEE SCIENTIFIC CORP.
ISLAND MODULE	F38M3730-ED	104	KEWAUNEE SCIENTIFIC CORP.
CENTER BENCH CHASE	O19366-CENTER	104	KEWAUNEE SCIENTIFIC CORP.
DECK MOUNTED HOT & COLD WATER	W-0340-00	104	KEWAUNEE SCIENTIFIC CORP.
DECK MOUNTED HOT EYEWASH	G5022	104	KEWAUNEE SCIENTIFIC CORP.



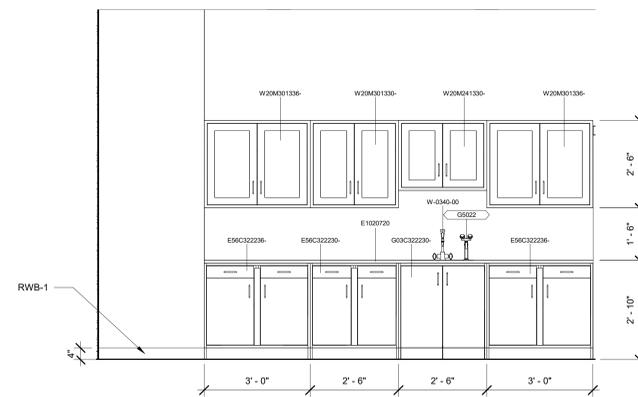
3 CABINET ELEVATION
1/2" = 1'-0"



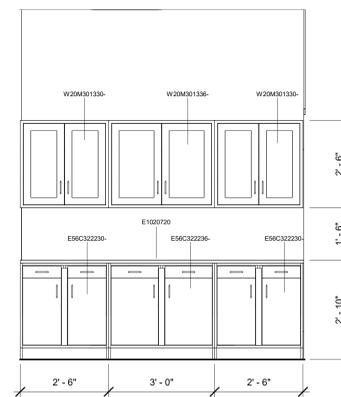
6 WORKBENCH ELEVATION
1/2" = 1'-0"



7 WORKBENCH ELEVATION
1/2" = 1'-0"



4 CABINET ELEVATION
1/2" = 1'-0"



5 CABINET ELEVATION
1/2" = 1'-0"

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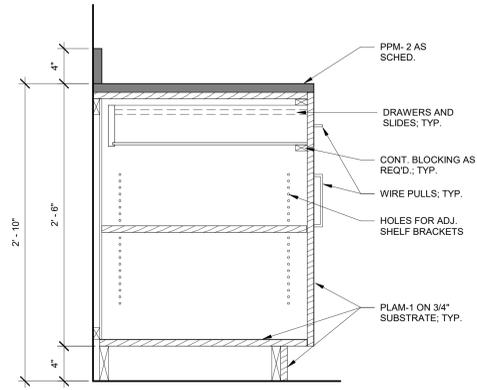
NCSU Apiculture Facility
Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

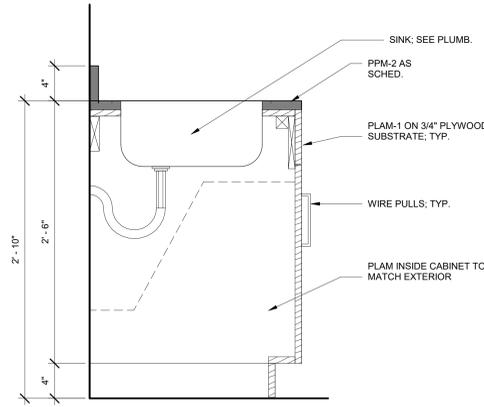
Title
Cabinet Plans and Elevations (Alternate No. 11)
Sheet

A901

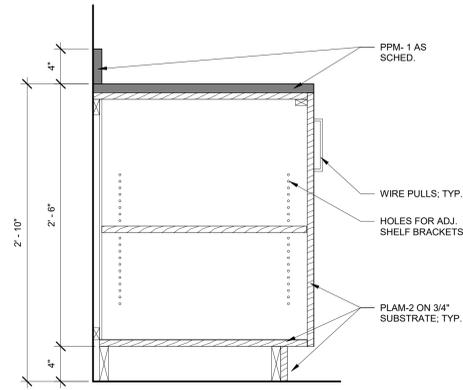
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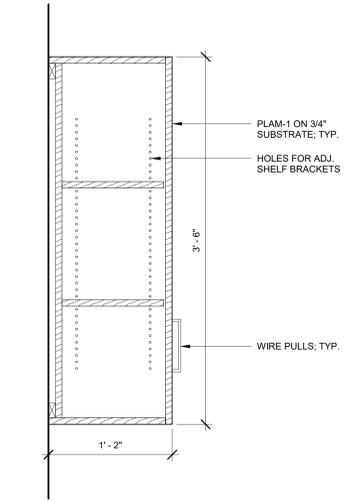
1 BASE CABINET - KITCHENETTE
A902 1 1/2" = 1'-0"



2 BASE CABINET - KITCHENETTE
A902 1 1/2" = 1'-0"



3 BASE CABINET - MEETING ROOM
A902 1 1/2" = 1'-0"



4 UPPER CABINET - WORKSHOP
A902 1 1/2" = 1'-0"



01.10.2025

Drawn	IWP
Checked	ELL
Date	01/10/2025
Revisions	

PLUMBING GENERAL NOTES

- ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH 2018 NC PLUMBING CODE CURRENTLY ADOPTED BY THE AUTHORITY HAVING JURISDICTION.
- PLUMBING VENT PIPING SHOWN IS ONLY FOR DIAGRAMMATIC PURPOSES. COORDINATE VENT THROUGH ROOF LOCATION WITH HVAC AIR INTAKES.
- ALL VALVES ABOVE CEILINGS AND IN CONCEALED SPACES SHALL BE LABELED AT CEILING TILE WITH METAL CEILING TACKS INDICATING VALVE # AND TYPE OF WATER. (i.e. BLUE-COLD WATER, LETTERING GW XLV1-001).
- PROVIDE WATER HAMMER ARRESTORS IN ALL HW AND CW SUPPLY PIPING AS SHOWN ON WATER RISERS. INSTALL IN ACCORDANCE WITH FDI-WH01 STANDARDS. AIR CHAMBERS ARE NOT ACCEPTABLE SUBSTITUTIONS.
- PROVIDE THERMAL INSULATION FOR HOT WATER, HOT WATER RETURN AND COLD WATER PIPING IN ACCORDANCE WITH THE 2018 ENERGY CODE FOR BUILDING CONSTRUCTION AND PER SPECIFICATIONS.
- PROVIDE CLEANOUTS AT THE BASE OF EACH SANITARY STACK IN ACCORDANCE WITH THE 2018 NC PLUMBING CODE CURRENTLY ADOPTED BY THE AUTHORITY HAVING JURISDICTION. CLEANOUTS SHALL BE SIZED TO MATCH THE PIPING BEING SERVED. FLOOR CLEANOUTS SHALL BE SPACED AT 75'-0" MAX. ALSO PROVIDE CLEANOUTS IN HORIZONTAL CHANGE OF DIRECTIONS 45°.
- THE MANUFACTURERS OF ALL EQUIPMENT SHOWN ARE THE BASIS OF DESIGN. SEE SPECIFICATIONS FOR OTHER ACCEPTABLE MANUFACTURERS.
- PROTECT ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES USING UL APPROVED THROUGH PENETRATION ASSEMBLIES. REFER TO LIFE SAFETY PLANS FOR RATED ASSEMBLY LOCATIONS. REFER TO THE ARCHITECTURAL SHEET FOR WALL DETAILS AND UL ASSEMBLY NUMBERS.
- COORDINATE UNDERGROUND PIPING INVERT ELEVATIONS WITH STRUCTURAL FOOTING ELEVATIONS AND CIVIL INVERT CONNECTIONS PRIOR TO ANY UNDERGROUND PIPING INSTALLATIONS. IF FOOTINGS ARE IN CONFLICT AND WHERE A PIPING ROLL DOWN IS NOT POSSIBLE, COORDINATE WITH GENERAL CONTRACTOR FOR DROPS IN FOOTINGS AS REQUIRED.
- VALVES AND FITTINGS SHALL BE THE SAME SIZE AS THE PIPING WHERE THEY ARE LOCATED UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL ROUGH-IN ALL WASTES AND WATER SUPPLIES FOR FIXTURES AND PERFORM FINAL CONNECTIONS AS NEEDED.
- ALL FLOOR DRAINS SHALL BE PROVIDED WITH TRAP PRIMER CONNECTIONS. UNLESS NOTED OTHERWISE.
- ALL FLOOR/ROOF DRAINS SHALL BE PROTECTED FOR THE DURATION OF THE PROJECT. IF ANY DRAINS ARE FOUND TO CONTAIN DEBRIS THE CONTRACTOR SHALL CLEAN AND SCOPE THE DRAIN SYSTEM AT NO ADDITIONAL CHARGE TO THE OWNER.
- THE CONTRACTOR SHALL ROUGH-IN ALL WASTES AND WATER SUPPLIES FOR FIXTURES AND PERFORM FINAL CONNECTIONS AS NEEDED.
- ALL FLUSH VALVE WATER CLOSETS SHALL BE ROUGHED IN SO THAT THE FLUSH VALVE HANDLE IS TO THE WIDE SIDE OF THE ROOM/STALL.
- THIS FACILITY SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.
- WHERE WATER PRESSURE WITHIN THE BUILDING EXCEEDS 80 PSI STATIC, THE CONTRACTOR SHALL INSTALL AN APPROVED WATER PRESSURE REDUCING VALVE CONFORMING TO ASSE 1003 WITH STRAINER. CONTRACTOR SHALL SET PRESSURE AT 60 PSI.
- REGARDLESS OF HOW PIPING IS PRESENTED ON THE DRAWINGS, PROVIDE ECCENTRIC (FLAT ON TOP) REDUCERS IN HOT AND COLD DOMESTIC WATER PIPING.
- ALL DEVICES, EQUIPMENT, VALVES, ETC. THAT REQUIRE ACCESS SHALL NOT BE LOCATED ABOVE WOOD OR GYPSUM CEILINGS. COORDINATE WITH THE ARCHITECTURAL REFLECTED CEILING PLAN FOR ACCESSIBLE CEILING LOCATIONS OR ACCESS PANELS. PROVIDE ACCESS DOORS IN INACCESSIBLE CEILINGS TO ACCESS MEP DEVICES ABOVE CEILINGS NOT OTHERWISE ACCESSIBLE.

PLUMBING SYMBOLS

EQUIPMENT DESIGNATIONS	
SYMBOL	DESCRIPTION
FD-X	FLOOR DRAIN DESIGNATION
HW/FP-X	HOT WATER RECIRCULATING PUMP DESIGNATION
P-X	PLUMBING FIXTURE DESIGNATION
SI-X	SOLIDS INTERCEPTOR DESIGNATION
TD-X	TRENCH DRAIN DESIGNATION
TWH-X	TANKLESS WATER HEATER
WH-X	WATER HEATER DESIGNATION

RISER DIAGRAM COMPONENTS AND SPECIALTIES	
SYMBOL	DESCRIPTION
	BACKFLOW PREVENTER
	SHOCK ARRESTER
	VENT THROUGH ROOF
	TRAP ARM
	URINAL / WATER CLOSET (WALL MOUNTED)
	URINAL / WATER CLOSET (FLOOR MOUNTED)
	FLOOR / ROOF DRAIN
	CLEAN OUT (WALL / PIPE)
	CLEAN OUT (FLOOR)

COMPONENTS AND SPECIALTIES	
SYMBOL	DESCRIPTION
	BACKFLOW PREVENTER (DUAL CHECK TYPE)
	BACKFLOW PREVENTER (REDUCED PRESSURE TYPE)
	CLEAN OUT (WALL / PIPE)
	CLEAN OUT (FLOOR)
	COLD WATER INTERIOR HOSE BIB
	EXTERIOR WALL HYDRANT (FREEZE PROOF)
	HOSE END DRAIN VALVE
	FLOOR DRAIN
	FLOOR DRAIN WITH TRAP PRIMING LINE
	FLOOR SINK WITH TRAP PRIMING LINE
	SHOCK ARRESTER
	TEMPERING VALVE

PIPING SYMBOLS	
SYMBOL	DESCRIPTION
	DOMESTIC COLD WATER (POTABLE)
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATION
	SANITARY
	VENT

PLUMBING ABBREVIATIONS

A	COMPRESSED AIR
BCWR	BEARING COOLING WATER RETURN
BCWS	BEARING COOLING WATER SUPPLY
BO	BLOW OFF
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CA	CONTROL AIR
CBD	CONTINUOUS BLOWDOWN
CC	CAMPUS CONDENSATE
CC	CHEMICAL FEED
CFM	CUBIC FEET PER MINUTE
CHEL	CHELANT
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CO	CLEANOUT
CW	COLD WATER, DOMESTIC CITY WATER
DHR	DISTRIBUTION HEATING WATER RETURN
DHS	DISTRIBUTION HEATING WATER SUPPLY
DA	DIAMETER
DW	DISTILLED WATER
EA	EXHAUST AIR
ED	EQUIPMENT DRAIN
EJ	EXPANSION JOINT
#2FOR	NUMBER 2 FUEL OIL RETURN
#2FOS	NUMBER 2 FUEL OIL SUPPLY
#6FOR	NUMBER 6 FUEL OIL RETURN
#6FOS	NUMBER 6 FUEL OIL SUPPLY
F	FIRE LINE
F&T	FLOAT AND THERMOSTATIC
FD	FORCED DRAFFT
FDV	FIRE DEPARTMENT VALVE
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
FOF	FUEL OIL FILL
FOO	FUEL OIL OVERFLOW
FOSUCT	FUEL OIL SUCTION
FOT	FUEL OIL TRANSFER
FOVENT	FUEL OIL VENT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FW	FEED WATER
FWR	FEED WATER RECIRCULATION
FWS	FEED WATER SUPPLY
'F	DEGREES FAHRENHEIT
G	NATURAL GAS
GAL	GALLON, GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HR	HEATING WATER RETURN
HRR	HEAT RECOVERY RETURN
HRS	HEAT RECOVERY SUPPLY
HS	HEATING WATER SUPPLY
HTHW	HIGH TEMPERATURE HEATING WATER SUPPLY
HTWR	HIGH TEMPERATURE HEATING WATER RETURN
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
IA	INSTRUMENT AIR
KW	KILOWATTS
LP	LIQUID PROPANE
LPG	LIQUID PETROLEUM GAS
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
MAV	MANUAL AIR VENT
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCC	MOTOR CONTROL CENTER
MOD	MOTOR OPERATED DAMPER
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
No	NUMBER
NPSH	NET POSITIVE SUCTION HEAD
OD	OVERFLOW DRAIN
PA	PLANT AIR
PC	PUMPED CONDENSATE
PCR	PUMP CONDENSATE RECIRCULATION
PPH	POUNDS PER HOUR
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR, RELIEF AIR
RDR	ROOF DRAIN
RPM	REVOLUTIONS PER MINUTE
RV	RELIEF VENT
RX	REMOVE EXISTING
SA	SUPPLY AIR
SAN	SANITARY
SS	STAINLESS STEEL
SSUL	SODIUM SULFITE
STDR	STORM DRAIN
SW	SOFT WATER
TW	TREATED WATER
TYP	TYPICAL
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
VTR	VENT THROUGH ROOF

PLUMBING LOAD SUMMARY			
SERVICE	FIXTURE UNITS	FLOW	REQUIRED PIPE SIZE
SANITARY	39	N/A	4" AT 1/8" PER FOOT SLOPE
DOMESTIC COLD WATER	57.5	53 GPM	2"
DOMESTIC HOT WATER	14.25	17.13 GPM	1"
TOTAL DOMESTIC WATER	54.5	61.80 GPM	N/A

PLUMBING LOAD SUMMARY (ADD ALT NO.5)			
SERVICE	FIXTURE UNITS	FLOW	REQUIRED PIPE SIZE
SANITARY	48	N/A	4" AT 1/8" PER FOOT SLOPE
DOMESTIC COLD WATER	65	56 GPM	2"
DOMESTIC HOT WATER	15.75	17.88 GPM	1"
TOTAL DOMESTIC WATER	55.04	55.04 GPM	N/A



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1/10/2025

BID SET

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NCSU Apiculture Facility

Raleigh, NC

SCO ID No.: 22-24494
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

PLUMBING NOTES, SYMBOLS AND ABBREVIATIONS

Sheet

P001

Plate

DRAWING NOTES

- ① OFFSET WASTE PIPING IN THE WALL CAVITY TO AVOID THE STRUCTURAL FOOTER BELOW.
- ② PROVIDE FLOOR DRAIN WITH TRAP PRIMER CONNECTION. CONNECT TRAP PRIMER TO THE NEAREST FLUSH VALVE.
- ③ PROVIDE FLOOR ACCESS DOOR FOR S_{L-1}.
- ④ 2" VENT DOWN TO FLOOR DRAIN.
- ⑤ ALL PLUMBING FIXTURES IN STORAGE 107C ARE ASSOCIATED WITH ADD ALTERNATE NO 5 (TOILET 107C). FOR THE BASE BID, ALL WASTE AND VENT PIPING SHALL BE INSTALLED AS SHOWN. IF ADD ALTERNATE NO.5 IS NOT ACCEPTED, ROUGH IN PIPING FOR FIXTURES AND CAP.
- ⑥ PROVIDE WALK-IN FREEZER WITH BUILT UP FLOOR AND MANUFACTURER'S INTEGRATED FLOOR DRAIN. SPILL TO FS-1 WITH AIR GAP. PROVIDE TRAP OUTSIDE OF FREEZER, BEFORE SPILLING TO FLOOR SINK.

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Date 1/10/2025

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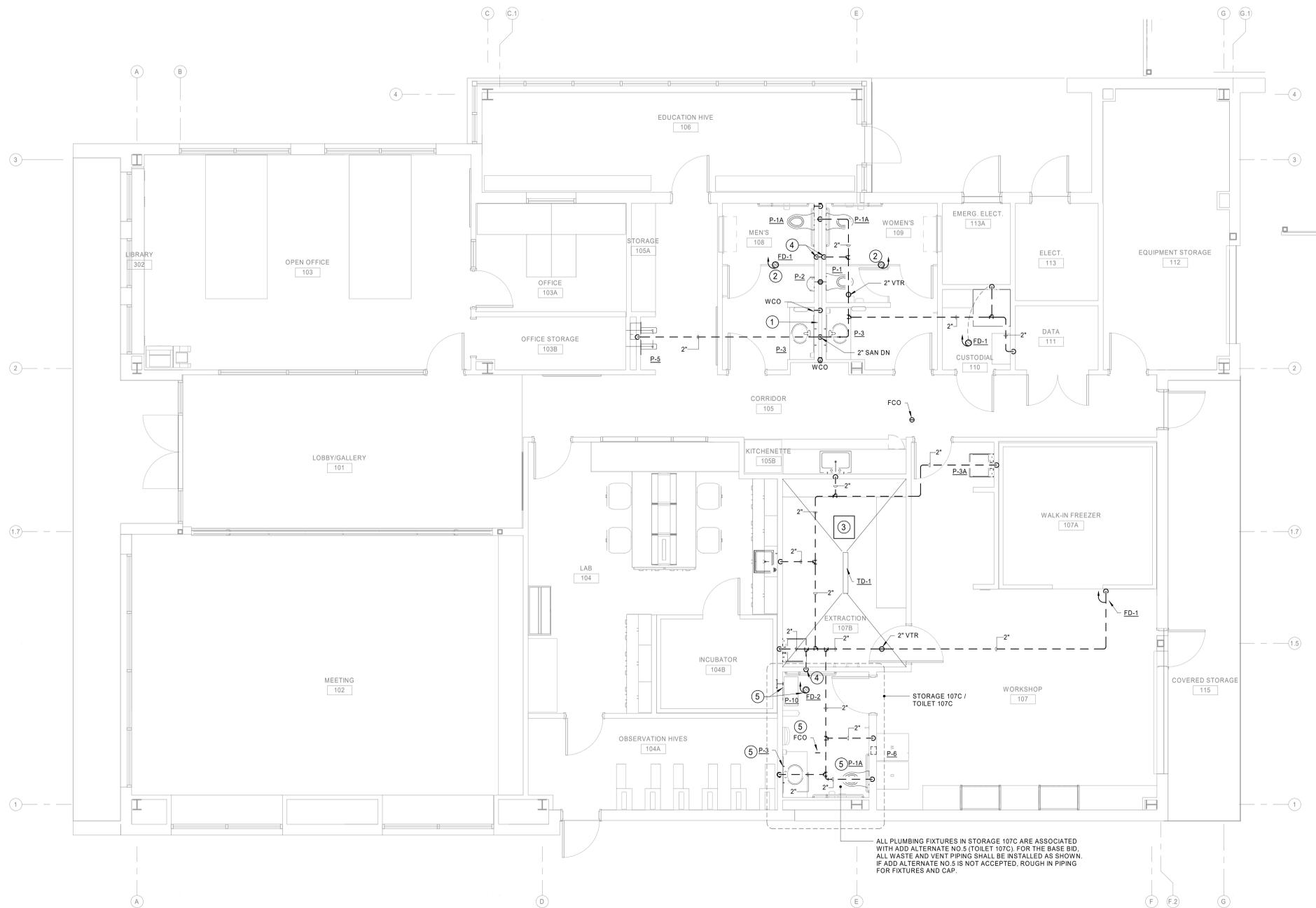
Project Number 132

Title
PLUMBING - WASTE AND VENT

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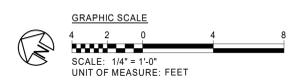
P101

Plate



ALL PLUMBING FIXTURES IN STORAGE 107C ARE ASSOCIATED WITH ADD ALTERNATE NO 5 (TOILET 107C). FOR THE BASE BID, ALL WASTE AND VENT PIPING SHALL BE INSTALLED AS SHOWN. IF ADD ALTERNATE NO.5 IS NOT ACCEPTED, ROUGH IN PIPING FOR FIXTURES AND CAP.

1 LEVEL 1 OVERALL WASTE AND VENT PLAN
SCALE: 1/4" = 1'-0"





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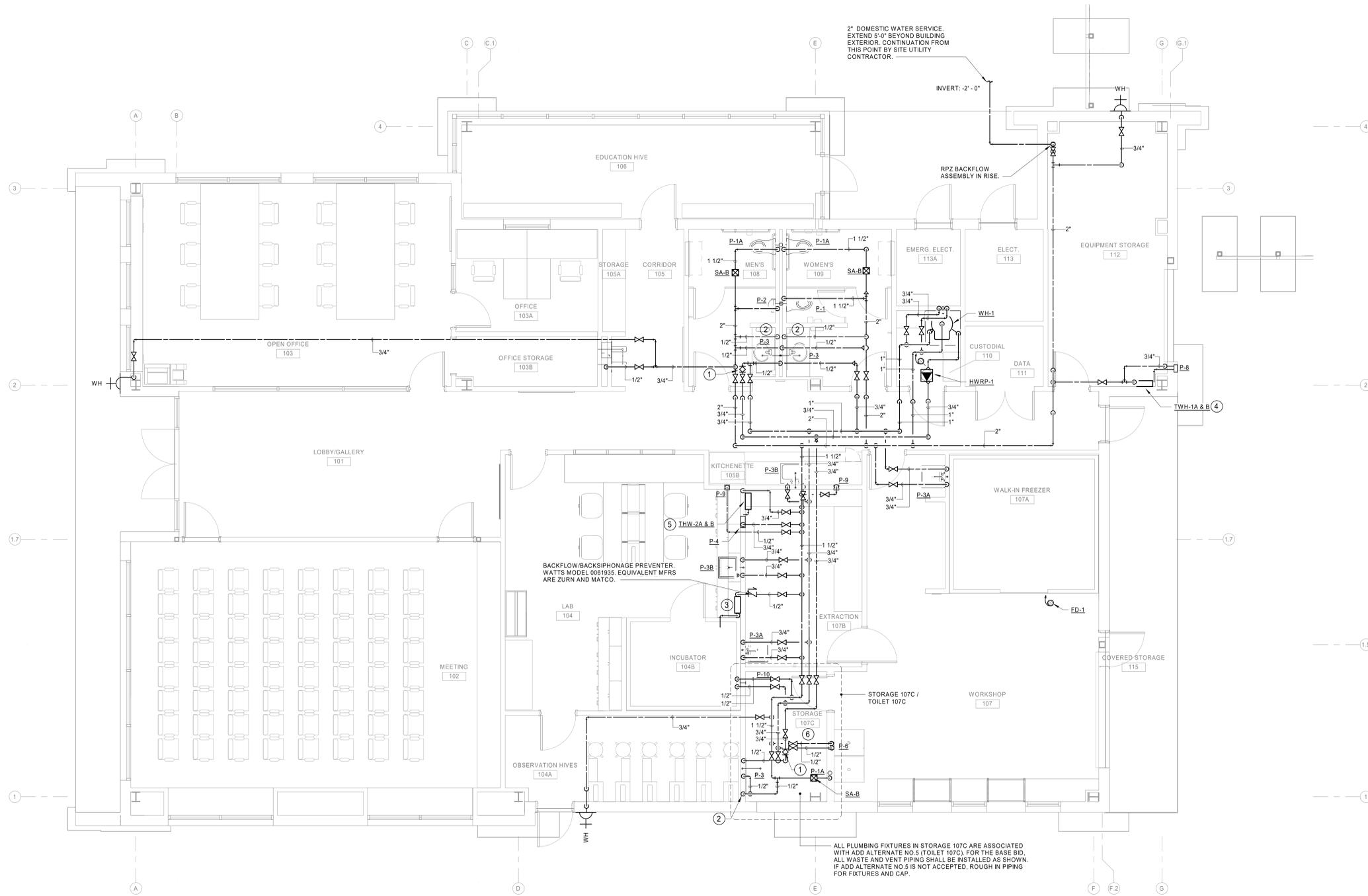
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Revisions	

DRAWING NOTES

- 1 PROVIDE HOT WATER RECIRCULATION BALANCING VALVE. SET TO 0.5 GPM.
- 2 PROVIDE 1/2" COLD WATER CONNECTION FOR INTERIOR HOSE BIB IN RESTROOM. INCLUDE LOOSE KEY AND INSTALL 1'-0" AFF.
- 3 PROVIDE WATTS MODEL GTS340C RO/DI FILTRATION SYSTEM OR APPROVED EQUIVALENT. PROVIDE 1/2" COLD WATER CONNECTION FOR RO/DI SYSTEM. ROUTE 1/2" RO/DI PIPING TO INCUBATOR AND TERMINATE WITH MALE/FEMALE PUSH CONNECT. COORDINATE WITH INCUBATOR MANUFACTURER.
- 4 INSTALL POINT OF USE, TANKLESS WATER HEATER (TWH-1) 2'-0" AFF. ROUTE 3/4" CW TO SUPPLY TWH-1. ROUTE 3/4" HW TO SUPPLY EXTERIOR WALL HYDRANT (P-8).
- 5 INSTALL POINT OF USE, TANKLESS WATER HEATER (TWH-2) BELOW COUNTERTOP. ROUTE 3/4" CW TO SUPPLY TWH-2. ROUTE 3/4" HW TO SUPPLY INTERIOR HOSE BIB (P-4).
- 6 ALL PLUMBING FIXTURES IN STORAGE 107C ARE ASSOCIATED WITH ADD ALTERNATE NO. 5 (TOILET 107C). FOR THE BASE BID, ALL WASTE AND VENT PIPING SHALL BE INSTALLED AS SHOWN. IF ADD ALTERNATE NO. 5 IS NOT ACCEPTED, ROUGH IN PIPING FOR FIXTURES AND CAP.



