10/08/2026

ADDENDUM NO. 3

PROJECT: DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

FROM: DTW ARCHITECTS & PLANNERS, LTD.
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DURHAM, NC 27701
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TO: PRIME BIDDERS

This addendum becomes a part of the Construction Documents and modifies the original Contract Documents dated **August 31st, 2026**, as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so will disqualify the bid.

This addendum consists of:

9 Sheets CHANGES TO SPECIFICATIONS, QUESTIONS, APPROVALS (8 1/2 x 11)
2 Sheets DRAWING COVER SHEETS (24X36)
9 Sheets CHANGES TO ARCHITECTURAL DRAWINGS (24 x 36)
5 Sheets CHANGES TO MECHANICAL DRAWINGS (24 x 36)
5 Sheets CHANGES TO ELECTRICAL DRAWINGS (24 x 36)
3 Sheets CHANGES TO PLUMBING DRAWINGS (24 X 36)
2 Sheets CHANGES TO FIRE PROTECTION DRAWINGS (24 X 36)
7 Sheets CHANGES TO SOLAR DRAWINGS (24 X 36)
30 Sheets NCDOT PERMITS for Reference (8-1/2 x 11)

I. CHANGES TO SPECIFICATIONS

1. Table of Contents – Delete 321415 Unit Paving, Add Section 123661.16 Solid Surfacing
2. Division 00 – Added Construction Contract Example (attached to this addendum)
3. Section 0002 Instructions to Bidders, Item #14: Change “450 days” to “420 days”.
4. Section 012000 – Unit Prices - Revised rock unit prices S-3 and S-4
5. Section 012100 – Allowances – Revised rock allowances S-3 and S-4, added allowance for BDA System Design, permitting and installation.
6. Section 105600 – Storage Assemblies, Part 1: Add the following: 1-05: **Engineering and Permitting:** Contractor is responsible for any drawings, submittals, engineering and permitting required for the installation of the racking required by the local Authorities Having Jurisdiction.
7. Section 122000 – Window Treatments, Part 1, 1-02: Add “Blinds shall be provided as indicated on plans.”
8. Section 123661.16 – Solid Surfacing – Entire Section Added to Specifications
9. Section 235216 – Condensing Boilers – Entire Section Added to Specifications
10. Section 260534 – Voice and Data Communications - Replace Entire Specification
11. Section 412200 – Cranes and Hoists, Part 2, 2-01: (Heading) Change “5-Ton” to “10-Ton”

II. CHANGES TO DRAWINGS

MAIN BUILDING

T-0.0	Cover Sheet
A-2.1	Locker Station soffit information added
A-3.0	Updated information on CU-1 location

A-4.1	Updated information about CU-1 location & mech. Louvers location update
A-4.5	Updated wording on the Monumental Sign
A-8.1	Sheet was missing : Locker Details
A-8.2	Sheet was missing : Casework Details
A-8.6	Sheet was missing : Roof Access Ladder Details
A-8.7	Sheet was missing : Wall Penetration Details
P-1.1	Changes to Note 4
P-2.3	Added Ice Maker connection
M-0.2	Locker Station Exhaust Fans updated in Schedule
M-0.3	Wall Louver schedule updated
M-1.1	Information on Locker Station venting added / updated
M-1.2	CU-1 location updated; & mech. Louvers location & detail updated
E-0.3	Added coordination with solar system
E-1.1	Added coordination with solar system
E-1.5	CU-1 elec. supply updated; Locker Exhaust Fan elec. supply information added
E-1.6	Monumental Sign lighting updated
E-1.7	Added coordination with solar system
FP-1.0	Changes to Hydraulic Calculations

ENTIRE SET OF SOLAR DRAWINGS REISSUED (PV1.1, PV2.1, PV2.2, PV2.3, PV3.1, PV4.1, PV4.2)

WAREHOUSE

T-0.0.W	Cover Sheet
A-3.1.W	Wall-hung Canopy dimensions added
P-1.2.W	Added hose reels to warehouse
M-0.2.W	Warehouse Wall Louver schedule updated
FP-1.1.W	Changes to Sprinkler Head Layout in Warehouse

III. QUESTIONS:

Bidding and front end questions:

1. It was clarified at the pre-bid meeting that the contract duration will be 420 days rather than 450 days. Given the scope and complexity of the project, particularly if the Warehouse Alternate is accepted, we believe a 450 calendar day contract duration would be more appropriate. Would Durham County consider revising the contract duration to 450 days?
    a. *Answer: The contract duration shall remain 420 days as indicated in the pre-bid.*
2. The bid delivery location is listed as Room 461 in one place and Room 703 in another. Which is correct?
    a. *Answer: Room 461, 4th Floor, is the correct location for bid delivery.*
3. Substitution deadlines conflict between Division 1 and the technical sections ("10 days prior to bid"). Please confirm a single deadline.
    a. *Answer: Substitutions will be considered until October 13th at 3:00pm.*
4. The manual doesn't include insurance requirements. Please issue them.
    a. *Answer: The insurance requirements are outlined in the sample contract provided with this addendum.*
5. Please confirm the required County MWBE/HUB forms and when they're due.
    a. *Answer: There are no MWBE/HUB requirements for this project.*
6. Unit prices S-3 and S-4 (trench rock on-site vs. off-site) appear swapped. Please also define trench excavation limits for rock payment.
    a. *Answer: Unit prices have been fixed and the revised unit prices specifications attached to this addendum. For excavation pay limits please review 312000,1.3,A and 312000, 1.5,A,6.*

7. These sections are listed in the TOC but missing from the manual: **23 5216**, **32 1415 Unit Paving** and **07 9513.13**. Please issue them, or confirm they're deleted.
    a. *Answer: 235216 is included in this addendum. 321415 is deleted from the TOC. 079513.13 is not in the TOC, please let us know which section you are referring to ASAP.*
8. Sheets **A-8.1 and A-8.2** are in the index but missing from the set. Please issue them.
    a. *Sheets are being issued as part of this ADDENDUM (#3).*

9. The monument sign shows "6001," but the site address is 5926. Which is correct?
    a. *Answer: For the purpose of bidding, assume four numbers will be chosen. The address is in flux.*

Architectural and structural questions:

1. Please confirm the extent of the red oak trim and the wood species.
    a. Answer: There is no red oak trim in this project.
2. Warehouse: The spec calls for damp proofing, but the details show an air barrier. Which is required?
    a. *Answer: Refer to specification for vapor-permeable air and water barrier for all above grade applications.*
3. Please confirm the backup behind the metal panels: CMU or studs?
    a. *Answer: Typical back-up wall is CMU wall; see A-9.4. However, the Main Entry Overhang and Office Entries soffit areas are detailed with stud wall base; see A-6.3*
4. Please confirm the extent of the glulam along grids H–J.
    a. Answer: *Refer to A-2.2; Glulam is used between axis I and J.*
5. Toilet room base is shown as terrazzo cove in one place and ceramic tile in another. Which is it?
    a. Answer: *Refer to A-7.2 Toilet Rooms 107, 108, 109 have terrazzo flooring with tile base. Locker Rooms (with toilets) have epoxy floor with epoxy base; with exception of shower rooms that have tile floor with tile base / wall*
6. The epoxy flooring spec has renovation/existing-floor language. Please confirm the new-construction requirements.
    a. Answer: *Confirmed; project is New Construction. There are no renovation areas. All epoxy work shall conform to new -construction requirements.*
7. Warehouse floors: polished concrete or sealed concrete?
    a. *Answer: Refer to A-1.2.W.*
        i. *Polished Concrete : Lobby, Parts Manager Office, Storage, WC*
        ii. *Sealed Concrete : Remaining spaces*
8. Please define "exposed structure treated" in the painting scope: painted, sealed or stained?
    a. *Answer: All exposed steel structure is painted.*
    b. *Answer: All exposed Glu-Lam / Tongue-and-Grove is stained; clear stain.*
9. The operable partition height is shown as "13'-2½" TBC" on A-7.1. Please confirm.
    a. *Answer: Correct. The height might be adjusted depending on manufacturers anchoring details. The I-Beams at locations with partition anchoring are sloped with highest point at axis J and lowest point at axis I. Refer to S-2.2 for heights and specifications.*
10. Women's locker room: plan A-1.10 and elevation 18 on A-7.2 don't agree on the locker count and tier layout. Please confirm.
    a. *Answer: Refer to Sheet A-8.1 for all Locker Stations and Locker Room Locker information and details.*
11. Pallet rack stop arms and rails are marked "NEED TBC" on A-1.5.W. Are they included?
    a. *Answer: Yes, they should be included in the project.*
12. Is the contractor responsible for the rack permit and stamped rack engineering?
    a. *Answer: Yes, the contractor is responsible for the racking permit and the stamped rack engineering drawings.*

13. Is the 24" formed concrete fence mow strip required along the full perimeter, or only at certain runs?
    a. *Answer: The mow strip is as depicted by Keynote HH on C-101.*
14. The warehouse wall-hung canopy is about 47 LF on the elevation but about 80 LF on the roof plan. Which is correct?
    a. *Answer: Warehouse wall-hung canopy is shown on 3/A-4.1.W and is 84'-4"; starting 8ft east from axis W.4. ; corresponding to canopy outline shown in Roof Plan A-3.1.W. Dimensions have been added to Sheet A-3.1.W.*
15. The flagpole isn't shown anywhere. Please give the quantity and location, whether flags are included, and whether there's a pad or uplight.
    a. *Answer: Refer to C-101 and C-901. There are 3 flag poles.*
16. Please confirm the signage scope and provide an interior/exterior signage schedule.
    a. *Answer:*
        i. *For Monumental Sign refer to C-101 and A-8.5*
        ii. *For Interior Signage refer to SP-1.0, SP-1.1, SP-1.2 and SP-1.3 for locations, types & details.*
        iii. *For Interior Signage in Warehouse refer to SP-1.1.W and SP-1.2.W for locations, types & details.*
17. Breakroom 102A in the training wing shows no appliances. Is that correct?
    a. *Answer: Correct.*
18. The window treatment spec includes interior windows and door lites, but only exterior windows are tagged. Please confirm the scope is "as indicated on plans".
    a. *Refer to A-1.5 and A-1.6.W for all interior and exterior shading locations & tags.*
19. The warehouse HVLS fan is scheduled with location "Strength Training." Which building and room does it go in?
    a. *Answer: Refer to M-1.1.W – the fan goes in Warehouse 202*
20. Is there any unit or decorative paving on the project? Section 32 1415 is missing and nothing is tagged.
    a. *Answer: There is no decorative paving. Section 321415 has been deleted from the TOC.*
21. Please confirm the bike rack quantity and locations.
    a. *Answer: Refer to C-101 and C-901, Keynote W : 7 racks total are specified for this project.*
22. Please provide Sheets A8.1 and A8.2.
    a. *Answer: They have been provided in this addendum.*
23. We see the paver in the specs, however We cant seem to find the pavers shown on the plans? Can you confirm the location and please provide details if they are to be included.
    a. Answer: Pavers are not part of the project. This section has been deleted.
24. 1/A-9.2 is labeled "Aluminum Clad Window Types" which indicates a substrate like wood the aluminum is clad around. What is this substrate or is this simply a confusing title?
    a. Answer: The title should not have included the word "clad." These are not clad windows. They are aluminum window framing systems per Specification Section 084113.
25. Exposed Structure Ceiling Painting: Please confirm if exposed roof metal decking, steel joists, and structural steel in Mechanical Yards, Open Office, and Training spaces require field dry-fog/acrylic coating or if factory primed steel can remain as-is where hidden above ceiling systems.
    a. *Answer: Steel that is hidden above lay-in ceilings and gypsum board ceilings shall not need to be painted. Steel that is exposed to the occupants' view must be painted. Painting type shall be as specified in the paint specifications. If the contractor chooses to use "dry fall" paint to accelerate the painting of exposed steel that is a decision made by the contractor and shall not be grounds for a cost change to the project.*

26. Glulam Structural Timber Elements: Structural Sheets S2.1/S-2.2 and Architectural Details specify Glulam timber framing in the Administration Building. Please confirm if Glulam timber will be delivered with a factory-applied clear protective stain/finish (Section 06 18 00 / 09 93 00), requiring only light field touch-up by the Painting Contractor, or if complete field sanding, staining, and sealing are required under the Division 09 Painting scope.
    a. *Answer: Glulam structural elements and decking can be delivered to the site with a factory-applied stain and clear protective finish. If the architect determines that the glulam needs to be "touched-up" as part of the punch list process this work shall be done in the field at no additional cost to the owner.*
27. Exposed CMU Wall Coating Systems: Wall Types 10, 11, 13, and 14 indicate 'CMU Wall, Painted'. Please clarify whether interior exposed CMU walls in standard spaces require standard heavy-duty acrylic block fill + 2 coats interior latex (Section 09 91 13) or 2-coat High Performance Water-Based Epoxy Coating (Section 09 96 00). Please confirm if Section 09 96 00 epoxy coatings are strictly required in Mechanical Rooms (111, 116, 181), Electrical Rooms (112, 158), and Wet Utility Areas.
    a. *Answer: We will provide this answer in the next addendum.*
28. What level of blast resistance / windborne debris impact do the Aluminum Clad Windows have to meet? Is what is in the specification strictly for STC purposes?
    a. *Answer: This was an error in Specification Section 084113. The window frames are not required to meet blast resistance / windborne debris impact requirements.*
29. Installation details show single shades in A6.1, A6.2 and A6.3 – I could not find details for double shades in the drawings. I would suggest that installations for doubles shades be detailed in a pocket to avoid light leaks over the top of the assembly.
    a. *Answer: We will provide this answer in the next addendum.*
30. Elevations on A-7.1 call for "Roller Shade, Typ AUTOMATED. However, there is no note to automation in the specification.
    a. *Answer: We will provide this answer in the next addendum.*
31. Alternate G1 RCP (A-2.1.W) shows a non absorbent tile to be used in Room 205. However, there is not one spec'd anywhere on the job. The only ceiling tile spec'd was Armstrong Optima 3352. Please advise.
    a. *Answer: Please add the following non-absorbent tile to Section 098000: Acoustical Treatment:*
        i. *Non-Absorbent ceiling tile shall be equal to: Optima Health Zone 3114PB as manufactured by Armstrong.*

Specialties and equipment questions:

1. The hardware spec already requires Best with no substitution, but Alt OP-1 adds Best CORMAX cores. Please clarify what's in the base bid versus the alternate.
    a. Answer: You are correct. The base bid and the alternate are one and the same.
2. Bridge crane: section 1-02 says 10-ton, but Part 2 says 5-ton single girder, and the structure is designed for 10-ton double girder. Please confirm.
    a. *Answer: A 10-ton, double girder, crane is correct.*
3. Access doors: please provide the size, quantity and locations, or an allowance.
    a. *Answer: An allowance is specified in the allowance specification section.*

MEP and fire protection questions:

1. Please confirm the reuse water booster/pump assembly (22 6800) is plumbing scope, not mechanical and not Owner-provided.

    a. *Answer: The reuse water assembly is specified in the plumbing specifications and included on plan 4.3. This is part of the base contract and NOT owner provided.*
2. Reclaimed water: please confirm the tap on the 22" main, the jack and bore under NC 55, and the meter are contractor scope.
    a. *Answer: Yes, it's all in the general contractor's scope. The whole project is the general contractors scope unless otherwise noted on the drawings.*
3. Warehouse sprinklers: the 10-ton crane conflicts with ESFR heads for Class IV racks at 22'. Are in-rack sprinklers expected?
    a. *Answer: The sprinkler layout shall be coordinated in the field with the travel of the crane and included on the sprinkler shop drawings. The sprinkler drawings note to include in-rack sprinkler coverage.*
4. The FP data sheet lists 26,560 SF, but the admin building is 28,895 SF. Please correct.
    a. *Answer: 28,895SF is the correct number. The building size has been corrected.*
5. No ERRCS/BDA is shown. Is it required, or should we carry an allowance pending a signal test?
    a. *Answer: The BDA equipment location is shown in 'Stor 137' circuited to 'EL-8'. An allowance has been added to the allowance section for design and installation of a BDA system.*
6. Please confirm the 750 kW generator size and whole-building standby, and whether the warehouse is on standby.
    a. *Answer: The generator size is correct. The generator supplies the entire admin building with two branches - optional standby (NEC 702) and emergency (NEC 700) as shown on the power riser, E0.3. The warehouse is fed from the Admin Building electrical distribution system, so it is also on generator back-up as shown on the power riser, E0.3W.*
7. Site lighting shows only "4" sleeves for Duke Energy lighting." Please confirm Duke furnishes and installs the poles and fixtures.
    a. Answer: Refer to the site/civil drawings for additional information concerning the site lighting.
8. E1.6 note 3 says to provide and install 2 Blink EV pedestals, but EV chargers are Alt OP-2. Please clarify what's base bid and what's the alternate.
    a. *Answer: ALL electrical infrastructure related to the installation of the EV chargers is to be provided as BASE BID. Refer to the Alternate OP-2 language.*
9. Are the security gates, operators and controllers contractor scope (fence sub), or by the Owner or gate vendor?
    a. *Answer: ALL of the security gate equipment is part of the base bid contract. Nothing is by the owner unless otherwise noted on the drawings. It is up to the General Contractor to figure out who provides what items in the contract.*
10. Please confirm the actual fire DCDA size. The detail title reads "12" fire only DCDA."
    a. *Answer: Please review the civil drawings for the backflow size and refer to the City of Durham standard detail for construction of the backflow preventer.*
11. Note 6 on the damper schedule puts the warehouse louvers on the GC. Please confirm the scope and the spec section (10 8300).
    a. *Answer: Provide louvers as specified on the drawings and in the specifications. Who provides them is up to the general contractor.*

Site questions:

1. Will a CAD file be provided?
    a. *Answer: A CAD file will be provided to the awarded contractor for use, HOWEVER, the drawings are the contract documents and the file is only provided "For Reference."*

2. The SCM/wetland maintenance runs "until final acceptance by the AHJ." Can it be capped at 12 months?
    a. *Answer: No, it cannot be capped. The maintenance is part of the acceptance by the AHJ and cannot be separated from each other. The contractor's ability to maintain the SCMs is critical to the acceptance by the AHJ. Furthermore, final payment on the SCMs will be held by the owner until they are accepted by the AHJ. This is not negotiable.*
3. Please confirm the Alt G-1 site limit line: which paving, curb, grading, storm and utilities fall in the warehouse alternate?
    a. *Answer: The alternate is ONLY the warehouse building. All other site items are to be bid and installed as shown on the drawings. ALL site utilities shall be assumed to be stubbed into the pad 5'-0" and capped. Furthermore, please review the Alternate language concerning this alternate for base bid requirements.*
4. Please confirm the sod areas versus seed areas.
    a. *Answer: See 600 series plans. Sod and lawn (seed) areas are shown on the plans.*
5. Please confirm who pulls the NCDOT encroachment permit and who provides traffic control and the pilot car on NC 55 and T.W. Alexander.
    a. *Answer: The NCDOT Driveway Permit and 2 party encroachment agreement are attached to this addendum. Traffic control is the responsibility of the contractor. Please note the required provisions within the permit to be handled by the contractor and prepare accordingly. The 3 party encroachment agreement will have similar provisions. No additional compensation will be provided for adherence to the requirements of the 2 and 3 party encroachment agreements.*
6. Will the site contractor be required to perform any scope affiliated with the site logistics?
    a. *Answer: This is a discussion between the general contractor and the site contractor. Site logistics are a means-and-methods item and not a design team item.*

IT Questions and Answers
Drawings:

Question: E1.1 drawings don't show WAP locations.

Response: Currently, the drawings do not show any wireless access point, WAP, locations. A revised drawing will be issued, but until received, continue with approximately (25) WAPs distributed throughout the main building and (8) WAPs in the warehouse.

Question: E0.10 are there any additional details for the MDF/IDF room layouts? Who is responsible for the plywood in the MDF/IDF
Response: The information shown should provide adequate information for a 'turn-key' installation by the electrical contractor and any required sub-contractors for this project. The installation of the flame retardant plywood shall be <u>by the electrical contractor</u>.

Question: E.01 Detail page outlets and outlets on E1.1 power drawings don't match.

Response: There was a layer issue when plotting sheet E0.1. The symbols on this sheet should he 'half-shaded' as the devices on the plan sheets. They are the same except for the shading.

Question: Spec mentions 3 Cat6A cables per outlet and the note on E0.10 says 2 Cat6A

Response: There should be (2) CAT6A cables pulled to each outlet location as shown on E0.10.
Specs:

Question: Manufacturers list for cabling is not current, is there an update on current approved manufacturers?

Response: Structured Cabling System Manufacturers: Panduit, CommScope/SYSTIMAX, Hubbell, Leviton, Belden, or approved equal. Provide Category 6A cable, jacks, patch panels, and associated connectivity as a compatible manufacturer-certified cabling system. See revised spec section included with addendum.

Question: The spec mentions 2 and 4 post racks and E0.10 shows 4 post racks where are 2 post needed

Response: No two post racks are anticipated for this project. Provide rack configurations as shown on drawings.

Question: Patch Panels listed are POE patch panels. Normally 24/48 patch panels are used, and owner equipment provides power and can pass through the normal patch panels

Response: Patch Panels: Provide 19-inch rack-mounted, Category 6A passive patch panels compatible with the specified structured cabling system. Patch panels and associated connectivity shall be rated for and support IEEE 802.3 Power-over-Ethernet (PoE) applications. Provide patch panels of sufficient quantity and capacity to terminate all cables indicated. PoE power for wireless access points and other PoE devices shall be provided by Owner-furnished network equipment or other Owner-furnished PoE power sourcing equipment. See revised spec section included with addendum.

Question: The spec mentions conduit fittings (LB,LL,LR) these are prohibited for current standards and would need to be replaced with pull boxes or other accepted fittings

Response: LB, LL and LR fittings are prohibited. Refer to Section 260534, Paragraph 3.C.5.f. Provide pull boxes as required by the specifications.

Question: The spec mentions UPS and Power strips please provide additional info on the qty needed per rack or per closet.

Response: Provide one 20-amp, 19-inch rack-mounted power strip for each equipment rack. UPS units are not required to be furnished under this contract. UPS equipment serving Owner network electronics will be Owner-furnished. See revised spec section included with addendum.

Question: The spec requires an independent testing firm meeting OSHA/NETA accreditation criteria, which is atypical for structured cabling testing (commonly performed by a certified low-voltage cabling installer/technician). Please confirm whether NETA-level third-party testing is required for copper/fiber structured cabling testing, or whether a certified cabling testing technician is acceptable, as this affects bid pricing.

Response: Testing Qualifications: Testing shall be performed by qualified technicians experienced in certification testing of Category 6A copper and fiber-optic cabling. Testing shall be performed using calibrated field certification test equipment appropriate for the cabling system being tested. Calibration shall be current in accordance with the test equipment manufacturer's requirements. Submit complete electronic test results for all installed copper and fiber cabling. See revised spec section included with addendum for full requirements.

IV. Manufactures Approvals:

Note: Manufacture approval is for manufacture only and is NOT for specific products. It is the General Contractors' responsibility to review the specifications and provide products that meet the requirements of the specifications.

1. Section 055133 Wall Mounted Ladders
    a. O'Keeffe's Inc., Brisbane, CA, 888-653-3333
2. Section 102113 Plastic Toilet Partitions
    a. ASI Global Partitions, Eastanollee, GA, 706-827-2710
3. Section 102800 Toilet and Bath Accessories
    a. American Specialties, Inc (ASI), Yonkers, NY, 914-476-9000
4. Section 122000 Window Treatments
    a. Draper, Inc., Spiceland IN, 800-238-7999
5. Section 123216 Plastic laminate Faced Cabinetwork
    a. CBD Casework Millwork, Duluth GA, 770-418-1200
6. Section 238146 Water Source Heat Pumps
    a. Water Furnace, c/o Thermal Resource Sales, Inc. Morrisville, NC, 336-996-2220

v. Additional Documents:

The following NCDOT Permits are provided as reference documents for bidding the work with-in the NCDOT right of ways. See question #4 under site questions for additional clarification.

1. NCDOT Driveway Permit
2. NCDOT Two Party Encroachment Agreement

NORTH CAROLINA
DURHAM COUNTY

CONTRACT for CONSTRUCTION
BETWEEN OWNER AND CONTRACTOR

This Contract for Construction is made, and entered into this the ____ day of _____, 20__, by and between the **COUNTY OF DURHAM**, a political subdivision of the State of North Carolina, (hereinafter "**OWNER**" or "COUNTY"), and _____, EID# _____ a Corporation, Limited Liability Company, Individual, or other Entity duly authorized to do business in the state of North Carolina (hereinafter **"CONTRACTOR"**), whose principal place of business is: _____.

The Project Name and Location: _____
_____
_____

The Designer is: _____
_____

1. CONTRACT DOCUMENTS. The "Contract Documents" consist of this Contract for Construction (hereinafter "Contract"), General Conditions, Bid Proposal Package No.____ entitled _____, CONTRACTOR Bid Proposal dated _____, Addenda issued prior to execution of this Agreement and listed below, and any Modifications executed by the parties after execution of this Contract. The Contract Documents form the Contract and are fully a part of the Contract as if attached to this Contract or repeated herein. The Contract represents the entire and integrated agreement between the OWNER and CONTRACTOR hereto and supersedes any and all prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents and other than Modifications, appears in Article 14, herein.

   OWNER and CONTRACTOR agree that should the CONTRACTOR utilize the services of a subcontractor for any Work under this Contract, the subcontractor shall be required to comply with all terms and conditions of this Contract and any and all Contract Documents entered into between the OWNER and CONTRACTOR and any of its contractors or subcontractors shall so require of their subcontractors.

2. WORK. CONTRACTOR shall execute all of the Work described collectively in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

3. DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION.

   3.1 This Contract shall commence on the date that this Contract is made and entered into, which is listed at the top of Page 1 of this document (hereinafter "Commencement Date"). The CONTRACTOR shall notify the OWNER in writing not less than five days before commencing the Work that CONTRACTOR intends to begin Work.

   3.2 The CONTRACTOR shall achieve Substantial Completion of the entire Work no later than the time established in the Contract Documents; subject to adjustments of the Contract Time as provided in the Contract Documents. In view of the difficulty of estimating damages to the OWNER by reason of the failure of the CONTRACTOR to complete the Work within the time limit herein required, or within such further time as agreed upon by the parties in writing, OWNER shall be and hereby is authorized to

deduct and retain out of the moneys which may be due or become due to CONTRACTOR the sum of One Thousand Dollars ($1,000.00) per day for each and every calendar day that the work may be incomplete beyond the time limit fixed for its completion, either by this Contract or by subsequent written agreement of the parties, which sum per day is hereby agreed upon, fixed and determined by the parties hereto as the ascertained and liquidated damages that the OWNER will suffer by reason of such default. The above sum shall be held to include the additional expense to the OWNER for loss of interest or investment, for the employment of architects, engineers, inspectors, and other employees, together with their expenses, and all other damages to the OWNER by reason of such delay.

4. CONTRACT SUM AND PAYMENT

4.1 CONTRACTOR shall receive from OWNER a sum not to exceed _____ Dollars ($_____), as full compensation for the provision of construction services provided under this Contract, subject to additions and deductions as provided in the Contract Documents. OWNER agrees to pay for services, satisfactorily performed, in accordance with the Contract Documents. Unless otherwise specified, CONTRACTOR shall submit an Application for Payment in the manner described in Article 9, of the General Conditions. Payment will be processed promptly upon receipt and approval of the Application by OWNER.

4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the OWNER:

_____

_____

4.3 Unit prices, if any, are as follows:

_____

_____

5. PROGRESS PAYMENTS. Based upon Applications for Payment submitted to the Designer by the CONTRACTOR and Certificates for Payment issued by the Designer, the OWNER shall make progress payments on account of the Contract Sum to the CONTRACTOR as provided in section 9.3 of the General Conditions.

6. FINAL PAYMENT. Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the OWNER to the CONTRACTOR when (1) the Contract has been fully performed by the CONTRACTOR and all requirements imposed by Paragraphs 9.3 and 9.11 of the General Conditions have been satisfied except for those requirements set forth in Paragraphs 11.2 and 11.3 of the General Conditions and any other requirements which necessarily survive final payment; and (2) a final Certificate for Payment has been issued by the Designer; such final payment shall be made by the OWNER not more than 30 days after the issuance of the Designer's final Certificate for Payment.

7. INDEMNIFICATION. To the fullest extent permitted by law, COUNTY hereby reserves the right to recover legal expenses including attorney fees, litigation expenses and court costs as well as actual damages or losses suffered by COUNTY, if CONTRACTOR is found to be a proximate cause of damages or losses suffered by COUNTY, resulting from CONTRACTOR's performance during the execution of this Contract. CONTRACTOR, its officers, employees, subcontractors, agents and shareholders shall indemnify and save harmless the County of Durham, their respective officers, agents, servants and employees from and against all claims, losses, and damages arising out of CONTRACTOR's performance under this Contract. CONTRACTOR acknowledges and agrees that this obligation is operative regardless of whether the claim arises from intentional or negligent acts of CONTRACTOR or CONTRACTOR's agents, employees, subcontractors, vendors, invited guests, attendees, the public at large, or other

unspecified, or unknown individuals. CONTRACTOR also acknowledges and agrees that it is responsible to satisfy any claim for damage to, or theft of or from, COUNTY property, to the degree said theft, damage, or claim arises from or is otherwise related to CONTRACTOR's performance under this contract. This indemnification shall survive the termination of this agreement.

8. NOTICES. All notices which may be required by this contract or any rule of law shall be effective when received by certified mail sent to the following addresses:

COUNTY OF DURHAM **COUNTY MANAGER** **200 EAST MAIN STREET, 3RD Floor** **DURHAM, NORTH CAROLINA, 27701**	CONTRACTOR _____ _____ _____

9. NON-DISCRIMINATION. CONTRACTOR shall not discriminate against any employee or applicant for employment because of age, race, sex, national origin or ancestry, martial or familial status, pregnancy, military status, religious belief or non-belief, disability, or any other protected category under local, state, or federal law. In the event CONTRACTOR is determined by the final order of an appropriate agency or court to be in violation of any non-discrimination provision of federal, state or local law or this provision, this Contract may be canceled, terminated or suspended in whole or in part by COUNTY, and CONTRACTOR may be declared ineligible for further COUNTY contracts. **Failure to comply with this provision is a breach of this contract and grounds for terminating the contract for cause and without fault or liability to COUNTY.**

10. EMPLOYMENT ADVERTISING REQUIREMENTS. CONTRACTOR shall post local job openings, in connection with this contract, with the NC Works Web Site throughout the term of this Agreement; provided that the foregoing requirement does not limit CONTRACTOR'S ability to advertise and/or otherwise post job openings with other organizations or media outlets.

11. TERMINATION OR SUSPENSION. This Contract may be terminated by the OWNER or the CONTRACTOR as provided in Article 13 of the General Conditions. The Work may be suspended by the OWNER as provided in Paragraph 13.3 of the General Conditions.

12. INSURANCE. CONTRACTOR shall procure and maintain for the duration of the contract the following insurance coverage from an insurance company(s) possessing a rating of A-VII or higher from the A.M. Best Company and licensed to do business in North Carolina. All of the policies required of the CONTRACTOR shall contain a waiver of subrogation provision to waive all rights of recovery under subrogation or otherwise against the COUNTY. In the event CONTRACTOR'S Insurance Policy or Certificate of Insurance conflicts with the aforesaid language concerning "waiver of subrogation" this contract shall govern. CONTRACTOR shall advise the COUNTY of any cancellation, non-renewal, or material change in any policy within ten (10) days of notification of such action and provide updated certificates of insurance evidencing renewals within fifteen (15) days of expiration. CONTRACTOR'S insurance shall be primary and any insurance or self-funded liability programs maintained by the COUNTY shall not contribute with respect to the CONTRACTOR'S insurance. COUNTY shall not be listed as an additional insured on any Insurance Policy or Certificate of Insurance of the CONTRACTOR. In the event CONTRACTOR'S Insurance Policy or Certificate of Insurance conflicts with the aforesaid language concerning "additional insured" this contract shall govern.

12.1 Commercial General Liability: Insurance Services Office (ISO) Form CG 00 01 on an "occurrence" basis, including products and completed operations, property damage, bodily injury, and personal & advertising injury with limits no less than **$5,000,000** per occurrence. If a general aggregate

limit applies, either the general aggregate limit shall apply separately to this project/location (ISO CG 25 03 or 25 04) or the general aggregate limit shall be twice the required occurrence limit. Products-completed operations coverage shall be provided for a minimum of six (6) years following the completion of the project.

12.2 Commercial Automobile Liability: ISO Form CA 00 01 covering any auto with limit not less than **$2,000,000** per accident for bodily injury and property damage.

12.3 Worker's Compensation and Employers Liability: as required by The State of North Carolina, with statutory limits, and Employers Liability Insurance with a limit of no less than **$1,000,000** per occurrence.

12.4 Builder's Risk: Shall be a limit equal to the completed value of the project and no coinsurance penalty provisions utilizing an "All Risk" (Special Perils) coverage form.

12.5 Professional Liability (Errors & Omissions): Shall be a limit of not less than **$5,000,000** per occurrence or claim, and **$5,000,000** aggregate with an extended reporting period of not less than six (6) years following the completion of the project.

12.6 Contractor's Pollution Legal Liability: Shall be a limit of no less than **$1,000,000** per occurrence or claim, and $2,000,000 aggregate.

By requiring insurance herein, the COUNTY does not represent that coverage and limits will necessarily be adequate to protect CONTRACTOR, and such coverage and limits shall not be deemed as a limitation on CONTRACTOR's liability under the indemnities granted to the COUNTY in this Contract. CONTRACTOR shall provide the COUNTY a valid certificate of insurance, in advance of the performance of any work, exhibiting coverage required. CONTRACTOR shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein.

The failure of the COUNTY at any time to enforce the insurance provisions, to demand such certificates of insurance, or to identify a deficiency shall not constitute a waiver of those provisions, nor reduce the obligations of the CONTRACTOR to maintain such insurance or to meet its obligations under the indemnification provisions.

COUNTY reserves the option to require additional or increased insurance coverages if, in the opinion of COUNTY, such coverage is necessary to properly manage the risk related to this contract. COUNTY shall give notice to CONTRACTOR of any such requirements prior to the execution of this contract, or within such reasonable time as COUNTY becomes aware of the need for such additional or increased coverages.

Notwithstanding the foregoing, nothing contained in this section shall be deemed to constitute a waiver of the governmental immunity of the COUNTY, which immunity is hereby reserved to the COUNTY.

13. PERFORMANCE BOND AND PAYMENT BOND. The CONTRACTOR shall furnish bonds covering the faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or required by North Carolina law. Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the CONTRACTOR shall promptly furnish a copy of the bonds or shall permit a copy to be made.

14. ENUMERATION OF CONTRACT DOCUMENTS

14.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:

1) This executed Contract for Construction between OWNER and CONTRACTOR.

2) The General Conditions of the Contract for Construction. Where reference is made in this Contract to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

3) The Supplementary and other Conditions of the Contract are those contained in the Project Manual dated_____, and are as follows:

Document	Title	Pages

4) The Specifications are those contained in the Project Manual dated as in Paragraph 14.1(.3) above, and are as follows:

Section	Title	Pages

5) The Drawings are as follows, and are dated_____,unless a different date is shown below:

Number_____
Title_____
Date_____

6) The Addenda, if any, are as follows:

Addendum No.	____	Dated:	_____	Addendum No.	____	Dated:	_____
Addendum No.	____	Dated:	_____	Addendum No.	____	Dated:	_____
Addendum No.	____	Dated:	_____	Addendum No.	____	Dated:	_____

7) Other documents, if any, forming part of the Contract Documents are as follows:

Invitation to Bid.
Instructions to Bidders

14. COMPLIANCE WITH LAWS**.** CONTRACTOR shall abide by all statutes, rules, regulations, laws, and executive orders Federal, State and Local as they relate to, but are not limited to, (i) services in general, (ii) payment of employees, subcontractors and agents, (iii) the Fair Labor Standards Act and (iv) the Wage and Hour Division. In the event CONTRACTOR is determined by the final order of a court or appropriate agency to be in violation of any Federal, State or Local statute, rule, regulation, law or executive order or this provision, this Contract may be canceled, terminated or suspended in whole or in part by OWNER and CONTRACTOR may be declared ineligible for further OWNER contracts.

15. PUBLIC RECORDS. It is expressly understood that as a governmental entity, the COUNTY is subject to the North Carolina Public Records Act and information related to this contract may be requested pursuant to same. In response to any request for information which has been properly labeled as a Trade Secret or Confidential Information, the COUNTY will assert that those are exempt as a Trade Secret or Confidential Information under that Act. Proper labeling will include annotating the bottom of any written document (on the cover and each individual page containing such information) or e-mail with the following footer in at least 12-point bold face type **"Confidential Information"**. Any material labeled as Confidential Information constitutes a representation by CONTRACTOR that it has made a reasonable effort in good faith to determine that such material is, in fact, confidential as defined in N.C. Gen. Stat. § 132-1.2. The COUNTY has no duty or obligation to limit access to information which is not explicitly marked in accordance with this provision.

    Should the requestor initiate legal action to compel production, the COUNTY shall notify CONTRACTOR of the action and offer it the opportunity to intervene and defend same. The COUNTY shall have no duty to defend the action and CONTRACTOR agrees to fully indemnify COUNTY for all costs related to such litigation. Should the COUNTY receive a subpoena or court order for the protected information, it will contact CONTRACTOR and afford it the opportunity to intervene in the action under the same terms and conditions as noted above.

16. HEALTH AND SAFETY. CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs required by OSHA and all other regulatory agencies while providing services under this contract.

17. E-VERIFY. As a condition of payment for services rendered under this agreement, CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if CONTRACTOR provides the services to the OWNER utilizing a subcontractor, CONTRACTOR shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes as well. CONTRACTOR shall verify, by affidavit, compliance of the terms of this section upon request by the OWNER.

18. SECURITY BACKGROUND CHECKS.

    A. For Particular Facilities:

        1. For County Facilities other than Youth Home or Sheriff Facilities: with the exception of the Security contractor security personnel who have completed a Private Protected Services Board (PPSB) background check, the COUNTY is responsible for requesting criminal history checks on all individuals providing services under this contract who will be obtaining COUNTY identification badges and allowed unescorted access to COUNTY facilities.
        2. Youth Home Facilities; Youth Home public safety classifications background checks can be provided by any vendor, or from a North Carolina State agency, providing that the criminal history check falls under the requirements of the North Carolina Criminal Standards and , provided that the criminal history check is done nationwide.
        3. Sheriff Facilities – Courthouse and Detention Center. The Sheriff's Office will conduct background investigations for those Contractor employees who will be working at the Courthouse or Detention Center.

    B. General Provisions.

    A criminal history will not automatically disqualify a Contractor employee from employment on a COUNTY contract unless explicitly mandated by law.

The Contractor will complete the background check process prior to commencing work at Durham County Government. The results of the check will be reviewed by CONTRACTOR's County point of contact who will provide them to the Durham County Security Manager. The Human Resources Department will individually assess and determine the degree to which the nature of a person's criminal conduct has a direct and/or specific negative bearing on a person's fitness or ability to perform contract services in Durham County buildings. The Human Resources Department will consult the Legal Office, as needed, on any negative determinations. The Human Resources Department will notify the Contractor's County point of contact of the results of the review. Contractor can appeal a negative determination by the Human Resources Department to the County Manager or the County Manager's designee for final disposition. Appeals need to be submitted in writing to the County point of contact within 30 days of notice of a decision to remove or deny an individual from working the County contract due to adverse information in the background check.

This information shall be updated annually by the Contractor, 90 days prior to the renewal or extension of the contract and submitted to their County point of contact who will provide them to the Durham County Security Manager. Personnel without a currently approved background check will have their access to those buildings disabled.

Additional background screening may be necessary at specific county buildings. The Contractor shall provide names of all individuals in the Contractor communications log and to the County point of contact. This information will be reviewed annually.

For those Contractor employees who will be working at the Courthouse or Detention Center, the Sheriff's Office will make the security determination. The Contractor will provide the results of their background check to the Major for Support Services who will conduct an additional investigation and then individually assess and determine the degree to which the nature of a person's criminal conduct has a direct and/or specific negative bearing on a person's fitness or ability to perform contract services in the Courthouse or Detention Facility. A Contractor can appeal a negative determination to the Chief Deputy for final disposition. Appeals need to be submitted in writing to the Chief Deputy within 30 days of notice of a decision to remove or deny an individual from working the contract due to adverse information in the background check. While an appeal is pending, the employee will not be allowed access to the Courthouse or Detention Facility.

This information will be updated by the Contractor and submitted to the Sheriff's Office annually, 90 days prior to the renewal or extension of the contract. Personnel without a currently approved background check will have their access to those buildings disabled.

19. DISPUTE RESOLUTION PROCEDURE. To prevent disputes and litigation, it is agreed by the parties that any claim or dispute between the OWNER and the CONTRACTOR, arising from this Contract and/or Contract Documents or the services and/or materials being provided by the CONTRACTOR, shall be sent to the Durham County Manager who shall appoint a qualified mediator to address the issue. Such request shall be submitted to the County Manager in writing within ten (10) days of the claim or dispute. Upon receipt of a timely written claim, the Manager, or the County Manager's designee, shall notify the Mediator who will conduct a mediation and notify the CONTRACTOR in writing of the decision within forty five (45) calendar days from the date of the submission of the claim or dispute, unless the Mediator requires additional time to gather information or allow the parties to provide additional information. The Mediator's orders, decisions and decrees shall be non-binding. Completed mediation (regardless of whether it results in a mediated agreement), pursuant to this provision, shall be a pre-condition to initiating

litigation concerning the dispute. During the pendency of any dispute and after a determination thereof, the parties to the dispute shall act in good faith to mitigate any potential damages including utilization of schedule changes and alternate means of providing the services and/or materials. The costs of the mediation shall be divided equally between the parties to the dispute.

The mediation session shall be private and shall be held in Durham County, North Carolina. Mediation under this provision shall not be the cause for a delay of services and/or materials being provided which is the focus of the dispute.

If the disputed issue cannot be resolved in mediation or either party disagrees with the results of the mediation, the parties may seek resolution in the General Court of Justice in the County of Durham and the State of North Carolina. If a party fails to comply in strict accordance with the requirements of this provision, the non-complying party specifically waives all of its rights provided hereunder, including its rights and remedies under State law.

20. NON-ASSIGNMENT. This Contract is not assignable by either party, by operation of law or otherwise.

21. GOVERNING LAW**.** This Contract shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this Contract shall be brought in the General Court of Justice in the County of Durham and the State of North Carolina.

22. MODIFICATION. This Contract may be modified only by a written agreement executed by both parties hereto.

23. REQUIRED PROVISIONS FOR CONTRACTS/AGREEMENTS/GRANTS UTILIZING FEDERAL FUNDS. Pursuant to the Federal Uniform Guidance Appendix II to 2 CFR Part 200, if Federal Funds are involved in this Contract/Agreement/Grant Agreement, by executing this Contract/Agreement/Grant Agreement, the Contractor/Vendor/Grantee, certifies that it agrees to and is in compliance with the provisions specified in **Exhibit B – Federal Uniform Guidance Contract Provisions Certification.**

24. ENTIRE AGREEMENT. This Contract and the Contract Documents described herein sets forth the entire agreement between the parties and supersedes any and all other agreements on this subject between the parties.

This Contract is entered into as of the day and year listed at the top of Page 1 of this document, and is executed in at least three original copies of which one is to be delivered to the CONTRACTOR, one to the Designer for use in the administration of the Contract, and the remainder to the OWNER.

[signatures on next page]

OWNER: COUNTY OF DURHAM

By: _____

Print Name/Title: _____

Date of Signature: _____

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Crystally Wright, Durham County Chief Financial Officer

CONTRACTOR

By: _____

Print Name/Title: _____

Date of Signature: _____

ATTEST

By: _____

Print Name/Title: _____

Date of Signature: _____

STATE OF NORTH CAROLINA
COUNTY OF _____

I, a Notary Public in and for the aforesaid County and State, do hereby certify that _____ personally appeared before me this day and acknowledged that he is _____ of _____, a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its _____, sealed with its corporate seal and attested by_____ as its _____.

Witness my hand and notarial seal this ___ day of _____, 20__.

_____ (SEAL)
Notary Public
My commission expires: _____

SECTION 012000 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

a. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

a. This Section includes administrative and procedural requirements for unit prices.

b. Related Sections include the following:

1. Division 1 Section 012100 "Allowances" for procedures for using unit prices to adjust quantity allowances.
2. Division 1 Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
3. Division 1 Section 014000 "Quality Requirements" for general testing and inspecting requirements.
4. Division 31 Section 310000 "Earthwork" for procedures for measurement and payment for Earthwork.

1.3 DEFINITIONS

a. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

a. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

b. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

c. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

d. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

Note: See Section 310000 for Earthwork. Unit Prices of the successful Bidders will become part of the Contract.

a. ACCESS DOORS:
   1. 18 x 18 access door, installed, gypsum board installation, non-rated. See section 083000.

b. Unit Price S-1: Rock removal in Open Areas (Mass Rock) and disposal off-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading, transport, and legal disposal of all materials.
      b. All disposal fees.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section “Allowances.”

c. Unit Price S-2: Mass Rock Removal, processing, and placement as fill on-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation of test pits to determine pay limits.
      b. Excavation, loading and transport of all materials.
      c. Excavation of all material loosened by blasting procedures.
      d. Processing of all rock material down to particles not exceeding 3-in in any dimension.
      e. Placement, moisture conditioning, and compaction of materials in on-site fill area.
      f. Disposal fees, if applicable.
      g. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section “Allowances.”

d. Unit Price S-3: Rock removal in Trenches and Pits (Trench Rock) and disposal on-site.

1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard measured before removal.
3. Include the following in the unit price:
   a. Excavation, loading and transport of all materials.
   b. Placement and compaction of materials in on-site disposal or fill area.
   c. Overhead and profit. (ADD#3)
4. Include all other related costs in the contract sum.
5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

e. Unit Price S-4: Rock removal in Trenches and Pits (Trench Rock) and disposal off-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading, transport, and legal disposal of all materials.
      b. All disposal fees.
      c. Overhead and profit. (ADD#3)
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

f. Unit Price S-5: Unsuitable soils removal and disposal on-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading and transport of all materials.
      b. Placement and compaction of materials in on-site disposal or fill area.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on measured volume of excavation.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

g. Unit Price S-6: Unsuitable soils removal and disposal off-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading, transport, and legal disposal of all materials.
      b. All disposal fees.

c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of excavation.
6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

h. Unit Price S-7: Replacement of removed rock or unsuitable soils with on-site suitable soil in-place.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
a. Excavation, loading, transport, of suitable soil materials from on-site borrow area.
b. Placement and compaction of soil into void remaining from removed rock or unsuitable soil.
c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

i. Unit Price S-8: Replacement of removed rock or unsuitable soils with off-site suitable soil in-place.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
a. Suitable soil materials from contractor's off-site source.
b. Excavation, loading, transport, placement and compaction of soil into void remaining from removed rock or unsuitable soil.
c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

j. Unit Price S-9: Replacement of removed rock or unsuitable soils with Aggregate Base Course in-place.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:

a. Certified ABC materials from contractor's off-site source.
b. Excavation, loading, transport, placement and compaction of ABC into void remaining from removed rock or unsuitable soil.
c. Overhead and profit.

4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

k. Unit Price S-10: Replacement of removed rock or unsuitable soils with No.57 washed stone in-place.

1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
   a. Certified #57 washed stone from contractor's off-site source.
   b. Excavation, loading, transport, placement and compaction of #57 washed stone into void remaining from removed rock or unsuitable soil.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

l. Unit Price S-11: Replacement of removed rock or unsuitable soils with Lean Concrete/Flowable Fill in-place.

1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
   a. Lean Concrete/Flowable Fill from contractor's off-site source.
   b. Transport, placement and consolidation of Lean Concrete/Flowable Fill into void remaining from removed rock or unsuitable soil.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

m. Unit Price S-12: Woven Geo-Textile Fabric in place.

1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.

2. Unit of measurement: square yard of surface to be covered.
3. Include the following in the unit price:
   a. Materials and transport to site.
   b. Unloading, handling, and placement.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on the area of ground covered by the fabric. Excess and/or overlap shall not be included in the measurement.
6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

n. Unit Price S-13: 16-in Diameter Horizontal Rock Boring.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: Liner Foot.
   3. Include the following in the unit price:
      a. Boring and removal of rock, loading, transport, and legal disposal of all materials.
      b. All disposal fees.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."

END OF LIST

END OF SECTION 012000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.
2. Unit-cost allowances.
3. Contingency allowances.
4. Testing and inspecting allowances.
5. Quantity allowances.

C. Related Sections include the following:

1. Division 1 Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Division 1 Section 012000 "Unit Prices" for procedures for using unit prices.
3. Division 1 Section 014000 "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.5 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.6 TESTING AND INSPECTING ALLOWANCES

A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.

B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure.

C. Costs of services not required by the Contract Documents are not included in the allowance.

D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.7 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES:

A. Brick Allowances
   1. $ 620 / thousand for Brick 1 - (Palmetto Brick: 2.0 Greystone
   2. $ 670 / thousand for Brick 2 - (Palmetto Brick: Whitestone)

B. Trussed Arch Fabric Building and Concrete "Bin" Blocks:
   1. Allowance for the design, manufacturing and installation of a trussed arch fabric building and concrete "bin" blocks in location shown on the site drawings.
   2. Allowance amount: $60,000

C. Access Doors:
   1. 18 x 18 access door, installed, gypsum board installation, non-rated. See section 083000.
   2. Allowance: 20 units in base bid.

D. Allowance S-1: Rock removal in Open Areas (Mass Rock) and disposal off-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading, transport, and legal disposal of all materials.
      b. All disposal fees.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
   7. Allowance: 5,000-CY in base bid.

E. Allowance S-2: Mass Rock Removal, processing, and placement as fill on-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.

3. Include the following in the unit price:
   a. Excavation of test pits to determine pay limits.
   b. Excavation, loading and transport of all materials.
   c. Excavation of all material loosened by blasting procedures.
   d. Processing of all rock material down to particles not exceeding 3-in in any dimension.
   e. Placement, moisture conditioning, and compaction of materials in on-site fill area.
   f. Disposal fees, if applicable.
   g. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
7. **Allowance: 30,000-CY in base bid.**

F. Allowance S-3: Rock removal in Trenches and Pits (Trench Rock) and disposal on-site.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard measured before removal.
3. Include the following in the unit price:
   a. Excavation, loading and transport of all materials.
   b. Placement and compaction of materials in on-site disposal or fill area.
   c. Overhead and profit. (ADD#3)
4. Include all other related costs in the contract sum.
5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
7. **Allowance: 3,000-CY in base bid.**

G. Allowance S-4: Rock removal in Trenches and Pits (Trench Rock) and disposal off-site.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard measured before removal.
3. Include the following in the unit price:
   a. Excavation, loading, transport, and legal disposal of all materials.
   b. All disposal fees.
   c. Overhead and profit. (ADD#3)
4. Include all other related costs in the contract sum.
5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner.
6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
7. **Allowance: 3,000-CY in base bid.**

H. Allowance S-5: Unsuitable soils removal and disposal on-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading and transport of all materials.
      b. Placement and compaction of materials in on-site disposal or fill area.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on measured volume of excavation.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
   7. Allowance: 500-CY in base bid.

I. Allowance S-6: Unsuitable soils removal and disposal off-site.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard measured before removal.
   3. Include the following in the unit price:
      a. Excavation, loading, transport, and legal disposal of all materials.
      b. All disposal fees.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of excavation.
   6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
   7. Allowance: 500-CY in base bid.

J. Allowance S-7: Replacement of removed rock or unsuitable soils with on-site suitable soil in-place.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard of void to be filled.
   3. Include the following in the unit price:
      a. Excavation, loading, transport, of suitable soil materials from on-site borrow area.
      b. Placement and compaction of soil into void remaining from removed rock or unsuitable soil.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.

6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
8. **Allowance: 500-CY in base bid.**

K. Allowance S-8: Replacement of removed rock or unsuitable soils with off-site suitable soil in-place.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
   a. Suitable soil materials from contractor's off-site source.
   b. Excavation, loading, transport, placement and compaction of soil into void remaining from removed rock or unsuitable soil.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
8. **Allowance: 8,000-CY in base bid.**

L. Allowance S-9: Replacement of removed rock or unsuitable soils with Aggregate Base Course in-place.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
   a. Certified ABC materials from contractor's off-site source.
   b. Excavation, loading, transport, placement and compaction of ABC into void remaining from removed rock or unsuitable soil.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
8. **Allowance: 500-CY in base bid.**

M. Allowance S-10: Replacement of removed rock or unsuitable soils with No.57 washed stone in-place.

1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: cubic yard of void to be filled.
3. Include the following in the unit price:
   a. Certified #57 washed stone from contractor's off-site source.
   b. Excavation, loading, transport, placement and compaction of #57 washed stone into void remaining from removed rock or unsuitable soil.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
8. **Allowance: 400-CY in base bid.**

N. Allowance S-11: Replacement of removed rock or unsuitable soils with Lean Concrete/Flowable Fill in-place.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: cubic yard of void to be filled.
   3. Include the following in the unit price:
      a. Lean Concrete/Flowable Fill from contractor's off-site source.
      b. Transport, placement and consolidation of Lean Concrete/Flowable Fill into void remaining from removed rock or unsuitable soil.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Include costs related to removal of rock or unsuitable soil in other Unit Prices.
   6. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on volume of void to be filled.
   7. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
   8. **Allowance: 100-CY in base bid.**

O. Allowance S-12: Woven Geo-Textile Fabric in place.
   1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
   2. Unit of measurement: square yard of surface to be covered.
   3. Include the following in the unit price:
      a. Materials and transport to site.
      b. Unloading, handling, and placement.
      c. Overhead and profit.
   4. Include all other related costs in the contract sum.
   5. Method of measurement: Quantities will be verified by a soils and materials engineer employed by the Owner based on the area of ground covered by the fabric. Excess and/or overlap shall not be included in the measurement.

6. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
7. **Allowance: 500-SY in base bid.**

P. Allowance S-13: 16-in Diameter Horizontal Rock Boring.
1. Purpose: To adjust the contract sum in case a quantity different from that indicated in the allowance is required.
2. Unit of measurement: Liner Foot.
3. Include the following in the unit price:
   a. Boring and removal of rock, loading, transport, and legal disposal of all materials.
   b. All disposal fees.
   c. Overhead and profit.
4. Include all other related costs in the contract sum.
5. Quantity Allowance: Coordinate unit price with allowance adjustment requirements of Division 01 Section "Allowances."
6. **Allowance: 230-LF in base bid.**

Q. BDA System Allowance: Allowance for the design and installation of a BDA system for the main building.
1. Allowance shall cover the design, permitting and construction of the entire system including any conduit required for wiring, roof penetrations, mounting hardware and interconnection with other systems.
2. Allowance Amount: $180,000 (ADD#3)

END OF SECTION 012100

SECTION 123661.16 - SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid surface material countertops.
2. Solid surface vanities.
3. Solid surface material backsplashes.
4. Solid surface material end splashes.
5. Solid surface material apron fronts.
6. Solid surface material sinks.
7. Solid surface walls.
8. Solid surface window sills. & half wall top boards
9. Solid surface adhesives and sealants.

B. Related Requirements:

1. Section 066400 "Plastic Paneling" for plastic paneling.
2. Section 224100 "Plumbing Fixtures" for non-integral sinks and plumbing fittings.

1.3 ACTION SUBMITTALS

A. Product Data: For countertop, wall, sill and sink materials including manufacturer's technical data sheets, and published written instructions.

B. Sustainable Design Submittals:

1. Product Data: For adhesives and sealants, indicating VOC content.
2. Laboratory Test Reports: For adhesives and sealants, indicating compliance with requirements for low-emitting materials.

C. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, terminations, and cutouts.

1. Show locations and details of joints.
2. Show direction of directional pattern, if any.

D. Samples for Initial Selection: For each type of material exposed to view.

E. Samples for Verification: For the following products:

1. Countertop material, 6 inches (150 mm) square.
2. Wood trim, 8 inches (200 mm) long.
3. One full-size solid surface material countertop, with front edge and backsplash, 8 by 10 inches (200 by 250 mm), of construction and in configuration specified.

F. Certificates: For the following certifications:

1. United States Food and Drug Administration (FDA) compliance for food contact materials described in 21 CFR 174 to 21 CFR 190.
2. New York City material equipment acceptance, MEA 181-96-M.
3. ANSI/NSF 51 "food zone" and FDA "direct-food contact" compliant.
4. UL GREENGUARD® Gold Certified product for low-chemical emissions.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and fabricator.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: ISO 9001 quality management system certification for manufacturing facility(ies).

B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.

1. Manufacturer-certified fabricator.

C. Installer Qualifications: Manufacturer certified fabricator of countertops.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.8 COORDINATION

A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

1.9 WARRANTY

A. Manufacturer's Warranty: Manufacturer and installer agree to repair or replace sheet material not free from defects in materials, fabrication, or workmanship within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP AND WALL MATERIALS

A. Composition Solid-Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Wilsonart LLC; or a comparable product by one of the following:

a. E. I. du Pont de Nemours and Company

b. Wilsonart, LLC

c. Formica Corporation.

2. Thickness: 0.490 inch (12.4 mm)
3. Panel Weight: 4.4 lb/sq. ft. (21.5 kg/sq. m)
4. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

a. Flame-Spread Index: 25 or less.
b. Smoke-Developed Index: 50 or less.

5. Integral Sink Bowls: Comply with CSA B45.5/IAPMO Z124.
6. Colors and Patterns: As selected by Architect from manufacturer's full range.

B. Composite Wood Products: Products shall be made using ultra-low-emitting formaldehyde resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.

C. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

D. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 COUNTERTOP FABRICATION

A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."

1. Grade: Premium

B. Configuration:

1. Front: 3/4-inch (19-mm) bullnose
2. Backsplash: Straight, slightly eased at corner
3. End Splash: Matching backsplash

C. Countertops: 1/2-inch (12.7-mm) thick, solid surface material with front edge built up with same material.

D. Backsplashes: 1/2-inch (12.7-mm)

E. Fabricate tops with shop-applied edges unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

1. Fabricate with loose backsplashes for field assembly.
2. Install integral sink bowls in countertops in the shop.

F. Joints: Fabricate countertops in sections for joining in field. Minimize joints as much as possible.

1. Joint Locations: Not within 3 inches (76 mm) of a cutout or cooktop, 1 inch (25 mm) from inside corner for conventional seams, and not where countertop sections less than 36 inches (900 mm) long would result, unless unavoidable.

G. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.

   a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop.
   b. Provide vertical edges, rounded to 3/8-inch (10-mm) radius at juncture of cutout edges with top surface of countertop, slightly eased at bottom.

2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.

3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.
4. Counter-Mounted Cooktops: Prepare countertops in shop for field cutting openings for cooktops. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.

2.3 INSTALLATION MATERIALS

A. Adhesive: Product recommended by solid surface material manufacturer.

1. Adhesives shall have a VOC content of [70] or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m). Do not exceed 1/64-inch (0.4-mm) difference between planes of adjacent units.

B. Fasten countertops by adhering with 100-percent silicone material in dab format (not bead format) to base units into underside of countertop at 18 to 24 inches (457 to 610 mm) o.c. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

C. Fasten countertops by adhering with 100-percent silicone material in dab format (not bead format) to base units into underside of countertop at 18 to 24 inches (457 to 610 mm) o.c. Shim as needed to align subtops in a level plane.

D. Secure countertops to subtops or wood-web frame with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

E. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.

1. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.

F. Install backsplashes and end splashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.

G. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

H. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 123661.16

SECTION 235216 - CONDENSING BOILERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes packaged, factory-fabricated and -assembled, gas-fired, water-tube condensing boilers, trim, and accessories for generating hot water.

1.3 SUBMITTALS

A. Product Data: Include performance data, operating characteristics, furnished specialties, and accessories.

B. Source quality-control test reports.

C. Field quality-control test reports.

D. Operation and maintenance data.

E. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. ASME Compliance: Fabricate and label boilers to comply with ASME Boiler and Pressure Vessel Code.

C. UL Compliance: Test boilers for compliance with UL 795, "Commercial-Industrial Gas Heating Equipment." Boilers shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of boilers that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Water-Tube Condensing Boilers: 10 years limited warranty from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AERCO International.
2. Laars Heating Systems; a division of Waterpik Technologies, Inc.
3. Lochinvar Corporation.

2.2 MANUFACTURED UNITS

A. Description: Factory-fabricated, -assembled, and -tested, water-tube condensing boiler with heat exchanger sealed pressure tight, built on a steel base; including insulated jacket; flue-gas vent; combustion-air intake connections; water supply, return, and condensate drain connections; and controls.

B. Heat Exchanger: ASME stainless-steel heat exchangers.

C. Direct Vent;

D. Modulating burner with 5:1 turndown ratio.

E. Combustion Chamber: Stainless steel, sealed.

F. Burner: Natural gas, forced draft drawing from gas premixing valve.

G. Blower: Centrifugal fan to operate during each burner firing sequence and to prepurge and postpurge the combustion chamber.

1. Motors: Comply with requirements specified in Division 23 Section "Common Motor Requirements for HVAC Equipment."

H. Gas Train: Combination gas valve with manual shutoff and pressure regulator.

I. Ignition: Silicone carbide hot-surface ignition that includes flame safety supervision and 100 percent main-valve shutoff.

J. Casing:

1. Jacket: Sheet metal, with snap-in or interlocking closures.
2. Control Compartment Enclosures: NEMA 250, Type 1A.
3. Finish: Textured epoxy.
4. Combustion-Air Connections: Inlet and vent duct collars.
5. Mounting base to secure boiler.

K. Characteristics and Capacities:

1. Heating Medium: Hot water.
2. Design Water Pressure Rating: 160 psig.
3. Minimum Thermal Efficiency: 95 percent.

2.3 TRIM

A. Safety Relief Valve: ASME rated.

B. Pressure and Temperature Gage: Minimum 3-1/2-inch- diameter, combination water-pressure and -temperature gage. Gages shall have operating-pressure and -temperature ranges so normal operating range is about 50 percent of full range.

2.4 CONTROLS

A. Refer to Division 23 Section "Instrumentation and Control for HVAC."

B. Boiler operating controls shall include the following devices and features:

1. Control transformer.
2. Flow switch
3. Direct spark ignition
4. Low NOX operation
5. Full modulation controls with 5:1 turndown.
6. Outdoor reset

C. Include automatic, alternating-firing sequence for multiple boilers to ensure maximum system efficiency throughout the load range and to provide equal runtime for boilers.

D. Burner Operating Controls: To maintain safe operating conditions, burner safety controls limit burner operation.

1. High Cutoff: Manual reset stops burner if operating conditions rise above maximum boiler design temperature.
2. Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low water. Cutoff switch shall be manual-reset type.
3. Blocked Inlet Safety Switch: Manual-reset pressure switch field mounted on boiler combustion-air inlet.
4. Audible Alarm: Factory mounted on control panel with silence switch; shall sound alarm for above conditions.

E. Building Automation System Interface: Factory install hardware and software to enable building automation system to monitor, control, and display boiler status and alarms.

1. A communication interface with building automation system shall enable building automation system operator to remotely control and monitor the boiler from an operator workstation. Control features available, and monitoring points displayed, locally at boiler control panel shall be available through building automation system.

2.5 ELECTRICAL POWER

A. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in Division 26 Sections.

B. Single-Point Field Power Connection: Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to boiler.

2.6 VENTING KITS

A. Kit: Complete system, ASTM A 959, Type 29-4C stainless steel, pipe, vent terminal, thimble, indoor plate, vent adapter, condensate trap and dilution tank, and sealant.

B. Combustion-Air Intake: Complete system, stainless steel, pipe, vent terminal with screen, inlet air coupling, and sealant.

C. Neutralization system: complete condensate trap and dilution tank.

D. Polypropylene venting and combustion air piping may be used instead of stainless steel. Pipe must be ULC-S636 listed and with an operating temperature of 230°F. Acceptable manufacturer is DuraVent.

2.7 SOURCE QUALITY CONTROL

A. Burner and Hydrostatic Test: Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve combustion efficiency; perform hydrostatic test.

PART 3 - EXECUTION

3.1 BOILER INSTALLATION

A. Install boilers level on concrete base. Concrete base is specified in Division 23 Section "Common Work Results for HVAC," and concrete materials and installation requirements are specified in Division 03.

B. Install gas-fired boilers according to NFPA 54.

C. Assemble and install boiler trim.

D. Install electrical devices furnished with boiler but not specified to be factory mounted.

E. Install control wiring to field-mounted electrical devices.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to boiler to allow service and maintenance.

C. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.

D. Connect piping to boilers, except safety relief valve connections, with flexible connectors of materials suitable for service. Flexible connectors and their installation are specified in Division 23 Section "Common Work Results for HVAC."

E. Connect gas piping to boiler gas-train inlet with union. Piping shall be at least full size of gas train connection. Provide a reducer if required.

F. Connect hot-water piping to supply- and return-boiler tappings with shutoff valve and union or flange at each connection.

G. Install piping from safety relief valves to nearest floor drain.

H. Boiler Venting:

1. Install flue venting kit and combustion-air intake.
2. Connect full size to boiler connections.

I. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

J. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. Perform installation and startup checks according to manufacturer's written instructions.
2. Leak Test: Hydrostatic test. Repair leaks and retest until no leaks exist.
3. Operational Test: Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

a. Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level, and water temperature.
b. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

C. Remove and replace malfunctioning units and retest as specified above.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain boilers. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 235216

SECTION 260534 - VOICE AND DATA COMMUNICATIONS SYSTEM

PART 1. GENERAL

A. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

B. SUMMARY

1. This Section includes a turn-key cable and outlet installation. The contractor shall provide all raceway, cable management, outlet boxes, equipment mounting racks / boxes, cabling, jacks, cover plates, patch panels, terminations, and testing as required for a fully functional installation as noted on plans and within these specifications.

2. The contractor shall route horizontal cables from each workstation outlet to the nearest telecom closet in the area.

3. All cable ends shall be connected and tested and ready for connection to owner provided electronic equipment.

4. Contractor shall install fiber from the MDF room to the IDF room(s) as required to extend the network.

5. All work shall be coordinated with the owner's IT representative prior to rough-in.

C. SUBMITTALS

1. Submit the following:

a) Product data for voice/data transmission media, cable management systems, and all equipment.

b) Installer and Testing Personnel Qualifications: Submit documentation demonstrating that personnel performing structured cabling installation, termination, and testing are qualified and experienced in the types of copper and fiber-optic cabling and field certification testing specified.

c) Field test reports indicating and interpreting test results.

d) Maintenance data for cables to include in the "Operating and Maintenance Manual."

D. QUALITY ASSURANCE

1. Installer Qualifications: Structured cabling installation and testing shall be performed by qualified personnel experienced in the installation, termination, and testing of the types of copper and fiber-optic cabling specified.

2. Testing Personnel Qualifications: Testing personnel shall be qualified and experienced in the operation of the field certification test equipment and testing procedures required for the installed cabling system. Testing may be performed by qualified technicians employed by the structured cabling installer.

3. Comply with NFPA 70, "National Electrical Code," for components and installation.

4. Listing and Labeling: Provide products specified in this Section that are listed and labeled where required.

5. Single-Source Responsibility: All cable of each kind shall be the product of a single manufacturer.

PART 2. PRODUCTS

A. MANUFACTURERS

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

a) Structured Cable:
(1) Hubbell
(2) Belden Division, Cooper Industries.
(3) CommScope
(4) Leviton
(5) Panduit

b) Equipment Racks
(1) Panduit PanZone
(2) Chatsworth
(3) Hubbell
(4) Legrand

B. COMMUNICATIONS CABLE

1. Cable Specification: All communications cables shall be plenum rated. Manufacturers and model numbers of equipment have been specified only to establish a standard of quality.

a) Plenum rated category 6A. Number of cables per outlet is shown on plans. If not indicated, provide 2 cables minimum per outlet.

(1) Applicable ANSI/TIA-568 Standards

(2) Category 6a UTP (unshielded twisted pair), Listed.

(3) 4 twisted pair 23 Gauge Solid Copper

(4) 100 Ohm Impedance

b) Plenum rated single mode fiber optic cable with the number of fibers as indicated on drawings (12-strand minimum). Fiber cable shall be installed in conduit, or where in orange, plenum rated duct between IT rooms where installed above lay-in ceilings.

C. EQUIPMENT RACKS

1. Two-post, freestanding, floor mounted, modular-steel units designed for telecommunications terminal support and coordinated with dimensions of 19" units to be supported. All racks shall be grounded to the telecommunications ground bar.

a) Approximate Module Dimensions: 84" inches high, 24" wide.

b) Finish: Baked-polyester powder coat.

2. Four-post, freestanding, floor mounted, welded steel units designed for telecommunications terminal support and coordinated with dimensions of units to be supported. All racks shall be grounded to the telecommunications ground bar.

a) Approximate Module Dimensions: 84 inches high, 24" wide with 35 – 41" depth range.

b) Front to rear adjustable rear mounting rails to match equipment mounting requirements. Top mount, waterfall, cable management. Open design for unrestricted air flow.

c) Finish: Baked-polyester powder coat.

3. Spare Rack Capacity: Coordinate rack equipment layout with the Owner's IT representative prior to installation. Reserve sufficient rack space for Owner-furnished network switches and other Owner-furnished equipment. After installation of all Contractor-furnished and Owner-furnished equipment anticipated for this project, provide a minimum of 20 percent spare rack-unit (RU) capacity in each rack for future equipment.

4. Power: Provide one 20-amp power distribution unit (PDU) for each equipment rack. Mount PDU vertically at the rear side of the rack. Coordinate mounting location with cable management and Owner-furnished equipment. Provide

sufficient receptacles to serve equipment installed in the rack plus a minimum of 20 percent spare receptacle capacity.

5. UPS: UPS equipment serving Owner network electronics will be Owner-furnished.

6. Cable management:

   a) Front of the rack: Provide horizontal cable management in the very top position of the rack and then position another device between each patch panel. Provide vertical management device on rack as shown on drawings. Provide double vertical management between racks.

   b) Rear of the rack: Provide horizontal cable management device between every two patch panels. Provide vertical cable management device on both sides of the rack as shown on drawings.

   c) Enclosed cable management shall be non-metallic.

7. Patch Panels: Provide 19-inch rack-mounted Category 6A patch panels and associated Category 6A connectivity compatible with the specified structured cabling system. Patch panels and associated connectivity shall be rated for and support IEEE 802.3 Power-over-Ethernet (PoE) applications. Provide patch panels in quantities and port capacities as required to terminate all cables indicated on the drawings, plus a minimum of 20 percent spare port capacity for future connections. PoE power for wireless access points, VoIP phones, and other PoE devices will be provided by Owner-furnished network equipment or other Owner-furnished PoE power sourcing equipment. Patch panels with integral PoE power supplies or other active electronics are not required.

D. VOICE/DATA OUTLETS

1. Two-gang box with single gang flush faceplate with 4 single port modules equipped with blanks as required – see plans for number of outlets at each location. Suitable for use with snap-in jacks accommodating any combination of UTP, optical fiber, and coaxial work area cords. High-impact plastic of color to be coordinated with Division 26 Section "Wiring Devices".

2. Workstation Outlets: See plans for number of port-connector assemblies to be mounted in faceplate. Jacks shall be flush mounted, capable of T568A or B universal wiring, CAT 6A component compliant, and PoE compatible. Provide with secure strain relief, positive snap latching and dust cover.

3. Outlet Identification: All outlets shall be permanently labeled using the cable identification method detailed below. All outlet labeling shall be performed using a labeling machine

4. Provide concealed 1” conduit from each communications outlet box location to

cable tray mounted above corridor ceiling.

E. HORIZONTAL CABLE MANAGEMENT

1. Provide conduit complete from outlet to cable tray.

2. Cable Tray:

a. 12-inch-wide continuous wire-mesh cable tray constructed of welded steel wire with nominal 2-inch by 2-inch mesh spacing and minimum 4-inch side height.

b. Provide all supports, connectors, couplers, elbows, tees, level transitions, etc. for a complete continuous and bonded system.

c. Installation and supports shall be in accordance with manufacturer's installation instructions. Final installation shall be free of burs and sharp edges.

F. TELECOMMUNICATIONS ROOM

1. Provide bushings on ends of all conduit. Provide pull strings in all spare conduits.

2. Provide 3/4" fire retardant plywood in each IT room where any new equipment is shown on plans.

3. Bonding shall be with No. 6AWG copper conductor in 3/4" conduit with grounding bushings. Bond all equipment back to telecom closet ground bus.

4. Provide ladder and wall mount management rings as required to properly support and dress cables.

G. PATCH CABLES

1. CAT 6A, provide one (1) per wired jack of sufficient length based on location.

PART 3. EXECUTION

A. GENERAL

1. Installation shall include the specified termination, testing, and documentation of all cable. The contractor shall neatly bundle all cables in the closet and label each cable to indicate floor and outlet number per owner's naming scheme for building – field coordinate with owner. All cable shall be labeled both at the termination point in the closet / zone box and at the wall plate at the wall outlet.

2. Cable ends shall be terminated with RJ45 jacks and connected to patch panels.

3. The contractor shall conduct tests outlined below for all cable.

4. All cabling failing to meet the stated minimum specifications shall be replaced by the contractor at no cost to the Owner.

B. EXAMINATION

1. Examine raceways and other elements to receive cable for compliance with cable installation requirements. Do not proceed with installation until unsatisfactory conditions have been corrected.

C. INSTALLATION

1. Install cable as indicated, according to manufacturer's written instructions.

   a) Install transmission media without damaging conductors, shield, or jacket.

   b) Do not bend cable, in handling or installation, to smaller radii than minimum recommended by manufacturer

   c) Make no splices in telecommunications cables.

2. Pull cables without exceeding cable manufacturer's recommended pulling tensions.

   a) Pull cables simultaneously where more than one is being installed in same raceway.

   b) Use pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation.

   c) Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage media or raceway

3. Bond shields and drain conductors to ground at only one point in each circuit.

   a) Connect components to wiring system and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torque requirements are not indicated, tighten connectors and terminals according to torque specified in UL Standard 486A.

4. Cable Identification: All cable shall be labeled both on the outlet and the telecommunications closet with an alpha/numeric identification code to match the existing building format. Coordinate identification scheme with owner.

5. Distribution System

   a) Communications Outlet Box: Recessed outlet boxes shall be used for voice and data services. Outlet boxes shall be 4”X4”X2-1/8” deep and have a single gang plaster ring to and single gang cover plate.

b) Provide 1” minimum conduit from box to nearest cable tray above accessible ceilings or into telecom closet if closer.

c) Install conduit concealed in walls or above ceilings, parallel and perpendicular to surfaces and structural members. Coordinate with other new and existing systems to provide access as required and so that access to junction boxes and above ceiling equipment is not impeded.

d) Provide conduit sleeves as shown on drawings and above hard or inaccessible ceilings and through all wall penetrations. Fire seal all sleeve penetrations through rated walls.

e) If more than two 90-degree bends or a linear distance exceeding 100 feet are required, a pull box must be installed and the locations of pull boxes shall be shown as installed in the contractor red-line drawings.

f) The use of LB, LL and LR fittings is not allowed. Outlets shall not be looped in the same run of conduit.

g) Grounding: All vertical and horizontal metallic distribution systems must be grounded (#6AWG minimum) in accordance with National Electric Code Article 250.

h) Demolition: At end of project all old, unused cable shall be demolished complete.

6. Communications Closets:

a) Provide 3/4” Fire-retardant plywood fully lining all walls of MDF room and one wall of IDF rooms to a height of 9’ feet and beginning at 1’ above floor level. Provide cut-outs as required for receptacles in existing closets. Coordinate locations with owner.

b) Provide copper telecommunications ground bus on wall near ceiling of each IT closet. Bond each IDF room ground bus to MDF room ground bus. Bond MDF ground bus to electrical service main grounding electrode. Bonding shall be with No. 6AWG copper conductor in 3/4” conduit with grounding bushings on each end of conduit.

D. QUALITY CONTROL

1. Testing Personnel: Testing may be performed by qualified technicians employed by the structured cabling installer. Perform testing using calibrated field certification test equipment appropriate for the installed cabling system. Submit testing personnel qualifications and complete electronic test reports for all installed copper and fiber-optic cabling to the Owner and Engineer for review.

2. Testing: Upon installation of cable and before energizing, demonstrate product capability and compliance with requirements.

a) Copper Cable Procedures: Inspect installed cabling and terminations for physical damage and proper installation. Test 100 percent of installed Category 6A copper cabling using a calibrated field certification tester suitable for Category 6A cabling.

b) Testing shall be performed end-to-end as a permanent-link test and shall include the horizontal cable, telecommunications outlet termination, and patch-panel termination.

c) Test Category 6A cabling for compliance with the applicable ANSI/TIA-568 requirements for Category 6A permanent-link performance. Test all parameters required by the applicable standard.

d) Configure the field certification tester for the installed cable and connectivity type and the applicable Category 6A permanent-link test limit.

e) Each installed permanent link shall receive an overall passing test result. Correct or replace cabling that fails to comply with the specified performance requirements and retest until compliant.

f) Submit complete electronic certification test reports for each installed permanent link. Reports shall identify the cable or outlet designation, test configuration, test limit, overall pass/fail result, individual test results, test equipment manufacturer and model, tester serial number, and date of calibration.

3. Fiber Cable Procedures:

a) Inspect installed fiber-optic cabling, connectors, and terminations for physical damage and proper installation. Test 100 percent of installed fiber strands.

b) Perform optical loss testing of each fiber strand using an optical loss test set (OLTS) in accordance with the applicable ANSI/TIA standards. Test single-mode fiber at 1310 nm and 1550 nm.

c) Perform Optical Time Domain Reflectometer (OTDR) testing of each fiber strand at 1310 nm and 1550 nm. OTDR testing shall identify the location and loss of connectors, splices, and other events along the fiber link.

d) Perform OLTS and OTDR testing in both directions and document the results for each fiber strand.

e) Each installed fiber strand shall comply with the allowable loss requirements of the applicable ANSI/TIA standards and the fiber and connectivity manufacturer's requirements. Correct or replace fiber cabling, connectors, or terminations that fail to comply with the specified performance requirements and retest until compliant.

f) Submit complete electronic test reports for each installed fiber strand. Reports shall identify the cable and fiber-strand designation, test wavelength, test direction, measured loss, applicable loss limit, overall pass/fail result, test equipment manufacturer and model, tester serial number, and date of calibration. Submit OTDR traces with the test reports.

E. CLEANING

1. Upon completion of system installation, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasion. Remove debris from outlet boxes prior to installing devices.

F. DEMONSTRATION / TRAINING

1. Operate systems to demonstrate proper functioning. Replace malfunctioning items.
2. Train Owner's IT personnel on procedures and schedules for start-up and shutdown, troubleshooting, servicing, and preventive maintenance as applicable for equipment installed.
3. Review data in operating and maintenance manuals.
4. Schedule training with Owner, through the Architect, with at least 7 days' advanced notice.
5. Review identification scheme with owner prior to system labeling.
6. Review installation and test results with owner at completion of installation.

END OF SECTION 260534

BID DOCUMENTS ADDENDUM #3

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY DURHAM, NC 27713
DURHAM, NORTH CAROLINA

September 30th, 2026

ARCHITECTURAL	DTW ARCHITECTS & PLANNERS, LTD.
PLUMBING	EDMONDSON ENGINEERS, PA
MECHANICAL	EDMONDSON ENGINEERS, PA
ELECTRICAL	EDMONDSON ENGINEERS, PA
STRUCTURAL	ROSS LINDEN ENGINEERS, PC
LANDSCAPING	CLH DESIGN, PA
AUDIO-VISUAL	J&A ENGINEERING CONSULTANTS
FURNITURE	MARIA LINDQVIST DESIGN, LLC

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AV-201	OVERALL FLOOR PLAN - MAIN BUILDING	●		
AV-301	LARGE SCALES	●		
AV-302	LARGE SCALES - TRAINING ROOMS	●		
AV-303	LARGE SCALES - TRAINING ROOMS - RCP	●		
AV-401	ONE-LINE DIAGRAMS	●		
AV-402	ONE-LINE DIAGRAMS	●		
AV-403	ONE-LINE DIAGRAMS	●		
AV-404	ONE-LINE DIAGRAMS	●		
AV-405	DIAGRAMS	●		
AV-406	DIAGRAMS	●		
AV-501	DETAILS	●		
AV-502	DETAILS	●		
AV-503	DETAILS	●		
AV-504	DETAILS	●		
AV-601	DISPLAY SCHEDULE	●		
▶	PHOTOVOLTAIC SYSTEM SHEETS			
PV-1.1	COVER SHEET	●		
PV-2.1	ELECTRICAL INFORMATION	●		
PV-2.2	ELECTRICAL INFORMATION	●		
PV-2.3	ELECTRICAL INFORMATION	●		
PV-3.1	STRUCTURAL INFORMATION	●		
PV-4.1	EQUIPMENT SPECIFICATIONS	●		
PV-4.2	EQUIPMENT SPECIFICATIONS	●		
▶	FURNITURE SHEETS			
F-1.5	FURNITURE PLAN - OFFICE WING	●		
F-1.6	FURNITURE PLAN - TRAINING WING	●		
F-1.7	FURNITURE PLAN - TRAINING ROOMS	●		
F-1.8	ENLARGED FURNITURE PLAN - LOBBY	●		
F-1.9	ENLARGED FURNITURE PLAN - OFFICE AREA A	●		
F-1.10	ENLARGED FURNITURE PLAN - OFFICE AREA B	●		
F-1.11	ENLARGED FURNITURE PLAN - OFFICE AREA C	●		
F-1.12	ENLARGED FURNITURE PLAN - OFFICE AREA D	●		

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
18004

J. PAUL YOUNG II
REGISTERED
OF
NORTH CAROLINA
11388
ARCHITECT
DURHAM, N.C.
09/30/2026

DTW ARCHITECTS AND PLANNERS, LTD.
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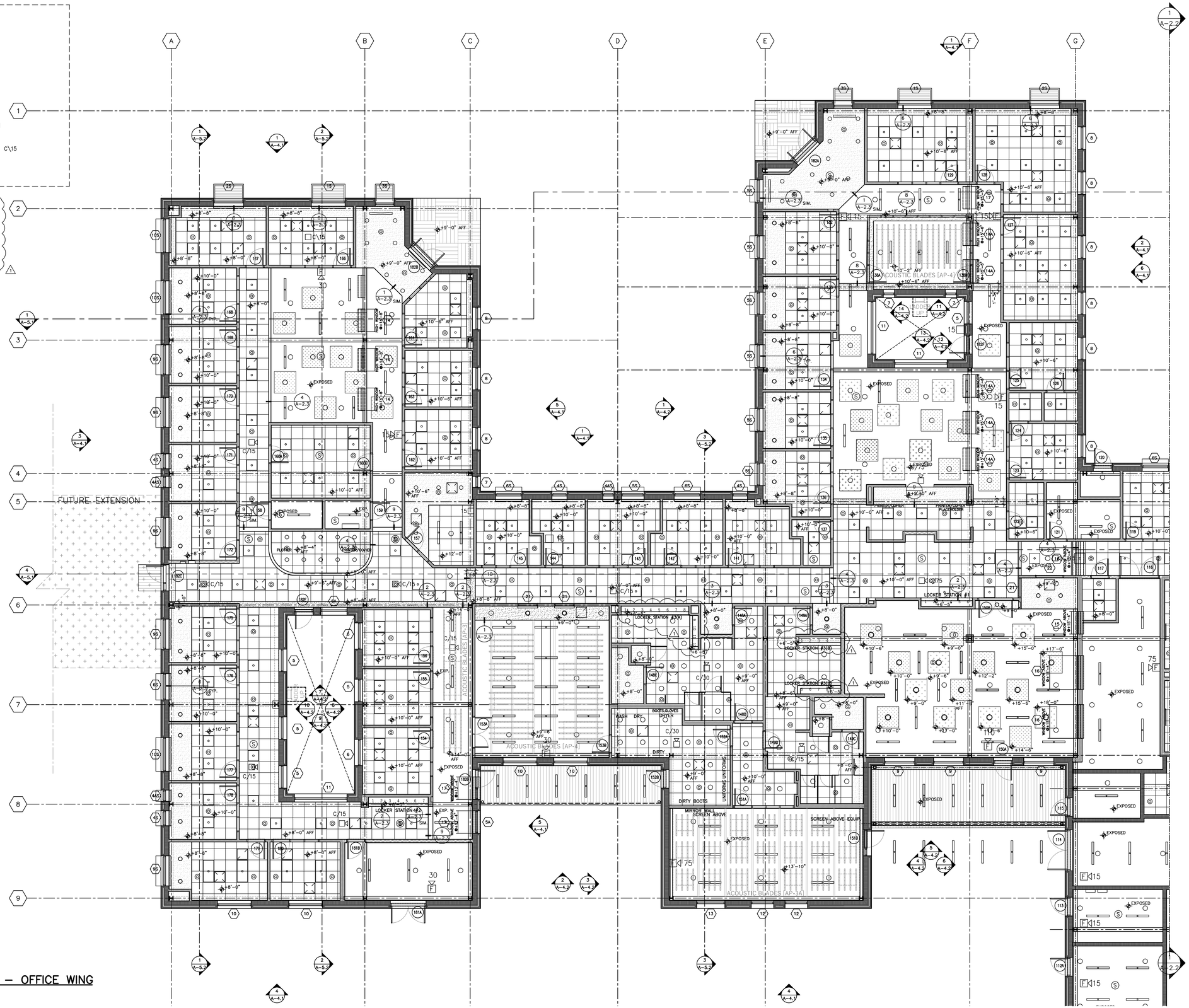
Of

CEILING LEGEND:

- LAY-IN CEILING
- GYP. BOARD; PAINTED
- EXPOSED
- ACOUSTIC PANEL [AP-1]
- ACOUSTIC PANEL/ BLADES [AP-2, AP-3, AP-4]
- EXTERIOR CANOPY

GENERAL NOTE:
(1) FOR MORE INFORMATION & DETAILS ABOUT LOCKER STATION SOFFITS REFER TO A-8.1
(2) EXPOSED DUCTWORK IN 139 BILLING, 150 BREAK ROOM, 161 OPEN SPACE, 182 CORRIDOR IS NOT SHOWN FOR CLARITY. REFER TO MECHANICAL DRAWINGS FOR INFORMATION.



1 CEILING PLAN – OFFICE WING
SCALE: 1/8"=1'-0"

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CEILING PLAN OFFICE WING

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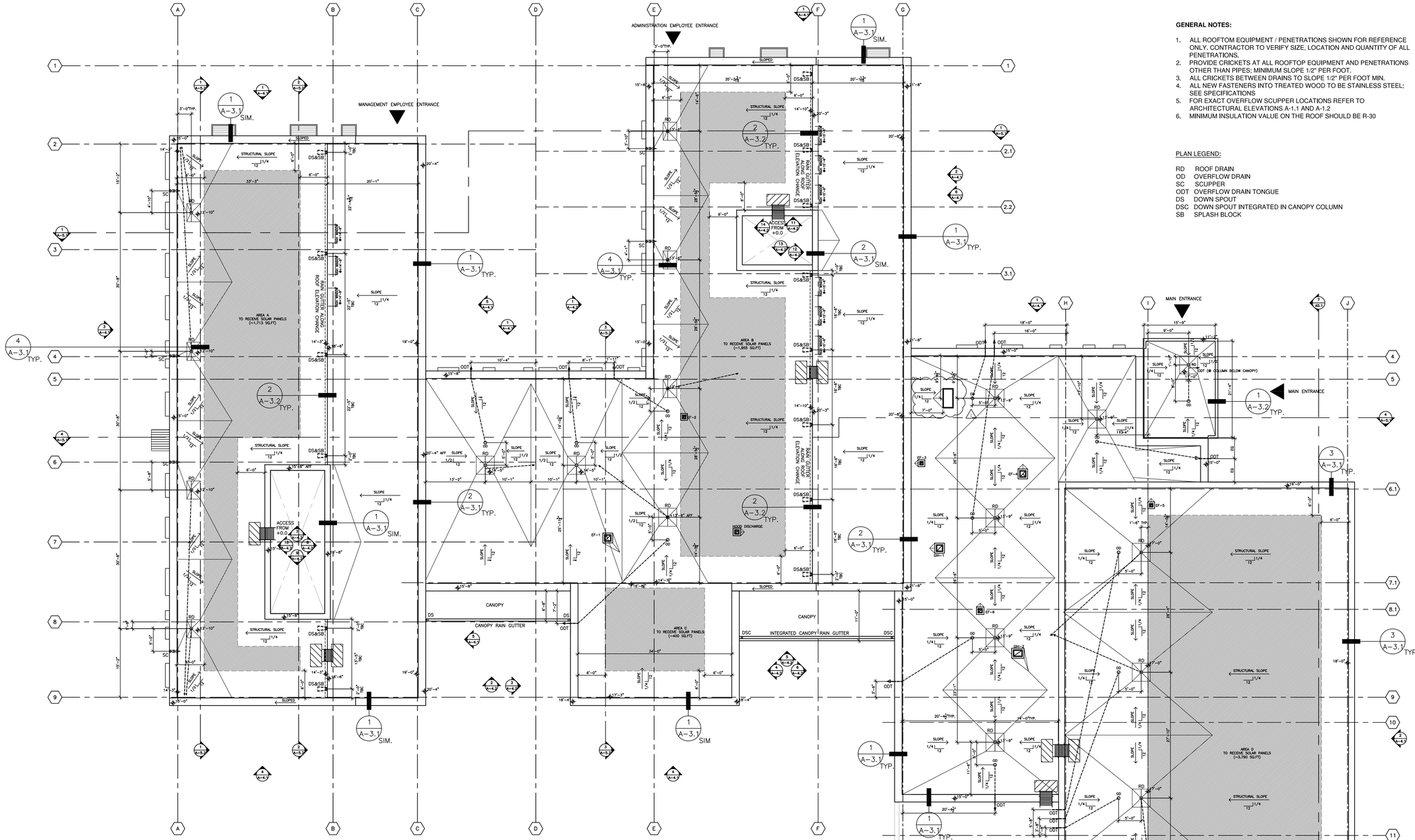
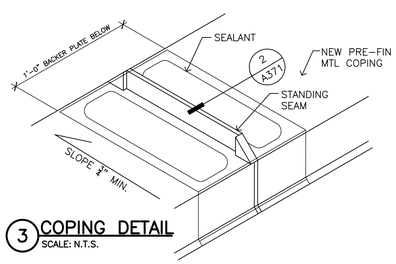
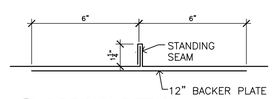


1 FLOOR PLAN – OFFICE & TRAINING BUILDING
SCALE: 3/32"=1'-0"



3 COPING DETAIL
SCALE: N.T.S.



2 COPING DETAIL
SCALE: 3"=1'-0"

GENERAL NOTES:

1. ALL ROOFTOM EQUIPMENT / PENETRATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY SIZE, LOCATION AND QUANTITY OF ALL PENETRATIONS.
2. PROVIDE CRICKETS AT ALL ROOFTOP EQUIPMENT AND PENETRATIONS OTHER THAN PIPES; MINIMUM SLOPE 1/2" PER FOOT.
3. ALL CRICKETS BETWEEN DRAINS TO SLOPE 1/2" PER FOOT MIN.
4. ALL NEW FASTENERS INTO TREATED WOOD TO BE STAINLESS STEEL; SEE SPECIFICATIONS
5. FOR EXACT OVERFLOW SCUPPER LOCATIONS REFER TO ARCHITECTURAL ELEVATIONS A-1.1 AND A-1.2
6. MINIMUM INSULATION VALUE ON THE ROOF SHOULD BE R-30

PLAN LEGEND:

RD ROOF DRAIN
OD OVERFLOW DRAIN
SC SCUPPER
ODT OVERFLOW DRAIN TONGUE
DS DOWN SPOUT
DSC DOWN SPOUT INTEGRATED IN CANOPY COLUMN
SB SPLASH BLOCK

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ROOF PLAN
OFFICE & TRAINING BUILDING

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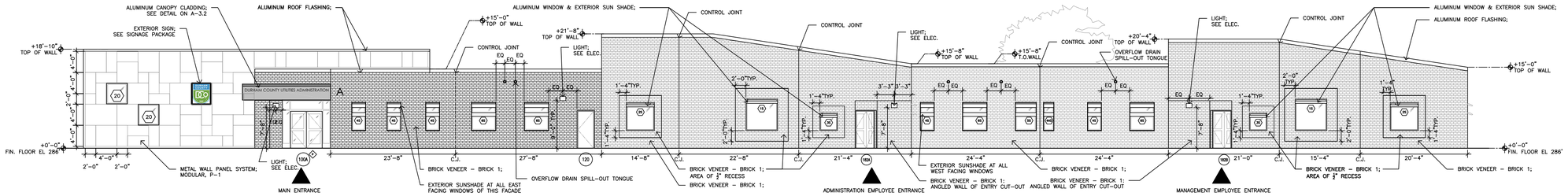
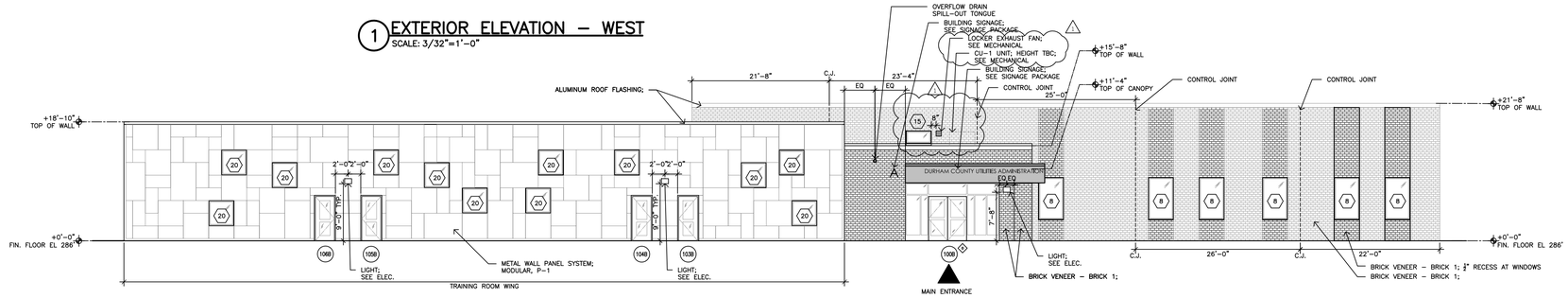
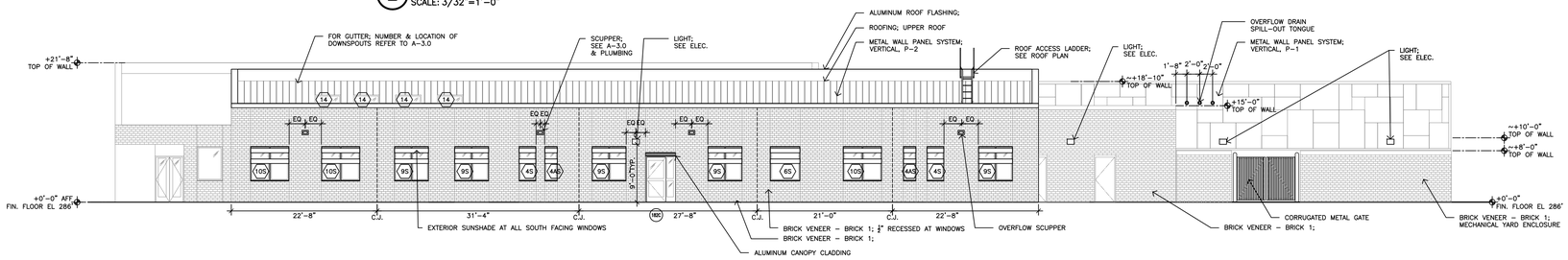


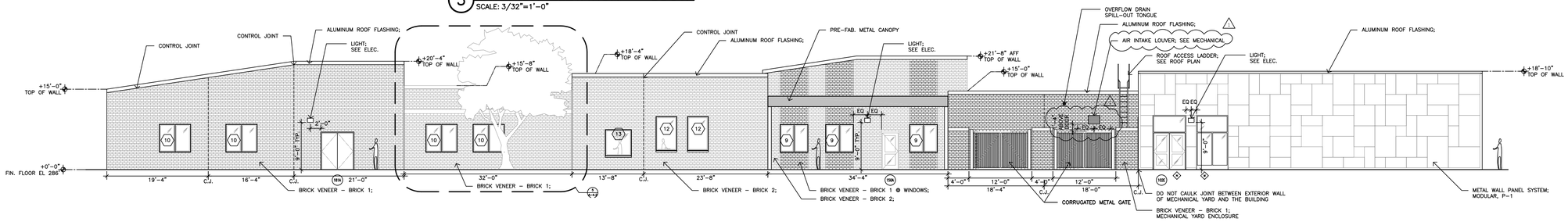
1 EXTERIOR ELEVATION – WEST
SCALE: 3/32"=1'-0"



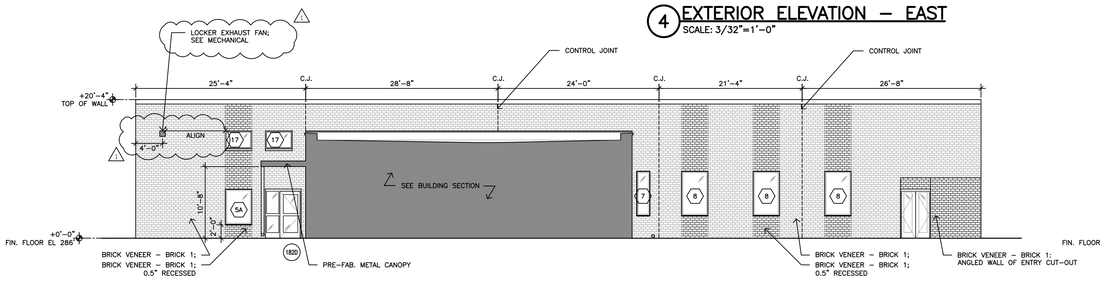
2 EXTERIOR ELEVATION – NORTH
SCALE: 3/32"=1'-0"



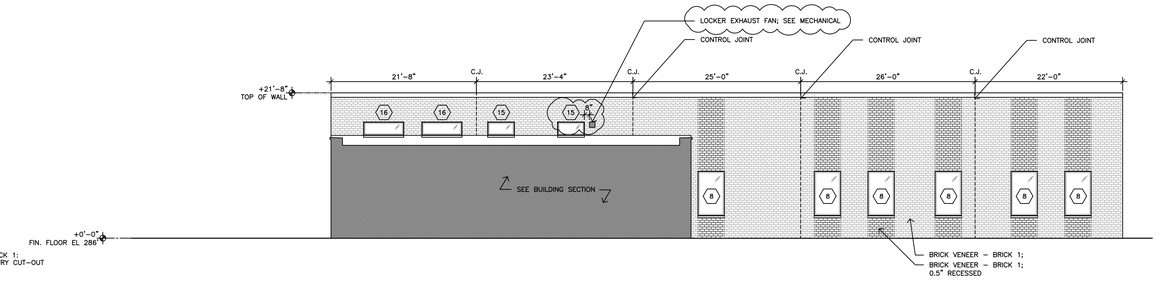
3 EXTERIOR ELEVATION – SOUTH
SCALE: 3/32"=1'-0"



4 EXTERIOR ELEVATION – EAST
SCALE: 3/32"=1'-0"



5 EXTERIOR ELEVATION – NORTH OFFICE WING 2
SCALE: 3/32"=1'-0"



6 EXTERIOR ELEVATION – NORTH OFFICE WING 1
SCALE: 3/32"=1'-0"

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EXTERIOR ELEVATIONS OFFICE & TRAINING BUILDING

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

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J. PAUL YOUNG II REGISTERED OF NORTH CAROLINA 11388 ARCHITECT DURHAM, N.C.
09/30/2026

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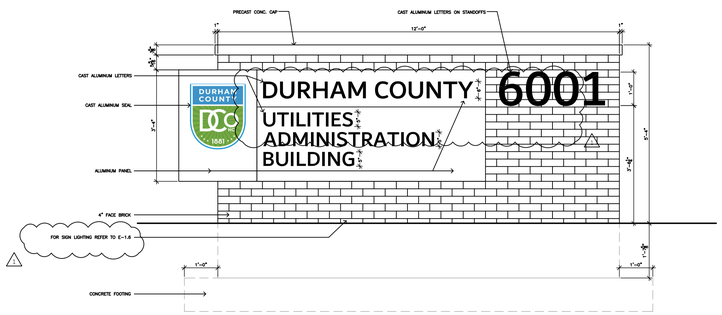
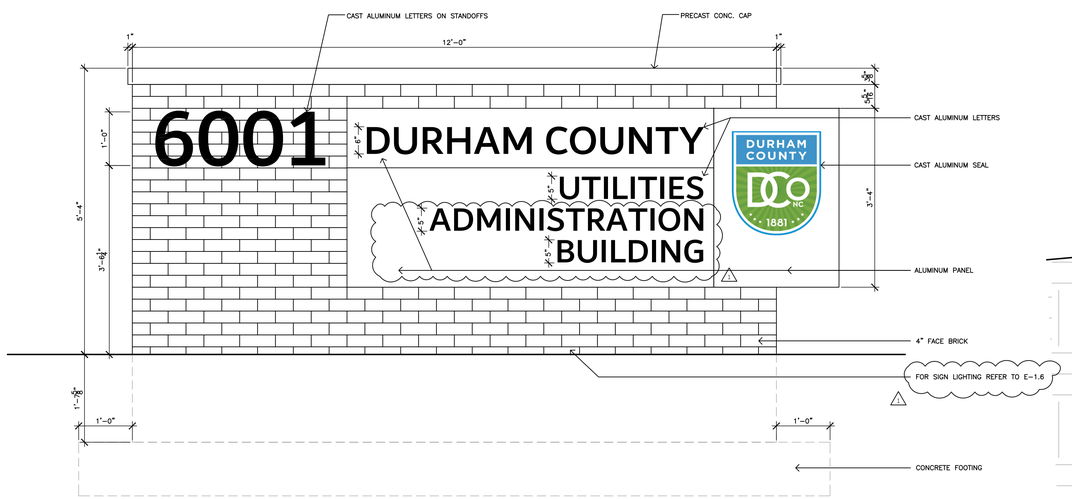


1 SIGNAGE ELEVATION
SCALE: 3/4"=1'-0"



2 SIGNAGE ELEVATION
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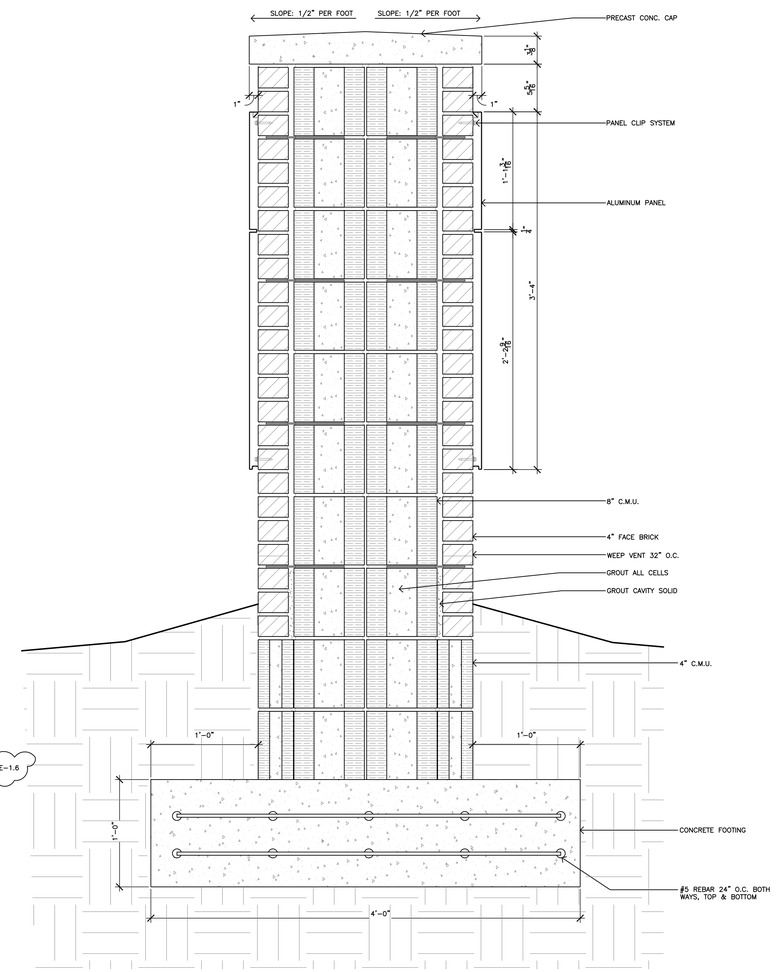

3 SECTION DETAIL
SCALE: 1 1/2"=1'-0"

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SITE SIGNAGE DETAILS

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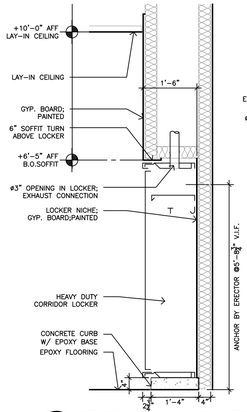

1A SECTION – LOCKER STATION#1
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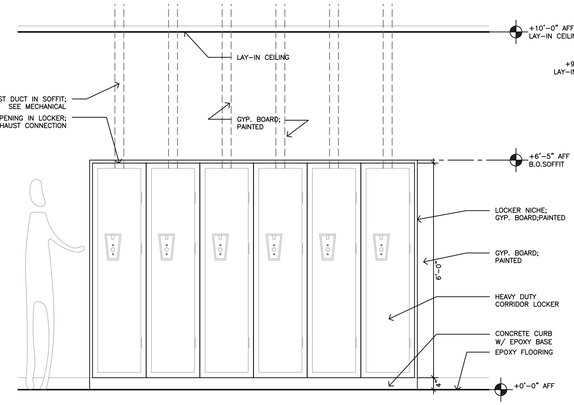
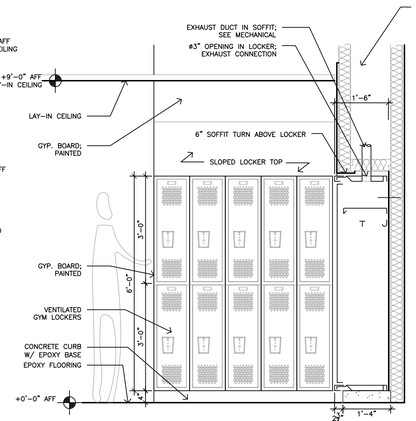