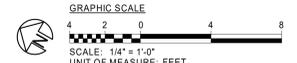
2" DOMESTIC WATER SERVICE. EXTEND 5'-0" BEYOND BUILDING EXTERIOR. CONTINUATION FROM THIS POINT BY SITE UTILITY CONTRACTOR.

INVERT: -2' - 0"

RPZ BACKFLOW ASSEMBLY IN RISE.

BACKFLOW/BACKSIPHONAGE PREVENTER. WATTS MODEL 0061935. EQUIVALENT MFRS ARE ZURN AND MATCO.

ALL PLUMBING FIXTURES IN STORAGE 107C ARE ASSOCIATED WITH ADD ALTERNATE NO. 5 (TOILET 107C). FOR THE BASE BID, ALL WASTE AND VENT PIPING SHALL BE INSTALLED AS SHOWN. IF ADD ALTERNATE NO. 5 IS NOT ACCEPTED, ROUGH IN PIPING FOR FIXTURES AND CAP.



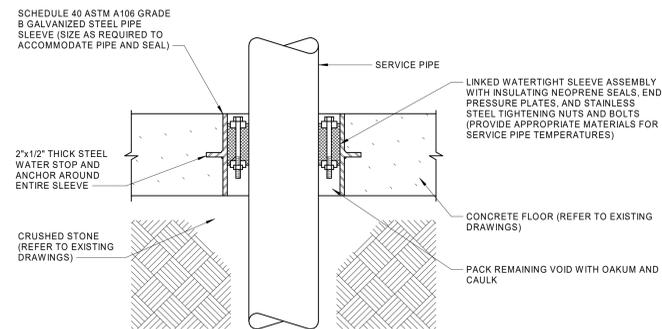
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Code: 42124 Item: 315
NCSU: 202220007

Project Number 132
Title
PLUMBING - DOMESTIC WATER

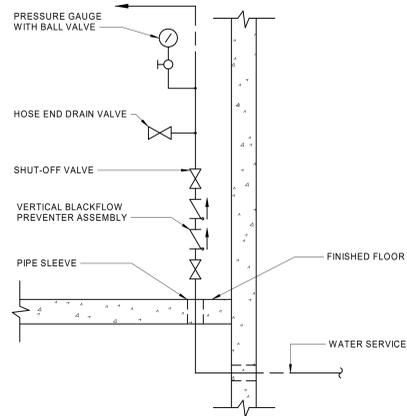
Sheet
P102
Plate

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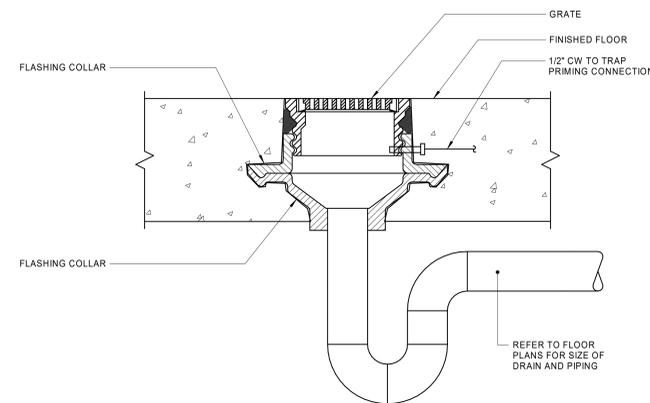
DETAIL - PIPE THROUGH GRADE FLOOR

SCALE: NONE 3



DETAIL - INCOMING WATER SERVICE

SCALE: NONE 2



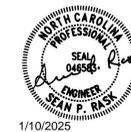
DETAIL - FLOOR DRAIN WITH TRAP PRIMER

SCALE: NONE 1

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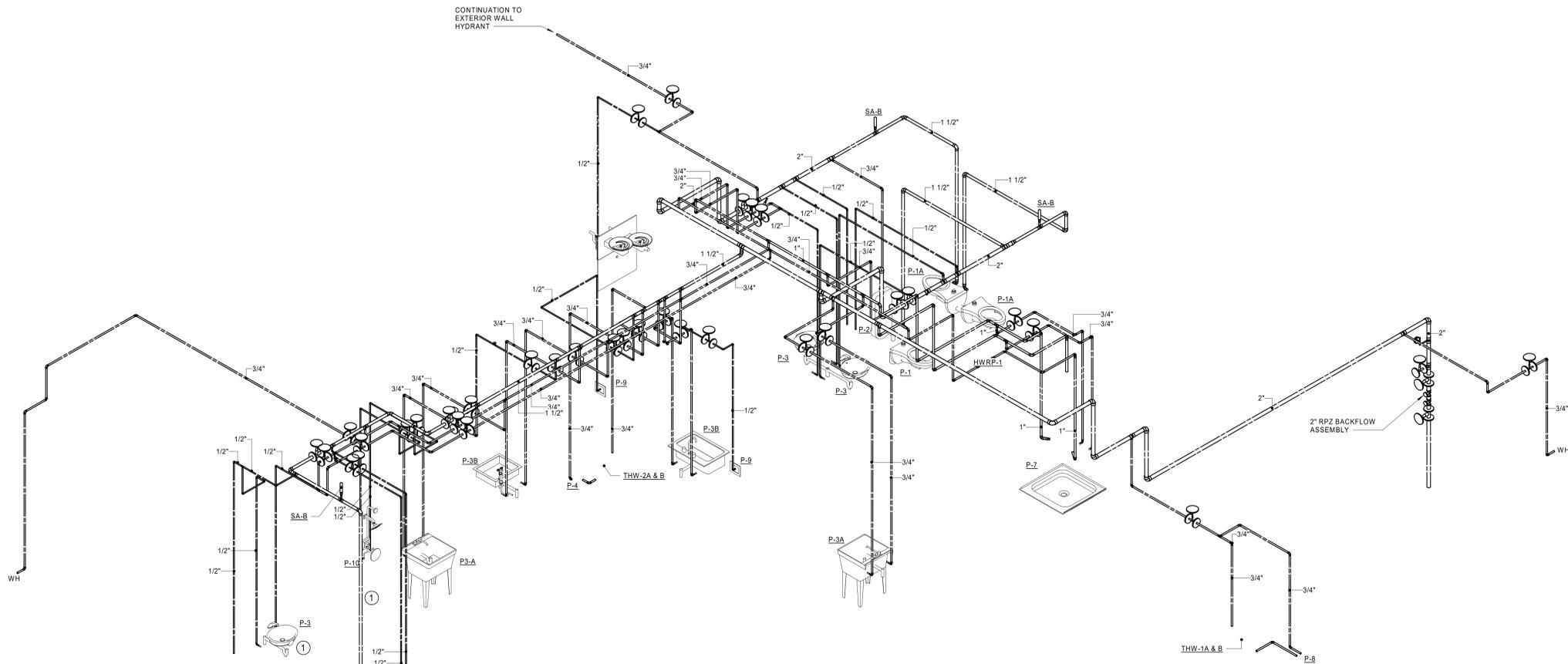
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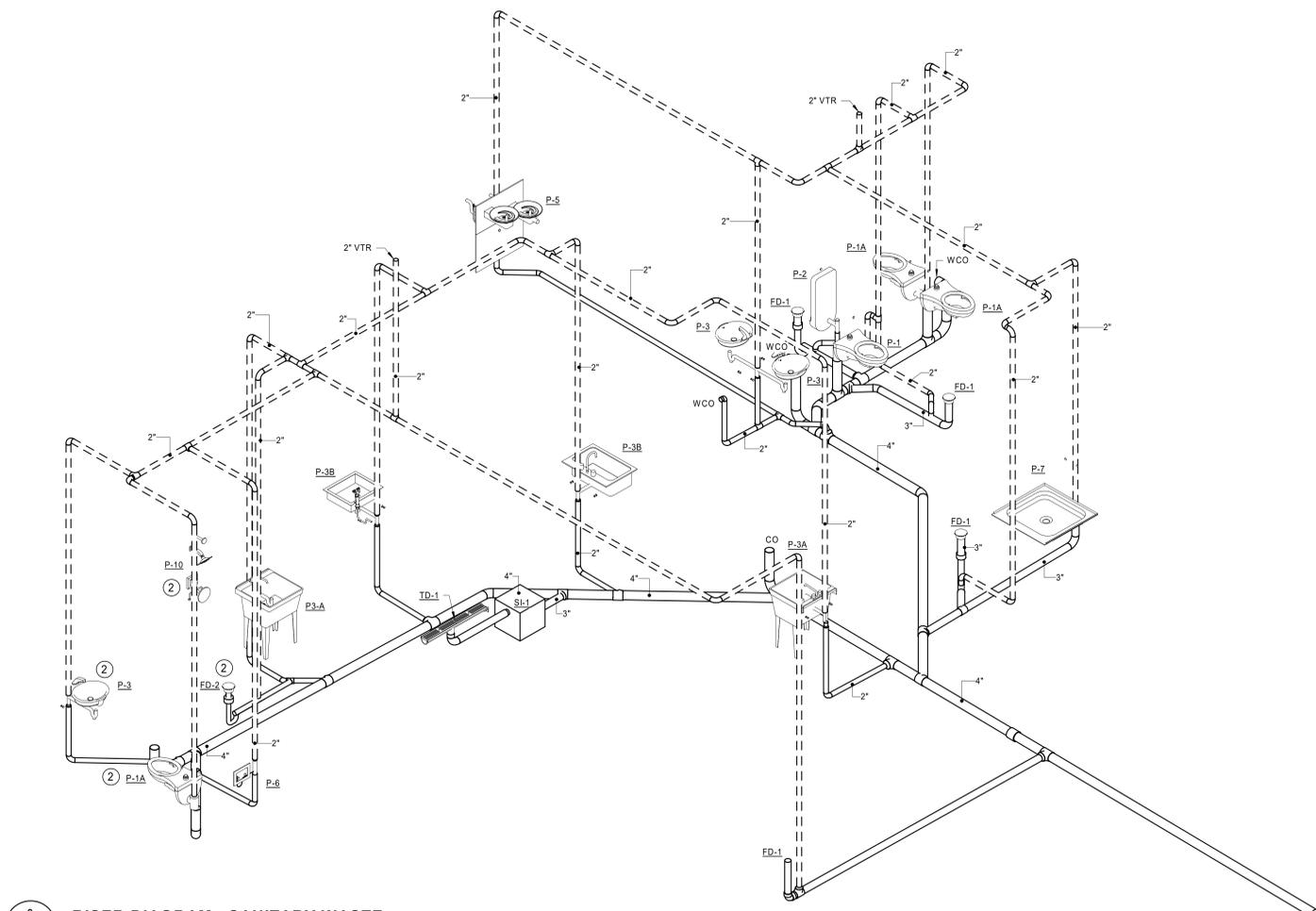
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Project Number 132
 Title
PLUMBING DETAILS

Sheet
P501
 Plate



1 RISER DIAGRAM - DOMESTIC WATER
SCALE: N.T.S.



2 RISER DIAGRAM - SANITARY WASTE
SCALE: N.T.S.

DRAWING NOTES

- ① PLUMBING FIXTURE IS ASSOCIATED WITH ADD ALTERNATE NO.5. IF ADD ALTERNATE NO.5 IS NOT ACCEPTED, ROUGH IN DOMESTIC WATER PIPING FOR THE FIXTURE AS SHOWN AND CAP.
- ② PLUMBING FIXTURE IS ASSOCIATED WITH ADD ALTERNATE NO.5. IF ADD ALTERNATE NO.5 IS NOT ACCEPTED, ROUGH IN WASTE AND VENT PIPING FOR THE FIXTURE AS SHOWN AND CAP.

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Project Number 132
Title
PLUMBING RISER DIAGRAMS

Sheet
P601
Plate

SHOCK ARRESTOR SCHEDULE	
DESIGNATION	FIXTURE UNITS SERVED
SA-A	1-11
SA-B	12-32
SA-C	33-68

DRAIN SCHEDULE		
DESIGNATION	DRAIN SIZE / TYPE	BASIS OF DESIGN
FD-1	3" FLOOR DRAIN WITH 5" ROUND GRATE	ZURN -Z415B
FD-2	2" SHOWER DRAIN WITH 5"x5" SQUARE GRATE	ZURN -Z415S
TD-1	4" X 40" TRENCH DRAIN WITH 3" OUTLET	ZURN - Z884

- NOTES:
- FD-2 IS ASSOCIATED WITH ADD ALTERNATE NO 5 AND SHOULD ONLY BE INSTALLED IF THE ALTERNATE IS ACCEPTED.
 - PROVIDE FS-1 WITH A HALF GRATE AND WHITE A.R.C. DOME STRAINER
 - SEE 221319.13 SPEC FOR ALTERNATES. APPROVED MANUFACTURERS INCLUDE JAY R. SMITH AND JOSAM.

PLUMBING FIXTURE SCHEDULE												
DESIGNATION	FIXTURE	FLOW RATE	ROUGH-IN CONNECTION SIZE				FIXTURE UNITS			REMARKS	NOTES	
			CW	HW	SAN	VENT	CW	HW	SAN			
P-1	WATER CLOSET	1.6 GPF	1 1/2"	-	4"	2"	10	-	4	WALL MOUNTED WITH MANUAL FLUSH VALVE	1	
P-1A	WATER CLOSET	1.6 GPF	1 1/2"	-	4"	2"	10	-	4	WALL MOUNTED WITH MANUAL FLUSH VALVE, ADA	2	
P-2	URINAL	0.125 GPF	3/4"	-	2"	1 1/2"	5	-	2	WALL MOUNTED WITH MANUAL FLUSH VALVE, ADA	3	
P-3	LAVATORY	0.5 GPM	3/4"	3/4"	2"	1 1/2"	1.5	1.5	1	SURFACE MOUNTED SINK WITH MANUAL FAUCET, ADA	4	
P-3A	SINGLE COMPARTMENT SINK	1.5 GPM	3/4"	3/4"	2"	1 1/2"	1.5	1.5	2	FREE STANDING, STAINLESS STEEL UTILITY SINK, MANUAL FAUCET.	5	
P-3B	LARGE SINK COMARTMENT SINK	1.5 GPM	3/4"	3/4"	2"	1 1/2"	1.5	1.5	2	SURFACE MOUNTED SINK WITH MANUAL FAUCET, ADA	6	
P-4	HOT/COLD INTERIOR HOSE BIB	8.0 GPM	3/4"	3/4"	-	-	1.5	-	-	IN-WALL HW/CW HOSE BIB WITH LOOSE KEY	7	
P-5	WATER COOLER	8.0 GPH	1/2"	-	2"	1 1/2"	0.25	-	0.5	DUAL HEIGHT, WALL MOUNTED, WITH BOTTLE FILLER, ADA	8	
P-6	WASHER OUTLET BOX	36 GPH	1/2"	1/2"	2"	1 1/2"	1.5	1.5	2	IN WALL, STAINLESS STEEL OUTLET BOX	9	
P-7	MOP SINK	1.5 GPM	3/4"	3/4"	2"	1 1/2"	2.25	2.25	2	24"x36"x12" TERRAZO WITH STAINLESS STEEL CURB CAP	10	
P-8	HOT/COLD EXTERIOR WALL HYDRANT	8.0 GPM	3/4"	3/4"	-	-	1.5	-	-	IN-WALL HW/CW FREEZE PROOF WALL HYDRANT WITH LOOSE KEY	11	
P-9	REFRIGERATOR / ICE MAKER OUTLET BOX	0.25 GPM	1/2"	-	-	-	0.25	-	-	IN-WALL STAINLESS STEEL OUTLET BOX	12	
P-10	SHOWER	1.5 GPM	1/2"	1/2	2	1 1/2	1.0	1.0	2	THREE-FUNCTION COMMERCIAL SHOWER SYSTEM, ADA	13, 14	

- NOTES:
- BASIS OF DESIGN: SLOAN - ST-2459 FLUSH VALVE; SLOAN - ROYAL 111-1.6 SEE 224216.13 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: SLOAN - ST-2459 FLUSH VALVE; ROYAL 111-1.6 SEE 224213.13 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: SLOAN - SU-1009 FLUSH VALVE; SLOAN - ROYAL 186-0.125-DBP SEE 224213.16 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: KOHLER - K-2196-1 FAUCET; T&S BRASS - B-2701 SEE 224216.13 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: ELKAY - 14-1C16X20-0X FAUCET; T&S BRASS - B-11604-CR-VF10 SEE 224216.16 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: ELKAY - LR3122PD FAUCET; T&S BRASS - B-1141-XSCR4V15 SEE 224216.16 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: ACORN - 8156 SEE 221119 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: ELKAY - LZSTLWSSP EQUIVALENTS ARE OASIS AND HALSEY TAYLOR.
 - BASIS OF DESIGN: GUY GRAY - 82171 SEE 221119 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: FMT - TS83003 FAUCET; T&S BRASS - B-0665-8STR SEE 224216.16 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: WOODFORD - B22CP-12 SEE 221119 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: GUY GRAY - 88164 SEE 221119 SPEC FOR ALTERNATES.
 - BASIS OF DESIGN: STATIONARY SHOWERHEAD, HAND-HELD SHOWER WITH NON-POSITIVE PAUSE, 60" METAL HOSE, 30" SLIDE BAR, DROP ELL, SLIDE BAR NOT DESIGNED TO BE A GRAB BAR.
 - FIXTURE ASSOCIATED WITH ADD ALTERNATE NO.5

ELECTRIC DOMESTIC WATER HEATER SCHEDULE									
DESIGNATION	SERVICE	EWI °F	LWT °F	HEATING INPUT kW	NO. HEATING ELEMENTS	GALLONS PER 100°F RISE	FULL LOAD AMPS	ELECTRICAL V / Ø / HZ	BASIS OF DESIGN
WH-1	SERVES DOMESTIC WATER PLUMBING FIXTURES	40	140	10	2	41	27.75	208/3/60	AO SMITH DRE-50-10

- NOTES:
- PROVIDE ASME EXPANSION TANK WITH MANUAL AIR/WATER BLEED.
 - SEE SPEC 223300 FOR APPROVED ALTERNATES. APPROVED MANUFACTURERS INCLUDE LOCHINVAR AND RHEEM.

ELECTRIC DOMESTIC WATER HEATER SCHEDULE (POINT OF USE)									
DESIGNATION	SERVICE	EWI °F	LWT °F	HEATING INPUT kW	TEMPERATURE RISE @ 4.0 GPM (°F)	DIMENSIONS (L x W x D)	ELECTRICAL		BASIS OF DESIGN
							V / Ø / HZ	AMPS	
TWH-1A & B	EQUIPMENT STORAGE EXTERIOR - 112 (P-6)	40	90	28	50	17" x 18" x 6"	208/1/60	2 @ 67.5	AO SMITH CALA-280X
TWH-2A & B	EXTRACTION - 107B (P-4)	40	90	28	50	17" x 18" x 6"	208/1/60	2 @ 67.5	AO SMITH CALA-280X

- NOTES:
- TANKLESS WATER HEATERS HAVE TWO ELECTRICAL CONNECTION POINTS. COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.
 - SEE SPEC 223300 FOR APPROVED ALTERNATES. APPROVED MANUFACTURERS INCLUDE LOCHINVAR AND RHEEM.

SOLIDS INTERCEPTOR SCHEDULE					
DESIGNATION	SERVICE	INLET IN.	OUTLET IN.	GPM	BASIS OF DESIGN
SI-1	SERVES TRENCH DRAIN TD-1	2	2	30	ZURN 21181-2IP

- NOTES:
- APPROVED MANUFACTURERS INCLUDE JAY R. SMITH, JOSAM, WATTS, AND MIFAB.

RECIRCULATING PUMP DUTY	
DESIGNATION:	HWRF-1
SERVICE	DOMESTIC 110°F HW
FLOW RATE (GPM):	1.0
DISCHARGE HEAD:	5
MOTOR HP:	1/40
MOTOR RPM:	2800
ELECTRICAL (V / Ø / HZ):	120/1/60
PUMP TYPE:	INLINE
BOD:	BELL & GOSSETT, NBF-12
REMARKS:	PROVIDE ALL BRONZE BODY.

- NOTES:
- SEE SPEC 221123.21 FOR APPROVED ALTERNATES. APPROVED MANUFACTURERS INCLUDE TACO AND GRUNDFOS.



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Project Number 132

PLUMBING SCHEDULES

Sheet

P701

Plate

MECHANICAL SYMBOLS

Table with columns for EQUIPMENT DESIGNATIONS, PIPING SYMBOLS, and DUCTWORK SYMBOLS. Includes symbols for air handling units, refrigerant lines, dampers, and various ductwork components.

MECHANICAL ABBREVIATIONS

Table listing mechanical abbreviations such as # (NUMBER, POUND), \$ (DOLLAR), % (PERCENT), and various unit and material abbreviations.

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

MECHANICAL SUMMARY MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Table detailing mechanical system parameters: Thermal Zone: 4A, Interior design conditions, Building heating load: 85.2 MBH, Building cooling load: 178.8 MBH, Mechanical Spacing Conditioning System, and List equipment efficiencies.



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MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS

Sheet

M001

Plate



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DRAWING NOTES

- ① TRANSFER AIR IS THROUGH A TRANSFER DUCT LOCATED ABOVE THE CEILING OF CUSTODIAL 110. REFERENCE SHEET M101.

AIR BALANCE LEGEND

- SA - SUPPLY AIR, CFM
- RA - RETURN AIR, CFM
- EA - EXHAUST AIR, CFM
- TA - TRANSFER AIR, CFM
- ↔ - INDICATES TRANSFER AIR DIRECTION



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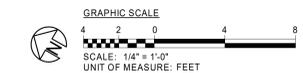
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Title
MECHANICAL AIR BALANCE SUMMARY

Sheet
M100
Plate



GENERAL NOTES

- ALL EXPOSED DUCTWORK AND ASSOCIATED AIR DEVICES IN FINISHED SPACES SHALL BE DOUBLE WALL SPIRAL DUCT WITH PAINT GRIP FINISH.

DRAWING NOTES

- 4" DRYER VENT UP. PROVIDE A CLEANOUT IN THE VERTICAL RISE. TERMINATE WITH GOOSENECK AT ROOF LEVEL.
- PROVIDE SUPPLY DIFFUSER WITH PERFORATED FACE. SEE SCHEDULE FOR ADDITIONAL INFORMATION.
- PROVIDE RETURN GRILLE WITH PERFORATED FACE AND INTEGRAL MERV-8 FILTER. SEE SCHEDULE FOR ADDITIONAL INFORMATION.
- BASE BID:** PROVIDE RETURN GRILLE WITH MERV-8 FILTER AT THE FACE. SEE SCHEDULE FOR ADDITIONAL INFORMATION. **BALANCE GRILLE TO THE CFM VALUE SHOWN. REFERENCE AIR BALANCE SUMMARY ON SHEET M100 FOR ADDITIONAL INFORMATION.**
ADD ALTERNATE NO. 5: PBALANCE GRILLE TO 345 CFM. REFERENCE AIR BALANCE SUMMARY ON SHEET M100 FOR ADDITIONAL INFORMATION.
- ADD ALTERNATE NO. 5:** PROVIDE EF-3 AND ALL ASSOCIATED DUCTWORK.
- ELECTRICAL EQUIPMENT LOCATION SHOWN FOR COORDINATION. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.
- PROVIDE NEW 48" WHITE HIGH PERFORMANCE BARN & FARM CEILING FAN BY BARN LIGHT ELECTRIC COMPANY OR APPROVED EQUIVALENT.
- PROVIDE NEW 16"x16" GRAVITY VENTILATOR GREENHECK GRSR 16 OR APPROVED EQUIVALENT. APPROVED MANUFACTURERS INCLUDE PENN BARRY AND LOREN COOK.