1B ELEVATION – LOCKER STATION#1
SCALE: 1/2"=1'-0"



3A ELEVATION – LOCKER STATION #3(A)
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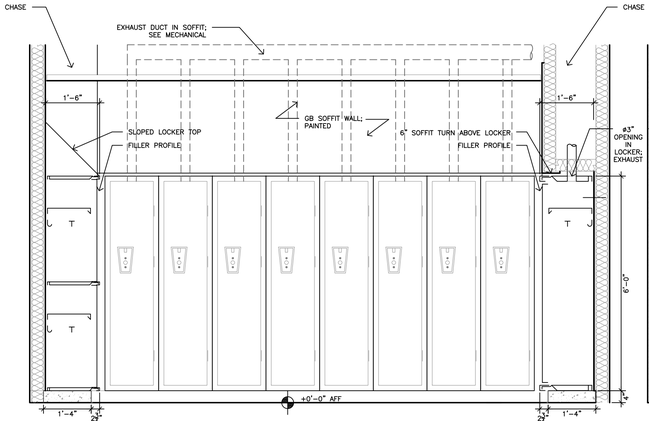
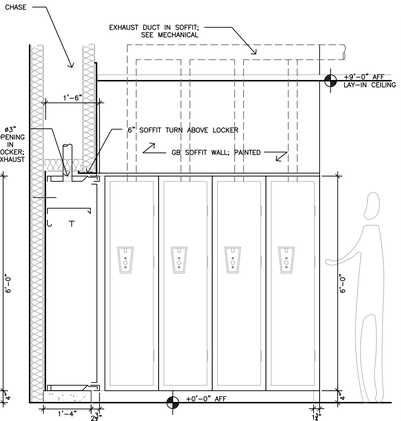
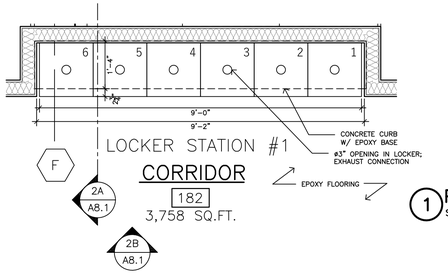


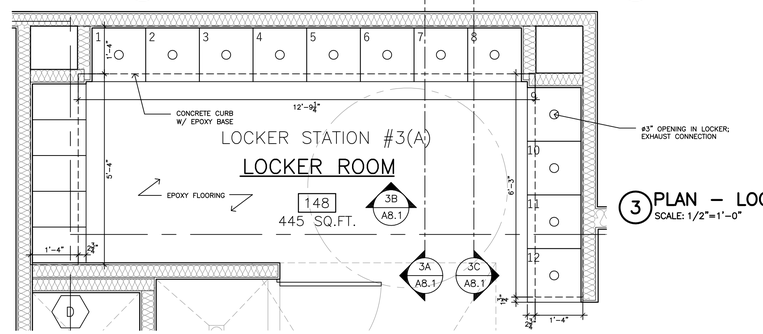
3B ELEVATION – LOCKER STATION #3(A)
SCALE: 1/2"=1'-0"



3C ELEVATION – LOCKER STATION #3(A)
SCALE: 1/2"=1'-0"



1 PLAN – LOCKER STATION #1
SCALE: 1/2"=1'-0"



3 PLAN – LOCKER STATION #3(A)
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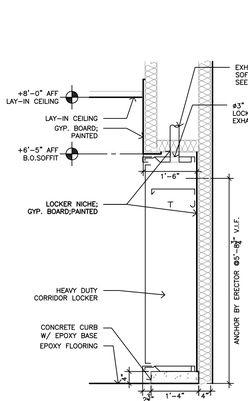

2A SECTION – LOCKER STATION #2
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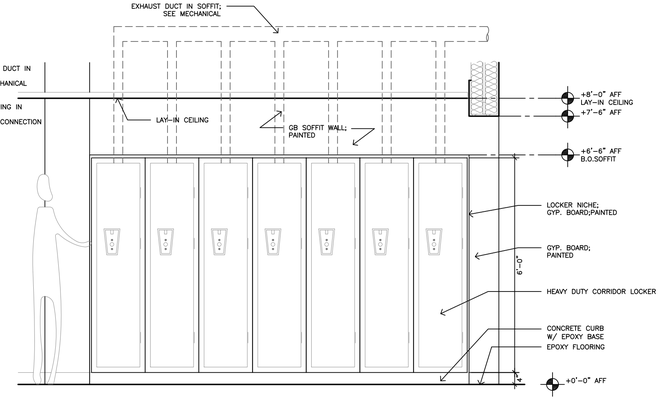
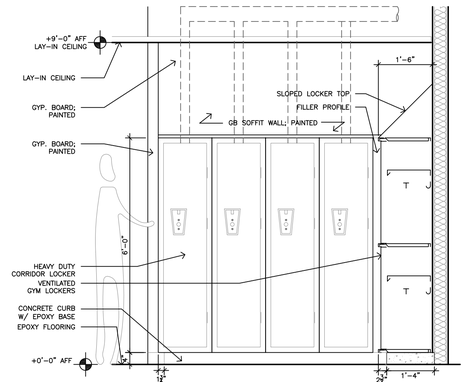


2B ELEVATION – LOCKER STATION #2
SCALE: 1/2"=1'-0"



4A ELEVATION – LOCKER STATION #3(B)
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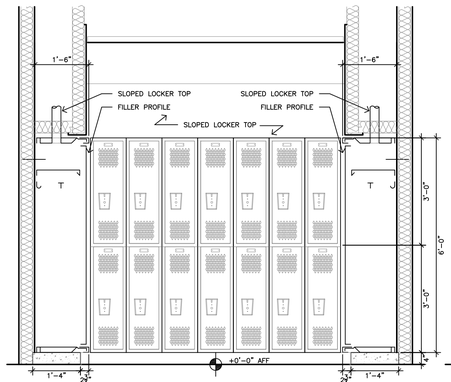

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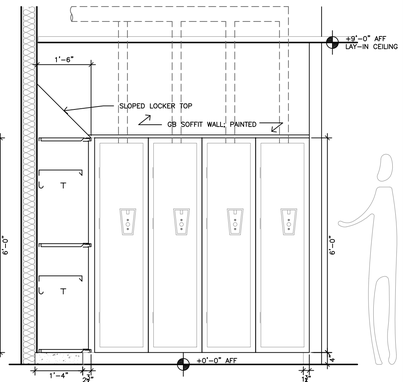

4C ELEVATION – LOCKER STATION #3(B)
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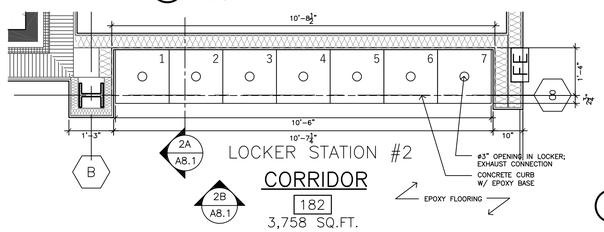
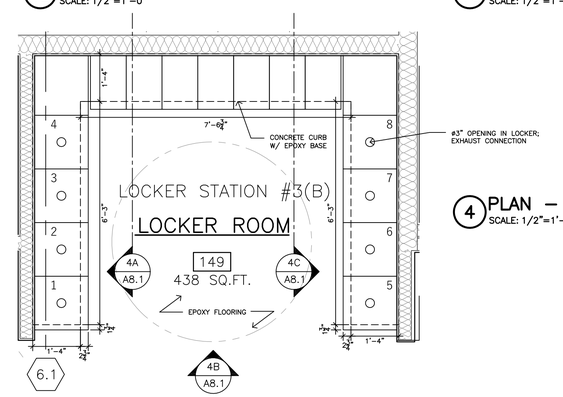


2 PLAN – LOCKER STATION #2
SCALE: 1/2"=1'-0"



4 PLAN – LOCKER STATION #3(B)
SCALE: 1/2"=1'-0"

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DETAILS
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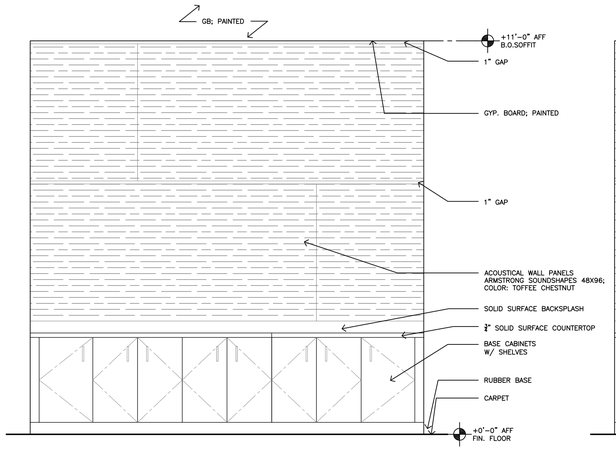
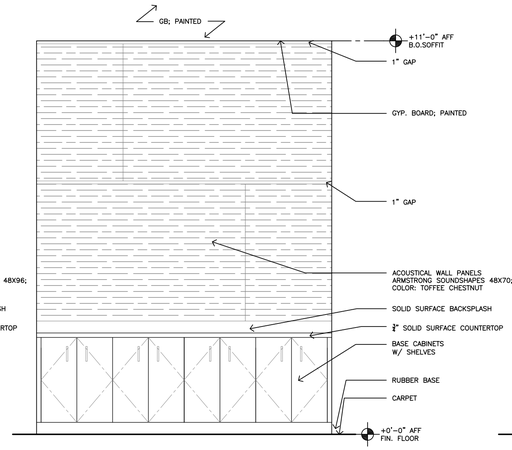
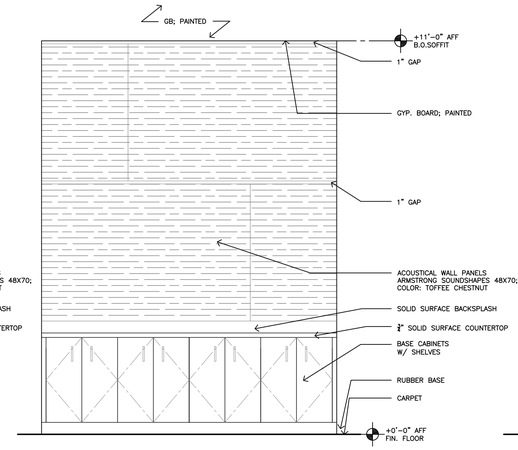


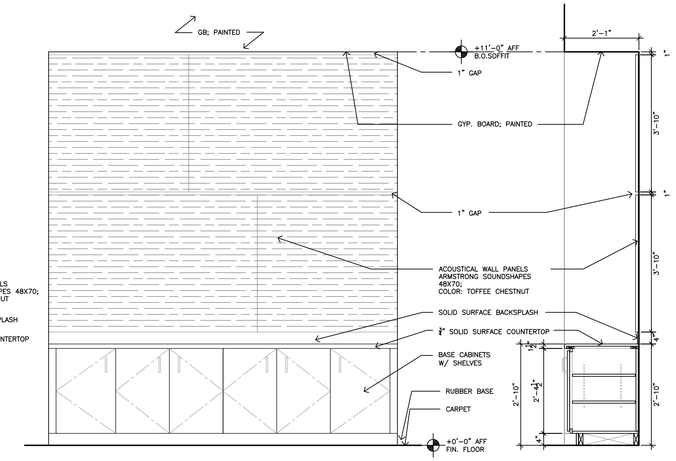
1A CASEWORK ELEVATION – TRAINING ROOM 106
SCALE: 1/2"=1'-0"



2A CASEWORK ELEVATION – TRAINING ROOM 105
SCALE: 1/2"=1'-0"

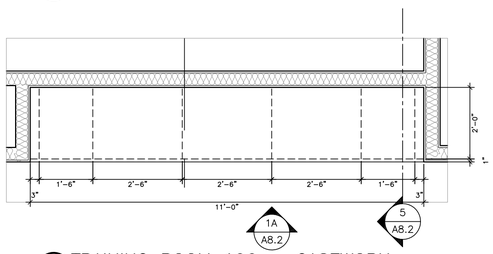


3A CASEWORK ELEVATION – TRAINING ROOM 104
SCALE: 1/2"=1'-0"

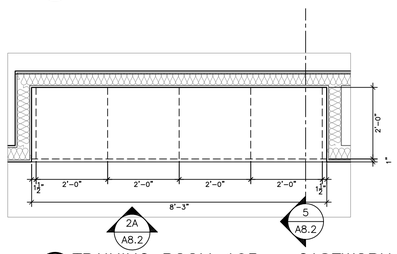


4A CASEWORK ELEVATION – TRAINING ROOM 103
SCALE: 1/2"=1'-0"

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



1 TRAINING ROOM 106 – CASEWORK
SCALE: 1/2"=1'-0"



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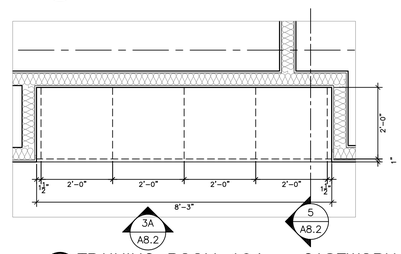

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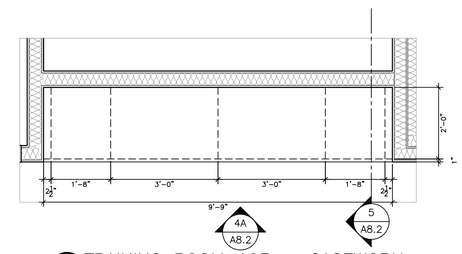
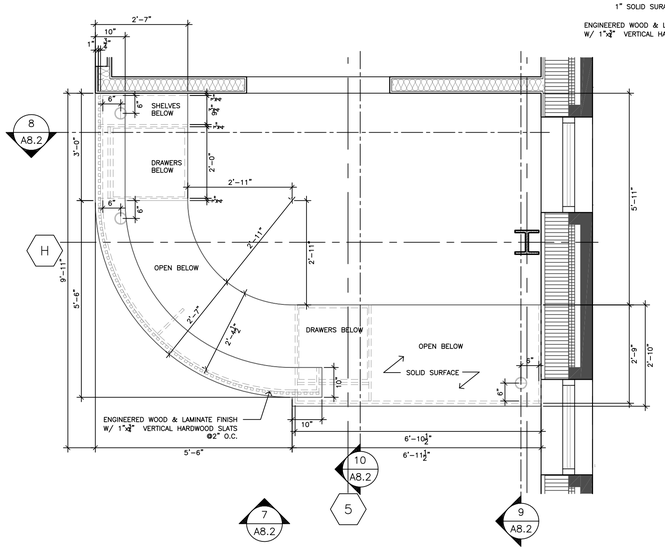
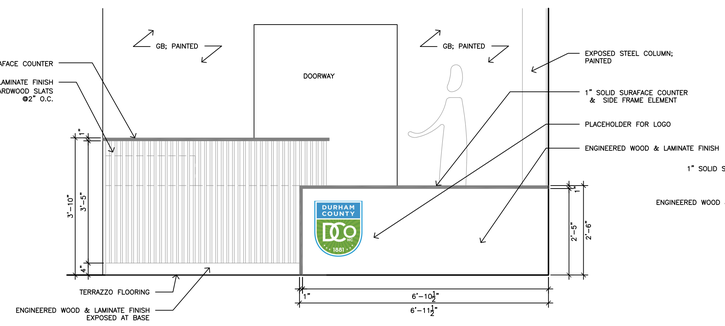


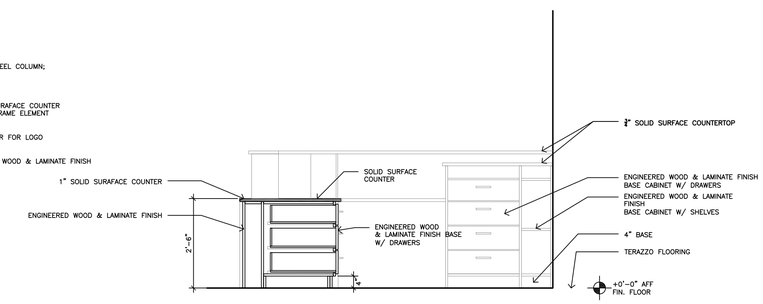
4 TRAINING ROOM 103 – CASEWORK
SCALE: 1/2"=1'-0"



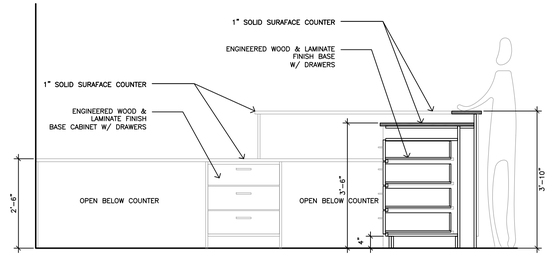
6 PLAN – LOBBY DESK
SCALE: 1/2"=1'-0"



7 LOBBY DESK – ELEVATION
SCALE: 1/2"=1'-0"



9 LOBBY DESK – SECTION
SCALE: 1/2"=1'-0"



8 LOBBY DESK – SECTION
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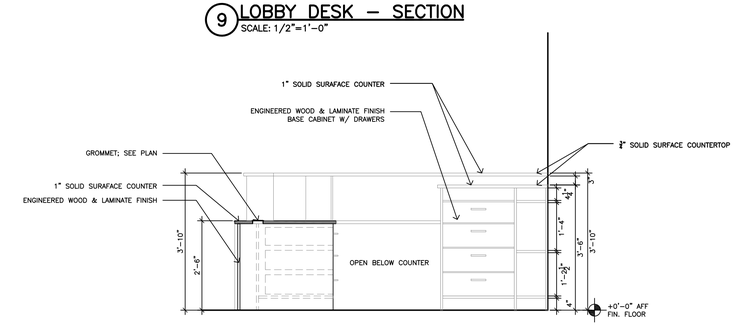

10 LOBBY DESK – SECTION
SCALE: 1/2"=1'-0"

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DETAILS
TRAINING ROOM CASEWORK
TRAINING ROOM LOBBY DESK

BID DOCUMENTS

DURHAM
COUNTY
UTILITIES
ADMINISTRATION
BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
18004

J. PAUL YOUNG II
REGISTERED
OF
NORTH CAROLINA
11388
ARCHITECT
DURHAM, N.C.
09/30/2026

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Date 2026-08-31
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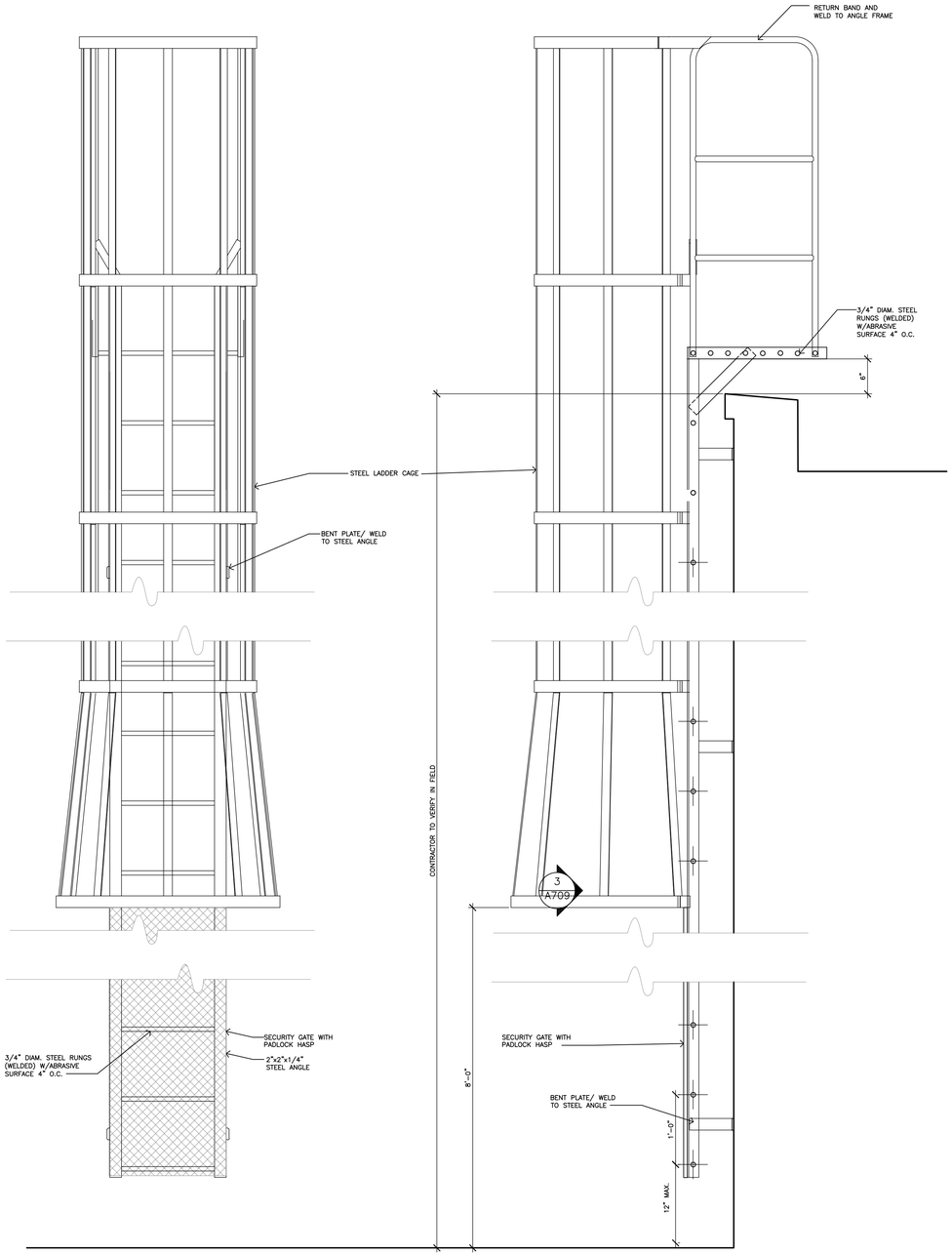
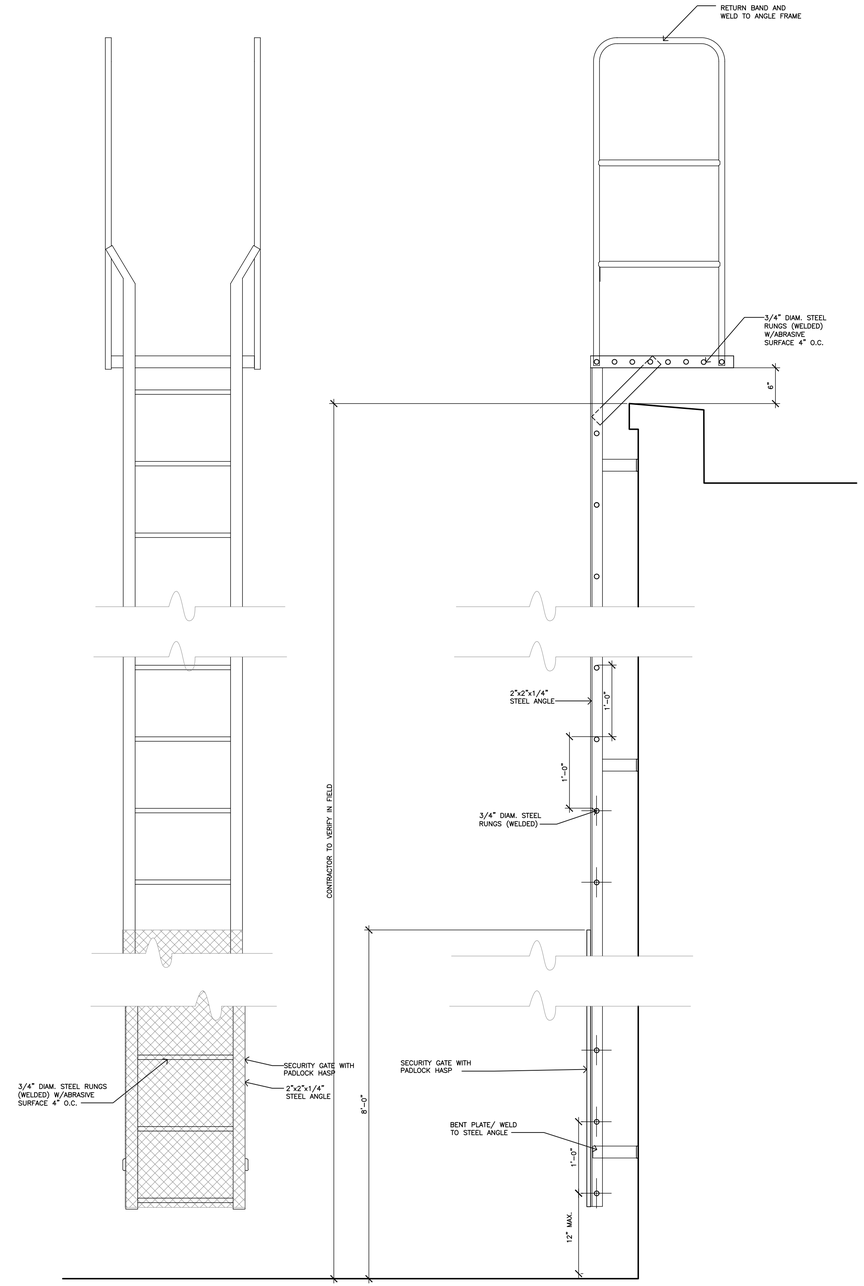
A-8.2
Of



2 WAREHOUSE LADDER WITH CAGE
SCALE: 1"=1'-0"



1 TYPE A LADDER SECTION
SCALE: 1"=1'-0"

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DETAILS
ROOF ACCESS LADDERS

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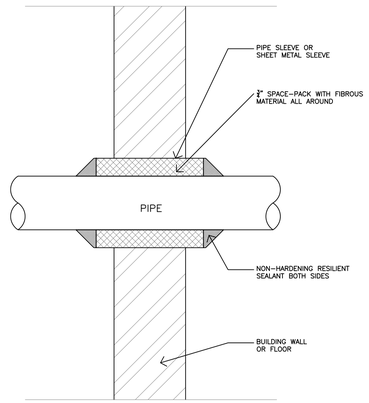
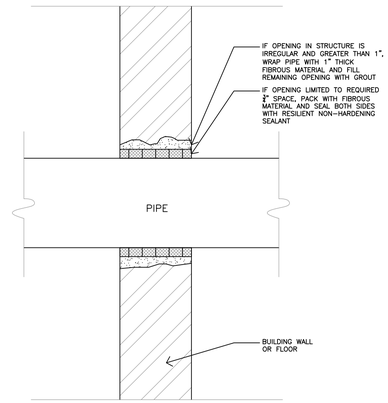
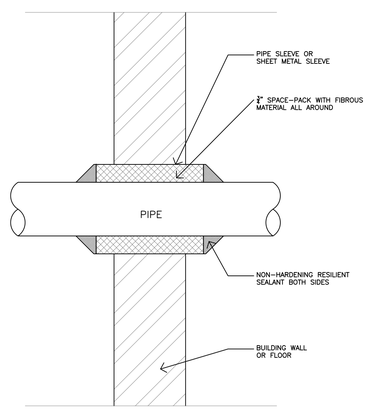


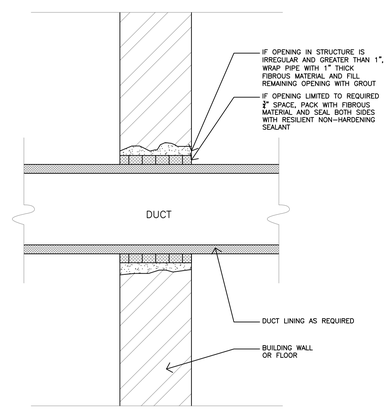
1 TYPICAL WALL PENETRATION DETAIL–PLUMBING
SCALE: N/A
NON-FIRE OR SMOKE RATED WALLS



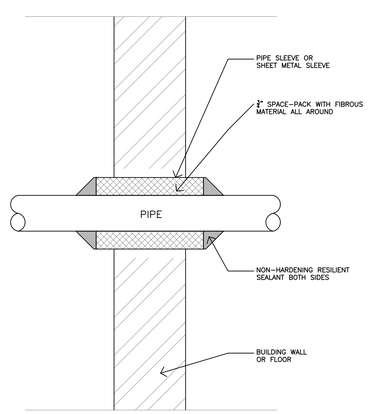
2 TYPICAL WALL PENETRATION DETAIL–PLUMBING
SCALE: N/A
NON-FIRE OR SMOKE RATED WALLS
IRREGULAR OR LARGE OPENINGS



3 TYPICAL WALL PENETRATION DETAIL–MECHANICAL
SCALE: N/A
NON-FIRE OR SMOKE RATED WALLS



4 TYPICAL WALL PENETRATION DETAIL–MECHANICAL
SCALE: N/A
NON-RATED OR SMOKE TIGHT
IRREGULAR OR LARGE OPENINGS



1 TYPICAL WALL PENETRATION DETAIL–FIRE PROTECTION
SCALE: N/A

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WALL PENETRATION DETAILS

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6001 NC 55 HWY
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27713

PROJECT NUMBER
18004

J. PAUL YOUNG II
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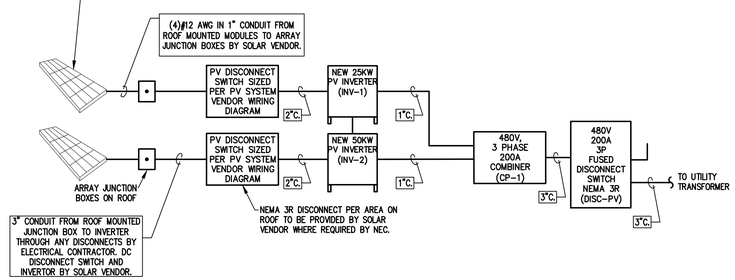
PV MODULES	
QUANTITY	171
MAKE	HYUNDAI
MODEL	HIN-T595NI
TECHNOLOGY	MONO-CRYST.
NOM. POWER (Pnom)	595 WATTS
NOM. VOLT. (Vmp)	45.4 VOLTS
O.C. VOLT. (Voc)	52.1 VOLTS
MAX. SYS. VOLT.	1500 V (UL)
TEMP. COEF. (Vtc)	-0.25 %/°C
NOM. CURR. (Imp)	13.72 AMPS
S.C. CURR. (Isc)	14.53 AMPS
MAX. SERIES FUSE	30 AMPS

PHOTOVOLTAIC VENDOR PROVIDED DATA FOR PROPOSED SOLAR SYSTEM DESIGN.

SOLAR SYSTEM - BUILDING MOUNTED SYSTEM - ROOFTOP

SOLAR SYSTEM ARRAY (171, 590W MODULES). ROOF MOUNTED SYSTEM WILL BE PROVIDED BY OWNER'S VENDOR. ALL ROUGH-IN TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR AND IS INCLUDED IN THE BASE-BID CONTRACT. ROUGH-IN INCLUDES CONDUIT AND BOXES AND DISCONNECT SWITCH AT TRANSFORMERS. PROVIDE JUNCTION BOXES AT EVERY LOCATION WHERE FUTURE PV EQUIPMENT TO BE INSTALLED – ROOF AND MECHANICAL YARD. (SEE POWER PLANS FOR LOCATIONS).

EXACT PANEL LAYOUT & QUANTITY, CIRCUITS, SIZE OF INVERTER, CONNECTION POINTS, FUSE SIZES, ETC. TO BE FIELD COORDINATED WITH SOLAR ROOF VENDOR SHOP DRAWINGS. SEE ARCHITECTURAL PLANS FOR SOLAR ROOF DETAILS AND ROOF AREA FOR ROOF MOUNTED SYSTEM.



3 / E0.3 Electrical Riser Diagram

SCALE: NONE PHOTOVOLTAIC SYSTEM ON ROOF

ELECTRICAL POWER RISER KEYNOTES:

1. UTILITY COMPANY TO PROVIDE NEW UTILITY TRANSFORMER AND PRIMARY SERVICE ENTRANCE. ELECTRICAL CONTRACTOR TO PROVIDE TRANSFORMER PAD, COMPLETE SECONDARY AND PRIMARY CONDUIT STUB-OUT. FOLLOW LATEST DUKE ENERGY MANUAL FOR LARGE PAD SIZE, CLEARANCES, PRIMARY CONDUIT STUB-OUT, ETC. COORDINATE METERING REQUIREMENTS FOR CONNECTION OF OWNER PV SYSTEM TO BE DIRECT CONNECTED TO TRANSFORMER.
2. STORM SWITCH TO ALLOW FOR TEMPORARY, PORTABLE GENERATOR CONNECTION FOR EMERGENCY BRANCH IF PRIMARY GENERATOR IS INOPERABLE FOR ANY REASON. ESL POWER SYSTEMS 3020. RATED 480Y/277V, 200A, NEMA 3R, 22KAIC, CIRCUIT BREAKERS TO BE LSI AMMETER TYPE WITH ADJUSTABLE LONG AND SHORT TRIP TIME DELAYS.
3. 150, 3P ENCLOSED CIRCUIT BREAKER (LSI WITH ADJUSTABLE LONG AND SHORT TIME DELAY SETTINGS) NEMA 1 FOR 'ATS-2'. 22KAIC RATED.
4. GENERATOR MOUNTED 150A, 3P, CIRCUIT BREAKER FOR 'ATS-2' WHICH SERVES NEC 700 EMERGENCY LOADS. BREAKER TO BE LSI TYPE WITH ADJUSTABLE LONG AND SHORT TIME DELAY SETTINGS. 22KAIC RATED.
5. GENERATOR SERVICE ENTRANCE MAIN BREAKER #1. 480V, 1200A, 3P, SE RATED CIRCUIT BREAKER FOR 'ATS-1' WHICH SERVES OPTIONAL STAND-BY LOADS. 35KAIC RATED. BREAKER TO HAVE GROUND FAULT PROTECTION AND ARC ENERGY REDUCTION SWITCH. LSIG TRIP UNIT.
6. GENERATOR MOUNTED 1200A, 3P, CIRCUIT BREAKER FOR 'ATS-1' WHICH SERVES OPTIONAL STAND-BY LOADS. 22KAIC RATED. BREAKER TO HAVE GROUND FAULT PROTECTION AND ARC ENERGY REDUCTION SWITCH. LSIG TRIP UNIT.
7. ALL EMERGENCY PANELBOARDS SHALL HAVE EXTERNAL TYPE 2 SURGE PROTECTION WITH 200KA PROTECTION PER MODE.
8. NEC ARTICLE 700 FEEDERS ROUTED OUTSIDE OF ELECTRICAL ROOMS SHALL BE 2-HOUR PROTECTED. ROUTE FEEDERS BELOW SLAB BETWEEN ELECTRICAL ROOMS. INSTEAD OF ABOVE CEILINGS. UNSPRINKLERED CEILING SPACES ARE NOT CONSIDERED TO BE PROTECTED.
9. ALL EMERGENCY CIRCUITS TO BE COMPLETELY SEGREGATED FROM ALL OTHER CIRCUITS.
10. PROVIDE ENCLOSED SHARK METERS FOR SUBMETERING OF POWER BRANCHES. SEE SUBMETERING NOTES THIS SHEET.
11. NORMAL SERVICE ENTRANCE MAIN BREAKER. 480V, 1200A, 3P, SE RATED, 65KAIC, GROUND FAULT PROTECTION AND ARC ENERGY REDUCTION SWITCH. LSIG TRIP UNIT.
12. TO COLD WATER PIPE(S), BUILDING STEEL AND DRIVEN GROUND ROD. BOND TO GROUNDING ELECTRODE SYSTEM IN MAIN ELECTRICAL ROOM.

SUBMETERING NOTES:

1. EACH ELECTRIC SUB-METER REQUIRED SHALL BE AN ELECTRO INDUSTRIES SHARK 100B WITH 60 HZ, 120VAC POWER SUPPLY TO INCLUDE SHORTING BLOCKS, LOW VOLTAGE FUSING, CONTROL TRANSFORMER, FIELD WIRING TERMINAL BLOCKS, ETC. IN A FACTORY WIRED ENCLOSURE (MODEL PREFIX 'ENC'), WITH ANSI MOUNTING. METERING VOLTAGE TO BE DETERMINED BY LOAD BEING METERED. METERS TO BE PROVIDED, INSTALLED, AND WIRED BY ELECTRICAL CONTRACTOR. PRIOR TO ROUGH-IN, THE ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION LOCATION WITH PANEL 'MDP1'.
2. CURRENT TRANSFORMERS, FOR USE WITH THE ELECTRIC SUB-METERS, TO BE ELECTRO INDUSTRIES SPLIT CORE TYPE, FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR PROPER INSTALLATION AND ORIENTATION. SIZE CT'S BASES ON THE FEEDER SIZE.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF SERVICE ENTRANCE AND FEEDER CONDUCTORS AS REQUIRED TO ACCOMMODATE INSTALLATION OF THE APPROPRIATELY SIZED SPLIT-CORE TYPE CURRENT TRANSFORMERS FOR THE CURRENT RATIO, VOLTAGE RATING, CABLE SIZES AND CABLE QUANTITIES. THIS WILL REQUIRE DETAILED PLANNING OF CONDUCTOR ROUTING WITHIN THE PANEL.
4. THE ELECTRICAL CONTRACTOR SHALL INSTALL A SINGLE VOLTAGE SENSING CIRCUIT FROM PANEL 'MDP1' TO EACH SUBMETER PANEL AS REQUIRED.
5. THE ELECTRICAL CONTRACTOR SHALL CONFIRM LINE TO LINE AND LINE TO NEUTRAL VOLTAGE READINGS AND LINE AND NEUTRAL CURRENT READINGS FOR EACH METER. USE A HAND HELD MULTI-METER TO COMPARE ACTUAL READINGS WITH METER DISPLAY.
6. MOUNT METERS ADJACENT TO 'MDP1'. STACK METERS TO CONSERVE WALL SPACE.

PHOTOVOLTAIC NOTES:

1. THE PHOTOVOLTAIC SYSTEM VENDOR WILL PROVIDE SHOP DRAWINGS WITH COMPLETE DESIGN FOR FINAL COORDINATION WITH THE ELECTRICAL SYSTEM INCLUDING FINAL LOCATIONS OF ALL EQUIPMENT (PANELS, JUNCTION BOXES, INVERTORS, COMBINERS, DISCONNECTS, ETC.; REQUIRED WIRE AND CONDUIT SIZES; AND STRUCTURAL AND MOUNTING DETAILS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE SOLAR EQUIPMENT VENDOR AND SHOP DRAWINGS PRIOR TO INSTALLING RACEWAYS FOR THE SYSTEM.
2. **ALTERNATE G-2: THE SOLAR PANELS TO BE PROVIDED BY AND INSTALLED ON THE ROOF BY THE PHOTOVOLTAIC VENDOR IS THE ONLY COMPONENT FOR THIS ALTERNATE. ALL NECESSARY ROUGH-INS, CONDUIT, WIRE, BOXES, DISCONNECTS OR OTHER COMPONENTS LISTED IN THESE DOCUMENTS TO BE INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE CONSIDERED BASE BID ITEMS UNLESS OTHERWISE NOTED.**

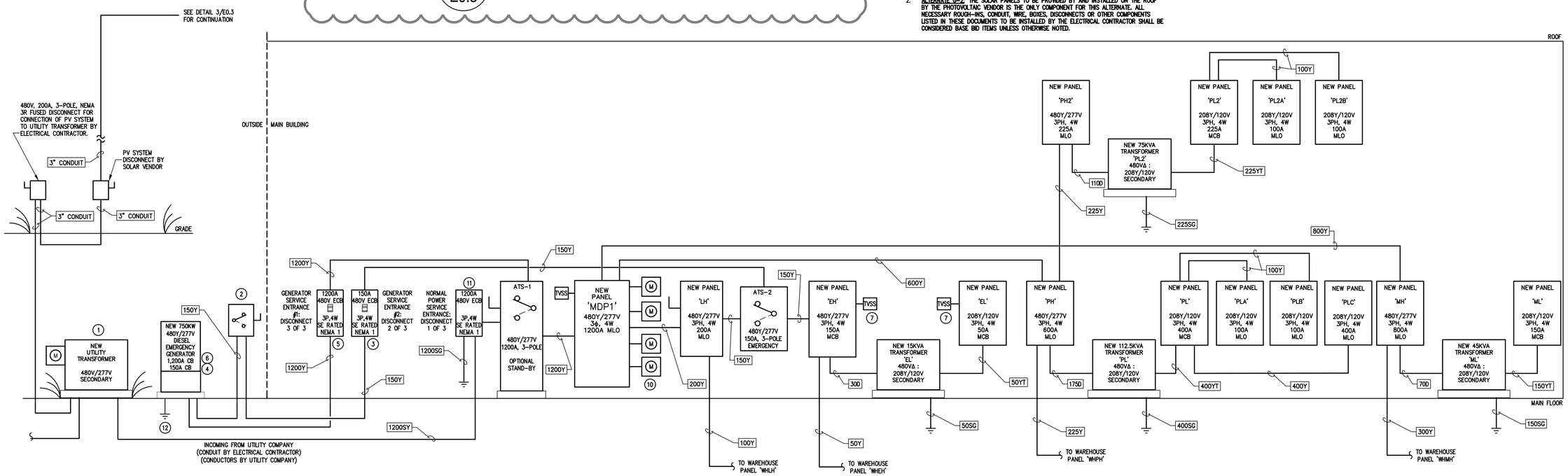
NEC SERVICE CALCULATION

LOAD DESCRIPTION		ACTUAL KVA	DEMAND FACTOR	NEC DEMAND KVA
ADMIN BUILDING:				
LIGHTING	1.3 VA/SF	37.50	1.25	46.88
RECEPTACLES		76.88		
FIRST 10KVA		10.00	1.00	10.00
REMAINDER		66.88	0.50	33.44
HVAC		343.00	1.00	343.00
WATER HEATER		18.00	1.00	18.00
FUTURE ADDITION		100.00	1.00	100.00
MISCELLANEOUS		100.00	0.50	50.00
EV CHARGERS		40.00	1.25	50.00
LARGEST MOTER		43.10	0.25	10.78
WAREHOUSE:				
LIGHTING	1.3 VA/SF	11.81	1.25	14.76
RECEPTACLES		9.36		
FIRST 10KVA		9.36	1.00	9.36
REMAINDER		0.00	0.50	0.00
HVAC		141.11	1.00	141.11
WATER HEATER		24.00	1.00	24.00
MISCELLANEOUS		84.44	0.50	42.22

TOTAL SERVICE LOAD (KVA)		**894 KVA**
TOTAL SERVICE LOAD (AMPS)		**1075 AMPS**
TOTAL SERVICE EQUIPMENT	**480 / 277**	**1200 AMPS**
WAREHOUSE SERVICE (KVA)		**231 KVA**
WAREHOUSE SERVICE (AMPS)		**279 AMPS**
WAREHOUSE SERVICE EQUIPMENT	**480 / 277**	**625 AMPS**

CONDUIT AND CABLE SCHEDULE

CIRCUIT DESIGNATION	SETS	WIRE SIZE	CONDUIT SIZE EMT	RGS	RNC
30D	1	(3) #10AWG, (1) #10AWG E.G.C.	3/4"	3/4"	3/4"
50D	1	(3) #8AWG, (1) #10AWG E.G.C.	3/4"	3/4"	3/4"
50YT	1	(3) #8AWG, (1) #8 N., (1) #8AWG E.G.C.	3/4"	3/4"	3/4"
60Y	1	(3) #6AWG, (1) #6 N., (1) #6AWG E.G.C.	1"	1"	1"
50SG	1	(1) #8AWG	3/4"	3/4"	3/4"
60Y	1	(3) #6AWG, (1) #6 N., (1) #10AWG E.G.C.	1"	1"	1"
70D	1	(3) #4AWG, (1) #6AWG E.G.C.	1"	1"	1"
100Y	1	(3) #3AWG, (1) #3 N., (1) #6AWG E.G.C.	1-1/4"	1-1/4"	1-1/4"
110D	1	(3) #2AWG, (1) #6AWG E.G.C.	1-1/4"	1-1/4"	1-1/4"
125Y	1	(3) #1AWG, (1) #1 N., (1) #6AWG E.G.C.	1-1/2"	1-1/2"	1-1/2"
150Y	1	(3) #1/0AWG, (1) #1/0 N., (1) #6AWG E.G.C.	2"	2"	2"
150YT	1	(3) #1/0AWG, (1) #1/0 N., (1) #6AWG E.G.C.	2"	2"	2"
150SG	1	(1) #6AWG	3/4"	3/4"	3/4"
175D	1	(3) #2/0AWG, (1) #6AWG E.G.C.	2"	2"	2"
200Y	1	(3) #3/0AWG, (1) #3/0 N., (1) #6AWG E.G.C.	2"	2"	2"
225Y	1	(3) #4/0AWG, (1) #4/0 N., (1) #4AWG E.G.C.	2-1/2"	2-1/2"	2-1/2"
225YT	1	(3) #4/0AWG, (1) #4/0 N., (1) #2AWG E.G.C.	2-1/2"	2-1/2"	2-1/2"
225SG	1	(1) #2AWG	3/4"	3/4"	3/4"
300Y	1	(3) #350KCMIL, (1) #350KCMIL N., (1) #4AWG E.G.C.	3"	3"	3"
400Y	1	(3) #500KCMIL, (1) #500KCMIL N., (1) #3AWG E.G.C.	3"	3-1/2"	3-1/2"
400YT	2	(3) #3/0AWG, (1) #3/0 N., (1) #1/0AWG E.G.C.	2"	2"	2"
400SG	1	(1) #1/0AWG	3/4"	3/4"	3/4"
600Y	2	(3) #350KCMIL, (1) #350KCMIL N., (1) #1 AWG E.G.C.	3"	3"	3"
800Y	2	(3) #500KCMIL, (1) #500KCMIL N., (1) #1/0AWG E.G.C.	3"	3-1/2"	3-1/2"
1200Y	4	(3) #350KCMIL, (1) #350KCMIL N., (1) #3/0AWG E.G.C.	3"	3"	3"
1200YS	4	(3) #350KCMIL, (1) #350KCMIL N.	3"	3"	3"
1200SG	1	(1) #3/0AWG E.G.C.	3/4"	3/4"	3/4"



1 / E0.3 Power Riser Diagram

SCALE: NONE MAIN BUILDING

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Electrical Power Riser and Schedules

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

NORTH CAROLINA PROFESSIONAL SEAL 028861 ENGINEER JOHN DENNIS HAYES 08/31/26

EDMONDSON ENGINEERS
1800 Hwy. 54, Suite 700, Durham, NC 27713
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Revisions

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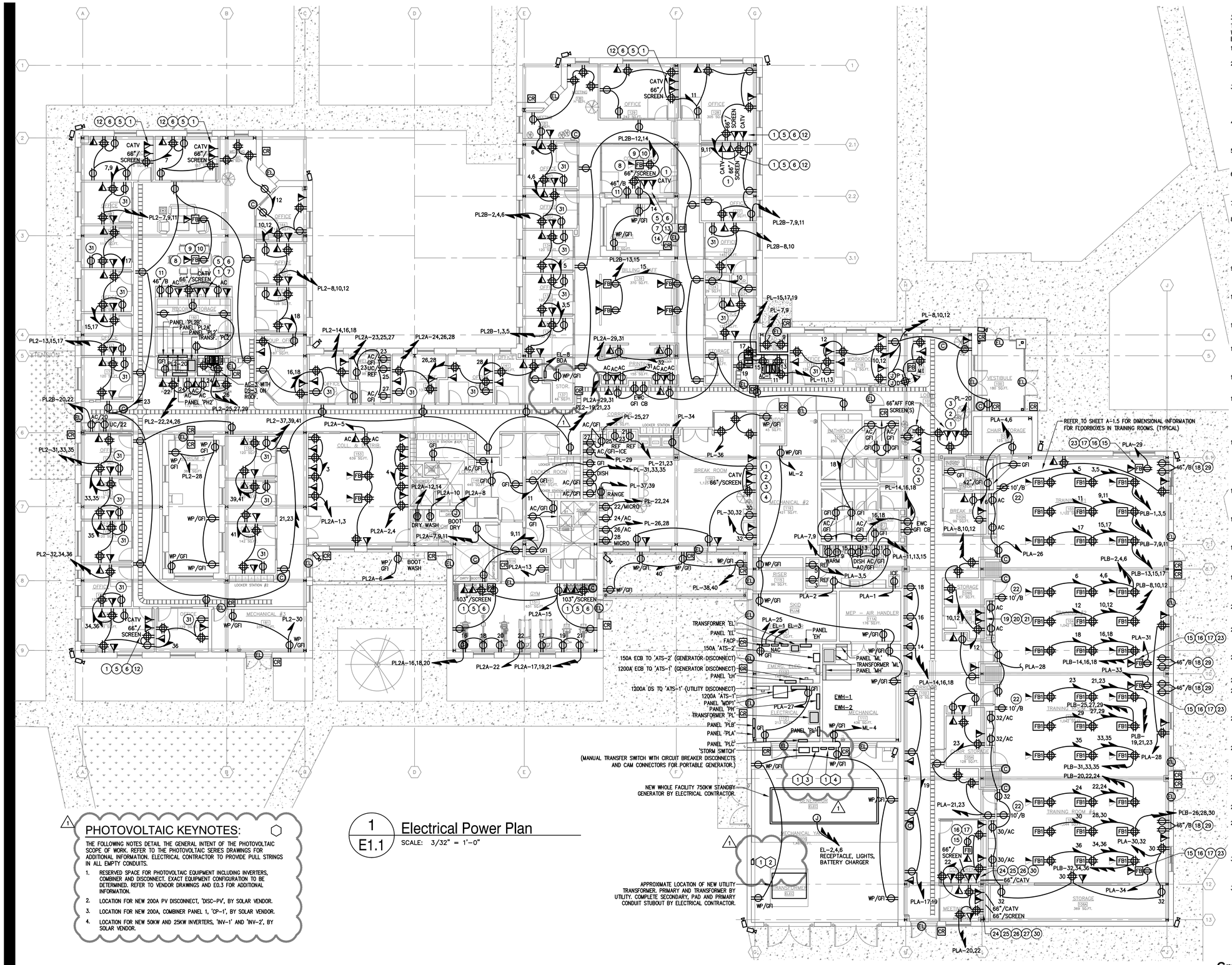
P:\PROJECTS\2022\22-128 DURHAM COUNTY UTILITIES ADMIN 2 BUILDING\CAD\3.20 ELECTRICAL\E0.3.DWG PLOTTED 10/6/2026 10:43 AM BY: NELSON RAGAN



1 / E1.1 Electrical Power Plan

SCALE: 3/32" = 1'-0"

PHOTOVOLTAIC KEYNOTES:

THE FOLLOWING NOTES DETAIL THE GENERAL INTENT OF THE PHOTOVOLTAIC SCOPE OF WORK. REFER TO THE PHOTOVOLTAIC SERIES DRAWINGS FOR ADDITIONAL INFORMATION. ELECTRICAL CONTRACTOR TO PROVIDE PULL STRINGS IN ALL EMPTY CONDUITS.

1. RESERVED SPACE FOR PHOTOVOLTAIC EQUIPMENT INCLUDING INVERTERS, COMBINER AND DISCONNECT. EXACT EQUIPMENT CONFIGURATION TO BE DETERMINED. REFER TO VENDOR DRAWINGS AND E0.3 FOR ADDITIONAL INFORMATION.
2. LOCATION FOR NEW 200A PV DISCONNECT, 'DISC-PV', BY SOLAR VENDOR.
3. LOCATION FOR NEW 200A, COMBINER PANEL 1, 'CP-1', BY SOLAR VENDOR.
4. LOCATION FOR NEW 50KW AND 25KW INVERTERS, 'INV-1' AND 'INV-2', BY SOLAR VENDOR.

AV KEYNOTES:

THE FOLLOWING NOTES DETAIL THE GENERAL INTENT OF THE AV SCOPE OF WORK. REFER TO THE AV SERIES DRAWINGS FOR ADDITIONAL INFORMATION. ELECTRICAL CONTRACTOR TO PROVIDE PULL STRINGS IN ALL EMPTY CONDUITS.