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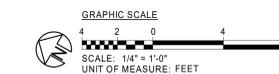
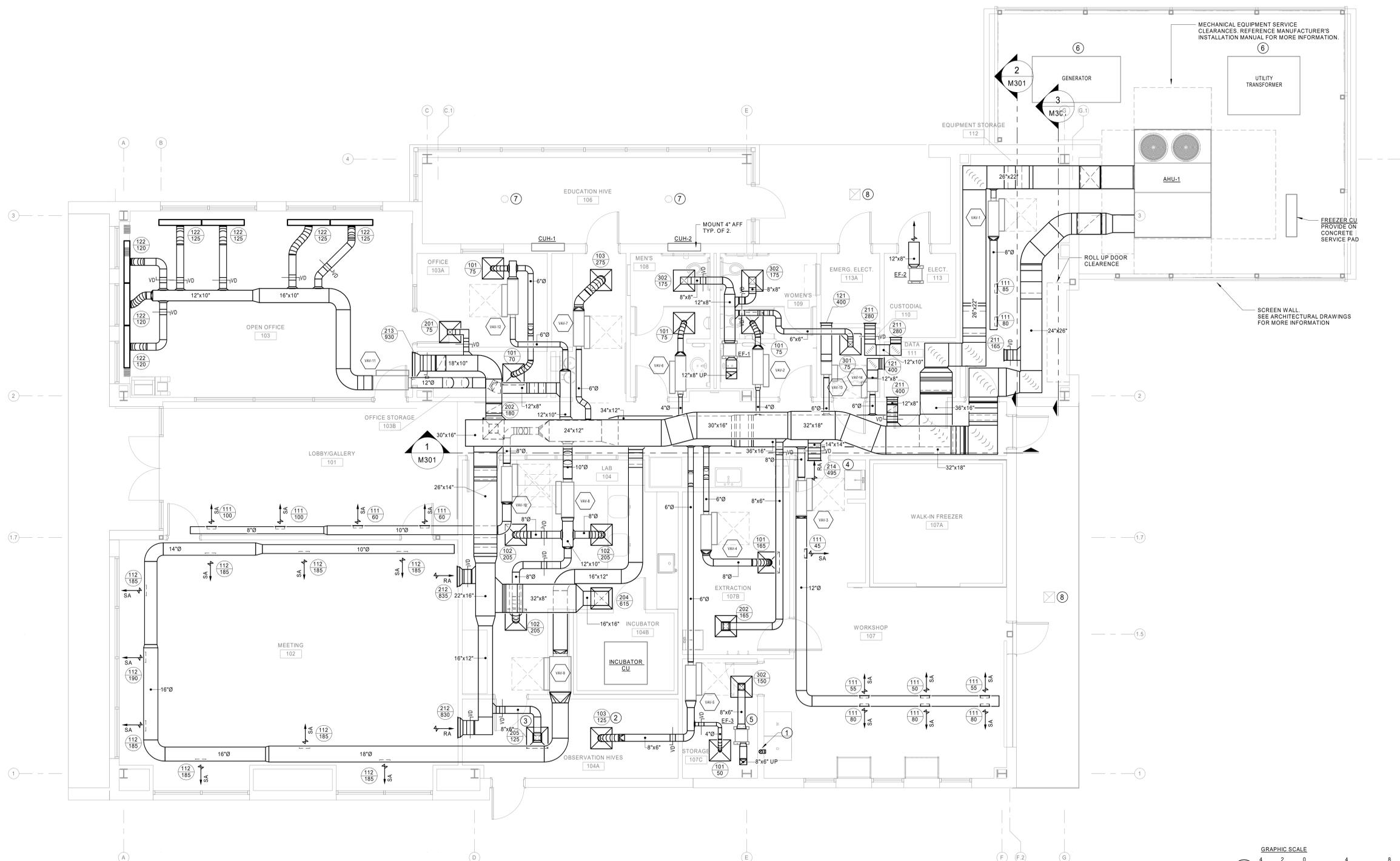
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MECHANICAL DUCTWORK PLAN

Sheet

M101

Plate

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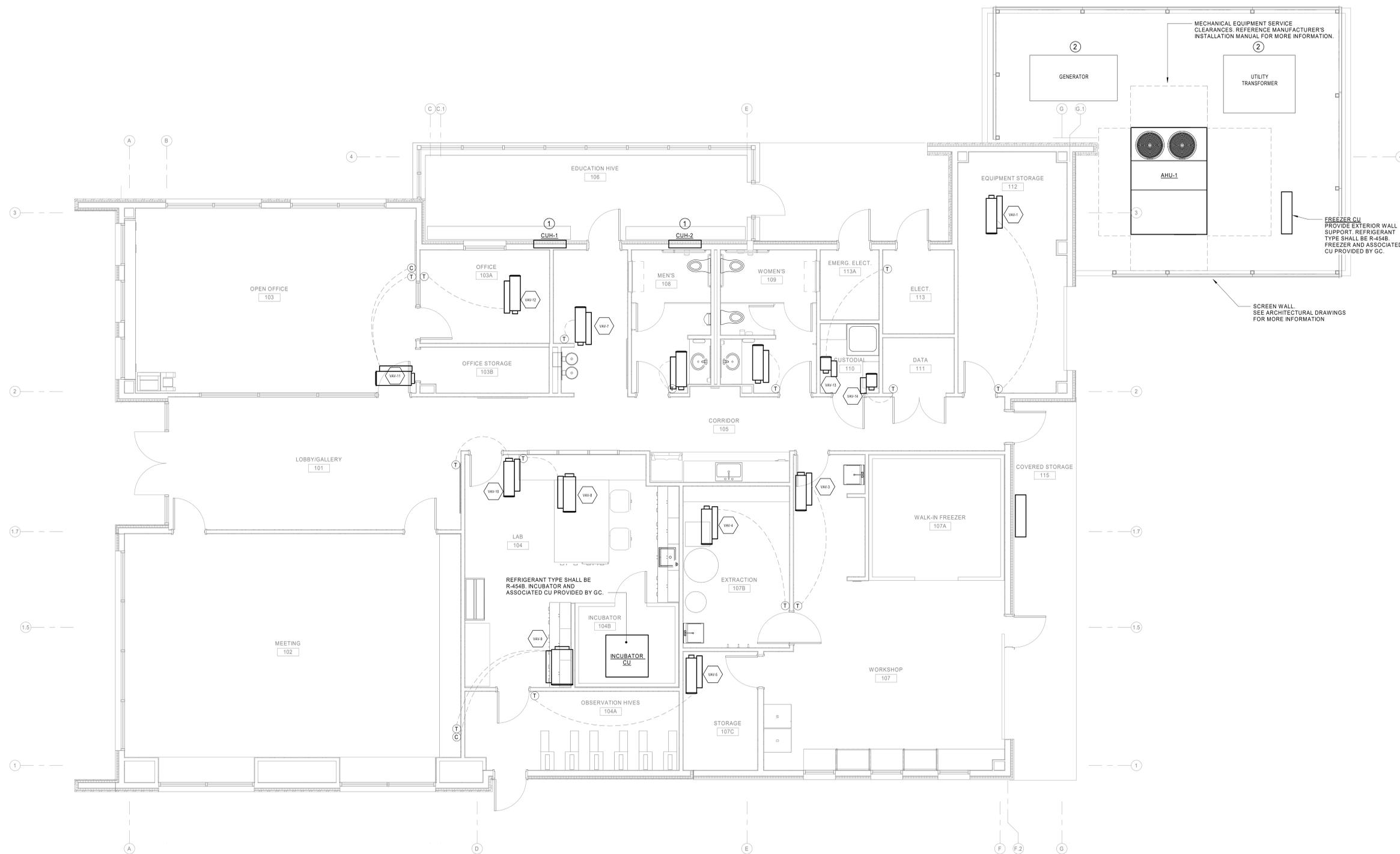
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DRAWING NOTES

- 1 PROVIDE UNIT MOUNTED THERMOSTAT FOR UNIT HEATER.
- 2 ELECTRICAL EQUIPMENT LOCATION SHOWN FOR COORDINATION. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.



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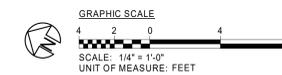
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MECHANICAL EQUIPMENT PLAN

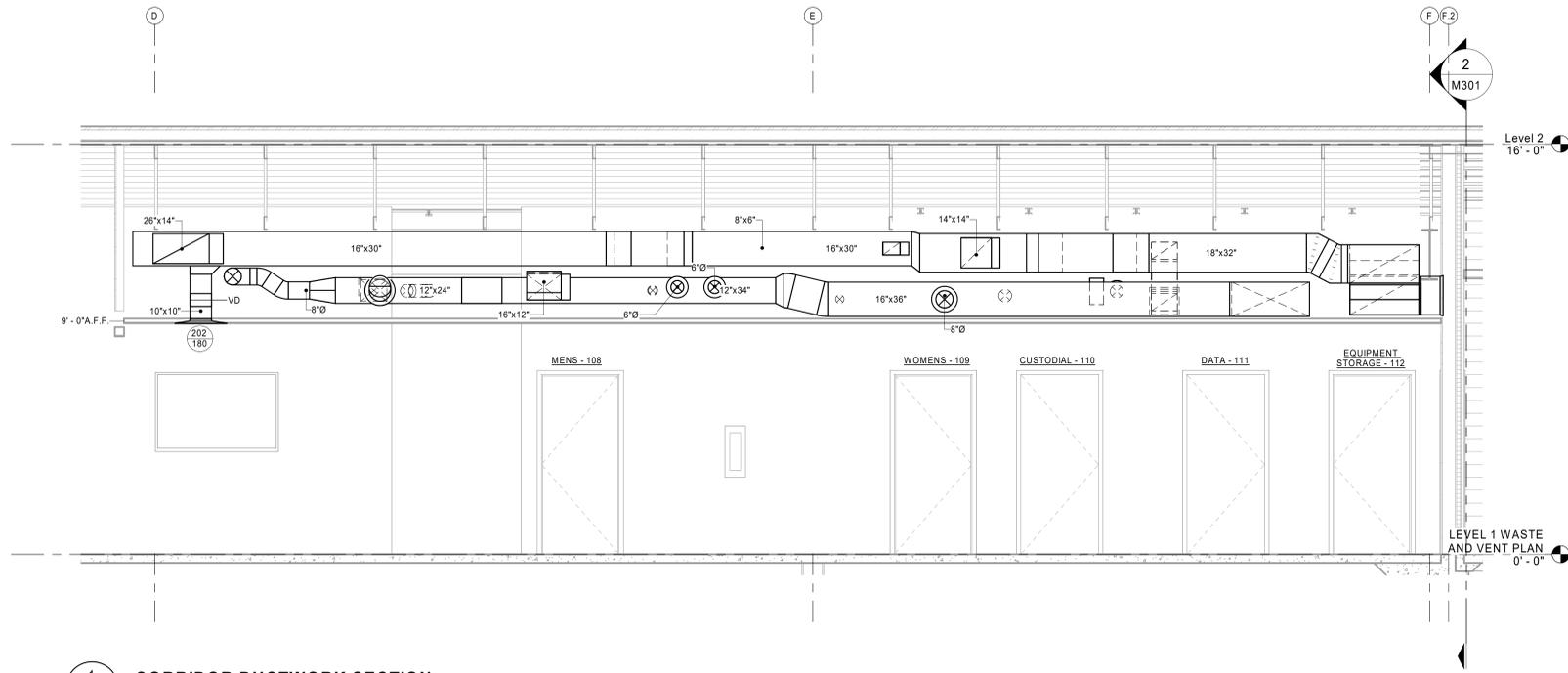
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M102

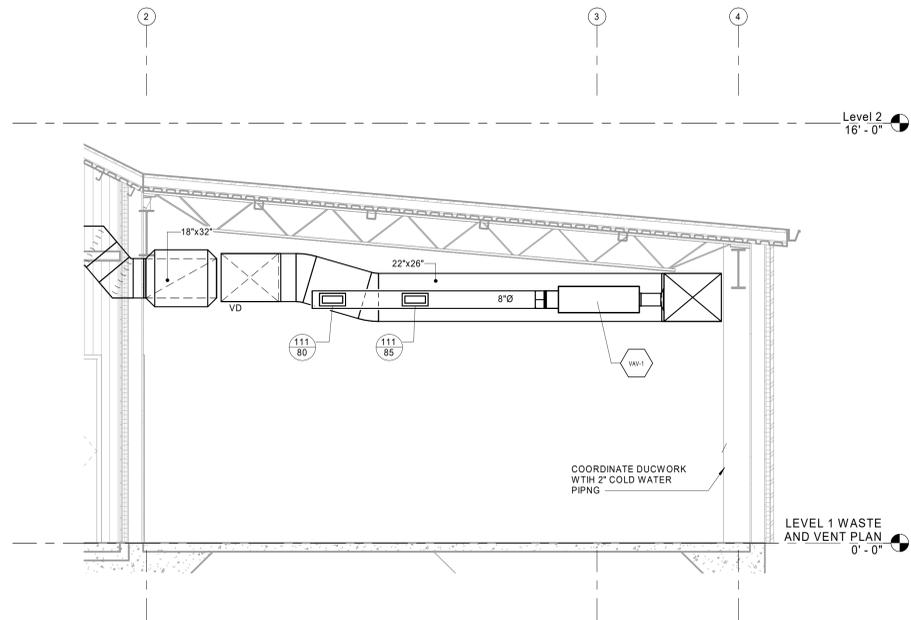
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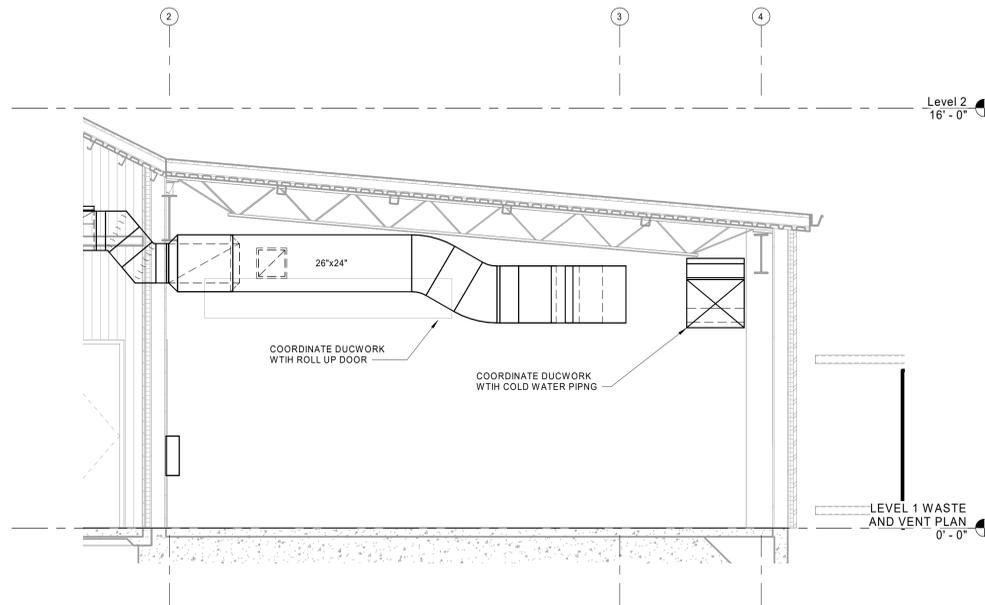
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1 CORRIDOR DUCTWORK SECTION
SCALE: 3/8" = 1'-0"



2 EQUIPMENT STORAGE SUPPLY DUCTWORK
SCALE: 3/8" = 1'-0"



3 EQUIPMENT STORAGE RETURN DUCTWORK
SCALE: 3/8" = 1'-0"



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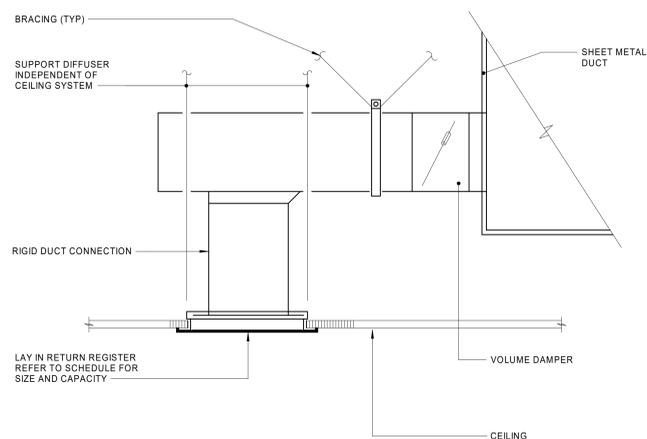
MECHANICAL SECTION VIEWS

Sheet

M301

Plate

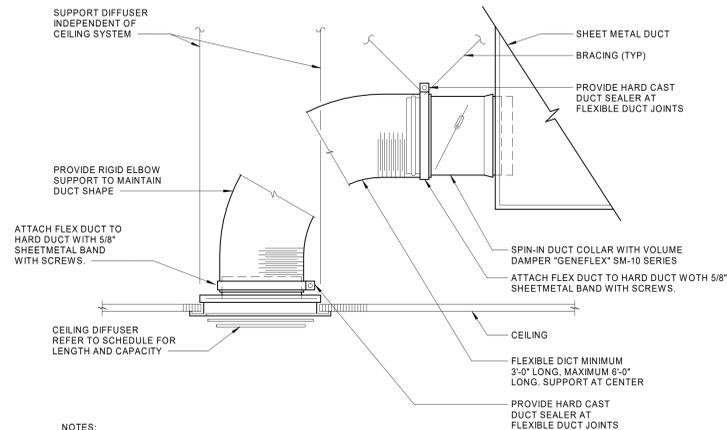
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- NOTES:
1. DUCT INSULATION SHALL BE PROVIDED AS SPECIFIED.
 2. PROVIDE BRACING FOR ALL DUCTWORK AND HANGERS PER THE 2018 NORTH CAROLINA BUILDING CODE AND 2018 NORTH CAROLINA MECHANICAL CODE.
 3. CONTRACTOR SHALL VERIFY MAXIMUM LOADING ON DUCTWORK SUPPORT ASSEMBLIES.

DETAIL - RETURN/EXHAUST AIR REGISTER BRANCH DUCT

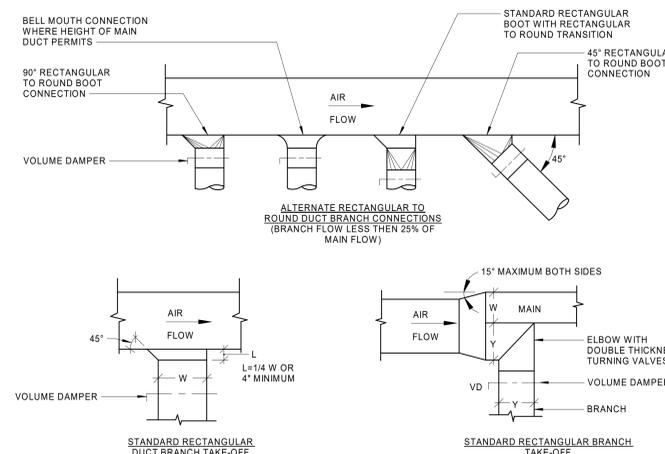
SCALE: NONE 3



- NOTES:
1. DUCT INSULATION SHALL BE PROVIDED AS SPECIFIED.
 2. PROVIDE ADDITIONAL ROUND, RIGID SHEET METAL DUCTWORK AS REQUIRED TO LIMIT FLEXIBLE DUCT LENGTH TO 6'-0" MAXIMUM.
 3. MAXIMUM SAG 1/2" PER FOOT.
 4. PROVIDE BRACING FOR ALL DUCTWORK AND HANGERS PER THE 2018 NORTH CAROLINA BUILDING CODE AND 2018 NORTH CAROLINA MECHANICAL CODE.
 5. CONTRACTOR SHALL VERIFY MAXIMUM LOADING ON DUCTWORK SUPPORT ASSEMBLIES.

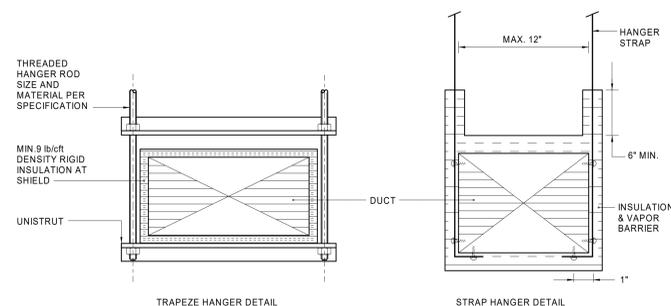
DETAIL - CEILING DIFFUSER BRANCH DUCTS

SCALE: NONE 2



DETAIL - LOW VELOCITY BRANCH TAKE-OFF

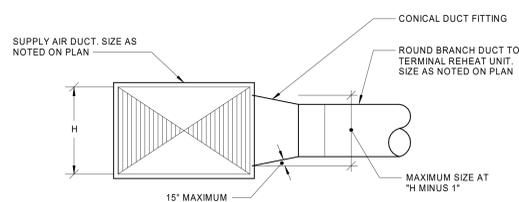
SCALE: NONE 1



- NOTES:
1. TRAPEZE HANGERS SHALL BE PROVIDED FOR ALL DUCT WORK. TRAPEZE HANGERS CANNOT BE USED FOR BRANCH DUCT WORK 12" IN WIDTH AND SHORTER REFER TO STRAP HANGER DETAIL.
 2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SPECIFICATIONS.
 3. RIGID INSULATION SHALL EXTEND MINIMUM OF 3" BEYOND STRUT ON BOTH SIDES. MAINTAIN VAPOR BARRIER ACROSS STRUT.

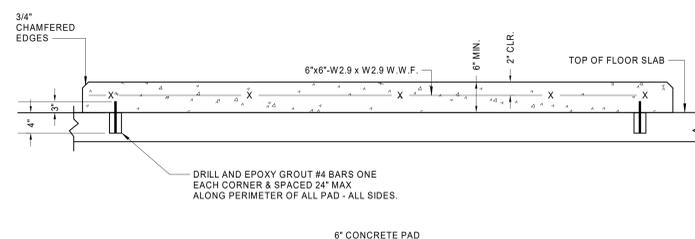
DETAIL - DUCT SUPPORT

SCALE: NONE 6



DETAIL - CONICAL DUCT TAP FITTING

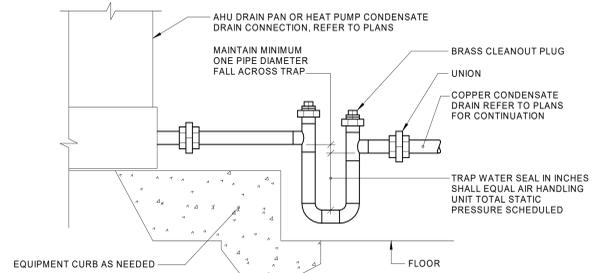
SCALE: NONE 5



- NOTE:
1. SIZE PAD 6" LARGER ALL AROUND TO SUIT EQUIPMENT FURNISHED.

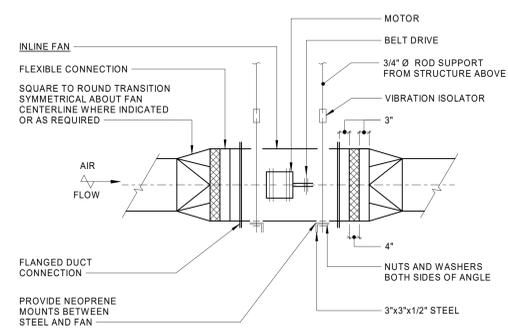
DETAIL - CONCRETE PAD

SCALE: NONE 4



DETAIL - COIL CONDENSATE CONCRETE CURB

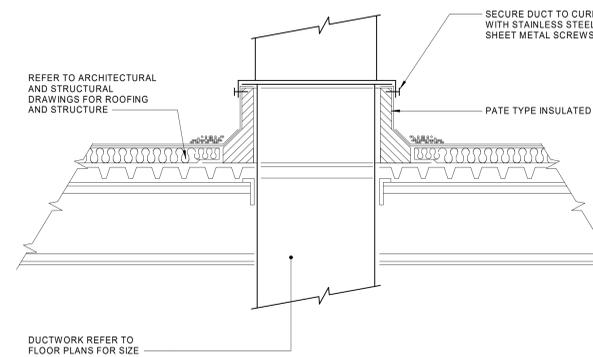
SCALE: NONE 9



- NOTE:
1. PROVIDE FLEXIBLE CONNECTIONS BEFORE OR AFTER TRANSITIONS AS INDICATED ON THE PLANS.

DETAIL - INLINE EXHAUST FAN

SCALE: NONE 8



DETAIL - ROOF DUCT PENETRATION

SCALE: NONE 7

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SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

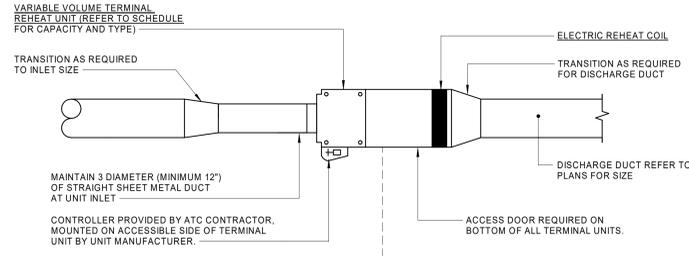
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MECHANICAL DETAILS

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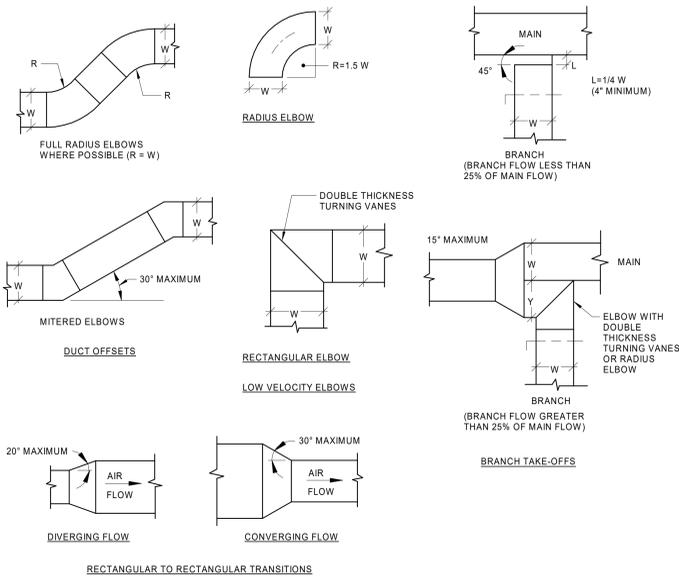
- NOTES:
1. A STRAIGHT SECTION OF UNRESTRICTED DUCT AT LEAST THREE (3) DIAMETERS LONG SHALL BE INSTALLED AT THE TERMINAL UNIT INLET.
 2. 3" MINIMUM CLEARANCE IS REQUIRED IN FRONT OF THE VAV BOX CONTROL/ELECTRICAL ENCLOSURE PER UL REGULATIONS.

DETAIL - VARIABLE AIR VOLUME TERMINAL REHEAT UNIT

SCALE: NONE 1

SCALE: NONE

SCALE: NONE

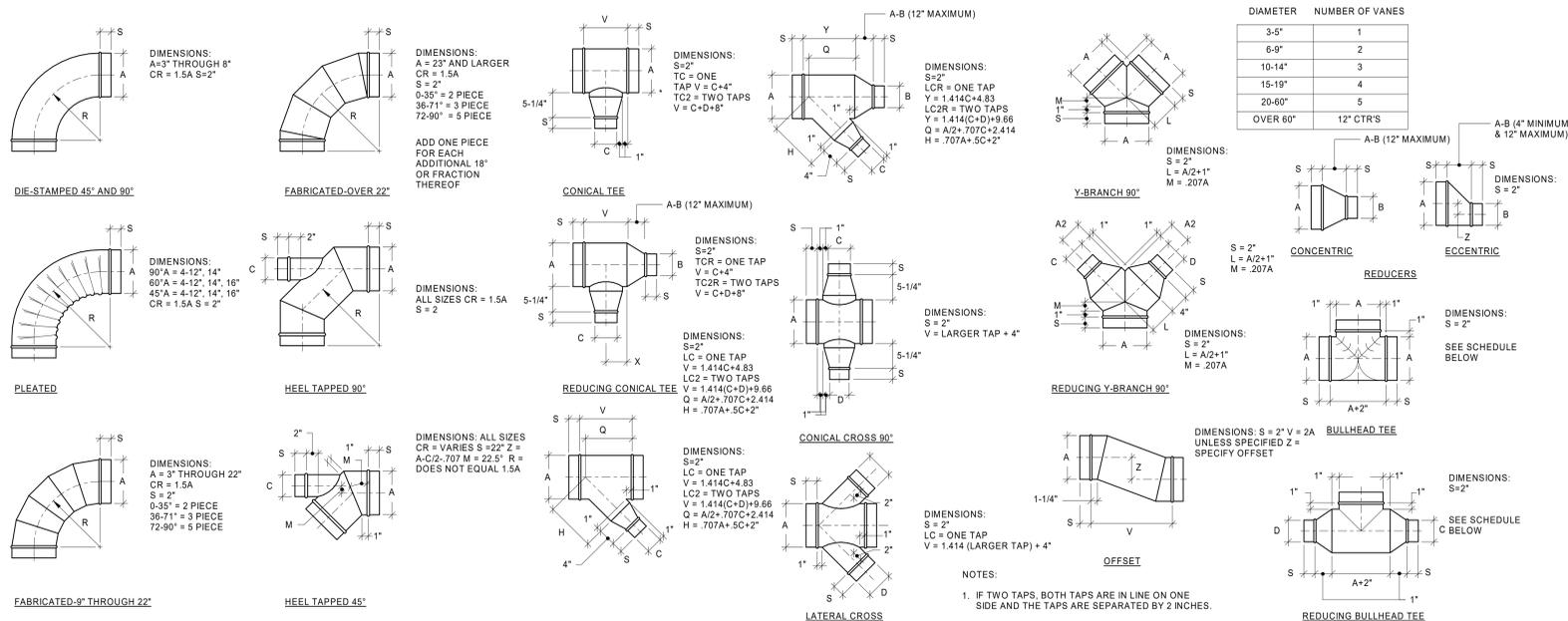


DETAIL - RECTANGULAR DUCT FITTINGS

SCALE: NONE 2

SCALE: NONE

SCALE: NONE



DETAIL - ROUND DUCT FITTINGS

SCALE: NONE 3

SCALE: NONE

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Revisions	

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Revisions

DESIGNATION	SERVICE	REFRIGERANT TYPE	SUPPLY AIR										COOLING SECTION (DX)							ELECTRICAL			WEIGHT (LBS)	BASIS OF DESIGN	REMARKS		
			CFM COOLING	CFM HEATING	MIN. OA CFM	NO. OF FANS	DRIVE TYPE	ESP INCH WC	TSP INCH WC	MOTOR (EACH)			EAT °F				POWER V/PH/Hz	FLA (AMPS)	MCA (AMPS)	MOC (AMPS)							
								BHP	HP	RPM	DB WB	DB	WB	MBH	SEBS MBH	EER	SEER										
AHU-1	BUILDING	R-454B	5,300	5,300	1,325	2	DIRECT	1.6	-	2.59	3	1259	78.8	66.0	53.6	52.9	203.6	136.8	11.0	14.7	208/3/60	13.1	95.0	125.0	1,850	TRANE PRECEDENT TSJ210	SEE NOTES

1. PROVIDE VFD FOR SUPPLY FAN. UNIT MOUNTED DISCONNECT, 2" PLEATED (MERV 13) UPSTREAM OF COOLING COIL.
2. EQUIVALENT APPROVED MANUFACTURERS INCLUDE DAIKIN, JCI AND CARRIER.

NO. CFM	SERVICE	CFM RANGE LOW-HIGH	MODULE SIZE (IN)	NECK SIZE (IN)	FRAME TYPE	BLOW	NC	AIR PRESSURE DROP (INWG)	BASIS OF DESIGN	REMARKS
101	SUPPLY	0-120	24"x24"	6"Ø	LAY-IN	4-WAY	<10	0.030	NAILOR 6500	1,2,4,5
102	SUPPLY	121-210	24"x24"	8"Ø	LAY-IN	4-WAY	<10	0.030	NAILOR 6500	1,2,4,5
103	SUPPLY	0-125	24"x24"	8"Ø	LAY-IN	PERFORATED	<10	0.045	NAILOR 4320CB	1,2,4,5
104	SUPPLY	210-272	24"x24"	10"Ø	LAY-IN	4-WAY	<10	0.030	NAILOR 6500	1,2,4,5
111	SUPPLY	0-150	10"x4"	10"x4"	CURVE	GRILLE	11	0.058	NAILOR 5100C	1,2,4,5
112	SUPPLY	151-200	12"x4"	12"x4"	CURVE	GRILLE	11	0.058	NAILOR 5100C	1,2,4,5
121	SUPPLY	0-400	12"x12"	12"x12"	SIDEWALL	GRILLE	11	0.058	NAILOR 5100	1,2,4,5
201	RETURN	0-100	24"x24"	6"x6"	LAY-IN	GRILLE	<10	0.086	NAILOR 6145H	1,2,4,5
202	RETURN	101-244	24"x24"	10"x10"	LAY-IN	GRILLE	<10	0.055	NAILOR 6145H	1,2,4,5
203	RETURN	245-495	24"x24"	14"x14"	LAY-IN	GRILLE	16	0.055	NAILOR 6145H	1,2,4,5
204	RETURN	496-656	24"x24"	16"x16"	LAY-IN	GRILLE	16	0.055	NAILOR 6145H	1,2,4,5
205	RETURN	0-135	24"x24"	8"x6"	LAY-IN	PERFORATED	<10	0.055	NAILOR 61FP	1,2,4,5,6
211	RETURN	0-400	12"x12"	12"x12"	SIDEWALL	GRILLE	16	0.055	NAILOR 6145H	1,2,4,5
212	RETURN	401-950	22"x22"	22"x22"	SIDEWALL	GRILLE	<10	0.031	NAILOR 6145H	1,2,4,5
213	RETURN	401-1060	30"x18"	30"x18"	SIDEWALL	GRILLE	<10	0.031	NAILOR 6145H	1,2,4,5
214	RETURN	0-495	14"x14"	14"x14"	SIDEWALL	GRILLE	16	0.055	NAILOR 61FB45	1,2,4,5,6
301	EXHAUST	0-120	24"x24"	6"x6"	LAY-IN	-	19	0.124	NAILOR 6145H	1,2,3,4,5
302	EXHAUST	121-250	24"x24"	8"x8"	LAY-IN	-	19	0.124	NAILOR 6145H	1,2,3,4,5

1. PROVIDE INSULATION FOR ALL DIFFUSERS AND GRILLES WITH PLENUM BOXES.
2. SEE SPECIFICATION 233713.13 & 233713.23 FOR EQUIVALENT MANUFACTURERS. EQUIVALENT APPROVED MANUFACTURERS INCLUDE TITUS AND PRICE.
3. PROVIDE NECK SIZE DUCT ELBOW PRIOR TO TRANSITIONING TO EXHAUST DUCT.
4. ALL DEVICES SHALL BE INDEPENDENTLY SUPPORTED.
5. ALL AIR DEVICES ARE SPECIFIC TO A CEILING TYPE. COORDINATE WITH ARCHITECTURAL DRAWING FOR PROPER APPLICATION.
6. PROVIDE MERV 8 FILTER AT RETURN GRILLE/REGISTER FACE.

DESIGNATION	SERVICE	TYPE	CFM	ESP INCH WG	APPROXIMATE RPM	BHP	MOTOR WATTS	DRIVE	ELECTRICAL			APPROXIMATE WEIGHT LBS	BASIS OF DESIGN	REMARKS	
									FLA	MCA	MOP				
EF-1	CUSTODIAL 110, WOMEN'S 109, MEN'S 108	INLINE	425	0.50	1,282	0.15	115	DIRECT	2.45	3.1	15	115/1/60	36	GREENHECK CSP-A510-VG	1, 4
EF-2	EMERG. ELECT. 113A	INLINE	280	0.25	1,111	0.06	45	DIRECT	1.5	1.9	15	115/1/60	24	GREENHECK CSP-A390-VG	2, 4
EF-3	(ALTERNATE NO. 5) TOILET 107C	INLINE	150	0.25	944	0.03	20	DIRECT	1.5	1.9	15	115/1/60	24	GREENHECK CSP-A390-VG	1, 3, 4

1. PROVIDE ELECTRONICALLY COMMUTATED MOTOR, UNIT MOUNTED DISCONNECT SWITCH, GRAVITY BACKDRAFT DAMPER AND ROOF TERMINATION KIT. EXHAUST FAN SHALL BE CONTROLLED BY BAS SCHEDULE.
2. PROVIDE ELECTRONICALLY COMMUTATED MOTOR, UNIT MOUNTED DISCONNECT SWITCH, GRAVITY BACKDRAFT DAMPER, AND WALL LOUVER TERMINATION KIT. EXHAUST FAN SHALL BE CONTROLLED BY BAS SCHEDULE.
3. EXHAUST FAN AND ALL ASSOCIATED DUCTWORK AND ACCESSORIES ARE INCLUDED IN ADD ALTERNATE NO.5.
4. SEE SPECIFICATION 233416 FOR EQUIVALENT MANUFACTURERS. EQUIVALENT APPROVED MANUFACTURERS INCLUDE LOREN COOK AND PENNBARY.

AHU-1 VENTILATION SCHEDULE																					
ASHRAE Standard	Room Name	Area	Ceiling Height	Pop.	CFM per Person	CFM per Area	Breathing Zone CFM	Distribution Eff.	Zone Outdoor Airflow*	Zone Supply Airflow	Zone Exhaust Airflow	Outdoor Air Fraction	Max. Outdoor Air Fraction	System Vent. Efficiency	Uncorrected Outdoor Air Intake**	Outdoor Air Intake Flow Rate	Actual OA Flow Rate	Required Pressurization			
		Az (sq ft)	(ft)	Pz (#)	Rp (CFM/#)	Ra (CFM/sq ft)	Vbz (CFM)	Ez	Voz (CFM)	Vpz (CFM)	VeZ (CFM)	Zp	Max (Zp)	Ev	Vou (CFM)	Vot (CFM)	OaA (CFM)				
62.1	101 LOBBY/GALLERY	409	9	4	5	0.06	44.54	1	45,000	140	0	0.321	0.623	1.1	33.41	30.37	35	POSITIVE			
62.1	102 MEETING	864	9	60	5	0.06	351.84	1	352,000	730	0	0.482		0.94	263.88	280.72	285	POSITIVE			
62.1	103 OPEN OFFICE	587	9	12	5	0.06	95.22	1	95,000	340	0	0.279		1.14	71.42	62.64	65	POSITIVE			
62.1	103A OFFICE	128	9	1	5	0.06	12.68	1	13,000	45	0	0.289		1.14	9.51	8.34	10	POSITIVE			
62.1	103B OFFICE STORAGE	69	9	0	0	0.12	8.28	1	8,000	25	0	0.320		1.09	6.21	5.70	10	POSITIVE			
62.1	104 LAB	413	9	4	10	0.18	114.34	1	114,000	190	0	0.600		0.82	85.76	104.58	105	POSITIVE			
62.1	104B OBS HIVES	151	9	6	5	0.06	39.06	1	39,000	80	0	0.488		0.93	29.30	31.50	35	POSITIVE			
62.1	104A INCUBATOR	83	9	0	0	0.12	9.96	0	0.000	0	0	0.000		1.42	7.47	5.26	10	POSITIVE			
62.1	105 CORRIDOR	337	9	0	0	0.06	20.22	1	20,000	90	0	0.222		1.2	15.17	12.64	15	POSITIVE			
62.1	105A STORAGE	114	9	0	0	0.12	13.68	0	0.000	0	0	0.000		1.42	10.26	7.23	10	POSITIVE			
62.1	107 WORKSHOP	687	9	4	10	0.18	163.66	1	164,000	325	0	0.505		0.92	122.75	133.42	135	POSITIVE			
62.1	107B EXTRACTION	225	9	4	10	0.18	80.50	1	81,000	130	0	0.623		0.8	60.38	75.47	80	POSITIVE			
62.1	107C TOILET	83	9	0	0	0	0.00	1	0.000	30	150	0.000		1.42	0.00	0.00	0	NEGATIVE			
62.1	108 MEN'S	141	9	0	0	0	0.00	1	0.000	40	175	0.000		1.42	0.00	0.00	0	NEGATIVE			
62.1	109 WOMEN'S	152	9	0	0	0	0.00	1	0.000	40	175	0.000		1.42	0.00	0.00	0	NEGATIVE			
62.1	110 CUSTODIAL	46	9	0	0	0.12	5.52	0	0.000	0	75	0.000		1.42	4.14	2.92	5	NEGATIVE			
62.1	112 EQUIPMENT STORAGE	366	9	0	0	0.12	43.92	1	44,000	180	0	0.244		1.18	32.94	27.92	30	POSITIVE			
SA Total:										2385	OA Total:										830

**Diversity factor assumed to be 75%

VARIABLE AIR VOLUME SCHEDULE														
DESIGNATION	AREA SERVED	MAXIMUM COOLING CFM	MAXIMUM HEATING CFM	MINIMUM CFM	UNOCCUPIED MINIMUM CFM	INLET SIZE	OUTLET SIZE	EAT (°F)	LAT (°F)	COIL (MBH)	COIL SIZE (KW)	ELECTRICAL (V/PH/Hz)	REMARKS	
VAV-1	EQUIPMENT STORAGE	165	165	50	45	6"Ø	12"x8"	55	95	7.1	0.5	120/1/60	SEE NOTES	
VAV-2	WOMEN'S 110	75	50	35	30	4"Ø	12"x8"	55	95	2.2	0.1	120/1/60	SEE NOTES	
VAV-3	WORKSHOP 107	445	290	165	90	8"Ø	12"x10"	55	95	12.5	0.9	120/1/60	SEE NOTES	
VAV-4	EXTRACTION 107B	165	130	130	45	6"Ø	12"x8"	55	95	5.6	0.4	120/1/60	SEE NOTES	
VAV-5	OBSERVATION HIVES 104B STORAGE 107C	175	110	55	45	6"Ø	12"x8"	55	95	4.8	0.3	120/1/60	SEE NOTES	
VAV-6	MEN'S 108	75	50	35	30	4"Ø	12"x8"	55	95	2.2	0.1	120/1/60	SEE NOTES	
VAV-7	CORRIDOR 105	135	135	45	30	4"Ø	12"x8"	55	95	5.8	0.4	120/1/60	SEE NOTES	
VAV-8	LAB 104	270	190	190	45	6"Ø	12"x8"	55	95	8.2	0.5	120/1/60	SEE NOTES	
VAV-9	MEETING 102	1670	725	505	385	16"Ø	24"x18"	55	95	31.3	2.3	208/3/60	SEE NOTES	
VAV-10	LOBBY/GALLERY	320	285	100	45	6"Ø	12"x8"	55	95	12.3	0.9	120/1/60	SEE NOTES	
VAV-11	OPEN OFFICE 103	860	485	260	190	12"Ø	16"x15"	55	95	21.0	1.5	208/3/60	SEE NOTES	
VAV-12	OFFICE 103A	145	65	45	30	4"Ø	12"x8"	55	95	2.8	0.2	120/1/60	SEE NOTES	
VAV-13	ELECT. 113	400	-	65	45	6"Ø	12"x8"	-	-	-	-	120/1/60	SEE NOTES	
VAV-14	DATA 111	400	-	65	45	6"Ø	12"x8"	-	-	-	-	120/1/60	SEE NOTES	

- NOTES:
1. SOUND DATA SHALL BE OBTAINED FROM TESTS CONDUCTED IN ACCORDANCE WITH ARI STANDARD 880-98.
 2. ALL CFM, PRESSURE AND HEATING PERFORMANCE VALUES ARE CORRECTED FOR ALTITUDE.
 3. NC LEVELS SHALL NOT EXCEED 25.
 4. AIR PRESSURE DROP SHALL NOT EXCEED 0.5" W.C.
 5. PROVIDE FACTORY PROVIDED DISCONNECT SWITCH AND 24V TRANSFORMER.
 6. ELECTRIC REHEAT SHALL BE SCR CONTROLLED.
 7. SEE SPECIFICATION 233600 FOR MANUFACTURERS.

CABINET UNIT HEATER SCHEDULE							
DESIGNATION	SERVICE	CFM	ELECTRICAL		APPROXIMATE WEIGHT LBS	BASIS OF DESIGN	REMARKS
			V/PH/Hz	KW AMPS			
CUH-1	106 - EDUCATION HIVE	250	208/3/60	2.0 6.0	120	BERKO CUH935	SEE NOTES
CUH-2	106 - EDUCATION HIVE	250	208/3/60	2.0 6.0	120	BERKO CUH935	SEE NOTES

- NOTES:
1. PROVIDE UNIT MOUNTED DISCONNECT SWITCH, UNIT MOUNTED THERMOSTAT AND KEY LOCK FOR FRONT COVER.
 2. PROVIDE WALL MOUNTED SWITCH TO ENABLE/DISABLE CABINET UNIT HEATER.
 3. PROVIDE FULLY RECESS TRIM KIT.
 4. EQUIVALENT APPROVED MANUFACTURERS INCLUDE MODINE AND INDECO.

NCSU Apiculture Facility

Raleigh, NC
SCO ID No.: 22-24494-01A
Code: 42124 Item: 315
NCSU: 202220007

Project Number 132

MECHANICAL SCHEDULES

Sheet

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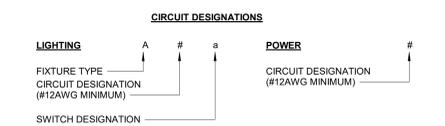
Plate

ELECTRICAL SYMBOLS

Table of electrical symbols categorized into Lighting Symbols, Special Systems Symbols, and Power Symbols. Each entry includes a symbol, description, and mounting height (MH) or unit of note (UON).

ELECTRICAL ABBREVIATIONS

Table of electrical abbreviations with columns for Symbol, Description, and Unit of Note (UON). Includes notes on standard abbreviations and specific symbols for lighting and power.



ELECTRICAL SYMBOLS NOTES

- 1. THIS IS A STANDARD SYMBOL LIST. SOME SYMBOLS MAY NOT APPEAR ON THE ACCOMPANYING DRAWINGS.
2. REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS.
3. PLAN AND SECTION SYMBOLS MAY ALSO BE USED ON RISER DIAGRAMS.
4. ON SINGLE LINE DIAGRAMS FOR 3 PHASE SYSTEMS, DEVICE QUANTITY = 3, UNLESS OTHERWISE NOTED.
5. DEVICE SHALL BE MOUNTED A MINIMUM OF 90" AFF TO BOTTOM OF DEVICE OR BELOW THE FINISHED CEILING OF NOT LESS THAN 6" TO TOP OF DEVICE, WHICHEVER IS LOWER, UNLESS OTHERWISE NOTED, ALL INTERIOR CONDUITS AND BOXES SHALL BE CONCEALED.

ELECTRICAL DRAWING PRESENTATION

Table showing electrical drawing presentation symbols and their descriptions. Includes symbols for revision numbers, drawing note numbers, section/elevation identification, part plan and detail identification, and line types for existing, new, and demolition work.

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Table with columns for field and value: Drawn: TLW, Checked: KLP, Date: 1/10/2025.

Revisions

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Project Number 132, Title ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS, Sheet E001, Plate

DRAWING NOTES

- ① BASIS OF DESIGN FOR POLE LIGHT, FIXTURE TYPE P1 IS LITHONIA OSK2-LED-40-40K-80CRI-3-ANVOLT. ACCEPTABLE ALTERNATES SHALL HAVE SIMILAR CHARACTERISTICS. FIXTURE SHALL BE CONNECT TO RP1-46 AND CONTROLLED THROUGH THE TIME CLOCK RELAY.
- ② PROVIDE 12"X12" HAND HOLE FOR PULL POINT FROM INTERIOR PANEL.
- ③ TELECOM DUCTBANK TO INWOOD ROAD.
- ④ PRIMARY DUCTBANK TO DUKE ENERGY TRANSFORMER.