1. WALL MOUNTED FLAT PANEL DISPLAY. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL DISPLAY. GENERAL CONTRACTOR TO PROVIDE BLOCKING.
2. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL MODEL FSR 320XL SHARED IN-WALL BACK BOX. FLUSH MOUNT AT LOCATION SHOWN ON PLANS. PROVIDE (1) 1-1/4" CONDUIT TO NEAREST ACCESSIBLE CEILING.
3. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 120V, 1 PHASE QUADRAPLEX RECEPTACLE IN DUAL-GANG INSERT OF FSR IN-WALL BOX. TELECOM CONTRACTOR TO PROVIDE AND INSTALL (2) DATA JACKS IN SINGLE-GANG BOX IN FLAT PANEL IN-WALL BOX ADJACENT TO POWER OUTLET.
4. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL (1) CATV OUTLET IN SINGLE GANG INSERT OF FSR BOX. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL CATV PLAYER SHELF FROM PS200 FROM PEERLESS OR PAC101B FROM CHIEF.
5. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL MODEL FSR 320 SHARED IN-WALL BACK BOX. FLUSH MOUNT AT LOCATION SHOWN ON PLANS. PROVIDE (1) 1-1/4" CONDUIT TO NEAREST ACCESSIBLE CEILING.
6. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 120V, 1 PHASE DUPLEX RECEPTACLE IN ONE-GANG INSERT OF FSR IN-WALL BOX. TELECOM CONTRACTOR TO PROVIDE AND INSTALL (2) DATA OUTLETS IN FLAT PANEL IN-WALL BOX.
7. AUDIO VISUAL CONTRACTOR SHALL PROVIDE AND INSTALL USB MIC/CAM SOUNDBAR SPEAKER BELOW DISPLAY PANEL.
8. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL AV CABLE ENCLOSURE WITH FLIP LID AND COORDINATE WITH FURNITURE CONTRACTOR/ARCHITECT FOR INSTALLATION IN TABLETOP/LECTERN. COORDINATE WITH ARCHITECT PRIOR TO ROUGH-IN. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL CABLE MANAGEMENT SYSTEM CONNECTING TABLE/LECTERN TO FLOOR BOX. AV TABLE/LECTERN TO CONNECT TO FLOOR BOX WITH PLUGGABLE UMBILICAL ENCASED IN BLACK EXPANDING SLEEVING.
9. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL RECESSED FLOOR BOX AS SHOWN ON PLANS. REFERENCE AUDIO VISUAL LEGEND FOR ADDITIONAL INFORMATION ON FLOOR BOX. PROVIDE (1) 1-1/4" CONDUIT TO TV IN-WALL BOX.
10. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL 120V, 1 PHASE DUPLEX RECEPTACLE FROM A DEDICATED 20A, 1 PHASE CIRCUIT IN POWER PANEL. TELECOM CONTRACTOR TO PROVIDE AND INSTALL (2) DATA OUTLETS ADJACENT TO POWER DUPLEX IN RECESSED FLOOR BOX.
11. ELECTRICAL CONTRACTOR TO PROVIDE (1) 2-GANG BACK BOX, FLUSH MOUNTED IN WALL AT 46"AFF TO CENTER FOR SYSTEM CONTROL. PROVIDE (1) 1"CONDUIT TO NEAREST ACCESSIBLE CEILING.
12. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL (1) CATV OUTLET IN 1-GANG INSERT OF FSR IN-WALL BOX. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL CATV SHELF PS200 FROM PEERLESS OR PAC101B FROM CHIEF.
13. 2-BAY AUDIO VISUAL TECHNICAL CREDENZA. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL TECHNICAL CREDENZA AT LOCATION SHOWN. CREDENZA FINISH COLOR AND LOCATION TO BE COORDINATED WITH ARCHITECT.
14. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL 10"X10"X4" BACK BOX FLUSH MOUNTED IN WALL AT 18"AFF. PROVIDE (2) 1-1/4" CONDUITS TO CEILING. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 20A, 120V, 1-PHASE DUPLEX RECEPTACLE AT 18"AFF ADJACENT TO AV BACK BOX. TELECOM CONTRACTOR TO PROVIDE AND INSTALL (2) DATA OUTLETS ADJACENT TO POWER DUPLEX IN WALL BOX.
15. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL AV CABLE ENCLOSURE WITH FLIP LID AND COORDINATE WITH FURNITURE CONTRACTOR/ARCHITECT FOR INSTALLATION IN TABLETOP/LECTERN. COORDINATE WITH ARCHITECT PRIOR TO ROUGH-IN. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL CABLE MANAGEMENT SYSTEM CONNECTING TABLE/LECTERN TO FLOOR BOX. AV TABLE LECTERN TO CONNECT TO FLOOR BOX WITH PLUGGABLE UMBILICAL ENCASED IN BLACK EXPANDABLE SLEEVING.
16. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL FLOOR BOX AS SHOWN ON PLANS. REFERENCE AUDIO VISUAL LEGEND FOR ADDITIONAL INFORMATION ON FLOOR BOX. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 1-1/4" CONDUIT TO AV RACK ROOM.
17. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL 120V, 1-PHASE DUPLEX RECEPTACLE FROM A DEDICATED 20A, 1-PHASE CIRCUIT. TELECOM CONTRACTOR TO PROVIDE AND INSTALL (2) DATA OUTLETS ADJACENT TO POWER DUPLEX IN RECESSED FLOOR BOX.
18. ELECTRICAL CONTRACTOR TO PROVIDE (1) 2-GANG BACK BOX FLUSH MOUNTED IN WALL AT 46"AFF TO CENTER FOR SYSTEM CONTROL. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 1-1/4" CONDUIT TO AV RACK ROOM.
19. AV RACK BACK BOX. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL 12"x12"x4" BACK BOX FLUSH MOUNTED IN WALL AT 58"AFF. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (3) 1-1/2" CONDUITS TO ACCESSIBLE CEILING SPACE.
20. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (2) 20A, 120V DUPLEX RECEPTACLES. TELECOM CONTRACTOR TO PROVIDE (8) DATA OUTLETS AND (4) CATV ADJACENT TO AV BACK BOX.
21. AUDIO VISUAL EQUIPMENT RACK. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL AV EQUIPMENT RACK AT LOCATION SHOWN ON PLANS. CABLING INTO AND OUT OF RACK THROUGH AV BACK BOX LOCATED IN WALL BEHIND RACK, CO-LOCATED WITH POWER AND DATA BY OTHERS.
22. PTZ CAMERA (AV-CAM). ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 2-GANG BACK BOX AT 10'-0"AFF WITH (1) 1" CONDUIT TO AV RACK ROOM.
23. LECTERN TO BE PROVIDED AND INSTALLED BY AUDIO VISUAL CONTRACTOR.
24. FLAT PANEL DISPLAY LOCATION. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL FLAT PANEL DISPLAY. PROVIDE WITH MOUNTING ACCESSORIES FOR ALL LOCATIONS AS SHOWN ON PLANS. GENERAL CONTRACTOR TO PROVIDE WALL BLOCKING FOR DISPLAY.
25. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL SHARED IN-WALL FSR 320 BACK BOX FLUSH MOUNTED AT LOCATION SHOWN ON PLANS UNLESS OTHERWISE NOTED ON DRAWINGS. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL (1) 1-1/4" CONDUIT TO ABOVE ACCESSIBLE CEILING.
26. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 120V, 20A POWER TO FSR 320 IN-WALL BACK BOX FROM A 20A CIRCUIT. TELECOM CONTRACTOR TO PROVIDE AND INSTALL (2) DATA OUTLETS IN 1-GANG INSERT IN FSR IN-WALL BOX.
27. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 2-GANG BACK BOX FLUSH MOUNTED IN-WALL AT 18"AFF FOR AUDIO VISUAL INTERFACE. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 1" CONDUIT TO TV IN-WALL BOX.
28. AUDIO VISUAL CONTRACTOR SHALL PROVIDE AND INSTALL USB MIC/CAM SOUNDBAR SPEAKER BELOW DISPLAY PANEL.
29. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL (1) 1-GANG BACK BOX FLUSH MOUNTED IN WALL WITH CENTER OF BOX AT 46"AFF. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL (1) 1" CONDUIT TO ABOVE ACCESSIBLE CEILING FOR SCREEN CONTROLS SWITCH. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL SCREENS CONTROL SWITCH.
30. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL (1) CATV OUTLET IN 1-GANG INSERT OF FSR IN-WALL BOX. AUDIO VISUAL CONTRACTOR TO PROVIDE AND INSTALL CATV PLAYER SHELF PS200 FROM PEERLESS OR PAC101B FROM CHIEF.
31. 'VISITOR' RECEPTACLE LOCATION TO BE 8'-6" FROM THE BACK WALL OF THE OFFICE TO ALLOW FUTURE COORDINATION WITH THE FURNITURE TO MAINTAIN ACCESSIBILITY TO OUTLET SHOULD FURNITURE BE MOVED. TYPICAL FOR ALL OFFICES UNLESS OTHERWISE NOTED.

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale
3/32" = 1'-0"
0' 4' 8' 16' 32'

North

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Electrical Power Plan

BID DOCUMENTS

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

NORTH CAROLINA PROFESSIONAL SEAL 028899 ENGINEER DENNIS HAYES

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1 10/6/26 ANR ADDENDUM #3

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Checked JDH
Date 2026-08-31
Sheet E1.1
Of

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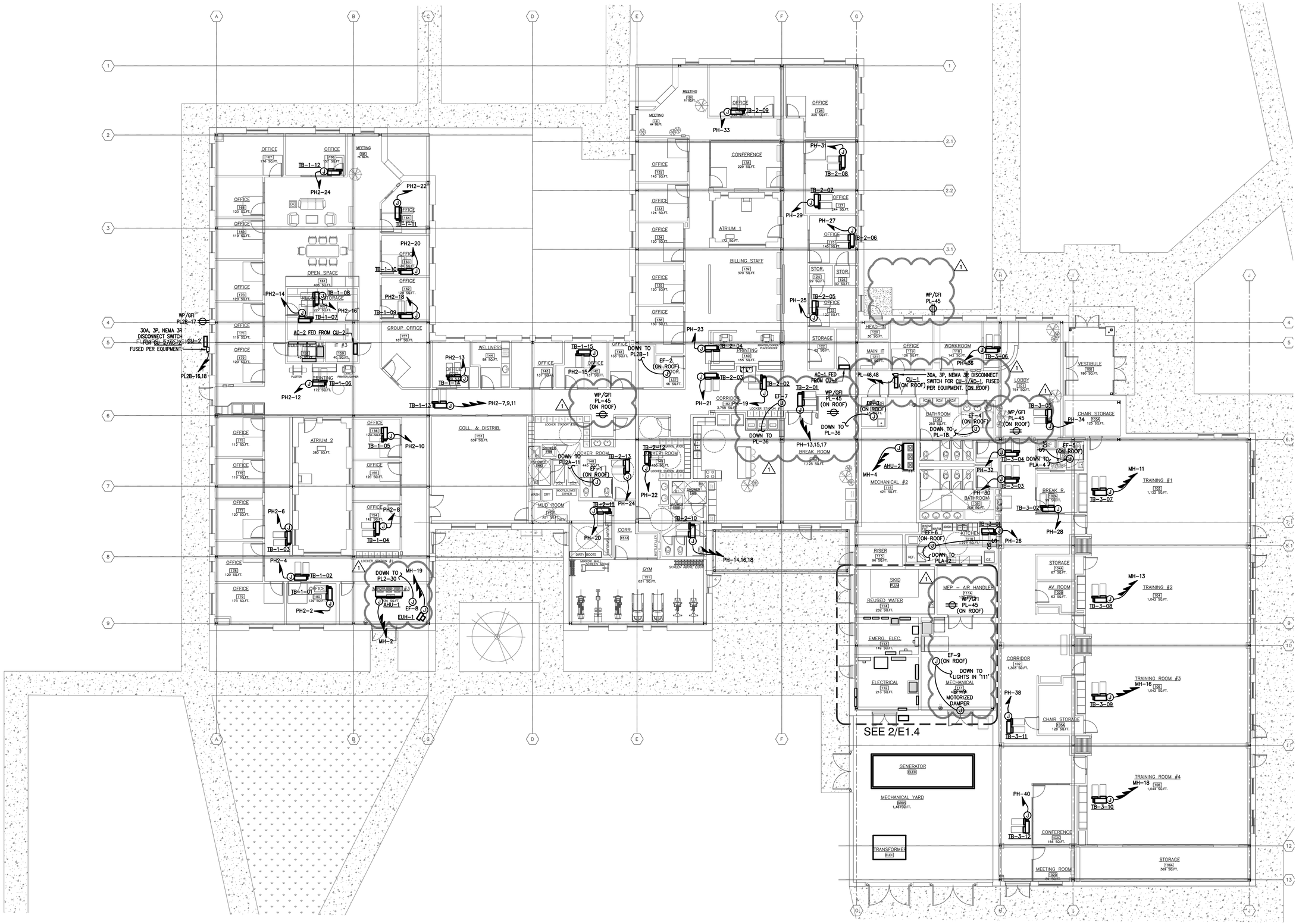

2
E1.5

Electrical Power Plan

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

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale
3/32" = 1'-0"
0' 4' 8' 16' 32'

North

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Electrical Power Plan - Mechanical Equipment

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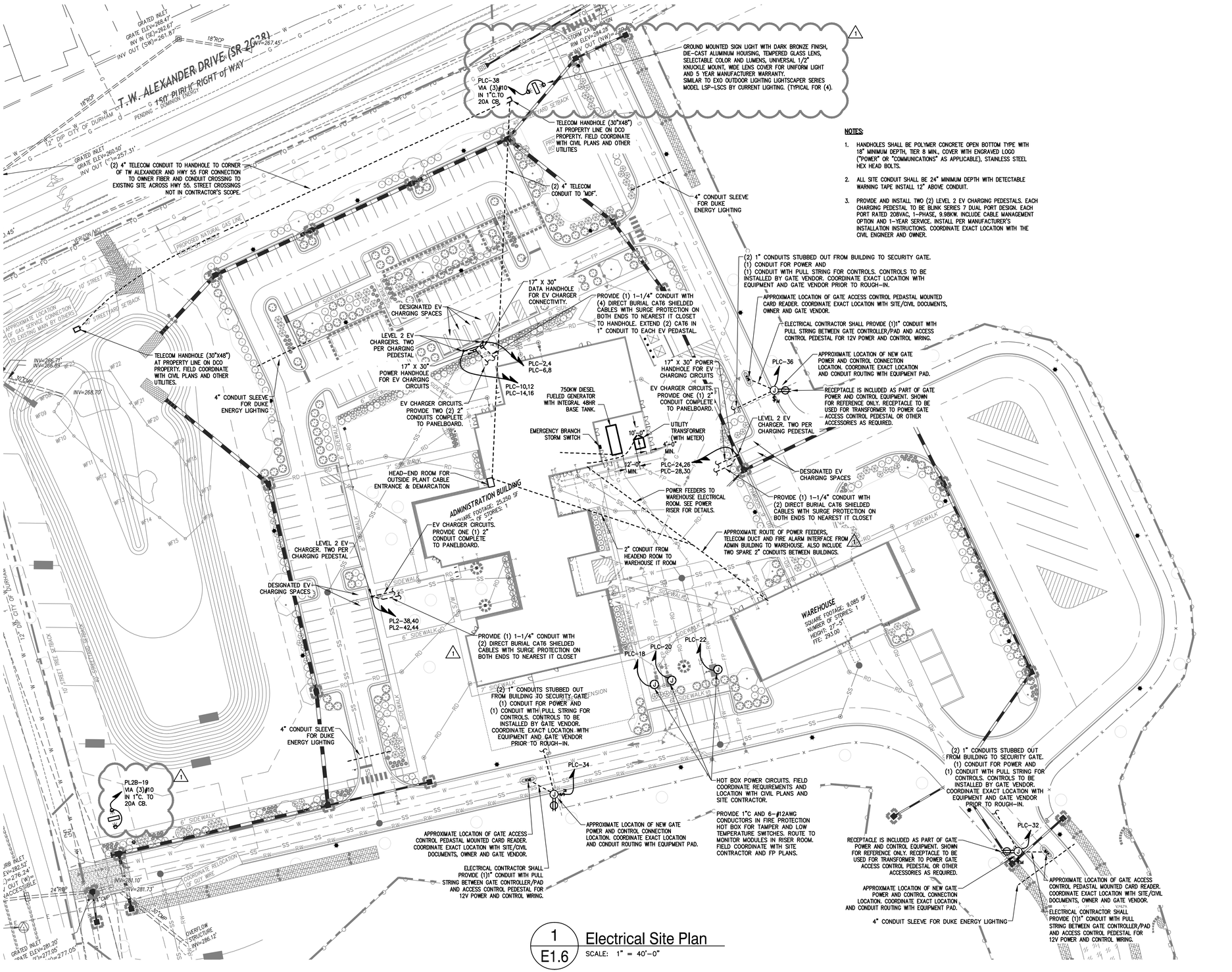

1 E1.6 Electrical Site Plan

SCALE: 1" = 40'-0"

NOTES:

1. HANDHOLES SHALL BE POLYMER CONCRETE OPEN BOTTOM TYPE WITH 18" MINIMUM DEPTH, TIER 8 MIN., COVER WITH ENGRAVED LOGO ("POWER" OR "COMMUNICATIONS" AS APPLICABLE), STAINLESS STEEL HEX HEAD BOLTS.
2. ALL SITE CONDUIT SHALL BE 24" MINIMUM DEPTH WITH DETECTABLE WARNING TAPE INSTALL 12" ABOVE CONDUIT.
3. PROVIDE AND INSTALL TWO (2) LEVEL 2 EV CHARGING PEDESTALS. EACH CHARGING PEDESTAL TO BE BLINK SERIES 7 DUAL PORT DESIGN. EACH PORT RATED 208VAC, 1-PHASE, 9.98KW. INCLUDE CABLE MANAGEMENT OPTION AND 1-YEAR SERVICE. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE EXACT LOCATION WITH THE CIVIL ENGINEER AND OWNER.

Graphic Scale

1" = 40'-0"

0' 20' 40' 80' 160'

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Electrical Site Plan

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DURHAM, NC
27713

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22-128

NORTH CAROLINA PROFESSIONAL SEAL 028889 ENGINEER DENNIS HAYES 9/30/26

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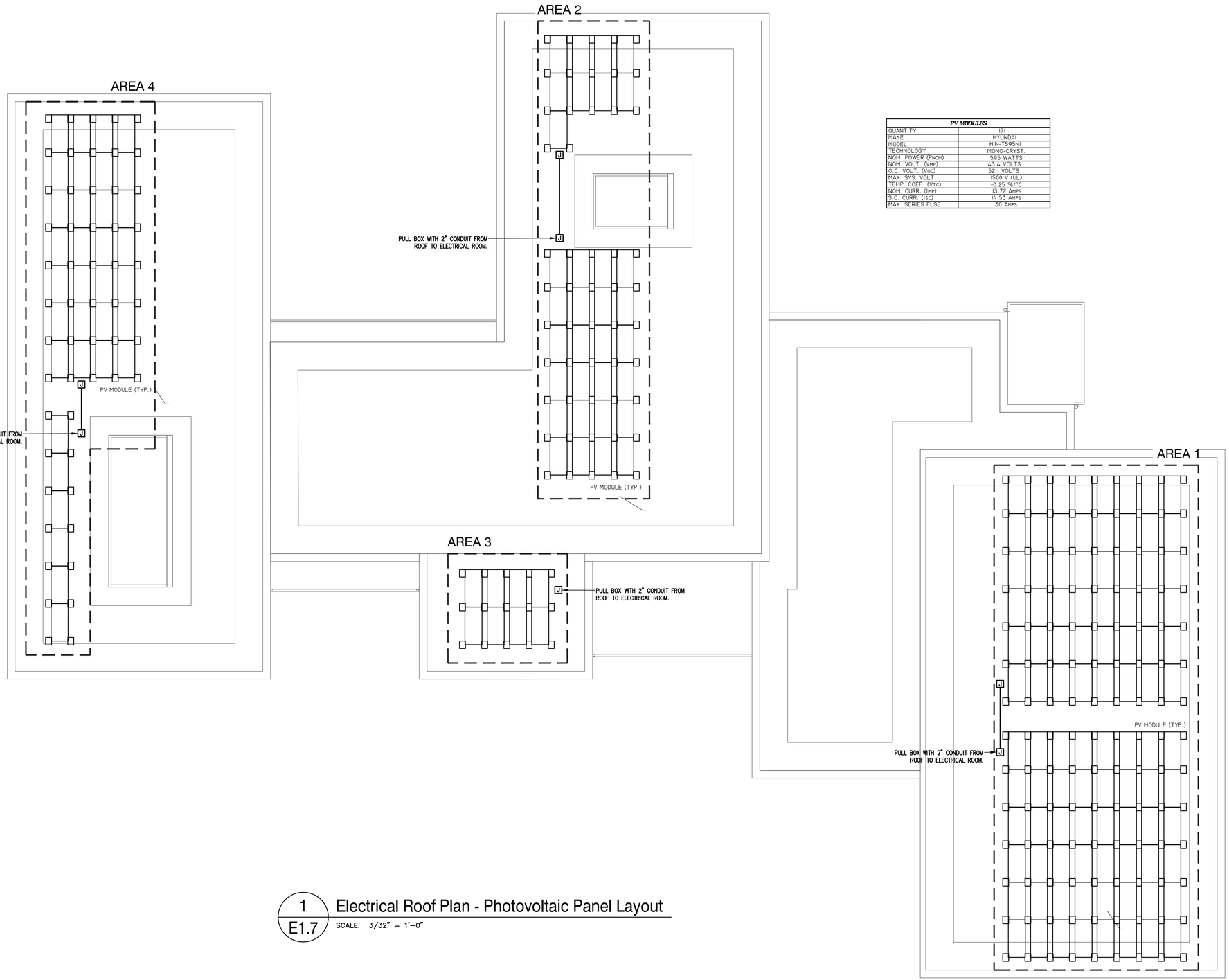

PV MODULES	
QUANTITY	171
MAKE	HYUNDAI
MODEL	HIN-T595NI
TECHNOLOGY	MONO-CRYST.
NOM. POWER (Pnom)	595 WATTS
NOM. VOLT. (Vmp)	43.4 VOLTS
O.C. VOLT. (Voc)	52.1 VOLTS
MAX. SYS. VOLT.	1500 V (UL)
TEMP. COEF. (Vtc)	-0.25 %/°C
NOM. CURR. (Imp)	13.72 AMPS
S.C. CURR. (Isc)	14.53 AMPS
MAX. SERIES FUSE	30 AMPS

PHOTOVOLTAIC KEYNOTES:

THE FOLLOWING NOTES DETAIL THE GENERAL INTENT OF THE PHOTOVOLTAIC SCOPE OF WORK. REFER TO THE PHOTOVOLTAIC SERIES, PV, DRAWINGS FOR ADDITIONAL INFORMATION. ELECTRICAL CONTRACTOR TO PROVIDE PULL STRINGS IN ALL EMPTY CONDUITS.

1. PHOTOVOLTAIC PANEL QUANTITIES PER AREA:

   AREA 1: (96) @ 595W EA = 57.1KW MAX
   AREA 2: (33) @ 595W EA = 19.64KW MAX
   AREA 3: (8) @ 595W EA = 4.8KW MAX
   AREA 4: (34) @ 595W EA = 20.2KW MAX

   TOTAL PANELS: (171) @ 590W EA = 101.75KW MAX

2. REFER TO SHEET E0.3 FOR ADDITIONAL INFORMATION AND ADDITIONAL SCOPE OF WORK RESPONSIBILITES.

1 / E1.7 Electrical Roof Plan - Photovoltaic Panel Layout

SCALE: 3/32" = 1'-0"

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale
3/32" = 1'-0"
0' 4' 8' 16' 32'

North

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Electrical Roof Plan - Photovoltaic Panel Layout, Notes and Details

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DURHAM, NC
27713

PROJECT NUMBER
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NORTH CAROLINA PROFESSIONAL SEAL 028869 ENGINEER DENNIS HAYES

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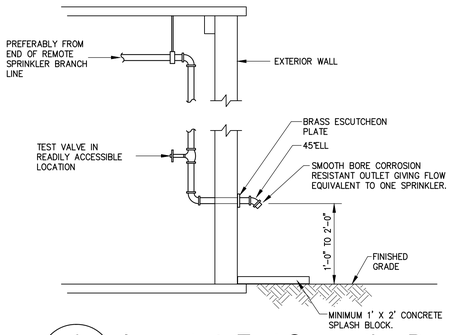
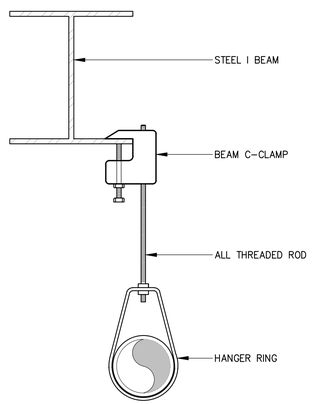


1 FP1.0 Inspector's Test Connection Detail

SCALE: NONE

NOTE:

1. ALL EXPOSED PIPING MUST BE PAINTED WITH A MINIMUM OF (1) COAT PRIMER AND (2) COATS OF BRIGHT RED PAINT.



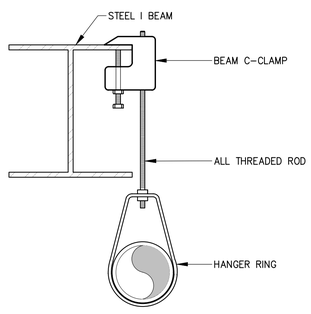
1" THROUGH 4" Pipe – 3/8" ROD AND ATTACHMENTS
5" THROUGH 8" Pipe – 1/2" ROD AND ATTACHMENTS
10"&12" – 5/8" ROD AND ATTACHMENTS

NOTE:

ALL ROD SHALL EXTEND DOWN TO TOP OF PIPE WHERE PRESSURE EXCEEDS 100 PSI

2 FP1.0 Beam Clamp Assembly

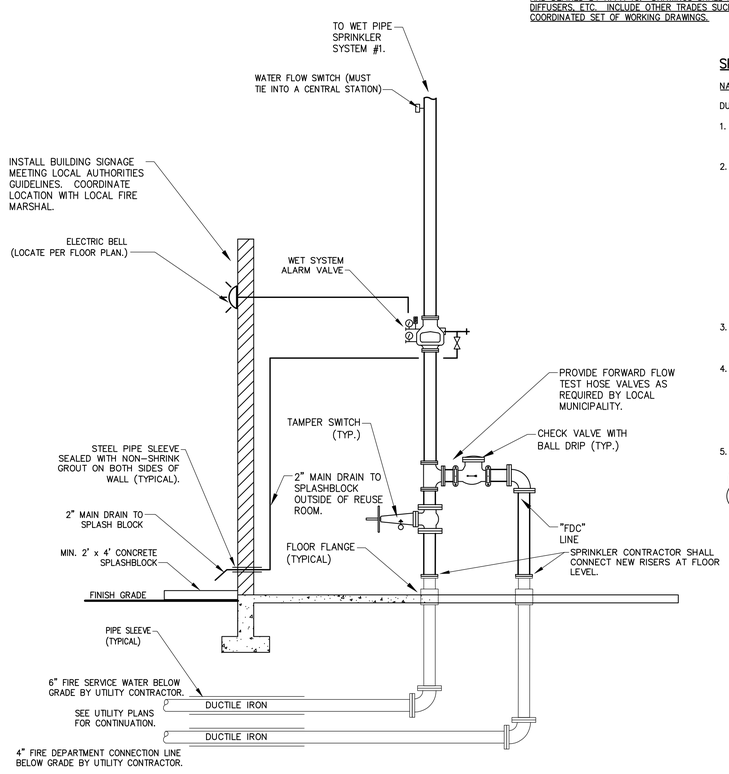
SCALE: NONE



FOR PIPE SIZES 1" – 4" Pipe – 3/8" ROD AND ATTACHMENTS
FOR PIPE SIZES 5" – 8" Pipe – 1/2" ROD AND ATTACHMENTS

3 FP1.0 Top Beam Clamp

SCALE: NONE



4 FP1.0 Sprinkler Wet Pipe Entrance Riser Detail

SCALE: NONE

NOTE:

1. ENTIRE ASSEMBLY MUST MEET CITY OF DURHAM STANDARDS.
2. SHOP DRAWINGS MUST MEET ENGINEERS AND CITY OF DURHAM FIRE MARSHAL'S OFFICE APPROVAL PRIOR TO INSTALLATION.
3. CONTRACTOR INSTALLATION SHALL INCLUDE A ROLL OF DRAWINGS ENCASED IN A SECTION OF PVC PIPE WITH CAPPED ENDS MAIN RISER. STRAP PIPE TO WALL AND LABEL "FIRE PROTECTION SHOP DRAWINGS".
4. ALL EXPOSED PIPING MUST BE PAINTED WITH A MINIMUM OF 1 COAT PRIMER AND 1 COAT OF BRIGHT RED PAINT AS DETAILED IN GENERAL NOTES.

GENERAL SPRINKLER INSTALLATION NOTES:

A. THE AUTOMATIC SPRINKLER SYSTEM SHALL BE DESIGNED AND INSTALLED IN STRICT ACCORDANCE WITH NFPA 13, THE NORTH CAROLINA BUILDING CODE, AND WITH ALL OTHER STATE, COUNTY, LOCAL AUTHORITIES HAVING JURISDICTION, THESE PLANS AND SPECIFICATIONS.

B. THE AUTOMATIC SPRINKLERS, PIPING AND EQUIPMENT LOCATED ON THE DRAWINGS ARE DIAGRAMMATIC, ARE FOR COORDINATION, AND DO NOT CONSTITUTE ALL COMPONENTS OF A COMPLETE AND OPERATING AUTOMATIC SPRINKLER SYSTEM. THE CONTRACTOR SHALL PROVIDE COMPLETE COVERAGE THROUGHOUT ALL BUILDING AREAS INCLUDING EQUIPMENT AND OBSTRUCTIONS OR DUCTWORK AS INDICATED BY NFPA–FULLY TESTED AND PLACED IN SERVICE.

C. ALL SPRINKLER WORK SHALL BE PERFORMED BY A FIRE SPRINKLER CONTRACTOR LICENSED IN THE STATE OF NORTH CAROLINA.

D. PIPING FOR WET–PIPE SYSTEMS SHALL BE SCHEDULE 40 BLACK STEEL WHERE THREADED, AND SCHEDULE 10 OR 40 BLACK STEEL WHERE JOINED BY GROOVE MECHANICAL FITTINGS. THREADED FITTINGS SHALL BE CAST IRON OR MALLEABLE PER NFPA 13. ALL DRAIN PIPING SHALL BE GALVANIZED STEEL. ALL UNDERGROUND PIPING SHALL BE DUCTILE IRON.

E. SPRINKLERS INSTALLED WITHIN AREAS OF LAY–IN ACOUSTIC TYPE OR OTHER THAN LAY–IN TYPE FINISHED CEILINGS SHALL BE RECESSED STYLE SPRINKLERS UNLESS NOTED OTHERWISE ON PLANS. SPRINKLER HEADS SHALL BE INSTALLED IN CENTER OF LAY–IN ACOUSTIC CEILING TILE. EXPOSED SPRINKLERS IN AREAS WITH NO CEILINGS SHALL BE BRASS UPRIGHT OR PENDENT AS THE CONDITION REQUIRES. SPRINKLERS LOCATED WITHIN AREAS OF DANGER OF DAMAGE SHALL HAVE PROTECTIVE WIRE GUARDS. REFER TO AUTOMATIC SPRINKLER LEGEND FOR ADDITIONAL INFORMATION.

F. PROVIDE SPRINKLERS IN MECHANICAL EQUIPMENT ROOMS AS REQUIRED TO AVOID OBSTRUCTIONS AND TO PROVIDE COMPLETE COVERAGE. PROVIDE MINIMUM CLEARANCES FROM HEATERS, HOT PIPES, ELECTRICAL EQUIPMENT, ETC. PROVIDE CODE REQUIRED MINIMUM CLEARANCES OVER AND IN FRONT OF ELECTRICAL PANELS. REFER TO THE NC ELECTRIC CODE (NFPA 70). COORDINATE INSTALLATION WITH ALL OTHER TRADES.

G. INSTALL ALL SPRINKLERS USING "RETURN BENDS." SPRINKLERS LOCATED IN GYPSUM BOARD OR PLASTER CEILINGS (INCLUDING GYPSUM BOARD CEILINGS WITH VENEER FINISH) SHALL BE LOCATED INLINE WITH OTHER CEILING ELEMENTS IN THE CEILING (SUCH AS LIGHTS, DIFFUSERS, ETC.) AND IN A SYMMETRIC MANNER AS SHOWN ON THE FIRE PROTECTION PLANS AND/OR THE ARCHITECTURAL REFLECTED CEILING PLANS.

H. PROVIDE FIRE STOP AT PIPE PENETRATIONS THROUGH FIRE RATED PARTITIONS AND WALLS. ALL NON RATED WALLS SHALL BE SEALED AS DETAILED.

I. ALL PIPING SHALL BE LOCATED CONCEALED ABOVE CEILING AND IN WALLS OR CHASES UNLESS LOCATED IN AREAS WITH NO CEILING. ALL PIPING EXPOSED TO VIEW OR TO THE OUTDOORS SHALL BE CLEANED AND PAINTED WITH (1) COAT PRIMER AND (2) COATS OF APPROVED RED PAINT. THIS INCLUDES ALL MECHANICAL AND ELECTRICAL ROOMS. LABEL ALL EXPOSED PIPING "FIRE SERVICE" PER SPECIFICATIONS.

J. ALL PIPE CUTTING OIL TO BE BIODEGRADABLE.

K. INSPECTOR'S TEST AND DRAINS SHALL BE PIPED TO AN APPROVED OUTDOOR LOCATION.

L. ALL PIPING (INCLUDING FDC PIPING) SHALL BE FLUSHED AND HYDROSTATICALLY TESTED PER NFPA.

M. SUBMIT "WORKING" SHOP DRAWINGS HYDRAULIC CALCULATIONS, AND EQUIPMENT BROCHURES TO THE ENGINEER OF REVIEW AS OUTLINED IN SPECIFICATIONS BY ELECTRONIC FILE OR HARD COPIES. NO SPRINKLER INSTALLATION SHALL BE STARTED PRIOR TO APPROVAL. PREPARATION OF THE WORKING DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BE THE RESPONSIBILITY OF THE LICENSED FIRE SPRINKLER CONTRACTOR AND SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER OR NICET LEVEL III (MINIMUM) TECHNICIAN. WORKING SHOP DRAWINGS SHALL BE PREPARED AND SUBMITTED IN STRICT ACCORDANCE AND DEFINED BY NFPA 13. DRAWINGS SHALL INCLUDE PIPE SIZES AND ELEVATIONS, BUILDING SECTIONS, DUCTWORK, LIGHTS, DIFFUSERS, ETC. INCLUDE OTHER TRADES SUCH AS STRUCTURAL, PLUMBING, ETC. AS NECESSARY FOR A COMPLETE AND COORDINATED SET OF WORKING DRAWINGS.

SPRINKLER DATA SHEET:

NAME OF PROJECT:

DURHAM COUNTY UTILITY ADMINISTRATION BUILDING II

1. CLASSIFICATION OF TYPES OF SYSTEM (NFPA 13):

   A. WET PIPE SPRINKLER SYSTEM THROUGHOUT ENTIRE BUILDING SPACE.

2. WATER SUPPLY AVAILABLE:

   TEST
   A. WATERFLOW 2420 GPM
   B. STATIC PRESSURE 106 PSI
   C. RESIDUAL PRESSURE 100 PSI
   D. DATE 8/23/2023, TIME 10:45 AM
   E. FLOW TEST PERFORMED BY CITY OF DURHAM
   F. TEST HYDRANTS – FLOW HYDRANT – NC HWY 55 APPROX. 600 LF SOUTH OF PRESSURE HYDRANT

   TEST HYDRANT – NC HWY 55 AT YW ALEXANDER INTERSECTION

3. DESIGN (SPRINKLER CONTRACTOR SHALL INCLUDE A MINIMUM SAFETY FACTOR OF 10 PSI LESS STATIC, 10 PSI LESS RESIDUAL, AND 10 PERCENT LESS FLOW IN THE HYDRAULIC CALCULATIONS.)

4. CLASSIFICATION OF OCCUPANCY HAZARD:

   A. LIGHT HAZARD, THROUGHOUT OFFICE AREAS OF BUILDING. 0.10 GPM/SQ.FT. OVER THE MOST REMOTE 1500 SQ.FT.
   B. ORDINARY HAZARD GROUP 1 – THROUGHOUT MECHANICAL/ELECTRICAL ROOMS, AND GENRAL STORAGE ROOMS/AREAS. 0.15 GPM/SQ.FT. OVER THE MOST REMOTE 1500 SQ.FT.

5. SYSTEM DESIGN:

   A. HYDRAULICALLY CALCULATED PER NFPA 13.
   B. 225 S.F. MAXIMUM PER SPRINKLER.
   C. BUILDING AREA IS APPROXIMATELY 28,895 SQ.FT.
   * SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING CURRENT WATER FLOW TEST FOR USE IN HYDRAULIC CALCULATIONS.

3

ABBREVIATIONS

SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR ELEVATION
AFG	ABOVE FINISHED GRADE ELEVATION
CR	CONCENTRIC REDUCER
ELEV	ELEVATION
FDC	FIRE DEPARTMENT CONNECTION
FS	FLOW SWITCH
FT	FEET OF HEAD
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
NIC	NOT IN CONTRACT
OC	ON CENTER
PSIG	POUNDS PER SQUARE INCH GUAGE
TYP	TYPICAL
TS	SUPERVISORY "TAMPER" SWITCH

AUTOMATIC SPRINKLER LEGEND

SYMBOL	DESCRIPTION
	PENDENT TYPE, RECESSED STYLE, QUICK RESPONSE
	SIDEWALL TYPE, QUICK RESPONSE
D	DRY SIDEWALL TYPE, QUICK RESPONSE
C	CONCEALED TYPE, WHITE FINISH, QUICK RESPONSE
	UPRIGHT TYPE, QUICK RESPONSE

PIPE AND VALVE LEGEND

SYMBOL	DESCRIPTION
	AUTOMATIC SPRINKLER SYSTEM PIPING
FWS	FIRE SERVICE WATER PIPING
	PIPE UP
	PIPE DOWN
	PIPE CAP (GROOVED COUPLING)
	PIPE CAP (THREADED)
	TEE OFF TOP
	TEE OFF BOTTOM
	GATE VALVE
	BUTTERFLY VALVE
	BALL OR GLOBE VALVE
	DUAL TEXT ORIFICE–DRAIN VALVE
	CHECK VALVE
	FLOOR SPRINKLER CONTROL, TEST & DRAIN ASSEMBLY

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Fire Protection Legends, Notes, amd Details

BID DOCUMENTS

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

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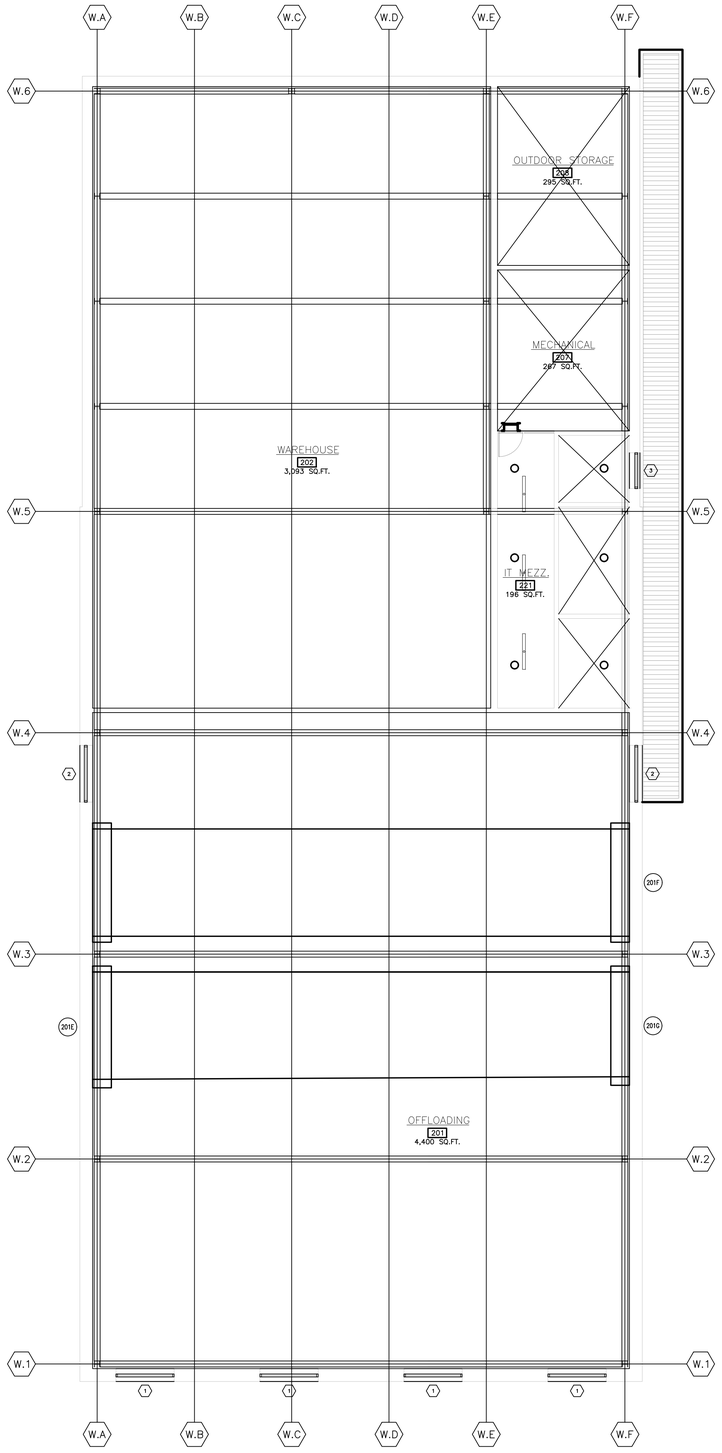
100% BID DOCUMENTS

Revisions

3 10/2/2026 LDH ADDENDUM #3

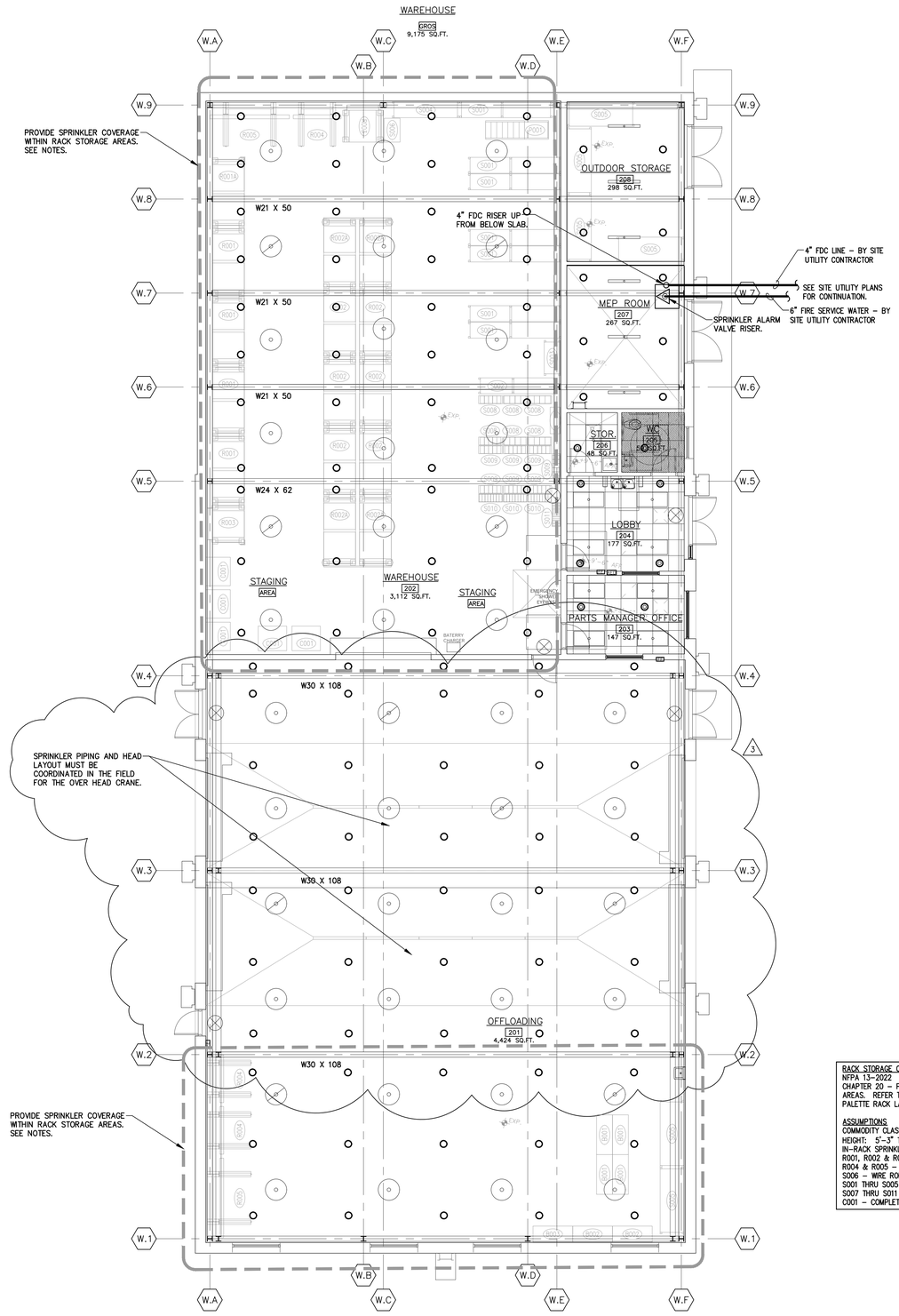
Drawn LDH
Checked CTC
Date 2026–08–31
Sheet FP1.0
Of

P:\PROJECTS\2022\22-128 DURHAM COUNTY UTILITES ADMIN 2 BUILDING\1.0 CAD\3.30 FIRE PROTECTION\FP1.0.DWG PLOTTED 10/5/2026 12:29 PM BY: DARRIN HESTER



2 Warehouse Fire Protection Plan - Mezzanine Space

FP1.1.W SCALE: 1/8" = 1'-0"



1 Warehouse Fire Protection Plan

FP1.1.W SCALE: 1/8" = 1'-0"

RACK STORAGE CRITERIA:
NFPA 13-2022
CHAPTER 20 - PROVIDE COMPLETE COVERAGE THROUGHOUT RACK STORAGE AREAS. REFER TO ARCHITECTURAL PLANS A-1.3W & A-1.4W FOR SHELVING AND PALETTE RACK LAYOUTS.

ASSUMPTIONS
COMMODITY CLASS IV CRITERIA.
HEIGHT: 5'-3" TO 22'-0" OVERALL.
IN-RACK SPRINKLERS: YES
R001, R002 & R003 - BIG PARTS, MOTORS, PUMPS AND EQUIPMENT.
R004 & R005 - SMALL AND LARGE DIAMETER PIPING - STEEL AND PVC.
S006 - WIRE ROLL STANDS.
S001 THRU S005 - BOXES AND CRATES OF EQUIPMENT.
S007 THRU S011 - PLASTIC BOX DRAWERS FOR SMALL PARTS.
C001 - COMPLETELY ENCLOSED STORAGE UNITS FOR FLAMMABLES.

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale
1/8" = 1'-0"
0' 4' 8' 16' 32'

North

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Warehouse Fire Protection Plan
Alternate G-1

BID DOCUMENTS

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

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P:\PROJECTS\2022\22-128 DURHAM COUNTY UTILITES ADMIN 2 BUILDING\3.0 CAD\3.30 FIRE PROTECTION\FP1.1 W.DWG PLOTTED 10/5/2026 12:33 PM BY: DARRIN HESTER

HEAT EXCHANGER SCHEDULE

DESIG	CAPACITY (MBH)	TYPE	SERVICE	HEAT PUMP SIDE				RECLAIM WATER				REMARKS
				FLOW GPM	EWT °F	LWT °F	WPD FT. H2O	FLOW GPM	EWT °F	LWT °F	WPD FT. H20	
PCWT-HX-1	865	PLATE & FRAME	WSHP SYSTEM	200	100	90	12	380	85	95	12	1,2,3,4,5

1 150 PSI WORKING PRESSURE
2 TYPE 304 STAINLESS STEEL PLATES
3 NITRILE GASKETS
4 SAME END CONNECTIONS
5 0.0005 FOULING FACTOR
6 0.0001 FOULING FACTOR

ELECTRIC UNIT HEATER SCHEDULE

DESIG.	TYPE	SERVICE	CAPACITY KW	CFM	VOLTS/ PHASE	AMPS	TEMP. RISE	MOUNTING HEIGHT	MANU.	MODEL	REMARKS
EUH-1	HORIZONTAL	MECH. 181	3.3	400	480/3	4	40°F	9	MARKEL	P3P5103CA1N	1,2,3

REMARKS:
1. PROVIDE WITH ELECTRIC DISCONNECT.
2. PROVIDE ALL NECESSARY HARDWARE FOR INSTALLATION.
3. PROVIDE UNIT-MOUNTED THERMOSTAT

PUMP SCHEDULE

DESIG	MFG	MODEL	TYPE	SERVICE	GPM	HEAD	RPM	EFF.	BHP	ELECTRICAL HP	ELECTRICAL VOLTAGE	SUCTION x DISCHARGE	REMARKS
WLP-1	B&G	1510 3BD	BASE MT.	WATER LOOP	380	75 FT	1800	75%	7.4	10	460/3	2.5"X2"	1,3,5
WLP-2	B&G	1510 3BD	BASE MT.	WATER LOOP	380	75 FT	1800	75%	7.4	10	460/3	2.5"X2"	1,3,5
HWP-1	B&G	60 1-1/4 X 5-1/4	INLINE	BOILER 1 PRIMARY	30	20 FT	1750	57%	0.27	0.5	120/1	1-1/4" X1-1/4"	1,2,4
HWP-2	B&G	60 1-1/4 X 5-1/4	INLINE	BOILER 2 PRIMARY	30	20 FT	1750	57%	0.27	0.5	120/1	1-1/4" X1-1/4"	1,2,4
P-1	B&G	1510 3BD	BASE MT.	RE-USE WATER	380	40 FT	1800	75%	7.4	10	460/3	2.5"X2"	1,3,5
P-2	B&G	1510 3BD	BASE MT.	RE-USE WATER	380	40 FT	1800	75%	7.4	10	460/3	2.5"X2"	1,3,5
RUWP-1	B&G	1510 3BD	BASE MT.	RE-USE WATER	380	50 FT	1800	75%	7.4	10	460/3	2.5"X2"	1,3,5
RUWP-2	B&G	1510 3BD	BASE MT.	RE-USE WATER	380	50 FT	1800	75%	7.4	10	460/3	2.5"X2"	1,3,5

REMARKS
1. PROVIDE WITH NON OVERLOADING PUMP MOTORS.
2. PROVIDE WITH MOTOR STARTER.
3. SEE PUMP DETAIL FOR ACCESSORIES.
4. PUMP MAY BE SUPPLIED INTEGRAL TO BOILER.
5. PROVIDE VFD WITH LOCKABLE INTEGRAL SERVICE DISCONNECT. PROVDE INVERTER DUTY MOTOR.

HOT WATER BOILER SCHEDULE

DESIG.	MANUF	MODEL	TYPE	FUEL	GAS PRESS	INPUT MBH	OUTPUT MBH	IBR NET MBH	GPM	EFFICIENCY	VENT SIZE	OPERATING PRESSURE	VOLTS/PH	REMARKS
HWB-1	LOCHINVAR	KNIGHT XL	CONDENSING	NAT. GAS	7"	399	372	324	30	93%	4"	30 PSIG	120/1	SEE ALL BELOW
HWB-2	LOCHINVAR	KNIGHT XL	CONDENSING	NAT. GAS	7"	399	372	324	30	93%	4"	30 PSIG	120/1	SEE ALL BELOW

REMARKS
1. BOILERS ARE INDOOR TYPE, FAN ASSIST, CONDENSING TYPE, AND RATED FOR 160 PSIG.
2. PROVIDE WITH STANDARD AGA APPROVED NATURAL GAS TRAIN.
3. PROVIDE INTERMITTENT ELECTRONIC SPARK IGNITION.
4. MODUATING BURNER WITH 5:1 TURN DOWN MINIMUM.
5. ASME STAINLESS STEEL HEAT EXCHANGER.
6. PROVIDE INTEGRAL CIRCULATING PUMP. SEE SCHEDULE
7. PROVIDE WITH AQUASTAT TO BE INSTALLED BY CONTRACTOR.
8. PROVIDE WITH MICROPROCESSOR CONTROLLER.
9. PROVIDE 50 PSI RELIEF VALVE.
10. PROVIDE CONDENSATE NEUTRALIZATION KIT.