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Code: 42124 Item: 315
NCSU: 20222007

Project Number 132

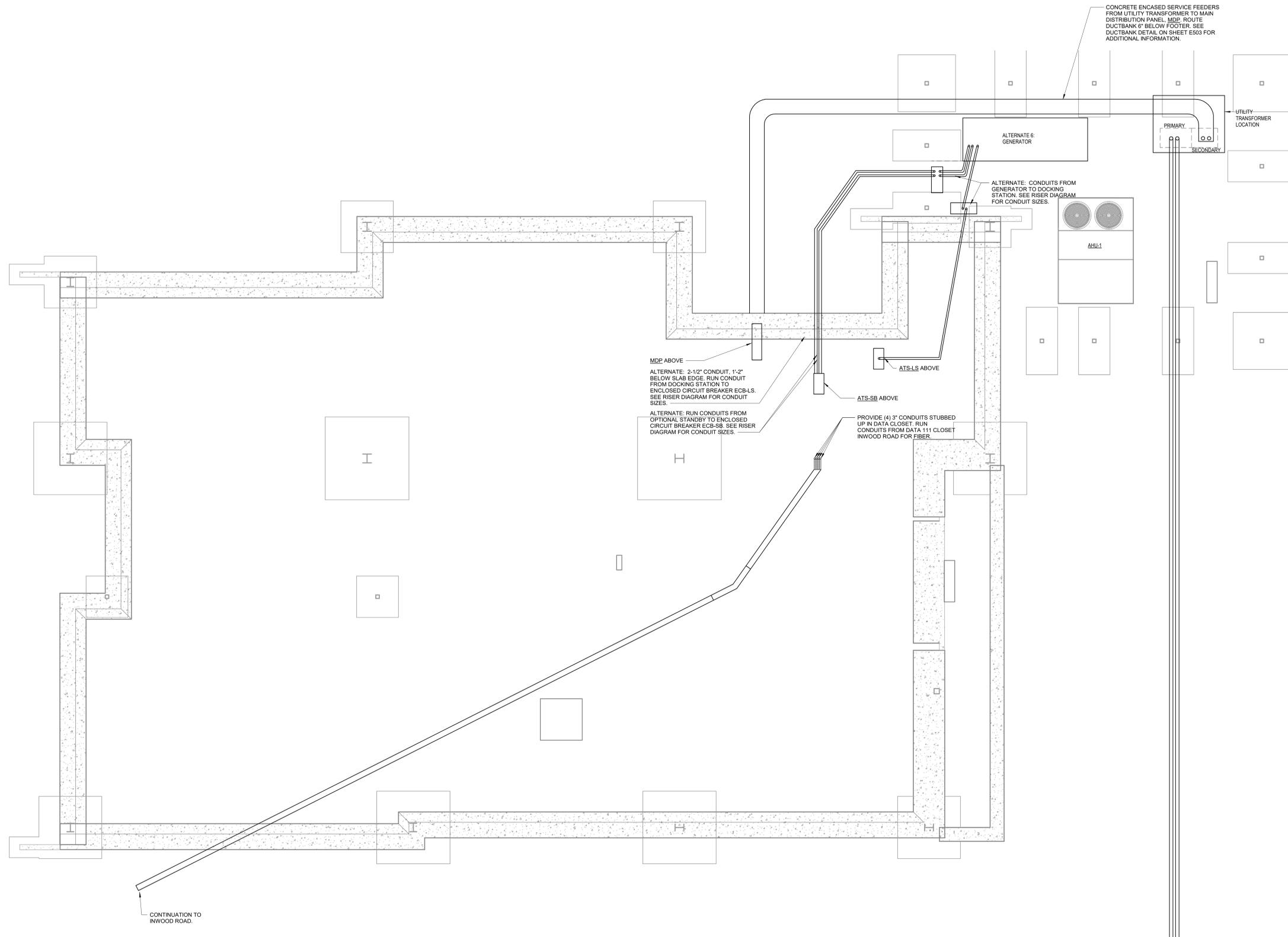
ELECTRICAL SITE PLAN

Sheet

E101

Plate





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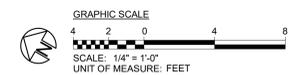
Project Number 132

ELECTRICAL UNDER SLAB PLAN

Sheet

E102

Plate

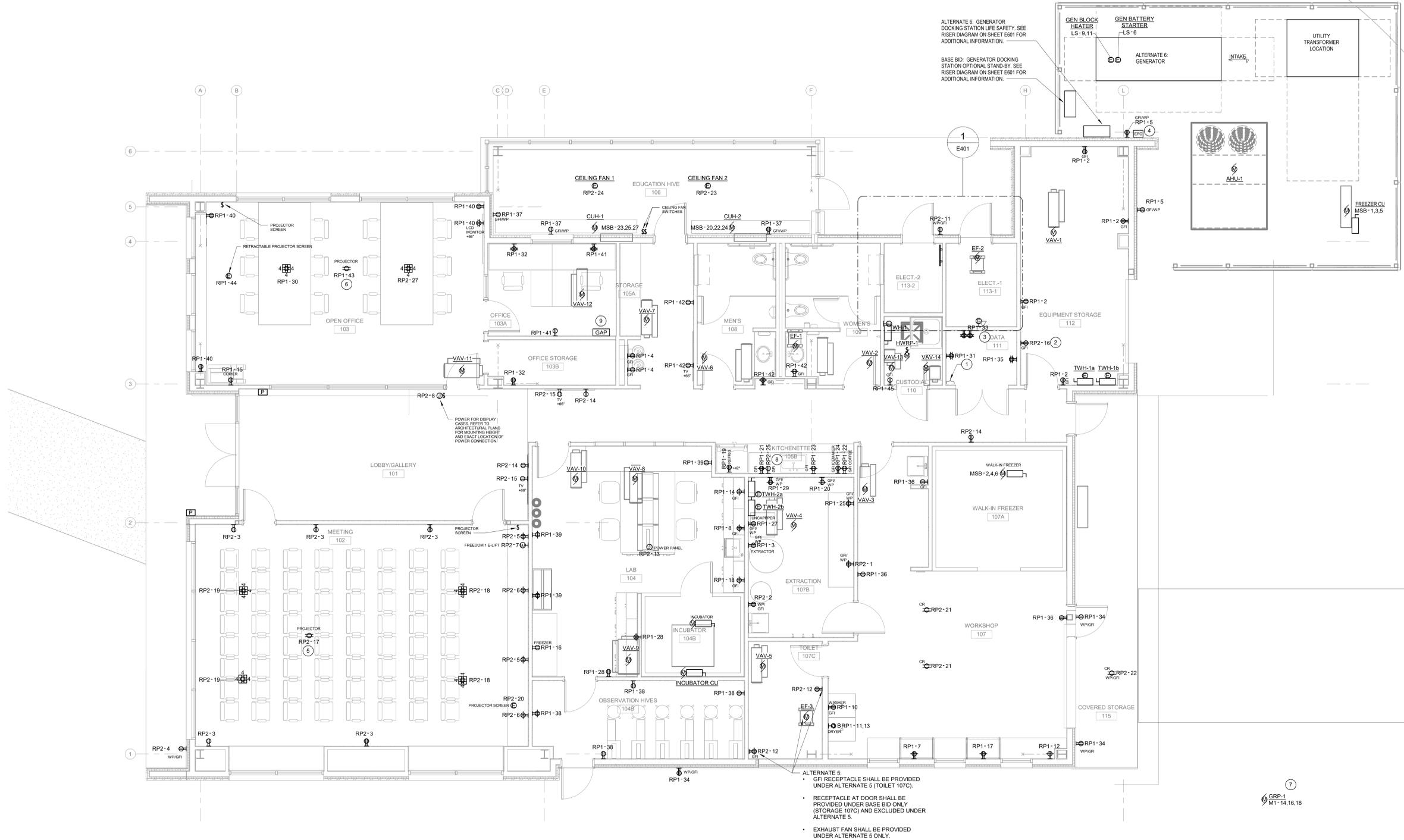


GENERAL NOTES

A. SEE SHEET E701 FOR MOTOR AND EQUIPMENT CONNECTIONS.

DRAWING NOTES

- CONDUITS FROM HANDHOLE OUTSIDE OF BUILDING FOR FIBER SERVICE.
- PROVIDE POWER FOR SECURITY PANEL. COORDINATE MOUNTING HEIGHT AND EXACT PLACEMENT IN FIELD WITH SECURITY INSTALLER.
- PROVIDE 3/4" THICK, FIRE-RETARDANT PLYWOOD ON WALLS FROM FLOOR TO 8'-0" AFF.
- PROVIDE EPO SWITCH FOR GENERATOR.
- PROJECTOR RECEPTACLE SHALL BE MOUNTED ABOVE FLOATING CEILING. COORDINATE PROJECTOR LOCATION AND MOUNTING WITH NCSU CLASSTECH.
- COORDINATE PROJECTOR LOCATION AND MOUNTING WITH NCSU CLASSTECH.
- GRINDER PUMP LOCATED OUTSIDE BUILDING. COORDINATE LOCATION AND PUMP SIZE WITH CIVIL DRAWINGS.
- MICROWAVE RECEPTACLE SHALL BE MOUNTED 24" AFF. COORDINATE ROUGH-IN LOCATION WITH ARCHITECTURAL ELEVATIONS.
- ALTERNATE 6: PROVIDE 3/4" FROM GENERATOR TO GENERATOR ANNUNCIATOR PANEL (GAP). PROVIDE 2#14 TWISTED SHIELDED PAIR WIRE OR MANUFACTURER SPECIFIED WIRE.



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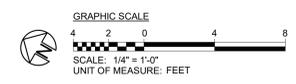
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Project Number 132
 Title **POWER FLOOR PLAN**

Sheet **E111**
 Plate



DRAWING NOTES

- 1 PROVIDE JUNCTION BOX (SSI-A). REFER TO DETAILS FOR ROUGH-IN INSTALLATION.
- 2 PROVIDE JUNCTION BOX (SSI-B). REFER TO DETAILS FOR ROUGH-IN INSTALLATION.
- 3 WALL MOUNTED 8" BELOW CEILING.
- 4 PROJECTOR DATA OUTLET SHALL BE MOUNTED ABOVE FLOATING CEILING. COORDINATE PROJECTOR LOCATION AND MOUNTING WITH NCSU CLASSTECH.
- 5 PROVIDE 1" CONDUIT FROM DATA JUNCTION BOX TO DATA OULET IN ADJACENT SPACE. ALL DATA CABLING SHALL BE IN CONDUIT. J-HOOKS ARE NOT ALLOWED.



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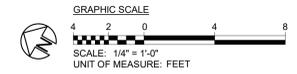
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Project Number 132
 Title
SPECIAL SYSTEMS FLOOR PLAN

Sheet
E121
 Plate



APPENDIX B CALCULATIONS: 2018 NORTH CAROLINA ENERGY CONSERVATION CODE
BUILDING SQUARE FOOTAGE = 5171 SF
NCECC FACTOR (SCHOOL/UNIVERSITY) = 0.87 W/SF
5171 SF X 0.87 W/SF = 4499 W X 0.9 = 4049 W ALLOWABLE VS. 3122 W SPECIFIED

GENERAL NOTES

- A. ALL LIGHTING FIXTURES ARE CIRCUITED TO PANEL RP1 UNLESS STATED OTHERWISE.
- B. ALL EXTERIOR LIGHT FIXTURES SHALL BE CONTROLLED BY ASTRONOMICAL TIME CLOCK. TIME CLOCK SHALL HAVE CAPABILITY TO INDIVIDUALLY CONTROL CIRCUITS AND BE PROGRAMMABLE TO MEET BUILDING OCCUPANT REQUIREMENTS.

DRAWING NOTES

- 1. ALTERNATE 6: PROVIDE UL924 RELAY DEVICE IF ALTERNATE IS ACCEPTED AND PROVIDE ADDITIONAL EMERGENCY CIRCUIT TO EMERGENCY FIXTURES AS INDICATED IN LIGHT FIXTURE TAG. EXIT SIGNS SHALL NOT BE CONTROLLED THROUGH UL924 DEVICES AND SHALL ONLY BE SERVED BY THE EMERGENCY CIRCUIT. IF ALTERNATE IS NOT ACCEPTED, ALL EMERGENCY FIXTURES SHALL HAVE BATTERY PACKS.
- 2. TIME CLOCK LOCATED NEXT TO LIGHTING PANELS.
- 3. SWITCH SHALL CONTROL LIGHT FIXTURE WHITE CIRCUIT.
- 4. SWITCH SHALL CONTROL LIGHT FIXTURE RED CIRCUIT.
- 5. INSTALL REMOTE DRIVER IN AN ACCESSIBLE LOCATION ABOVE CEILING IN THE CORRIDOR. (MINIMUM 15' FROM FIXTURE)
- 6. INSTALL REMOTE DRIVER IN AN ACCESSIBLE LOCATION MOUNTED HIGH IN THE WORKSHOP. (MINIMUM 15' FROM FIXTURE)



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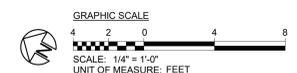
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Project Number 132
Title LIGHTING FLOOR PLAN

Sheet E131
Plate

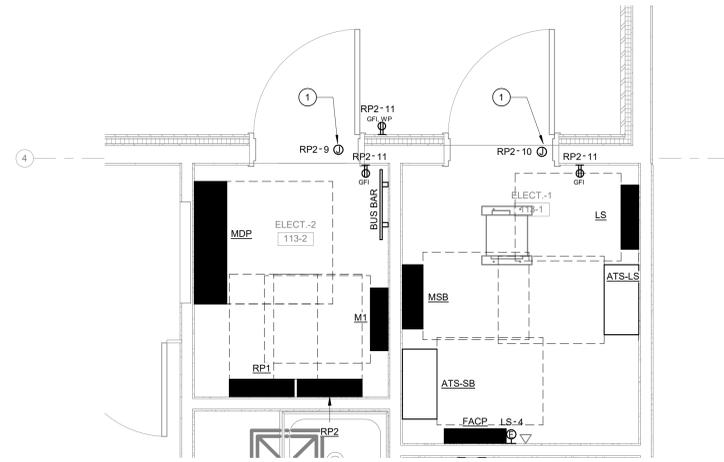


GENERAL NOTES

A. SEE SHEET E701 FOR MOTOR AND EQUIPMENT CONNECTIONS.

DRAWING NOTES

① PROVIDE POWER FOR DOOR PANIC HARDWARE.



① **ELECTRICAL ROOM 112 & 112B**
 E111 SCALE: 1/2" = 1'-0"



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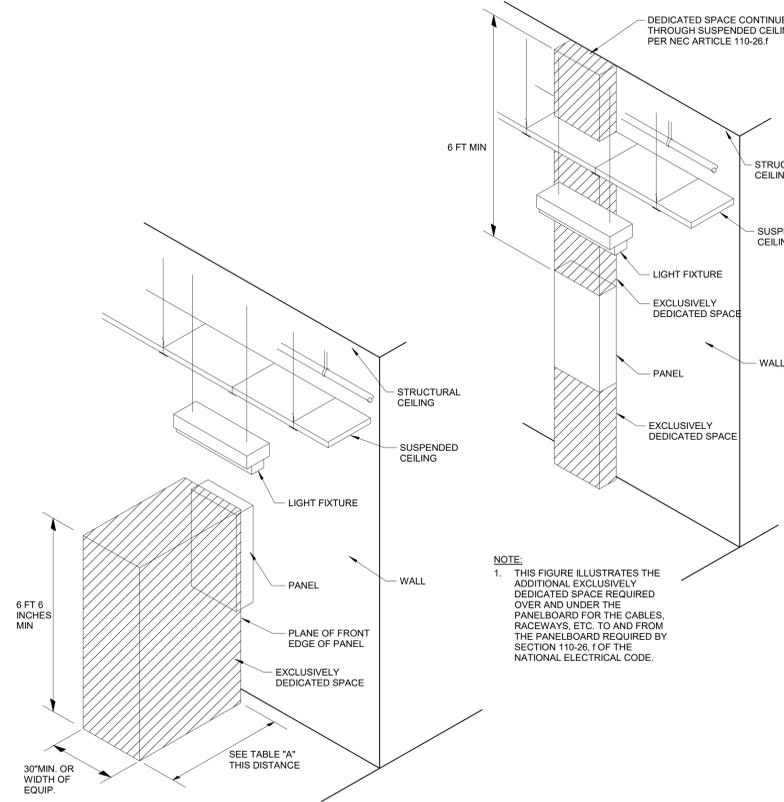
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Project Number 132

Title
ELECTRICAL ENLARGED PLANS AND SECTIONS

Sheet
E401

Plate



THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER THE PANELBOARD FOR THE CABLES, RACEWAYS, ETC. TO AND FROM THE PANELBOARD REQUIRED BY SECTION 110-26.1 OF THE NATIONAL ELECTRICAL CODE.

VOLTAGE TO GROUND, NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
	CONDITION: 1	2	3
0-150	3	3	3
151-600	3	3 1/2	4

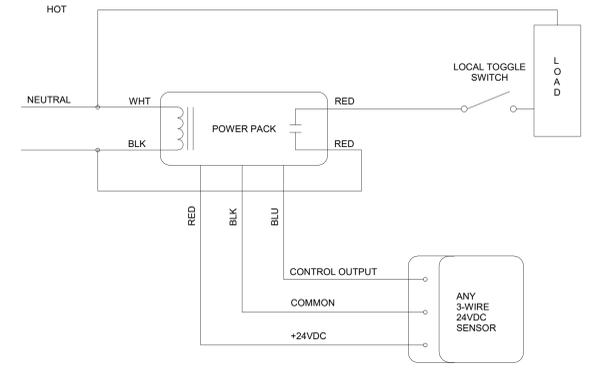
WHERE THE "CONDITIONS" ARE AS FOLLOWS:

- EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300 VOLTS SHALL NOT BE CONSIDERED LIVE PARTS.
- EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE. CONCRETE, BRICK OR TILE SHALL BE CONSIDERED AS GROUNDED.
- EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

NOTES:

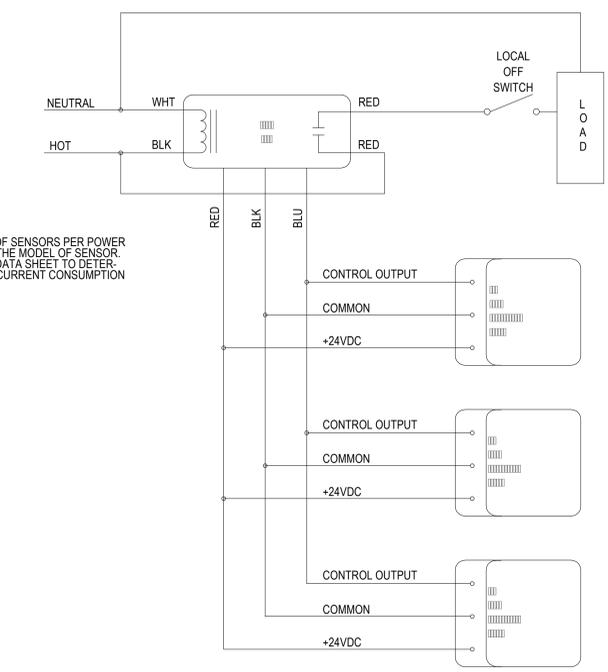
- NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH THE DEDICATED SPACES SHOWN ABOVE.
- WORKING SPACES FOR EQUIPMENT DETAIL.

DETAIL - WORKING SPACES FOR EQUIPMENT SCALE: NONE **1**

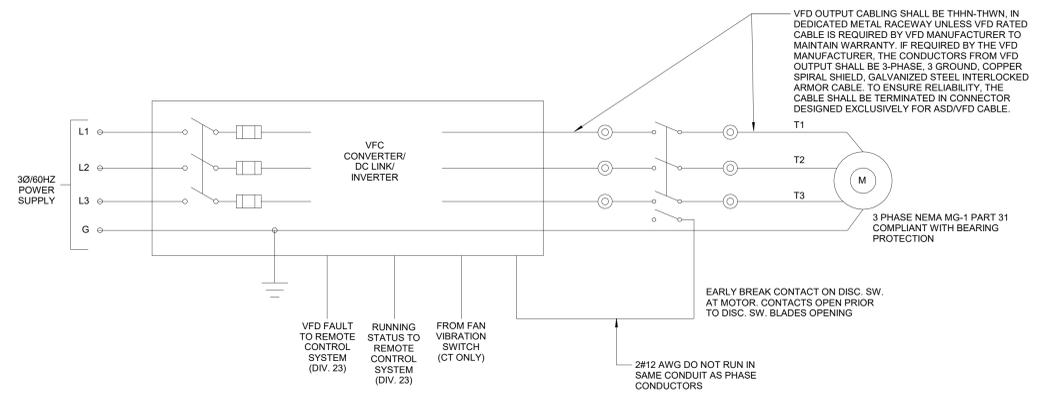


DETAIL - 3-WIRE OCCUPANCY SENSOR SCALE: NONE **2**

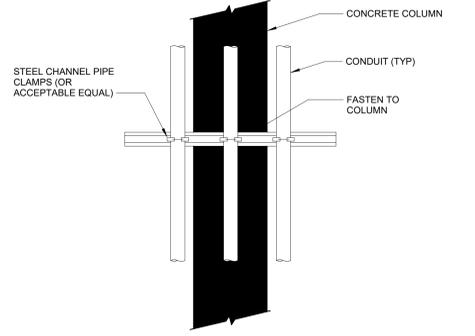
NOTE: MAXIMUM NUMBER OF SENSORS PER POWER PACK DEPENDS ON THE MODEL OF SENSOR. SEE THE PRODUCT DATA SHEET TO DETERMINE THE SPECIFIC CURRENT CONSUMPTION OF EACH SENSOR.



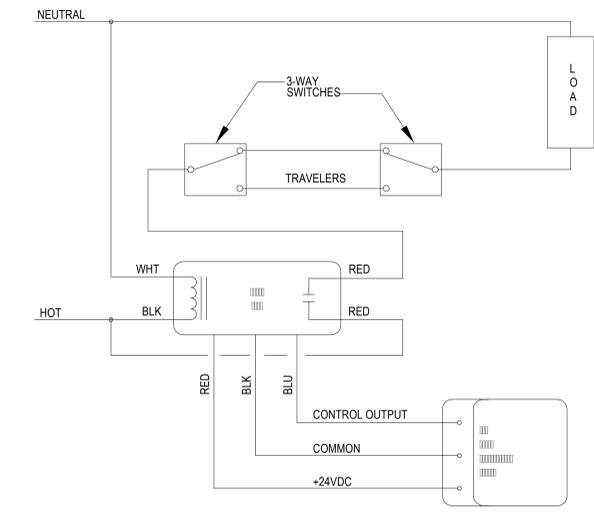
DETAIL - MULTIPLE OCCUPANCY SENSORS USING ONE POWER PACK SCALE: NONE **3**



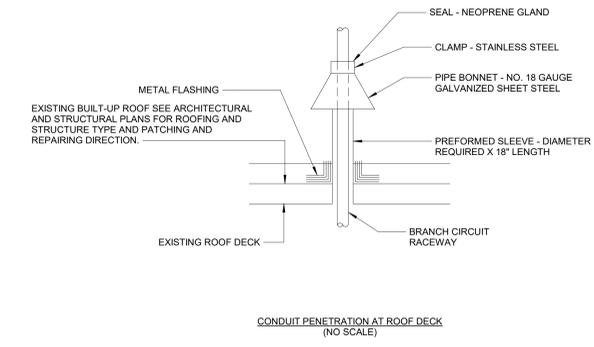
DETAIL - TYPICAL VARIABLE FREQUENCY DRIVE SCALE: NONE **6**



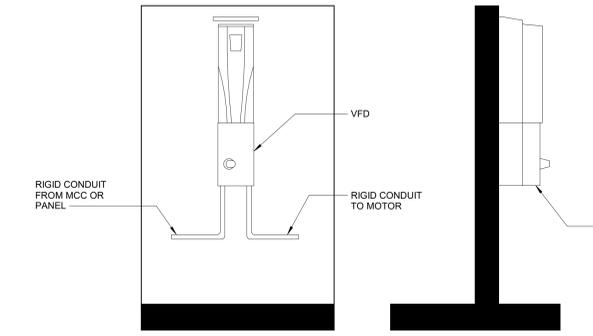
DETAIL - TYPICAL MOUNTING FOR VERTICAL CONDUIT SCALE: NONE **7**



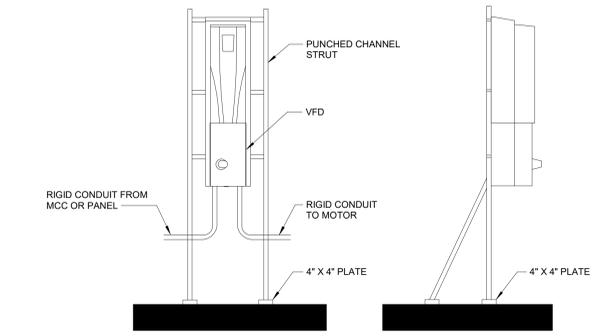
DETAIL - CEILING OCCUPANCY SENSOR WITH 3-WAY SWITCHING SCALE: NONE **4**



DETAIL - CONDUIT ROOF PENETRATION SCALE: NONE **5**



DETAIL - TYPICAL VFD DRIVE MOUNTING - WALL MOUNTED SCALE: NONE **4**



DETAIL - TYPICAL VFD DRIVE MOUNTING (SLOTTED STEEL CHANNEL) SCALE: NONE **8**

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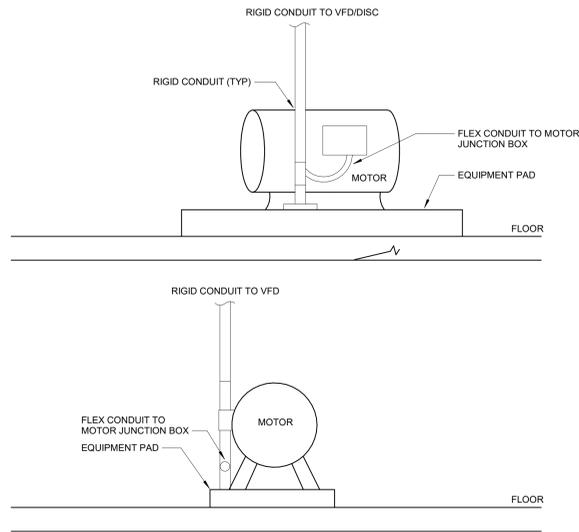
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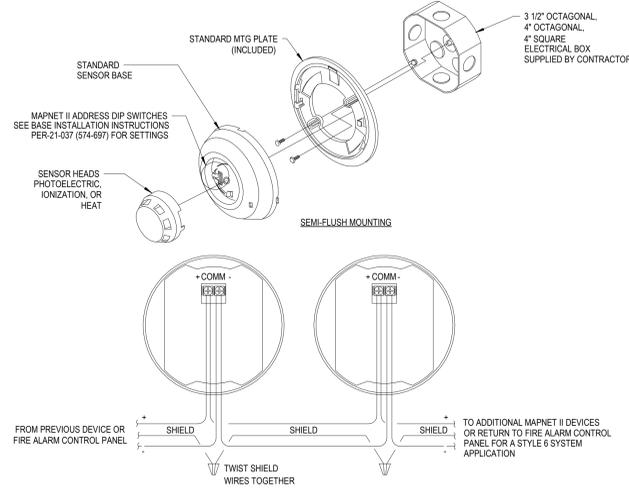
Project Number: 132
Title: **ELECTRICAL DETAILS**

Sheet: **E501**
Plate:



DETAIL - TYPICAL CONDUIT CONNECTION TO MOTOR

SCALE: NONE 1

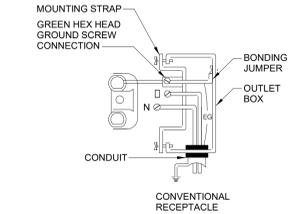
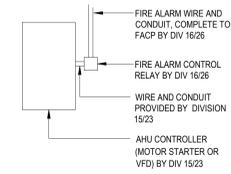


DETAIL - SMOKE DETECTOR MOUNTING

SCALE: NONE 2

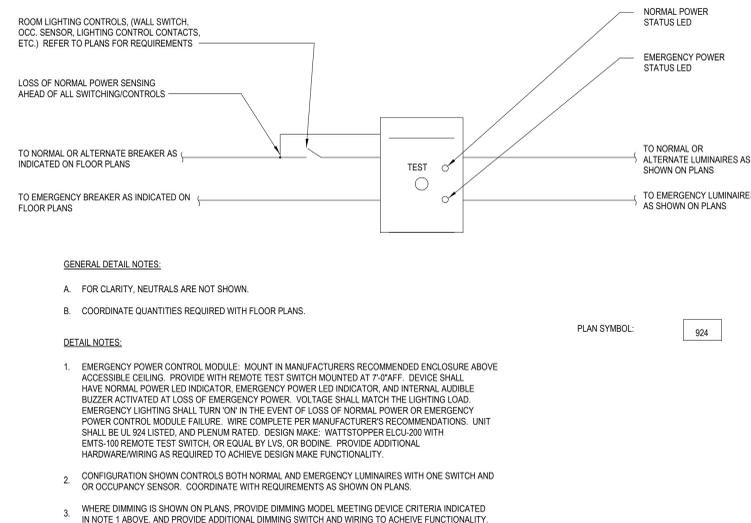
DETAIL - HVAC SHUTDOWN RELAY DIAGRAM

SCALE: NONE 3



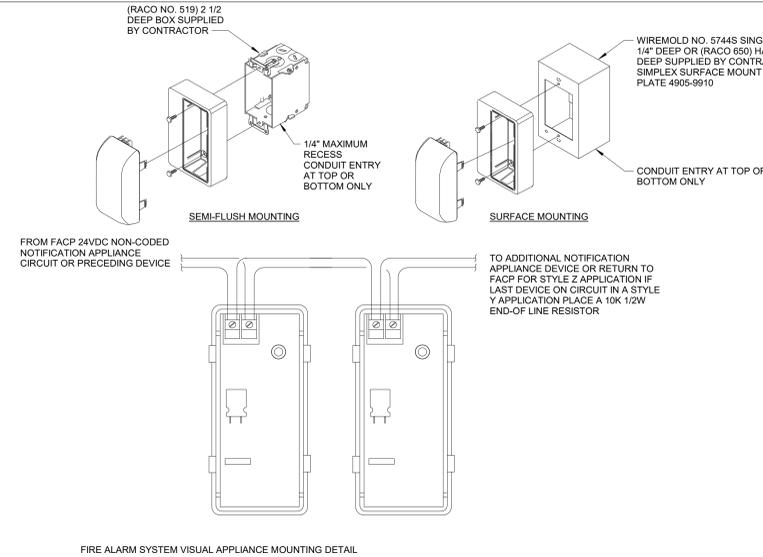
DETAIL - RECEPTACLE WIRING

SCALE: NONE 4



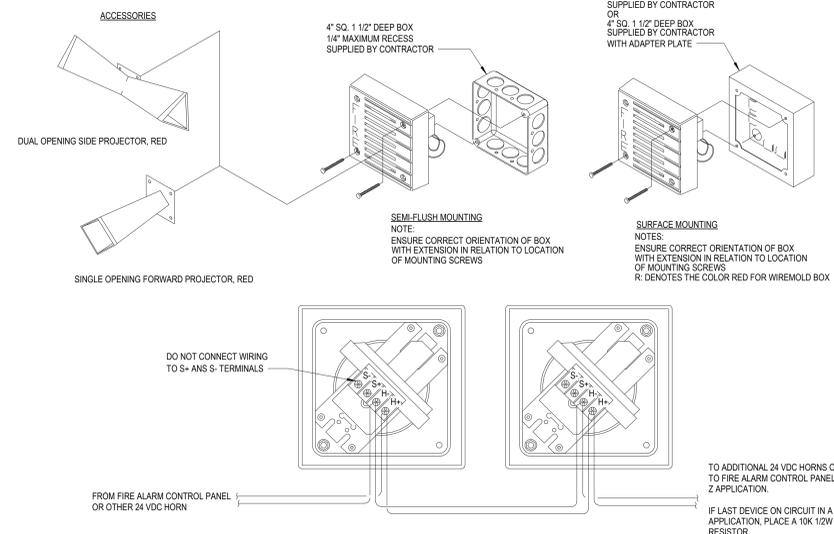
DETAIL - EMERGENCY TRANSFER RELAY CONTROL DEVICE

SCALE: NONE 5



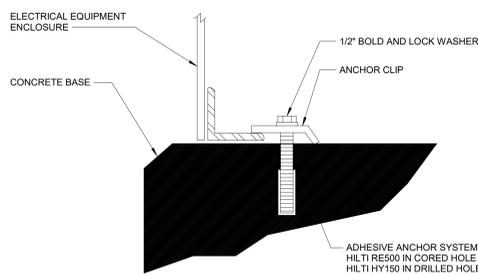
DETAIL - VISUAL APPLIANCE MOUNTING

SCALE: NONE 6



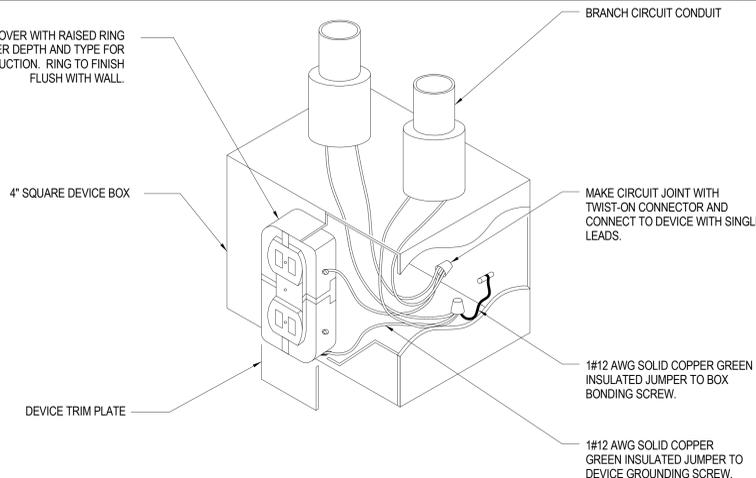
DETAIL - AUDIBLE APPLIANCE MOUNTING

SCALE: NONE 7



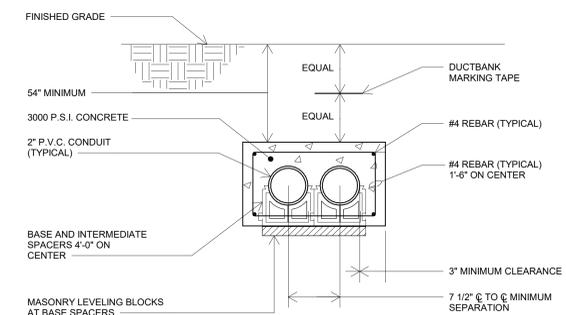
DETAIL - ELECTRICAL EQUIPMENT CONCRETE ANCHORING

SCALE: NONE 8



DETAIL - RECEPTACLE GROUNDING

SCALE: NONE 9



DETAIL - 2-WAY DUCTBANK (2x1) - 2" CONDUIT

SCALE: NONE 10

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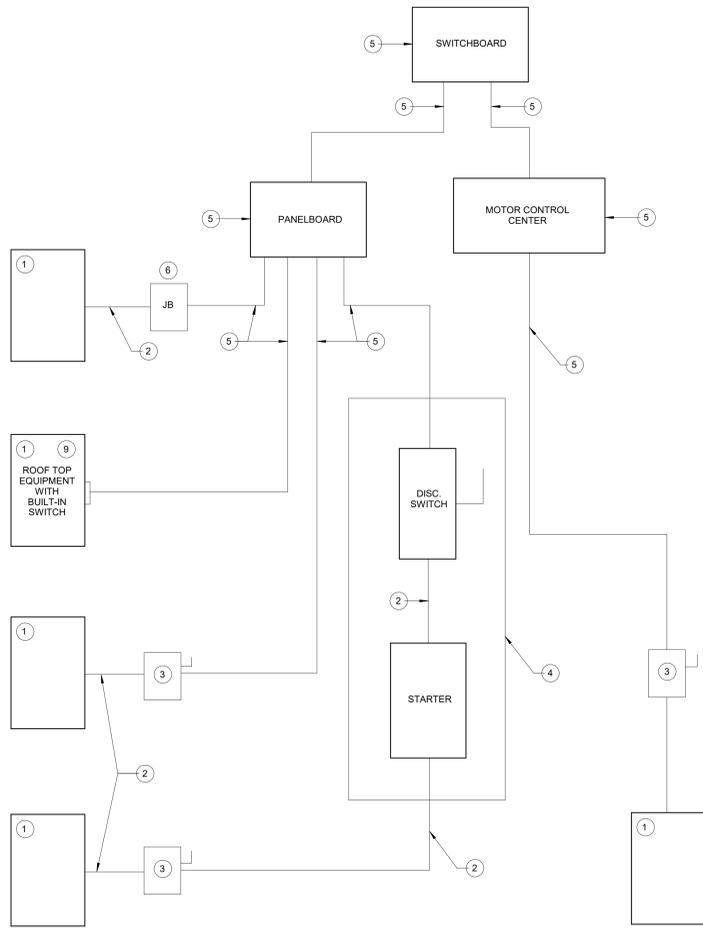
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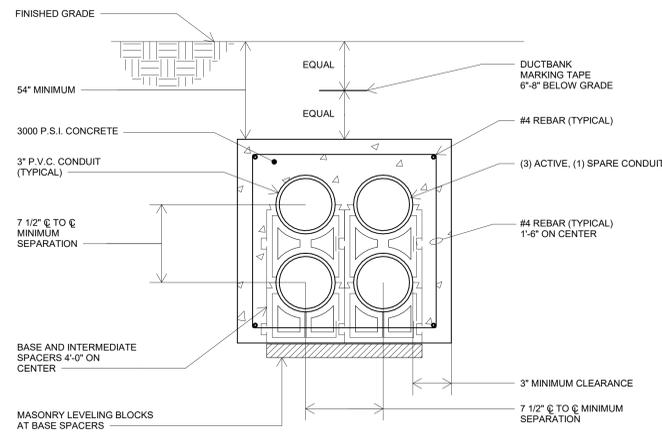
Sheet: **E502**
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- ELECTRICAL NOTES:**
- 1 EQUIPMENT PROVIDED BY TRADES OTHER THAN ELECTRICAL.
 - 2 CONDUIT & WIRING BY MECHANICAL, PLUMBING CONTRACTOR OR OTHER TRADES OTHER THAN ELECTRICAL.
 - 3 IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR PROVIDING THE EQUIPMENT.
 - 4 A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPERATE DISCONNECT SWITCH AND STARTER. LOCATE ADJACENT TO EQUIPMENT. DISCONNECT SWITCH, VFD AND/OR STARTER SHALL BE PROVIDED BY THE CONTRACTOR PROVIDING THE EQUIPMENT.
 - 5 SWITCHBOARD, PANELBOARD, FEEDER CIRCUIT WIRING AND CONDUIT PROVIDED BY ELECTRICAL TRADE AS SHOWN ON THE ELECTRICAL DRAWINGS. SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
 - 6 JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL BE PROVIDED BY MECHANICAL, PLUMBING CONTRACTOR OR OTHER TRADES OTHER THAN ELECTRICAL.
 - 7 FOR PROJECTS UTILIZING AN MCC, THE STARTER, CB, AND/OR THE VFD LOCATED IN THE MCC SAHLL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
 - 8 IN ALL CASES THE CONTRACTOR SUPPLYING THE EQUIPMENT SHALL MAKE THE FINAL ELECTRICAL TERMINATIONS, START UP, AND TEST THE EQUIPMENT.
 - 9 IF THE ROOF TOP EQUIPMENT IS NOT PROVIDED WITH BUILT IN DISCONNECT SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH, IN A SINGLE PRIME CONTRACT, IT IS THE RESPONSIBILITY OF THE PRIME CONTRACTOR TO COORDINATE BETWEEN THE ELECTRICAL AND THE OTHER TRADES.

DETAIL - DIVISION OF RESPONSIBILITY

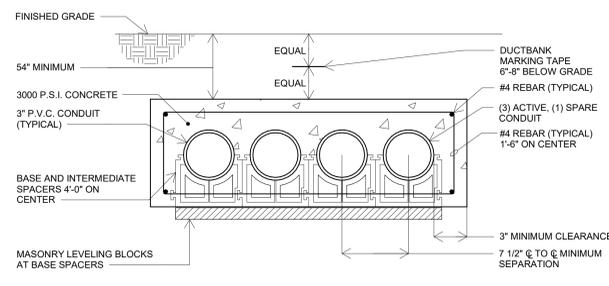
SCALE: NONE 1



NOTE: REBAR REQUIRED UNDER ROADWAYS ONLY

DETAIL - 4 WAY DUCTBANK (2X2) AND (4X1) 3" CONDUIT

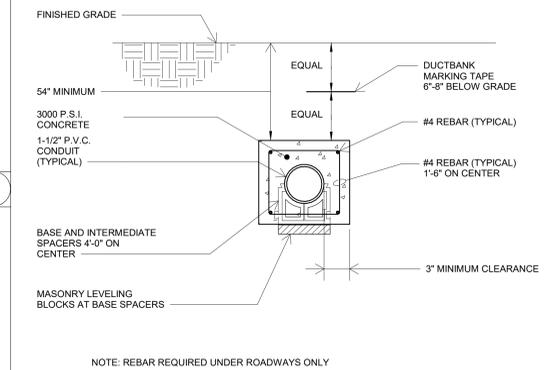
SCALE: NONE 3



NOTE: REBAR REQUIRED UNDER ROADWAYS ONLY

DETAIL - 1 WAY DUCTBANK (1X1) 2" CONDUIT

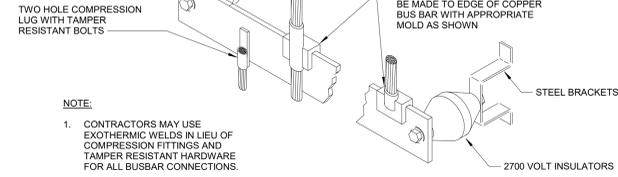
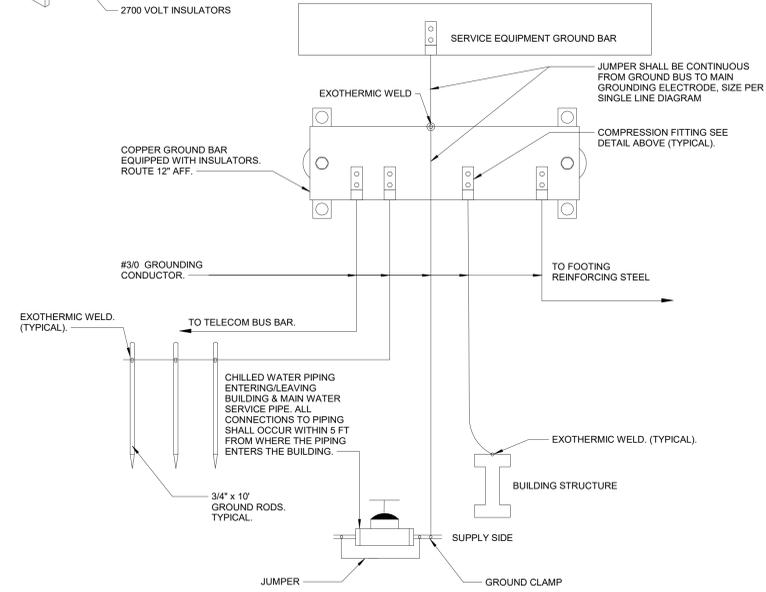
SCALE: NONE 4



NOTE: REBAR REQUIRED UNDER ROADWAYS ONLY

DETAIL - GROUND BAR MOUNTING

SCALE: NONE 2



NOTE:
1. CONTRACTORS MAY USE EXOTHERMIC WELDS IN LIEU OF COMPRESSION FITTINGS AND TAMPER RESISTANT HARDWARE FOR ALL BUSBAR CONNECTIONS.



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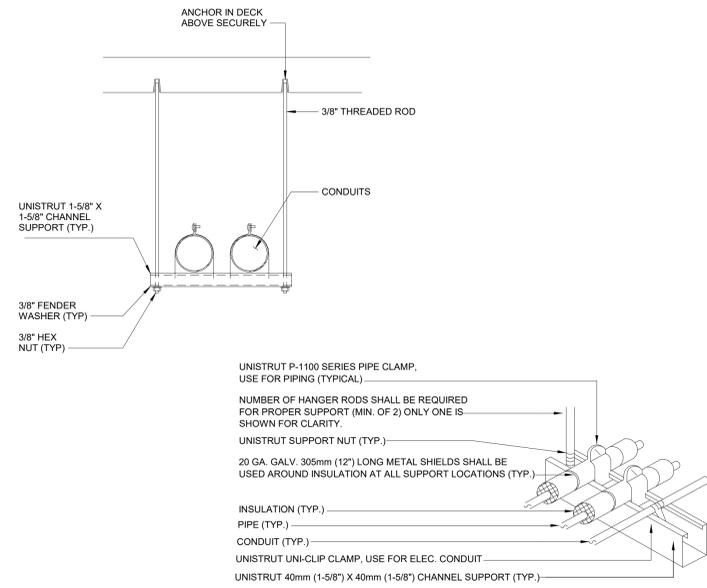
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ELECTRICAL DETAILS

Sheet

E503

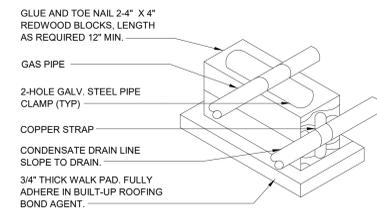
Plate



- NOTES:**
1. ALL PIPE CONDUIT, ETC. OF ALL TRADES MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
 2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
 3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0\"/>

DETAIL - CONDUIT SUPPORT ABOVE CEILING

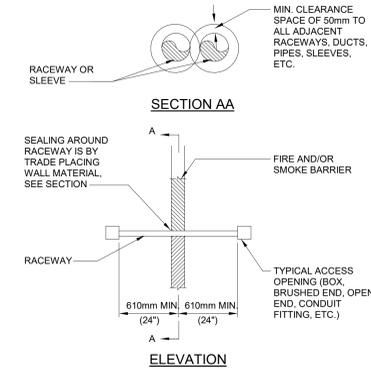
SCALE: NONE **1**



- NOTES:**
1. BLOCKING SHALL BE INSTALLED A MINIMUM OF 8'-0\"/>

DETAIL - CONDUIT SUPPORT AT ROOF

SCALE: NONE **2**

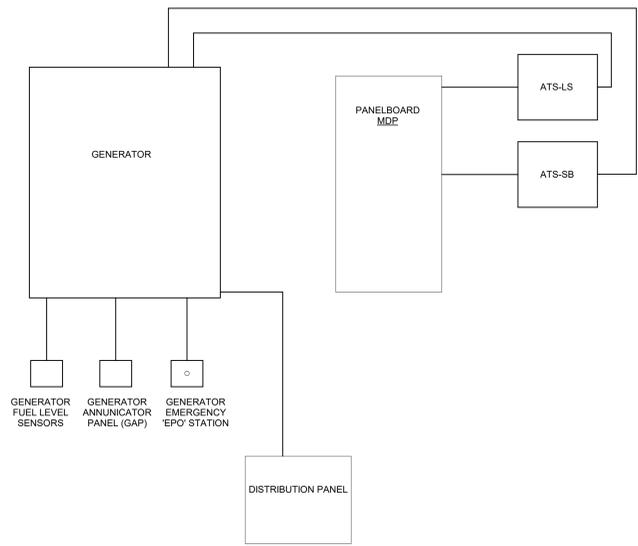


DETAIL - WIRING THROUGH FIRE AND SMOKE BARRIERS

SCALE: NONE **3**

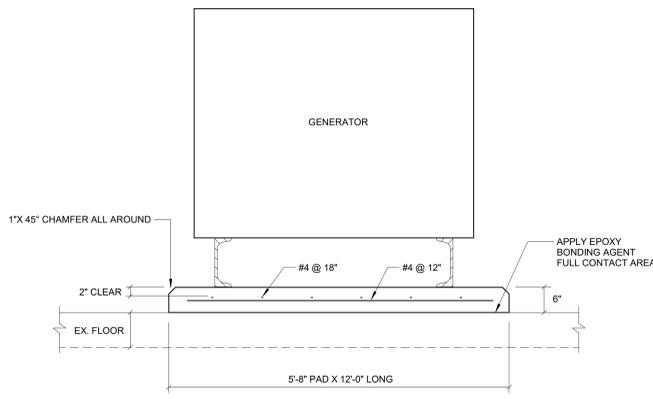
GENERAL NOTES:

1. POWER CONDUCTORS FOR GENERATOR FEEDER, BATTERY CHARGER, AND BLOCK HEATER NOT SHOWN. REFER TO SHEET E111 AND PANELBOARD SCHEDULES FOR CIRCUIT INFORMATION.
- DRAWING NOTES:**
1. GENERATOR FEEDER TO SWITCHBOARD. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND QUANTITIES.
 2. GENERATOR ENCLOSURE POWER TO GENERATOR PANEL, TRANSFORMER OR CIRCUITS TO INDIVIDUAL GENERATOR ELECTRICAL EQUIPMENT:
 - A. ENGINE BLOCK HEATER
 - B. BATTERY CHARGER
 VERIFY REQUIREMENTS OF GENERATOR SYSTEM PRIOR TO INSTALLING CONDUITS.
 3. CONTROL WIRING AS REQUIRED BY THE GENERATOR AND GENERATOR AUXILIARY EQUIPMENT. MINIMUM CONDUCTOR SIZE FOR THWN STRANDED CONDUCTORS SHALL BE #10 AWG. PROVIDE 10% SPARE CONDUCTORS IN ADDITION TO WHAT THE MANUFACTURER REQUIRES.
 4. CONTROL WIRING AS REQUIRED BY THE GENERATOR AND GENERATOR AUXILIARY EQUIPMENT. PROVIDED IN METALLIC RACEWAY.
 5. SWITCHBOARD FEEDER TO ATS. REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR SIZES AND QUANTITIES.
 6. CONTROL WIRING FOR FUEL LEVEL SENSORS. PROVIDE 3/4\"/>



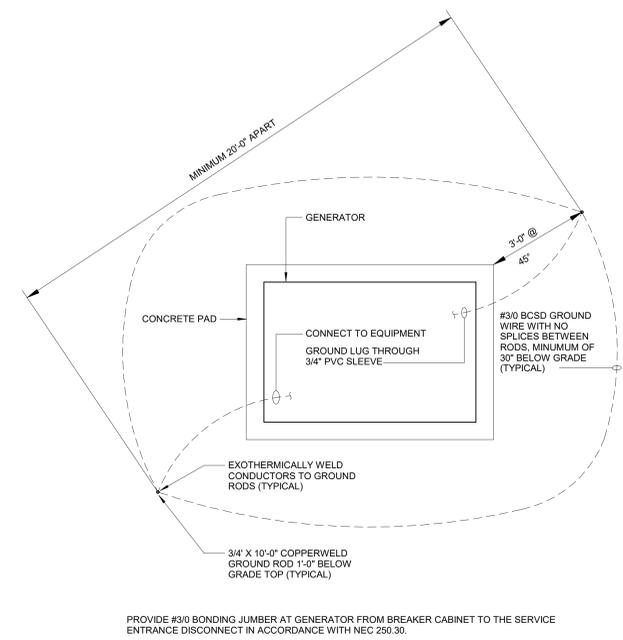
DETAIL - GENERATOR BLOCK DIAGRAM

SCALE: NONE **4**



DETAIL - GENERATOR PAD

SCALE: NONE **5**



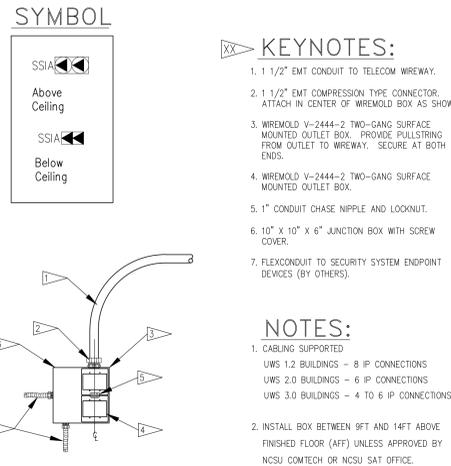
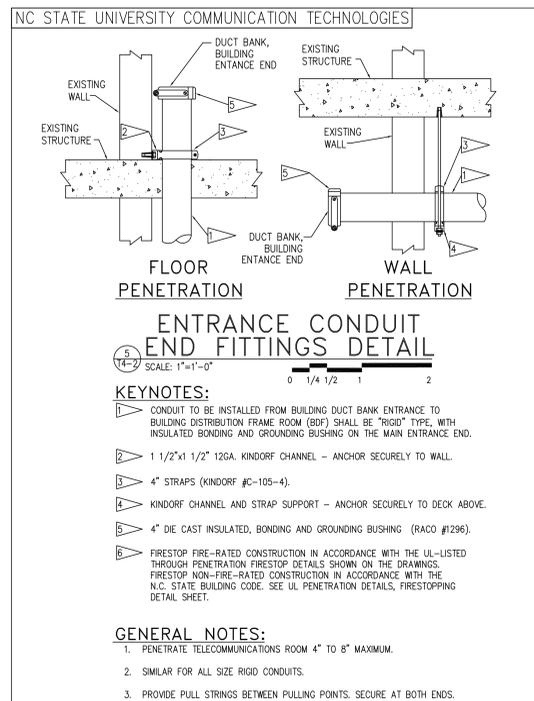
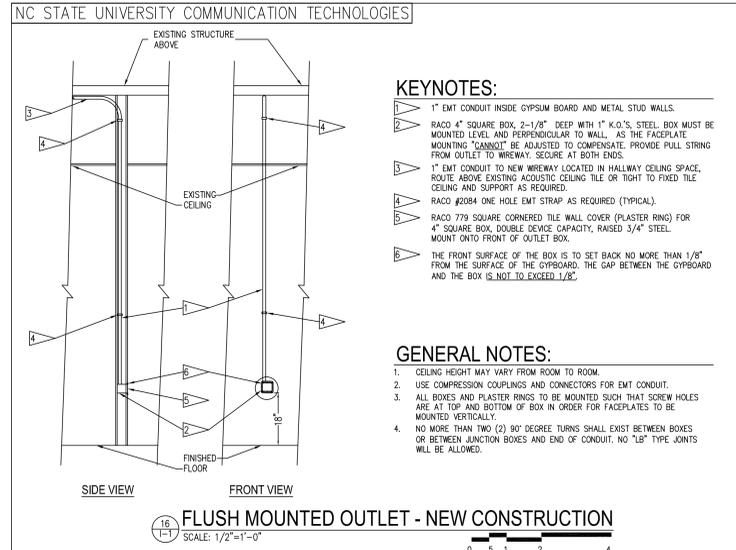
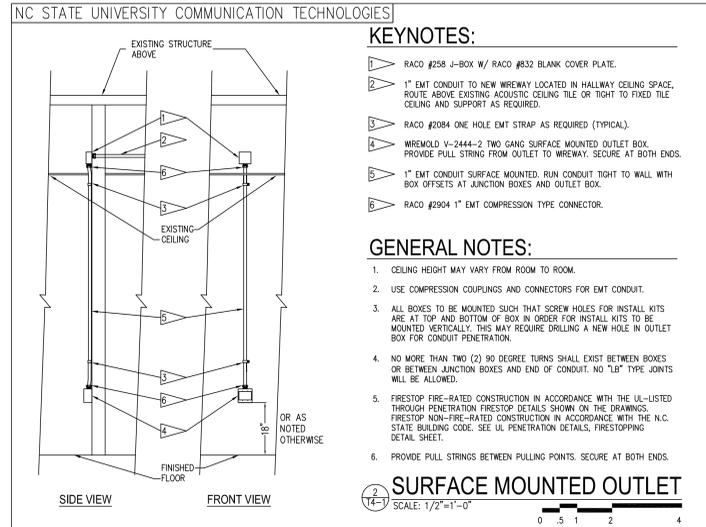
DETAIL - OUTDOOR EQUIPMENT GROUNDING