DUCTLESS SPLIT DX SYSTEM SCHEDULE

DESIG	MANUF	MODEL	SERVICE	TYPE	SUPPLY FAN CFM (LO)	SUPPLY FAN CFM (HI)	SUPPLY FAN SOUND PRESSURE	ENTERING AIR TEMPERATURE	NET MIN. SENSIBLE COOLING CAPACITY	SEER	HEATING CAPACITY	MAX. ELEV. DIFFERENCE	MAX. PIPE LENGTH	UNIT DIMENSIONS WIDTH x DEPTH x HEIGHT	UNIT DIMENSIONS WEIGHT	POWER VOLTS/PHASE	POWER INPUT	POWER MOCP
AC-1	MITSUBISHI	PKA-A12	MAIN IT 121	DX WALL MOUNTED SPLIT UNIT	290	380	43 DBA	80 DB °F / 67 DB °F	12 MBH	15.2	N/A	100	100	35-3/8" x 9-13/16" x 11-5/8"	29 LBS	208 / 1	1.2 KW	15 A
CU-1		PUY-A12		DX CONDENSING UNIT	-		46 DBA	95 DB °F			N/A			31-1/2" x 11-13/16" x 23-5/8"	82 LBS			
AC-2	MITSUBISHI	PKA-A12	IT #3 159	DX WALL MOUNTED SPLIT UNIT	290	380	43 DBA	80 DB °F / 67 DB °F	12 MBH	15.2	N/A	100	100	35-3/8" x 9-13/16" x 11-5/8"	29 LBS	208 / 1	1.2 KW	15 A
CU-2		PUY-A12		DX CONDENSING UNIT	-		46 DBA	95 DB °F			N/A			31-1/2" x 11-13/16" x 23-5/8"	82 LBS			

NOTES:
1. UNIT SHALL BE MITSUBISHI OR EQUIVALENT
2. EXPOSED INTERIOR AND EXTERIOR PIPING SHALL BE COVERED WITH LINESET COVER SIMILAR TO SLIM DUCT
3. PROVIDE CONDENSATE PUMP WITH WATER DETECTION UNIT. DRAIN BY GRAVITY WHERE POSSIBLE. INTERLOCK HIGH LEVEL SWITCH WITH AC-1.
4. REFER TO MANUFACTURERS SPECIFICATIONS FOR MAXIMUM REFRIGERANT PIPING LENGTHS
5. REFER TO MANUFACTURERS SPECIFICATIONS FOR CLEARANCE RECOMMENDATIONS
6. LOW AMBIENT TO 0°F, ISOLATION RELAY, EVAPORATOR FREEZE THERMOSTAT
7. CRANKCASE HEATER
8. 5 MINUTE ANTI RECYCLE
9. OUTDOOR AIR TEMPERATURE SENSOR
10. FACTORY MOUNTED FILTER LINE DRYER
11. REMOTE MOUNTED WIRED THERMOSTAT
12. THERMOSTATIC EXPANSION VALVE
13. REFER TO MANUFACTURERS SPECIFICATIONS FOR CONDENSATE DRAINAGE
14. 1-YEAR PARTS AND 5-YEAR COMPRESSOR AND LABOR WARRANTY
15. PROVIDE WIND BAFFLE AS REQUIRED FOR LOW AMBIENT OPERATION
16. PROVIDE HOUSEKEEPING PAD

RECTANGULAR ELBOW SILENCER

TAG	SILENCER INFORMATION MODEL	WIDTH (IN)	HEIGHT (IN)	TOTAL LENGTH (IN)	LEG A (IN)	LEG B (IN)	DUCT SYSTEM INFORMATION AIR DIRECTION	FLOW (CFM)	VELOCITY (FPM)	PD (IN. W.G.)	DYNAMIC INSERTION LOSS (Db) 63	125	250	500	1k	2k	4k	8k
EL-1	ERM120/XD	40	18	120	48	112	FORWARD	6,000	1,200	0.34	15	22	27	38	39	37	34	31
EL-2	ERM120/XD	40	18	120	48	112	FORWARD	6,000	1,200	0.34	15	22	27	38	39	37	34	31
EL-3	ERM120/3D	36	24	120	48	112	FORWARD	8,000	1,333	0.34	13	20	35	51	53	52	48	36

NOTES:
1- GALVANIZED, CL2(18 GA)
2- 22 GAP PERF LINER, FIBERGLASS
3- INLET: 2" SLIP AND OUTLET: 2" SLIP

EXHAUST FAN SCHEDULE

DESIG.	MODEL NO.	TYPE	CFM	STATIC PRESSURE	FAN RPM	SONES	HP	VOLTS / PH	DRIVE	SERVICE	CONTROL TYPE	NOTES:
EF-01	G-100-VG	DOWNBLAST	900	0.25 IN WG	1,238	6.7	1/4	115/1	DIRECT	LOCKERS 148/149	BAS	1 - 7
EF-02	G-060-VG	DOWNBLAST	100	0.25 IN WG	1,479	3.3	1/15	115/1	DIRECT	JANITOR 137	BAS	1 - 7
EF-03	G-060-VG	DOWNBLAST	100	0.25 IN WG	1,479	3.3	1/15	115/1	DIRECT	JANITOR 117	BAS	1 - 7
EF-04	G-095-VG	DOWNBLAST	700	0.25 IN WG	1,371	6.9	1/6	115/1	DIRECT	BATHROOM 108/109	BAS	1 - 7
EF-05	G-060-VG	DOWNBLAST	70	0.25 IN WG	1,371	2.8	1/15	115/1	DIRECT	TOILET 107	OCC. SENSOR / BAS	1 - 7
1 EF-06	G-060-VG	DOWNBLAST	100	0.25 IN WG	1,479	3.3	1/15	115/1	DIRECT	KITCHEN 110	WALL SWITCH	1 - 6, 8
EF-07	CSP-A125	INLINE	75	0.25 IN WG	950	0.3	20W	115/1	DIRECT	LOCKER STATION #1	CONTINOUS	1 - 5
EF-08	CSP-A125	INLINE	90	0.25 IN WG	980	0.3	22W	115/1	DIRECT	LOCKER STATION #2	CONTINOUS	1 - 5
EF-09	G-100-VG	DOWNBLAST	800	0.25 IN WG	1,138	5.8	1/4	115/2	DIRECT	MECHANICAL 111	BAS	1 - 7

NOTES:
1. BASIS OF DESIGN IS GREENHECK. SEE SPECIFICATIONS FOR APPROVED EQUALS. ALL FANS TO BE UL LISTED (UL 705).
2. PROVIDE VIBRATION ISOLATION KIT, GRAVITY BACKDRAFT DAMPER.
3. PROVIDE BIRD SCREEN.
4. PROVIDE DISCONNECT SWITCH. NEMA-1 INDOORS, NEMA-3R OUTDOORS.
5. PROVIDE SPEED CONTROL FOR TAB ADJUSTMENT.
6. PROVIDE ROOF CURB
7. CONTROLLED BY LIGHTS WITH TIMER AND BY BAS DAY & NIGHT TIME SCHEDULE. BAS CONTACT (RIB) RELAY CONTROL. SEE ELECT. DWGS. FOR OCC. SENSOR CONTROL.
8. PROVIDE WALL SWITCH AT 48" AFF. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

AIR DISTRIBUTION SCHEDULE

DESIG	TYPE	CFM RANGE	NECK SIZE	FACE SIZE	ROUND ADAPTER	MAX NC	MAX TP	FRAME	CONSTRUCTION	MODEL	NOTES
A	LOUVERED FACE SUPPLY DIFFUSER	0 - 110	9x9	24x24	6"Ø	15	0.10	LAY-IN	ALUMINUM	AMDA	1 - 6
		111 - 240	9x9	24x24	8"Ø	20	0.10				
		240 - 350	12x12	24x24	10"Ø	25	0.10				
B	PERFORATED FACE RETURN GRILLE	0 - 270	12x12	24x24	N/A	15	0.05	LAY-IN	ALUMINUM	APDR	1 - 4, 6
		271 - 450	14x14	24x24	N/A	15	0.05				
		451 - 560	16x16	24x24	N/A	15	0.05				
		561 - 1200	18x18	24x24	N/A	17	0.05				
C	SIDEWALL SUPPLY DIFFUSER	0 - 200	10x8	-	N/A	15	0.01	SURFACE	ALUMINUM	620FL	1, 2, 6
D	SIDEWALL RETURN GRILLE	0 - 200	10x8	-	N/A	15	0.01	SURFACE	ALUMINUM	635FL	1, 2, 6
		201 - 400	14x10			20	0.01				
		401 - 800	28x12			20	0.01				
E	SPIRAL DUCT SUPPLY GRILLE	0 - 150	10x6	-	N/A	15	0.01	DUCT MOUNTED	ALUMINUM	SDGE	1, 6, 8
F	CONTINUOUS LINEAR SLOT RETURN	0 - 120	2 SLOT - 1-1/2" SLOT WIDTH		8"Ø/ 4' PLENUM	21	0.04	SURFACE	ALUMINUM	SDS/ SDB150	1, 6, 7

NOTES
1. DIFFUSERS AND GRILLES TO BE BY PRICE OR APPROVED EQUIVALENT
2. WHITE POWDER COAT FINISH WITH BLACK INTERIOR BACK PAN
3. DEVICES LOCATED IN ACOUSTICAL TILE CEILINGS SHALL BE PROVIDED WITH FACTORY SHEET METAL PANEL.
4. DEVICES LOCATED IN GYP CEILINGS SHALL HAVE SAME FACE SIZE AS NECK
5. PROVIDE FACTORY ROUND ADAPTOR WITH OPENING CENTERED IN FACE
6. FRAME TYPE SHALL BE COMPATIBLE WITH MOUNTING SURFACE. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. PROVIDE ALL MATERIALS REQUIRED FOR COMPLETE INSTALLATION OF LINEAR SLOT SYSTEM INCLUDING REQUIRED APPURTENANCES.
8. MOUNT SPIRAL DUCT GRILLE TO DIRECT AIRFLOW 22.5 DEGREES BELOW HORIZONTAL

WATER-SOURCE HEAT PUMP AIR HANDLING UNIT SCHEDULE

TAG	Qty	Model	Capacity	Airflow (CFM)	MIN OA (CFM)	External Static Pressure (inH$_2$O)	Fluid Flow (gpm)	Fluid Type	Antifreeze (%)	Cooling EWT (°F)	Cooling LWT (°F)	Cooling EAT EDB (°F)	Cooling EAT EWB (°F)	Cooling LAT LDB (°F)	Cooling LAT LWB (°F)	Cooling Total (Btu/hr)	Cooling Sensible (Btu/hr)	Cooling Heat of Rejection (Btu/hr)	Cooling EER (Design)	Cooling EER (AHRI)
AHU-1 WSHP	1	WSLV200	FULL	6,000	1,100	2.2	60	Water	0.00	80.0	88.5	80.0	67.0	57.0	55.2	208926	147384	254131	15.8	15.1
			PART			0.3			0.00	70.0	71.7	70.0	63.0	69.6	60.9	37762	2448	50103	10.4	12.8
AHU-2 WSHP	1	WSLV200	FULL	6,000	1,100	2.2	60	Water	0.00	80.0	88.5	80.0	67.0	57.0	55.2	208926	147384	254131	15.8	15.1
			PART			0.3			0.00	70.0	71.5	70.0	60.0	68.2	58.0	32785	11313	45168	9	12.8
AHU-3 WSHP	1	WSLV300	FULL	7,980	1,630	1.37	75	Water	0.00	80.0	89.5	80.0	67.0	57.3	54.6	288604	193612	356714	14.5	14
			PART			0.3			0.00	70.0	74.2	70.0	60.0	61.9	54.5	121525	68886	157070	11.7	11.2

TAG	Heating EWT (°F)	Heating LWT (°F)	Heating EAT EDB (°F)	Heating LAT LDB (°F)	Heating Total (Btu/hr)	Heating Heat of Absorption (Btu/hr)	Heating COP (Design)	Heating COP (AHRI)	Electrical Voltage	Compressor RLA	Fan Motor FLA	Total Unit FLA	MCA (A)	Max Fuse
AHU-1 WSHP	57.0	50.6	60.0	97.7	241648	190556	4.7	4.8	460/60/3	17.1	9.3	43.5	47.8	60
	55.0	51.9	55.0	73.8	120525	93352	4.4	4.4						
AHU-2 WSHP	60.0	53.4	60.0	99.0	249845	197980	4.8	4.8	460/60/3	17.1	9.3	43.5	47.8	60
	55.0	51.9	55.0	73.8	120525	93352	4.4	4.4						
AHU-3 WSHP	60.0	52.2	60.0	103.6	371604	290880	4.6	4.8	460/60/3	22.9	11.9	57.7	63.4	80
	55.0	51.4	55.0	76.1	180178	136748	4.1	4.5						

NOTES:
1. 2" THICK DOUBLE WALL CONSTRUCTION WITH SOLID INNER LINER (EXCEPT FAN SECTION). FAN SECTION 2" THICK DOUBLE WALL CONSTRUCTION WITH PERFORATED LINER.
2. PROVIDE VIBRATION ISOLATORS.
3. PROVIDE WITH VARIABLE SPEED DRIVE FOR SUPPLY FAN.
4. PROVIDE WITH HOT-GAS BYPASS.
5. PROVIDE MICROTECH UNIT CONTROLLER WITH BACnet, 75VA TRANSFORMER, THERMOSTAT SENSOR CONTROL.
6. PROVIDE WITH SENSOR WITH COOL/WARM TEMPERATURE ADJUSTMENT AND OCCUPANCY OVERRIDE.
7. PROVIDE WITH STAINLESS STEEL, SLOPED DRAIN PAN.
8. PROVIDE WITH FOUR (4) YEAR COMPLETE WNIT EXTENDED WARRANTY, 1ST YEAR LABOR ALLOWANCE.

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Mechanical Schedules

BID DOCUMENTS

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

NORTH CAROLINA PROFESSIONAL SEAL 028808 ENGINEER CHARLES T. CROWL

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Revisions
1 9/30/26 ADDENDUM #3

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P:\PROJECTS\2022\22-128 DURHAM COUNTY UTILITIES ADMIN 2 BUILDING\1.0 CAD\1.40 HVAC\M0.2.DWG PLOTTED 9/30/2026 9:22 AM BY: KENATO SANCHEZ

EXHAUST FAN SCHEDULE

DESIG.	MODEL NO.	TYPE	CFM	STATIC PRESSURE	FAN RPM	SONES	HP	VOLTS / PH	DRIVE	SERVICE	CONTROL TYPE	NOTES:
EF-1	SP-B90	CASETTE	100	0.25 IN WG	700	1.3	1/4	0.01	DIRECT	WC 205	WALL SWITCH	1 - 5
EF-2	120SQN-B OR	INLINE	100	0.5 IN WG	1,725	5	1/6	115/1	BELT	WAREHOUSE 202	CONTINUOUS	1 - 4

NOTES:
1. BASIS OF DESIGN IS GREENHECK. SEE SPECIFICATIONS FOR APPROVED EQUALS. ALL FANS TO BE UL LISTED (UL 705).
2. PROVIDE VIBRATION ISOLATION KIT, GRAVITY BACKDRAFT DAMPER.
3. PROVIDE BIRD SCREEN.
4. PROVIDE DISCONNECT SWITCH. NEMA-1 INDOORS, NEMA-3R OUTDOORS.
5. CONTROLLED BY LIGHTS WITH TIMER AND BY BAS DAY & NIGHT TIME SCHEDULE. BAS CONTACT (RIB) RELAY CONTROL. SEE ELECT. DWGS. FOR OCC. SENSOR CONTROL.

ELECTRIC UNIT HEATER SCHEDULE

DESIG.	TYPE	SERVICE	CAPACITY KW	CFM	VOLTS/ PHASE	AMPS	TEMP. RISE	MOUNTING HEIGHT	MANU.	MODEL	REMARKS
EUH-1	HORIZONTAL	MEZZANINE	3.3	400	480/3	4	40°F	9	MARKEL	P3P5103CA1N	1,2,3
EUH-2	HORIZONTAL	MECH. 207	3.3	400	480/3	4	40°F	9	MARKEL	P3P5103CA1N	1,2,3
EUH-3	HORIZONTAL	STORAGE 208	3.3	400	480/3	4	40°F	9	MARKEL	P3P5103CA1N	1,2,3
EUH-4	HORIZONTAL	WAREHOUSE 202	15	1,100	480/3	18	40°F	11	MARKEL	P3P5115CA1N	1,2,3
EUH-5	HORIZONTAL	WAREHOUSE 202	15	1,100	480/3	18	40°F	11	MARKEL	P3P5115CA1N	1,2,3
EUH-6	HORIZONTAL	WAREHOUSE 202	15	1,100	480/3	18	40°F	11	MARKEL	P3P5115CA1N	1,2,3
EUH-7	HORIZONTAL	OFFLOADING 201	15	1,100	480/3	18	40°F	11	MARKEL	P3P5115CA1N	1,2,3
EUH-8	HORIZONTAL	OFFLOADING 201	15	1,100	480/3	18	40°F	11	MARKEL	P3P5115CA1N	1,2,3
EUH-9	HORIZONTAL	OFFLOADING 201	15	1,100	480/3	18	40°F	11	MARKEL	P3P5115CA1N	1,2,3

REMARKS:
1. PROVIDE WITH ELECTRIC DISCONNECT.
2. PROVIDE ALL NECESSARY HARDWARE FOR INSTALLATION.
3. PROVIDE UNIT-MOUNTED THERMOSTAT

VENTILATION FAN SCHEDULE

DESIG	MANUF	MODEL NO.	TYPE	DRIVE	SERVICE	CFM	ESP	FAN RPM	HP	MOTOR RPM	ELEC	WEIGHT	REMARKS
VF-1	G'HECK	GB-420-VG	CENTRIFUGAL	DD	VENTILATION	17,000	0.4	480	5	1725	480V/60HZ/3PH	319 LB	SEE BELOW
VF-2	G'HECK	SBE-2H48	PROPELLER	BELT	VENTILATION	17,000	0.4	546	5	1725	480V/60HZ/3PH	234 LB	SEE BELOW

REMARKS:
1. FAN TYPE SHALL BE GREENHECK OR EQUIVALENT.
2. PROVIDE BACK DRAFT DAMPER AT FAN DISCHARGE.
3. PROVIDE MOTOR SIDE GUARD.
4. PROVIDE WALL COLLAR.
5. PROVIDE DISCONNECT SWITCH

WALL LOUVER SCHEDULE

TAG	SERVICE	LOCATION	SYSTEM	TYPE	CFM	HEIGHT IN.	WIDTH IN.	FACE AREA SQ. FT.	FREE AREA SQ. FT.	VELOCITY FPM	MAX APD. IN. WG	MANUF	MODEL	REMARKS
L-1	INTAKE	MECHANICAL 181 (MB)	AHU-1	6" DRAINABLE BLADE	1,100	24	24	4.00	2.00	550	0.10	RUSKIN	ELF6375DX	ALL
L-2	INTAKE	OFFLOADING (WH)	VF-1	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-3	INTAKE	OFFLOADING (WH)	VF-1	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-4	INTAKE	WAREHOUSE (WH)	VF-2	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-5	INTAKE	WAREHOUSE (WH)	VF-2	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-6	EXHAUST	CORRIDOR 182 (MB)	EF-07	1-1/2" STATIONARY	75	8	8	0.44	0.14	527	0.10	RUSKIN	ELF15J	ALL
L-7	EXHAUST	MECHANICAL 181 (MB)	EF-08	1-1/2" STATIONARY	90	8	8	0.44	0.14	633	0.10	RUSKIN	ELF15J	ALL
L-8	INTAKE	MECHANICAL 111 (MB)	EF-09	6" DRAINABLE BLADE	800	18	24	3.00	1.38	580	0.10	RUSKIN	ELF6375DX	ALL

REMARKS:
1. ALUMINUM BIRDSCREEN (PREFERABLY ON THE EXTERIOR SIDE)
2. EXTRUDED ALUMINUM CONSTRUCTION
3. INTEGRAL DOWNSPOUTS, FLANGED FRAME, AND CAULKING SURFACE
4. PROVIDE PLENUM BEHIND LOUVER. MINIMUM 2'-0" DEEP
5. MB - MAIN BUILDING, WH - WAREHOUSE

MOTORIZED DAMPER SCHEDULE

DESIG	SERVICE	CFM	SP (in.)	VELOCITY FT/MIN	SIZE	MANUF.	MODEL	REMARKS
MD-1	VENTILATION LOUVER-1	5,000	0.100	520	8"-0"W x 48"H	TAMCO	8800	1,2,3,4,5,6
MD-2	VENTILATION LOUVER-2	5,000	0.100	520	8"-0"W x 48"H	TAMCO	8800	1,2,3,4,5,6
MD-3	VENTILATION LOUVER-3	5,000	0.100	520	8"-0"W x 48"H	TAMCO	8800	1,2,3,4,5,6
MD-4	VENTILATION LOUVER-3	5,000	0.100	520	8"-0"W x 48"H	TAMCO	8800	1,2,3,4,5,6

1. TWO SECTIONS MINUMUM AS RECOMMENDED BY MANUFACTURER.
2. PROVIDE MOTORIZED DAMPER ACTUATOR AND JACK SHAFTS. 120 VOLTS
3. PROVIDE SALT WATER RESISTANCE OPTION.
4. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. PROVIDE ALL NECESSARY HARDWARE FOR A COMPLETE INSTALLATION.
6. VENTILATION LOUVERS ARE PROVIDED AND INSTALLED BY THE G.C. COORDINATE DAMPER INSTALLATION WITH G.C.

SPLIT SYSTEM HEAT PUMP EQUIPMENT SCHEDULE

AIR HANDLING UNIT																					OUTDOOR UNIT										
DESIG	TYPE	SERVING	SUPPLY FAN			VENT.	EAT		AMBIENT	COOLING			HEATING	AUX. HEAT		FILTER	VOLTS			MANUF	MODEL	DESIG	TYPE	COMPRESSORS		VOLTS			MANUF	MODEL	REMARKS
			CFM	HP	ESP	AIR CFM	DB	WB	°F	TMBH	SMBH	SEER	MBH	NOM.KW	ACTUAL	TYPE	PHASE	MCA	MOCP		NO.			NO.	TONS	PHASE	MCA	MOCP		NO.	
AHU-1	VERTICAL	WAREHOUSE	800	0.75	0.6	100	80	67	95	24.5	14.4	16	17	7.7	5.6	2"-MERV13	208/1	37	40	TRANE	TEM4AOB24	**HP-1**	HEAT PUMP	1	2	208/1	15	25	TRANE	4TWR6024	1,2,3,4,5,6,7,8,9

1. ISOLATION RELAY, EVAPORATOR FREEZE THERMOSTAT
2. CRANKCASE HEATER
3. 5 MINUTE ANTI RECYCLE
4. ALL REFRIGERANT PIPING INSULATION LOCATED OUTDOORS TO BE UV RESISTANT.
5. FILTER DRYER
6. HAIL GUARD
7. THERMOSTATIC OR ELECTRONIC EXPANSION VALVE
8. PROVIDE PROGRAMMABLE WI-FI ENABLED THERMOSTAT
9. FILTER SIZES SHALL BE IN NOMINAL 2" INCREMENTS
10. PROVIDE SAFE-T-SWITCH SS-3 MOISTURE SWITCH IN DRAIN PAN

HVLS CEILING FAN SCHEDULE

TAG	MANUF	MODEL NO.	TYPE	IMPELLER DIAMETER (FT)	DRIVE	PERFORMANCE: DIRECTION OF OPERATION	CFM	COVERAGE AREA (SQ. FT)	MAXIMUM COVERAGE AREA (SQ. FT)	FAN SPACING (FT)	AVERAGE AIR SPEED (FT/MIN)	MAX AVERAGE AIR SPEED (FT/MIN)	FAN RPM	MAX FAN RPM	INTEGRATED EFFICIENCY (CFM/W)	TOTAL SOUND PRESSURE (dBA)	INSTALLATION CLEARANCES: MINIMUM FAN SPACING (FT)	CLEARANCE TO WALL (FT)	BLADE TIP CLEARANCE (FT)	VERTICAL BLADE CLEARANCE (FT)	STANDBY BLADE DEFLECTION (FT)	MOTOR: HP	SIZE (W)	VOLTS/ HZ/PH	MAX RPM	FLA	STANDBY POWER (W)	INPUT POWER (W)	CONTROL	LOCATION	NOTES
HVLS:CF-1	GREENHECK	DC-5-8-13LV	HIGH VOLUME, LOW SPEED	8	DIRECT	FORWARD	18,863	3,000	3,000	62	133	201	127	184	139	42	24	12	3	3	0.4	1/4	175	115/60/1	184	5.0	5	102	BAS	STRENGTH TRAINING	ALL - SEE BELOW

NOTES
1. VIBRATION ISOLATORS
2. HVLS TOUCHSCREEN CONTROL WITH BACnet - RECESSED ENCLOSURE. LOCATE IN MECHANICAL ROOM
3. FACTORY-MOUNTED, WIRED AND PROGRAMMED VARIABLE FREQUENCY DRIVE (VFD)
4. ELECTRONICALLY COMMUTATED (EC) VARI-GREEN FAN MOTOR
5. FACTORY MOUNTED AND WIRED DISCONNECT
6. FIVE BLADE DESIGN
7. STEEL TRUSS MOUNTING KIT
8. 8'-0" EXTENDED DROP LENGTH - FIELD VERIFY TRUSS DIMENSIONS AND ROOF PITCH FOR PROPER FAN CLEARANCES
9. COLOR SELECTION SHALL BE BY ARCHITECT - PROVIDE COLOR CHART
10. GUY-WIRING KIT
11. HEAVY-DUTY SAFETY RESTRAINT CABLE
12. FIRE ALARM WIRING PIGTAIL & RELAY
13. LOW VOLTAGE FIRE ALARM RELAY

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Mechanical Schedules
Alternate G-1

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WALL LOUVER SCHEDULE

TAG	SERVICE	LOCATION	SYSTEM	TYPE	CFM	HEIGHT IN.	WIDTH IN.	FACE AREA SQ. FT.	FREE AREA SQ. FT.	VELOCITY FPM	MAX APD. IN. WG	MANUF	MODEL	REMARKS
L-1	INTAKE	MECHANICAL 181 (MB)	AHU-1	6" DRAINABLE BLADE	1,100	24	24	4.00	2.00	550	0.10	RUSKIN	ELF6375DX	ALL
L-2	INTAKE	OFFLOADING (WH)	VF-1	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-3	INTAKE	OFFLOADING (WH)	VF-1	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-4	INTAKE	WAREHOUSE (WH)	VF-2	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-5	INTAKE	WAREHOUSE (WH)	VF-2	6" DRAINABLE BLADE	5,000	96	48	32.00	16.00	313	0.10	RUSKIN	ELF6375DX	ALL
L-6	EXHAUST	CORRIDOR 182 (MB)	EF-07	1-1/2" STATIONARY	75	8	8	0.44	0.14	527	0.10	RUSKIN	ELF15J	ALL
L-7	EXHAUST	MECHANICAL 181 (MB)	EF-08	1-1/2" STATIONARY	90	8	8	0.44	0.14	633	0.10	RUSKIN	ELF15J	ALL
L-8	INTAKE	MECHANICAL 111 (MB)	EF-09	6" DRAINABLE BLADE	800	18	24	3.00	1.38	580	0.10	RUSKIN	ELF6375DX	ALL

1

REMARKS:

1. ALUMINUM BIRDSCREEN (PREFERABLY ON THE EXTERIOR SIDE)
2. EXTRUDED ALUMINUM CONSTRUCTION
3. INTEGRAL DOWNSPOUTS, FLANGED FRAME, AND CAULKING SURFACE
4. PROVIDE PLENUM BEHIND LOUVER. MINIMUM 2'-0" DEEP
5. MB - MAIN BUILDING, WH - WAREHOUSE

ELECTRIC WALL FIN HEATER SCHEDULE

DESIG.	MANUF.	MODEL	WATTS	AMPS	VOLTS/ PHASE	LENGTH	LOCATION	REMARKS
EWF-1	QMARK	CSH-05A	3152	15.2	208/1	60"	SPRINKLER 1133	1,2,3,4
EWF-2	QMARK	CSH-05A	3152	15.2	208/1	60"	SPRINKLER 1214	1,2,3,4

REMARKS:

1. PROVIDE WITH ELECTRICAL DISCONNECT.
2. PROVIDE ALL NECESSARY HARDWARE FOR INSTALLATION.
3. PROVIDE INTERGRAL THERMOSTAT
4. TOP OUTLET

INTAKE OUTDOOR AIR HOOD SCHEDULE

TAG	SERVICE	TYPE	CFM	ROOF OPENING (IN.)	ROOF OPENING (IN.)	THROAT AREA (SQ. FT.)	VELOCITY (FPM)	MAX APD. (IN. W.G.)	MANUF	MODEL	NOTES
GIH-1	AHU-2	DUCTED	1100	12.5	18.5	1.61	685 FPM	0.15" WG	GREENHECK	FGI-10X16	1,2,3,4,5
GIH-2	AHU-3	DUCTED	1700	14.5	22.5	2.27	750 FPM	0.15" WG	GREENHECK	FGI-12X20	1,2,3,4,5

NOTES

1. BIRDSCREEN
2. EXTRUDED ALUMINUM CONSTRUCTION
3. 12" HIGH TALL BASE OPTION
4. PITCHED ROOF CURB. MINIMUM 12" HIGH. VERIFY ROOF PITCH
5. MOTORIZED BACKDRAFT DAMPER

VARIABLE AIR VOLUME TERMINAL SCHEDULE

DESIG	MODEL	PRIMARY AIR SIZE	PRIMARY AIR MAX CFM	PRIMARY AIR MIN CFM	HEATING CFM	HEATING EAT F°	HEATING LAT F°	HEATING BTUH	HEATING KW	HEATING VOLTS/ PHASE	NC @ 1.5" WG	FAN HP	SP INCHES WG
TB-1-01	PRICE SDV	6	340	105	170	55	85	5508	1.6	**277V/1PH**	22	-	0.63
TB-1-02	PRICE SDV	6	280	85	140	55	85	4536	1.3	**277V/1PH**	22	-	0.42
TB-1-03	PRICE SDV	7	430	130	215	55	85	6966	2.0	**277V/1PH**	25	-	0.51
TB-1-04	PRICE SDV	6	260	80	130	55	85	4212	1.2	**277V/1PH**	22	-	0.42
TB-1-05	PRICE SDV	6	300	90	150	55	85	4860	1.4	**277V/1PH**	22	-	0.63
TB-1-06	PRICE SDV	6	330	100	165	55	85	5346	1.6	**277V/1PH**	22	-	0.63
TB-1-07	PRICE SDV	7	420	130	210	55	85	6804	2.0	**277V/1PH**	25	-	0.51
TB-1-08	PRICE SDV	6	400	120	200	55	85	6480	1.9	**277V/1PH**	22	-	0.63
TB-1-09	PRICE SDV	6	220	70	110	55	85	3564	1.0	**277V/1PH**	22	-	0.42
TB-1-10	PRICE SDV	6	200	60	100	55	85	3240	0.9	**277V/1PH**	22	-	0.42
TB-1-11	PRICE SDV	6	240	75	120	55	85	3888	1.1	**277V/1PH**	22	-	0.42
TB-1-12	PRICE SDV	6	400	120	200	55	85	6480	1.9	**277V/1PH**	22	-	0.63
TB-1-13	PRICE SDV	9	800	240	400	55	85	12960	3.8	**480V/3PH**	24	-	0.40
TB-1-14	PRICE SDV	6	330	100	165	55	85	5346	1.6	**277V/1PH**	22	-	0.63
TB-1-15	PRICE SDV	6	350	105	175	55	85	5670	1.7	**277V/1PH**	22	-	0.63
TB-2-01	PRICE SDV	10	1200	360	600	55	85	19440	5.7	**480V/3PH**	26	-	0.60
TB-2-02	PRICE SDV	6	400	120	200	55	85	6480	1.9	**277V/1PH**	22	-	0.63
TB-2-03	PRICE SDV	7	420	130	210	55	85	6804	2.0	**277V/1PH**	25	-	0.51
TB-2-04	PRICE SDV	6	280	85	140	55	85	4536	1.3	**277V/1PH**	22	-	0.42
TB-2-05	PRICE SDV	6	400	120	200	55	85	6480	1.9	**277V/1PH**	22	-	0.63
TB-2-06	PRICE SDV	6	400	120	200	55	85	6480	1.9	**277V/1PH**	22	-	0.63
TB-2-07	PRICE SDV	6	300	90	150	55	85	4860	1.4	**277V/1PH**	22	-	0.63
TB-2-08	PRICE SDV	7	520	160	260	55	85	8424	2.5	**277V/1PH**	25	-	0.51
TB-2-09	PRICE SDV	6	240	75	120	55	85	3888	1.1	**277V/1PH**	22	-	0.42
TB-2-10	PRICE SDV	9	800	240	400	55	85	12960	3.8	**480V/3PH**	24	-	0.40
TB-2-11	PRICE SDV	6	150	45	75	55	85	2430	0.7	**277V/1PH**	22	-	0.42
TB-2-12	PRICE SDV	6	350	105	175	55	85	5670	1.7	**277V/1PH**	22	-	0.63
TB-2-13	PRICE SDV	6	350	105	175	55	85	5670	1.7	**277V/1PH**	22	-	0.63
TB-3-01	PRICE SDV	6	260	80	130	55	85	4212	1.2	**277V/1PH**	22	-	0.42
TB-3-02	PRICE SDV	7	410	125	205	55	85	6642	1.9	**277V/1PH**	25	-	0.51
TB-3-03	PRICE SDV	6	250	75	125	55	85	4050	1.2	**277V/1PH**	22	-	0.42
TB-3-04	PRICE SDV	6	250	75	125	55	85	4050	1.2	**277V/1PH**	22	-	0.42
TB-3-05	PRICE SDV	8	600	180	300	55	85	9720	2.8	**277V/1PH**	25	-	0.43
TB-3-06	PRICE SDV	6	300	90	150	55	85	4860	1.4	**277V/1PH**	22	-	0.63
TB-3-07	PRICE SDV	12	1500	450	750	55	85	24300	7.1	**480V/3PH**	26	-	0.48
TB-3-08	PRICE SDV	10	1200	360	600	55	85	19440	5.7	**480V/3PH**	26	-	0.60
TB-3-09	PRICE SDV	10	1200	360	600	55	85	19440	5.7	**480V/3PH**	26	-	0.60
TB-3-10	PRICE SDV	10	1200	360	600	55	85	19440	5.7	**480V/3PH**	26	-	0.60
TB-3-11	PRICE SDV	7	540	165	270	55	85	8748	2.6	**277V/1PH**	25	-	0.51
TB-3-12	PRICE SDV	6	270	85	135	55	85	4374	1.3	**277V/1PH**	22	-	0.42

REMARKS:

1. AIR TERMINAL UNIT MANUFACTURER BASIS OF DESIGN : PRICE INDUSTRIES
2. NC LEVEL IS DISCHARGE NC FOR SINGLE DUCT UNITS AND RADIATED FOR FAN POWERED UNITS AT 1.5" W.G. INLET STATIC PRESSURE
3. MIN. DIFFERENTIAL PRESSURE IS PRIMARY AIRFLOW PRESSURE DROP ACROSS ASSEMBLY
4. PROVIDE INTEGRAL AIR FLOW SWITCH AND INTEGRAL MAIN LINE POWER DOOR INTERLOCK DISCONNECT
5. DISCHARGE AIR TEMPERATURE SENSOR SHALL BE INSTALLED IN THE DUCTWORK IN METAL ENCLOSURE
6. WIRING FROM CONTROL PANEL TO DAT SENSOR SHALL BE IN FLEXIBLE METAL CONDUIT
7. TERMINAL UNITS SHALL BE PRESSURE INDEPENDENT WITH DIRECT DIGITAL CONTROLS
8. PROVIDE SINGLE DUCT UNITS WITH CRAF CASING INSULATION WITH MECHANICALLY BONDED METAL BARRIER STRIPS
9. PROVIDE CONTROL POWER TRANSFORMER WITH DISCONNECT
10. PROVIDE 42" CLEARANCE IN FRONT OF ELECTRICAL ENCLOSURE

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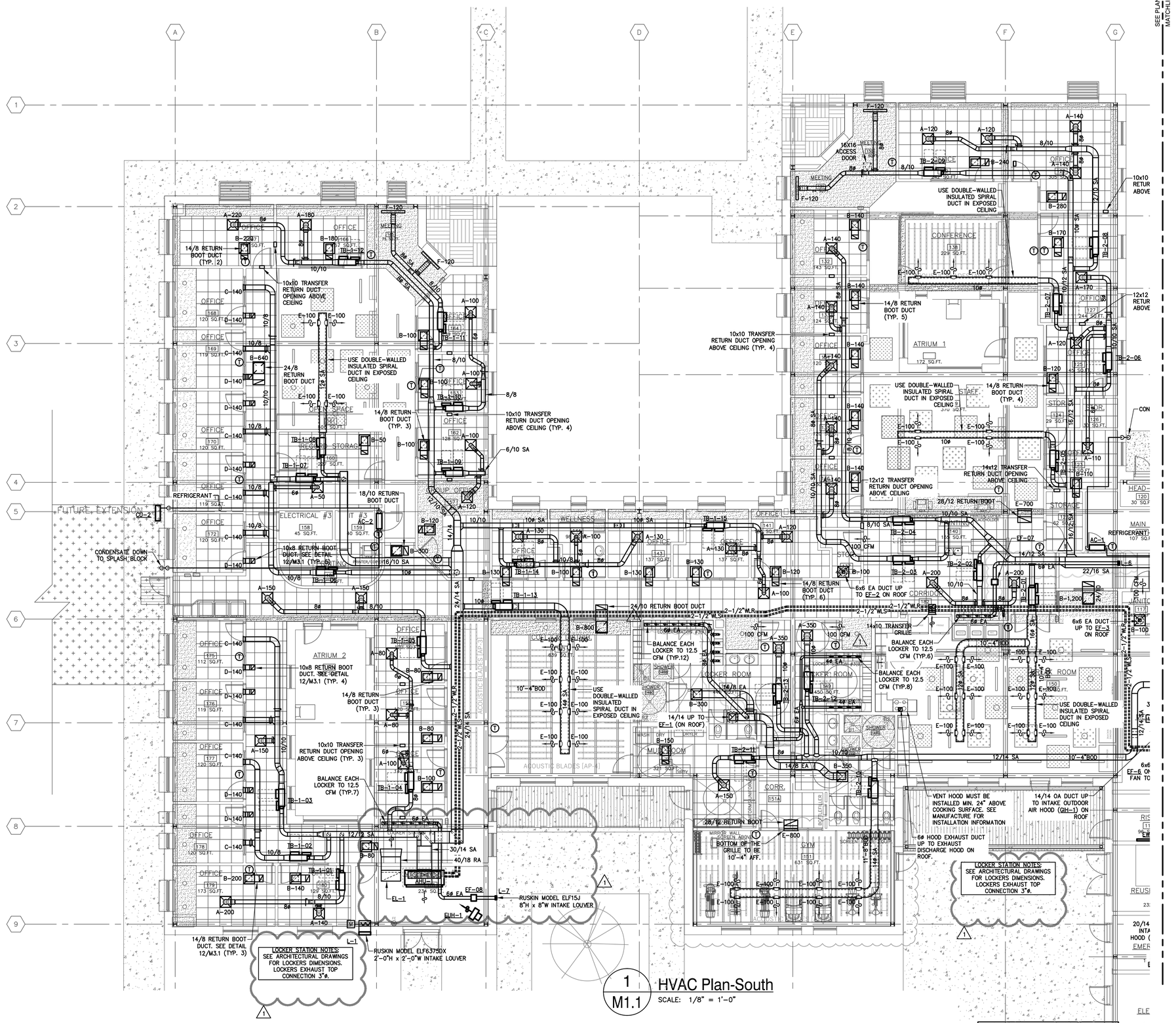

1 / M1.1 HVAC Plan-South

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

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Mechanical Plan

BID DOCUMENTS

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

NORTH CAROLINA PROFESSIONAL SEAL 028808 ENGINEER CHARLES T. CROWL

EDMONDSON ENGINEERS
1600 Hwy. 54, Suite 700, Durham, NC 27713
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Durham, NC 27707
919.317.4020

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Revisions		
1	9/30/26	ADDENDUM #3

Drawn RAS
Checked CTC
Date 2026-08-31
Sheet M1.1
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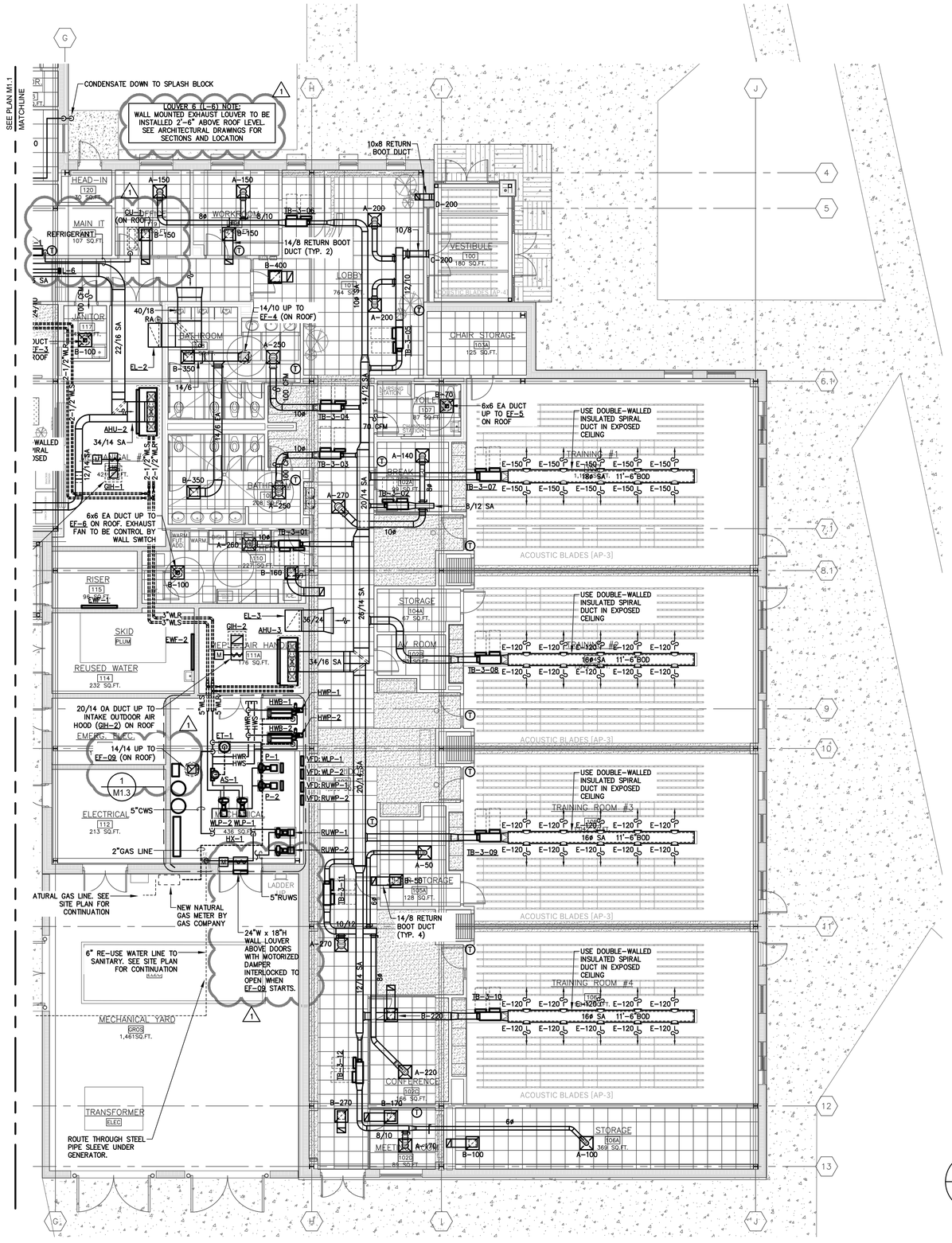

1 / M1.2 HVAC Plan-North

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

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale 1/8" = 1'-0"

0' 4' 8' 16' 32'

North

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Mechanical Plan

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

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1 9/30/26	ADDENDUM #3

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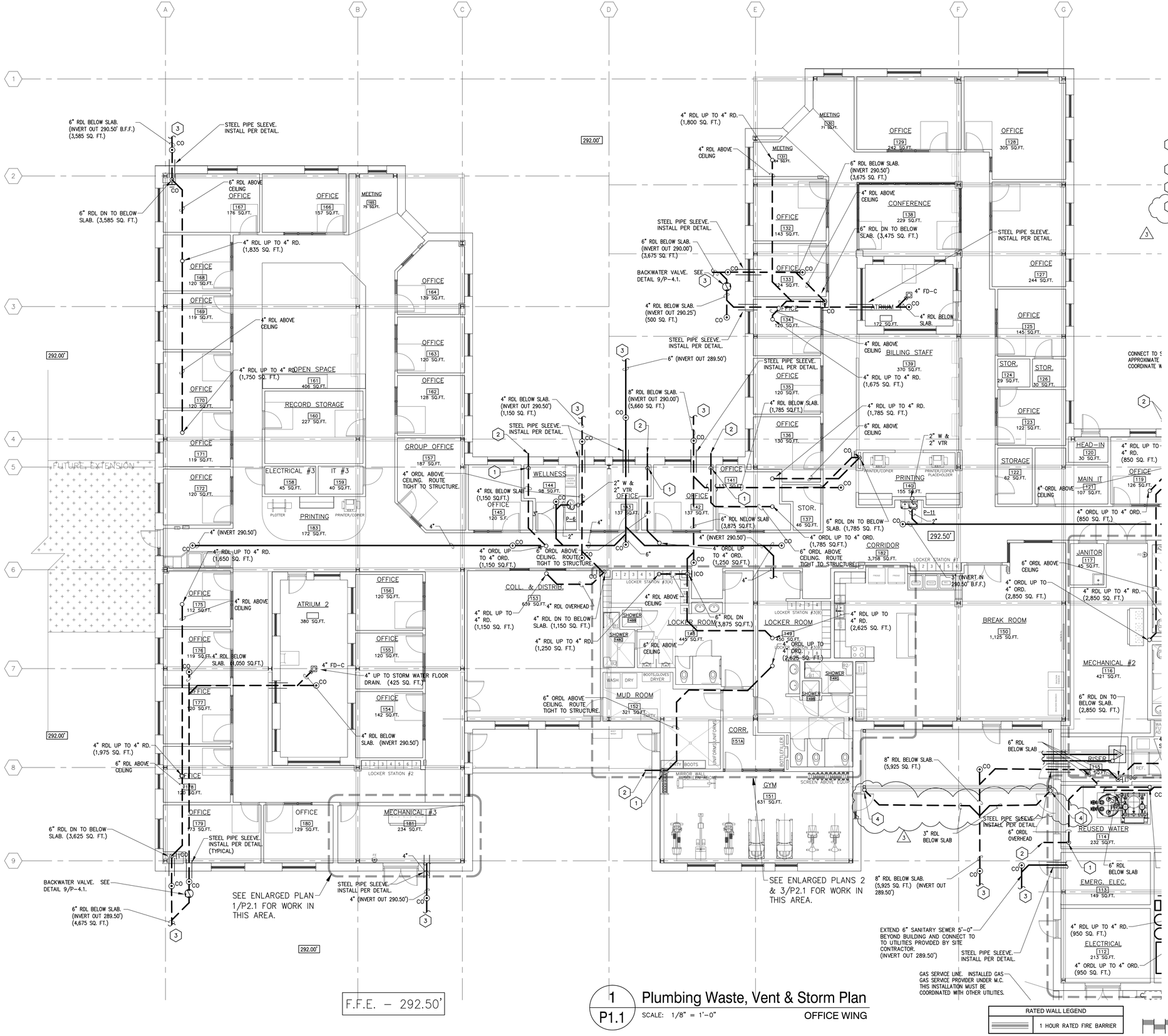

PLUMBING WASTE, VENT & STORM WATER KEY NOTES:

1. 4" OR 6" ORDL DOWN TO BUILDING FACE PENETRATION. COORDINATE PENETRATION LOCATION AND ELEVATION WITH ARCHITECTURAL ELEVATIONS AND GENERAL CONTRACTOR. COORDINATE PIPE SIZE WITH PLANS.
2. INSTALL DOWNSPOUT NOZZLE FLUSH WITH BUILDING FACE. (PROVIDE NOZZLE EQUAL TO ZURN MODEL ZANB199 WITH NICKEL BRONZE FINISH.)
3. CONNECT TO SITE SERVICES PROVIDED BY UTILITY CONTRACTOR IN THIS APPROXIMATE LOCATION. COORDINATE WITH UTILITY CONTRACTOR.
4. PROVIDE AND INSTALL 3" X 2" REDUCER UP FROM BELOW SLAB FOR CANOPY DOWNSPOUT WITHIN COLUMN. PLUMBING CONTRACTOR SHALL COORDINATE CONNECTION WITH GENERAL CONTRACTOR.