SCALE: NONE **6**

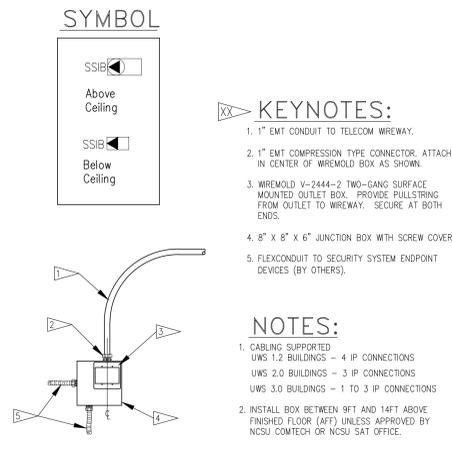


BID SET

Drawn	TMM
Checked	KLP
Date	1/10/2025
Revisions	



SECURITY INTERFACE OUTLET (SSI)
TYPE A



SECURITY INTERFACE OUTLET (SSI)
TYPE B



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8720 Red Oak Blvd Dr Suite 370
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NC Certificate of Licensure: C-1126



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Checked	KLP
Date	1/10/2025
Revisions	

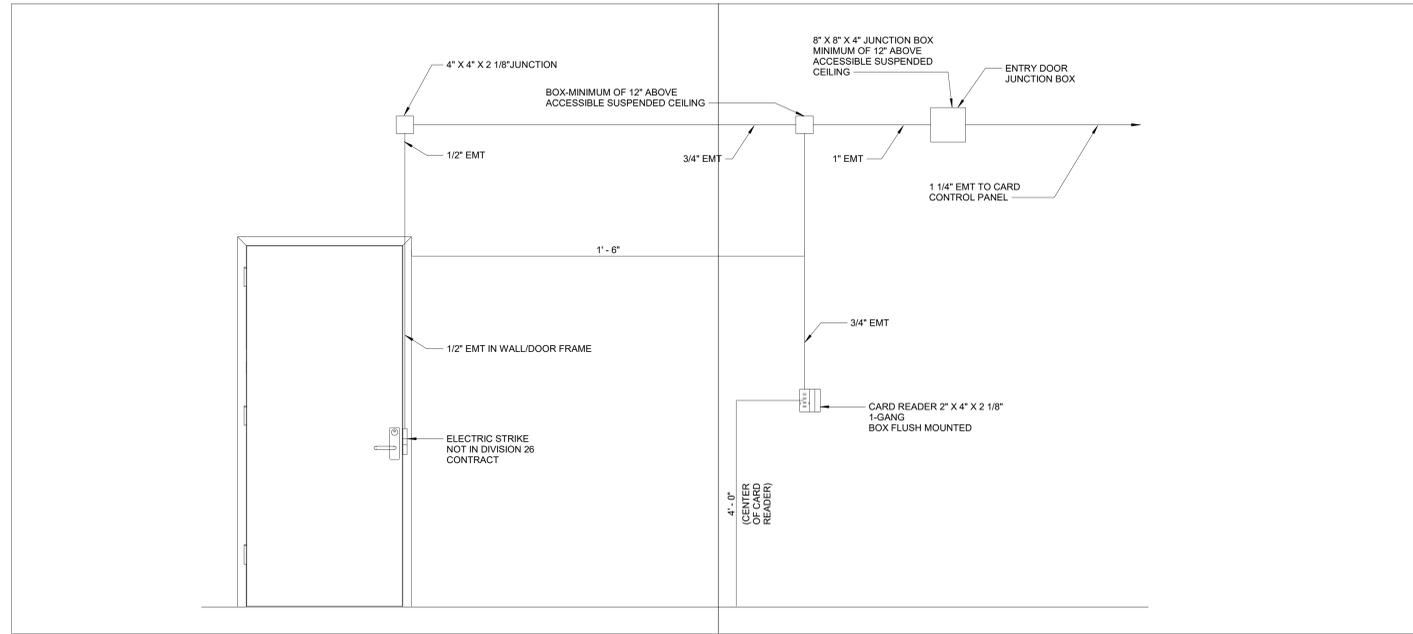
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NCSU Apiculture Facility
Raleigh, NC
SCO ID No.: 22-24494
Code: 42124 Item: 315
NCSU: 20222007

Project Number 132
Title
ELECTRICAL DETAILS

Sheet
E505

Plate



1 **E - DETAIL - ADO-CARD READER TYPE 1**
SCALE: 12" = 1'-0"



BID SET

Drawn	KLP
Checked	KLP
Date	1/10/2025
Revisions	

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Title
ELECTRICAL DETAILS

Sheet
E507
Plate



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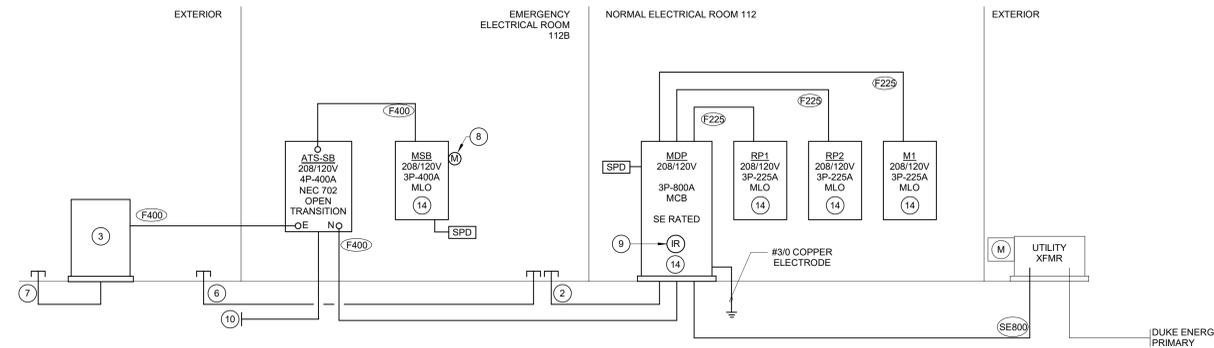


GENERAL NOTES

- A. PROVIDE AN SPD FOR EACH PANELBOARD CONNECTED TO THE EMERGENCY ELECTRICAL SYSTEM.
- B. PROVIDE A SIGN FOR EACH ENCLOSED CIRCUIT BREAKER INCLUDING THE TYPE AND LOCATION OF THE NEW 175 KW GENERATOR IN ACCORDANCE WITH NEC 700.7.A.
- C. THREE POLE TRANSFER SWITCHES ARE ALLOWED WITH SOLID NEUTRAL.
- D. ALTERNATE: ALL WORK RELATED TO THE GENERATOR IS PART OF AN ALTERNATE.

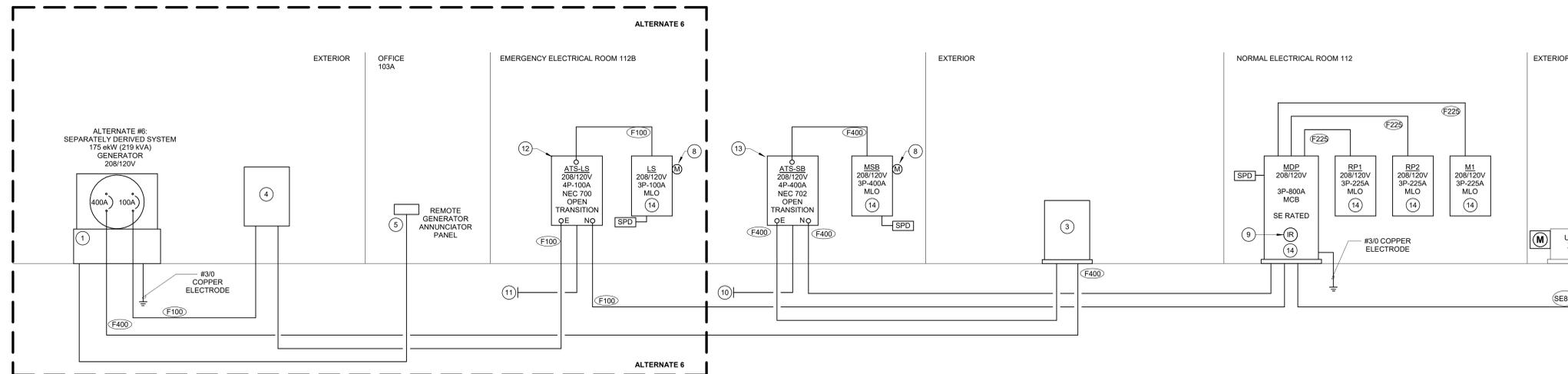
DRAWING NOTES

- 1 SEE DETAIL #6 ON SHEET E504 FOR GROUNDING AND BONDING AT GENERATOR.
- 2 PROVIDE 1-1/2" CONDUIT WITH PULL STRING FROM PANEL MDP TO FUTURE LOCATION OF ATS-LS IF ALTERNATE #6 IS NOT ACCEPTED. CAP CONDUIT.
- 3 BASE BID: PROVIDE 400A DOCKING STATION WITH INTEGRAL MANUAL TRANSFER SWITCH, REMOTE ANNUNCIATION AND QUICK CONNECT CAM LOCKS FOR FUTURE MOBILE GENERATOR HOOK UP. TO SUPPLY BACKUP DURING BUILDING GENERATOR MAINTENANCE.
- 4 ALTERNATE #6: PROVIDE 100A DOCKING STATION WITH INTEGRAL MANUAL TRANSFER SWITCH, REMOTE ANNUNCIATION AND QUICK CONNECT CAM LOCKS PER NEC 700.3.F FOR FUTURE MOBILE GENERATOR HOOK UP. TO SUPPLY EMERGENCY BACKUP DURING BUILDING GENERATOR MAINTENANCE.
- 5 PROVIDE 3/4" WITH 2-18 TWISTED SHIELDED PAIR FOR GENERATOR ANNUNCIATOR PANEL.
- 6 PROVIDE 1-1/2" CONDUIT WITH PULL STRING AND (2) 1" WITH PULL STRING FROM FUTURE LOCATION OF ATS-LS TO FUTURE LOCATION OF FUTURE 100A DOCKING STATION IF ALTERNATE #6 IS NOT ACCEPTED. CAP CONDUIT.
- 7 STUB OUT (2) 2" WITH PULL STRING FOR FUTURE CONNECTION TO GENERATOR IF ALTERNATE #6 IS NOT ACCEPTED. CAP CONDUIT.
- 8 PROVIDE EXTERNAL METER FOR PANELBOARD.
- 9 PANELBOARD SHALL HAVE INFARED WINDOW.
- 10 PROVIDE (2) 1" FOR GENERATOR CONTROLS AND MONITORING TO GENERATOR STUB UP WINDOW. PROVIDE PULL STRING AND CAP CONDUIT IF ALTERNATE #6 IS NOT ACCEPTED.
- 11 PROVIDE (2) 1" FOR GENERATOR CONTROLS AND MONITORING.
- 12 PROVIDE SIGNAGE AT ATS IN ACCORDANCE WITH NEC 700.7(A) AND 700.5(E). THE AVAILABLE FAULT CURRENT SHALL BE PROVIDED BY THE ENGINEER ONCE EQUIPMENT IS SELECTED AND FEEDER LENGTHS ARE VERIFIED.
- 13 PROVIDE SIGNAGE AT ATS IN ACCORDANCE WITH NEC 702.7(A) AND 705.5(C). THE AVAILABLE FAULT CURRENT SHALL BE PROVIDED BY THE ENGINEER ONCE EQUIPMENT IS SELECTED AND FEEDER LENGTHS ARE VERIFIED.
- 14 PROVIDE LABEL REQUIRED BY NEC 408.6. THE AVAILABLE FAULT CURRENT SHALL BE PROVIDED BY THE ENGINEER ONCE EQUIPMENT IS SELECTED AND FEEDER LENGTHS ARE VERIFIED.



ELECTRICAL RISER DIAGRAM (BASE BID)
SCALE: NONE

DESIGNATION	BRKR SIZE	# SETS	SIZE	GRD	CND	REMARKS
F100	100A	1	4#3	#8	1-1/2"	
F225	225A	1	4#4/0	#4	2-1/2"	
F250	250A	1	4#250	#4	2-1/2"	
F400	400A	2	4#3/0	#3	2"	
SE800	800A	3	4#300		3"	



ELECTRICAL RISER DIAGRAM (BASE BID WITH ALTERNATE 6)
SCALE: NONE

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Code: 42124 Item: 315
NCSU: 20222007

Project Number 132

Title
ELECTRICAL RISER DIAGRAM

Sheet

E601

Plate

MECHANICAL EQUIPMENT AND MOTOR CONNECTION SCHEDULE

DESIGNATION	DESCRIPTION	LOCATION	KVA	VOLT	PHASE	HP	PANEL NAME	CIRCUIT BREAKER	CIRCUIT #	WIRE SIZE (MINIMUM)	DISCONNECT	DISCONNECT PROVIDED / INSTALLED BY	FIRE ALARM NOTES	REMARKS
AHU-1	FACP AIR HANDLING UNIT	OUTSIDE BUILDING	0.52 0.18 26.78	120 120 208	1 1 3	RP2 LS 3HP EACH	MSB	125A	7 4 17,19,21	3#3,#8G, 1-1/4"C		MC/MC (INTEGRAL)	FIRE ALARM SHUTDOWN	COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
CUH-1	CABINET UNIT HEATER	106- EDUCATION HIVE	2.20	208	3		MSB	15A	23,25,27	3#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
CUH-2	CABINET UNIT HEATER	106- EDUCATION HIVE	2.20	208	3		MSB	15A	20,22,24	3#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
EF-1	EXHAUST FAN	WOMENS 110	0.05	120	1	1/15HP	M1	15A	2	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
EF-2	EXHAUST FAN	ELECT-1 113-1	0.07	120	1	1/10HP	M1	15A	3	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
EF-3	EXHAUST FAN	TOILET 107C	0.15	120	1	1.52MC A	M1	15A	1	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
FREEZER CU	FREEZER CONDENSING UNIT	EXTERIOR EAST SIDE	0.75	208	3		MSB	30A	1,3,5	3#10, #10G, 3/4"C	30A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
GRP-1	GRINDER PUMP	OUTSIDE BUILDING	3.80	208	3	5HP	M1	35A	14,16,18	3#8,#10G, 1"C	60A/40A FUSE	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
HWRP-1	HOT WATER RECIR PUMP	CUSTODIAL 109	0.02	120	1	1/40HP	M1	15A	4	2#12, #12G, 3/4"C	20A MOTOR SWITCH	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH PLUMBING CONTRACTOR.
INCUBATOR	INCUBATOR (ALTERNATE #10)	LAB 104	0.30	208	3		MSB	30A	7,9,11	3#10, #10G, 3/4"C	30A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
INCUBATOR CU	INCUBATOR CONDENSING UNIT (ALTERNATE #10)	LAB 104	0.30	208	3		MSB	30A	26,28,30	3#10, #10G, 3/4"C	30A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
TWH-1a	ELECTRIC DOMESTIC WATER HEATER	EXTERIOR EAST SIDE	14.04	208	2		M1	90A	10,12	2#3,#8G, 1-1/4"C	100A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH PLUMBING CONTRACTOR.
TWH-1b	ELECTRIC DOMESTIC WATER HEATER	EXTERIOR EAST SIDE	14.04	208	2		M1	90A	6,8	2#3,#8G, 1-1/4"C	100A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH PLUMBING CONTRACTOR.
TWH-2a	ELECTRIC DOMESTIC WATER HEATER	EXTRACTION 107B	14.04	208	2		MSB	90A	16,18	2#3,#8G, 1-1/4"C	100A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH PLUMBING CONTRACTOR.
TWH-2b	ELECTRIC DOMESTIC WATER HEATER	EXTRACTION 107B	14.04	208	2		MSB	90A	13,15	2#3,#8G, 1-1/4"C	100A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH PLUMBING CONTRACTOR.
VAV-1	VARIABLE AIR VOLUME	EQUIPMENT STORAGE	0.50	120	1		MSB	15A	29	2#10,#10G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-2	VARIABLE AIR VOLUME	WOMENS 109	0.10	120	1		MSB	15A	29	2#10,#10G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-3	VARIABLE AIR VOLUME	WORKSHOP 107	0.90	120	1		MSB	20A	35	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-4	VARIABLE AIR VOLUME	EXTRACTION 107B	0.40	120	1		MSB	20A	35	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-5	VARIABLE AIR VOLUME	TOILET 107C	0.30	120	1		MSB	20A	35	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-6	VARIABLE AIR VOLUME	MENS 108	0.10	120	1		MSB	15A	31	2#10,#10G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-7	VARIABLE AIR VOLUME	CORRIDOR 105	0.40	120	1		MSB	20A	31	3#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-8	VARIABLE AIR VOLUME	LAB 104	0.50	120	1		MSB	20A	33	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-9	VARIABLE AIR VOLUME	LAB 104	2.30	208	3		MSB	15A	32,34,36	3#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-10	VARIABLE AIR VOLUME	LAB 104	0.90	120	1		MSB	20A	33	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-11	VARIABLE AIR VOLUME	OPEN OFFICE 103	1.50	208	3		MSB	15A	38,40,42	3#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-12	VARIABLE AIR VOLUME	OFFICE 103A	0.12	120	1		MSB	15A	31	2#10,#10G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-13	VARIABLE AIR VOLUME	CUSTODIAL 110	0.10	120	1		MSB	15A	29	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
VAV-14	VARIABLE AIR VOLUME	CUSTODIAL 110	0.10	120	1		MSB	15A	29	2#12, #12G, 3/4"C		MC/MC (INTEGRAL)		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
WALK-IN FREEZER	WALK-IN FREEZER	WORKSHOP 107	0.75	208	3	1	MSB	30A	2,4,6	3#10, #10G, 3/4"C	30A	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH MECHANICAL CONTRACTOR.
WH-1	ELECTRIC DOMESTIC WATER HEATER	CUSTODIAL 110	10.00	208	3		M1	40A	5,7,9	3#8,#10G, 1-1/4"C	60A/40A FUSE	EC/EC		COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER NAMEPLATE PRIOR TO ROUGHING IN. COORDINATE INSTALLATION OF DISCONNECT WITH PLUMBING CONTRACTOR.

Lighting Fixture Schedule

DESIGNATION	DESCRIPTION	LAMP	VOLTAGE	WATTAGE	MOUNTING SURFACE	MANUFACTURER	MODEL	COMMENTS	REMARKS
A	2x4 LED RECESSED TROFFER, HIGH LUMEN OUTPUT, 3000 K	LED	120	30	RECESSED	LITHONIA	2GTL4 40L A19 LP830		ALTERNATES: DAY-BRITE - 2TG20L830-2-UNV; COLUMBIA LIGHTING - LJT22-30LWG-FSA19-EDU
A(2)	2x4 LED RECESSED TROFFER, LOWER LUMEN OUTPUT, 3000 K	LED	120	23	RECESSED	LITHONIA	2GTL4 30L A19 LP830		ALTERNATES: DAY-BRITE - 2TG32L830-4-UNV; COLUMBIA LIGHTING - LJT24-30VWG-FSA19-EDU
AE	2x4 LED RECESSED TROFFER, INTEGRAL BATTERY (ALTERNATE: GENERATOR-BACKED), 3000 K, SELF-TESTING BALLAST	LED	120	30	RECESSED	LITHONIA	2GTL4 40L A19 LP830	90 MINUTE BATTERY BACKUP	ALTERNATES: DAY-BRITE - 2TG43L830-4-UNV-3W-EML; COLUMBIA LIGHTING - LJT24-30LWG-FSA19-EDU-G3-ELL14
AG	2x4 RECESSED TROFFER, GASKETED, 3000 K	LED	120	30	RECESSED	LITHONIA	2GTL4 40L A19 LP830		ALTERNATES: DAY-BRITE - 2TG43L830-4-UNV-3W-EML; COLUMBIA LIGHTING - LJT24-30LWG-FSA19-EDU-G3
AGE	2x4 RECESSED TROFFER, GASKETED, INTEGRAL BATTERY (ALTERNATE: GENERATOR-BACKED), 3000 K, SELF-TESTING BALLAST	LED	120	30	RECESSED	LITHONIA	2GTL4 40L A19 LP830		ALTERNATES: DAY-BRITE - 2TG43L830-4-UNV-3W-EML; COLUMBIA LIGHTING - LJT24-30LWG-FSA19-EDU-G3-ELL14
B(2)	2x2 LED RECESSED TROFFER, 3000 K	LED	120	18	RECESSED	LITHONIA	2GLT2 20L A19 LP830		ALTERNATES: DAY-BRITE - 2TG20L830-2-UNV; COLUMBIA LIGHTING - LJT22-30LWG-FSA19-EDU
B(2)E	2x2 LED RECESSED TROFFER, INTEGRAL BATTERY (ALTERNATE: GENERATOR-BACKED), 3000 K, SELF-TESTING BALLAST	LED	120	18	RECESSED	LITHONIA	2GLT2 20L A19 LP830	90 MINUTE BATTERY BACKUP	ALTERNATES: DAY-BRITE - 2TG20L830-2-UNV-EML; COLUMBIA LIGHTING - LJT22-30LWG-FSA19-EDU-ELL14
C	48" WHITE HIGH PERFORMANCE BARN & FARM CEILING FAN, WEATHERROOF	LED	120	35	SURFACE	BARN LIGHT ELECTRIC CO	20-CP48DW11N-RRM-DCQ14-W		
D	8" LED DOWNLIGHT	LED	120	30	RECESSED	LITHONIA	8IN LDN8 27/05 LW88R		ALTERNATES: LIGHTOLIER - L8R-15-9-27-U; PRESCOLITE - LFR-8RW-M-10L27K8-LWW-DM1
D(2)	8" LED DOWNLIGHT WITH REMOTE DRIVER (20' CABLE)	LED	120	21	RECESSED	LITHONIA	WFB LED 30K40K50K MVOLT 90CRI MW WFXC20 SW3PIN FT4		ALTERNATES: LIGHTOLIER, PRESCOLITE
F	LED COLD STORAGE SURFACE MOUNT FIXTURE	LED	120	59	SURFACE	LITHONIA	FHE L24 9000LM ACL MD 30K 80CRI		ALTERNATES: BEGHELLI - BS100LED-X-HLT-LO-WT30-120-27V; COLUMBIA LIGHTING - LXEW4-30L-CAW-EDU
G	4" WALL MOUNTED VANITY FIXTURE, INDIRECT/DIRECT INTEGRAL DRIVER, ASYMMETRIC DISTRIBUTION	LED	120	40	WALL	MARK ARCHITECTURAL LIGHTING	S1WID LCB MSL4 90CRI 30K 400LMF DAS I90CRI I30K I400LM AS SCT MIN1 FLL WHHT ZT		<varies>
HR	2x4 SIMPLE NARROW SPECTRUM CSEDI SERIES, RED AND WHITE LED	RED/WHITE LED	120	22	RECESSED	KENALL	CSEDI-24-23RD/90L-35K8-DV		ALTERNATES: DAY-BRITE - KLEENSEAL KTR 100; NEWSTAR LIGHTING - SCR24-IC-R2W2-UN-DM
HRE	2x4 SIMPLE NARROW SPECTRUM CSEDI SERIES, RED AND WHITE LED, INTEGRAL BATTERY (ALTERNATE: GENERATOR-BACKED), SELF-TESTING BALLAST	RED/WHITE LED	120	22	RECESSED	KENALL	CSEDI-24-23RD/90L-35K8-DV-LEL	90 MINUTE BATTERY BACKUP	ALTERNATES: DAY-BRITE - KLEENSEAL KTR 100; NEWSTAR LIGHTING - SCR24-HA/IC-SCR24-UN-DMEL1
L	SLOT 2 PENDANT INDIRECT, SUSPENDED/SURFACE MOUNTED FIXTURE, WHITE SATIN FINISH	LED	120	4	PENDANT/SUSPENSION	MARK ARCHITECTURAL LIGHTING	S2PI LLP 16FT MSL8 I80CRI I30K MVOLT WHHT		ALTERNATES: MARK ARCHITECTURAL LIGHTING - PLLR10ID LLP 16FT MSL8 80CRI 30K MVOLT_E10WLCF; MARK ARCHITECTURAL LIGHTING - PLN8 LLP 16FT MSL8 80CRI 30K MVOLT_10WLCF; FLUXWERX ILLUMINATION -APC-F-C-30-08-M-B#
LE	SLOT 2 PENDANT INDIRECT, SUSPENDED/SURFACE MOUNTED FIXTURE, WHITE SATIN FINISH, LED WITH INTEGRAL DRIVER, SELF-TESTING BALLAST	LED	120	4	PENDANT/SUSPENSION	MARK ARCHITECTURAL LIGHTING	S2PI LLP 16FT MSL8 I80CRI I30K MVOLT WHHT_E10WLCF	10W BATTERY BACKUP	ALTERNATES: MARK ARCHITECTURAL LIGHTING - PLLR10ID LLP 16FT MSL8 80CRI 30K MVOLT_E10WLCF; MARK ARCHITECTURAL LIGHTING - PLN8 LLP 16FT MSL8 80CRI 30K MVOLT_10WLCF; FLUXWERX ILLUMINATION -APC-F-C-30-08-M-B#
M	MODO FAMILY OF SPECIFICATION-GRADE, LED LUMINAIRES, MATTE BLACK COLOR OPTION	LED	120	71	PENDANT/SUSPENSION	ALW	MODO-DUOMO-LARGE-UP-DOWN-PENDANT-M-LDT		ALTERNATES: ALW-MODO-DUOMO-SMALL-UP-DOWN-PENDANT-MSDT; ALW-MODO-DUOMO-LARGE-PENDANT-MLDP
ME	MODO FAMILY OF SPECIFICATION-GRADE, LED LUMINAIRES, MATTE BLACK COLOR OPTION, INTEGRAL BATTERY, SELF-TESTING BALLAST	LED	120	71	PENDANT/SUSPENSION	ALW	MODO-DUOMO-LARGE-UP-DOWN-PENDANT-M-LDT		ALTERNATES: ALW-MODO-DUOMO-SMALL-UP-DOWN-PENDANT-MSDT; ALW-MODO-DUOMO-LARGE-PENDANT-MLDP
P2	1X4 LED WRAP AROUND, 4000 K	LED	120	54	PENDANT	LITHONIA	FML 4W 48 5000 LM 840 TD		ALTERNATES: DAY-BRITE - FLP430L840-UNV; COLUMBIA LIGHTING - CRW4-LSCS
S	BLE WILCOX INTEDGRATED LED SERIES, HIGH LUMEN OUTPUT	LED	120	0	PENDANT	BARN LIGHT ELECTRIC CO	BLE-LED43-4000K		ALTERNATES: DAY-BRITE - FSS455L840-UNV; MPS4-40HL-CW-EDU
S(1)	BLE WILCOX INTEDGRATED LED SERIES, LOW LUMEN OUTPUT	LED	120	0	PENDANT	BARN LIGHT ELECTRIC CO	BLE-LED38-3000K		ALTERNATES: DAY-BRITE - FSS430L835-UNV; MPS4-35VW-CW-EDU
S(1)E	BLE WILCOX INTEDGRATED LED SERIES, LOW LUMEN OUTPUT (ALTERNATE: GENERATOR-BACKED), SELF-TESTING BALLAST	LED	120	0	PENDANT	BARN LIGHT ELECTRIC CO	BLE-LED38-3000K		ALTERNATES: DAY-BRITE - FSS430L835-UNV; MPS4-35VW-CW-EDU-ELL14
SE	BLE WILCOX INTEDGRATED LED SERIES, INTEGRAL BATTERY (ALTERNATE: GENERATOR-BACKED), SELF-TESTING BALLAST	LED	120	0	PENDANT	BARN LIGHT ELECTRIC CO	BLE-LED43-4000K	90 MINUTE BATTERY BACKUP	ALTERNATES: DAY-BRITE - FSS455L840-UNV-EML; COLUMBIA LIGHTING - MPS4-40HL-CW-EDU-ELL14
WE	EXTERIOR LED WALL FIXTURE, INTEGRAL BATTERY (ALTERNATE: GENERATOR-BACKED), WET LISTED, SELF-TESTING BALLAST	LED	120	32	SURFACE	LITHONIA	WPX1	90 MINUTE BATTERY BACKUP	ALTERNATES: PIL-MIMIK20-EMPK; ILP - WVM3LUCCTSBRZ
X	EXIT SIGN, RED LETTERING, INTEGRAL BATTERY, SELF-TESTING BALLAST	Red LED	120		SURFACE	LITHONIA	LQM EL N	90 MINUTE BATTERY BACKUP	ALTERNATES: CHLORIDE-VERWEM; EMERGI-LITE - W-PRM-SNXOR