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

1 / P1.1 Plumbing Waste, Vent & Storm Plan

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

OFFICE WING

Graphic Scale 1/8" = 1'-0"

0' 4' 8' 16' 32'

North

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Plumbing Waste, Vent & Storm Piping Plan - South

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

NORTH CAROLINA PROFESSIONAL SEAL 028868 ENGINEER CHARLES T. CROWL

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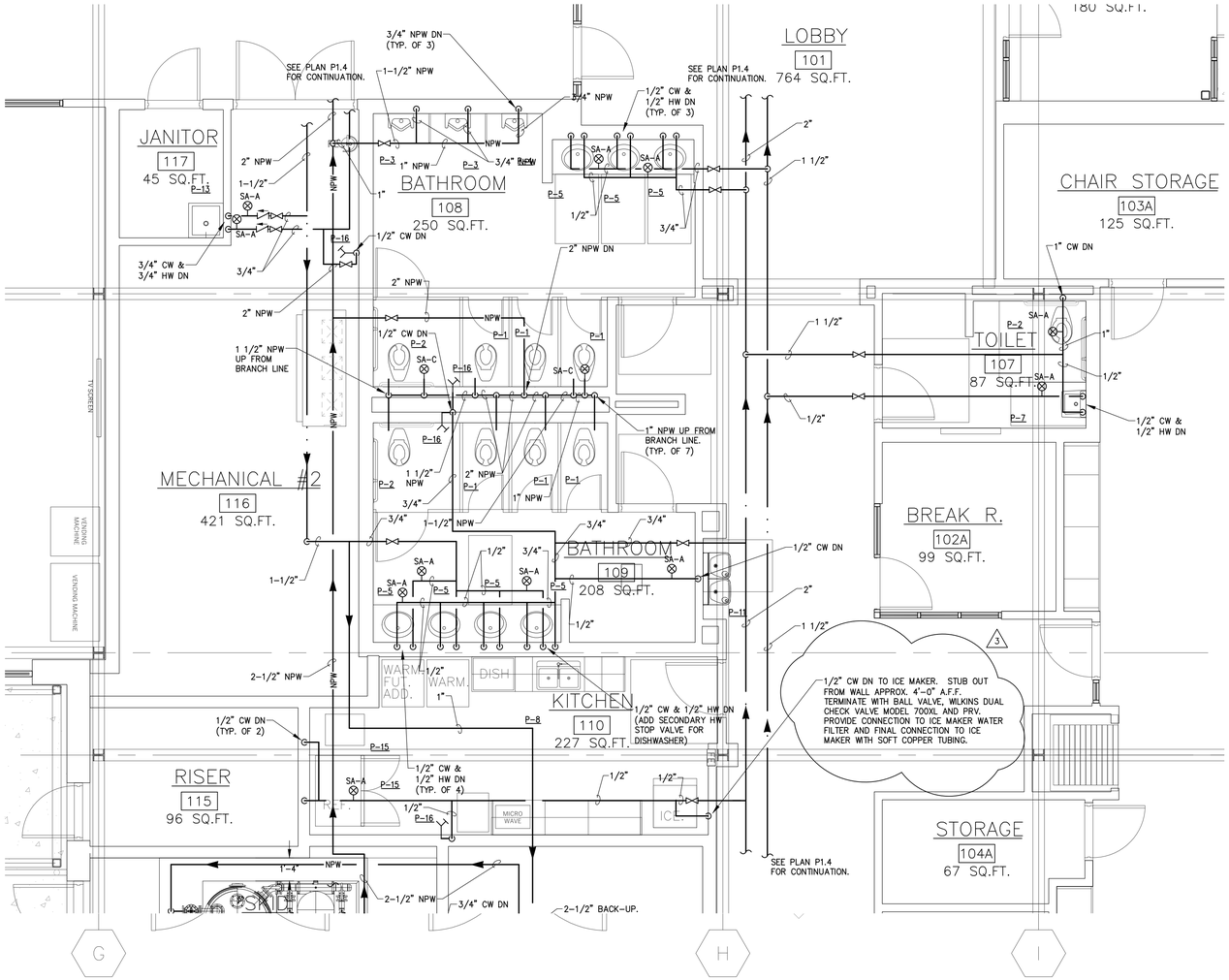
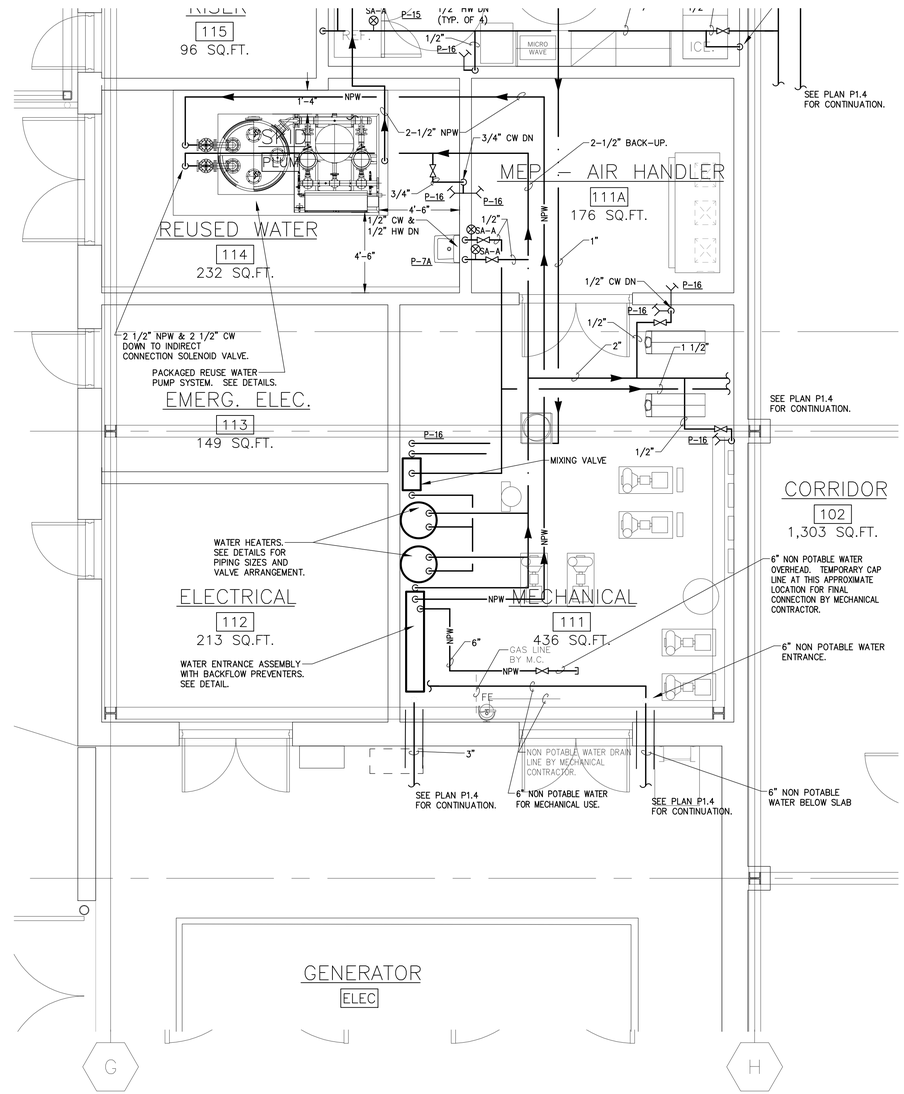


1 / P2.3 Plumbing - Water Piping Plan

SCALE: 1/4" = 1'-0"



2 / P2.3 Plumbing - Water Piping Plan

SCALE: 1/4" = 1'-0"

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale
1/4" = 1'-0"
0' 2' 4' 8' 16'

North

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Plumbing Enlarged Plans

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

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BID DOCUMENTS - ALTERNATE G1 - ADDENDUM #3

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY DURHAM, NC 27713
DURHAM, NORTH CAROLINA

September 30th, 2026

DESIGN TEAM

ARCHITECTURAL	DTW ARCHITECTS & PLANNERS, LTD.
PLUMBING	EDMONDSON ENGINEERS, PA
MECHANICAL	EDMONDSON ENGINEERS, PA
ELECTRICAL	EDMONDSON ENGINEERS, PA
STRUCTURAL	ROSS LINDEN ENGINEERS, PC
LANDSCAPING	CLH DESIGN, PA
AUDIO-VISUAL	J&A ENGINEERING CONSULTANTS
FURNITURE	MARIA LINDQVIST DESIGN, LLC

DRAWING INDEX

		08/31/2026	09/30/2026
T-0.0.W	COVER	●	●
T-1.0.W	DATA SHEET	●	
T-2.0.W	LIFE SAFETY PLAN	●	
T-3.0.W	TECHNICAL SHEET - ACCESSIBILITY	●	
▶	ARCHITECTURAL SHEETS		
A-1.1.W	FLOOR PLAN & MEZZANINE PLAN	●	
A-1.2.W	FLOOR FINISH PLAN	●	
A-1.3.W	ENLARGED RACKING PLAN	●	
A-1.4.W	ENLARGED RACKING PLAN	●	
A-1.5.W	RACKING SCHEDULE	●	
A-1.6.W	WINDOW SHADING PLAN	●	
A-2.1.W	CEILING PLAN & MEZZANINE CEILING PLAN	●	
A-3.1.W	ROOF PLAN	●	●
A-4.1.W	EXTERIOR ELEVATIONS	●	
A-5.1.W	SECTIONS	●	
A-6.1.W	WALL SECTIONS	●	
A-6.2.W	WALL SECTIONS	●	
A-8.1.W	DETAILS	●	
A-9.1.W	DOOR, WINDOW & FINISH SCHEDULES	●	
SP-1.1.W	SIGNAGE PLAN	●	
SP-1.2.W	ROOM & BUILDING SIGNS	●	
▶	STRUCTURAL SHEETS		
S-1.1.W	SLAB AND FOUNDATION PLAN	●	
S-2.1.W	ROOF FRAMING PLAN	●	
S-2.2.W	WALL / CRANE - MEZZANINE FRAMING PLAN	●	
S-3.1.W	STRUCTURAL NOTES AND DETAILS	●	
S-3.2.W	SECTIONS AND DETAILS	●	
S-3.3.W	SECTIONS AND DETAILS	●	
S-3.4.W	SECTIONS AND DETAILS	●	
▶	PLUMBING SHEETS		
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P-1.1.W	PLUMBING WASTE, VENT & STORM PIPING PLANS - WAREHOUSE - ALTERNATE G-1	●	
P-1.2.W	PLUMBING WATER & AIR PIPING PLANS - WAREHOUSE - ALTERNATE G-1	●	
P-3.1.W	PLUMBING WASTE & VENT RISER DIAGRAMS WAREHOUSE - ALTERNATE G-1	●	
P-4.1.W	PLUMBING DETAILS - WAREHOUSE - ALTERNATE G-1	●	
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P-4.3.W	PLUMBING DETAILS - WAREHOUSE - ALTERNATE G-1	●	
P-4.4.W	PLUMBING DETAILS - WAREHOUSE - ALTERNATE G-1	●	
P-4.5.W	RATED WALL DETAILS - ALTERNATE G-1	●	
▶	MECHANICAL SHEETS		
M-0.1.W	MECHANICAL SYMBOL LEGEND & NOTES - ALTERNATE G-1	●	
M-0.2.W	MECHANICAL SCHEDULES - ALTERNATE G-1	●	●
M-1.1.W	MECHANICAL PLAN - ALTERNATE G-1	●	
M-3.1.W	MECHANICAL DETAILS - ALTERNATE G-1	●	
M-3.2.W	MECHANICAL DETAILS - ALTERNATE G-1	●	
▶	ELECTRICAL SHEETS		
E-0.1.W	ELECTRICAL SYMBOL LEGEND, NOTES & SCHEDULES - ALT. G-1	●	
E-0.2.W	ELECTRICAL SCHEDULES - ALTERNATE G-1	●	
E-0.3.W	ELECTRICAL POWER RISER AND SCHEDULES - ALT. G1	●	
E-0.4.W	FIRE ALARM RISER, DETAILS, NOTES & MATRIX - ALT. G-1	●	
E-0.5.W	ELECTRICAL PANEL SCHEDULES - ALTERNATE G-1	●	
E-0.6.W	ELECTRICAL DETAILS - ALTERNATE G-1	●	
E-0.7.W	ELECTRICAL DETAILS - ALTERNATE G-1	●	
E-0.8.W	ELECTRICAL DETAILS - ALTERNATE G-1	●	
E-0.9.W	TELECOM. AND SECURITY RISER, DETAILS & NOTES - ALT. G-1	●	
E-1.1.W	ELECTRICAL PLANS - WAREHOUSE - ALTERNATE G-1	●	
▶	FIRE PROTECTION		
FP-1.0.W	FIRE PROTECTION LEGENDS, NOTES, AND DETAILS - WAREHOUSE - ALTERNATE G1	●	
FP-1.1.W	FIRE PROTECTION PLAN - WAREHOUSE - ALTERNATE G1	●	
FP-2.1.W	FIRE PROTECTION DETAILS	●	

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

WAREHOUSE

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
18004

J. PAUL YOUNG II
REGISTERED
OF
NORTH CAROLINA
11388
ARCHITECT
DURHAM, N.C.
09/30/2026

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Date 2026-08-31
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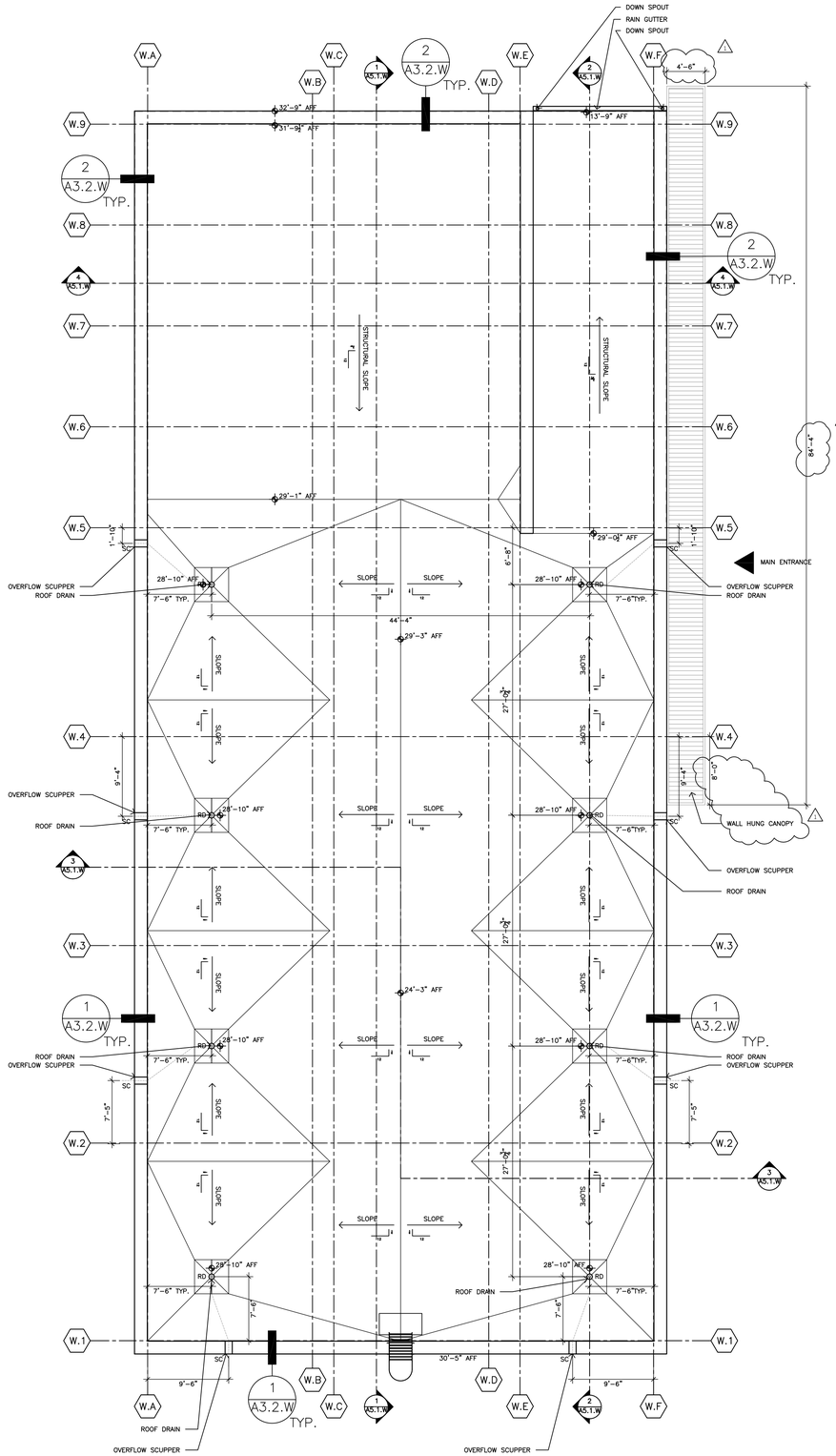
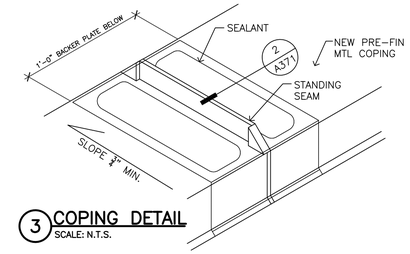


N

1 FLOOR PLAN LOADING DOCK & STORAGE BUILDING
SCALE: 1/8"=1'-0"



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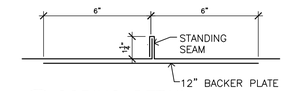

2 COPING DETAIL
SCALE: 3"=1'-0"

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ROOF PLAN
WAREHOUSE

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ARCHITECT
DURHAM, N.C.
09/30/2026

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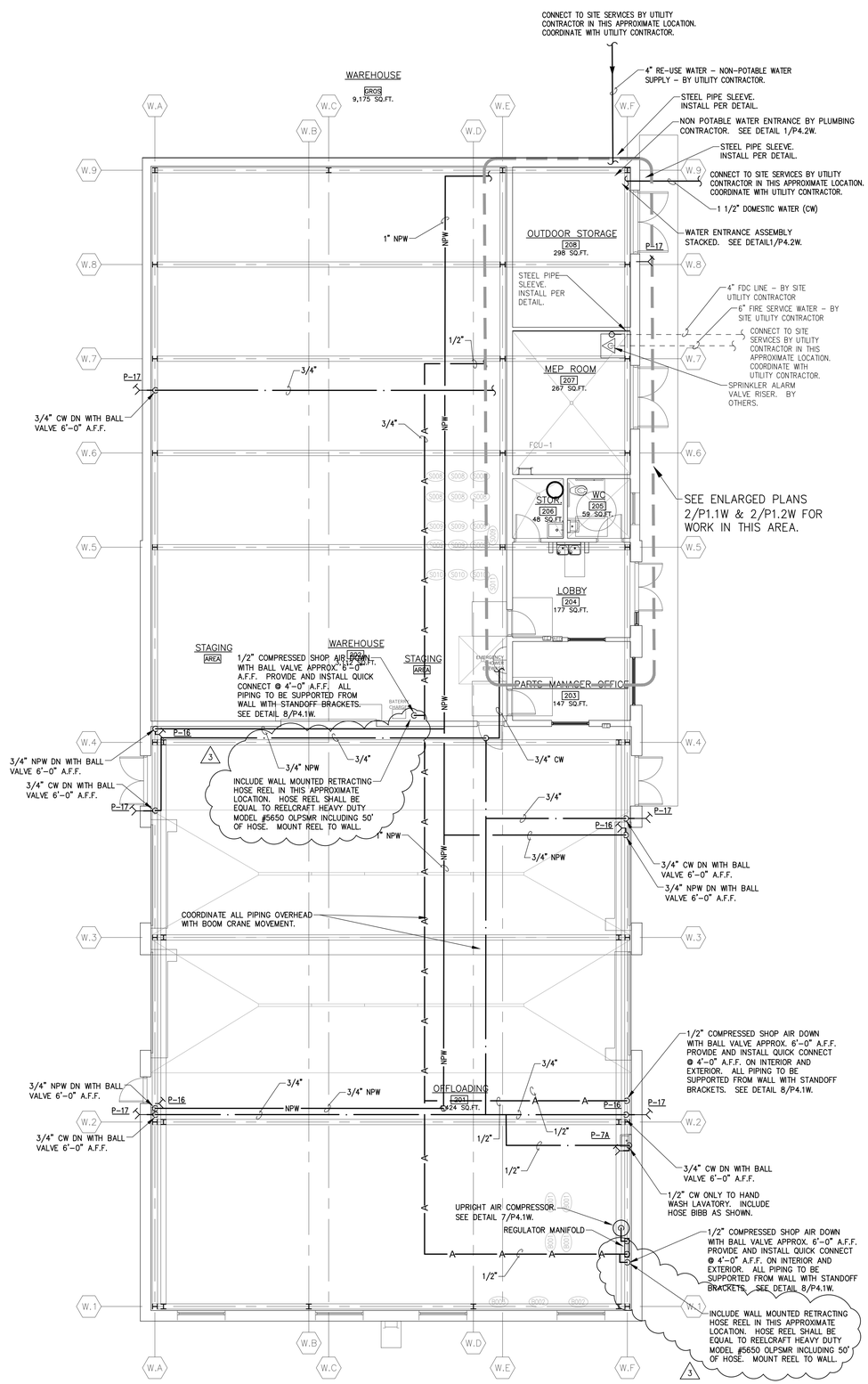
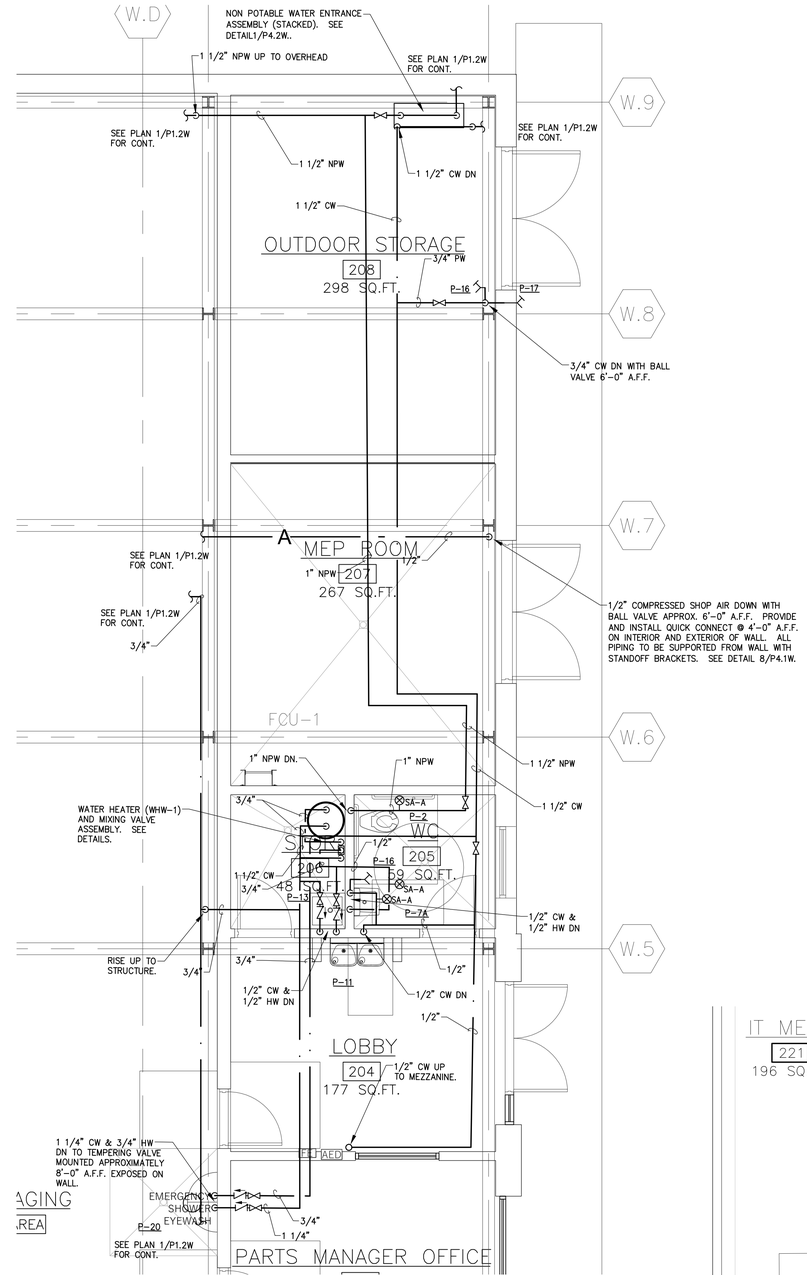


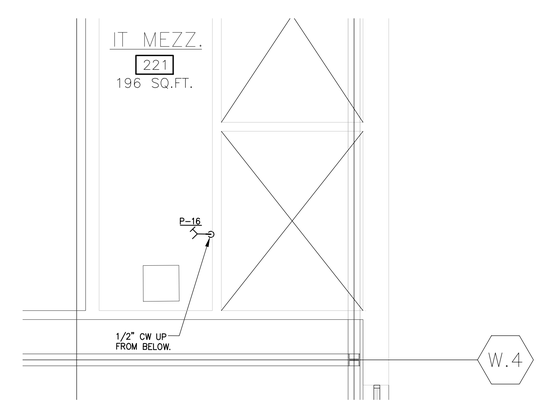
1 P1.2W Plumbing - Water & Air Piping Plan

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



2 P1.2W Partial Plumbing Plan

SCALE: 1/4" = 1'-0" Water & Air



3 P1.2W Partial Mezzanine Plumbing Plan

SCALE: 1/4" = 1'-0" Water & Air

RATED WALL LEGEND	
	1 HOUR RATED FIRE BARRIER

Graphic Scale
1/8" = 1'-0"
0' 4' 8' 16' 32'

North

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Plumbing - Water & Air Piping Plan - WareHouse - Alternate G-1

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DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING

6001 NC 55 HWY
DURHAM, NC
27713

PROJECT NUMBER
22-128

NORTH CAROLINA PROFESSIONAL SEAL 029869 ENGINEER CHARLES T. CROWL

EDMONDSON ENGINEERS
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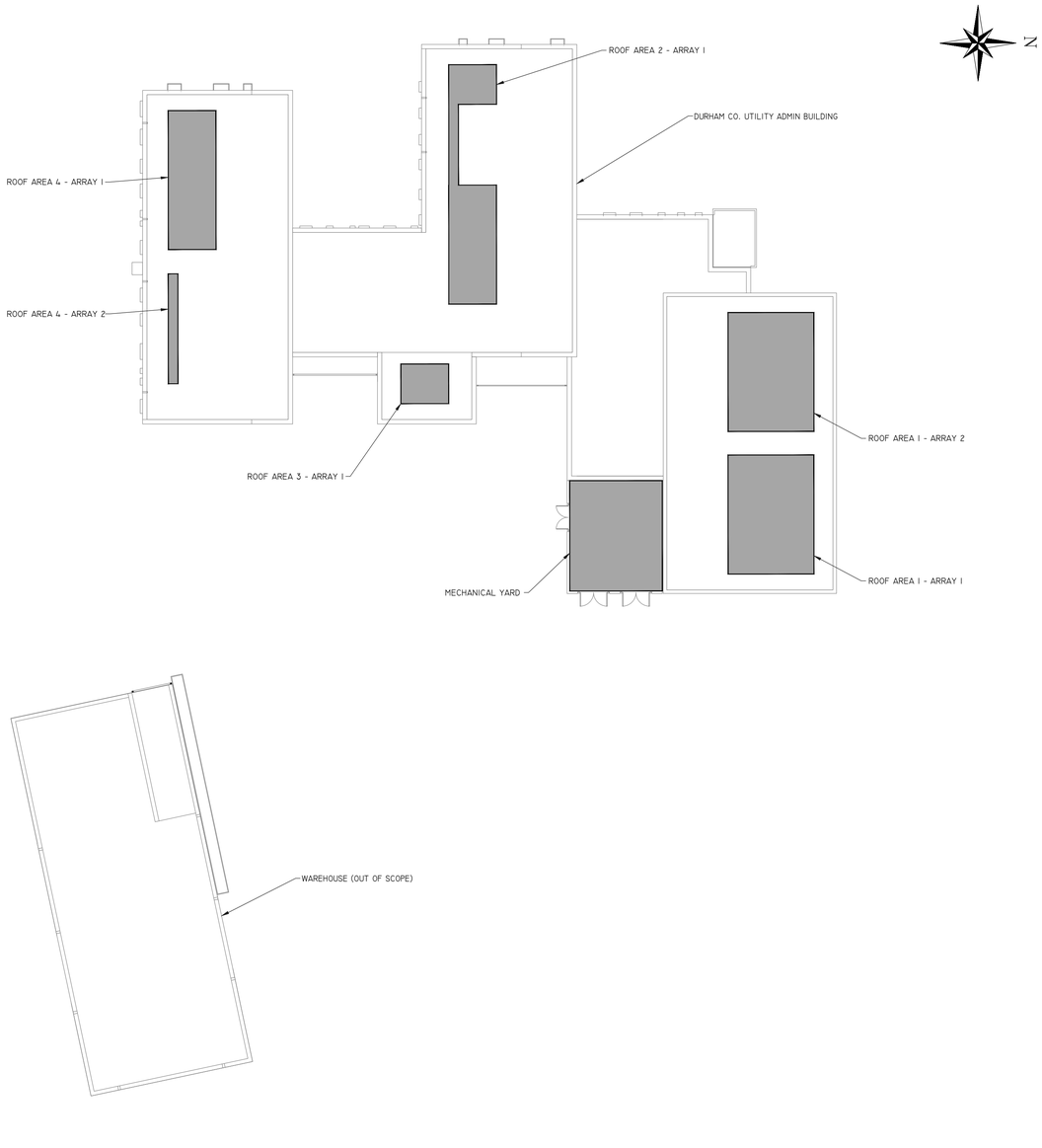
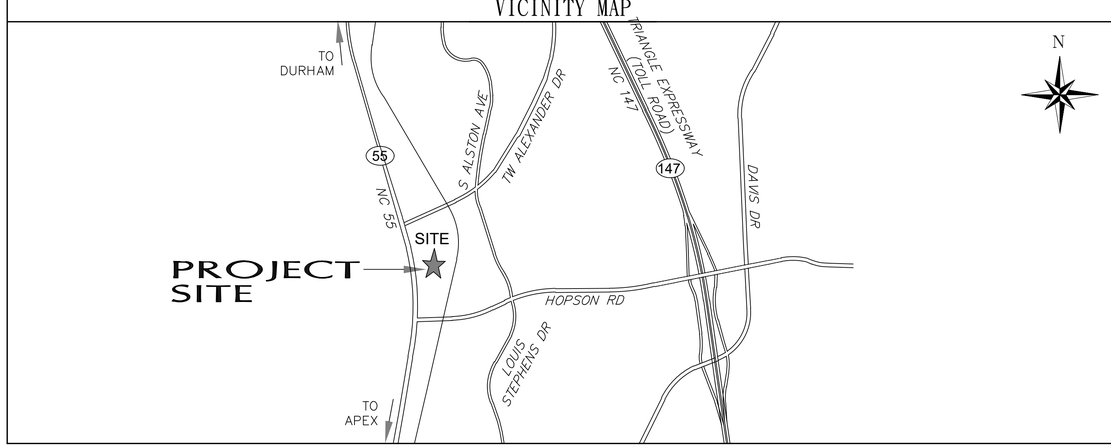
KEY PLAN



VICINITY MAP



CONSTRUCTION NOTES

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
3. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED.
4. 4WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
5. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN. UNLESS NOTED OTHERWISE.
6. ALL TERMINALS/LUGS SHALL BE 90° RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
7. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
8. ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
9. ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. METAL CONDUIT COUPLINGS CAN BE COMPRESSION TYPE, THREADED, OR BE SET-SCREW TYPE. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
12. A COMPLETE GROUNDING SYSTEM SHALL BE PRESENT OR PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
13. EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED.
14. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE.
15. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
16. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
17. WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
18. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
19. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
20. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)
21. A STATE REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
    - I. THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
    - II. THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
    - III. THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
    - IV. THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE

2021 INTERNATIONAL FIRE CODE SUMMARY

1205.3 - OTHER THAN GROUP R-3 BUILDINGS. ACCESS TO SYSTEMS FOR BUILDINGS, OTHER THAN THOSE CONTAINING GROUP R-3 OCCUPANCIES, SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS 1205.3.1 THROUGH 1205.3.3.
EXCEPTION: WHERE IT IS DETERMINED BY THE FIRE CODE OFFICIAL THAT THE ROOF CONFIGURATION IS SIMILAR TO THAT OF A GROUP R-3 OCCUPANCY, THE RESIDENTIAL ACCESS AND VENTILATION REQUIREMENTS IN SECTIONS 1205.2.1.1 THROUGH 1205.2.1.3 ARE A SUITABLE ALTERNATIVE.

1205.3.1 - PERIMETER PATHWAYS. THERE SHALL BE A MINIMUM 6-FOOT-WIDE (1829 MM) CLEAR PERIMETER AROUND THE EDGES OF THE ROOF.
EXCEPTION: WHERE EITHER AXIS OF THE BUILDING IS 250 FEET (76 200 MM) OR LESS, THE CLEAR PERIMETER AROUND THE EDGES OF THE ROOF SHALL BE PERMITTED TO BE REDUCED TO A MINIMUM WIDTH OF 4 FEET (1219 MM).

1205.3.2 - INTERIOR PATHWAYS. INTERIOR PATHWAYS SHALL BE PROVIDED BETWEEN ARRAY SECTIONS TO MEET THE FOLLOWING REQUIREMENTS:
1. PATHWAYS SHALL BE PROVIDED AT INTERVALS NOT GREATER THAN 150 FEET (45 720 MM) THROUGHOUT THE LENGTH AND WIDTH OF THE ROOF.
2. A PATHWAY NOT LESS THAN 4 FEET (1219 MM) WIDE IN A STRAIGHT LINE TO ROOF STANDPIPES OR VENTILATION HATCHES.
3. A PATHWAY NOT LESS THAN 4 FEET (1219 MM) WIDE AROUND ROOF ACCESS HATCHES, WITH NOT FEWER THAN ONE SUCH PATHWAY TO A PARAPET OR ROOF EDGE.

1205.3.3 - SMOKE VENTILATION. THE SOLAR INSTALLATION SHALL BE DESIGNED TO MEET THE FOLLOWING REQUIREMENTS:
1. WHERE NONGRAVITY-OPERATED SMOKE AND HEAT VENTS OCCUR, A PATHWAY NOT LESS THAN 4 FEET (1219 MM) WIDE SHALL BE PROVIDED BORDERING ALL SIDES.
2. WHERE GRAVITY-OPERATED DROPOUT SMOKE AND HEAT VENTS OCCUR, A PATHWAY NOT LESS THAN 4 FEET (1219 MM) WIDE ON NOT FEWER THAN ONE SIDE.
3. SMOKE VENTILATION OPTIONS BETWEEN ARRAY SECTIONS SHALL BE ONE OF THE FOLLOWING:
   - 3.1. A PATHWAY NOT LESS THAN 8 FEET (2438 MM) WIDE.
   - 3.2. A PATHWAY NOT LESS THAN 4 FEET (1219 MM) WIDE BORDERING 4-FOOT BY 8-FOOT (1219 MM BY 2438 MM) VENTING CUTOUTS EVERY 20 FEET (6096 MM) ON ALTERNATING SIDES OF THE PATHWAY.

DC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS FOR RESIDENTIAL CONSTRUCTION AND NOT LESS THAN 1000 VOLTS FOR COMMERCIAL CONSTRUCTION.
2. MINIMUM SIZE SHALL BE #10 AWG UNLESS OTHERWISE NOTED ON THEDRAWINGS.
3. EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT.
4. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT) OR RIGID POLYVINYL CHLORIDE CONDUIT(PVC). ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
5. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), OR METAL CLAD CABLE(MC).
6. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
7. MINIMUM CONDUIT SIZE TO BE 1/2".
8. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2020 NEC.

AC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.
2. MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), LIQUID-TIGHT FLEXIBLE METAL CONDUIT(LFMC), OR LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT(LFNC) . ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
4. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), METAL CLAD CABLE(MC).
5. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
6. MINIMUM CONDUIT SIZE TO BE 1/2".
7. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2020 NEC.

SYSTEM SUMMARY

DC NAMEPLATE:	116,620
AC NAMEPLATE:	75,000
DC/AC POWER RATIO:	1.55
DC/AC INVERTERS:	(1) CPS SCA25KTL-DO-R/US-480 (1) CPS SCA50KTL-DO-R/US-480
DC/AC INVERTER QUANTITY:	1
PV MODULES:	(196) HIN-T595NI
PV MODULES WATTAGE:	595 WATTS
PV MODULES PER STRING:	(8) 16, (4) 17
STRING COUNT:	12
STRINGS PER INVERTER:	8, 4
RSD/OPTIMIZER:	APS RSD-D-20
RSD/OPTIMIZER COUNT:	100
RACKING:	UNIRAC RM10 EVO BALLAST
TILT ANGLE:	10°
AZIMUTH:	180°

LEGEND

	DISCONNECT SWITCH		EQUIPMENT CLEARANCE
	FUSE		PV STRINGING
	CIRCUIT BREAKER	AC	AC WIRING
GND	EQUIP. GROUND	DC	DC WIRING
BURIED	UNDERGROUND CONDUIT		COMMUNICATION WIRING

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METAL TUBING
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
I	CURRENT
IMP	CURRENT AT MAXIMUM POWER
ISC	SHORT-CIRCUIT CURRENT
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MIN	MINIMUM
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
NOM	NOMINAL
NTS	NOT TO SCALE
PNOM	NOMINAL POWER
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
SN	SOLAR NOON
STC	STANDARD TEST CONDITIONS
TYP	TYPICAL
V	VOLT
VMP	VOLTAGE AT MAXIMUM POWER
VOC	OPEN-CIRCUIT VOLTAGE
W	WATT
(E)	EXISTING

CODE REFERENCES

2023 NATIONAL ELECTRIC CODE
2024 NC BUILDING CODE
2024 NC FIRE CODE

SHEET INDEX

PV1.1 - 1.2	*PROJECT INFORMATION*
PV2.1 - 2.3	*ELECTRICAL INFORMATION*
PV3.1	*STRUCTURAL INFORMATION*
PV4.1 - 4.2	*EQUIPMENT SPECIFICATIONS*

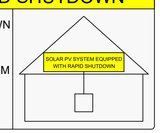
GEOGRAPHIC DATA

ASCE 7-10 WIND SPEED - 115 MPH
EXPOSURE CATEGORY - B
RISK CATEGORY - II

PV SYSTEM EQUIPMENT LABELS

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



NEC 690.56 (C)(1)(a)
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31 (G)(3)&(4)
PLACE ON ALL JUNCTION BOXES EXPOSED RACEWAYS EVERY 10' AND 1' FROM BENDS AND PENATRATIONS, ADJACENT TO THE MAIN SERVICE DISCONNECT *REFLECTIVE*

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

AVAILABLE FAULT CURRENT
TBD
DATE, YEAR

NEC 110.24
PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 705.12 (B)(2)(3)(b)
PLACE ADJACENT TO BACK-FED BREAKER

WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

PV SYSTEM DISCONNECT

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

DIRECT CURRENT
PHOTOVOLTAIC POWER SOURCE
MAXIMUM VOLTAGE 1000 VDC
MAX CIRCUIT CURRENT 117 AMPS

NEC 690.53
PLACE ON ALL DC DISCONNECTING MEANS

PHOTOVOLTAIC POWER SOURCE
OPERATING AC VOLTAGE 480 V
MAXIMUM OPERATING AC OUTPUT CURRENT 91 A

NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

EQUIPMENT LABEL NOTES

1. LABELS SHOWN ARE THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 035698 ENGINEER ANDREW W. KING

ENGINEER:

MODEL ENERGY
300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW PV SYSTEM
116.62 kW DC INPUT
75 kW AC EXPORT
DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING
6001 NC 55 HWY
DURHAM, NC 27713

CLIENT:

DTW Architects & Planners, Ltd.

DRAWN BY:	EHM
CHECKED BY:	AWK
ISSUED FOR:	DATE:
BID	08/28/26
ADDENDUM #3	10/06/26

PROJECT INFORMATION

PV1.1

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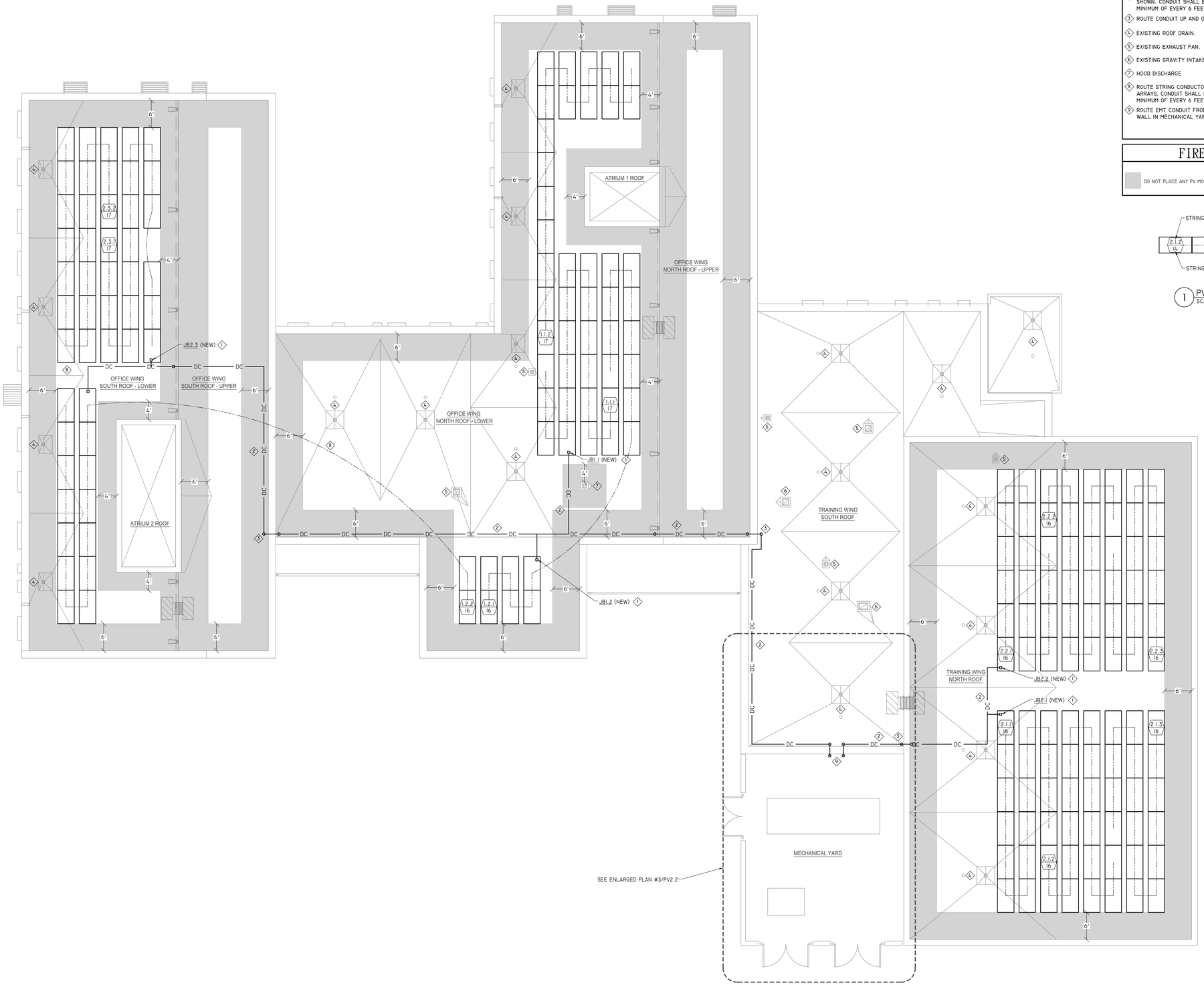


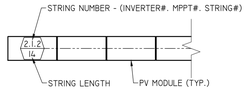
2 PHOTOVOLTAIC SYSTEM ELECTRICAL PLAN
SCALE: 3/32" = 1' -0"

KEY NOTES

1. ROUTE STRING CONDUCTORS TIGHT TO PV ARRAY TO JUNCTION BOX. TRANSITION TO CONDUIT AS SCHEDULED. SEE CONDUCTOR SCHEDULE. SECURE AND BOND JUNCTION BOX TO THE UNDERSIDE OF THE PV ARRAY ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
2. ROUTE STRING CONDUCTORS IN EMT CONDUIT ABOVE ROOF SURFACE AS SHOWN. CONDUIT SHALL BE SUPPORTED BY RUBBER BALLAST FEET AT A MINIMUM OF EVERY 6 FEET. SEE DETAIL #5/PV2.3
3. ROUTE CONDUIT UP AND OVER AND BACK DOWN PARAPET WALL.
4. EXISTING ROOF DRAIN.
5. EXISTING EXHAUST FAN.
6. EXISTING GRAVITY INTAKE HOOD.
7. HOOD DISCHARGE
8. ROUTE STRING CONDUCTORS IN EMT CONDUIT WHERE EXPOSED BETWEEN ARRAYS. CONDUIT SHALL BE SUPPORTED BY RUBBER BALLAST FEET AT A MINIMUM OF EVERY 6 FEET. SEE DETAIL #5/PV2.3
9. ROUTE EMT CONDUIT FROM ROOF DOWN TO DC/AC INVERTERS ON EXTERIOR WALL IN MECHANICAL YARD.

FIRE ACCESS NOTES

DO NOT PLACE ANY PV MODULES IN THIS SPACE.



1 PV STRINGING KEY
SCALE: NTS

SEAL:

ENGINEER:

MODEL ENERGY
300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW PV SYSTEM
116.62 kW DC INPUT
75 kW AC EXPORT

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING
6001 NC 55 HWY
DURHAM, NC 27713

CLIENT:

DTW Architects & Planners, Ltd.

DRAWN BY: EHM	
CHECKED BY: AWK	
ISSUED FOR:	DATE:
BID	08/28/26
ADDENDUM #3	10/06/26

ELECTRICAL INFORMATION

PV2.1

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CONDUCTOR SCHEDULE

TAG	QTY.	SIZE	MATERIAL	INSULATION	GROUNDING CONDUCTORS QTY.	SIZE	MATERIAL	INSULATION	CONDUIT/RACEWAY QTY.	SIZE	MATERIAL	LOCATION	VOLTAGE RATING	AC/DC	AMPERAGE CALCULATION PV MODULE ISC (IF APPLICABLE)	MAX. AMPS	BIFACIAL FACTOR	CONT. USE FACTOR	WORKING AMPS	OCP	CONDUCTOR AMPACITY RATING	BUNDLING FACTOR	TEMP FACTOR	CORRECTED CONDUCTOR AMPACITY RATING	NOTES
C1	2	10 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	BARE	-	-	-	FREE AIR	1000V	DC	14.5A	18.2A	1.25	1.25	28.4A	30A	40A	1	0.91	36.4A	1.4
C2.1	4	10 AWG	COPPER	XHHW-2	1	10 AWG	COPPER	XHHW-2	1	3/4"	EMT	EXTERIOR	1000V	DC	14.5A	18.2A	1.25	1.25	28.4A	30A	40A	0.8	0.91	29.1A	2.4
C2.2	6	10 AWG	COPPER	XHHW-2	1	10 AWG	COPPER	XHHW-2	1	1"	EMT	EXTERIOR	1000V	DC	14.5A	18.2A	1.25	1.25	28.4A	30A	40A	0.8	0.91	29.1A	2.4
C3	4	8 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2	1	3/4"	EMT	EXTERIOR	480V	AC	-	30.5A	-	1.25	38.1A	40A	50A	1	1	50A	2.5
C4	4	4 AWG	COPPER	THWN-2	1	8 AWG	COPPER	THWN-2	1	1-1/4"	EMT	EXTERIOR	480V	AC	-	60.2A	-	1.25	75.3A	80A	85A	1	1	85A	2.5
C5	4	1 AWG	COPPER	THWN-2	1	6 AWG	COPPER	THWN-2	1	2"	EMT	EXTERIOR	480V	AC	-	90.7A	-	1.25	113.4A	125A	130A	1	1	130A	2.5
C6	4	1 AWG	COPPER	THWN-2	-	-	-	-	1	2"	PVC	EXTERIOR	480V	AC	-	90.7A	-	1.25	113.4A	125A	130A	1	1	130A	2.5
XC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED
3. EXISTING CONDUCTORS, FIELD VERIFY
4. CONDUCTORS SHALL BE RATED FOR A MINIMUM OF 1000V DC.
5. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR

DC/AC INVERTER (NEW)

TAG	INV-2
MAKE	CHINT POWER SYSTEMS
MODEL	CPS SCA50KTL-DO/US-480
TECHNOLOGY	TRANS-LESS
DC INPUT:	
MAX. POWER	90,000 WATTS
MAX. VOLT	1000 VOLTS
NOM. VOLT.	480-850 VOLTS
MAX. SCC	204 AMPS (68 AMPS PER MPPT)
NUMBER OF MPPT	3
STRINGS INPUTS	5 PER MPPT
AC OUTPUT:	
RATED POWER	50,000 WATTS
MAX. POWER	50,000 WATTS
NOM. VOLT.	480 VOLTS
MAX. CURR.	60.2 AMPS
GFP (Y/N)	YES
RPP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
AC DISC. (Y/N)	YES
RAPID SHUTDOWN	AUTOMATIC (SUNSPEC)
FUSE RATING	20 AMP (UP TO 30 AMP)
PROTECT. RATING	NEMA 4X

DC/AC INVERTER (NEW)

TAG	INV-1
MAKE	CHINT POWER SYSTEMS
MODEL	CPS SCA25KTL-DO-R/US-480
TECHNOLOGY	TRANS-LESS
DC INPUT:	
MAX. POWER	37,500 WATTS
MAX. VOLT	1000 VOLTS
NOM. VOLT.	560-850 VOLTS
MAX. SCC	72 AMPS (36 AMPS PER MPPT)
NUMBER OF MPPT	2
STRING INPUTS	3 PER MPPT
AC OUTPUT:	
RATED POWER	25,000 WATTS
MAX. POWER	25,000 WATTS
NOM. VOLT.	480 VOLTS
MAX. CURR.	30.5 AMPS
GFP (Y/N)	YES
RPP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
AC DISC. (Y/N)	YES
RAPID SHUTDOWN	AUTOMATIC (SUNSPEC)
FUSE RATING	20 AMP (UP TO 30 AMP)
PROTECT. RATING	NEMA 4X

PV MODULES (NEW)

MAKE	HYUNDAI
MODEL	HIN-T595NI
TECHNOLOGY	MONO-CRYST.
NOM. POWER (PNOM)	595 WATTS
NOM. VOLT. (VMP)	43.4 VOLTS
O.C. VOLT. (VOC)	52.1 VOLTS
MAX. SYS. VOLT.	1500 V (UL)
TEMP. COEF. (VTC)	-0.25 %/°C
NOM. CURR. (IMP)	13.72 AMPS
S.C. CURR. (ISC)	14.53 AMPS
MAX. SERIES FUSE	30 AMPS

RAPID SHUT DOWN SYSTEM (NEW)

MAKE	APSYSTEMS
MODEL	RSD-D-20
MONITORING DC INPUT:	
VOLT. RANGE	8-65 VOLTS PER CHANEL
MAX. CURRENT	20 AMPS PER CHANEL
MAX. SHORT CIRCUIT CURRENT	25 AMPS
DC OUTPUT:	
MAX. CURRENT	20 AMPS
MAX. VOLT	16-130 VOLTS
MAX. SYSTEM VOLT.	1500 VOLTS
MODULES PER DEVICE	2

DISTRIBUTION PANEL (EXISTING)

TAG	MDPI
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 1
VOLT. RATING	480/277 VOLTS
AMP RATING	1200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A

SERVICE DISCONNECT (EXISTING)

TAG	DISC-SER
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 1
VOLT. RATING	480/277 VOLTS
AMP RATING	1200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	1200 AMPS

PV COMBINER PANEL (NEW)

TAG	CP-1
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	480/277 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A

NOTES:

- BACK-FEED SOLAR OUTPUT VIA (1) 175 AMP & (1) 40 AMP BREAKERS AT THE OPPOSITE END OF THE BUSBAR FROM MAIN LUGS.
- AIC = 100,000A

AC DISCONNECT (NEW)

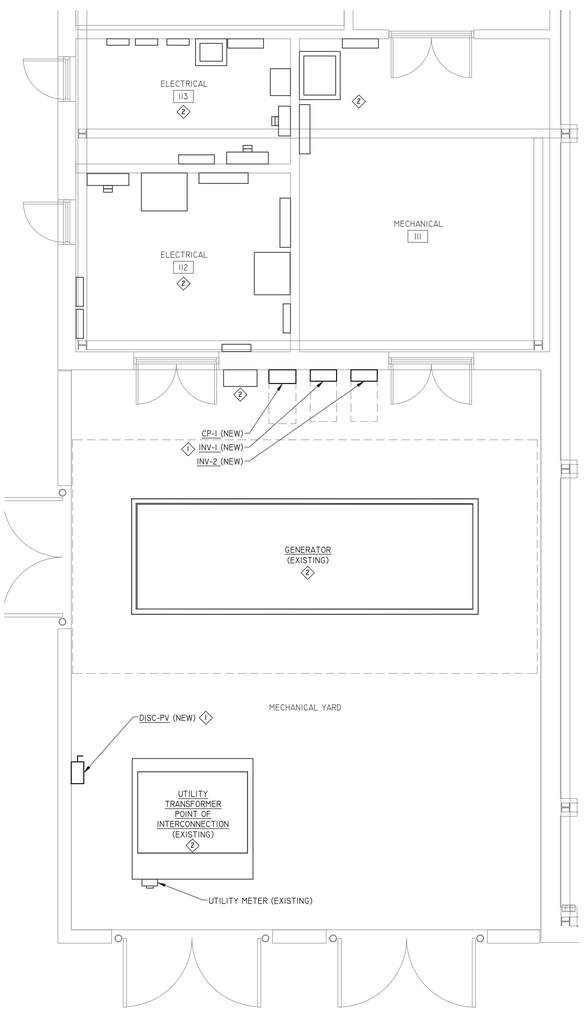
TAG	DISC-PV
MAKE	GENERIC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	480/277 VOLTS
AMP RATING	200 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	YES
FUSE RATING	125 AMPS

NOTES:

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES
- SERVICE RATED
- PROVIDE NEUTRAL/GROUND BONDING JUMPER
- AIC = 65,000A

KEY NOTES

1. NEW PV EQUIPMENT MOUNTED ON EXTERIOR WALL IN MECHANICAL YARD.
2. EXISTING ELECTRICAL EQUIPMENT TO REMAIN.



3 ENLARGED ELECTRICAL PLAN - MECHANICAL YARD
SCALE: 3/16" = 1' -0"

INTERCONNECTION NOTES:

- THE SUBMISSION OF THIS DRAWING ACKNOWLEDGES THIS IS THE FINAL DESIGN AND ANY CHANGE TO THIS DIAGRAM COULD RESULT IN A MATERIAL MODIFICATION AS DEFINED BY THE STATE INTERCONNECTION STANDARDS. ANY CHANGES TO THIS DIAGRAM MUST BE SUBMITTED FOR APPROVAL TO DUKE ENERGY PROGRESS.
- TOTAL PHYSICAL AC EXPORT OF THIS SYSTEM IS 75 kW.
- POWER GENERATION TO BE CONFIGURED AS A "NET METERING" ARRANGEMENT.
- FIGURE 72B, OPTION "C" OF THE *REQUIREMENTS FOR ELECTRICAL SERVICE AND METER INSTALLATIONS*, DUKE ENERGY PROGRESS, APRIL 2026, BEST REFLECTS THE INTERCONNECTION TYPE OF THIS SYSTEM

MAXIMUM DC CURRENT CALCULATION
(1 PV STRING)

Isc MAX = Isc x Tcx
Isc MAX = 14.53 x 1.25
Isc MAX = 18.1625 AMPS

MAXIMUM DC VOLTAGE CALCULATION

Voc_MAX = Voc x (1 + (Tmin - Tstc) x (Tk_Voc/100)

Voc_MAX = 52.1 x (1 + (-11.9-25) x (-0.25% / 100)

Voc_MAX = 56.91 V

Voc_MAX/STRING = Voc_Max x # OF MODULES IN STRING

Voc_MAX/STRING = 56.91 V x 17

Voc_MAX/STRING = 967.41 V

MINIMUM DC VOLTAGE CALCULATION

Vmp_MIN = Vmp x (1+((Tmax+Tadd-Tstc) x (TKvmp/100))

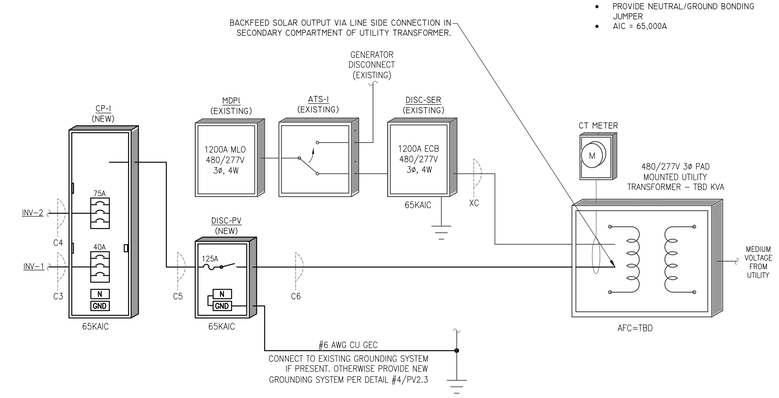
Vmp_MIN = 43.4 x (1 + ((35.9+25-25) x (-0.3% / 100)

Vmp_MIN = 38.73 V

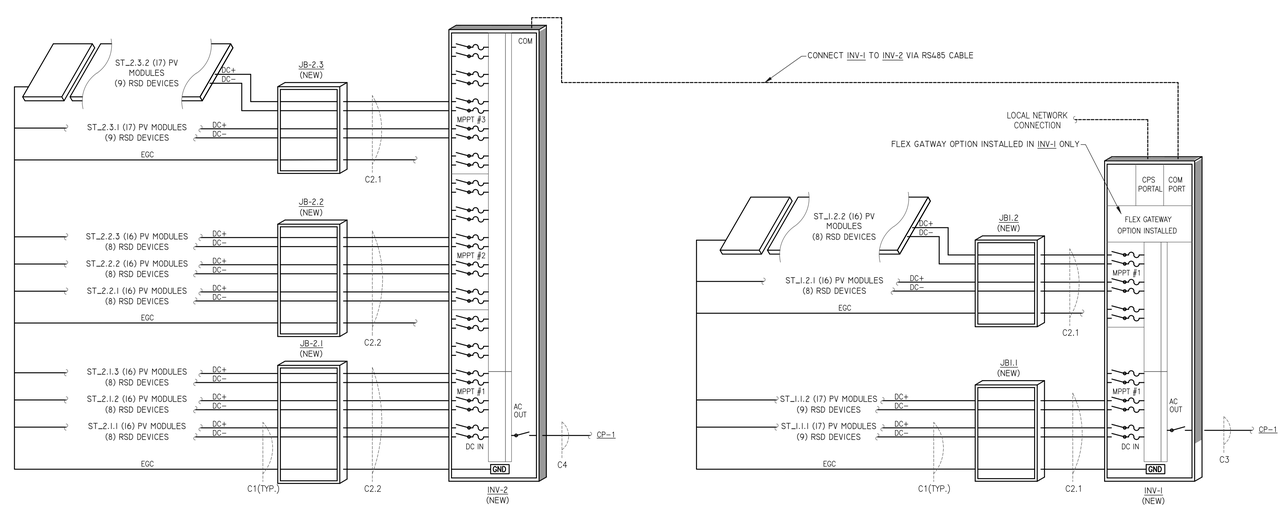
Vmp_MIN/STRING = Vmp_Min x # OF MODULES IN STRING

Vmp_MIN/STRING = 38.73 V x 16

Vmp_MIN/STRING = 619.61 V



1 PV SYSTEM ELECTRICAL WIRING SCHEMATIC - AC
SCALE: NTS



2 PV SYSTEM ELECTRICAL WIRING SCHEMATIC - DC
SCALE: NTS

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 35698 ENGINEER ANDREW W. KING

ENGINEER:

MODEL ENERGY
300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW PV SYSTEM
116.62 kW DC INPUT
75 kW AC EXPORT
DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING
6001 NC 55 HWY
DURHAM, NC 27713

CLIENT:

DTW Architects & Planners, Ltd.