Grand total: 111



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Drawn: TMW
Checked: KLP
Date: 1/10/2025

Revisions

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NCSU Apiculture Facility

Raleigh, NC
SCO ID No.: 22-24494
Code: 42124 Item: 315
NCSU: 202220007

Project Number: 132

ELECTRICAL SCHEDULES

Sheet

E701

Plate

PANELBOARD: MDP														
LOCATION: NORMAL ELEC				MAINS: MCB				AMPS: 800						
MOUNTING: SURFACE				VOLTS: 208/120 Wye										
ENCL NEMA: TYPE 1				PHASE: 3										
MIN AIC: 22,000				WIRES: 4										
PANEL NOTES: PROVIDE GROUND BUS PROVIDE FULL SIZE NEUTRAL BUS UNLESS NOTED OTHERWISE														
WIRE SIZE	LOAD DESCRIPTION	P	TRIP AMPS	TYPE	CKT	A	B	C	CKT	TYPE	TRIP AMPS	P	LOAD DESCRIPTION	WIRE SIZE
SEE RISER DIAGRAM	RP2	3	225 A		1	3.34	4.72		2				RP1	SEE RISER DIAGRAM
SEE RISER DIAGRAM	LS VIA ATS	3	100 A		7	0.16	20.00		8				MSB VIA ATS	SEE RISER DIAGRAM
SEE RISER DIAGRAM	M1	3	225 A		11	11.82	0.00		12				SPARE	--
--	SPACE	1	--	--	19	--	--		20	--	--	1	SPACE	--
--	SPACE	1	--	--	21	--	--		22	--	--	1	SPACE	--
--	SPACE	1	--	--	23	--	--		24	--	--	1	SPACE	--
--	SPACE	1	--	--	25	--	--		26	--	--	1	SPACE	--
--	SPACE	1	--	--	27	--	--		28	--	--	1	SPACE	--
--	SPACE	1	--	--	29	--	--		30	--	--	1	SPACE	--
--	SPACE	1	--	--	31	--	--		32	--	--	1	SPACE	--
--	SPACE	1	--	--	33	--	--		34	--	--	1	SPACE	--
--	SPACE	1	--	--	35	--	--		36	--	--	1	SPACE	--
--	SPACE	1	--	--	37	--	--		38	--	--	1	SPACE	--
--	SPACE	1	--	--	39	--	--		40	--	--	1	SPACE	--
--	SPACE	1	--	--	41	--	--		42	--	--	1	SPACE	--
TOTAL LOAD:						40.04 kVA	49.46 kVA	50.91 kVA						
BREAKER TYPE KEYS: LO - INDICATES C.B. EQUIPPED WITH "LOCK-ON" DEVICE GF - INDICATES C.B. IS GROUND FAULT TYPE (5mA FOR PERSONNEL) ST - INDICATES C.B. EQUIPPED WITH SHUNT TRIP DEVICE HT - INDICATES C.B. EQUIPPED WITH 30mA GROUND FAULT FOR EQUIPMENT														
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals										
LTG	3.22	125.00%	4.03											
Motor	55.59	100.00%	55.59	Total Conn. Load: 140.41 kVA										
REC	20.64	74.22%	15.32	Total Est. Demand: 135.90 kVA										
Equipment	60.86	100.00%	60.86	Total Conn. Current: 389.74 A										
				Total Est. Demand Current: 377.21 A										

PANELBOARD: RP1														
LOCATION: NORMAL ELEC				MAINS: MLO				AMPS: 225						
MOUNTING: SURFACE				VOLTS: 208/120 Wye										
ENCL NEMA: TYPE 1				PHASE: 3										
MIN AIC: 22,000				WIRES: 4										
PANEL NOTES: PROVIDE GROUND BUS PROVIDE FULL SIZE NEUTRAL BUS UNLESS NOTED OTHERWISE														
WIRE SIZE	LOAD DESCRIPTION	P	TRIP AMPS	TYPE	CKT	A	B	C	CKT	TYPE	TRIP AMPS	P	LOAD DESCRIPTION	WIRE SIZE
2#10, #10G, 3/4"	LTG RM 103,105A,103A,101	1	20 A		1	0.13	0.72		2				REC EQUIP STORAGE 114	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC EXTRACTION 107B	1	20 A		3		0.18	0.36	4				REC WATER FOUNTAINS	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC EQUIPMENT YARD	1	20 A		5			0.36	0.60	6			LTG RM 107,104,104B,...	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC WORKSHOP 107	1	20 A		7	0.18	0.18		8				REC LAB 104	2#10, #10G, 3/4"
2#10, #10G, 3/4"	LTG RM 105B,114,108-111	1	20 A		9			0.53	0.18	10			REC WORKSHOP 107	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC WORKSHOP 107	2	20 A		11	0.09	0.18		12				REC WORKSHOP 107	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC OPEN OFFICE 103	1	20 A		15			0.18	0.18	16			REC LAB 104	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC WORKSHOP 107	1	20 A		17				0.18	0.18	18		REC LAB 104	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC KIT 105B REFRIG	1	20 A		19	0.18	0.18		20				REC EXTRACTION 107B	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC KITCHENETTE 105B	1	20 A		21			0.18	0.18	22			REC KIT 105B COFF	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC KITCHENETTE 105B	1	20 A		23				0.18	0.18	24		REC KIT 105B ICEM	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC EXTRACTION 107B	1	20 A		25	0.18	0.36		26				REC DATA 111	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC EXTRACTION 107B	1	20 A		27			0.18	0.36	28			REC LAB 104	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC EXTRACTION 107B	1	20 A		29				0.18	0.36	30		REC OPEN OFFICE 103	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC DATA 111	1	20 A		31	0.36	0.54		32				REC ROOM 103B, 103A	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC DATA 111	1	20 A		33			0.36	0.54	34			REC COVERED STORAGE	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC DATA 111	1	20 A		35				0.36	0.54	36		REC WORKSHOP 107	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC EDUCATION HIVE 106	1	20 A		37	0.54	0.72		38				REC OBSERV HIVES 104B	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC LAB 104	1	20 A		39			0.54	0.72	40			REC OPEN OFFICE 103	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC OFFICE 103A	1	20 A		41				0.54	0.72	42		REC ROOM 109-2, 108	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC PROJECTOR 103	1	20 A		43	0.18	0.00		44				PROJECTOR SCREEN 103	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC CUSTODIAL 110	1	20 A		45			0.18	1.20	46			LTG. SITE LIGHTING	2#10, #10G, 3/4"
--	SPACE	1	--	--	47	--	--	--	0.00	48	--	--	SPARE	--
--	SPACE	1	--	--	49	--	0.00	--	--	50	--	--	SPARE	--
--	SPACE	1	--	--	51	--	--	--	0.00	52	--	--	SPARE	--
--	SPACE	1	--	--	53	--	--	--	0.00	54	--	--	SPARE	--
TOTAL LOAD:						4.72 kVA	6.05 kVA	4.65 kVA						
BREAKER TYPE KEYS: LO - INDICATES C.B. EQUIPPED WITH "LOCK-ON" DEVICE GF - INDICATES C.B. IS GROUND FAULT TYPE (5mA FOR PERSONNEL) ST - INDICATES C.B. EQUIPPED WITH SHUNT TRIP DEVICE HT - INDICATES C.B. EQUIPPED WITH 30mA GROUND FAULT FOR EQUIPMENT														
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals										
LTG	2.46	125.00%	3.07											
REC	12.96	88.58%	11.48	Total Conn. Load: 15.42 kVA										
Equipment	0.00	0.00%	0.00	Total Est. Demand: 14.55 kVA										
				Total Conn. Current: 42.79 A										
				Total Est. Demand Current: 40.39 A										

PANELBOARD: RP2														
LOCATION: NORMAL ELEC				MAINS: MLO				AMPS: 225						
MOUNTING: SURFACE				VOLTS: 208/120 Wye										
ENCL NEMA: TYPE 1				PHASE: 3										
MIN AIC: 22,000				WIRES: 4										
PANEL NOTES: PROVIDE GROUND BUS PROVIDE FULL SIZE NEUTRAL BUS UNLESS NOTED OTHERWISE														
WIRE SIZE	LOAD DESCRIPTION	P	TRIP AMPS	TYPE	CKT	A	B	C	CKT	TYPE	TRIP AMPS	P	LOAD DESCRIPTION	WIRE SIZE
2#10, #10G, 3/4"	REC EXTRACTION 107B	1	20 A		1	0.18	0.18		2				REC EXTRACTION 107B	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC MEETING 102	1	20 A		3		0.90	0.18	4				REC FRONT GFCI	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC MEETING 102	1	20 A		5			0.36	0.36	6			REC MEETING 102	2#10, #10G, 3/4"
2#10, #10G, 3/4"	FREEDOM 1 E-LIFT	1	20 A		7	0.52	0.00		8				DISPLAY CASES LOBBY 101	2#10, #10G, 3/4"
2#10, #10G, 3/4"	POWER DOOR 113-2	1	20 A		9		0.00	0.00	10				POWER DOOR 113-1	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC ROOM 113-1, 113-2	1	20 A		11			0.54	0.18	12			REC TOILET 107C	2#10, #10G, 3/4"
2#10, #10G, 3/4"	POWER POLE LAB 104	1	20 A		13	0.00	0.54		14				REC LOBBY/GALLERY 101	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC LOBBY/GALLERY 101	1	20 A		15		0.36	0.18	16				REC STORAGE 112	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC MEETING 102	1	20 A		17			0.18	0.72	18			REC MEETING 102	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC MEETING 102	1	20 A		19	0.72	0.00		20				PROJECTOR SCREEN 102	2#10, #10G, 3/4"
2#10, #10G, 3/4"	REC WORKSHOP 107	1	20 A		21		0.36	0.18	22				REC STORAGE 115	2#10, #10G, 3/4"
2#10, #10G, 3/4"	CEILING FAN 2 106	1	20 A		23			0.50	0.50	24			CEILING FAN 1 106	2#10, #10G, 3/4"
2#10, #10G, 3/4"	MICROWAVE 105B	1	20 A		25	1.20	0.00		26				TIME CLOCK	--
--	REC OPEN OFFICE 103	1	20 A		27		0.36	0.00	28				SPARE	--
--	SPACE	1	20 A		29			0.00	0.00	30			SPARE	--
--	SPACE	1	20 A		31	0.00	0.00		32				SPARE	--
--	SPACE	1	20 A		33		0.00	0.00	34				SPARE	--
--	SPACE	1	20 A		35		0.00	0.00	36				SPARE	--
--	SPACE	1	20 A		37	--	--	--	38	--	--	1	SPACE	--
--	SPACE	1	20 A		39	--	--	--	40	--	--	1	SPACE	--
--	SPACE	1	20 A		41	--	--	--	42	--	--	1	SPACE	--
--	SPACE	1	20 A		43	--	--	--	44	--	--	1	SPACE	--
--	SPACE	1	20 A		45	--	--	--	46	--	--	1	SPACE	--
--	SPACE	1	20 A		47	--	--	--	48	--	--	1	SPACE	--
--	SPACE	1	20 A		49	--	--	--	50	--	--	1	SPACE	--
--	SPACE	1	20 A		51	--	--	--	52	--	--	1	SPACE	--
--	SPACE	1	20 A		53	--	--	--	54	--	--	1	SPACE	--
TOTAL LOAD:						3.34 kVA	2.52 kVA	3.34 kVA						
BREAKER TYPE KEYS: LO - INDICATES C.B. EQUIPPED WITH "LOCK-ON" DEVICE GF - INDICATES C.B. IS GROUND FAULT TYPE (5mA FOR PERSONNEL) ST - INDICATES C.B. EQUIPPED WITH SHUNT TRIP DEVICE HT - INDICATES C.B. EQUIPPED WITH 30mA GROUND FAULT FOR EQUIPMENT														
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals										
REC	7.68	100.00%	7.68											
Equipment	1.52	100.00%	1.52	Total Conn. Load: 9.20 kVA										
				Total Est. Demand: 9.20 kVA										
				Total Conn. Current: 25.54 A										
				Total Est. Demand Current: 25.54 A										

PANELBOARD: M1														
LOCATION: NORMAL ELEC				MAINS: MLO				AMPS: 225						
MOUNTING: SURFACE				VOLTS: 208/120 Wye										
ENCL NEMA: TYPE 1				PHASE: 3										
MIN AIC: 22,000				WIRES: 4										
PANEL NOTES: PROVIDE GROUND BUS PROVIDE FULL SIZE NEUTRAL BUS UNLESS NOTED OTHERWISE														
WIRE SIZE	LOAD DESCRIPTION	P	TRIP AMPS	TYPE	CKT	A	B	C	CKT	TYPE	TRIP AMPS	P	LOAD DESCRIPTION	WIRE SIZE
SEE EQ SCH	EF-3 TOILET 107C	1	15 A		1	0.15	0.05		2				EF-1 WOMEN'S 109	SEE EQ SCH
SEE EQ SCH	EF-2 ELECT-1 113-1	1	15 A		3		0.07	0.02						

DRAWING NOTES

1 PROVIDE WITH RED HANDLE CLIP

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Revisions:

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NCSU Apiculture Facility
Raleigh, NC
SCO ID No.: 22-24494
Code: 42124 Item: 315
NCSU: 20222007

Project Number 132

Title
ELECTRICAL SCHEDULES

Sheet

E703

Plate

PANELBOARD: MSB														
LOCATION: EMERGENCY ELEC				MAINS: MLO				AMPS: 400						
MOUNTING: SURFACE				VOLTS: 208/120 Wye										
ENCL NEMA: TYPE 1				PHASE: 3										
MIN AIC: 22,000				WIRES: 4										
PANEL NOTES:														
PROVIDE GROUND BUS PROVIDE FULL SIZE NEUTRAL BUS UNLESS NOTED OTHERWISE														
WIRE SIZE	LOAD DESCRIPTION	P	TRIP AMPS	TYPE	CKT	A	B	C	CKT	TYPE	TRIP AMPS	P	LOAD DESCRIPTION	WIRE SIZE
SEE EQUIP & MOTOR CONN SCH	COVERED STORAGE 115	3	30 A		1	0.25	0.25		2				Motor WALK-IN FREEZER 107A	SEE EQUIP & MOTOR CONN SCH
					3		0.25	0.25	4					
					5			0.25	0.25	6				
SEE EQUIP & MOTOR CONN SCH	INCUBATOR 104A	3	30 A		7	0.10	0.00		8	--	20 A	2	SPARE	--
					9			0.10	0.00	10				
					11				0.10	0.00	12			
SEE EQUIP & MOTOR CONN..	(TWH- 2b) EXTRACTION 107B	2	70 A		13	7.02	0.00		14	--	30 A	2	SPARE	--
					15			7.02	7.02	16				
					17				8.93	7.02	18			
SEE EQUIP & MOTOR CONN SCH	AHU-1	3	125 A		19	8.93	0.73		20				SEE EQUIP & MOTOR CONN..	
					21			8.93	0.73	22			SEE EQUIP & MOTOR CONN SCH	
					23				0.73	0.73	24			
SEE EQUIP & MOTOR CONN SCH	MOTOR EDUCATION HIVE 106	3	15 A		25	0.73	0.10		26				SEE EQUIP & MOTOR CONN SCH	
					27			0.73	0.10	28				
SEE EQ SCH	VAV-1,2,14,13 RM112, 110	1	15 A		29			0.80	0.10	30				
SEE EQ SCH	VAV-6,7,12- RM108, 103A	1	15 A		31	0.62	0.77			32			SEE EQUIP & MOTOR CONN SCH	
SEE EQ SCH	VAV-8,10 - LAB 104	1	20 A		33		1.40	0.77		34				
SEE EQ SCH	VAV-3,4,5 -RM 107, 107B....	1	20 A		35			1.60	0.77	36				
--	SPARE	1	15 A	--	37	0.00	0.50			38				
--	SPARE	1	20 A	--	39			0.00	0.50	40				
--	SPARE	1	20 A	--	41				0.00	0.50	42			
--	SPACE	1	--	--	43	--	0.00	--		44				
--	SPACE	1	--	--	45	--	0.00	--		46				
--	SPACE	1	--	--	47	--		--	0.00	48				
--	SPACE	1	--	--	49	--	0.00	--		50				
--	SPACE	1	--	--	51	--		--	0.00	52				
--	SPACE	1	--	--	53	--		--	0.00	54				
TOTAL LOAD:						20.00 kVA	27.80 kVA		21.78 kVA					
BREAKER TYPE KEYS:														
LO - INDICATES C.B. EQUIPPED WITH "LOCK-ON" DEVICE GF - INDICATES C.B. IS GROUND FAULT TYPE (5mA FOR PERSONNEL) ST - INDICATES C.B. EQUIPPED WITH SHUNT TRIP DEVICE HT - INDICATES C.B. EQUIPPED WITH 30mA GROUND FAULT FOR EQUIPMENT														
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals										
LTG	0.76	125.00%	0.96											
Equipment	3.18	100.00%	3.18	Total Conn. Load: 4.04 kVA										
				Total Est. Demand: 4.24 kVA										
				Total Conn. Current: 11.23 A										
				Total Est. Demand Current: 11.76 A										

PANELBOARD: LS															
LOCATION: EMERGENCY ELEC				MAINS: MLO				AMPS: 100							
MOUNTING: SURFACE				VOLTS: 208/120 Wye											
ENCL NEMA: TYPE 1				PHASE: 3											
MIN AIC: 22,000				WIRES: 4											
PANEL NOTES:															
PROVIDE GROUND BUS PROVIDE FULL SIZE NEUTRAL BUS UNLESS NOTED OTHERWISE															
WIRE SIZE	LOAD DESCRIPTION	P	TRIP AMPS	TYPE	CKT	A	B	C	CKT	TYPE	TRIP AMPS	P	LOAD DESCRIPTION	WIRE SIZE	
2#10, #10G, 3/4"	LTG Room 103A, 103	1	20 A		1	0.00	0.00		2				LTG Room 113-3	2#10, #10G, 3/4"	
2#10, #10G, 3/4"	LTG Room 113-2, 113-1	1	20 A		3		0.20	0.18	4				FACP	2#10, #10G, 3/4"	
2#10, #10G, 3/4"	LTG Room 107, 107B	1	20 A		5			0.50	1.00	6			GEN. BATTERY START	2#10, #10G, 3/4"	
--	FA DACT / PRINTER	1	20 A	--	7	0.10	0.00		8				LTG WALK-IN FREEZER...	2#10, #10G, 3/4"	
2#10, #10G, 3/4"	GENERATOR BLOCK HEATER	2	20 A		9		1.00	0.00	10	--	20 A	1	SPARE	--	
					11				1.00	0.00	12	--	20 A	1	
2#10, #10G, 3/4"	LTG Room 104B, 101, 102,...	1	20 A		13	0.06	0.00		14	--	20 A	1	SPARE	--	
--	SPARE	1	20 A	--	15		0.00	0.00	16	--	20 A	1	SPARE	--	
--	SPARE	1	20 A	--	17			0.00	0.00	18	--	20 A	1	SPARE	--
--	SPARE	1	20 A	--	19	0.00	0.00		20	--	20 A	1	SPARE	--	
--	SPARE	1	20 A	--	21		0.00	0.00	22	--	20 A	1	SPARE	--	
--	SPARE	1	20 A	--	23			0.00	0.00	24	--	20 A	1	SPARE	--
--	SPARE	1	20 A	--	25	0.00	0.00		26	--	20 A	1	SPARE	--	
--	SPARE	1	20 A	--	27			0.00	0.00	28	--	20 A	1	SPARE	--
--	SPARE	1	20 A	--	29			0.00	0.00	30	--	20 A	1	SPARE	--
--	SPACE	1	--	--	31	--	--	--	--	32	--	--	1	SPACE	
--	SPACE	1	--	--	33	--	--	--	--	34	--	--	1	SPACE	
--	SPACE	1	--	--	35	--	--	--	--	36	--	--	1	SPACE	
--	SPACE	1	--	--	37	--	--	--	--	38	--	--	1	SPACE	
--	SPACE	1	--	--	39	--	--	--	--	40	--	--	1	SPACE	
--	SPACE	1	--	--	41	--	--	--	--	42	--	--	1	SPACE	
TOTAL LOAD:						0.16 kVA	1.38 kVA		2.50 kVA						
BREAKER TYPE KEYS:															
LO - INDICATES C.B. EQUIPPED WITH RED "LOCK-ON" DEVICE GF - INDICATES C.B. IS GROUND FAULT TYPE (5mA FOR PERSONNEL) ST - INDICATES C.B. EQUIPPED WITH SHUNT TRIP DEVICE HT - INDICATES C.B. EQUIPPED WITH 30mA GROUND FAULT FOR EQUIPMENT															
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals											
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				Total Est. Demand: 4.24 kVA											
				Total Conn. Current: 11.23 A											
				Total Est. Demand Current: 11.76 A											

PANEL MSB	PANEL LS