DRAWN BY:	EHM
CHECKED BY:	AWK
ISSUED FOR:	DATE:
BID	08/28/26
ADDENDUM #3	10/06/26

ELECTRICAL INFORMATION

PV2.2

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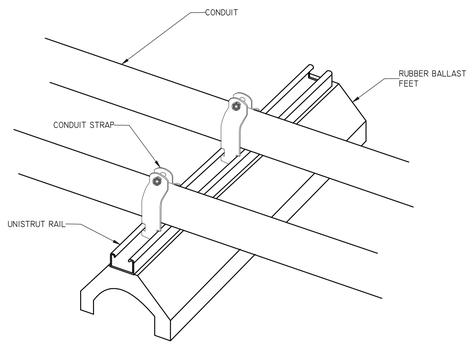
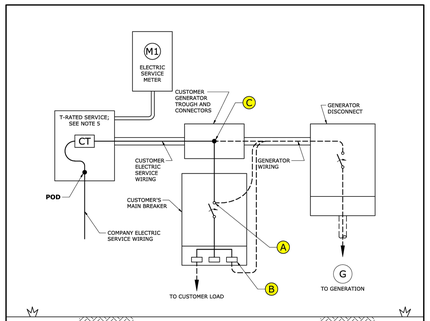


NOTES:

- CONDUIT SHALL BE SUPPORTED BY RUBBER BALLAST FEET AT A MINIMUM OF EVERY 10 FEET.

5 CONDUIT SUPPORTED BY BALLAST FEET
SCALE: NTS



NOTES:

1. GENERATOR POINT OF INTERCONNECTION CAN BE CONNECTED AT EITHER A, B, OR C. FOR INTERCONNECTION POINT C, IF SERVICE IS PROVIDED BY A 3-PHASE PADMOUNT TRANSFORMER, THE GENERATOR WIRING MAY BE CONNECTED WITHIN THE SECONDARY COMPARTMENT OF THE TRANSFORMER IF THERE IS ADEQUATE SPACE AVAILABLE ON THE TRANSFORMER SPADES AND THE CRITERIA PER FIGURE 58 IS NOT EXCEEDED. THIS EXCEPTION MUST BE VERIFIED IN THE FIELD PRIOR TO ANY FINAL DESIGN APPROVAL.
2. GENERATOR DISCONNECT MUST: BE LOAD-BREAK RATED, LOCKABLE OPEN POSITION, PROVIDE VISIBLE OPEN AND LOCATED WITHIN SIGHT OF METER (SEE DEFINITIONS, SECTION II, A). DISCONNECT MUST BE READILY ACCESSIBLE TO COMPANY PERSONNEL.
3. EXISTING METER MUST BE PROGRAMMED OR REPLACED FOR BI-DIRECTIONAL ENERGY REGISTRATION.
4. CUSTOMER SHALL PLACE WARNING LABEL AT A CONSPICUOUS LOCATION ALERTING PERSONNEL OF ON SITE GENERATION PER NEC.
5. COMPANY ELECTRIC SERVICE CT'S MAY BE IN A PADMOUNT TRANSFORMER, CT CABINET MOUNTED ON THE BUILDING, A MAST, OR UTILITY POLE.
6. DER INTERCONNECTIONS AND CUSTOMER-OWNED EQUIPMENT SUCH AS INSTRUMENT TRANSFORMERS AND GENERATION WIRING ARE NOT ALLOWED WITHIN THE CT CABINET.
7. EXCEPTIONS TO THESE REQUIREMENTS MUST HAVE PRIOR WRITTEN CONSENT FROM THE COMPANY.

REVISED	BY	CHK'D	APPR.
7	STILTS	SHAFFER	GRIMM	GRAHAM
6	STILTS	SHAFFER	GRIMM	GRAHAM
5	STILTS	HAMIL	FUTULUS	GRAHAM
0	HONETZ	SIMMONS	MEALIN	CHANDLER

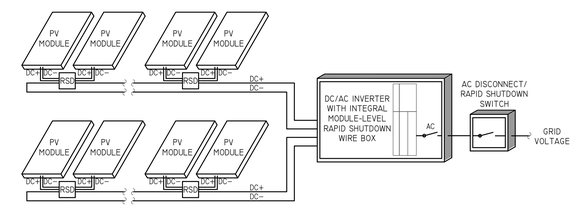
BEHIND THE METER GENERATION
SINGLE OR THREE-PHASE T-RATED SERVICES

DUKE ENERGY.

DEC	DEM	DEP	DEF
X		X	

FIG 72B

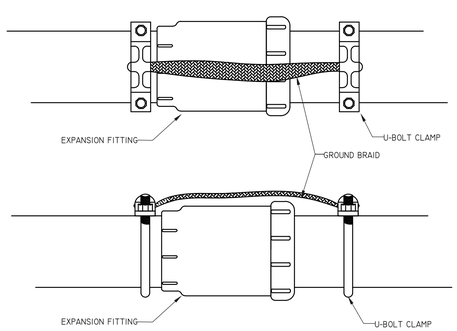
3 DUKE ELEC. INTERCONNECTION REQUIREMENTS
SCALE: NTS



NOTES:

- POWER LINE COMMUNICATION BETWEEN RAPID SHUTDOWN DEVICES AND INVERTER INTEGRATED RSD TRANSMITTER.

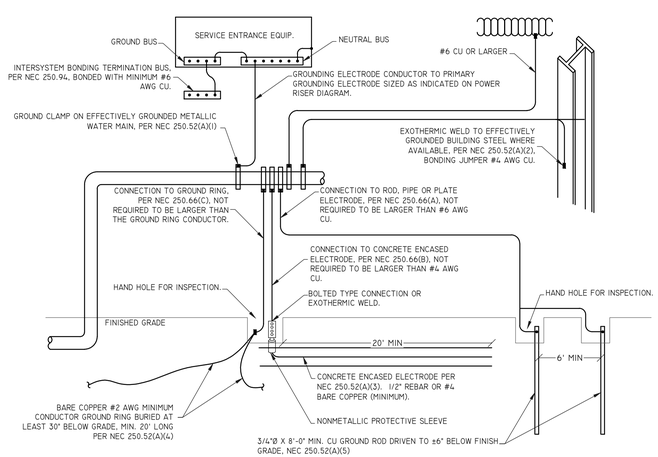
1 RAPID SHUTDOWN SYSTEM DETAIL
SCALE: NTS



NOTES:

- PROVIDE CONDUIT EXPANSION JOINT EVERY 50 FT.

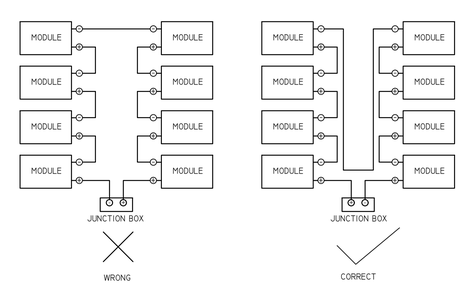
6 CONDUIT EXPANSION JOINT DETAIL
SCALE: NTS



NOTE:

1. GROUNDING ELECTRODES SHALL BE PROVIDED IN ACCORDANCE WITH NEC SECTION 250. ALL GROUNDING ELECTRODE CONDUCTORS SIZED AS INDICATED ON POWER RISER DIAGRAM. ALL METHODS OF CREATING THE GROUNDING SYSTEM MAY NOT BE REQUIRED OR AVAILABLE.
2. IF CORRUGATED STAINLESS STEEL TUBING (CSST) IS USED TO SUPPLY THE BUILDING WITH GAS, PROPANE, OR SIMILAR THE TUBING SYSTEM SHALL BE BONDED TO THE BUILDING GROUNDING SYSTEM AT THE POINT WHICH THE PIPING ENTERS THE BUILDING. USE #6 COPPER OR LARGER.
3. WHERE BOLTED TYPE CONNECTION OR EXOTHERMIC WELD IS CALLED FOR, A COPPER BUS BAR NOT LESS THAN 1/4" X 2" OF SUFFICIENT LENGTH TO TO ACCOMMODATE THE NUMBER OF TERMINATIONS NECESSARY FOR THE INSTALLATION, PER NEC 250.64(D)(1) IS ALSO ACCEPTABLE.

4 GROUNDING ELECTRODE CONDUCTOR DETAIL
SCALE: NTS



2 INDUCTION LOOP DETAIL
SCALE: NTS

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 035689 ENGINEER ANDREW W. KING

ENGINEER:

MODEL ENERGY
300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
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DRAWN BY: EHM	
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ELECTRICAL INFORMATION

PV2.3

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BILL OF MATERIALS

LEGEND: ■ Base System Part ■ Accessory

PART NUMBER	PART TYPE	DESCRIPTION	QUANTITY	SUGGESTED QUANTITY	UNIT PRICE (USD)	TOTAL LIST PRICE (USD)
UserSupplied-HalfBlock	Ballast Block	BALLAST HALF BLOCK	78	78	0.00	0.00
User Supplied	Ballast Block	BALLAST BLOCK	785	785	0.00	0.00
370010	Ballast Bay	RM10 EVO FIELD BAY	279	279	61.14	17058.06
370011	Ballast Bay	RM10 EVO NORTH ROW BAY	86	86	61.14	5258.04
370023	Clamp	EVO MOD CLAMP BULK	1112	1112	4.19	4659.28
370022	RM Hex Bolt	EVO MOD CLAMP SIDE BOLT BULK	1112	1112	1.13	1256.56
370030	Mid support kit	MID SUPPORT	151	151	21.30	3216.30
310760	RM Roof Pad	RM ROOF PAD	166	166	2.54	421.64
008115M	Wire Management	MLPE Tiger Clip	196	196	7.42	1454.32

BOM: Roof Area 2 - Array 1	
PARTS	QUANTITY
RM10 EVO FIELD BAY	66
RM10 EVO NORTH ROW BAY	25
RM ROOF PAD	34
EVO MOD CLAMP SIDE BOLT BULK	262
EVO MOD CLAMP BULK	262
MID SUPPORT	31
BALLAST HALF BLOCK	30
BALLAST BLOCK	190

BOM: Roof Area 1 - Array 1	
PARTS	QUANTITY
RM10 EVO FIELD BAY	62
RM10 EVO NORTH ROW BAY	13
RM ROOF PAD	40
EVO MOD CLAMP SIDE BOLT BULK	248
EVO MOD CLAMP BULK	248
MID SUPPORT	42
BALLAST HALF BLOCK	6
BALLAST BLOCK	163

BOM: Roof Area 3 - Array 1	
PARTS	QUANTITY
RM10 EVO FIELD BAY	19
RM10 EVO NORTH ROW BAY	5
RM ROOF PAD	12
EVO MOD CLAMP SIDE BOLT BULK	76
EVO MOD CLAMP BULK	76
MID SUPPORT	2
BALLAST HALF BLOCK	16
BALLAST BLOCK	69

BOM: Roof Area 1 - Array 2	
PARTS	QUANTITY
RM10 EVO FIELD BAY	62
RM10 EVO NORTH ROW BAY	13
RM ROOF PAD	40
EVO MOD CLAMP SIDE BOLT BULK	248
EVO MOD CLAMP BULK	248
MID SUPPORT	42
BALLAST HALF BLOCK	6
BALLAST BLOCK	163

BOM: Roof Area 4 - Array 2	
PARTS	QUANTITY
RM10 EVO FIELD BAY	23
RM10 EVO NORTH ROW BAY	15
RM ROOF PAD	16
EVO MOD CLAMP SIDE BOLT BULK	92
EVO MOD CLAMP BULK	92
MID SUPPORT	7
BALLAST HALF BLOCK	10
BALLAST BLOCK	76

BOM: Roof Area 4 - Array 1	
PARTS	QUANTITY
RM10 EVO FIELD BAY	47
RM10 EVO NORTH ROW BAY	15
RM ROOF PAD	24
EVO MOD CLAMP SIDE BOLT BULK	186
EVO MOD CLAMP BULK	186
MID SUPPORT	27
BALLAST HALF BLOCK	10
BALLAST BLOCK	124

STATEMENT OF STRUCTURAL COMPLIANCE

THE ROOF STRUCTURE HAS BEEN DESIGNED BY STRUCTURAL EOR TO SUPPORT THE ADDITIONAL LOADS OF THE PURPOSED PV SYSTEM UP TO 10 PSF. SEE STRUCTURAL NOTES ON STRUCTURAL SHEETS. THE BALLAST INFORMATION CONTAINED IN THESE PLANS ARE FOR BIDDING PURPOSES ONLY.

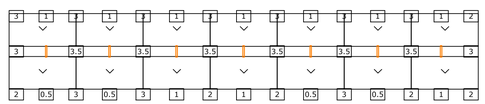
SIGNED: _____

NAME: ANDREW W. KING, PE

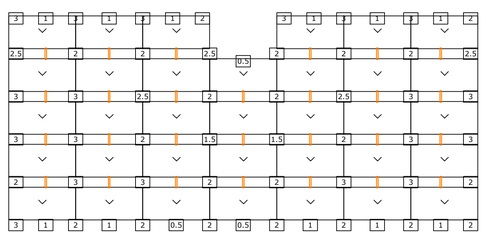
TITLE: PROFESSIONAL ENGINEER

Legend

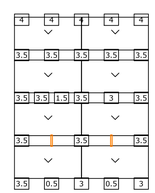
- Number of blocks in each bay
- Mid Support



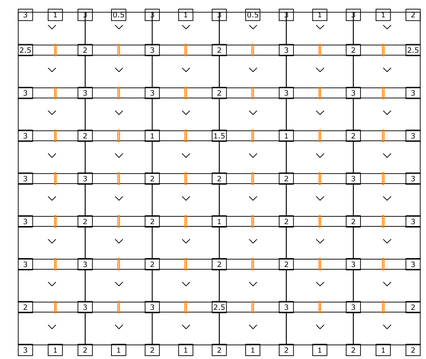
6 BALLAST MAP - ROOF AREA 4 - ARRAY 2
SCALE: 1/8" = 1' -0"



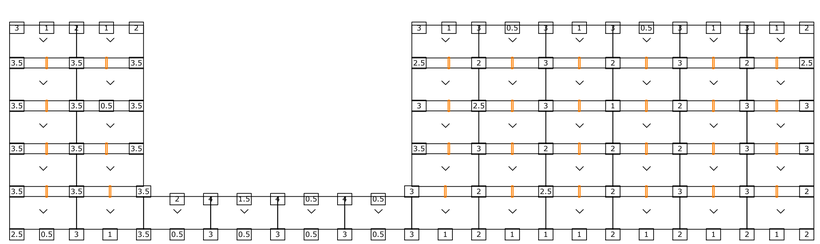
5 BALLAST MAP - ROOF AREA 4 - ARRAY 1
SCALE: 1/8" = 1' -0"



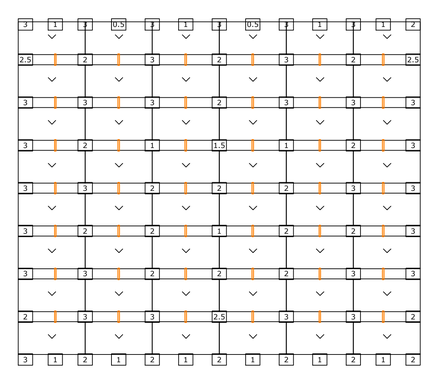
3 BALLAST MAP - ROOF AREA 3 - ARRAY 1
SCALE: 1/8" = 1' -0"



2 BALLAST MAP - ROOF AREA 1 - ARRAY 2
SCALE: 1/8" = 1' -0"



4 BALLAST MAP - ROOF AREA 2 - ARRAY 1
SCALE: 1/8" = 1' -0"



1 BALLAST MAP - ROOF AREA 1 - ARRAY 1
SCALE: 1/8" = 1' -0"

SEAL:

ENGINEER:

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STRUCTURAL INFORMATION

PV3.1

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HD HYUNDAI ENERGY SOLUTIONS

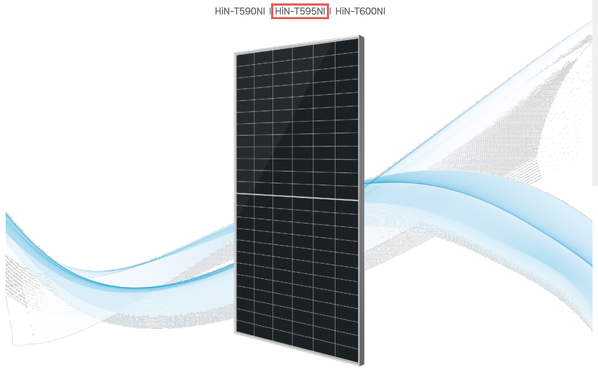
eng.hd-hyundaies.co.kr

HD HYUNDAI SOLAR MODULE

NI Series

Premium N-Type TOPCon Module

HiN-T590NI | HiN-T595NI | HiN-T600NI

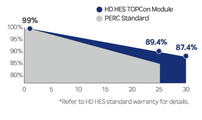


23.23% High Efficiency | High-End TOPCon Technology | Higher Bifaciality | Long-Term Reliability | Rooftop Applications | For Commercial & Utility Applications

HD Hyundai's Warranty Provisions

12 YEARS
- 12-Year Product Warranty
  - Materials and workmanship

30 YEARS
- 30-Year Performance Warranty
  - First year degradation: 1%
  - Linear warranty after initial year: with 0.4%p annual degradation, 87.4% is guaranteed up to 30years



*Refer to HD HES standard warranty for details.

Certification

- ISO 9001 : Quality management systems
- ISO 14001 : Environmental management systems
- ISO 45001 : Occupational health and safety management systems
- UL 61730: Photovoltaic (PV) module safety qualification (CSA)
- IEC 61701: Salt mist corrosion testing
- IEC 62716: Ammonia corrosion testing
- IEC 62804: Potential Induced Degradation (PID) testing
- IEC 60068-2-68: Sand and dust testing for environmental durability

Electrical Characteristics

HIN-TxxxNI		HIN-T590NI		HIN-T595NI		HIN-T600NI	
Item	Unit	BNPI		BNPI		BNPI	
Nominal output (Pmax)	W	590	654	595	659	600	665
Open circuit voltage (Voc)	V	51.9	51.9	52.1	52.1	52.3	52.3
Short circuit current (Isc)	A	14.47	16.03	14.53	16.10	14.59	16.17
Voltage at Pmax (Vmpp)	V	43.2	43.2	43.4	43.4	43.6	43.6
Current at Pmax (Impp)	A	13.66	15.14	13.72	15.20	13.77	15.26
Module efficiency	%	22.84		23.03		23.23	
Power Class Sorting	W	0 ~ +5					
Temperature coefficient of Pmax	%/℃	-0.30					
Temperature coefficient of Voc	%/℃	-0.25					
Temperature coefficient of Isc	%/℃	0.046					
Bifaciality	%	80±10					

*STC : Irradiance 1,000 W/m², cell temperature 25℃, AM=1.5 / Test uncertainty for Pmax ±3%; Voc ±3%; Isc ±3%

**The electrical properties of BNPI are measured under the irradiance corresponding to 1000 W/m² on the module front and 135 W/m² on the module rear.

Additional Power Gain from rear side						
Pmpp gain	Pmpp [W]	Vmpp [V]	Impp [A]	Voc [V]	Isc [A]
5%	625	43.4	14.41	52.1	15.26
15%	684	43.4	15.78	52.1	16.71
25%	744	43.4	17.15	52.1	18.16

*Electrical characteristics with different rear power gain (reference to 585W)

Mechanical Characteristics

Dimensions	2,278mm (L) x 1,134mm (W) x 30mm (H) (89.7in x 44.7in x 1.2in)
Weight	31.5 kg (69.5lbs)
Solar Cells	N-Type TOPCon, 144 (6x24) monocrystalline 166B half-cut bifacial cells
Output Cables	Cable : (+) 1,200mm(47.2in), (-) 1,200mm(47.2in) Connector : MC4 Genuine, IP68
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 2.0mm(0.08in) semi-tempered solar glass with high transmittance and anti-reflective coating Rear : 2.0mm(0.08in) semi-tempered solar glass
Frame	Anodized aluminum alloy

Installation Safety Guide

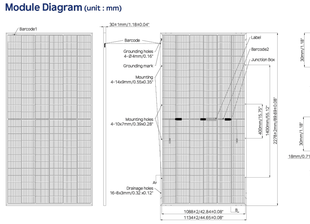
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not handle or install modules when they are wet.

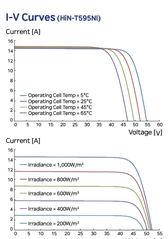
Nominal Module Operation Temperature	44℃ ± 2℃
Operating Temperature	-40℃~+85℃
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load	Front 5,400Pa Rear 2,400Pa
Fire Performance	Type 29

Shipping Configurations

Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container	20	Modules Per Container (pcs)	720

Module Diagram (unit : mm)





I-V Curves (HIN-T595NI)

Sales & Marketing
hes.sales@hd.com

HD Hyundai Energy Solutions reserves the right to update or modify the specifications and features listed in this datasheet without prior notice. Always check the latest version of the datasheet for accurate information. Before using the product, please refer to the Installation and Operation Manual and Warranty. We retain the right of final interpretation.

HD HYUNDAI ENERGY SOLUTIONS

APsmart

Raising the bar in innovative DC **MLPE** solar power systems

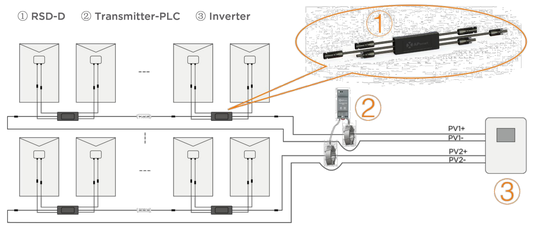
RSD-D

RAPID SHUTDOWN DEVICE

- ✓ Meets NEC 2017, 2020&2023 (690.12) requirements
- ✓ Executes rapid shutdown of system when Transmitter signal is absent
- ✓ Meets SunSpec requirements
- ✓ Dual-input channel

WIRING DIAGRAM

① RSD-D ② Transmitter-PLC ③ Inverter



*Homerun only PV+ cable through core.
*If the inverter includes an integrated SunSpec-certified Rapid Shutdown Transmitter, remove the external transmitter-PLC in the wiring diagram.

RSD-D meets SunSpec requirements, maintaining normal function by continually receiving a heartbeat signal from the APsmart Transmitter. The RSD-D executes rapid system shutdown when the Transmitter signal is absent. Users can manually execute rapid shutdown using Transmitter breaker switch.*(1)*(2)

*(1) RSD-D does not have automatic shutdown function for arc detection. When the system is abnormal, the transmitter signal is cut off by pulling the gate, which triggers shutdown.
*(2) RSD-D is designed to reduce the risk of fire suppression but does not solve the risk of a arc fire.

REV2.4 2025-01-23

TECHNICAL DATA

MODEL	RSD-D-20
INPUT DATA (DC)	
Range of Input Operating Voltage	8-65V Per Channel
Maximum Cont. Input Current (Imax)	20A Per Channel
Maximum Short Circuit Current (Isc)	25A
OUTPUT DATA (DC)	
Range of Output Operating Voltage	16-130V
Maximum Cont. Output Current	20A
Maximum System Voltage	1000V/1500V
Maximum Series Fuse Rating	30A
MECHANICAL DATA	
Operating Ambient Temperature Range	-40 oF to +167 oF (-40 °C to + 75 °C)
Dimensions (without cable & connectors)	5.5" x 2" x 0.8"(140 mm x 50.6 mm x 20 mm)
Cable Length	Input 500mm/Output 2400mm
Cable Cross Section Size	TUV:4mm²/UL:12AWG
Connector	Input: Stäubli MC4 PV-KBT4&KST4 or Customize Output: APsystems specified or Customized
Enclosure Rating	NEMA Type 6P/IP68
Protection Temperature	100°C
FEATURES & COMPLIANCE	
Communication Compliance	PLC
Safety Compliance	NEC 2017, 2020&2023 (690.12); UL1741; CSA C22.2 No. 330-17; IEC/EN62109-1
EMC Compliance	FCC Part15; ICES-003

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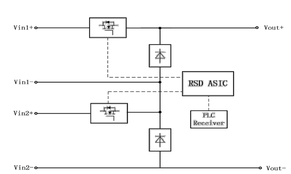
WORKING SCHEMATIC DIAGRAM



ORDERING INFORMATION	
446101	1500V UL/1000V TUV, 20A, 2.4m cable, Stäubli MC4 PV-KBT4&KST4
4461xx*	20A, 2.4m cable, Customize connector

*please see the RSD Series Ordering Information

APsmart
8627 N Mopac Expy, Suite 150, Austin, TX 78759 | +1-737-218-8486 | +1-866-374-8538 | support@APsmartGlobal.com | APsmartGlobal.com

REV2.4 2025-01-23

CPS

Datasheet

50/60 kW, 1000 Vdc String Inverters for North America

The CPS 50/60 kW three-phase string inverters are designed for ground mount, rooftop and carport applications. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.8% peak and 98.5% CEC, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications.

The CPS 50/60KTL products ship with either the Standard wire box or the Rapid Shutdown wire box, each fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown wire box enables PVRSS certified module-level rapid shutdown when used with APS RSD-S-PLC/RSD-D products. The CPS FlexOM Gateway enables monitoring, controls, and remote product upgrades.

CPS SCA50KTL-DO/US-480
CPS SCA60KTL-DO/US-480

Key Features

- NEC 2017/2020 PVRSS certified for rapid shutdown
- 55 & 66 kVA rating allows max rated active power @ ±0.91 PF
- Selectable max. AC apparent power of 50/55 kVA and 60/66 kVA
- NEC compliant and UL listed arc-fault circuit protection
- 15-90° mounting orientation for low profile roof installs
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 3 MPPTs with 5 inputs each for maximum flexibility
- NEMA Type 4X outdoor rated enclosure
- UL 1741-SA certified to CA Rule 21, including SA8 - SA18
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions up to 20 years

50/60KTL Standard Wire Box

50/60KTL Rapid Shutdown Wire Box

©CHINT POWER SYSTEMS AMERICA 2024/12-MKT NA

Chint Power Systems America
1380 Presidential Drive, Suite 100, Richardson, TX 75081
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS

Technical Data

Model name	CPS SCA50KTL-DO/US-480	CPS SCA60KTL-DO/US-480
DC Input		
Max. PV power	90 kW (33 kW per MPPT)	
Max. DC input voltage	1000 Vdc	
Operating DC input voltage range	200-950 Vdc	
Startup DC input voltage / power	330 V / 80 W	
Number of MPPTs	3	
MPPT voltage range for Pnom @ PF>0.99	480-850 Vdc	540-850 Vdc
Max. PV short circuit current[1]	163.2 A (54.4 A per MPPT)	
Number of DC inputs	15 inputs, 5 per MPPT	
DC disconnection type	Load-rated DC switch	
DC surge protection	Type II MOV	
AC Output		
Rated AC output power @ PF>0.99 to ±0.91[2]	50 kW	60 kW
Max. AC apparent power (selectable[3])	50 / 55 kVA	60 / 66 kVA
Rated output voltage	480 Vac	
Output voltage range[4]	422-528 Vac	
Grid connection type	3Ø / PE / N (neutral optional)	
Max. AC output current @ 480 Vac	60.2 A (@ 50 kVA) / 66.2 A (@ 55 kVA)	72.2 A (@ 60 kVA) / 79.4 A (@ 66 kVA)
Rated output frequency	60 Hz	
Output frequency range[4]	57-63 Hz	
Power factor	>0.99 (±0.8 adjustable)	
Current TRD @ rated load	< 3%	
Max. fault current contribution (1 cycle RMS)	64.1 A (1.06/0.88 PU)	
Max. OCPD rating	110 A	125 A
AC disconnection type	Load-break rated AC switch	
AC surge protection	Type II MOV	
System and Performance		
Topology	Transformerless	
Max. efficiency	98.8%	
CEC efficiency	98.5%	
Standby / night consumption	< 1 W	
Environment		
Enclosure protection degree	NEMA 4X	
Cooling method	Variable speed cooling fans	
Operating temperature range[5]	-22°F to 140°F (-30°C to 60°C)	
Non-operating temperature range	-40°F to 158°F (-40°C to 70°C)	
Operating humidity	0-100%	
Operating altitude	13123 ft / 4000 m (derating from 9843 ft / 3000 m)	
Audible noise	<60 dBA @ 1 m and 77°F (25°C)	
Display and Communication		
User interface and display	LCD+LED	
Inverter monitoring	SunSpec, Modbus RS485	
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)	
Modbus data mapping	CPS	
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (H × W × D)	39.4 × 23.6 × 10.24 in (1000 × 600 × 260 mm)	
Weight	Inverter: 123.5 lb (56 kg) Wire box: 33 lb (15 kg)	
Mounting / installation angle[6]	15 to 90 degrees from horizontal (vertical or angled)	
AC termination	M8 stud type terminal block (wire range: #6-3/0 AWG CU/AL; lugs not supplied)	
DC termination[7]	Screw clamp, negative busbar (RSD version[7]), wire range: #14-#6 AWG CU	
Fused string inputs (5 per MPPT)	RSD[7] and Standard wire box: 20 A or 25 A fuses provided (fuse values up to 30 A acceptable)	
Safety		
Certifications and standards	UL 1741-SA/SB Ed. 3, UL 1699B, UL 1998, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC Part 15	
Selectable grid standards	IEEE 1547a-2014, IEEE 1547-2018[8], CA Rule 21, ISO-NE, HECO	
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt	
Warranty		
Standard	10 years	
Extended terms	15 and 20 years	

1) The sum of parallel-connected PV module short-circuit currents.
2) Active power derating begins at PF = ±0.91 to ±0.80 when max AC apparent power is set to 55 or 66 kVA.
3) Inverters are factory set to 50 kVA and 60 kVA by default. Contact CPS to enable the higher kVA setting.
4) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
5) Active power derating begins at 40°C when PF = ±0.9 and MPPT≥Vmin; at 45°C when PF = 1 and MPPT≥Vmin; and at 50°C when PF = 1 and MPPT≥700 Vdc.
6) Shade cover accessory required for installation angles of 75 degrees or less.
7) RSD wire-box only includes fuses and fuse holders on the positive polarity, compliant with NEC 2017/2020.
8) Firmware version 17.0 or later required.

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 35569 ENGINEER ANDREW W. KING

ENGINEER:

MODEL ENERGY
300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW PV SYSTEM
116.62 kW DC
75 kW AC EXPORT

DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING
6001 NC 55 HWY
DURHAM, NC 27713

CLIENT:

DTW Architects & Planners, Ltd.

DRAWN BY:	EHM
CHECKED BY:	AWK
ISSUED FOR:	DATE:
BID	08/28/26
ADDENDUM #3	10/06/26

EQUIPMENT SPECIFICATIONS

PV4.1

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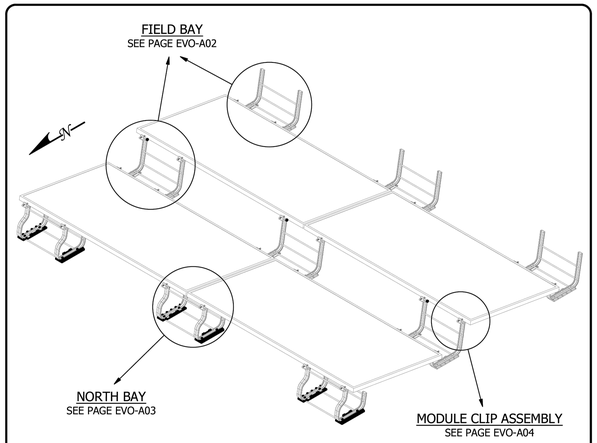

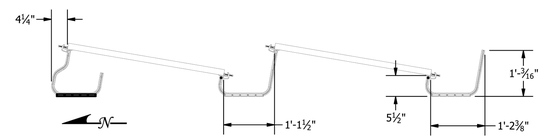

PROFILE VIEW

NOTES:
1. ARRAY DIMENSIONS WILL VARY BASED ON MODULE WIDTH, LENGTH AND RETURN FLANGE.

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	RM10 EVO
DRAWING TYPE:	SYSTEM ASSEMBLY
DESCRIPTION:	RM10 EVO
REVISION DATE:	12/10/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

EVO-A01
SHEET

CPS

Datasheet

25 kW-480 V, 1000 Vdc String Inverters for North America

The CPS 25 kW-480 V three-phase string inverter is designed for rooftop and carport applications. These units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.5% peak and 98.0% CEC, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 25 kW-480 V product ships with a Rapid Shutdown wire box, fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown Wire-box enables PVRSS-certified module-level rapid shutdown when used with APS RSD-S-PLC/RSD-D products. The CPS FlexOM Gateway enables monitoring, controls and remote product upgrades.

CPS SCA25KTL-DO-R/US-480

Key Features

- NEC 2017/2020 PVRSS-certified rapid shutdown
- NEC 2017/2020-compliant & UL-listed arc-fault circuit protection
- 15-90° mounting orientation for low profile roof installs
- 15° tilt Inverter Rack Assembly available from CPS
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC & DC disconnect switches
- 2 MPPTs with 3 inputs each for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- UL 1741-SA certified to CA Rule 21, including SA14 - SA18
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions to 20 years
- Generous 1.5 DC/AC inverter load ratio

SCA25KTL (480V) Rapid Shutdown Wire-box

Intertek 4004922 Conforms to UL Std. 1741 Certified CSA Std.C22.2 No.107.1-01

This device complies with part 15 of the FCC Rules

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Chint Power Systems America
1380 Presidential Drive, Suite 100, Richardson, TX 75081
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

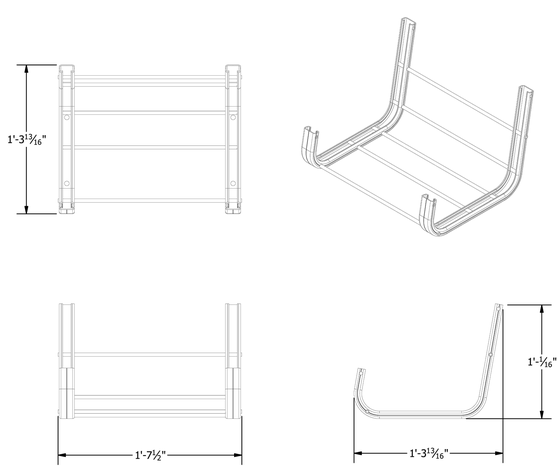
CPS

Technical Data

Model Name	CPS SCA25KTL-DO-R/US-480
DC Input	
Max. PV power	37.5 W (22 kW per MPPT)
Max. DC input voltage	1000 Vdc
Operating DC input voltage range	200-950 Vdc
Start-up DC input voltage / power	330 V / 80 W
Number of MPP trackers	2
MPPT voltage range for Pnom @ PF > 0.99	560-850 Vdc
Max. PV short-circuit current[1]	72 A (36 A per MPPT)
Number of DC inputs	6 inputs, 3 per MPPT
DC disconnection type	Load-rated DC switch
DC surge protection	Type II MOV
AC Output	
Rated AC output power @ PF=1	25 kW
Max. AC apparent power	25 kVA
Rated output voltage	480 Vac
Output voltage range[2]	422-528 Vac
Grid connection type	3Φ / PE / N (neutral optional)
Max. AC output current @ 480 Vac	30.5 A
Rated output frequency	60 Hz
Output frequency range[2]	57-63 Hz
Power factor	>0.99 (±0.8 adjustable)
Current TRD @ rated load	< 3%
Max. fault current contribution (1 cycle RMS)	31 A (1.02 PU)
Max. OCPD rating	50 A
AC disconnection type	Load-rated AC switch
AC surge protection	Type II MOV
System	
Topology	Transformerless
Max. efficiency	98.5%
CEC efficiency	98.0%
Standby / night consumption	< 1 W
Environment	
Enclosure protection degree	NEMA Type 4X
Cooling method	Variable speed cooling fans
Operating temperature range	-22°F to 140°F / -30°C to 60°C
Non-operating temperature range[3]	-40°F to 158°F (-40°C to 70°C)
Operating humidity	0-100%
Operating altitude	13123 ft / 4000 m (derating 9843 ft / 3000 m)
Audible noise	< 60 dBA @ 1 m and 77°F (25°C)
Display and Communication	
User interface and display	LED indicators, Wi-Fi, and App
Inverter monitoring	SunSpec, Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (H × W × D)	Inverter: 15.95 × 15.75 × 7.87 in (405 × 400 × 200 mm) Wire Box: 10.24 × 15.75 × 7.87 in (260 × 400 × 200 mm)
Weight	Inverter: 48.5 lb (22 kg) Wire Box: 13.23 lb (6 kg)
Mounting / installation angle[4]	15 to 90° from horizontal (vertical or angled)
AC termination	Screw clamp (wire range: #8-#2 AWG CU/AL)
DC termination[5]	Screw clamp (wire range: #14-#8 AWG CU)
Fused string inputs (5 per MPPT)	20 A fuses provided (fuse values up to 30 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, UL 1699B, UL1998, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC Part 15
Selectable grid standards	IEEE 1547a-2014, IEEE 1547-2018[6], CA Rule 21, ISO-NE, HECO
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Vol-Watt
Warranty	
Standard	10 years
Extended terms	15 and 20 years

1) The sum of parallel-connected PV module short-circuit currents.
2) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
3) See user manual for further requirements regarding non-operating conditions.
4) Shade Cover accessory required for installation angles of 75 degrees or less.
5) Wire box only includes fuses and fuse holders on the positive polarity, compliant with NEC 2017/2020 Section 690.9(C).
6) Firmware version 5.00 or later required.

ASSEMBLY # TABLE	
P/N	DESCRIPTION
370010	RM10 EVO FIELD BAY



UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

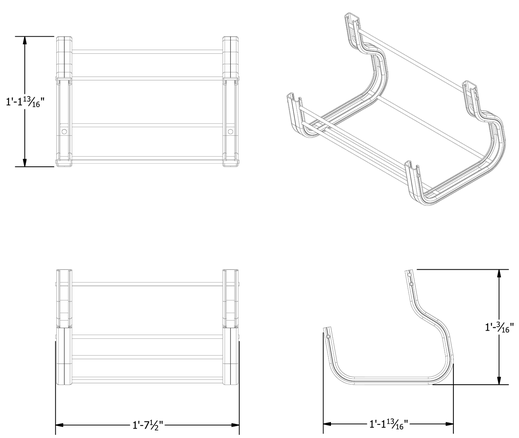
PRODUCT LINE:	RM10 EVO
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	FIELD BAY ASSEMBLY
REVISION DATE:	12/10/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

EVO-A02
SHEET

ASSEMBLY # TABLE	
P/N	DESCRIPTION
370011	RM10 EVO NORTH ROW BAY



UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	RM10 EVO
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	NORTH BAY ASSEMBLY
REVISION DATE:	12/10/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

EVO-A03
SHEET

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 035689 ENGINEER ANDREW W. KING

ENGINEER:

MODEL ENERGY
300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM
P-1194

JOB TITLE:

NEW PV SYSTEM
116.62 kW DC INPUT
75 kW AC EXPORT
DURHAM COUNTY UTILITIES ADMINISTRATION BUILDING
6001 NC 55 HWY
DURHAM, NC 27713

CLIENT:

DTW Architects & Planners, Ltd.

DRAWN BY:	EHM
CHECKED BY:	AWK
ISSUED FOR:	DATE:
BID	08/28/26
ADDENDUM #3	10/06/26

EQUIPMENT SPECIFICATIONS

PV4.2

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

June 2, 2026

COUNTY: DURHAM

SUBJECT: Encroachment Contract
NC-55, SR-2028
Permit Number E052-032-25-00078

Durham County
200 E. Main Street
Durham, NC 27701

Dear Sir or Madam,

Attached for your files is a copy of the Right of Way Encroachment Agreement, which has been properly executed. This contract covers the following:

Pavement widening, grading, drainage, and curb and gutter.

Associated D052-032-25-00009

This encroachment is approved subject to the Standard and Special Provisions which are attached to and made a part of the Encroachment Contract.

Signed by:

Matthew Nolfo, PE, District Engineer
for Rebecca Gallas, PE, Division Engineer

RJG/MJN/JAR
cc: Mr. Jarett A. Rierson (w/ orig)
City of Durham

Attachment

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 5 / DISTRICT 2
815 STADIUM DRIVE
DURHAM, NC 27704

Telephone: (919)317-4770
Fax: (919)317-4710
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
815 STADIUM DRIVE
DURHAM, NC 27704

Encroachment Special Provisions

1. An executed copy of the agreement, provisions and approved plans shall be present at the construction site at all times. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way.

2. Current and future state projects take precedence over this project.

3. NCDOT reserves the right to further restrict this permit at the expense of the encroaching party if/when accident history exists, operational issues occur, the execution and/or operation of said permit is found to be a hazard to the general public, or at the discretion of the District Engineer.

4. Notify City of Durham prior to beginning work.

5. At least 48 hours before work begins, please forward the contact information of the general contractor to Ed Shiplett (edshiplett@ncdot.gov) and Jarett Rierson (jarierson@ncdot.gov). Include contact name, emergency phone number and email.

6. A preconstruction meeting including representatives of NCDOT, the encroaching party, contractors and municipality, if applicable, shall be required. A pre-construction conference held between a municipality (or other facility owner) and a contractor without the presence of NCDOT personnel with subsequent construction commencing may be subject to NCDOT personnel ceasing any work on NCDOT right-of-way related to this encroachment until such meeting is held. Contact the District office to schedule.

7. When applicable, any REVISIONS marked in RED on the attached plans shall be incorporated into and made part of the approved encroachment agreement.

8. Encroacher shall contact Ed Shiplett and Jarett Rierson at (919) 317-4770 upon completion of construction. Once the final inspection has been completed and the project meets our specs, Construction Approval will be granted.

9. 10ft x 70ft sight distance triangles and AASHTO sight lines & profiles shown on the plans shall be clear of any obstructions at all times. The NCDOT reserves the right to require additional access restrictions and/or closure of the driveway.

10. Pavement widening, storm drainage, curb and gutter, and other roadway improvements associated with the proposed driveway entrance/entrances shall be constructed under an approved Encroachment Agreement which shall be obtained prior to commencement of driveway construction.

11. Traffic shall be maintained at all times.

    All lanes of traffic are to be open during the hours of 6:00 A.M. to 9:00 A.M. and from 4:00 P.M. to 7:00 P.M. Monday through Friday, during any time of inclement weather, or as directed by the District Engineer. If the location of work calls for a rolling roadblock on Interstates and divided highway US routes, the restriction is to work only on Sunday from 1:00 A.M. to 10:00 A.M, and only after explicit approval by the District Engineer.

    Any violation of these hours will result in ceasing any further construction by the Encroaching Party or their contractor and liquidated damages in the amount of $2,000.00 per hour or any

portion there of will be assessed by the District Engineers Office. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer.

If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction. Two-way traffic shall be maintained at all times unless designated by the District Engineer. Traffic shall not be rerouted or detoured without the prior written approval from the District Engineer.

Refer to the Standard Provisions to determine when all lane closures are prohibited around public holidays and within school zones.

12. For abandonment or removal of utilities refer to section 1530 of the 2024 Standard Specifications. If you have any question please contact the District Office.

13. All disturbed areas are to be fully restored to current NCDOT minimum roadway standards or as directed by the Division Engineer or their representative. Disturbed areas within NCDOT Right-of-Way include, but not limited to, any excavation areas, pavement removal, drainage or other features.

    All disturbed areas shall be graded, seeded, and strawed upon completion of work in the right of way. Proper vegetative cover is required and the area shall be monitored until vegetation is established.

    The roadway shall be kept free of dirt and debris at all times.

14. Minimum pavement design shall be as follows:
    There shall be a mill and overlay with a minimum of 1.5 inches of S9.5C as shown on the attached plans and in any areas of conflicting pavement markings. A butt joint shall be milled on each end of the project limits to provide a smooth transition to the existing pavement, in addition to the following pavement structure:

    For areas 6 feet wide or more:
    3 inches Bituminous Concrete Surface Course - Type S9.5C
    4 inches Bituminous Concrete Binder Course - Type I19.0C
    10 inches Aggregate Base Course

    or for areas 6 feet wide or less:
    3 inches Bituminous Concrete Surface Course - Type S9.5C
    4 inches Bituminous Concrete Binder Course - Type I19.0C
    5 inches Bituminous Concrete Base Course - Type B25.0C

15. Encroacher/permittee is responsible for positive flow of the ditch line and/or the curb line. All existing drainage patterns shall be maintained.

16. A certified report signed by a professional engineer is required and shall be submitted to the District Engineer at 815 Stadium Drive, Durham, NC 27704 This report shall show density tests results for all embankment, concrete, and apshalt material placed. Test frequency and procedures shall be in accordance with the 2024 NCDOT Standards and Specifications.

17. It is the responsibility of the owner/engineer/applicant to provide verification certifying that the pavement satisfies the approved design. A certified pavement structure report, signed by a professional engineer, shall be submitted to the NCDOT at 815 Stadium Drive, Drive, NC 27704-2713, indicating the following:

    * Pavement thickness by type and density
    * Base thickness
    * Base density
    * Subgrade density
    * Core and/or test locations

    Test frequency and method shall be in conformance with the NCDOT "Materials and Tests" Manual. Test must be performed in accordance with QMS for Asphalt Pavement (Maintenance Version) requirements. QMS form MV2 shall be submitted to the District Office after paving is complete. QMS form MV1 must be completed and returned to the District Office prior to placement of any asphalt.

    The encroacher shall furnish to the District office verification signed by a professional engineer certifying that construction meets NCDOT requirements, Test frequency and method shall be in conformance with the NCDOT Materials and Test Manual. Approval or recommendations for compliance will be provided upon receipt and review of report.

Encroachment Standard Provisions

1. An executed copy of this agreement, provisions, and approved plans, as well as all other permits currently approved by NCDOT for this site, shall be present at the construction site at all times. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way, or at the discretion of the District Engineer.

2. Approval may be rescinded upon failure to follow any of the provisions in this permit and may be considered a violation of the encroachment agreement.

3. Current and future state projects take precedence over this agreement.

4. The Encroaching party or their contractor shall provide the following notices prior to construction activity within the NCDOT Right of Way:
   a. Three (3) business days advance phone call at telephone (919) 317-4770 to the District Engineer's office
   b. If the construction falls within the limits of an NCDOT managed construction project, five (5) business days advance phone call to the Resident Engineer
   c. No less than one (1) week advanced notice to the Division Traffic Engineer at telephone (919) 536-4000 for signal related locates to ensure requests can be fulfilled in a timely manner

5. Excavation within 1000 feet of a signalized intersection will require notification by the encroaching party to the Division Traffic Engineer at telephone number (919) 536-4000 no less than one week prior to beginning work. All traffic signal or detection cables must be located prior to excavation. Cost to replace or repair NCDOT signs, signals, pavement markings or associated equipment and facilities shall be the responsibility of the encroaching party. Any intersection modifications pertaining to signalization, lane additions/modifications, striping changes/additions, and or pedestrian accomodation installation/revision shall require a new signal plan of record be prepared, submitted and reviewed by the Division Traffic Engineer.

6. The encroaching party shall notify the appropriate municipal office and the public, including all adjacent property owners and businesses at least two weeks prior to beginning work.

7. Failure to provide these notifications prior to beginning construction is subject to the Division Engineer's discretion to cease construction activity for this encroachment. NCDOT reserves the right to cease any construction or maintenance work associated with this installation by the encroaching party until the construction or maintenance meets the satisfaction of the Division Engineer or their representative.

8. Ingress and egress shall be maintained to all businesses and dwellings affected by the construction of this encroachment. Special attention shall be paid to police, EMS and fire stations, fire hydrants, secondary schools, and hospitals.

9. At the option of the District Engineer, a preconstruction meeting including representatives of NCDOT, the encroaching party, contractors and municipality, if applicable, shall be required. A preconstruction conference held between a municipality (or other facility owner) and a contractor without the presence of NCDOT personnel with subsequent construction commencing may be subject to NCDOT personnel ceasing any work on NCDOT right-of-way related to this encroachment until such meeting is held. Contact the District office to schedule at telephone (919) 317-4770.

10. Prior to beginning work, it is the requirement of the Encroaching Party to contact the appropriate Utility Companies involved and make arrangements to adjust or relocate any utilities that conflict with the proposed work.

    It shall be the responsibility of the encroaching party to determine the location of utilities within the encroachment area. NCGS § 87-115 through § 87-130 of the Underground Utility Safety and Damage Prevention Act requires underground utilities to be located by calling 811 prior to construction. The encroaching party shall be responsible for notifying other utility owners and providing protection and safeguards to prevent damage or interruption to existing facilities and maintain access to them.

11. If the approved method of construction is unsuccessful and other means are required, prior approval must be obtained through the District Engineer before construction may continue.

12. Any REVISIONS marked in RED on the attached non-PE sealed plans shall be incorporated into and made part of the approved encroachment agreement.

13. This approval and associated plans and supporting documents shall not be interpreted to allow any design change or change in the intent of the design by the Owner, Design Engineer, or any of their representatives. Any revisions or changes to these approved plans or intent for construction must be obtained in writing from the Division Engineer's office or their representative prior to construction or during construction if an issue arises during construction to warrant changes.

14. Conformance with driveway permit review should be required in conjunction with this encroachment agreement. In the event there is a conflict between the driveway permit and the encroachment agreement, the District Engineer should resolve the conflict and notify the parties involved.

15. NCDOT does not guarantee the right of way on this road, nor will it be responsible for any claim for damages brought about by any property owner by reason of this installation. It is the responsibility of the encroaching party to verify the right of way.

16. Encroaching party shall be responsible for obtaining all necessary permanent and/or temporary construction, drainage, utility and/or sight distance easements.

17. All Right of Way and easements necessary for construction and maintenance shall be dedicated to NCDOT with proof of dedication furnished to the District Engineer prior to beginning work.

18. All disturbed areas are to be fully restored to current NCDOT minimum roadway standards or as directed by the Division Engineer or their representative. Disturbed areas within NCDOT Right-of-Way include, but not limited to, any excavation areas, pavement removal, drainage or other features.

19. The encroaching party shall notify the Division Engineer or their representative immediately in the event any drainage structure is blocked, disturbed or damaged. All drainage structures disturbed, damaged or blocked shall be restored to its original condition as directed by the Division Engineer or their representative.

20. Unless specified otherwise, during non-working hours, equipment shall be located away from the job site or parked as close to the right of way line as possible and be properly barricaded in order not to have any equipment obstruction within the Clear Zone. Also, during non-working hours,

no parking or material storage shall be allowed along the shoulders of any state-maintained roadway.

21. The Encroaching Party and/or their Contractor shall comply with all OSHA requirements. If OSHA visits the work area associated with this encroachment, the District Office shall be notified by the encroaching party immediately if any violations are cited.

22. All frames, grates, rings, covers, etc. are to be manufactured in accordance with the requirements of Section 106-1B - "Domestic Steel". Foreign castings are not approved for use within NCDOT Right of Way.

23. All traffic control, asphalt mixes, structures, construction, workmanship and construction methods, and materials shall be in compliance with the most-recent versions of the following resources: ASTM Standards, Manual on Uniform Traffic Control Devices, NCDOT Utilities Accommodations Manual, NCDOT Standard Specifications for Roads and Structures, NCDOT Roadway Standard Drawings, NCDOT Asphalt Quality Management System manual, and the approved plans.

24. Excavation or fill material shall not be placed on the pavement without proper screenings.

25. The roadway shall be kept free of silt, mud and debris at all times.

    It is the responsibility of the encroaching party or their contractor to prevent any mud/dirt from tracking onto the roadway. Any dirt which may collect on the roadway pavement from equipment and/or truck traffic on site shall be immediately removed to avoid any unsafe traffic conditions

26. The Encroaching party shall notify the District Engineer's office within 2 business days after construction is complete. The District Engineer may perform a construction inspection. Any deficiencies may be noted and reported to the encroaching party to make immediate repairs or resolve any issues to restore the right-of-way to a similar condition prior to construction, including pavement, signage, traffic signals, pavement markings, drainage, structures/pipes, or other highway design features.

27. Pavement pre-markings shall be approved by the District Office before thermoplastic is placed.

28. All temporary and final pavement markings, reflective pavement markings and signage are the responsibility of the Encroacher. All final pavement markings shall be thermoplastic. Any pavement markings that are damaged or obliterated shall be restored at no cost to the department.

29. Any existing driveways, pavement, sidewalk, curb and gutter or drainage structures that are damaged during construction shall be repaired to their original condition.

30. Any pavement damaged because of settlement of the pavement or damaged by equipment used to perform work, shall be re-surfaced to the satisfaction of the District Engineer. This may include the removal of pavement and a 50' mechanical overlay. All pavement work and pavement markings (temporary and final) are the responsibility of the Encroaching Party.

    All driveways disturbed during construction shall be returned to a state comparable with the condition of the driveways prior to construction.

31. The Contractor shall not close or narrow a lane of traffic on all roads, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

A) For unexpected occurrence that creates unusually high traffic volumes, as directed by the Engineer.
B) For New Year's Day, between the hours of 6:00 a.m. December 31st and 7:00 p.m. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until 9:00 p.m. the following Tuesday.
C) For Easter, between the hours of 6:00 a.m. Thursday and 7:00 p.m. Monday.
D) For Memorial Day, between the hours of 6:00 a.m. Friday and 7:00 p.m. Tuesday.
E) For Independence Day, between the hours of 6:00 a.m. the day before Independence Day and 7:00p.m. the day after Independence Day. If Independence Day is on a Friday, Saturday, Sunday or Monday, then between the hours of 6:00 a.m. the Thursday before Independence Day and 7:00 p.m. the Tuesday after Independence Day.
F) For Labor Day, between the hours of 6:00 a.m. Friday and 7:00 p.m. Tuesday.
G) For Thanksgiving Day, between the hours of 6:00 a.m. Tuesday and 7:00 p.m. Monday.
H) For Christmas, between the hours of 6:00 a.m. the Friday before the week of Christmas Day and 7:00 p.m. the following Tuesday after the week of Christmas Day.

In addition, if the construction is within 1000 feet of a school location or on a designated bus route, the construction shall be coordinated with the school start and end times to avoid traffic delays.

Work requiring lane or shoulder closures shall not be performed on both sides of the road simultaneously within the same area. Any work requiring equipment or personnel within 5 feet of the edge of any travel lane of an undivided facility and within 10 feet of the edge of any travel lane of a divided facility shall require a lane closure with appropriate tapers per current NCDOT Roadway Standard Drawings or MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

Sidewalk closures shall be installed as necessary. Pedestrian traffic shall be detoured around these closures and shall be signed appropriately and in accordance with The American with Disabilities Act Accessibility Guidelines. The encroaching party must adhere to the guidelines for accommodating pedestrians in encroachment work zones as described in the NCDOT Pedestrian Work Zone Accommodations Training found at https://www.youtube.com/watch?v=AOuYa5IW3dg&feature=youtube.

32. WORK ZONE TRAFFIC CONTROL QUALIFICATIONS AND TRAINING PROGRAM

All personnel performing any activity inside the highway right of way are required to be familiar with the NCDOT Maintenance / Utility Traffic Control Guidelines (MUTCG). No specific training course or test is required for qualification in the Maintenance /Utility Traffic Control Guidelines (MUTCG).

All flagging, spotting, or operating Automated Flagger Assist Devices (AFAD) inside the highway right of way requires qualified and trained Work Zone Flaggers. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.
All personnel involved with the installation of Work Zone Traffic Control devices inside the highway right of way are required to be qualified and trained Work Zone Installers. Training for this certification is provided by NCDOT approved training resources and by private entities that

have been pre-approved to train themselves.

All personnel in charge of overseeing work zone Temporary Traffic Control operations and installations inside the highway right of way are required to be qualified and trained Work Zone Supervisors. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

For questions and/or additional information regarding this training program please refer to https://connect.ncdot.gov/projects/WZTC/Pages/Training.aspx or call the NCDOT Work Zone Traffic Control Section (919) 814-5000.

33. The party of the second part shall employ traffic control measures that are in accordance with the prevailing federal, state, local, and NCDOT policies, standards, and procedures. These policies, standards, and procedures include, but are not limited to the following:
Manual on Uniform Traffic Control Devices (MUTCD) – North Carolina has adopted the MUTCD to provide basic principles and guidelines for traffic control device design, application, installation, and maintenance. North Carolina uses the MUTCD as a minimum requirement where higher supplemental standards specific to North Carolina are not established. Use fundamental principles and best practices of MUTCD (Part 6, Temporary Traffic Control).
NCDOT Maintenance / Utility Traffic Control Guidelines – This document enhances the fundamental principles and best practices established in MUTCD Part 6, Temporary Traffic Control, incorporating NCDOT-specific standards and details. It also covers important safety knowledge for a wide range of work zone job responsibilities.

34. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer. If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction.

35. At the discretion of the District Engineer, a traffic control plan shall be developed and submitted under the seal and signature of a Licensed North Carolina Professional Engineer prior to construction. The plan shall be specific to the site and adequately detailed. Issues such as the close proximity to intersections shall be addressed.

36. Retaining walls or other vertical structures shall not be permitted inside NCDOT right of way.

37. All materials and construction shall be in accordance with NCDOT standards and specifications, including but not limited to, the NCDOT Standard Specifications for Roads and Structures 2024, the NCDOT Roadway Standards Drawings, and NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way.

38. No access to the job site, parking or material storage shall be allowed along or from the Control of Access Roadway.

    The resetting of the Control of Access fence shall be in accordance with the applicable NCDOT standard and as directed by the Division Engineer or their representative.

    The installation within the Control of Access fence shall not adversely affect the design, construction, maintenance, stability, traffic safety or operation of the controlled access highway, and the utility must be serviced without access from the through-traffic roadways or ramps.

39. Existing drainage patterns shall be maintained at all times throughout the proposed construction.

    Pipes shall be installed as necessary to maintain existing drainage patterns. Pipes shall be sized properly to accommodate the drainage area at its point of discharge. Pipes shall be reinforced concrete pipe with a minimum inside diameter of 15 inches. Storm drain crosslines traversing the roadway shall be reinforced concrete pipe with a minimum inside diameter of 18 inches.

40. The encroaching party shall be responsible for the perpetual maintenance of all proposed stormwater BMPs.

41. All erosion control devices and measures shall be constructed, installed, maintained, and removed by the Encroacher in accordance with all applicable Federal, State, and Local laws, regulations, ordinances, and policies. Permanent vegetation shall be established on all disturbed areas in accordance with the recommendations of the Division Roadside Environmental Engineer. All areas disturbed (shoulders, ditches, removed accesses, etc.) shall be graded and seeded in accordance with the latest NCDOT Standards Specifications for Roads and Structures and within 15 calendar days with an approved NCDOT seed mixture (all lawn type areas shall be maintained and reseeded as such). Seeding rates per acre shall be applied according to the Division Roadside Environmental Engineer. Any plant or vegetation in the NCDOT planted sites that is destroyed or damaged as a result of this agreement shall be replaced with plants of like kind or similar shape.

    No trees within NCDOT right of way shall be cut without authorization from the Division Roadside Environmental Engineer. An inventory of trees measuring greater than 4 caliper inches (measured 6" above the ground) is required when trees within C/A right of way will be impacted by the project installation. Mitigation is required and will be determined by the Division Roadside Environmental Engineer's Office.

    The applicant is responsible for identifying project impacts to waters of the United States (wetlands, intermittent streams, perennial streams and ponds) located within the NCDOT right-of-way. The discharge of dredged or fill material into waters of the United States requires authorization from the United States Army Corps of Engineers (USACE) and certification from the North Carolina Division of Water Quality (NCDWQ). The applicant is required to obtain pertinent permits or certification from these regulatory agencies if construction of the project impacts waters of the United States within the NCDOT right-of-way. The applicant is responsible for complying with any river or stream Riparian Buffer Rule as regulated by the NCDWQ. The Rule regulates activity within a 50-foot buffer along perennial streams, intermittent streams and ponds. Additional information can be obtained by contacting the NCDWQ or the USACE.

    The contractor shall perform all monitoring and record keeping and any required maintenance of erosion and sediment control measures to maintain compliance with stormwater regulations.

42. All proposed landscaping and plantings located within the NCDOT right of way shall be approved by the Division Roadside Environmental Engineer at (919) 816-9290.

    In the event these plants require relocation or removal for highway construction, reconstruction, or maintenance of safety, such removal or relocation will be done immediately by the permittee upon notification by the NCDOT entirely at the expense of the permittee.

43. The encroaching party shall comply with all applicable local, state and federal environmental regulations, and shall obtain all necessary state and federal environmental permits, including but

not limited to, those related to sediment control, storm water, wetland, streams, endangered species, and historical sites.

44. The applicant is responsible for complying with the Neuse and Tar-Pamlico Riparian Buffer Rule as regulated by the NCDWQ. The Rule regulates activity within a 50-foot buffer along perennial streams, intermittent streams and ponds.

45. The applicant is responsible for avoiding impacts to federally protected species during project construction. Bald eagle, Michaux's sumac, smooth coneflower, dwarf wedgemussel, harperella, red-cockaded woodpecker and tar spinymussel are federally protected species that have been identified within NCDOT right-of-way in Durham, Person, Granville, Wake, Franklin, Vance, and Warren counties. Additional information can be obtained by contacting the North Carolina Natural Heritage Program or the United States Fish and Wildlife Services.

46. Guardrail shall be installed where warranted and in accordance with the guidelines shown in the 2024 Highway Design Branch Roadway Standard Drawings.

    Guardrail removed or damaged during construction shall be replaced or repaired to their original condition at no cost to NCDOT.

47. Prior approval for any blasting must be obtained from the District Engineer or their representative.

48. "Potholing" (or "daylighting") pavement cores to expose existing utilities shall be made with a circular minimum 6" to maximum 18" diameter "test" hole to a maximum depth of 12 inches. Pavement core locations shall not be placed in the wheel path whenever possible. Vacuum excavation shall be utilized to expose underground utilities below pavement subgrade. Displaced dirt and rock debris must be suctioned away from the excavation area through a large hose to a vacuum truck and disposed by the encroaching party. Avoid using mechanized equipment in the proximity of all exposed underground utility lines. Pavement cores shall be repaired within the same working day. The pavement core shall be retained and evaluated for reuse to fill the core hole.

49. Trenching, bore pits and/or other excavations shall not be left open or unsafe overnight. The Contractor shall comply with all OSHA requirements and provide a competent person on site to supervise excavation at all times.

50. All excavations inside the theoretical 1:1 slope from the existing edge of pavement to the bottom of the nearest excavation wall should be made in accordance with the following conditions. Traffic should be moved to a travel lane outside the limits of a theoretical one-to-one slope from the bottom of the nearest trench wall to the pavement surface. Active excavation shoring, such as sheet piling, shall be installed. The design of the shoring shall include the effects of traffic loads. The shoring system shall be designed and sealed by an engineer registered in North Carolina. Trench boxes shall not be accepted as shoring. The trench backfill material should meet the Statewide Borrow Criteria.

51. All material to a depth of 8 inches below the finished surface of the subgrade shall be compacted to a density equal to at least 100% of that obtained by compacting a sample of the material in accordance with AASHTO T99 as modified by the Department. The subgrade shall be compacted at a moisture content which is approximately that required to produce the maximum density indicated by the above test method. The contractor shall dry or add moisture to the subgrade

when required to provide a uniformly compacted and acceptable subgrade. The option to backfill any trenches with dirt or either #57 stone or #78 stone with consolidation with a plate tamp and without a conventional density test may be pursued with the written consent of the District Engineer. If this option is exercised, then roadway ABC stone and asphalt repair as required will also be specified by the District Engineer.

52. The paving of this roadway shall be in accordance with the latest version of NCDOT Standard Specifications, Sections 610, 1012 and 1020. The Contractor shall follow all procedures of the latest Quality Management System (QMS) Asphalt Manual for asphalt pavement - Maintenance Version (see https://connect.ncdot.gov/resources/Materials/MaterialsResources/Forms/Default.aspx) to find the most recent version. The Contractor must adhere to all testing requirements and quality control requirements specified. The Contractor shall contact the NCDOT Division QA Supervisor prior to producing plant mix and make the Supervisor aware that the mix is being produced for a future NCDOT road. Contact the District Engineer to determine the NCDOT Division QA Supervisor. Only NCDOT approved mix designs will be acceptable. A Quality Control Plan shall be submitted (as Directed by the District Engineer) to the District Engineer's Office prior to asphalt production utilizing form QMS-MV1. Failing mixes and/or densities are subject to penalties including monetary payments or removal and replacement. To minimize traffic queuing in construction areas, the possibility of traffic detours may be considered when working on high traffic routes even if traffic control is used. The District Engineer may require traffic detours.

53. When paving beyond utility installation is involved, a Roadway certification report sealed by a Professional Engineer shall be submitted to the District Engineer's office indicating the following:
    - Pavement thickness by type
    - Pavement density, core and/or test locations
    - Base thickness
    - Base density
    - Subgrade density

    Test frequency and method shall be in conformance with the NCDOT Materials and Tests Manual. Test must be performed by a Certified Technician including name and Certification number on report.

54. All crossings of state maintained routes shall be by bore only, unless otherwise stated in this encroachment agreement.

55. All pavement cuts shall be repaired with a full width 1.5" mill and overlay of the appropriate surface asphalt for a total length of 50' centered as closely with the cut as feasible unless otherwise directed by the District Engineer.

56. Pavement cuts shall be repaired the same day the cuts are made unless an asphalt patch cannot be accomplished the same day due to material availability or time restrictions. When the asphalt patch is not feasible, the following apply:
    a. The pavement cut shall be filled to the surface with ABC stone or Flowable Fill per NCDOT's Standards and Specifications.
    b. Once the cut is filled, a minimum ¾-inch steel plate shall be placed and pinned to prevent moving. Plates shall be designed large enough to span a minimum of 1-foot on all sides on the pavement cut.
    c. When flowable fill is used, it shall cure for 24 hours prior to any asphalt material placement.

Flowable fill bleed water shall not be present during paving operations. Paving shall not cause damage (shoving, distortion, pumping, etc.) to the flowable fill.
d. Install and leave "BUMP AHEAD" signs according to MUTCD until the steel plate has been removed. Once the flowable fill has cured, remove the steel plate, and mill/fill according to the directions of the District Engineer.
e. All pavement cuts must be sealed with NCDOT approved sealant to prevent future pavement separation or cracking.

57. Excavated areas adjacent to pavement having more than a 2 inch drop shall be made safe with a 6:1 or flatter slope and shall be designated by appropriate delineation during periods of construction inactivity, including, but not limited to, night and weekend hours.

58. Right of Way monuments disturbed during construction shall be referenced by a registered Land Surveyor and reset after construction.

59. No commercial advertising shall be allowed within NCDOT Right of Way.

60. A minimum of 5 feet clearance is required for utility installations beneath or near drainage pipes, headwalls, and a minimum of two-foot clearance below the flowline of streams. If directional drilling, a minimum ten-foot clearance distance is required from drainage structures and a minimum of 5 feet below flowline of streams.

    At points where the utility is placed under existing storm drainage, the trench will be backfilled with excavatable flowable fill up to the outside diameter of the existing pipe.

61. Poles shall be located/relocated at or as near as possible to the right-of-way line, shall be set outside the Clear Recovery Area as outlined by AASHTO and outside sight distance triangles.

    Poles located within guardrail sections shall be installed a minimum of 5 feet behind any guardrail. When applicable, poles shall be placed behind sidewalk.

    Any associated guy wires to ground anchors and stub poles shall not be placed between a pole and the travel way and should be located outside the clear recovery area.

    Minimum vertical clearance shall be 18' for aerial crossings over NCDOT roadways and 15'-6" for installations parallel to the roadway.

62. All Traffic signs moved during construction shall be reinstalled as soon as possible to the satisfaction of the Division Traffic Engineer or their representative.

    All Traffic signs moved shall be reinstalled as soon as possible to meet NCDOT specifications.

ROUTE 2028 NC-55 PROJECT Durham Co. Utility Administration II Building COUNTY OF Durham

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

-AND-

Durham County

200 E Main Street Durham, NC 27701

RIGHT OF WAY ENCROACHMENT AGREEMENT FOR CURB AND GUTTER, PAVEMENT WIDENING AND STORM DRAINAGE

THIS AGREEMENT, made and entered into this the _____ day of _____, 20 _____, by and between the Department of Transportation, party of the first part; and Durham County _____ party of the second part,

06/05/2026

W I T N E S S E T H

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as Route(s) 2028, 55, located 650 feet North East of intersection NC 55 Hwy and T W Alexander Dr (S.R.2028) toward S.R.1945. Additionally, 485 LF south of intersection NC 55 Hwy and T W Alexander Dr (S.R.2028) toward S.R.1978 (storm pipe, yard inlet, manhole) and at intersection of NC 55 Hwy and T W Alexander Dr (S.R.2028) (flared end section). with the construction and/or erection of: For S.R. 2028, left turn traffic lane striping, crosswalk striping and signage, grading,guardrail adjustment, tree clearing, curb & gutter installation, 294 LF of 15" RCP pipe,flared end section, 3 catch basins, and all associated improvements as shown on the plans prepared by CLH Design, P.A. For S.R. 55, additionally, 26 LF of 15" RCP storm pipe, yard inlet,manhole, flared end section, and all associated improvements as shown on the plans prepared by CLH Design, P.A.

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the said party of the second part binds and obligates himself to install the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway.

That the party of the second part agrees to provide during construction proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Division Engineer of the party of the first part.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

It is clearly understood by the party of the second part that the party of the first part will assume no responsibility for any damage that may be caused to such facilities, within the highway rights of way limits, in carrying out its construction.

That the party of the second part agrees to restore all areas disturbed during construction to the satisfaction of the Division Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any construction operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Division Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Division Engineer of the party of the first part.

That the party of the second part agrees to have available at the encroaching site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic; the party of the second part agrees to give written notice to the Division Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

R/W (161B) : Party of the Second Part certifies that this agreement is true and accurate copy of the form

R/W (161B) incorporating all revisions to date.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

DEPARTMENT OF TRANSPORTATION

BY: _____

For The DIVISION ENGINEER

ATTEST OR WITNESS:

Lechelle C. Feinberg, Executive Assistant

Claudia Hager, County Manager
Second Party

INSTRUCTIONS

When the applicant is a corporation or a municipality, this agreement must have the corporate seal and be attested by the corporation secretary or by the empowered city official, unless a waiver of corporate seal and attestation by the secretary or by the empowered City official is on file in the Raleigh office of the State Utilities Manager. In the space provided in this agreement for execution, the name of the corporation or municipality shall be typed above the name, and title of all persons signing the agreement should be typed directly below their signature.

When the applicant is not a corporation, then his signature must be witnessed by one person. The address should be included in this agreement and the names of all persons signing the agreement should be typed directly below their signature.

This agreement must be accompanied, in the form of an attachment, by plans or drawings showing the following applicable information:

1. All roadways and ramps.
2. Right of way lines and where applicable, the control of access lines.
3. Location of the proposed encroachment.
4. Length and type of encroachment.
5. Location by highway survey station number. If station number cannot be obtained, location should be shown by distance from some identifiable point, such as a bridge, road, intersection, etc. (To assist in preparation of the encroachment plan, the Department's roadway plans may be seen at the various Highway Division Offices, or at the Raleigh office.)
6. Drainage structures or bridges if affected by encroachment.
7. Typical section indicating the pavement design and width, and the slopes, widths and details for either a curb and gutter or a shoulder and ditch section, whichever is applicable.
8. Horizontal alignment indicating general curve data, where applicable.
9. Vertical alignment indicated by percent grade, P.I. station and vertical curve length, where applicable.
10. Amount of material to be removed and/or placed on NCDOT right of way, if applicable.
11. Cross-sections of all grading operations, indicating slope ratio and reference by station where applicable.
12. All pertinent drainage structures proposed. Include all hydraulic data, pipe sizes, structure details and other related information.
13. Erosion and sediment control.
14. Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Department must be shown on a separate sheet attached to encroachment agreement provided that such information cannot be shown on plans or drawings.
15. The Department's Division Engineer should be given notice by the applicant prior to actual starting of installation included in this agreement.
16. Method of handling traffic during construction where applicable.
17. Scale of plans, north arrow, etc.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

July 28, 2026

COUNTY: DURHAM

SUBJECT: Application for Driveway Entrance onto NC-55, SR-2028, SR-2100

Permit Number D052-032-25-00009

Durham County
200 E. Main Street
Durham, NC 27701

Dear Sir or Madam,

Attached for your files is a copy of the Driveway Permit which you requested.

This permit is approved with the understanding that the applicant is responsible for the proper construction of the above drive in accordance with the permit application, approved plans, and the attached Standard and Special provisions.

APPROVAL FOR ACCESS ONLY / Associated E052-032-25-00078

Should you have any questions, please contact our office, at (919)317-4770.

Signed by:
0B2E14348DD6470...
Matthew J. Nolfo, P.E.
District Engineer

MJN/JAR

Attachment

cc: Rebecca Gallas, P.E., Division Engineer
City of Durham
Attachment

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 5 / DISTRICT 2
815 STADIUM DRIVE
DURHAM, NC 27704

Telephone: (919)317-4770
Fax: (919)317-4710
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
815 STADIUM DRIVE
DURHAM, NC 27704

Driveway Permit Special Provisions

1. An executed copy of the agreement, provisions and approved plans shall be present at the construction site at all times. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way.

2. Current and future state projects take precedence over this project.

3. NCDOT reserves the right to further restrict this permit at the expense of the encroaching party if/ when accident history exists, operational issues occur, the execution and/or operation of said permit is found to be a hazard to the general public, or at the discretion of the District Engineer.

4. Notify City of Durham prior to beginning work.

5. At least 48 hours before work begins, please forward the contact information of the general contractor to Ed Shiplett (edshiplett@ncdot.gov) and Jarett Rierson (jarierson@ncdot.gov). Include contact name, emergency phone number and email.

6. A preconstruction meeting including representatives of NCDOT, the encroaching party, contractors and municipality, if applicable, shall be required. A pre-construction conference held between a municipality (or other facility owner) and a contractor without the presence of NCDOT personnel with subsequent construction commencing may be subject to NCDOT personnel ceasing any work on NCDOT right-of-way related to this encroachment until such meeting is held. Contact the District office to schedule.

7. When applicable, any REVISIONS marked in RED on the attached plans shall be incorporated into and made part of the approved encroachment agreement.

8. Encroacher shall contact Ed Shiplett and Jarett Rierson at (919) 317-4770 upon completion of construction. Once the final inspection has been completed and the project meets our specs, Construction Approval will be granted.

9. 10ft x 70ft sight distance triangles and AASHTO sight lines & profiles shown on the plans shall be clear of any obstructions at all times. The NCDOT reserves the right to require additional access restrictions and/or closure of the driveway.

10. The roadway improvements, as shown on the plans, shall be constructed under encroachment agreement E052-032-25-00078.

11. Pavement widening, storm drainage, curb and gutter, and other roadway improvements associated with the proposed driveway entrance/entrances shall be constructed under an approved Encroachment Agreement which shall be obtained prior to commencement of driveway construction.

12. Traffic shall be maintained at all times.
    All lanes of traffic are to be open during the hours of 6:00 A.M. to 9:00 A.M. and from 4:00 P.M. to 7:00 P.M. Monday through Friday, during any time of inclement weather, or as directed by the District Engineer. If the location of work calls for a rolling roadblock on Interstates and divided highway US routes, the restriction is to work only on Sunday from 1:00 A.M. to 10:00 A.M, and only after explicit approval by the District Engineer.

Any violation of these hours will result in ceasing any further construction by the Encroaching Party or their contractor and liquidated damages in the amount of $2,000.00 per hour or any portion there of will be assessed by the District Engineers Office. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer.

If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction. Two-way traffic shall be maintained at all times unless designated by the District Engineer. Traffic shall not be rerouted or detoured without the prior written approval from the District Engineer.

Refer to the Standard Provisions to determine when all lane closures are prohibited around public holidays and within school zones.

13. For abandonment or removal of utilities refer to section 1530 of the 2024 Standard Specifications. If you have any question please contact the District Office.

14. All disturbed areas are to be fully restored to current NCDOT minimum roadway standards or as directed by the Division Engineer or their representative. Disturbed areas within NCDOT Right-of-Way include, but not limited to, any excavation areas, pavement removal, drainage or other features.

    All disturbed areas shall be graded, seeded, and strawed upon completion of work in the right of way. Proper vegetative cover is required and the area shall be monitored until vegetation is established.

    The roadway shall be kept free of dirt and debris at all times.

15. Minimum pavement design shall be as follows:
    There shall be a mill and overlay with a minimum of 1.5 inches of S9.5C as shown on the attached plans and in any areas of conflicting pavement markings. A butt joint shall be milled on each end of the project limits to provide a smooth transition to the existing pavement, in addition to the following pavement structure:

    For areas 6 feet wide or more:
    3 inches Bituminous Concrete Surface Course - Type S9.5C
    4 inches Bituminous Concrete Binder Course - Type I19.0C
    10 inches Aggregate Base Course

    or for areas 6 feet wide or less:
    3 inches Bituminous Concrete Surface Course - Type S9.5C
    4 inches Bituminous Concrete Binder Course - Type I19.0C
    5 inches Bituminous Concrete Base Course - Type B25.0C

16. Encroacher/permittee is responsible for positive flow of the ditch line and/or the curb line. All existing drainage patterns shall be maintained.

17. A certified report signed by a professional engineer is required and shall be submitted to the District Engineer at 815 Stadium Drive, Durham, NC 27704 This report shall show density tests results for all embankment, concrete, and apshalt material placed. Test frequency and procedures

shall be in accordance with the 2024 NCDOT Standards and Specifications.

18. It is the responsibility of the owner/engineer/applicant to provide verification certifying that the pavement satisfies the approved design. A certified pavement structure report, signed by a professional engineer, shall be submitted to the NCDOT at 815 Stadium Drive, Drive, NC 27704-2713, indicating the following:

    * Pavement thickness by type and density
    * Base thickness
    * Base density
    * Subgrade density
    * Core and/or test locations

    Test frequency and method shall be in conformance with the NCDOT "Materials and Tests" Manual. Test must be performed in accordance with QMS for Asphalt Pavement (Maintenance Version) requirements. QMS form MV2 shall be submitted to the District Office after paving is complete. QMS form MV1 must be completed and returned to the District Office prior to placement of any asphalt.

    The encroacher shall furnish to the District office verification signed by a professional engineer certifying that construction meets NCDOT requirements, Test frequency and method shall be in conformance with the NCDOT Materials and Test Manual. Approval or recommendations for compliance will be provided upon receipt and review of report.

Driveway Permit Standard Provisions

1. An executed copy of this agreement, provisions, and approved plans, as well as all other permits currently approved by NCDOT for this site, shall be present at the construction site at all times. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way, or at the discretion of the District Engineer.

2. Approval may be rescinded upon failure to follow any of the provisions in this permit and may be considered a violation of the encroachment agreement.

3. Current and future state projects take precedence over this agreement.

4. The Encroaching party or their contractor shall provide the following notices prior to construction activity within the NCDOT Right of Way:
   a. Three (3) business days advance phone call at telephone (919) 317-4770 to the District Engineer's office
   b. If the construction falls within the limits of an NCDOT managed construction project, five (5) business days advance phone call to the Resident Engineer
   c. No less than one (1) week advanced notice to the Division Traffic Engineer at telephone (919) 536-4000 for signal related locates to ensure requests can be fulfilled in a timely manner

5. Excavation within 1000 feet of a signalized intersection will require notification by the encroaching party to the Division Traffic Engineer at telephone number (919) 536-4000 no less than one week prior to beginning work. All traffic signal or detection cables must be located prior to excavation. Cost to replace or repair NCDOT signs, signals, pavement markings or associated equipment and facilities shall be the responsibility of the encroaching party. Any intersection modifications pertaining to signalization, lane additions/modifications, striping changes/additions, and or pedestrian accomodation installation/revision shall require a new signal plan of record be prepared, submitted and reviewed by the Division Traffic Engineer.

6. The encroaching party shall notify the appropriate municipal office and the public, including all adjacent property owners and businesses at least two weeks prior to beginning work.

7. Failure to provide these notifications prior to beginning construction is subject to the Division Engineer's discretion to cease construction activity for this encroachment. NCDOT reserves the right to cease any construction or maintenance work associated with this installation by the encroaching party until the construction or maintenance meets the satisfaction of the Division Engineer or their representative.

8. Ingress and egress shall be maintained to all businesses and dwellings affected by the construction of this encroachment. Special attention shall be paid to police, EMS and fire stations, fire hydrants, secondary schools, and hospitals.

9. At the option of the District Engineer, a preconstruction meeting including representatives of NCDOT, the encroaching party, contractors and municipality, if applicable, shall be required. A preconstruction conference held between a municipality (or other facility owner) and a contractor without the presence of NCDOT personnel with subsequent construction commencing may be subject to NCDOT personnel ceasing any work on NCDOT right-of-way related to this encroachment until such meeting is held. Contact the District office to schedule at telephone (919) 317-4770.

10. Prior to beginning work, it is the requirement of the Encroaching Party to contact the appropriate Utility Companies involved and make arrangements to adjust or relocate any utilities that conflict with the proposed work.

    It shall be the responsibility of the encroaching party to determine the location of utilities within the encroachment area. NCGS § 87-115 through § 87-130 of the Underground Utility Safety and Damage Prevention Act requires underground utilities to be located by calling 811 prior to construction. The encroaching party shall be responsible for notifying other utility owners and providing protection and safeguards to prevent damage or interruption to existing facilities and maintain access to them.

11. If the approved method of construction is unsuccessful and other means are required, prior approval must be obtained through the District Engineer before construction may continue.

12. Any REVISIONS marked in RED on the attached non-PE sealed plans shall be incorporated into and made part of the approved encroachment agreement.

13. This approval and associated plans and supporting documents shall not be interpreted to allow any design change or change in the intent of the design by the Owner, Design Engineer, or any of their representatives. Any revisions or changes to these approved plans or intent for construction must be obtained in writing from the Division Engineer's office or their representative prior to construction or during construction if an issue arises during construction to warrant changes.

14. Conformance with driveway permit review should be required in conjunction with this encroachment agreement. In the event there is a conflict between the driveway permit and the encroachment agreement, the District Engineer should resolve the conflict and notify the parties involved.

15. NCDOT does not guarantee the right of way on this road, nor will it be responsible for any claim for damages brought about by any property owner by reason of this installation. It is the responsibility of the encroaching party to verify the right of way.

16. Encroaching party shall be responsible for obtaining all necessary permanent and/or temporary construction, drainage, utility and/or sight distance easements.

17. All Right of Way and easements necessary for construction and maintenance shall be dedicated to NCDOT with proof of dedication furnished to the District Engineer prior to beginning work.

18. All disturbed areas are to be fully restored to current NCDOT minimum roadway standards or as directed by the Division Engineer or their representative. Disturbed areas within NCDOT Right-of-Way include, but not limited to, any excavation areas, pavement removal, drainage or other features.

19. The encroaching party shall notify the Division Engineer or their representative immediately in the event any drainage structure is blocked, disturbed or damaged. All drainage structures disturbed, damaged or blocked shall be restored to its original condition as directed by the Division Engineer or their representative.

20. Unless specified otherwise, during non-working hours, equipment shall be located away from the job site or parked as close to the right of way line as possible and be properly barricaded in order not to have any equipment obstruction within the Clear Zone. Also, during non-working hours,

no parking or material storage shall be allowed along the shoulders of any state-maintained roadway.

21. The Encroaching Party and/or their Contractor shall comply with all OSHA requirements. If OSHA visits the work area associated with this encroachment, the District Office shall be notified by the encroaching party immediately if any violations are cited.

22. All frames, grates, rings, covers, etc. are to be manufactured in accordance with the requirements of Section 106-1B - "Domestic Steel". Foreign castings are not approved for use within NCDOT Right of Way.

23. All traffic control, asphalt mixes, structures, construction, workmanship and construction methods, and materials shall be in compliance with the most-recent versions of the following resources: ASTM Standards, Manual on Uniform Traffic Control Devices, NCDOT Utilities Accommodations Manual, NCDOT Standard Specifications for Roads and Structures, NCDOT Roadway Standard Drawings, NCDOT Asphalt Quality Management System manual, and the approved plans.

24. Excavation or fill material shall not be placed on the pavement without proper screenings.

25. The roadway shall be kept free of silt, mud and debris at all times.

    It is the responsibility of the encroaching party or their contractor to prevent any mud/dirt from tracking onto the roadway. Any dirt which may collect on the roadway pavement from equipment and/or truck traffic on site shall be immediately removed to avoid any unsafe traffic conditions

26. The Encroaching party shall notify the District Engineer's office within 2 business days after construction is complete. The District Engineer may perform a construction inspection. Any deficiencies may be noted and reported to the encroaching party to make immediate repairs or resolve any issues to restore the right-of-way to a similar condition prior to construction, including pavement, signage, traffic signals, pavement markings, drainage, structures/pipes, or other highway design features.

27. Pavement pre-markings shall be approved by the District Office before thermoplastic is placed.

28. All temporary and final pavement markings, reflective pavement markings and signage are the responsibility of the Encroacher. All final pavement markings shall be thermoplastic. Any pavement markings that are damaged or obliterated shall be restored at no cost to the department.

29. Any existing driveways, pavement, sidewalk, curb and gutter or drainage structures that are damaged during construction shall be repaired to their original condition.

30. Any pavement damaged because of settlement of the pavement or damaged by equipment used to perform work, shall be re-surfaced to the satisfaction of the District Engineer. This may include the removal of pavement and a 50' mechanical overlay. All pavement work and pavement markings (temporary and final) are the responsibility of the Encroaching Party.

    All driveways disturbed during construction shall be returned to a state comparable with the condition of the driveways prior to construction.

31. The Contractor shall not close or narrow a lane of traffic on all roads, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

A) For unexpected occurrence that creates unusually high traffic volumes, as directed by the Engineer.
B) For New Year's Day, between the hours of 6:00 a.m. December 31st and 7:00 p.m. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until 9:00 p.m. the following Tuesday.
C) For Easter, between the hours of 6:00 a.m. Thursday and 7:00 p.m. Monday.
D) For Memorial Day, between the hours of 6:00 a.m. Friday and 7:00 p.m. Tuesday.
E) For Independence Day, between the hours of 6:00 a.m. the day before Independence Day and 7:00p.m. the day after Independence Day. If Independence Day is on a Friday, Saturday, Sunday or Monday, then between the hours of 6:00 a.m. the Thursday before Independence Day and 7:00 p.m. the Tuesday after Independence Day.
F) For Labor Day, between the hours of 6:00 a.m. Friday and 7:00 p.m. Tuesday.
G) For Thanksgiving Day, between the hours of 6:00 a.m. Tuesday and 7:00 p.m. Monday.
H) For Christmas, between the hours of 6:00 a.m. the Friday before the week of Christmas Day and 7:00 p.m. the following Tuesday after the week of Christmas Day.

In addition, if the construction is within 1000 feet of a school location or on a designated bus route, the construction shall be coordinated with the school start and end times to avoid traffic delays.

Work requiring lane or shoulder closures shall not be performed on both sides of the road simultaneously within the same area. Any work requiring equipment or personnel within 5 feet of the edge of any travel lane of an undivided facility and within 10 feet of the edge of any travel lane of a divided facility shall require a lane closure with appropriate tapers per current NCDOT Roadway Standard Drawings or MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

Sidewalk closures shall be installed as necessary. Pedestrian traffic shall be detoured around these closures and shall be signed appropriately and in accordance with The American with Disabilities Act Accessibility Guidelines. The encroaching party must adhere to the guidelines for accommodating pedestrians in encroachment work zones as described in the NCDOT Pedestrian Work Zone Accommodations Training found at https://www.youtube.com/watch?v=AOuYa5IW3dg&feature=youtube.

32. WORK ZONE TRAFFIC CONTROL QUALIFICATIONS AND TRAINING PROGRAM

All personnel performing any activity inside the highway right of way are required to be familiar with the NCDOT Maintenance / Utility Traffic Control Guidelines (MUTCG). No specific training course or test is required for qualification in the Maintenance /Utility Traffic Control Guidelines (MUTCG).

All flagging, spotting, or operating Automated Flagger Assist Devices (AFAD) inside the highway right of way requires qualified and trained Work Zone Flaggers. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.
All personnel involved with the installation of Work Zone Traffic Control devices inside the highway right of way are required to be qualified and trained Work Zone Installers. Training for this certification is provided by NCDOT approved training resources and by private entities that

have been pre-approved to train themselves.

All personnel in charge of overseeing work zone Temporary Traffic Control operations and installations inside the highway right of way are required to be qualified and trained Work Zone Supervisors. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

For questions and/or additional information regarding this training program please refer to https://connect.ncdot.gov/projects/WZTC/Pages/Training.aspx or call the NCDOT Work Zone Traffic Control Section (919) 814-5000.

33. The party of the second part shall employ traffic control measures that are in accordance with the prevailing federal, state, local, and NCDOT policies, standards, and procedures. These policies, standards, and procedures include, but are not limited to the following:
Manual on Uniform Traffic Control Devices (MUTCD) – North Carolina has adopted the MUTCD to provide basic principles and guidelines for traffic control device design, application, installation, and maintenance. North Carolina uses the MUTCD as a minimum requirement where higher supplemental standards specific to North Carolina are not established. Use fundamental principles and best practices of MUTCD (Part 6, Temporary Traffic Control).
NCDOT Maintenance / Utility Traffic Control Guidelines – This document enhances the fundamental principles and best practices established in MUTCD Part 6, Temporary Traffic Control, incorporating NCDOT-specific standards and details. It also covers important safety knowledge for a wide range of work zone job responsibilities.

34. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer. If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction.

35. At the discretion of the District Engineer, a traffic control plan shall be developed and submitted under the seal and signature of a Licensed North Carolina Professional Engineer prior to construction. The plan shall be specific to the site and adequately detailed. Issues such as the close proximity to intersections shall be addressed.

36. Retaining walls or other vertical structures shall not be permitted inside NCDOT right of way.

37. All materials and construction shall be in accordance with NCDOT standards and specifications, including but not limited to, the NCDOT Standard Specifications for Roads and Structures 2024, the NCDOT Roadway Standards Drawings, and NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way.

38. No access to the job site, parking or material storage shall be allowed along or from the Control of Access Roadway.

    The resetting of the Control of Access fence shall be in accordance with the applicable NCDOT standard and as directed by the Division Engineer or their representative.

    The installation within the Control of Access fence shall not adversely affect the design, construction, maintenance, stability, traffic safety or operation of the controlled access highway, and the utility must be serviced without access from the through-traffic roadways or ramps.

39. Existing drainage patterns shall be maintained at all times throughout the proposed construction.

    Pipes shall be installed as necessary to maintain existing drainage patterns. Pipes shall be sized properly to accommodate the drainage area at its point of discharge. Pipes shall be reinforced concrete pipe with a minimum inside diameter of 15 inches. Storm drain crosslines traversing the roadway shall be reinforced concrete pipe with a minimum inside diameter of 18 inches.

40. The encroaching party shall be responsible for the perpetual maintenance of all proposed stormwater BMPs.

41. All erosion control devices and measures shall be constructed, installed, maintained, and removed by the Encroacher in accordance with all applicable Federal, State, and Local laws, regulations, ordinances, and policies. Permanent vegetation shall be established on all disturbed areas in accordance with the recommendations of the Division Roadside Environmental Engineer. All areas disturbed (shoulders, ditches, removed accesses, etc.) shall be graded and seeded in accordance with the latest NCDOT Standards Specifications for Roads and Structures and within 15 calendar days with an approved NCDOT seed mixture (all lawn type areas shall be maintained and reseeded as such). Seeding rates per acre shall be applied according to the Division Roadside Environmental Engineer. Any plant or vegetation in the NCDOT planted sites that is destroyed or damaged as a result of this agreement shall be replaced with plants of like kind or similar shape.

    No trees within NCDOT right of way shall be cut without authorization from the Division Roadside Environmental Engineer. An inventory of trees measuring greater than 4 caliper inches (measured 6" above the ground) is required when trees within C/A right of way will be impacted by the project installation. Mitigation is required and will be determined by the Division Roadside Environmental Engineer's Office.

    The applicant is responsible for identifying project impacts to waters of the United States (wetlands, intermittent streams, perennial streams and ponds) located within the NCDOT right-of-way. The discharge of dredged or fill material into waters of the United States requires authorization from the United States Army Corps of Engineers (USACE) and certification from the North Carolina Division of Water Quality (NCDWQ). The applicant is required to obtain pertinent permits or certification from these regulatory agencies if construction of the project impacts waters of the United States within the NCDOT right-of-way. The applicant is responsible for complying with any river or stream Riparian Buffer Rule as regulated by the NCDWQ. The Rule regulates activity within a 50-foot buffer along perennial streams, intermittent streams and ponds. Additional information can be obtained by contacting the NCDWQ or the USACE.

    The contractor shall perform all monitoring and record keeping and any required maintenance of erosion and sediment control measures to maintain compliance with stormwater regulations.

42. All proposed landscaping and plantings located within the NCDOT right of way shall be approved by the Division Roadside Environmental Engineer at (919) 816-9290.

    In the event these plants require relocation or removal for highway construction, reconstruction, or maintenance of safety, such removal or relocation will be done immediately by the permittee upon notification by the NCDOT entirely at the expense of the permittee.

43. The encroaching party shall comply with all applicable local, state and federal environmental regulations, and shall obtain all necessary state and federal environmental permits, including but

not limited to, those related to sediment control, storm water, wetland, streams, endangered species, and historical sites.

44. The applicant is responsible for complying with the Neuse and Tar-Pamlico Riparian Buffer Rule as regulated by the NCDWQ. The Rule regulates activity within a 50-foot buffer along perennial streams, intermittent streams and ponds.

45. The applicant is responsible for avoiding impacts to federally protected species during project construction. Bald eagle, Michaux's sumac, smooth coneflower, dwarf wedgemussel, harperella, red-cockaded woodpecker and tar spinymussel are federally protected species that have been identified within NCDOT right-of-way in Durham, Person, Granville, Wake, Franklin, Vance, and Warren counties. Additional information can be obtained by contacting the North Carolina Natural Heritage Program or the United States Fish and Wildlife Services.

46. Guardrail shall be installed where warranted and in accordance with the guidelines shown in the 2024 Highway Design Branch Roadway Standard Drawings.

    Guardrail removed or damaged during construction shall be replaced or repaired to their original condition at no cost to NCDOT.

47. Prior approval for any blasting must be obtained from the District Engineer or their representative.

48. "Potholing" (or "daylighting") pavement cores to expose existing utilities shall be made with a circular minimum 6" to maximum 18" diameter "test" hole to a maximum depth of 12 inches. Pavement core locations shall not be placed in the wheel path whenever possible. Vacuum excavation shall be utilized to expose underground utilities below pavement subgrade. Displaced dirt and rock debris must be suctioned away from the excavation area through a large hose to a vacuum truck and disposed by the encroaching party. Avoid using mechanized equipment in the proximity of all exposed underground utility lines. Pavement cores shall be repaired within the same working day. The pavement core shall be retained and evaluated for reuse to fill the core hole.

49. Trenching, bore pits and/or other excavations shall not be left open or unsafe overnight. The Contractor shall comply with all OSHA requirements and provide a competent person on site to supervise excavation at all times.

50. All excavations inside the theoretical 1:1 slope from the existing edge of pavement to the bottom of the nearest excavation wall should be made in accordance with the following conditions. Traffic should be moved to a travel lane outside the limits of a theoretical one-to-one slope from the bottom of the nearest trench wall to the pavement surface. Active excavation shoring, such as sheet piling, shall be installed. The design of the shoring shall include the effects of traffic loads. The shoring system shall be designed and sealed by an engineer registered in North Carolina. Trench boxes shall not be accepted as shoring. The trench backfill material should meet the Statewide Borrow Criteria.

51. All material to a depth of 8 inches below the finished surface of the subgrade shall be compacted to a density equal to at least 100% of that obtained by compacting a sample of the material in accordance with AASHTO T99 as modified by the Department. The subgrade shall be compacted at a moisture content which is approximately that required to produce the maximum density indicated by the above test method. The contractor shall dry or add moisture to the subgrade

when required to provide a uniformly compacted and acceptable subgrade. The option to backfill any trenches with dirt or either #57 stone or #78 stone with consolidation with a plate tamp and without a conventional density test may be pursued with the written consent of the District Engineer. If this option is exercised, then roadway ABC stone and asphalt repair as required will also be specified by the District Engineer.

52. The paving of this roadway shall be in accordance with the latest version of NCDOT Standard Specifications, Sections 610, 1012 and 1020. The Contractor shall follow all procedures of the latest Quality Management System (QMS) Asphalt Manual for asphalt pavement - Maintenance Version (see https://connect.ncdot.gov/resources/Materials/MaterialsResources/Forms/Default.aspx) to find the most recent version. The Contractor must adhere to all testing requirements and quality control requirements specified. The Contractor shall contact the NCDOT Division QA Supervisor prior to producing plant mix and make the Supervisor aware that the mix is being produced for a future NCDOT road. Contact the District Engineer to determine the NCDOT Division QA Supervisor. Only NCDOT approved mix designs will be acceptable. A Quality Control Plan shall be submitted (as Directed by the District Engineer) to the District Engineer's Office prior to asphalt production utilizing form QMS-MV1. Failing mixes and/or densities are subject to penalties including monetary payments or removal and replacement. To minimize traffic queuing in construction areas, the possibility of traffic detours may be considered when working on high traffic routes even if traffic control is used. The District Engineer may require traffic detours.

53. When paving beyond utility installation is involved, a Roadway certification report sealed by a Professional Engineer shall be submitted to the District Engineer's office indicating the following:
    - Pavement thickness by type
    - Pavement density, core and/or test locations
    - Base thickness
    - Base density
    - Subgrade density

    Test frequency and method shall be in conformance with the NCDOT Materials and Tests Manual. Test must be performed by a Certified Technician including name and Certification number on report.

54. All crossings of state maintained routes shall be by bore only, unless otherwise stated in this encroachment agreement.

55. All pavement cuts shall be repaired with a full width 1.5" mill and overlay of the appropriate surface asphalt for a total length of 50' centered as closely with the cut as feasible unless otherwise directed by the District Engineer.

56. Pavement cuts shall be repaired the same day the cuts are made unless an asphalt patch cannot be accomplished the same day due to material availability or time restrictions. When the asphalt patch is not feasible, the following apply:
    a. The pavement cut shall be filled to the surface with ABC stone or Flowable Fill per NCDOT's Standards and Specifications.
    b. Once the cut is filled, a minimum ¾-inch steel plate shall be placed and pinned to prevent moving. Plates shall be designed large enough to span a minimum of 1-foot on all sides on the pavement cut.
    c. When flowable fill is used, it shall cure for 24 hours prior to any asphalt material placement.

Flowable fill bleed water shall not be present during paving operations. Paving shall not cause damage (shoving, distortion, pumping, etc.) to the flowable fill.
d. Install and leave "BUMP AHEAD" signs according to MUTCD until the steel plate has been removed. Once the flowable fill has cured, remove the steel plate, and mill/fill according to the directions of the District Engineer.
e. All pavement cuts must be sealed with NCDOT approved sealant to prevent future pavement separation or cracking.

57. Excavated areas adjacent to pavement having more than a 2 inch drop shall be made safe with a 6:1 or flatter slope and shall be designated by appropriate delineation during periods of construction inactivity, including, but not limited to, night and weekend hours.

58. Right of Way monuments disturbed during construction shall be referenced by a registered Land Surveyor and reset after construction.

59. No commercial advertising shall be allowed within NCDOT Right of Way.

60. A minimum of 5 feet clearance is required for utility installations beneath or near drainage pipes, headwalls, and a minimum of two-foot clearance below the flowline of streams. If directional drilling, a minimum ten-foot clearance distance is required from drainage structures and a minimum of 5 feet below flowline of streams.

    At points where the utility is placed under existing storm drainage, the trench will be backfilled with excavatable flowable fill up to the outside diameter of the existing pipe.

61. Poles shall be located/relocated at or as near as possible to the right-of-way line, shall be set outside the Clear Recovery Area as outlined by AASHTO and outside sight distance triangles.

    Poles located within guardrail sections shall be installed a minimum of 5 feet behind any guardrail. When applicable, poles shall be placed behind sidewalk.

    Any associated guy wires to ground anchors and stub poles shall not be placed between a pole and the travel way and should be located outside the clear recovery area.

    Minimum vertical clearance shall be 18' for aerial crossings over NCDOT roadways and 15'-6" for installations parallel to the roadway.

62. All Traffic signs moved during construction shall be reinstalled as soon as possible to the satisfaction of the Division Traffic Engineer or their representative.

    All Traffic signs moved shall be reinstalled as soon as possible to meet NCDOT specifications.

APPLICATION IDENTIFICATION		N.C. DEPARTMENT OF TRANSPORTATION STREET AND DRIVEWAY ACCESS PERMIT APPLICATION
Driveway Permit No.	Date of Application January 2025	
County: Durham		
Development Name: Durham Co. Utility Administration II Building		

LOCATION OF PROPERTY:

Route/Road: 2100/2028/NC55

Exact Distance S.R. 2100 - 630 ☐ Miles N ☐ S ☐ E ☐ W
S.R. 2028 - 615 ☒ Feet ☒ ☒ ☒ ☐
S.R. 55 - 540

From the Intersection of Route No. 2100/2028/55 and Route No. 1978/55/2028 Toward DeadEnd/1978/1945

Property Will Be Used For: ☐ Residential /Subdivision ☐ Commercial ☐ Educational Facilities ☐ TND ☐ Emergency Services ☒ Other

Property: ☒ is ☐ is not within Durham City Zoning Area.

AGREEMENT

- I, the undersigned property owner, request access and permission to construct driveway(s) or street(s) on public right-of-way at the above location.
- I agree to construct and maintain driveway(s) or street entrance(s) in absolute conformance with the current "Policy on Street and Driveway Access to North Carolina Highways" as adopted by the North Carolina Department of Transportation.
- I agree that no signs or objects will be placed on or over the public right-of-way other than those approved by NCDOT.
- I agree that the driveway(s) or street(s) will be constructed as shown on the attached plans.
- I agree that that driveway(s) or street(s) as used in this agreement include any approach tapers, storage lanes or speed change lanes as deemed necessary.
- I agree that if any future improvements to the roadway become necessary, the portion of driveway(s) or street(s) located on public right-of-way will be considered the property of the North Carolina Department of Transportation, and I will not be entitled to reimbursement or have any claim for present expenditures for driveway or street construction.
- I agree that this permit becomes void if construction of driveway(s) or street(s) is not completed within the time specified by the "Policy on Street and Driveway Access to North Carolina Highways".
- I agree to pay a $50 construction inspection fee. Make checks payable to NCDOT. This fee will be reimbursed if application is denied.
- I agree to construct and maintain the driveway(s) or street(s) in a safe manner so as not to interfere with or endanger the public travel.
- I agree to provide during and following construction proper signs, signal lights, flaggers and other warning devices for the protection of traffic in conformance with the current "Manual on Uniform Traffic Control Devices for Streets and Highways" and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the District Engineer.
- I agree to indemnify and save harmless the North Carolina Department of Transportation from all damages and claims for damage that may arise by reason of this construction.
- I agree that the North Carolina Department of Transportation will assume no responsibility for any damages that may be caused to such facilities, within the highway right-of-way limits, in carrying out its construction.
- I agree to provide a Performance and Indemnity Bond in the amount specified by the Division of Highways for any construction proposed on the State Highway system.
- The granting of this permit is subject to the regulatory powers of the NC Department of Transportation as provided by law and as set forth in the N.C. Policy on Driveways and shall not be construed as a contract access point.
- I agree that the entire cost of constructing and maintaining an approved private street or driveway access connection and conditions of this permit will be borne by the property owner, the applicant, and their grantees, successors, and assignees.
- **I AGREE TO NOTIFY THE DISTRICT ENGINEER WHEN THE PROPOSED WORK BEGINS AND WHEN IT IS COMPLETED.**

SIGNATURES OF APPLICANT

PROPERTY OWNER (APPLICANT)		WITNESS	
COMPANY	Durham County	NAME	Lechelle C. Feinberg, Executive Assistant
SIGNATURE	Claudia Hager, County Manger	SIGNATURE	
ADDRESS	200 E. Main Street, Durham, NC 27701	ADDRESS	200 E. Main St., Durham, NC 27701
	Phone No. 919-560-0000		

AUTHORIZED AGENT		WITNESS	
COMPANY	CLH Design, P.A. - Steven J. Miller	NAME	Y'Hoshua Aal-Anubia, PLA
SIGNATURE		SIGNATURE	
ADDRESS	400 Regency Forest Drive, STE 120, Cary, NC 27518	ADDRESS	400 Regency Forest Drive, STE 120, Cary, NC 27518
	Phone No. 919-319-6716		

APPROVALS

APPLICATION RECEIVED BY DISTRICT ENGINEER

SIGNATURE		DATE

APPLICATION APPROVED BY LOCAL GOVERNMENTAL AUTHORITY (when required)

Justin Weist Digitally signed by Justin Weist
DN: C=US, E=justin.weist@durhamnc.gov, O=Planning and Development, OU=Infrastructure Review, CN=Justin Weist
Date: 2026.07.09 14:18:59-04'00'

SIGNATURE	TITLE	DATE

APPLICATION APPROVED BY NCDOT

Signed by:
CB2718012BD6470...

SIGNATURE	TITLE	DATE
	District Engineer	07/30/2026

INSPECTION BY NCDOT

SIGNATURE	TITLE	DATE

COMMENTS: