

ADDENDUM #1

Architecture Unlimited, PLLC
Jeff Sherer, Architect
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January 29, 2018

UNC Charlotte – Baseball Indoor Training Facility
Charlotte, NC

- A. This Addendum shall be considered part of the bid documents for the above-mentioned project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original bid documents, this Addendum shall govern and take precedence.
- B. Bidders are hereby notified that they shall make any necessary adjustments in their bids as a result of this Addendum. It will be construed that each bidder's proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

The bid documents are modified and clarified, as follows:

- A. UNC-Charlotte Baseball Indoor Training Facility Pre-Bid Meeting Minutes
 - 1. See attached Sign In Sheet
 - 2. Introductions
 - 3. Overall Project Scope: The project involves the construction of a new 6,264 SF One-story facility within the current bullpen area of The Robert and Marium Hayes Stadium Baseball Complex. The exterior is 12" CMU with brick veneer. The roof is pre-manufactured wood trusses with options for shingles or a metal roof system.
 - 4. Documents: The Plans and Specifications are available by contacting Jeff Sherer of Architecture Unlimited at 704-451-7436 and/or by email at jshererarchitect@gmail.com
 - 5. Bid Date: The bid date is on February 15, 2018 from 2 pm – 4 pm in Room 210A of the Cone University Center
 - 6. Form of Proposal: See 00 40 10 of the specifications. Project is to be bid single prime. Nine alternates are included in the form with 7-9 being preferred
 - 7. Minority Business Participation Requirements are included in the form for your use. Dorothy Vick is to present the Guidelines for selection of Minority Business Participation.
Note: The information is posted on the university website and included in Addendum #1
 - 8. Schedule: See 00 73 00 Article 23: 150 Consecutive calendar days from the Notice-To-Proceed
 - 9. Bonds: The requirement to provide Bonds for Bid, Performance and Payment are to be included per specification requirements
 - 10. Liquidated Damages are \$500 per Calendar Day
 - 11. Owner Provided Items: None
 - 12. An addendum will be prepared to include minutes of the pre-Bid meeting along with any questions that might arise from the bidding process.

UNC Charlotte Baseball Addendum #1

13. Any bidding questions shall be in writing to Jeff Sherer at the email address listed above. No questions will be answered unless in writing and in turn will be included in an addendum. Do not contact engineers directly without prior authorization
14. Safety: See Part 2: 00 73 00 2.1A and B. refer to <http://safety.uncc.edu/contractors>
15. Construction Meetings: Weekly meetings are to be held on-site. Meetings are to assist in coordination of the project and to review the progress schedule. Engineers and other representatives will be available as needed
16. Material Testing: By Owner
17. Site Walk-Through
18. Questions

END OF PREBID MEETING

B. Revised Drawings:

1. The contractor trailer, parking and lay-down area will be in the grassed area adjacent to the emergency drive across from the project site. The area (approximately 50'x100') is to be put back into original condition per D1 below. The area is to have temporary fencing on two sides (the existing fencing is on the other two sides)
2. See Updated Drawings E0.1, E0.3, E1.0, E2.1 and M1.1

C. Revised Specifications:

1. Notice To Bidders: Revise as follows:
General Contractors submitting bids on this project must have license classification for Intermediate

D. General Items:

1. There are irrigation lines on the hill across the emergency drive from the project site. The Owner is to turn off system. The GC is responsible to repair any damaged lines that might occur during construction. The grass in that area is to be replaced as necessary to match existing
2. The Notice to Proceed will be dated the same as the Pre-Construction Conference
3. For site access please contact Nic at nryan5@uncc.edu
4. For scheduling purposes the coach has agreed to allow construction to take place during practices and games
5. The batting cage poles to be removed, cleaned and returned to the owner are as follows: 9" diameter black poles with 5' deep x 30" diameter concrete footings

End of Addendum #1

Sincerely,

Architecture Unlimited



Jeff Sherer

SIGN-IN SHEET

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 Jeff Sherer, Architect
 2700 Rondeau Court
 Matthews, NC 28105
 704-451-7436
jshererarchitect@gmail.com

January 23, 2018

RE: UNC-Charlotte Baseball Indoor Training Facility Pre-Bid Meeting

Name	Company	Phone	Email
Jeff Sherer	Architecture Unlimited	704-451-7436	jshererarchitect@gmail.com
DOROTHY VICK	UNC CHARLOTTE	704/687-0527	dlvick@uncc.edu
David Daignault	UNC Charlotte	704-687-0532	drdaigna@uncc.edu
LISA LANIER	UNC CHARLOTTE	704-687-0535	llanier@uncc.edu
Ken Bell	I.L. LONG.	336-661-1887	KBELLE@ILLONG.COM
Derek Lanning	Miles-McClellan	704 900 1170	derek.lanning@mmbuildings.com
Steve Meachum	MVM MOMENTUM	(704) 672-6033	smeachum@mvmomentum.com
DENNIS J. LUBERT	UNCC	704-687-0594	DLUBERT@UNCC.EDU
Bret Estridge	Wharton-Smith	704-519-7043	bestrIDGE@whartonsmith.com
MIKE ROBINSON	HOSTETTER & SON	704-898-6325	frank@hostetterandson.com
Tony Rolfs	Batson-Cook	704 575 9109	trolfes@batson-cook.com
Chris Hoover	W.C. Construction Co.	336-721-3420	chrisho@wcconstructionco.com
Joshua Kallam	UNC Charlotte	704-687-0517	jjkallam@uncc.edu
Josh Craft	Shiel Sexton	704 679 4088	jcrafft@shielsexton.com
PHILIP GEIGER	Newton Construction Services	704 909-9055	pgeiger@newtonconstruction.com
PAUL NEWTON	Newton Const.	704-426-9998	pnewton@newtonconstruction.com

UNC Charlotte
“Good Faith Effort” Requirements
Baseball Indoor Facility

This information is provided as a guide for firms who may be new to UNC Charlotte and may not be familiar with our expectations regarding minority business participation on University Managed Projects (UMP) projects. Bidders should be familiar with the ***Guidelines for Recruitment & Selection of Minority Businesses for Participation In University of North Carolina Construction Contracts***

Identification of HUB Certified/Minority Business Participation form – Only list minority firms that you will use as construction subcontractors, vendors, suppliers or professional service providers on this project. The bidder cannot list himself on this form as he cannot subcontract to himself. **Note:** This form should be submitted with your bid, even if left blank.

Affidavit A – Listing of Good Faith Efforts – the bidder is certifying that he has made a good faith effort to comply under those areas checked on the form. Do not check a Good Faith Effort item unless you can provide the following;

1. Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists **at least 10 days before the bid or proposal date** and notifying them of the nature and scope of the work to be performed.
Example: Copies of written (emailed or faxed) notification to minority businesses and copies of quotes/proposals received for work solicited to minority businesses. Notification should include, at a minimum, project location, location where plans and specifications may be obtained or viewed, trade or scopes of work for which subcontracts are being solicited, contact person within the prime contractor organization.

Be sure to maintain a telephone log to confirm that minority firms received your Invitation For Bid (IFB). The log should contain the date contacted, telephone number, and name of the individual representing the minority firm who acknowledged receipt of your IFB. **Also maintain a telephone log to confirm that minority firms acknowledged a “bid/no bid” to your IFB.** The log should contain the date contacted, telephone number, and name of the individual representing the minority firm who acknowledged “bid/no bid” to your IFB.

2. Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
Copies of written (emailed or faxed) notification to minority businesses should include, at a minimum, project location, location where plans and specifications may be obtained or viewed, trade or scopes of work for which subcontracts are being solicited, contact person within the prime contractor organization.
3. Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
Document steps taken to segment elements of work into economically feasible units to meet minority business availability. Identify sub-contractors/suppliers/consultants and scope of work involved in segmenting.

Be sure that you are soliciting quotes from **at least** three (3) minority firms in scopes of work that typically have adequate numbers of minority firms available that can perform the work required (hauling, concrete, flooring, masonry, painting, electrical suppliers, etc.). Do not solicit quotes from minority firms in those scopes of work that typically do not have minority firms available that can perform the work required (elevators, fire suppression systems, roofing, etc.). If there are minority firms that you typically use on your projects then by all means, feel free to use them, if you are sure you are receiving reasonable pricing and quality work.

4. Working with minority trade, community or contractor organization identified by the Office for Historically Underutilized Businesses (HUB) and included in the bid documents that provide assistance in recruitment of minority businesses. **Note:** Minority plan rooms are not applicable.
Provide a copy of meeting minutes between prime contractor and minority trade, community or contractor organization. At minimum the following topics should be discussed/reviewed during the meeting: project location; location where plans and specifications may be obtained or viewed; trade or scopes of work for which subcontracts are being solicited; bonding requirements; insurance requirements; prime contractor’s contact person; minority trade, community or contractor organization contact person; strategies to segment elements of the work into economically feasible units to meet minority business availability; strategies to increase minority business utilization through joint ventures and/or partnerships; notification that the meeting will be counted toward the contractor’s good faith effort.

Maintain a copy of the request, and have the date, telephone number and name of the individual who acknowledged receipt of your request and information regarding any/all assistance provided by the organization

5. Attending any pre-bid meetings scheduled by the public owner.
Attendance will be verified by conference sign-in sheet.
6. Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

Have documentation describing the type of assistance provided or offered to minority businesses. Provide names and contacts of minority businesses to which assistance was offered and names of the contact person of bonding companies or financial institutions offering assistance.

Be sure to mention that assistance with bonding and/or insurance will be provided in your IFB.

7. Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
Document number of bids received from minority businesses in the trade or scopes of work for which subcontracts are being solicited, the number of minority businesses that submitted low bids or proposals, the number of minority businesses the bidder has offered to negotiate prices or services, and the number of minority businesses the bidder has agreed to utilize on the project, outline steps taken.
8. Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required or assisting minority businesses in obtaining the same unit pricing with the bidders supplier.
Document names, addresses and telephone numbers of minority businesses to which assistance was offered, outline steps taken. Give dates assistance was offered and document outcome.
Be sure to mention that assistance with equipment, loan capital, lines of credit or joint pay agreements to secure loans, supplies, or letters of credit will be provided in your IFB.
9. Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
Provide a copy of joint venture or partnership arrangements between bidder and minority businesses.
10. Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.
Provide a copy of quick pay agreements and/or policies and document the number of minority businesses that will utilize the quick pay agreement. Provide a copy of the quick pay agreement between bidder and minority businesses.
Be sure to mention that quick pay agreements will be provided to assist contractors with cash-flow demands in your IFB.

Note: Referencing the Good Faith Efforts listed above in your IFB is not enough. You must be able to document your efforts.

Affidavit B – Intent to Perform Contract with Own Workforce – In making this certification the bidder is stating that he does not customarily subcontract elements of this type project and normally performs and has the capability to perform and will perform all elements of the work on this project with his own current workforce. The bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible. “**Self-performing**” means the contractor has all equipment, personnel and supplies on hand to perform the contract. If the contractor needs to purchase supplies or rent equipment and operators to perform the work, then the contractor **is not** self-performing and should make efforts to purchase supplies or equipment, or temporary labor from minority firms. **Note:** No other Affidavits are required if the Bidder meets this criteria.

Affidavit C – Portion of the Work to be Performed by HUB Certified/Minority Businesses – This form is to be submitted only by the apparent lowest responsible, responsive bidder with equal to or greater than 10% minority participation.

Affidavit D – Good Faith Efforts – This form is to be submitted only by the apparent lowest responsible, responsive bidder with less than 10% minority participation along with their backup documentation.

Minority-owned Pre-qualified Bidders – **must also** meet the minority participation goals set for the project. Work performed by the minority-owned pre-qualified bidder will be counted towards the minority participation goal **only if** the minority contractor is **self-performing** and submitted Affidavit B.

Certification Requirements – Ensure the minority firms you contact for subcontracting opportunities are listed in the Statewide Uniform Certification (SWUC) Vendor database as **only firms** listed in the SWUC Vendor database, at the time of contract award, **will be counted** towards the minority participation goal for this project. Go to <http://www.doa.nc.gov/hub/searchhub.aspx> for access to the SWUC Vendor database.

Assistance:

Email (**Email Subject: UNC Charlotte Baseball Indoor Facility**) the UNC Charlotte HUB Coordinator, Dorothy Vick (dlvick@uncc.edu) no later than 12:00 Noon, Tuesday, January 30, 2018 for the following;

1. Assistance in finding certified minority firms who have worked on UNC Charlotte projects and who can perform the scopes of work (site work, concrete, electrical, etc.) you are seeking, and/or
2. A list of minority trade, community or contractor organizations identified by the Office for Historically Underutilized Businesses that provide assistance in recruitment of minority businesses.

SYMBOL SCHEDULE

FIRE ALARM

- FIRE ALARM MANUAL STATION WITH CLEAR POLYCARBONATE PROTECTIVE COVER. COVER SHALL HAVE INTEGRAL BATTERY BACKED UP AUDIBLE ALARM.
- ADA COMPLIANT FIRE ALARM SPEAKER WITH STROBE LIGHT, 75cd, UNLESS OTHERWISE NOTED. WHITE FINISH.
- ADA COMPLIANT FIRE ALARM STROBE LIGHT, 75cd, UNLESS OTHERWISE NOTED. WHITE FINISH.
- CEILING MOUNTED SMOKE DETECTOR.
- DUCT MOUNTED SMOKE DETECTOR. FURNISHED AND CONNECTED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR. CUTTING OF DUCT, INSTALLATION OF DETECTOR, AND DETERMINATION OF SAMPLING TUBE LENGTH SHALL BE THE MECHANICAL CONTRACTOR. PROVIDE REMOTE INDICATING LIGHT WITH EACH DETECTOR.
- CEILING MOUNTED DETECTOR.
- FIRE ALARM REMOTE GRAPHIC ANNUNCIATOR.
- ADA COMPLIANT FIRE ALARM SPEAKER STROBE LIGHT, 75cd, UNLESS OTHERWISE NOTED. WHITE FINISH. (CEILING MOUNTED)
- ADA COMPLIANT FIRE ALARM STROBE LIGHT, 75cd, UNLESS OTHERWISE NOTED. WHITE FINISH. (CEILING MOUNTED)
- FIRE ALARM CONTROL PANEL WITH LOCAL SMOKE DETECTOR
- BEAM TYPE SMOKE DETECTOR
- CEILING MOUNTED CARBON MONOXIDE DETECTOR (CENTRAL SYSTEM CONNECTED)
- SMOKE DAMPER, SEE DETAIL SHEETS, SEE POWER PLANS FOR CIRCUIT.
- DUCT DETECTOR REMOTE INDICATING LIGHT WITH TEST SWITCH. 24VDC WITH SUPERVISION BY FIRE ALARM SYSTEM.

TELECOMMUNICATIONS

- VOICE AND DATA OUTLET. 42" AFF. 5"x5" SQUARE BOX WITH A TWO-GANG PLASTER RING. STUB 1.25" CONDUIT FROM BOX TO ACCESSIBLE CEILING IN CORRIDOR. PROVIDE AND INSTALL FIRE RATED "PUTTY PACK" WHERE LOCATED IN FIRE RATED WALLS.
- VOICE AND DATA OUTLET. 18" AFF. 5"x5" SQUARE BOX WITH A TWO-GANG PLASTER RING. STUB 1.25" CONDUIT FROM BOX TO ACCESSIBLE CEILING IN CORRIDOR. MATCH HEIGHT OF RECEPTACLES LOCATED ON THE SAME WALL. PROVIDE AND INSTALL FIRE RATED "PUTTY PACK" WHERE LOCATED IN FIRE RATED WALLS.

DEVICES AND PATHWAYS

- WIRING SYSTEM CONCEALED IN WALL OR CEILING.
- WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.
- WIRING SYSTEM EXPOSED
- CONDUIT TURNED UP TO FLOOR ABOVE.
- CONDUIT TURNED DOWN TO FLOOR BELOW.
- BRANCH CIRCUIT HOMERUN TO PANEL.
- JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.
- JUNCTION BOX FOR HAND DRYER CONNECTION. SEE MOUNTING HEIGHTS DETAIL FOR EXACT HEIGHT; SEE ARCH. SHEETS FOR COORDINATION.
- DUPLEX RECEPTACLE. 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT.) HUBBELL 5352, OR EQUAL.
- DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER BACKSPASH, OR AT HEIGHT NOTED. THESE ARE TO BE MOUNTED HORIZONTALLY.
- QUAD RECEPTACLE. TWO NEMA 5-20R DUPLEX RECEPTACLES.
- STANDARD NEMA 5-20R GFI DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.
- GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
- ISOLATED GROUND RECEPTACLE. NEMA 5-20R DUPLEX.
- WEATHERPROOF RECEPTACLE. NEMA 5-20R GFI DUPLEX. COVER SHALL BE INTERMATIC #WP1020 (CLEAR) OR EQUAL.
- DUPLEX SWITCHED TAMPER RESISTANT RECEPTACLE, 20 AMP, 120 VOLT.
- SURGE PROTECTION DEVICE (SPD); SEE DETAIL
- WIREMOLD 2400 PLUGMOLD. NEMA 5-15R RECEPTACLES ON 12" CENTERS. ALTERNATE CIRCUITS.
- SPECIAL OUTLET. SEE PLANS.
- FLUSH MOUNTED FLOOR BOX - SINGLE DUPLEX RECEPTACLE, NEMA 5-20R. EQUAL TO WIREMOLD 881 SERIES WITH ALUMINUM DUPLEX COVER PLATE WITH FLIP LIDS. ARCHITECT TO SELECT FINISH.
- MOTOR OPERATED DAMPER (DAMPER BY M.C.) COORDINATE CIRCUIT NUMBER WITH PLANS.

PANELS, DISCONNECTS

- FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION
- NON-FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING/FUSE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- CIRCUIT BREAKER. NUMERALS INDICATE RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- PLYWOOD TELEPHONE BACKBOARD. SIZE AS INDICATED ON RISER.
- PANELBOARD. SEE SCHEDULE FOR MOUNTING. TOP OF PANEL AT 6'-6" AFF.
- DOOR MOTOR CONTROL. MOUNT +48" AFF. CONTROLS SHALL BE UP, DOWN, AND STOP MOUNTED ON 4" SQUARE BOX (FLUSH BOX)
- CONNECTION TO MOTOR. STARTER PROVIDED BY OTHERS UNLESS OTHERWISE NOTED.

SECURITY

- CEILING MOUNTED SECURITY CAMERA LOCATION. PROVIDE JUNCTION BOX AND 1/2" TO J-HOOK SYSTEM ABOVE ACCESSIBLE HALLWAY CEILING. CLOSELY REVIEW VENDOR REQUIREMENTS FOR COMPLETE INFRASTRUCTURE REQUIREMENTS. SUBSCRIPT "WP" INDICATES WEATHERPROOF. PROVIDE WATER TIGHT JUNCTION BOX.
- CARD READER. MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.
- DOOR CONTACT. MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.

SCHEDULE NOTES:

- SEE DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
- ALL DEVICES (SWITCHES AND RECEPTACLES) SHALL BE GRAY AND EMERGENCY SHALL BE RED. COVER PLATE SHALL BE 302 STAINLESS STEEL. ALL COVER PLATES IN MASONRY WALLS SHALL BE JUNBO PLATES.
- DEVICE BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS UNLESS OTHERWISE NOTED.
- ALL FIRE ALARM SHALL BE IN CONDUIT.
- ALL LOW VOLTAGE CABLING SHALL BE PLENUM RATED.
- MC CABLE SHALL NOT BE PERMITTED.
- ALL PLAN DRAWINGS SHALL SUPERCEDE SPECIFICATIONS WHEN PLANS AND SPECIFICATIONS ARE IN CONFLICT.
- ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRE, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- SHARED NEUTRAL OR "SUPER NEUTRAL" CONDUCTORS SHALL NOT BE PERMITTED
- ALL WALL MOUNTED OCCUPANCY/VACANCY SENSOR SWITCH OUTLETS SHALL BE PROVIDED WITH A GROUNDED CONDUCTOR AS PART OF THE WIRING SYSTEM.

2012 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - ELECTRICAL SUMMARY

- 501.1 METHOD OF COMPLIANCE NC SPECIFIC COMCHECK PROVIDED
 2012 NCECC CHAPTER 5 20% IMPROVEMENT OVER ASHRAE 90.1-2007
 NOT APPLICABLE BASED ON PROJECT SCOPE

501.2 APPLICATION COMPLIANCE

- 506.2.1 EFFICIENT MECH EQUIPMENT 506.2.4 HI EFFICIENCY DOMESTIC HW
 506.2.2 REDUCED LTG DENSITY 506.2.5 ONSITE RENEWABLE ENERGY
 506.2.3 ENERGY RECOVERY SYSTEMS 506.2.6 DAYLIGHTING CONTROLS
 NOT APPLICABLE BASED ON PROJECT SCOPE

505.2 - INTERIOR LIGHTING CONTROLS (MANDATORY REQUIREMENTS):

- INTERIOR LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION 505.2, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE

505.3 - TANDEM WIRING (MANDATORY REQUIREMENTS):

- FLUORESCENT LUMINARIES LOCATED WITHIN THE SAME AREA ARE TANDEM WIRED AS REQUIRED PER SECTION 505.3, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE

505.4 - EXIT SIGNS (MANDATORY REQUIREMENTS):

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

505.5.1 - INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON-EXEMPT):

- NOT APPLICABLE PER 2012 NCECC 101.4.3, EXCEPTION 1.G.

505.5.1 - TOTAL CONNECTED INTERIOR LIGHTING POWER:

15,643 WATTS SPECIFIED

24 % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF 506.2.2 IS SELECTED)

505.5.2 - TOTAL ALLOWABLE INTERIOR LIGHTING POWER:

20,584 WATTS ALLOWED

METHOD OF COMPLIANCE:

BUILDING AREA METHOD SPACE-BY-SPACE METHOD

20,584 WATTS ALLOWED

505.6.1 - EXTERIOR BUILDING GROUNDS LIGHTING:

- LAMPS OPERATING AT GREATER THAN 100 WATTS FOR EXTERIOR BUILDING GROUNDS LUMINARIES HAVE A MINIMUM EFFICACY OF 60 LUMENS PER WATT, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE

505.6.2 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT):

- NOT APPLICABLE

TOTAL CONNECTED EXTERIOR LIGHTING POWER:

N/A WATTS SPECIFIED

TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:

N/A WATTS ALLOWED

505.6.3 - SHIELDING OF EXTERIOR BUILDING LIGHTING FIXTURES:

- ONLY FULLY SHIELDED EXTERIOR BUILDING LIGHTING FIXTURES ARE PROVIDED, EXCEPT WHERE EXEMPT.
 ALTERNATIVE EXTERIOR BUILDING LIGHTING FIXTURES ARE PROVIDED FOR GREATER ENERGY EFFICIENCY OVER FULLY SHIELDED EXTERIOR BUILDING LIGHTING FIXTURES.
 NOT APPLICABLE

505.7 - ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):

- SEPARATE TENANT METERING TO DETERMINE ELECTRICAL ENERGY CONSUMPTION HAS BEEN PROVIDED FOR BUILDINGS HAVING INDIVIDUAL DWELLING UNITS.
 NOT APPLICABLE

ABBREVIATIONS

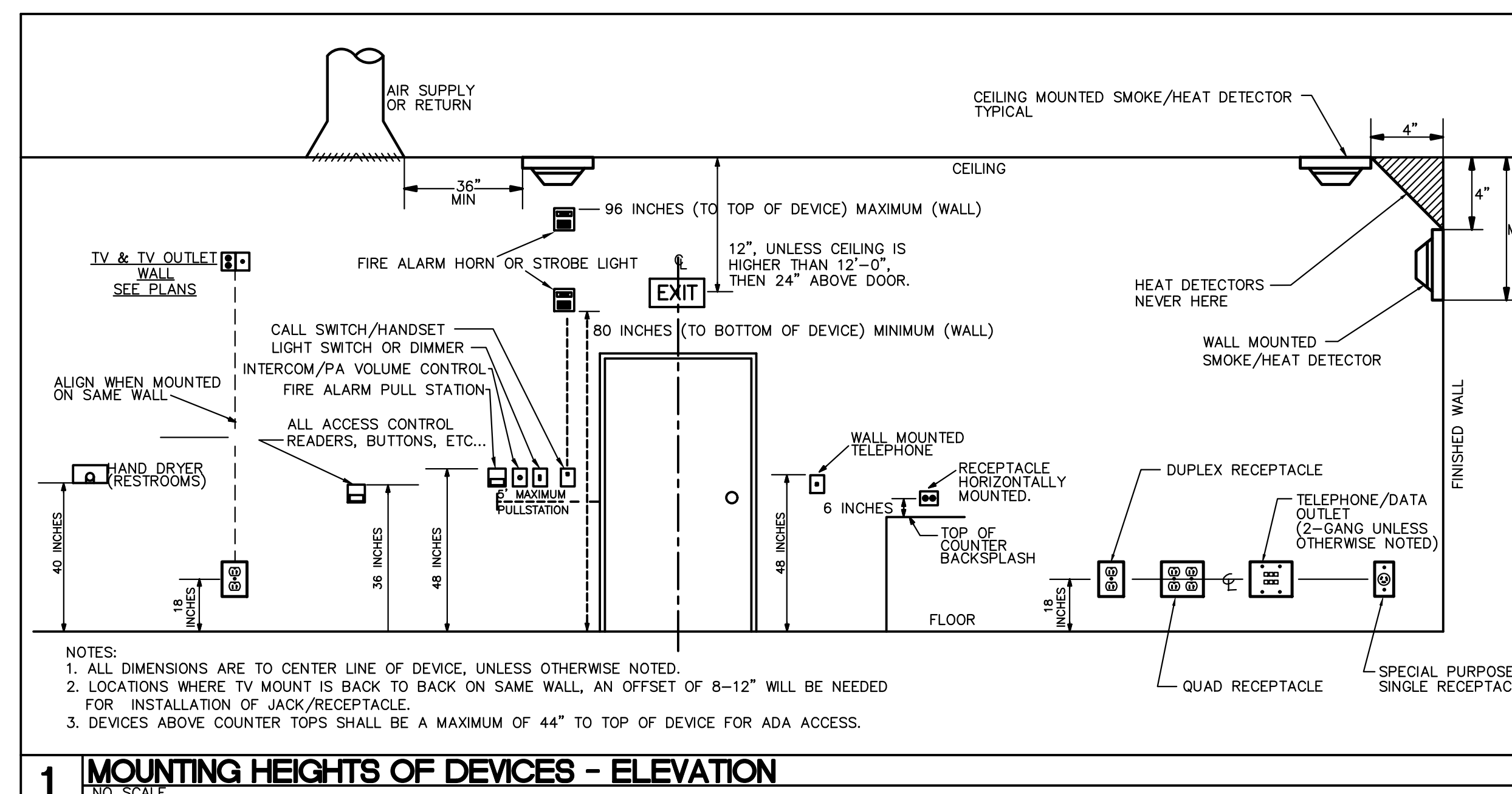
+42"	DIMENSION INDICATES HEIGHT ABOVE FINISHED FLOOR AT WHICH CENTER OF DEVICE IS TO BE MOUNTED. SEE PLANS.
3R	NEMA 3R
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
C	CONDUIT WITH PULL CORD
C.B.	CIRCUIT BREAKER
EC	EMPTY CONDUIT WITH PULL CORD
E.C.	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FACP	FIRE ALARM CONTROL PANEL
FPN	FUSE PER NAMEPLATE
L.C.	LIGHTING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
U.G.	UNDERGROUND
W.P.	WEATHERPROOF
S.E.	SERVICE ENTRANCE
EM	EMERGENCY FIXTURE WITH BATTERY OR GEN. BACK-UP
ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
RM	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
Isc	RMS SYMMETRICAL SHORT CIRCUIT CURRENT
AIC	AMPERE INTERRUPTING CAPACITY (EQUIPMENT RATING)

LIGHTING (SEE FIXTURE SCH.)

- FLUORESCENT OR LED LIGHTING FIXTURE. SEE FIXTURE SCHEDULE. SUSPEND FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
- FLUORESCENT OR LED STRIP FIXTURE.
- FLUOR., LED OR H.I.D. LIGHTING FIXTURE.
- WALL MOUNTED INCANDESCENT, FLUOR., LED OR H.I.D. LIGHTING FIXTURE.
- FLUORESCENT FIXTURE WITH 90 MIN EMERGENCY BATTERY PACK. SEE LIGHTING FIXTURE SCHEDULE
- FLUORESCENT OR LED DOWNLIGHT WITH 90MIN BATTERY PACK. SEE LIGHTING FIXTURE SCHEDULE.
- EXIT LIGHT WITH ARROWS AND NUMBERS OF FACES AS INDICATED ON PLANS. 90 MIN BATTERY PACK.. SEE LIGHTING FIXTURE SCHEDULE
- EMERGENCY BATTERY PACK FIXTURE. 90 MINUTE EMERGENCY INTEGRAL BATTERY. SEE LIGHTING FIXTURE SCHEDULE
- EMERGENCY BATTERY PACK/EXIT COMBO FIXTURE WITH 90 MINUTE BATTERY BACKUP. SEE FIXTURE SCHEDULE.
- EXTERIOR EMERGENCY FIXTURE, PROVIDE 90MIN BATTERY PACK.
- SINGLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER AH 1221, OR EQUAL BY HUBBELL, LEVITON, AND PASS & SEYMOUR.
- THREE WAY SWITCH, 20 AMP, 120/277 VOLT. COOPER 1223, THREE WAY SWITCH, 20 AMP, 120/277 VOLT. COOPER 1223, OR EQUAL BY HUBBELL, LEVITON, AND PASS & SEYMOUR.
- INDICATES TWO LEVEL SWITCHING. SWITCH OUTER TWO LAMPS OF FIXTURES TOGETHER AND THE INNER LAMP(S) TOGETHER.
- WALL MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY. SENSOR SWITCH WY-PDT, WATT STOPPER #DT-200, LEVITON, GREENGATE OR EQUAL. CONICAL PATTERN, MOUNT AS CLOSE TO CORNER OF ROOM AS POSSIBLE. MOUNT 10' AFF OR 6" BELOW CEILING (IF LOWER THAN 10').
- WALL MOUNTED 0-10V DIMMER SWITCH
- WALL MOUNTED 0-10V 3-WAY DIMMER SWITCH

ELECTRICAL/MECHANICAL DEMARICATION

REFER TO DETAIL 8/E0.2 FOR MECHANICAL CONTRACTOR'S RESPONSIBILITIES RELATED TO ELECTRICAL DISCONNECTS, STARTERS AND WIRING OF MECHANICAL EQUIPMENT. ALL DISCONNECTS, STARTERS AND WIRING (LOAD SIDE OF DISCONNECTS) SHALL BE FURNISHED AND INSTALLED BY M.C. UNLESS OTHERWISE NOTED IN DETAIL ON MECHANICAL PLANS. COORDINATE ALL ELECTRICAL REQUIREMENTS WITH E.C. PRIOR TO ASSEMBLING SHOP DRAWING SUBMITTALS OR ORDERING EQUIPMENT.

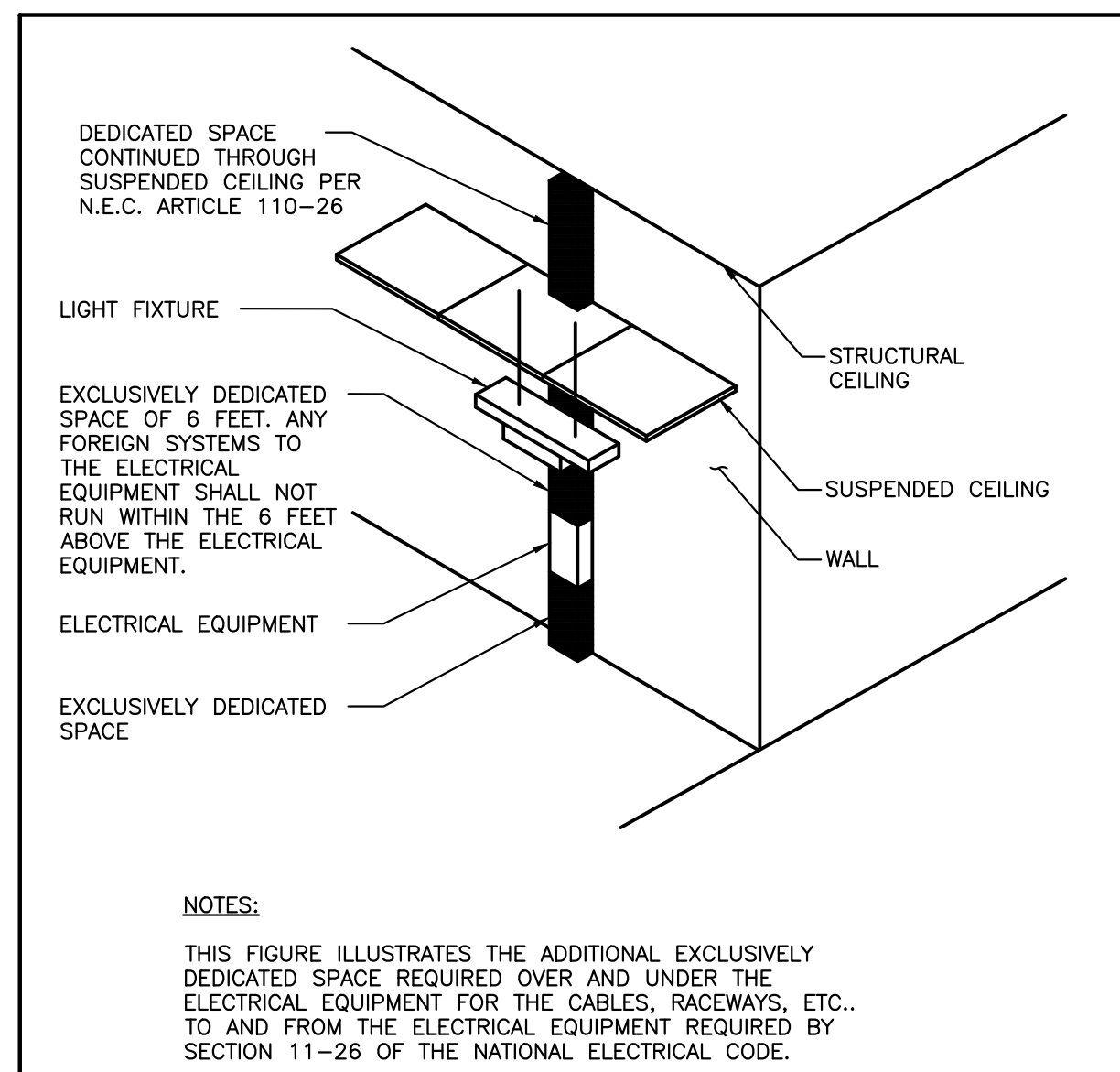


1 MOUNTING HEIGHTS OF DEVICES - ELEVATION

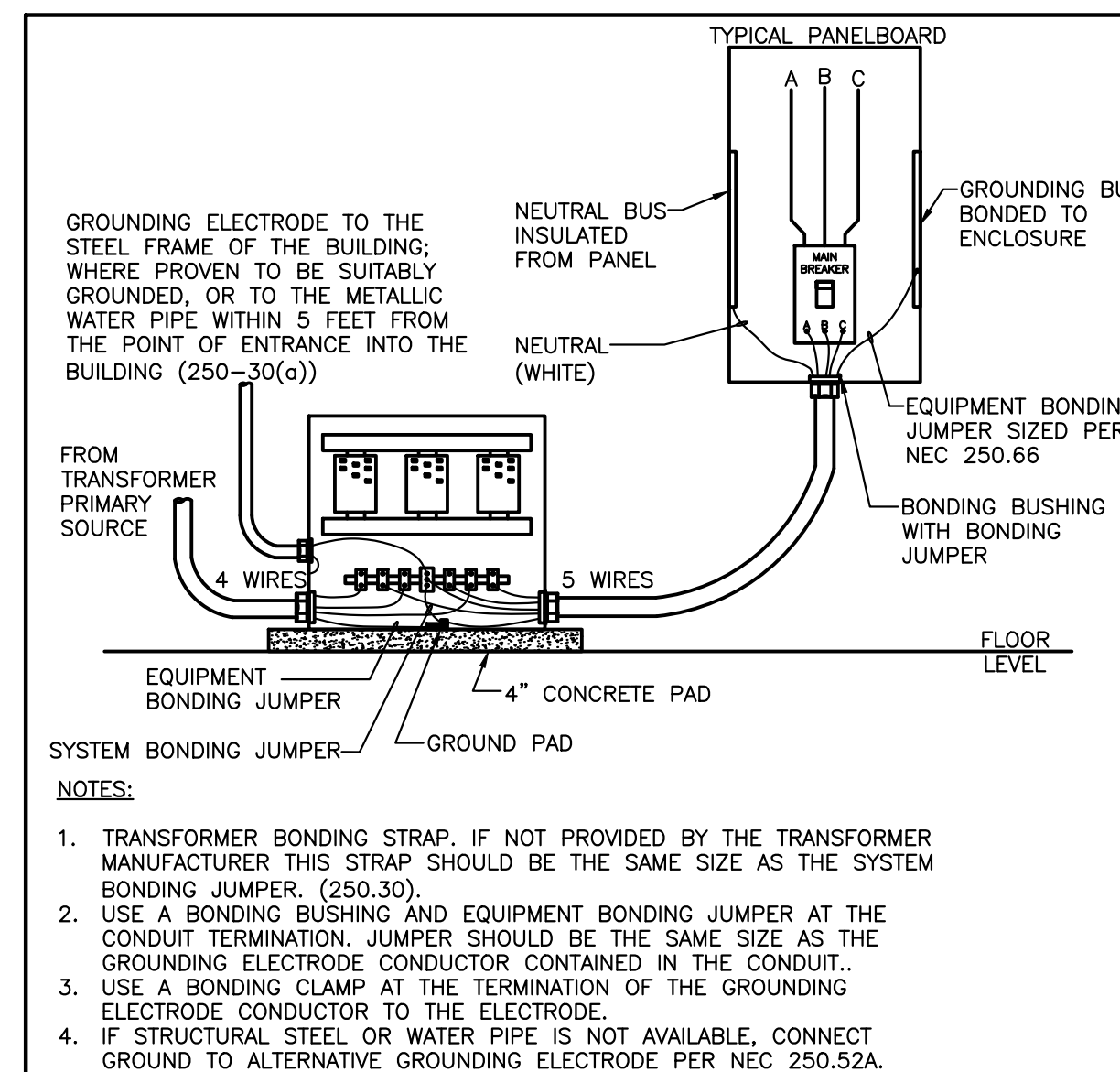
NO SCALE

LOAD TABULATION

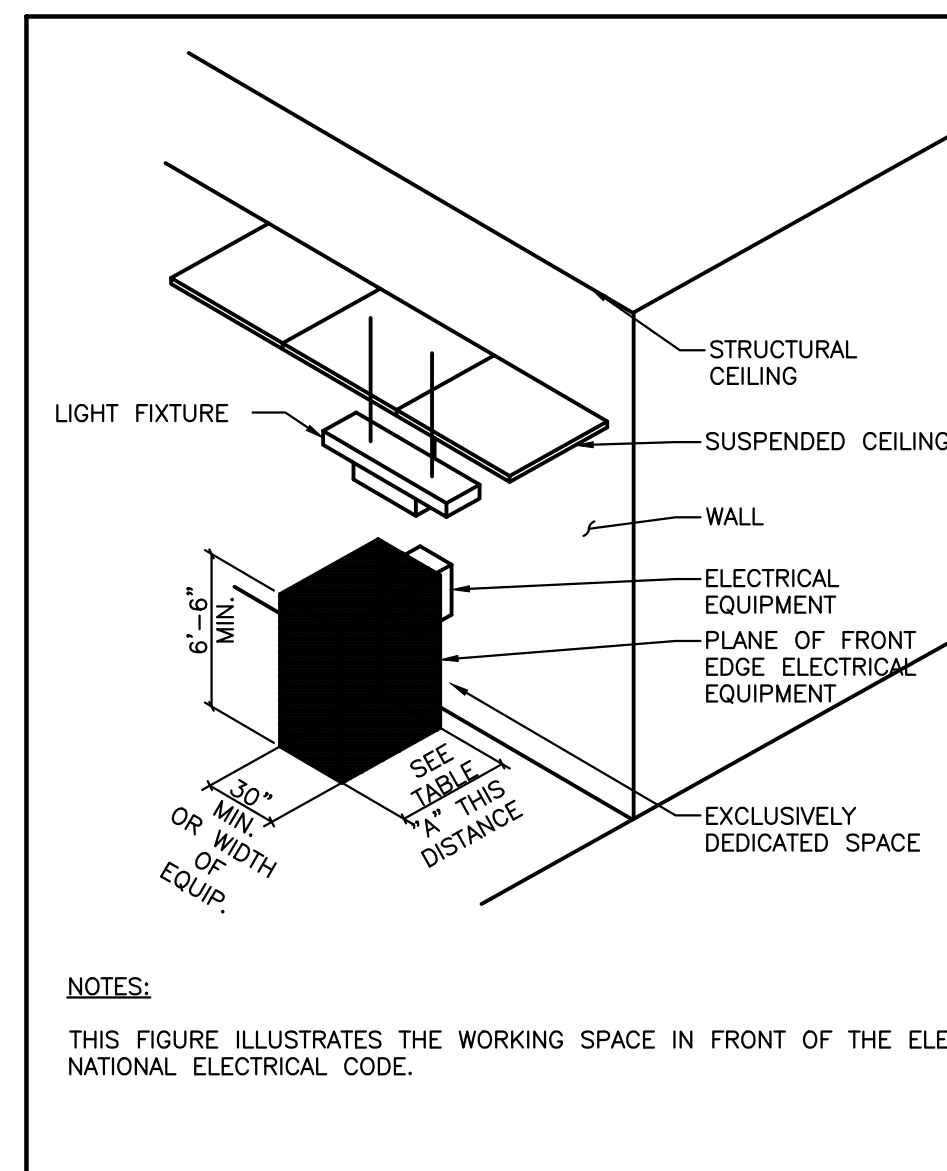
LOADS IN KVA	EXISTING DEMAND		NEW CONNECTED		DIVERSITY FACTOR (%)	NEW DEMAND		TOTAL KVA
	SINGLE PHASE	THREE PHASE	SINGLE PHASE	THREE PHASE		SINGLE PHASE	THREE PHASE	
LIGHTS			6.0		125	7.5		7.5
VENTILATION			8.4		100	8.4		8.4
MOTORS								0.0
KITCHEN								
RECEPTACLES			10.8		NEC	10.4		10.4
WATER HEATER			0.0			0.0		
MISC.			5.0		100	5.0		5.0
FUTURE ALLOWANCE				30.0	100	0.0	30.0	30.0
TOTAL				60		31.3	30.0	61.3



1 DEDICATED SPACE FOR ELECTRICAL EQUIPMENT
NO SCALE



2 DRY-TYPE TRANSFORMER GROUNDING DIAGRAM
NO SCALE



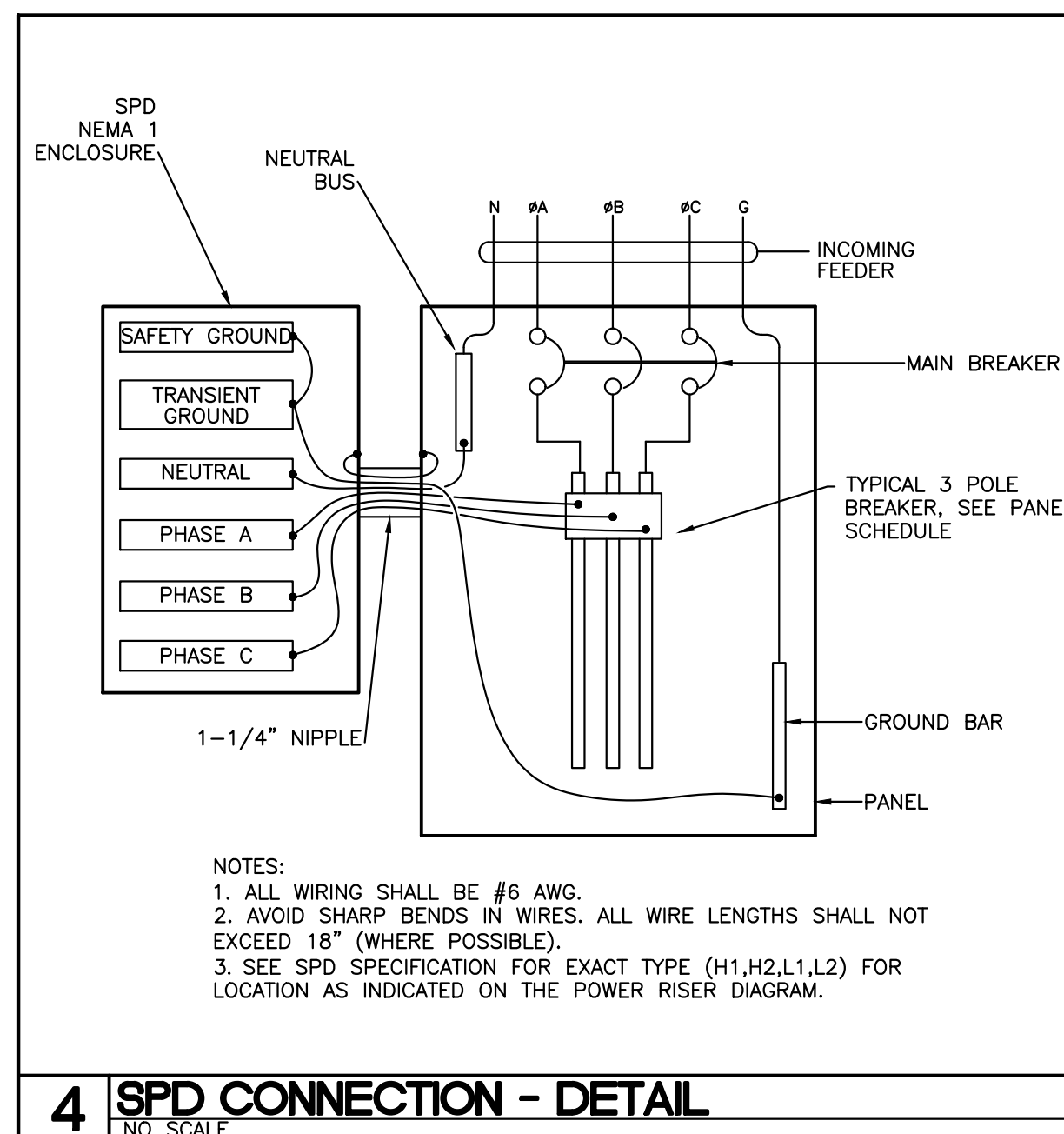
3 WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT
NO SCALE

TABLE A - WORKING CLEARANCES

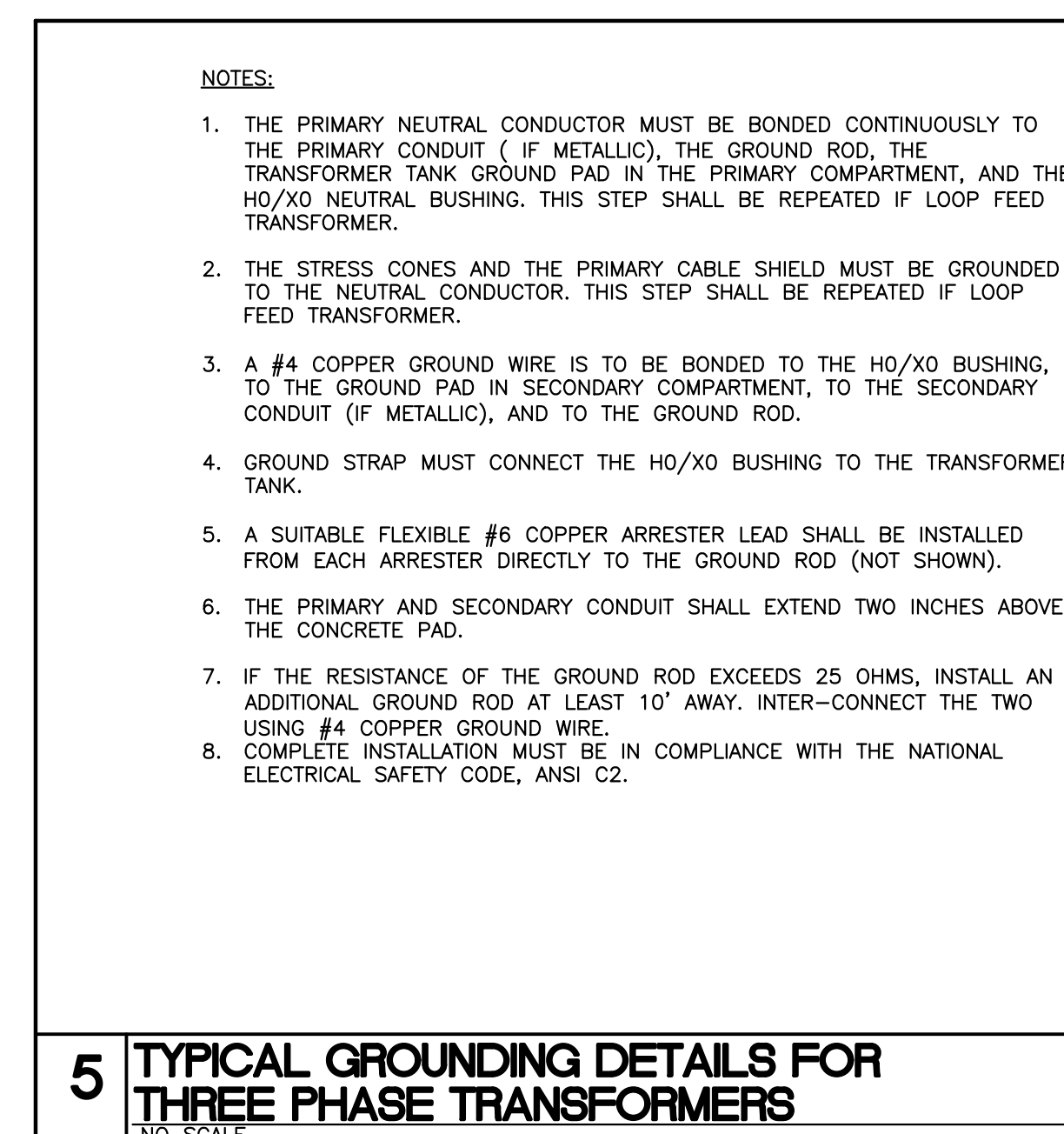
VOLTAGE TO GROUND NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
	1	2	3
0 - 150	3	3	3
151 - 600	3	3 1/2	4

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

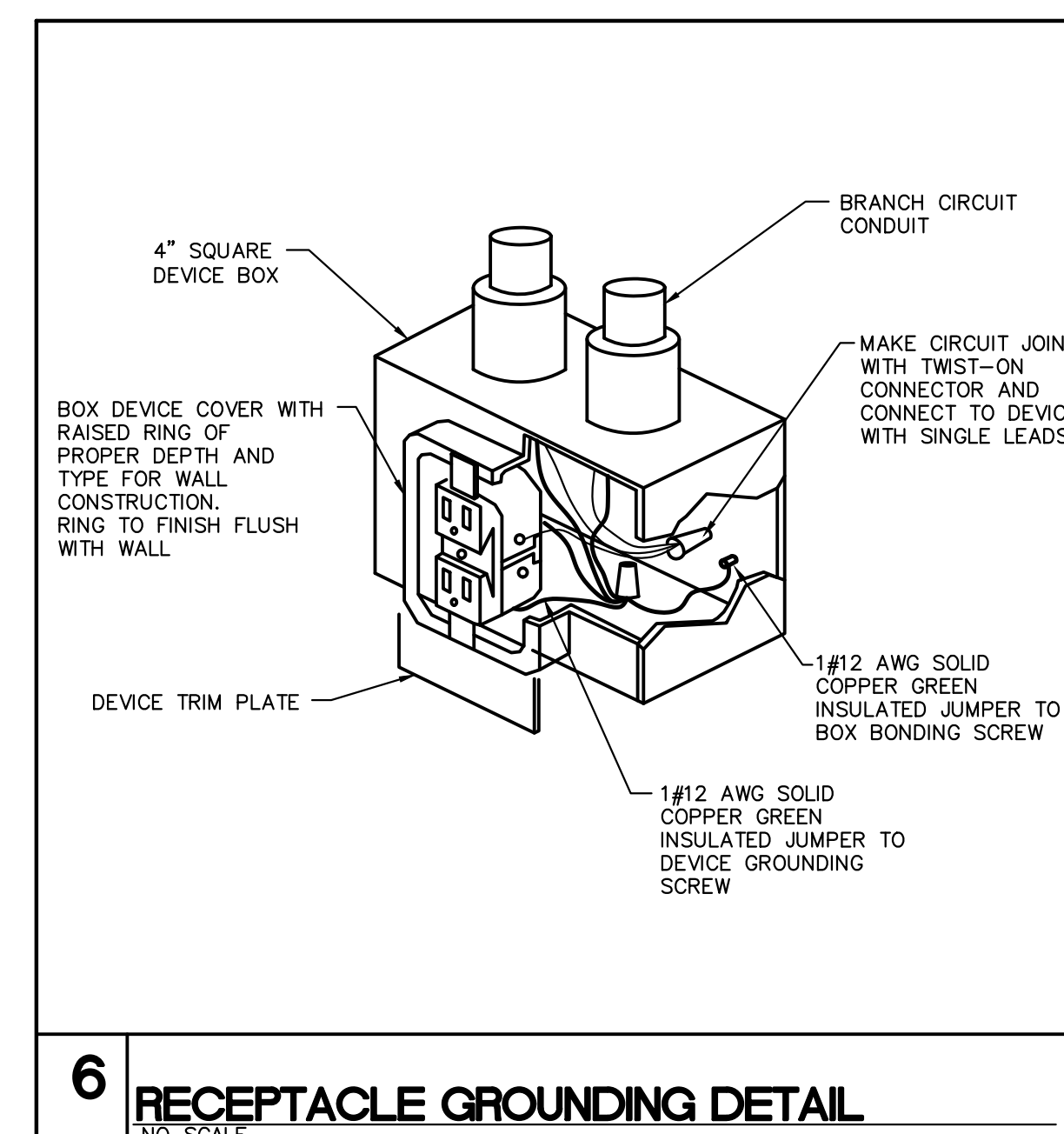
- EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE - OR EXPOSED PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300V SHALL NOT BE CONSIDERED LIVE PARTS.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



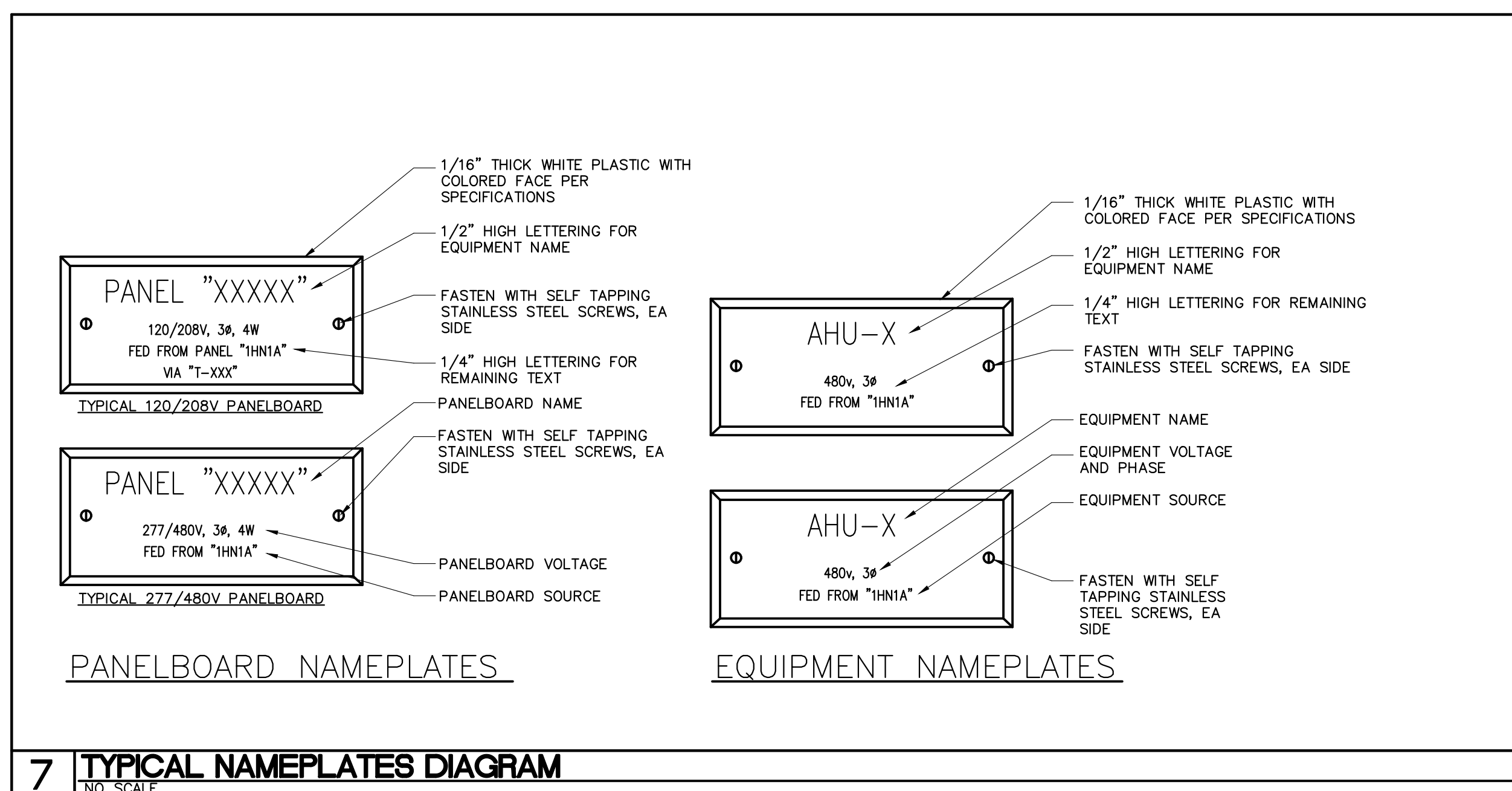
4 SPD CONNECTION - DETAIL
NO SCALE



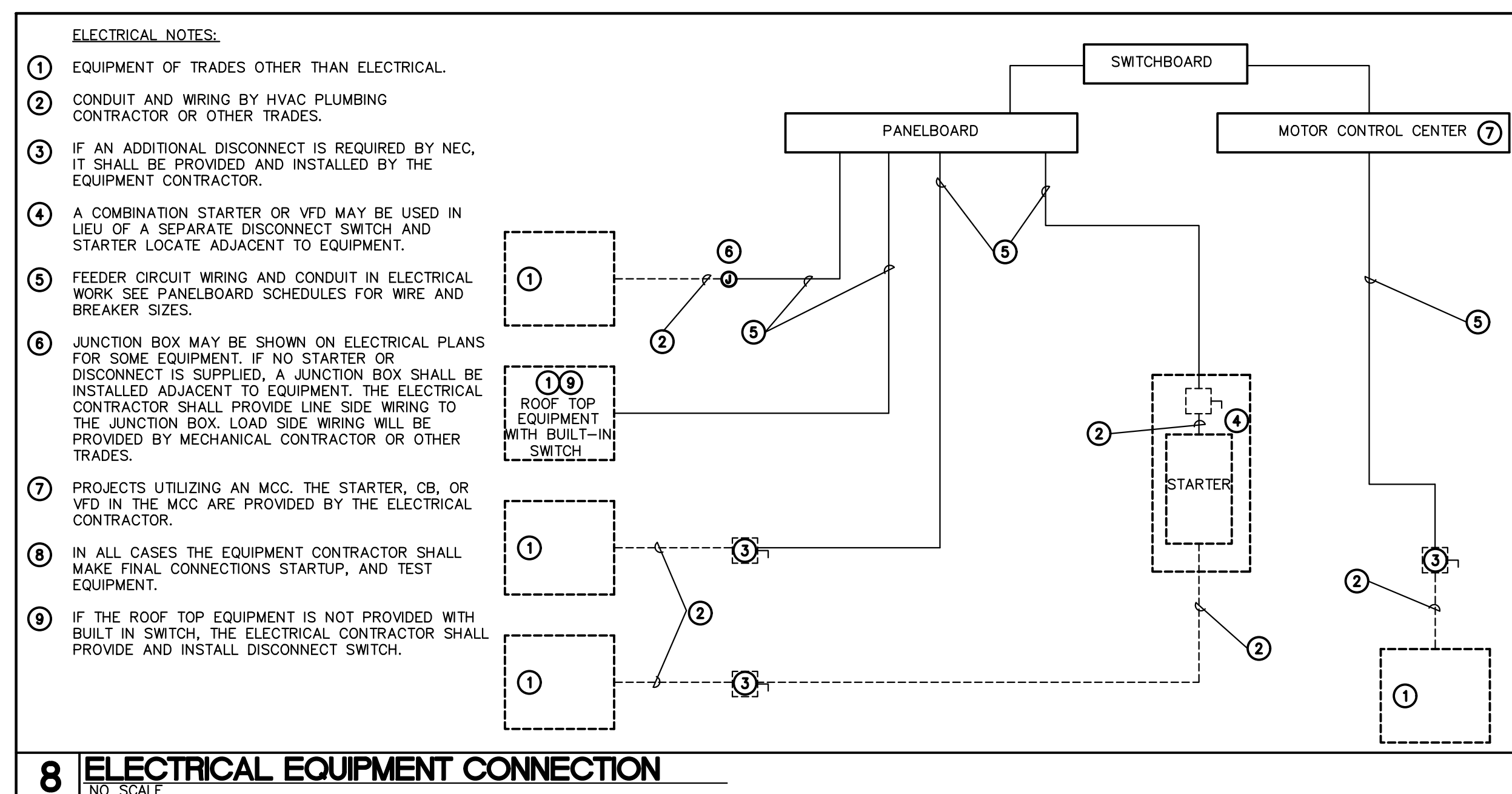
5 TYPICAL GROUNDING DETAILS FOR THREE PHASE TRANSFORMERS
NO SCALE



6 RECEPTACLE GROUNDING DETAIL
NO SCALE



7 TYPICAL NAMEPLATES DIAGRAM
NO SCALE



8 ELECTRICAL EQUIPMENT CONNECTION
NO SCALE

PROJECT MANAGER:
JEFF SIERER, NCARB

DRAWN BY:
BLM

REVISIONS

No.	Date

Issue Date: 01/29/2018

ELECTRICAL
DETAILS

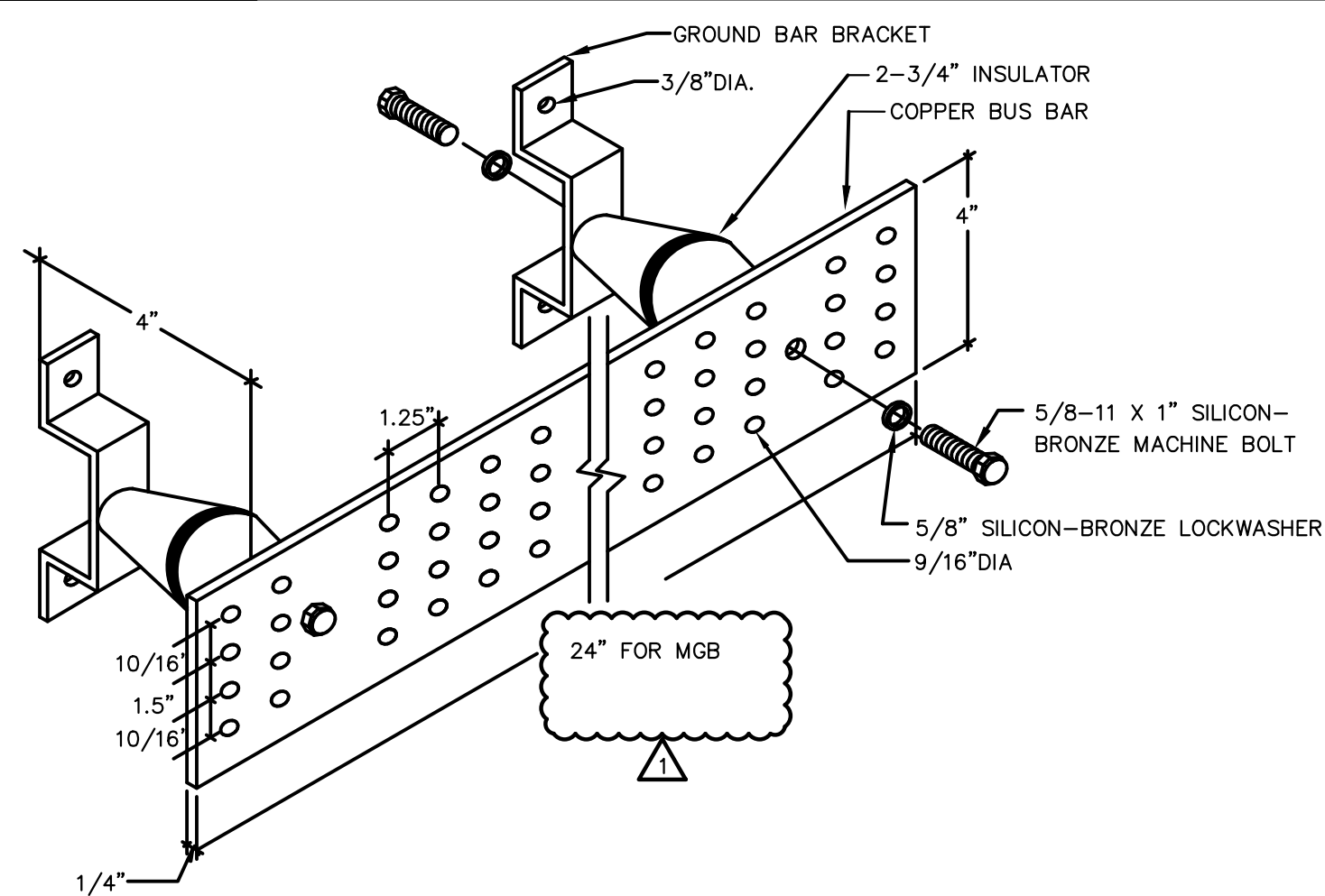
Code: 41626 Item: 309

Sheet Number:

EO.2

NOTES:

1. ALL GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH THE NEC AND UL STANDARDS.
2. ALL DIMENSIONING INDICATED IN THESE DOCUMENTS ARE FOR REFERENCE AND COORDINATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD.
3. ALL GRD ELECTRODES OR BONDING CONDUCTORS INSTALLED ALONE WITHIN A RACEWAY SHALL UTILIZE GRC WITH GROUNDING BUSHINGS AT EACH END. THIS GROUND CONDUCTOR SHALL LOOP THROUGH THE BUSHING LUG PRIOR TO TERMINATION.
4. LENGTH OF BUS BAR SHALL BE AS REQUIRED BY NUMBER OF CONDUCTOR CONNECTIONS PLUS 25% SPARE CAPACITY SPACE OR AS SPECIFIED OTHERWISE.
5. BUS BARS OVER 20" IN LENGTH REQUIRE AT LEAST ONE ADDITIONAL 2-3/4" INSULATOR SUPPORT OR AS SPECIFIED. BUS BARS OVER 152mm WIDE OR MORE REQUIRE INSULATORS AT ALL FOUR CORNERS OR AS REQUIRED.

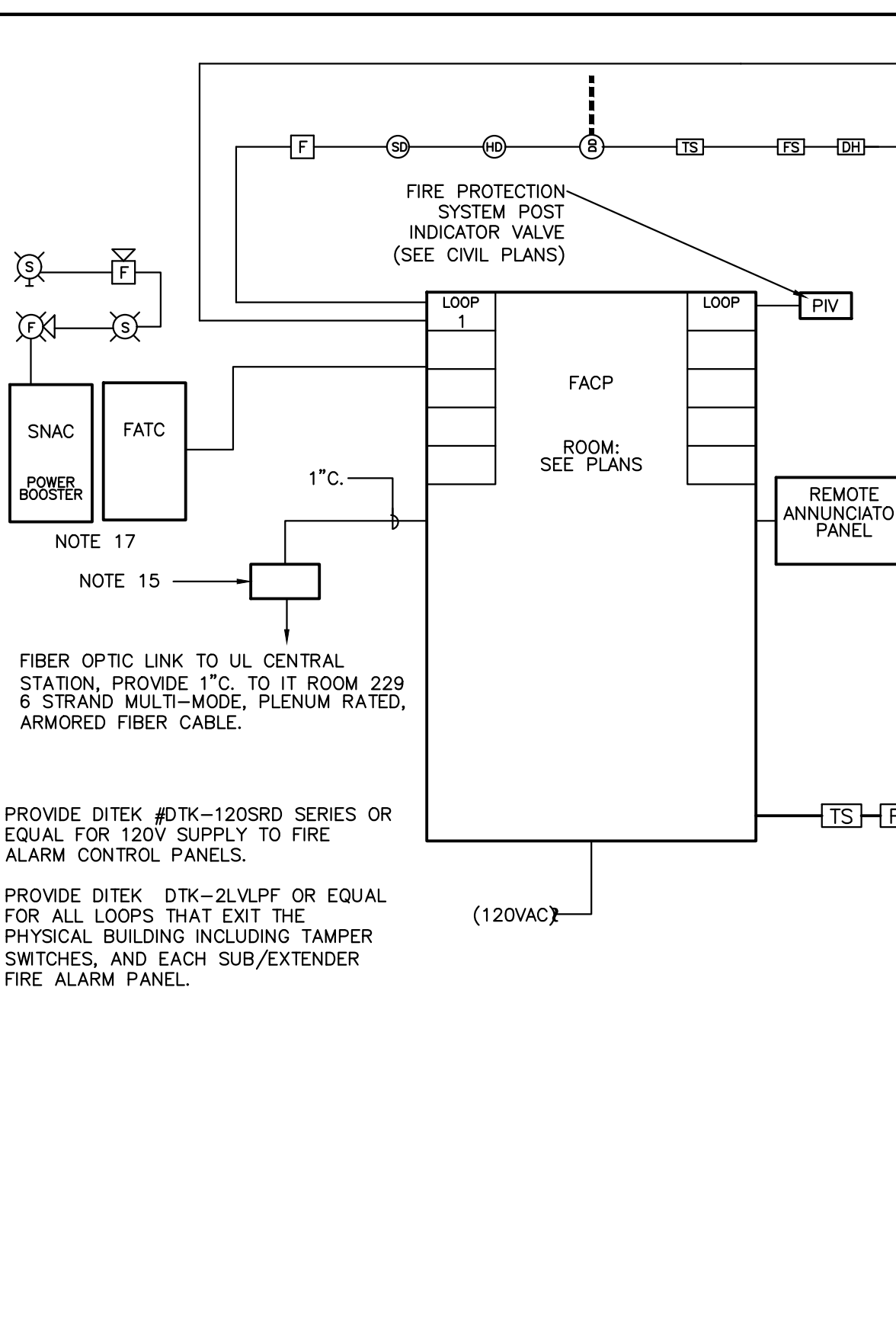
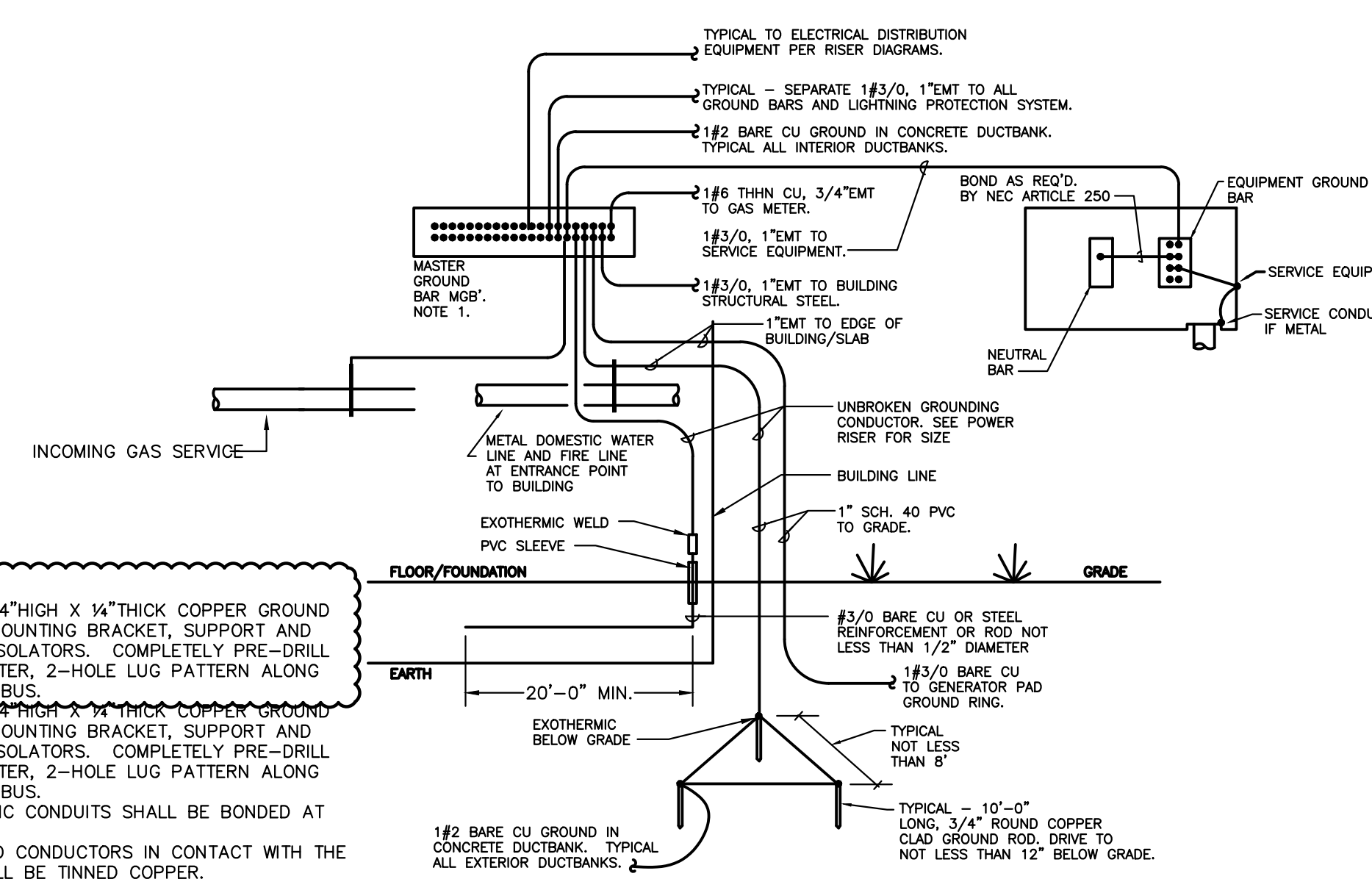


1 GROUNDING BAR DETAIL
NO SCALE

2 GROUND DIAGRAM
NO SCALE

NOTES:

1. 24" LONG x 4" HIGH x 1/4" THICK COPPER GROUND BUS WITH MOUNTING BRACKET, SUPPORT AND MOUNTING ISOLATORS. COMPLETELY PRE-DRILL 3/8" DIAMETER, 2-HOLE LUG PATTERN ALONG LENGTH OF BUS.
2. 24" LONG x 4" HIGH x 1/4" THICK COPPER GROUND BUS WITH MOUNTING BRACKET, SUPPORT AND MOUNTING ISOLATORS. COMPLETELY PRE-DRILL 3/8" DIAMETER, 2-HOLE LUG PATTERN ALONG LENGTH OF BUS.
3. ALL METALLIC CONDUITS SHALL BE BONDED AT EACH END.
4. ALL GROUND CONDUCTORS IN CONTACT WITH THE EARTH SHALL BE TINNED COPPER.



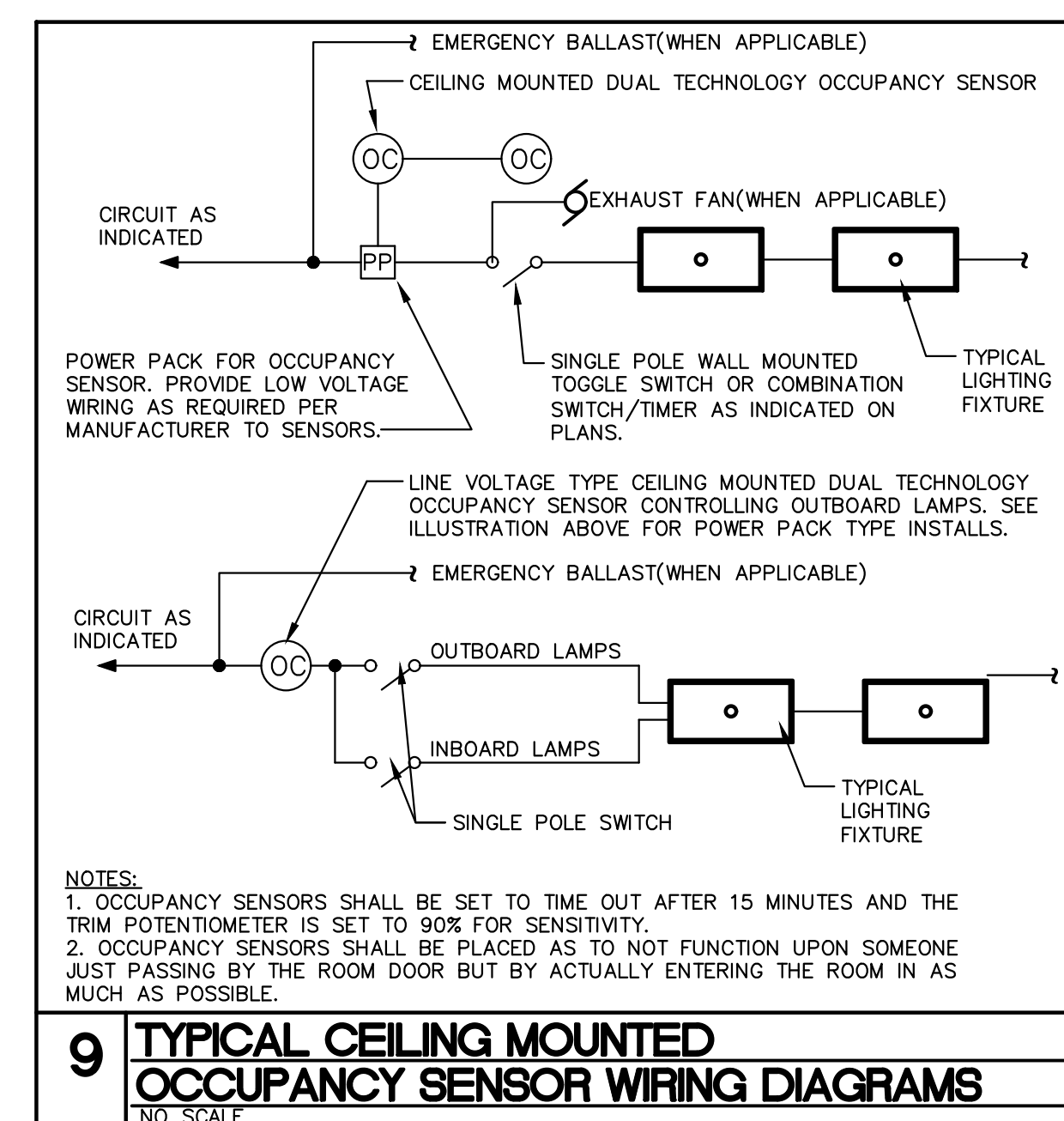
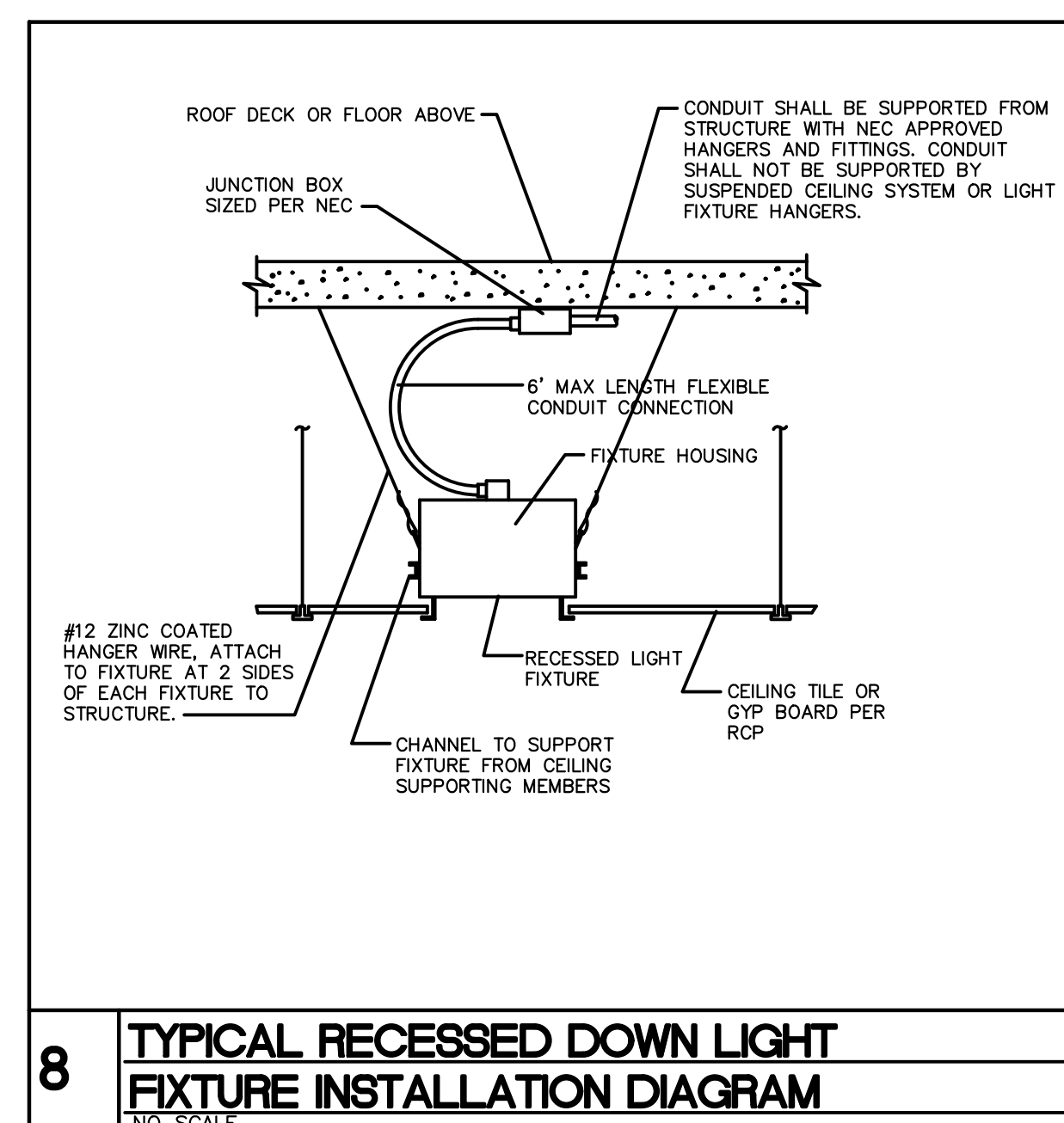
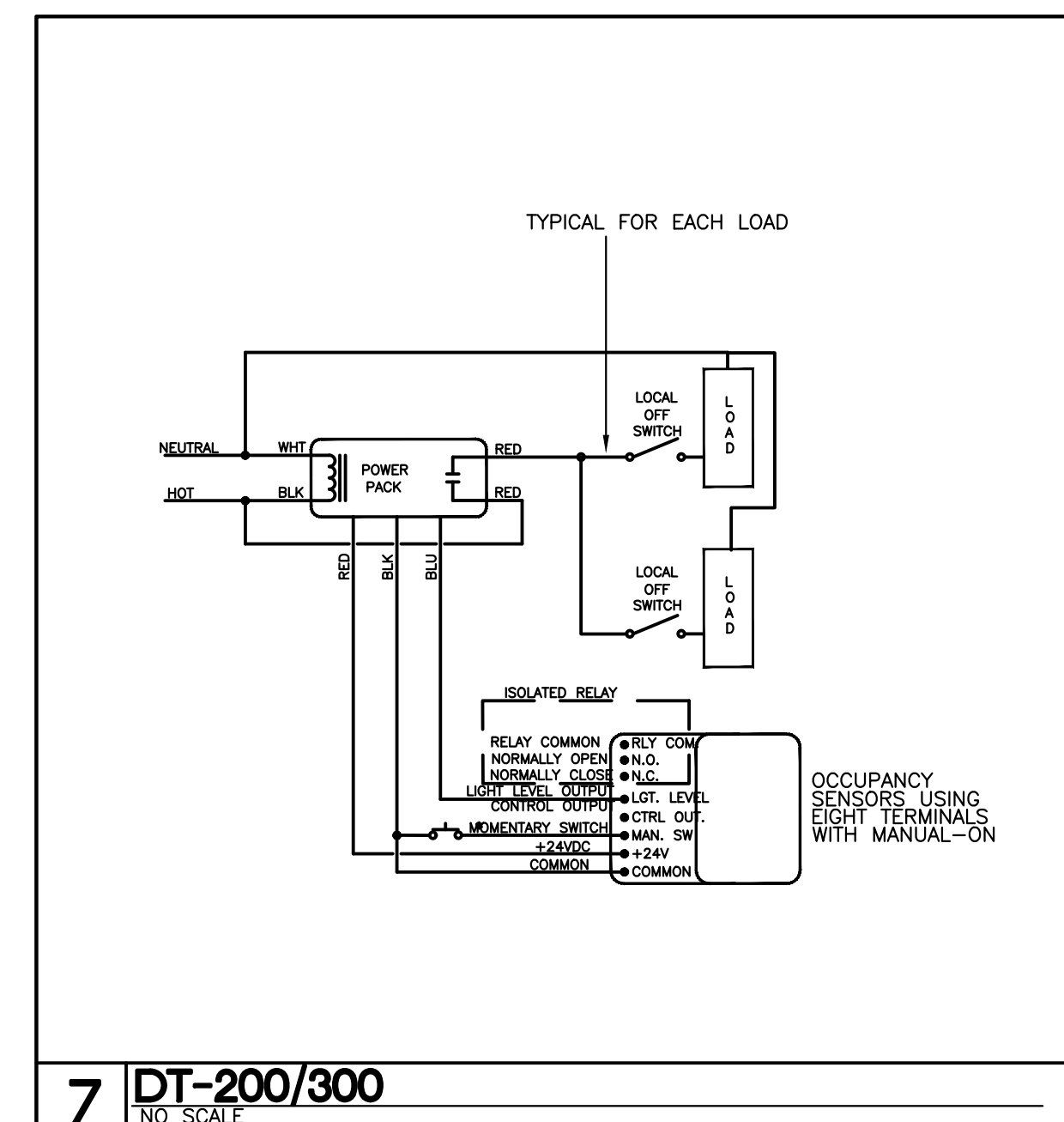
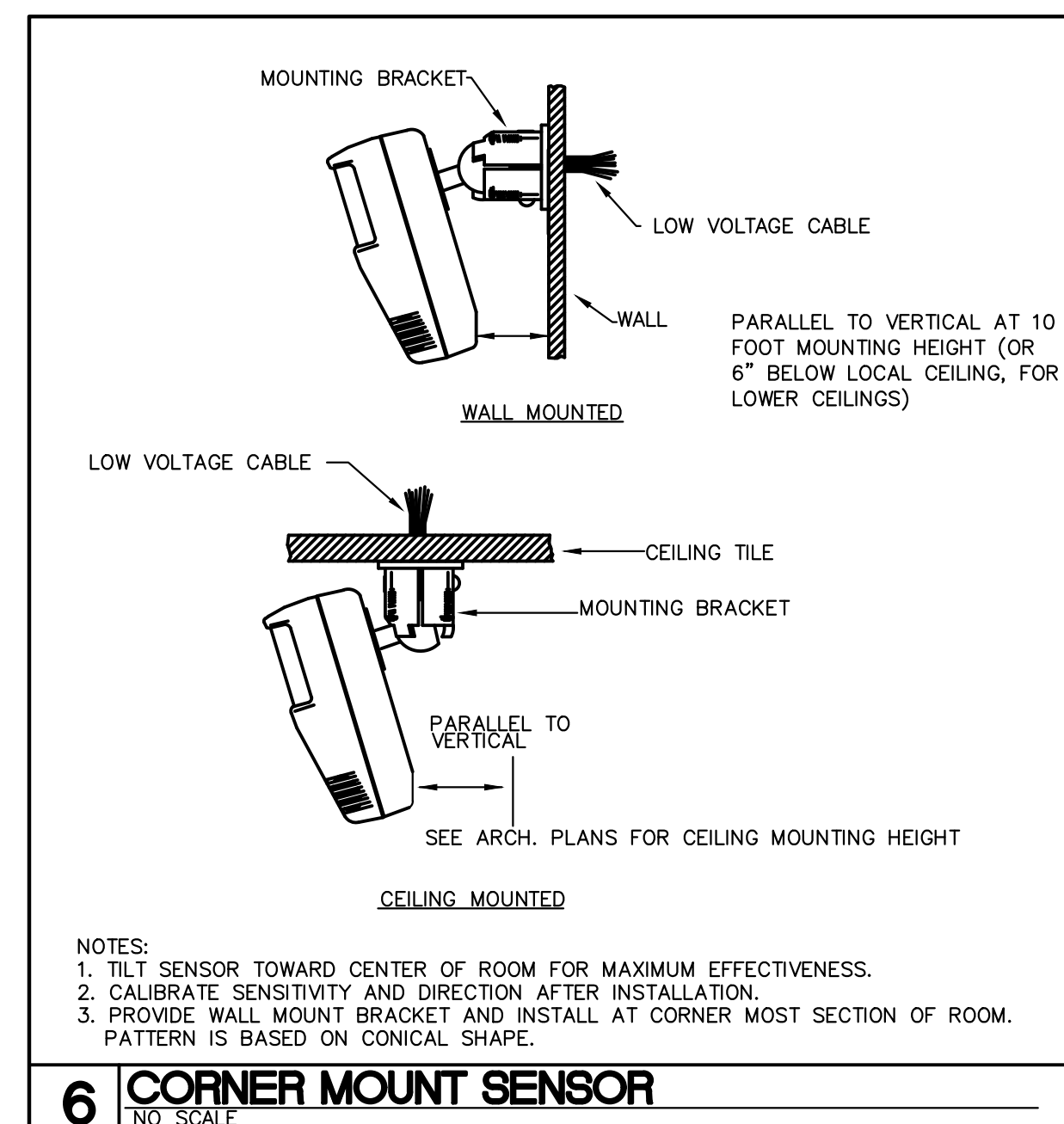
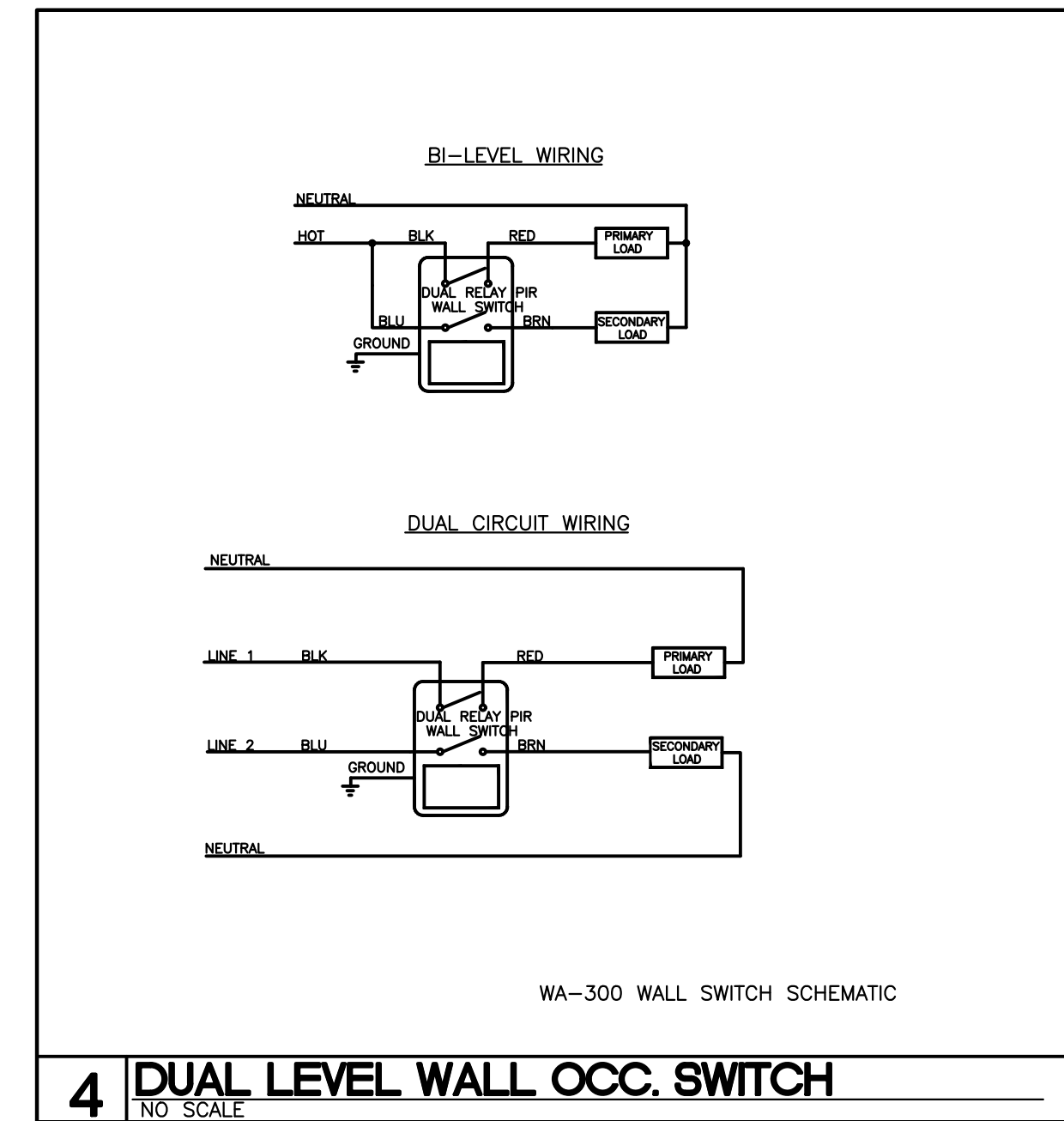
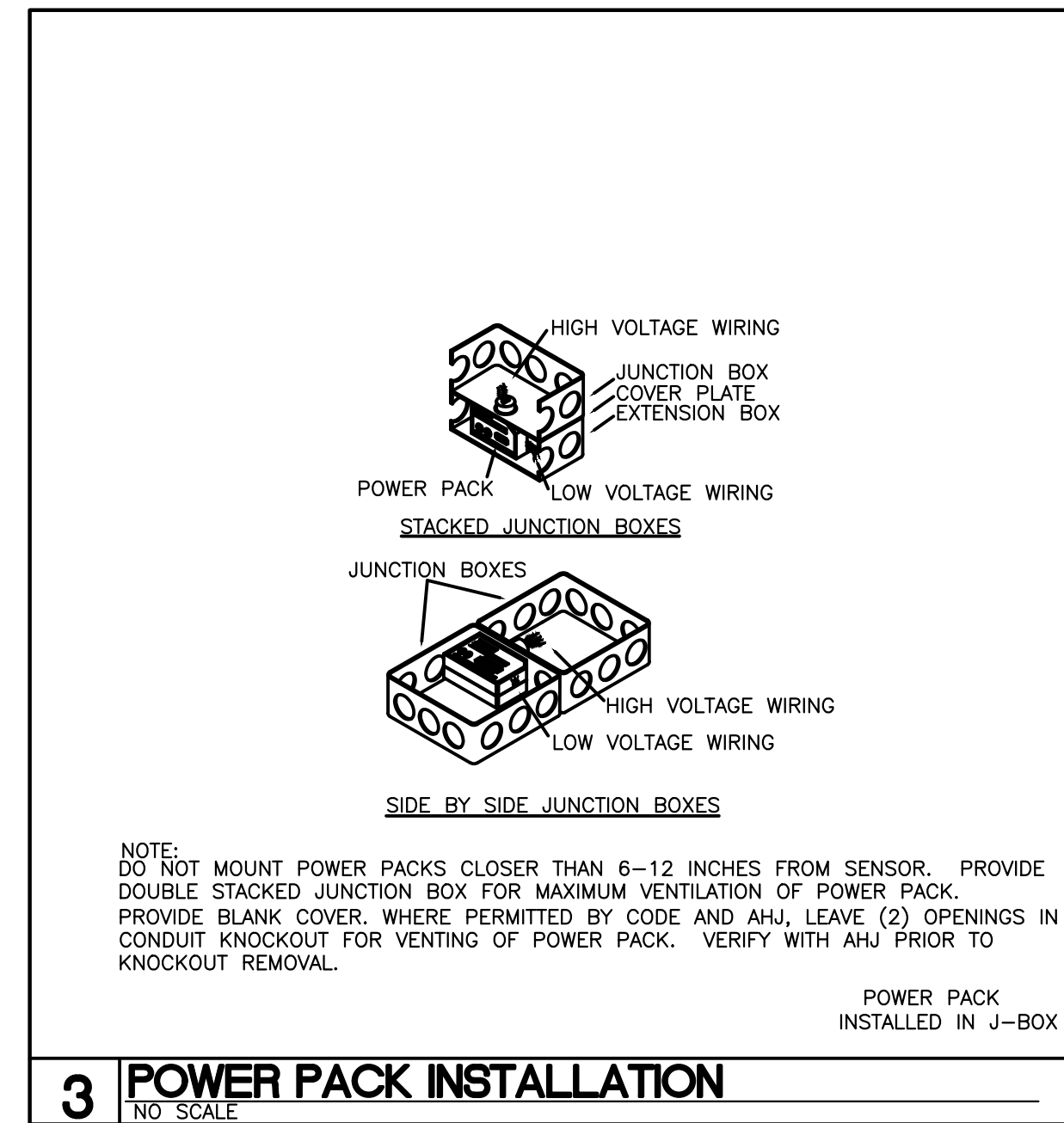
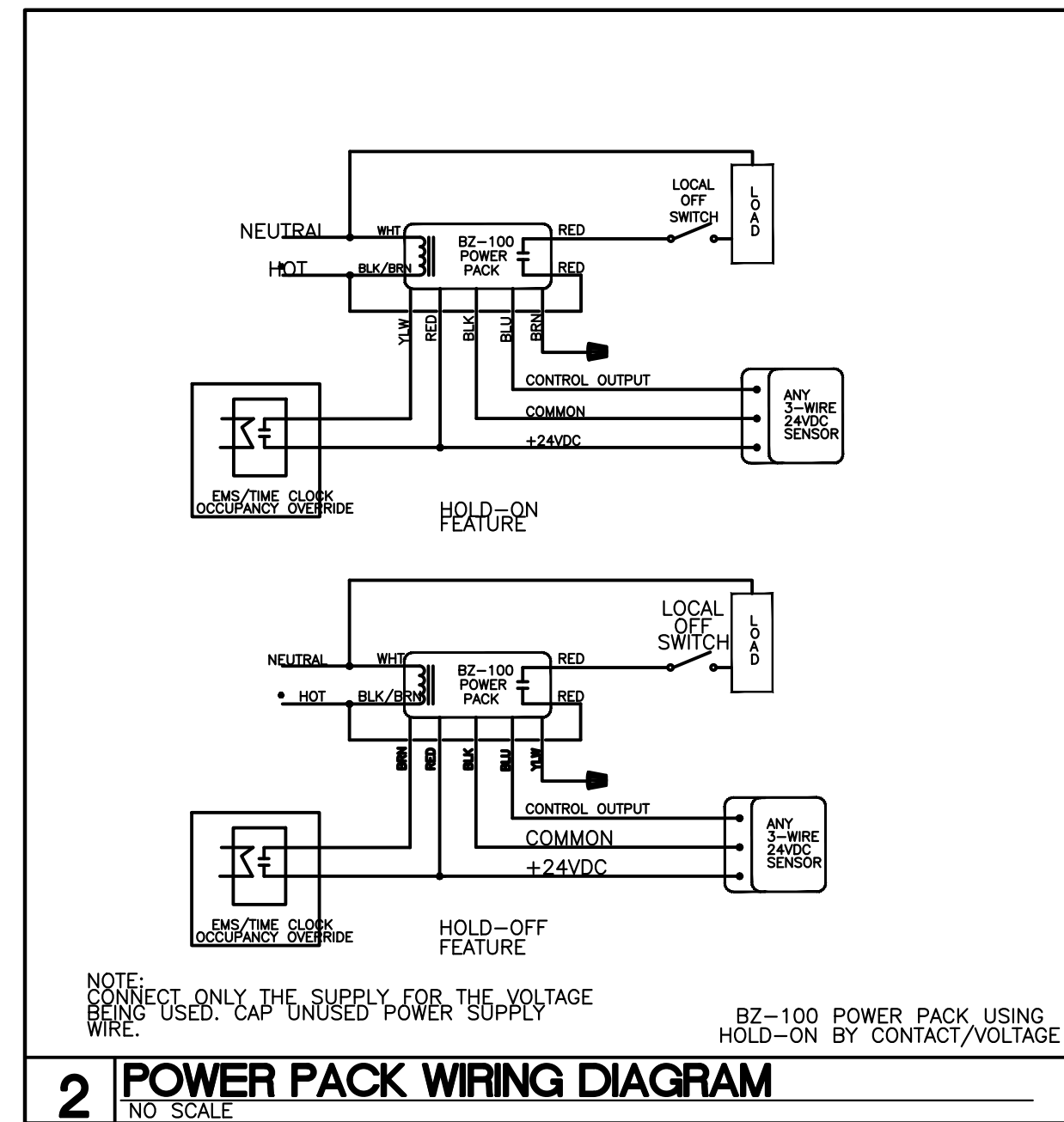
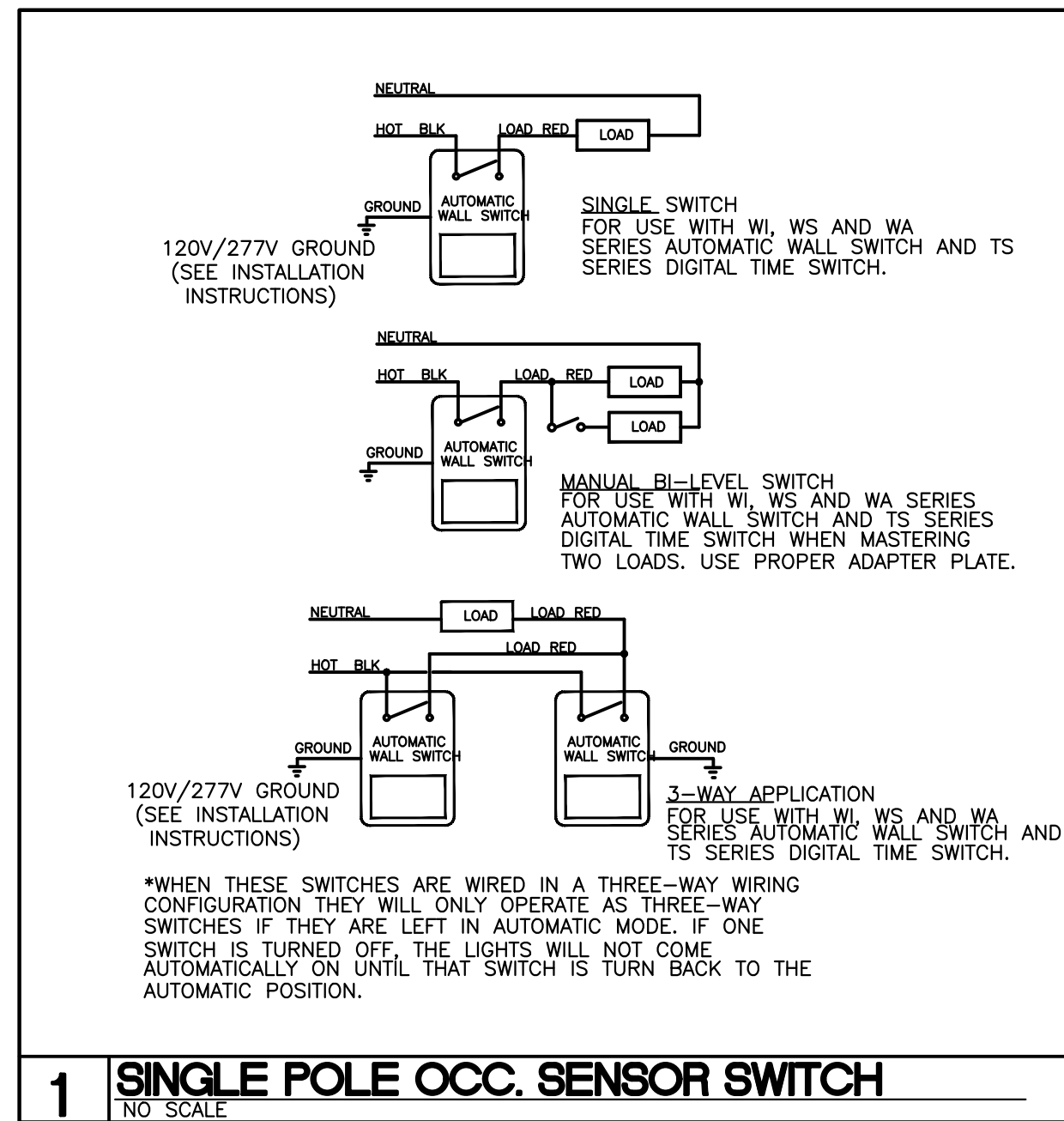
3 VOICE EVAC FIRE ALARM RISER DIAGRAM
NO SCALE

FIRE ALARM NOTES

1. FACP SHALL HAVE A MINIMUM 60HR. BATTERY BACKUP.
2. FACP SHALL BE FULLY ANALOG ADDRESSABLE.
3. FACP SHALL BE CONNECTED TO A UL APPROVED CENTRAL STATION.
4. ZONE PER NFPA 72, 2013 AND MANUFACTURER'S RECOMMENDATIONS WITH NO ONE ZONE EXCEEDING 15,000 S.F. PER FLOOR.
5. COORDINATE QUANTITY AND LOCATIONS OF DEVICES WITH CONTRACT DRAWINGS.
6. LOCATE SMOKE DETECTOR WITHIN 5' OF THE MAGNETIC HOLD OPEN DOORS. (TYPICAL)
7. LOCATE FIRE ALARM PULL STATION WITHIN 5' OF THE EXIT DOOR.
8. LOCATE SMOKE/HEAT DETECTOR WITHIN 5' OF THE FA EQUIPMENT (FACP, FATC).
9. LOCATION OF CEILING MOUNTED SMOKE/HEAT DETECTOR SHALL BE FIELD COORDINATED PRIOR TO ROUGH IN. THE DETECTOR SHALL BE A MINIMUM OF 2' AWAY FROM LIGHT FIXTURE AND A MINIMUM OF 3' AWAY FROM AIR DISTRIBUTION DEVICES.
10. AUTOMATIC DOOR CLOSING SHALL BE ACCOMPLISHED BY THE ACTIVATION OF THE LOCAL SMOKE DETECTORS AT THAT DOOR. SMOKE DETECTOR ACTIVATION SHALL ALERT THE BUILDING FIRE ALARM SYSTEM. THE FIRE ALARM SYSTEM SHALL CAUSE ALL HOLD OPEN DOORS TO CLOSE UPON ALARM ACTIVATION IN THE BUILDING.
11. ACTIVATION OF AN ALARM ZONE SHALL CAUSE ALL AIR HANDLING EQUIPMENT TO SHUT DOWN (ALL DAMPERS, AIR HANDLERS AND EXHAUST FANS MUST STOP).
12. NOT USED
13. ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL FLOW, PRESSURE, & TAMPER SWITCHES WITH FIRE PROTECTION CONTRACTOR PRIOR TO INSTALLATION.
14. ALL VISUAL DEVICES WITHIN THE SAME AREA SHALL BE SYNCHRONIZED. IT SHALL BE A THREE BEAT TEMPORAL PATTERN.
15. PROVIDE 12X12X4" JUNCTION BOX AT FACP
16. PROVIDE MULTI-TEMPORAL SOUNDING CAPABILITY AT ALL AUDIO DEVICES FOR EMERGENCY NOTIFICATION.
17. THE FIRE ALARM SYSTEM MANUFACTURER SHALL PROVIDE NOTIFICATION APPLIANCE CIRCUIT (NAC) POWER EXTENDERS AS REQUIRED. PROVIDE 120V CIRCUITS FROM SPARE BREAKERS IN PANEL 1LE AS REQUIRED.
18. THE DUCT SMOKE DETECTORS SHALL COMPLY WITH IFC 907.12.
19. PROVIDE CONTACT ON SURGE SUPPRESSION THAT IS MONITORED BY BAS. PROVIDE 3/4" CONDUIT TO BAS PANEL WITH CABLING.
20. THE CIRCUIT FEEDING THE FIRE ALARM PANEL IS DEDICATED FOR THE FIRE ALARM ONLY.
21. PROVIDE REMOTE LIGHT WITH TEST SWITCH FOR DUCT SMOKE DETECTOR ON CEILING WHERE UNIT IS ABOVE CEILING.
22. CONTRACTOR SHALL INCLUDE IN BID LABOR TO RE-LOCATE UP TO 5 DEVICES UP TO 30' FROM EXISTING LOCATION.
23. CONTRACTOR SHALL INCLUDE IN BID LABOR AND MATERIAL FOR UP TO (2) DUCT DETECTORS, (5) ANNUNCIATION DEVICES, (3) SMOKE DETECTORS AND (2) PULL STATIONS 100' FROM LOCAL PANEL (IN WALL NOT SURFACE MOUNTED) AS REQUIRED BY LOCAL AHJ/ENGINEER.
24. CONTRACTOR RESPONSIBLE FOR SHOP DRAWINGS AS REQUIRED BY LOCAL AHJ.
25. DUCT DETECTORS SHALL BE VERIFIED WITH THE MECHANICAL DRAWINGS FOR QUANTITY AND LOCATION. TOTAL QUANTITY MINIMUM SHALL BE BASED ON BOTH MECHANICAL SCHEDULES AND MECHANICAL PLAN LOCATIONS AND ELECTRICAL PLANS. WHEN DEVICE QUANTITIES (ELECTRICAL VS. MECHANICAL) ARE IN CONFLICT, PROVIDE THE GREATER QUANTITY OF DETECTORS.
26. A SUPERVISED "AHU SHUTDOWN DEFEAT" SWITCH MUST BE PROVIDED IN/ADJACENT TO THE FACP. PROVIDE AN INFORMATIVE ENGRAVED LABEL AT THE FACP ABOUT THIS FUNCTION. THE SWITCH MUST CAUSE A SYSTEM "SUPERVISORY" INDICATION WHEN IT'S PLACED IN THE OFF-NORMAL ("SHUTDOWN DEFEATED") POSITION. THIS IS TO PROVIDE THE OWNER WITH A CONVENIENT MEANS TO TEMPORARILY RESUME HVAC OPERATION IN THE EVENT AN UNWANTED ALARM WILL NOT CLEAR, PRIOR TO ARRIVAL OF THE FIRE ALARM SERVICE TECHNICIAN.
27. ISOLATION MODULES SHALL BE PROVIDED FOR EVERY 20 INITIATION DEVICES. LOOP ISOLATION MODULES FOR FACP SHALL BE MOUNTED IN NEMA 1 ENCLOSURE, DIRECTLY ADJACENT.

FIRE ALARM SYSTEM MATRIX

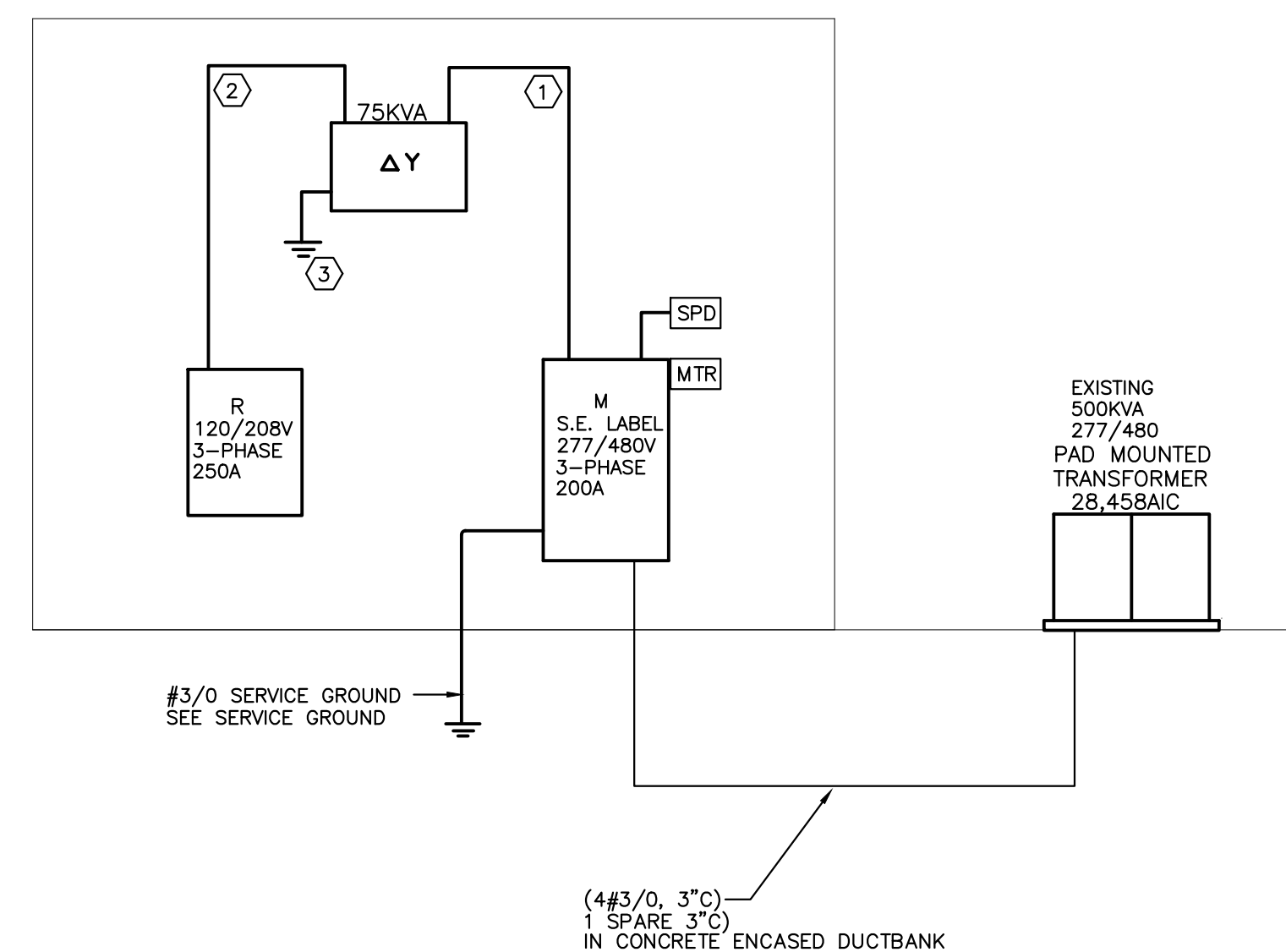
FIRE ALARM SYSTEM COMPONENTS	BUILDING SYSTEM OUTPUTS											
	ACTIVATE COMMON ALARM SIGNAL INDICATOR	ACTIVATE ADDRESSABLE ALARM SIGNAL INDICATOR	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTIVATE ADDRESSABLE SUPERVISORY SIGNAL INDICATOR	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR	ACTIVATE ADDRESSABLE TROUBLE SIGNAL INDICATOR	ACTIVATE GENERAL TROUBLE SIGNAL INDICATOR	ACTIVATE EXTERNAL SPEAKER SIGNAL	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	RECALL TROUBLE SIGNAL TO CENTRAL STATION	RECALL TROUBLE SIGNAL TO PRIMARY RECALL FLOOR	RECALL TROUBLE SIGNAL TO ALTERNATE RECALL FLOOR
MANUAL FIRE ALARM PULL BOXES	X	X										
BUILDING SMOKE DETECTOR	X	X			X	X	X	X				
DUCT SMOKE DETECTOR	X	X			X	X	X	X		X	X	X
BUILDING HEAT DETECTOR	X	X			X	X	X	X				
AHU SHUTDOWN BYPASS SWITCH			X	X	X							
NOTIFICATION DEVICE SHORT CIRCUIT			X	X	X		X					
OPEN CIRCUIT			X	X	X		X					
GROUND FAULT			X	X	X		X					
FIRE ALARM A.C. POWER FAILURE AFTER 4 HRS			X	X	X		X		X	X	X	X
FIRE ALARM SYSTEM LOW BATTERY			X	X	X		X		X	X	X	X
FIRE ALARM A.C. POWER LOSS			X	X	X		X		X	X	X	X
FIRE ALARM D.C. POWER LOSS			X	X	X		X		X	X	X	X



- ① 3#1, #6 GND, 1 1/2"
- ② 4#250KCMIL, #2 GND, 3"
- ③ #2 GND, 3/4" TO BLDG STEEL

**EQUIPMENT AND
FEEDER LEGEND**

NO SCALE

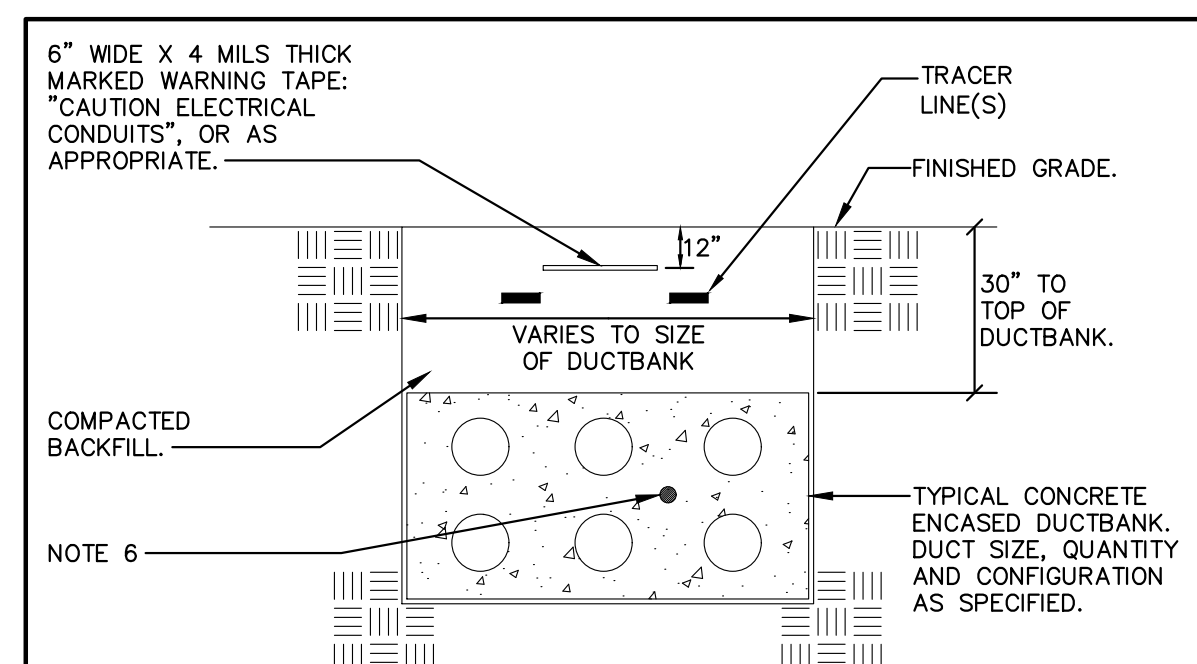


1. TYPE OF METER ON "MDP" IS VERIFIED WITH OWNER PRIOR TO ORDERING. BASIS OF DESIGN IS "CUTLER HAMMER" IQ-250 OR EQUAL. METERS ARE SHOWN AS "MTR". COORDINATE COMMUNICATION PROTOCOL WITH M.C. PRIOR TO ORDERING.
2. FEEDERS THAT ARE REQUIRED TO BE CONCRETE ENCASED ARE TO BE CONCRETE ENCASED UNTIL TERMINATION POINT, INCLUDING UNDER BUILDING SLABS. EXCAVATION WILL BE REQUIRED IN EXISTING MAIN ELECTRICAL ROOM.

POWER RISER DIAGRAM

NO SCALE

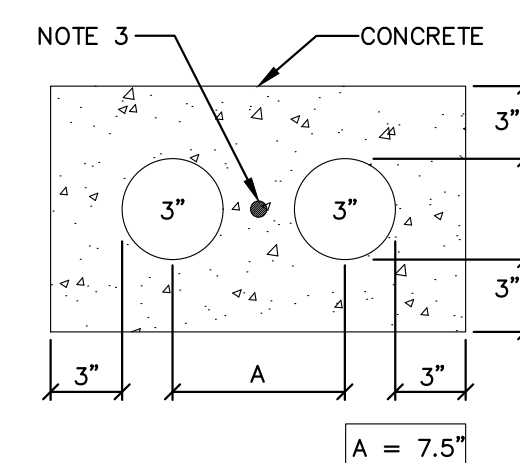
GENERAL NOTE:
ALL NEW UNDERGROUND UTILITIES SHALL BE LOCATED AND RECORDED BY A SURVEYOR REGISTERED IN NORTH CAROLINA UTILIZING A GPS LOCATING SERVICE. SURVEY SHALL BE TIED TO THE NC STATE PLANE COORDINATE SYSTEM AND SHALL MEET NC STANDARDS FOR POSITIONAL ACCURACY. PROVIDE X,Y,Z COORDINATES IN ACCORDANCE WITH THE SPECIFICATIONS AND IN A FORMAT APPROVED BY THE OWNER TO INCLUDE THE FOLLOWING:
• DUCT BANKS (POWER AND TELECOM). LOCATIONS SHALL BE MADE AT 25' INTERVALS ALONG TOP EDGE AND BOTH SIDES OF DUCT BANK AT ALL STRUCTURE CONNECTIONS AND ALL CHANGES IN DIRECTION. NOTE DUCT BANK THICKNESS ON SURVEY.
• MANHOLES (POWER AND TELECOM). LOCATIONS TO INCLUDE STRUCTURE WIDTH, LENGTH AND DEPTH WITH ELEVATIONS OF TOP AND BOTTOM OF VAULT, TOP OF MANHOLE ENTRANCE AND ALL CONDUIT ENTERING AND EXITING THE MANHOLE.



- NOTES:
1. DUCTS SHALL BE PITCHED TO DRAIN TOWARD MANHOLES AND HANDHOLES AND AWAY FROM BUILDINGS AND EQUIPMENT AS APPROPRIATE.
 2. DUCT SPACERS SHALL BE INSTALLED AND COORDINATED WITH THE DUCT SIZE. SPACING SHALL BE AS REQUIRED BY THE MANUFACTURER AND TO PREVENT SAGGING/DEFORMING OF DUCTS. SPACERS SHALL BE SECURED BY NON-FERROUS MEANS TO PREVENT FLOATING DURING CONCRETE POUR.
 3. ALL DUCTS SHALL BE SEALED AT TERMINATIONS WITH APPROVED SEALING COMPOUND AND PLUGS, RATED TO WITHSTAND MINIMUM 15 PSI HYDROSTATIC PRESSURE.
 4. ALL DUCTS SHALL BE RODDED, CLEARED AND SWABBED TO REMOVE ALL OBSTRUCTIONS AFTER INSTALLATION AND HAVE A WATERPROOF PULL CORD INSTALLED (130 LB MINIMUM TENSILE TEST). CORD SHALL BE FACTORY MARKED AT MINIMUM ONE FOOT INTERVALS.
 5. VIBRATE CONCRETE TO FILL VOIDS.
 6. INSTALL 1#2 BARE COPPER GROUND WIRE WITHIN CONCRETE ALONG ENTIRE DUCTBANK LENGTH. EXOTHERMICALLY CONNECT TO GROUND TRIAD RING. THIS GROUND WIRE IS IN ADDITION TO ANY GROUNDED (NEUTRAL) AND GROUNDING CONDUCTORS INDICATED TO BE INSTALLED WITHIN THE CONDUITS. ALTERNATE THE POSITION OF THE GROUND WIRE THROUGH THE DUCT SPACERS TO PREVENT SAG. ELECTRICAL POWER DUCTBANKS ONLY.
 7. CONCRETE STRENGTH SHALL BE 3000 PSI @ 28 DAYS MINIMUM.
 8. CONCRETE THERMAL RESISTIVITY (RHO) SHALL BE 0.55 m-C/W OR LESS.
 9. MEDIUM VOLTAGE CONCRETE DUCTBANKS ARE TO BE DYED RED.

3 TYPICAL DUCTBANK TRENCH DETAIL

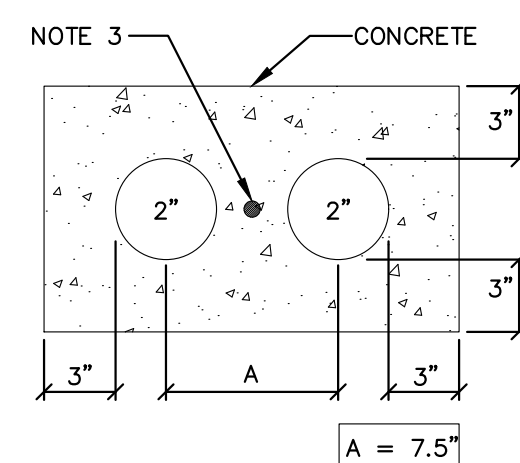
NO SCALE



- NOTES:
1. SEE "TYPICAL DUCTBANK TRENCH DETAIL" FOR ADDITIONAL REQUIREMENTS.
 2. CONDUITS NOT DRAWN TO SCALE.
 3. INSTALL 1#2 BARE COPPER GROUND WIRE WITHIN CONCRETE ALONG ENTIRE DUCTBANK LENGTH. EXOTHERMICALLY CONNECT TO GROUND TRIAD RING. THIS GROUND WIRE IS IN ADDITION TO ANY GROUNDED (NEUTRAL) AND GROUNDING CONDUCTORS INDICATED TO BE INSTALLED WITHIN THE CONDUITS. ALTERNATE THE POSITION OF THE GROUND WIRE THROUGH THE DUCT SPACERS TO PREVENT SAG. ELECTRICAL POWER DUCTBANKS ONLY.

1 2-WAY (2HxV) DUCTBANK SECTION

NO SCALE



- NOTES:
1. SEE "TYPICAL DUCTBANK TRENCH DETAIL" FOR ADDITIONAL REQUIREMENTS.
 2. CONDUITS NOT DRAWN TO SCALE.
 3. INSTALL 1#2 BARE COPPER GROUND WIRE WITHIN CONCRETE ALONG ENTIRE DUCTBANK LENGTH. EXOTHERMICALLY CONNECT TO GROUND TRIAD RING. THIS GROUND WIRE IS IN ADDITION TO ANY GROUNDED (NEUTRAL) AND GROUNDING CONDUCTORS INDICATED TO BE INSTALLED WITHIN THE CONDUITS. ALTERNATE THE POSITION OF THE GROUND WIRE THROUGH THE DUCT SPACERS TO PREVENT SAG. ELECTRICAL POWER DUCTBANKS ONLY.

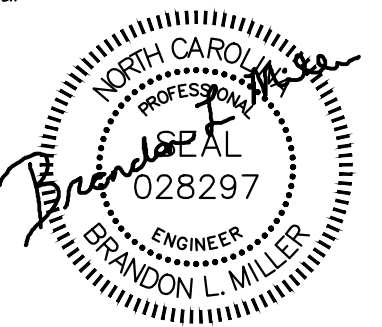
2 2-WAY (2HxV) DUCTBANK SECTION

NO SCALE

PANEL: R												MFR		
VOLTAGE: 120 / 208												TYPE		
MOUNTING: SURFACE												250 AMP	10,000 AIC	
LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO.	A	B	C	CKT NO.	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
1.20	RECEPTACLES	12	20	1	1				2	30	10	SIMULATOR	2.50	2.50
1.20	RECEPTACLES	12	20	3	3				4				2.50	2.50
1.20	RECEPTACLES	12	20	5	5				6	20	10	FAN F-1	2.00	2.00
1.20	RECEPTACLES	12	20	7	7				8	20	10	FAN F-2	2.00	2.00
1.20	RECEPTACLES	12	20	9	9				10	20	10	FAN F-3	2.00	2.00
1.20	RECEPTACLES	12	20	11	11				12	20		SPARE	0.00	0.00
1.20	RECEPTACLES	12	20	13	13				14	20		SPARE	0.00	0.00
1.20	RECEPTACLES	12	20	15	15				16	20		SPARE	0.00	0.00
1.20	RECEPTACLES	12	20	17	17				18	20		SPARE	0.00	0.00
0.00	SPARE		20	19	19				20	20		SPARE	0.00	0.00
0.00	SPARE		20	21	21				22	20		SPARE	0.00	0.00
0.00	SPARE		20	23	23				24	20		SPARE	0.00	0.00
0.00	SPARE		20	25	25				26	20		SPARE	0.00	0.00
0.00	SPARE		20	27	27				28	20		SPARE	0.00	0.00
0.00	SPARE		20	29	29				30	20		SPARE	0.00	0.00
0.00	SPARE		20	31	31				32	20		SPACE ONLY	0.00	0.00
0.00	SPARE		20	33	33				34	20		SPACE ONLY	0.00	0.00
0.00	SPARE		20	35	35				36	20		SPACE ONLY	0.00	0.00
0.00	SPARE		20	37	37				38	20		SPACE ONLY	0.00	0.00
1.20	IRH-4.5.6	12	20	39	39				40	20		SPACE ONLY	0.00	0.00
1.20	IRH-1.2.3	12	20	41	41				42	20		SPACE ONLY	0.00	0.00
13.2													11.0	11.0
LOAD	KVA	TOTAL LOAD PER PHASE		NOTES:										
LIGHTS	0.0	CONNECTED		1. BREAKER FRAME SHALL BE AS RATED PER PANEL AIC RATING.										
HEATING	2.4	A = 8.1 KVA	67.6 A	2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.										
COOLING	0.0	B = 9.3 KVA	77.4 A	3. ALL BUSSING, INCL. GND AND NEUTRAL, SHALL BE COPPER.										
VENTILATION	6.0	C = 6.8 KVA	56.6 A	4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.										
MOTORS	0.0	DEMAND		5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.										
KITCHEN	0.0	A = 8.0 KVA	66.3 A	6. PROVIDE METAL DIRECTORY FRAME.										
RECEPTACLES	10.8	B = 9.2 KVA	76.3 A											
WATER HEATER	0.0	C = 6.7 KVA	55.5 A											
MISC.	5.0	DEMAND @ 125%												
SPARE	0.0	A = 10.0 KVA	82.9 A											
TOTAL (CONNECTED)	24.2	B = 11.5 KVA	95.4 A											
TOTAL (DEMAND)	23.8	C = 8.3 KVA	69.4 A											

PANEL: M												MFR		
VOLTAGE: 277 / 480												TYPE		
MOUNTING: SURFACE												200 AMP	35,000 AIC	
LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO.	A	B	C	CKT NO.	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
1.50	LIGHTING	12	20	1	1				2				8.10	8.10
1.50	LIGHTING	12	20	3	3				4				9.30	9.30
1.50	LIGHTING	12	20	5	5				6	125		PANEL R	6.80	6.80
1.50	LIGHTING	12	20	7	7				8				10.00	10.00
0.00	SPARE		20	9	9				10	100		SPARE	10.00	10.00
0.00	SPARE		20	11	11				12				10.00	10.00
0.00	SPARE		20	13	13				14	20		SPARE	0.00	0.00
0.00	SPARE		20	15	15				16	20		SPARE	0.00	0.00
0.00	SPARE		20	17	17				18	20		SPARE	0.00	0.00
0.00	SPARE		20	19	19				20	20		SPARE	0.00	0.00
0.00	SPARE		20	21	21				22	20		SPARE	0.00	0.00
0.00	SPARE		20	23	23				24	20		SPARE	0.00	0.00
0.00	SPARE		20	25	25				26	20		SPARE	0.00	0.00
0.00	SPARE		20	27	27				28	20		SPARE	0.00	0.00
0.00	SPARE		20	29	29				30	20		SPARE	0.00	0.00
0.00	SPARE ONLY		20	31	31				32	20		SPACE ONLY	0.00	0.00
0.00	SPARE ONLY		20	33	33				34	20		SPACE ONLY	0.00	0.00
0.00	SPARE ONLY		20	35	35				36	20		SPACE ONLY	0.00	0.00
0.00	SPARE ONLY		20	37	37				38	20		SPACE ONLY	0.00	0.00
0.00	SPARE ONLY		20	39	39				40	20		SPACE ONLY	0.00	0.00
0.00	SPARE ONLY		20	41	41				42	20		SPACE ONLY	0.00	0.00
6.0													54.2	54.2
LOAD	KVA	TOTAL LOAD PER PHASE		NOTES:										
LIGHTS	6.0	CONNECTED		1. BREAKER FRAME SHALL BE AS RATED PER PANEL AIC RATING.										
HEATING	2.4	A = 21.1 KVA	76.1 A	2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.										
COOLING	0.0	B = 20.8 KVA	75.1 A	3. ALL BUSSING, INCL. GND AND NEUTRAL, SHALL BE COPPER.										
VENTILATION	6.0	C = 18.3 KVA	66.0 A	4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.										
MOTORS	0.0	DEMAND		5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.										
KITCHEN	0.0	A = 21.0 KVA	75.7 A	6. PROVIDE METAL DIRECTORY FRAME.										
RECEPTACLES	10.8	B = 20.7 KVA	74.6 A	7. THIS PANEL SHALL BE U.L. LISTED FOR USE AS S.E. EQUIP.										
WATER HEATER	0.0	C = 18.2 KVA	65.6 A	8. PROVIDE "ALL MODES" SPD (40KA / MODE, 80KA / PHASE).										
MISC.	5.0	DEMAND @ 125%												
SPARE	30.0	A = 26.2 KVA	94.6 A											
TOTAL (CONNECTED)	60.2	B = 25.8 KVA	93.2 A											
TOTAL (DEMAND)	59.8	C = 22.7 KVA	81.9 A											

Seal

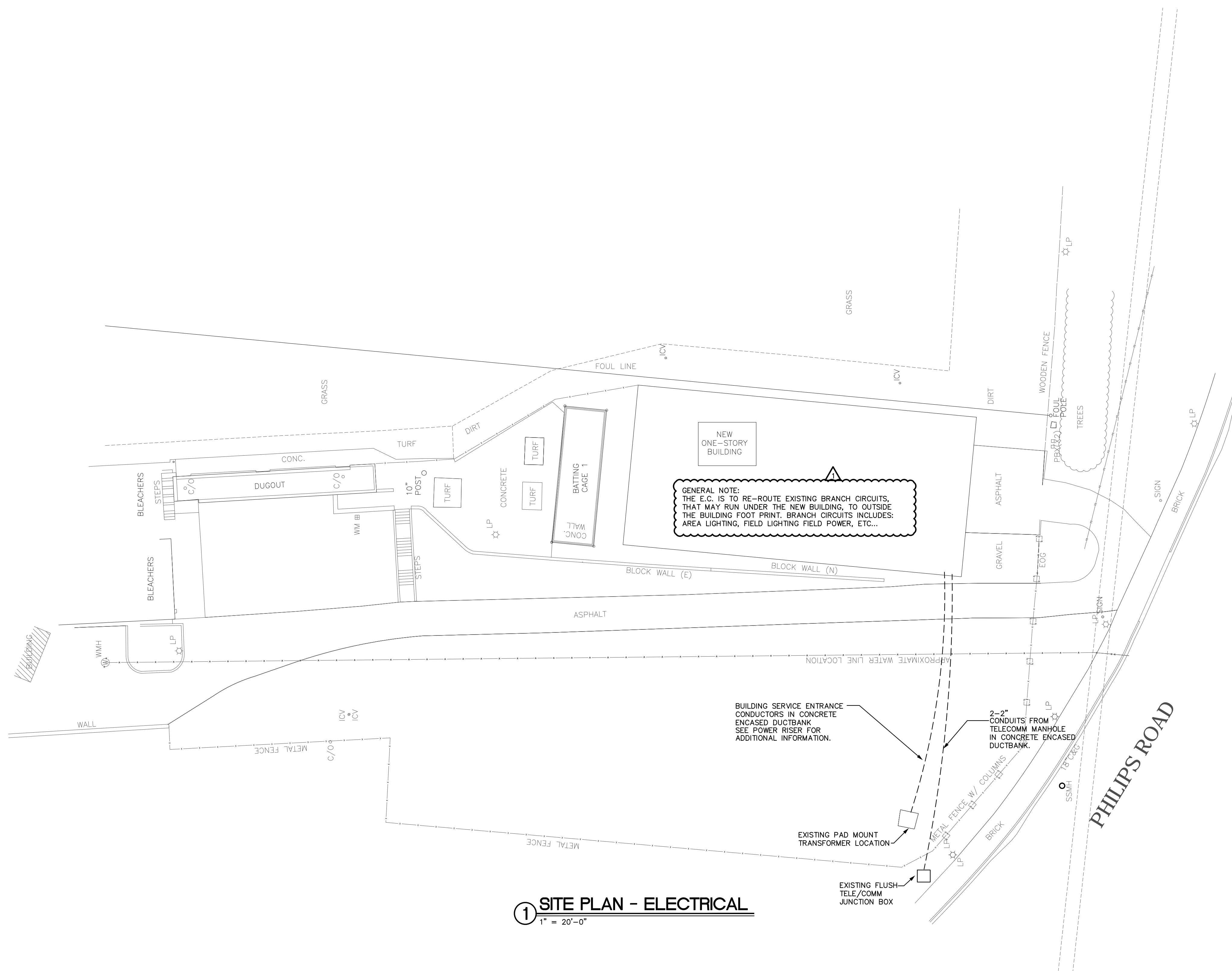


01/29/18

CONSTRUCTION
Documents

UNC
CHARLOTTE
BASEBALL
TRAINING
FACILITY

8711 PHILLIPS ROAD
CHARLOTTE, NC 28223



① SITE PLAN - ELECTRICAL
1" = 20'-0"

PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
BLM

REVISIONS

No.	Date	Description
1	01/29/18	ADDENDUM

Issue Date: 01/29/2018

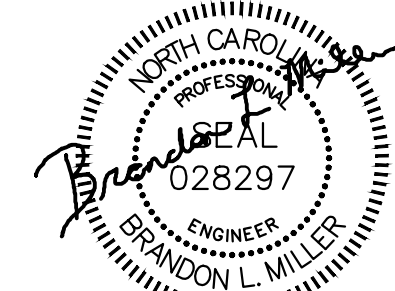
ELECTRICAL SITE
PLAN

Code: 41626 Item: 309

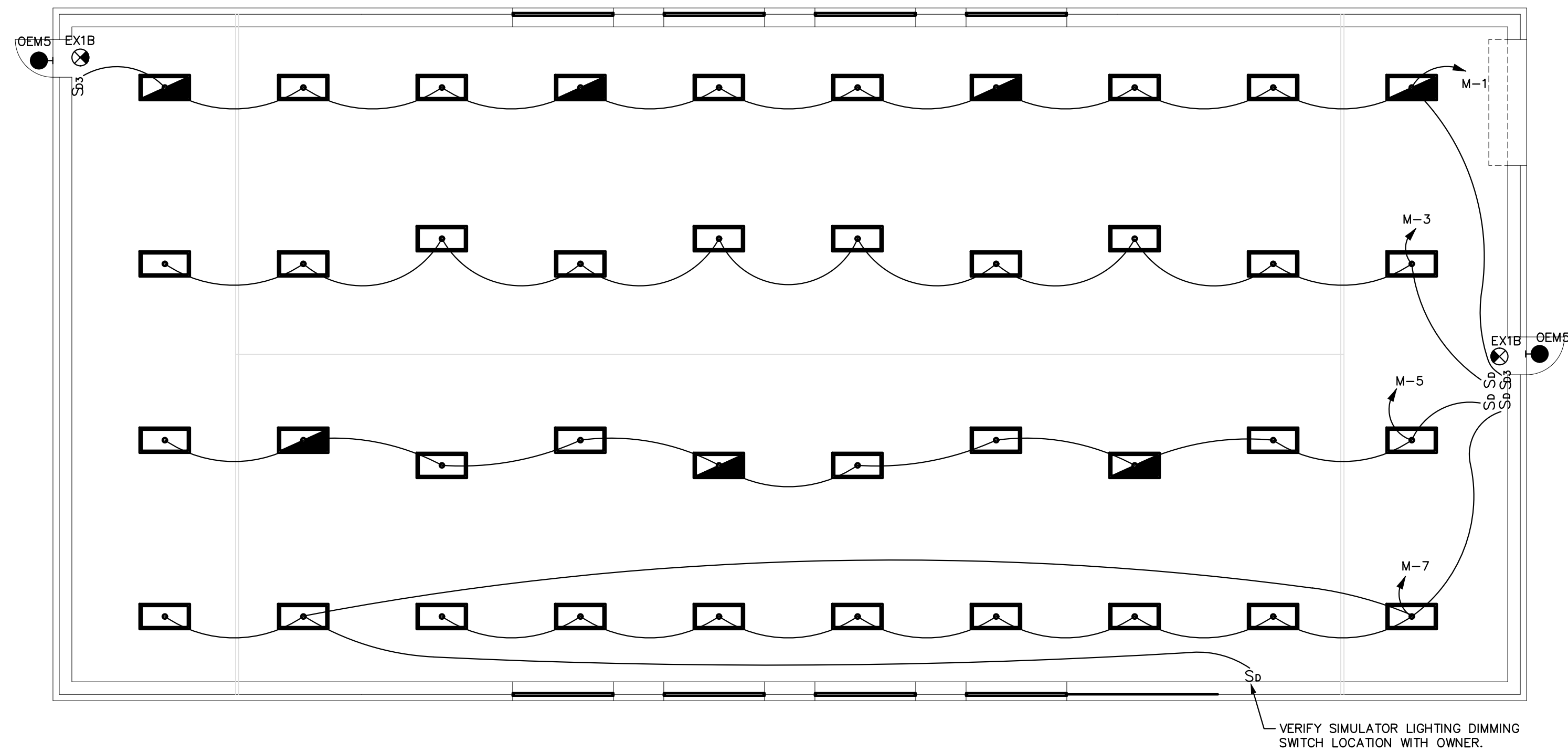
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01/29/18



- GENERAL NOTES:
- E.C. IS TO COORDINATE LIGHTING WITH M.C. PRIOR TO WORK BEGINNING.
 - ALL 2'x4' FIXTURES SHOWN ARE TYPE HBL2 UNLESS OTHERWISE NOTED. PROVIDE BATTERY BACKUP ON HALF SHADED FIXTURES.
 - PROVIDE WIREGUARDS ON ALL INTERIOR LIGHT FIXTURES.

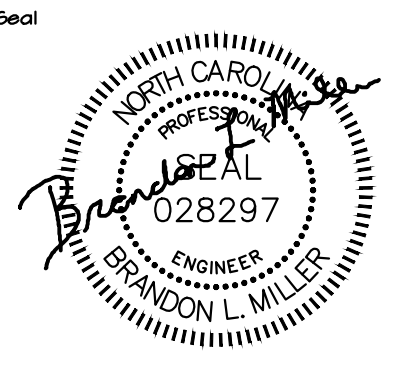
1 FLOOR PLAN - LIGHTING
1/8" = 1'-0"

LIGHT FIXTURE SCHEDULE									
TYPE	DESCRIPTION	LAMP	# OF LAMPS	TOTAL FIXTURE WATTAGE	BALLAST/DRIVER	VOLTAGE	MANUFACTURER	MODEL	REMARKS
HBL2	LENSED FLAT LED HIGH BAY	LED	LED	150W	INTEGRAL LED DRIVER	UNIV	LITHONIA COLUMBIA CORONET COOPER	1BH 18000LM SD080 MD MVOLT OZ10 50K 90 CRI EQUAL EQUAL EQUAL	18,000 LUMENS;5000K, WIREGUARD MOUNT WITH THREADED ROD OR OTHER RIGID TYPE MOUNT. CABLE IS NOT ACCEPTABLE. 90 MIN BATTERY PACK WHERE SHOWN ON PLANS, ACRYLIC LENS
EX1B	BATTERY THERMOPLASTIC EXIT SIGN	LED	LED	1W	INTEGRAL LED DRIVER	UNIV	LITHONIA HUBBELL JUNO COOPER PHILIPS	QUANTUM LQM 5 W R 120/277 EL N DUAL LITE LX U R W E NAVILITE NXPBA R WH SURE-LITES LPX 7 CHLORIDE VE	NICKEL CADMIUM BATTERY EXIT SIGN 90 MINUTE OPERATION;RED TEST SWITCH PROVIDED UL LISTED FOR DAMP LOCATIONS
OEM5	EMERGENCY WALLPACK	6W XENON/LED	2	12W	ELECTRONIC	UNIV	LITHONIA EMERGI-LITE JUNO COOPER CHLORIDE	AFN EXT LUX SD NAVILITE N5 SERIES SURE LITES AEL2 SERIES SV16 SERIES	90 MINUTE NI CAD BATTERY UL LISTED FOR COLD, WET LOCATIONS WIDE THROW

LIGHTING FIXTURE SCHEDULE NOTES:

- LAMPS ARE BASED ON OSRAM/SYLVANIA UNLESS OTHERWISE NOTED. ALL FLUORESCENT LAMPS/DIODES SHALL BE 3500K UNLESS OTHERWISE SPECIFIED. ALL FLUORESCENT BALLASTS SHALL BE ELECTRONIC AS SPECIFIED. SUBMITTAL SHEETS SHALL BE SUBMITTED WITH FIXTURE SUBMITTALS. FLUORESCENT LAMP AND BALLAST OR DRIVER/DIODE BOARD WARRANTY SHALL BE COMPLETED BY CONTRACTOR AND TURNED OVER TO OWNER AT END OF PROJECT.
- LED DRIVERS SHALL BE PROVIDED FROM PER MANUFACTURER RECOMMENDATION. AS PART OF THIS RECOMMENDATION COORDINATE THE REQUIRED WAVE OUTPUT SO THEY ARE COMPATIBLE. THIS INCLUDES EMERGENCY DRIVERS.
- ALL INCANDESCENT LIGHT FIXTURES SHALL HAVE A U.L. LABEL INDICATING THAT THE LAMP WATTAGE SPECIFIED ABOVE IS THE MAXIMUM ALLOWABLE IN FIXTURE.
- ALL 3 AND 4 LAMP ELECTRONIC BALLASTS SHALL HAVE INBOARD/OUTBOARD SWITCHING AS INDICATED ON THE DRAWINGS. TANDEM FIXTURES ARE ALLOWED TO FACILITATE INBOARD/OUTBOARD SWITCHING.
- SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT FIXTURE LOCATIONS.
- ALIGN ALL HORIZONTAL FLUORESCENT DOWNLIGHTS SO THAT THE COMPACT FLUORESCENT LAMPS ARE ALIGNED IN THE SAME DIRECTION.
- FIXTURES SHALL BE FIRE RATED.
- ALL METAL HALIDE LAMPS SHALL HAVE A CRI OF NOT LESS THAN 70.
- ALL ELECTRONIC BALLASTS FOR T5 (5/8" DIAMETER) LAMPS AND BELOW SHALL HAVE END OF LIFE SHUTDOWN PROTECTION.
- PROVIDE LOW-TEMP (0 degrees F MINIMUM) BALLAST(S)/DRIVER(S) FOR ALL FIXTURES INSTALLED IN EXTERIOR LOCATIONS OR OTHER AREAS SUBJECT TO COLD WEATHER.
- SUSPEND ALL FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
- FIXTURES WITH EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH 1100 LUMEN INVERTERS.
- PROVIDE INTEGRAL SURGE PROTECTION ON ALL EXTERIOR LED DRIVER FIXTURE TYPES.
- DIMMING OF FIXTURES SHALL BE WITH A SWITCH AS RECOMMENDED BY THE BALLAST/DRIVER MANUFACTURER.
- FLUORESCENT LUMINAIRES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN A PLACE SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LUMINAIRE PER NEC 410.130.G
- ALL METAL HALIDE LAMPS AND BALLASTS SHALL MEET OR EXCEED THE ENERGY INDEPENDENCE AND SECURITY ACT 2007 (EISA) REQUIREMENTS.
- THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
- DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
- NO SUBSTITUTIONS WILL BE ALLOWED DUE TO LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
- ALL EXPEDITED EXPENSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- FIXTURES TO BE INSTALLED IN CEILINGS, INDICATED ON ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH CEILING SURFACE, SHALL BE IC RATED BY MANUFACTURER.
- BALLAST BY ADVANCE, GE OR UNIVERSAL TRIAD ARE ACCEPTABLE FOR SUBMISSION PROVIDED THEY MEET INTENDED CRITERIA AS LISTED IN THIS SCHEDULE.
- LED DRIVERS LOCATED IN UNCONDITIONED SPACES SHALL BE RATED FOR 90 DEGREES F.
- PROVIDE 90 MINUTE EMERGENCY BATTERY BACK UP. EMERGENCY BACK UP SHALL BE BASED ON TYPE OF FIXTURE, LED DRIVER, BALLAST, ETC. EMERGENCY BACKUP SHALL BE LOCAL CIRCUIT UNLESS OTHERWISE INDICATED ON PLANS. PROVIDE WITH INDICATOR LIGHT. INSTALL LED INDICATOR ON LIGHT FIXTURE UNLESS DECORATIVE. DECORATIVE FIXTURES SHALL HAVE INDICATOR PLACED AT LOCAL CEILING. BODINE, PHILIPS, POWER SENTRY OR EQUAL.
- PROVIDE EMERGENCY RELAY BASED ON MINIMUM GTD20A OR EQUAL. INDIVIDUAL FIXTURES MAY UTILIZE GTD (NON 20A.) SEE PLANS FOR INTENT. PROVIDE EMERGENCY GENERATOR/INVERTER CIRCUIT AND SWITCH LEG NORMAL CIRCUIT. SEE DETAIL.
- POLES PROVIDED FOR LED FIXTURES SHALL BE METAL, REGARDLESS OF SPECIFICATION FOR GROUNDING PURPOSES.





01/29/18

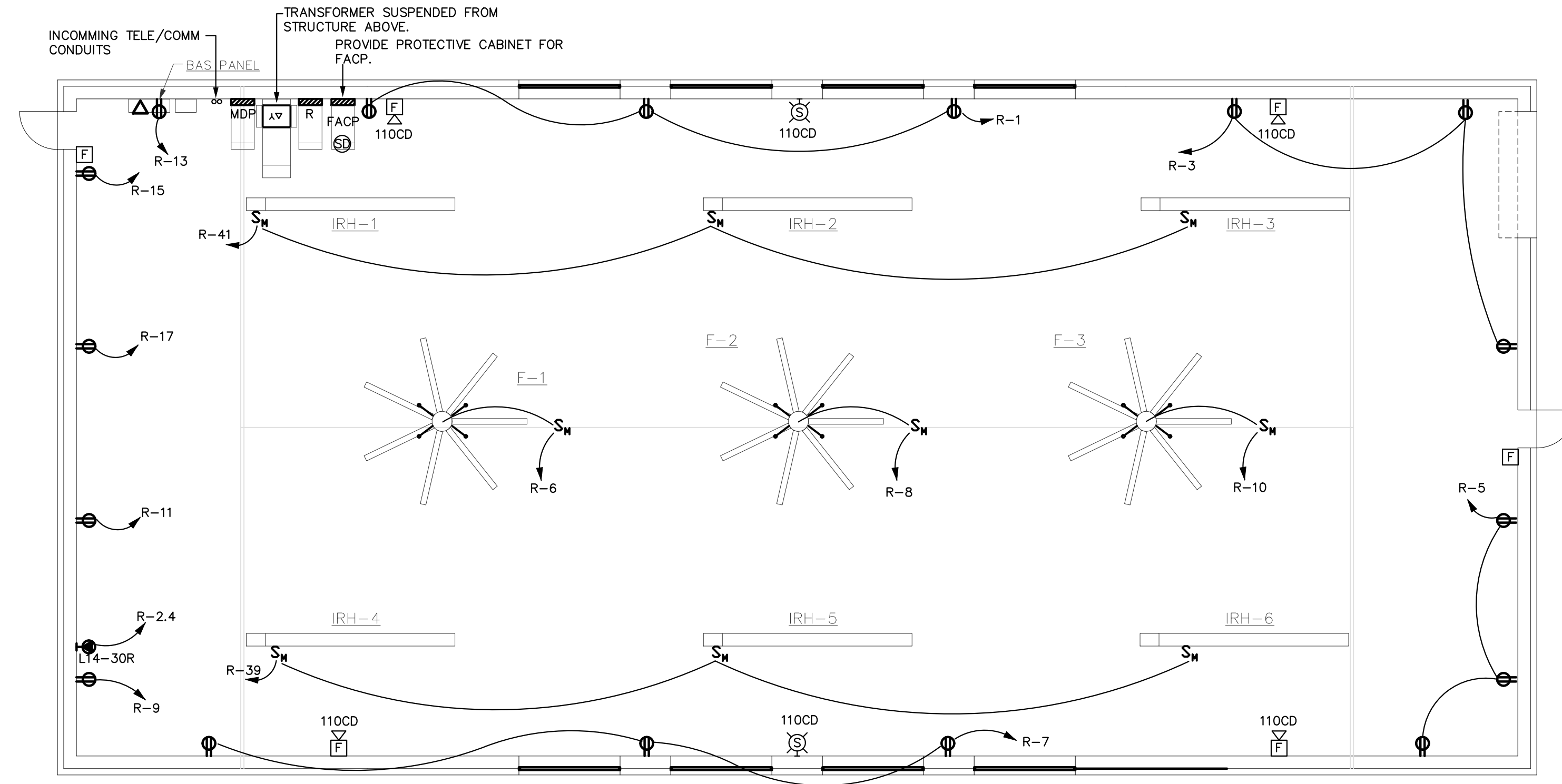
CONSTRUCTION
Documents

UNC
CHARLOTTE
BASEBALL
TRAINING
FACILITY

8711 PHILLIPS ROAD
CHARLOTTE, NC 28223

FAN SCHEDULE				
SYMBOL	ELECTRICAL DATA			DISCONNECT
	VFD	H.P.	VOLTAGE	
F-1	--	1.0	120/1/60	MOTOR RATED TOGGLE SWITCH
F-2	--	1.0	120/1/60	MOTOR RATED TOGGLE SWITCH
F-3	--	1.0	120/1/60	MOTOR RATED TOGGLE SWITCH

INFRARED RADIANT HEATER SCHEDULE				
SYMBOL	ELECTRICAL DATA			DISCONNECT
	ELA	VOLTAGE		
IRH-1	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-2	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-3	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-4	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-5	2.6	120V-1		MOTOR RATED TOGGLE SWITCH
IRH-6	2.6	120V-1		MOTOR RATED TOGGLE SWITCH



GENERAL NOTES:
1. ALL FIRE ALARM DEVICES ARE TO HAVE WIRE GUARDS.
2. RECEPTACLES ARE TO HAVE METAL FLIP-UP IN-USE COVERS
COORDINATE TYPE WITH OWNER PRIOR TO ORDERING.

1 FLOOR PLAN - POWER
1/8" = 1'-0"

PROJECT MANAGER:	
JEFF SHERER, NCARB	
DRAWN BY:	
BLM	
REVISIONS	
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____

Issue Date: 01/29/2018

FLOOR PLAN -
POWER

Code: 41626 Item: 309

Sheet Number:

E3.1



EQUIVALENT MANUFACTURERS LISTING

LISTING OF MANUFACTURER'S NAME DOES NOT GUARANTEE APPROVAL. ALL EQUIPMENT MUST MEET OR EXCEED QUALITY AND CAPACITIES OF SPECIFIED EQUIPMENT. FINAL APPROVAL WILL BE BASED ON EQUIPMENT SUBMITTALS. ANY MANUFACTURER NOT LISTED BUT WISHING TO BID THIS PROJECT SHALL SUBMIT A WRITTEN REQUEST A MINIMUM OF 14 DAYS PRIOR TO BID DATE OR AS INDICATED IN THE SPECIFICATIONS. PRIOR APPROVAL IS REQUIRED FOR ALL MANUFACTURERS NOT LISTED. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

FANS: MACRO-AIR, KELLEY, PATTERSON

DDC CONTROLS: ALC, SCHNEIDER, ALERTON, HOFFMAN BUILDING TECH, ECS, PLATINUM BLDG SOL.

RADIANT HEATERS: SPACE RAY, RE-VERBER-RAY, ROBERTS GORDON, SCHWANK

NOTE:

ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

2012 NORTH CAROLINA ENERGY CONSERVATION CODE COMMERCIAL ENERGY EFFICIENCY - MECHANICAL SUMMARY

501.1 METHOD OF COMPLIANCE NC SPECIFIC COMCHECK PROVIDED
 2012 NCECC CHAPTER 5 24% IMPROVEMENT OVER ASHRAE 90.1-2007

501.2 APPLICATION COMPLIANCE
 506.2.1 EFFICIENT MECH EQUIPMENT 506.2.4 HI EFFICIENCY DOMESTIC HW
 506.2.2 REDUCED LTG DENSITY 506.2.5 ONSITE RENEWABLE ENERGY
 506.2.3 ENERGY RECOVERY SYSTEMS 506.2.6 DAYLIGHTING CONTROLS

501.1 CLIMATE ZONE 3A - MECKLENBURG COUNTY, NORTH CAROLINA

DESIGN CONDITIONS

EXTERIOR (ASHRAE 90.1-2010 TABLE D-1)

WINTER DRY BULB 21.6° F.
 SUMMER DRY BULB 94.2° F.
 SUMMER WET BULB 74.7° F.

INTERIOR (2012 NCECC SECTION 302.1)

WINTER DRY BULB 65° F.
 SUMMER DRY BULB ---° F.
 *PROVIDE 5" DEADBAND PER 503.2.4.2

503.2 HEATING & COOLING LOADS AND EQUIPMENT & SYSTEM SIZING

BUILDING HEATING LOAD 185 MBH
 BUILDING COOLING LOAD N/A
 INSTALLED HEATING CAPACITY REFER TO SCHEDULES
 INSTALLED COOLING CAPACITY N/A

503.2.3 & 506.2.1 - REQUIRED & INCREASED HVAC EQUIPMENT PERFORMANCE
 SYSTEM DESCRIPTION - FANS AND INFRARED HEATERS

MINIMUM HVAC EQUIPMENT EFFICIENCY COMPLIANCE - TABLE 503.2.3
 INCREASED HVAC EQUIPMENT EFFICIENCY COMPLIANCE - TABLE 506.2.1

503.2.4 THRU 503.2.9

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

503.2.10 - AIR SYSTEM DESIGN AND CONTROL

ALL FANS INSTALLED ON THE PROJECT ARE BELOW 5 HP AND ARE EXEMPT FROM THESE REQUIREMENTS.

FANS ABOVE 5 HP MEET THE CFM LIMITATIONS SHOWN BELOW:

OPTION 1 - FAN SYSTEM MOTOR NAMEPLATE HP - TABLE 503.2.10.1(1)

SYSTEM/UNIT	ALLOWABLE MOTOR BRAKE HP	DESIGN MOTOR BRAKE HP	DESIGN CFM

503.3 - SIMPLE HVAC SYSTEMS AND EQUIPMENT (PRESCRIPTIVE)

PROJECT CONSISTS OF ONLY DX SINGLE ZONE SYSTEMS FULLY COMPLIANT WITH THE SIMPLE PRESCRIPTIVE REQUIREMENTS OF 503.3.

503.4 - COMPLEX HVAC SYSTEMS AND EQUIPMENT (PRESCRIPTIVE)

PROJECT CONSISTS OF HVAC SYSTEMS FULLY COMPLIANT WITH THE COMPLEX PRESCRIPTIVE REQUIREMENTS OF 503.4.

ELECTRICAL/MECHANICAL DEMARCATION

REFER TO DETAIL 01/M-0.2 FOR MECHANICAL CONTRACTOR'S RESPONSIBILITIES RELATED TO ELECTRICAL DISCONNECTS, STARTERS AND WIRING OF MECHANICAL EQUIPMENT. ALL DISCONNECTS, STARTERS AND WIRING (LOAD SIDE OF DISCONNECTS) SHALL BE FURNISHED AND INSTALLED BY M.C. UNLESS OTHERWISE NOTED IN DETAIL 01/M-0.2. COORDINATE ALL ELECTRICAL REQUIREMENTS WITH E.C. PRIOR TO ASSEMBLING SHOP DRAWING SUBMITTALS OR ORDERING EQUIPMENT.

MECHANICAL GENERAL NOTES

- DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
- ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THIS INCLUDES ANY MODIFICATIONS TO ANY ASSOCIATED MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS REQUIRED BY THIS SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ALL PIPING, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF MANNER.
- ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
- PROVIDE A ONE YEAR WARRANTY FOR ALL WORK PERFORMED BEGINNING ON THE DAY THE SYSTEM IS COMPLETELY OPERATIONAL AND ACCEPTABLE BY THE SCO/OWNER.
- PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE AND FILTER REMOVAL.
- ANY DEVICE REQUIRING A THERMOSTAT FOR CONTROL SHALL BE FURNISHED WITH A THERMOSTAT WHETHER INDICATED ON THE DRAWINGS OR NOT.
- INSTALL THE TOP OF ALL THERMOSTATS, SENSORS, AND SWITCHES AT 4'-0" (MAXIMUM) ABOVE FINISH FLOOR. COORDINATE EXACT THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLATION. ANY DEVICE ON A PERIMETER WALL SHALL BE MOUNTED ON A FOAM-FILLED ELECTRICAL BOX, WITH ALL GAPS BETWEEN BOX AND WALL SEALED TO PREVENT INFILTRATION.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION.
- CONTRACTOR SHALL LOCATE EXHAUST FANS, OUTLETS, AND GAS FLUES A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.
- MINIMUM GAS PIPING SIZE SHALL BE ¾".
- GAS PIPING AND FITTINGS SHALL BE BLACK STEEL, SCHEDULE 40, IN ACCORDANCE WITH ASTM SPECIFICATION A 106, WITH 150 PSI BLACK MALLEABLE IRON FITTINGS IN ACCORDANCE WITH ASTM SPECIFICATION A 47, GRADE 32510, AND ASA SPECIFICATION B16.3, 125 LB.
- GAS PIPING SHALL BE INSTALLED TO THE REQUIREMENTS OF THE STATE BUILDING CODE AND NFPA STANDARD NO. 54. ALL PIPING TO BE SUPPORTED BY CLEVIS HANGERS WITH GALVANIZED ROD A MAXIMUM OF 8' ON CENTER. PIPING SHALL BE SUPPORTED BY ROD HANGERS IN THE PIPE RUN 12" OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE PER THE STATE BUILDING CODE AND ASCE 7.
- GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN NFPA NO 54. ANY OTHER TEST AS REQUIRED BY THE LOCAL GAS INSPECTION DEPARTMENT OR GAS COMPANY SHALL ALSO BE PERFORMED.
- NATURAL GAS PIPING AND FITTINGS ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPING, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND 150 PSI MALLEABLE BLACK IRON FITTINGS, GRADE 32510, (ASTM B 16.3) OR FORGED STEEL WELDING TYPE FITTINGS (ASTM A234). PROVIDE THREADED JOINTS FOR PIPE 2" AND SMALLER. PROVIDE WELDED JOINTS (ASME B31.9) FOR PIPE 2½" AND LARGER.
- SPACE GAS PIPING HANGER RODS 8'-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 20'-0" ON CENTER MAXIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE PIPE SECTION CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW OR TEE. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.
- PROVIDE A.G.A. CERTIFIED SHUT-OFF VALVES MINIMUM, 125 PSI RATED, NON-LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRONZE PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.
- PAINT ALL GAS PIPING WITH 2 COATS OF YELLOW ENAMEL PAINT APPLIED WITH A BRUSH (2 MIL THICKNESS MINIMUM). PROVIDE PRE-PRINTED LABELS WITH BLACK LETTERING INDICATING THE GAS PRESSURE AND THE WORD "GAS" ON THE PIPE AT 5'-0" CENTERS FOR ALL GAS PIPING.
- PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
- ALL CONTROL WIRING SHALL BE IN CONDUIT

MECHANICAL DRAWING INDEX

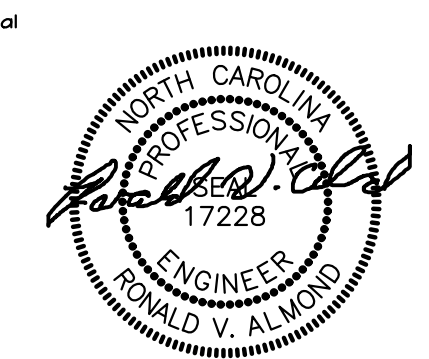
- M0.1 MECHANICAL LEGEND, NOTES, AND SCHEDULES
 M0.2 MECHANICAL SCHEDULES AND DETAILS
 M0.3 MECHANICAL POINTS LIST AND SEQUENCE
 M1.1 MECHANICAL FIRST FLOOR PLAN

MECHANICAL LEGEND

SYMBOL	DESCRIPTION	ABBR.
— G —	NATURAL GAS	G
— X —	GAS COCK	
— R —	PRESSURE REDUCING/REGULATING VALVE	
— S —	SOLENOID VALVE	
⊕ ⊙ CO2	THERMOSTAT / COMBO TSTAT/CO2 SENSOR (4'-0" AFF TO TOP)	
⊕	HUMIDISTAT (4'-0" AFF TO TOP)	
⊙	SWITCH (4'-0" AFF TO TOP)	
⊕	WALL MOUNTED BUILDING PRESSURE SENSOR	
⊕	MOTORIZED DAMPER	
⊕	BACKDRAFT DAMPER	
⊕	CARBON MONOXIDE SENSOR	
⊕	CARBON DIOXIDE SENSOR	
⊕	UNDERCUT DOOR	
M.C.	MECHANICAL CONTRACTOR	
E.C.	ELECTRICAL CONTRACTOR	
P.C.	PLUMBING CONTRACTOR	
N.I.C.	NOT IN CONTRACT	
AFF	ABOVE FINISHED FLOOR	
DN	DOWN	
UP	UP	

Architecture
 Unlimited,
 PLLC

2700 RONDEAU COURT
 MATTHEWS, NC 28105
 704-451-7436



01/29/18

CONSTRUCTION
 Documents

UNC
 CHARLOTTE
 BASEBALL
 TRAINING
 FACILITY

8711 PHILLIPS ROAD
 CHARLOTTE, NC 28223

PROJECT MANAGER:
 JEFF SHERER, NCARB

DRAWN BY:
 CAH

REVISIONS

No.	Date

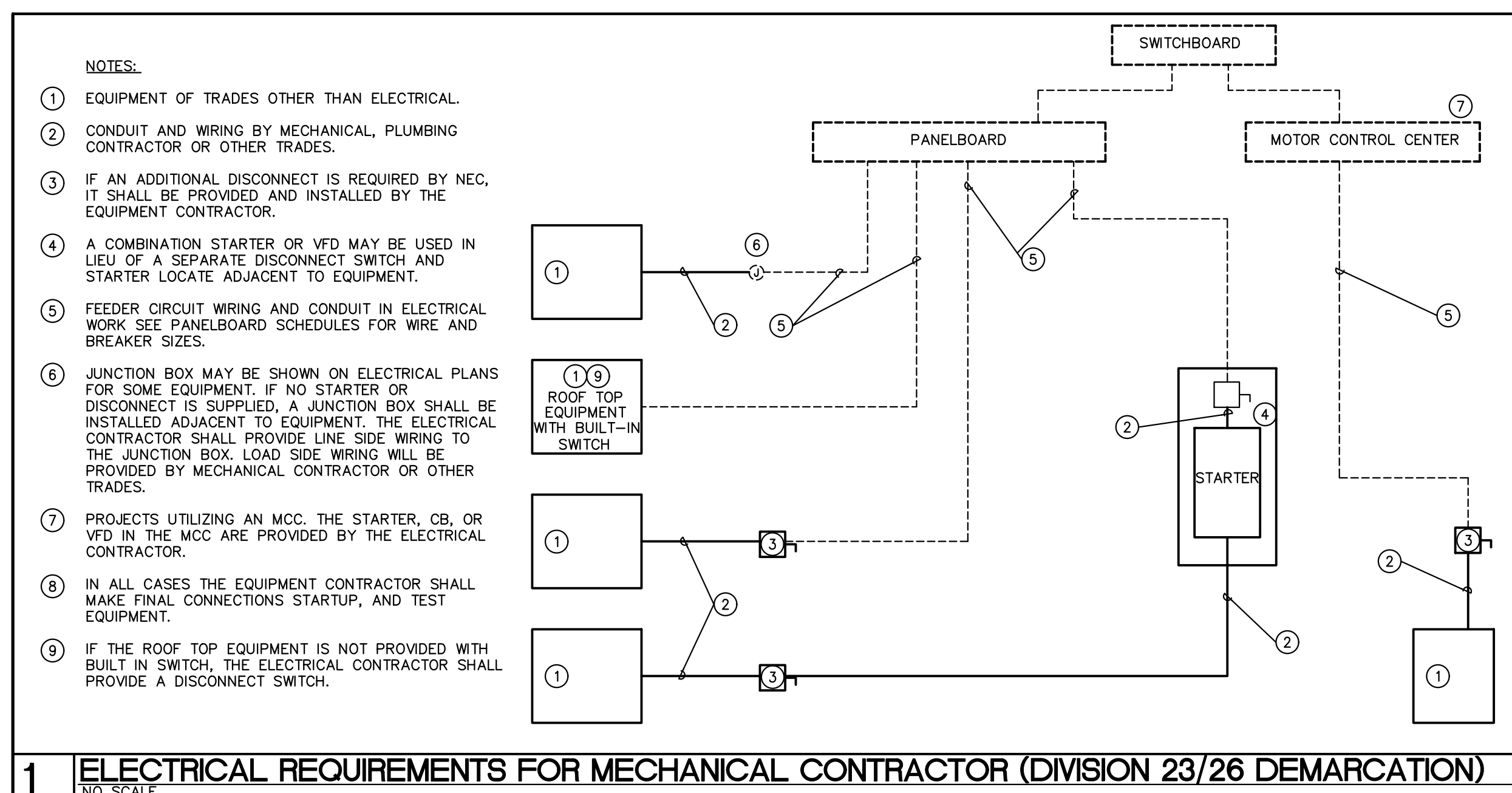
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MECHANICAL
 LEGEND, NOTES
 AND SCHEDULES

Code: 41626 Item: 309

Sheet Number:

M0.1



FAN SCHEDULE

SYMBOL	SERVICE/LOCATION	TYPE	CFM	APPROX. S.P.	DRIVE	FAN RPM	ELECTRICAL DATA			MANUFACTURER GREENHECK	ACCESSORIES	CONTROLS
							VFD	H.P.	VOLTAGE			
F-1	---	VENTILATION	---	---	DIRECT	110	---	1.0	120/1/60	MACRO AIR-14-AVD550	A,U,V,G	4
F-2	---	VENTILATION	---	---	DIRECT	110	---	1.0	120/1/60	MACRO AIR-14-AVD550	A,U,V,G	4
F-3	---	VENTILATION	---	---	DIRECT	110	---	1.0	120/1/60	MACRO AIR-14-AVD550	A,U,V,G	4

ACCESSORIES

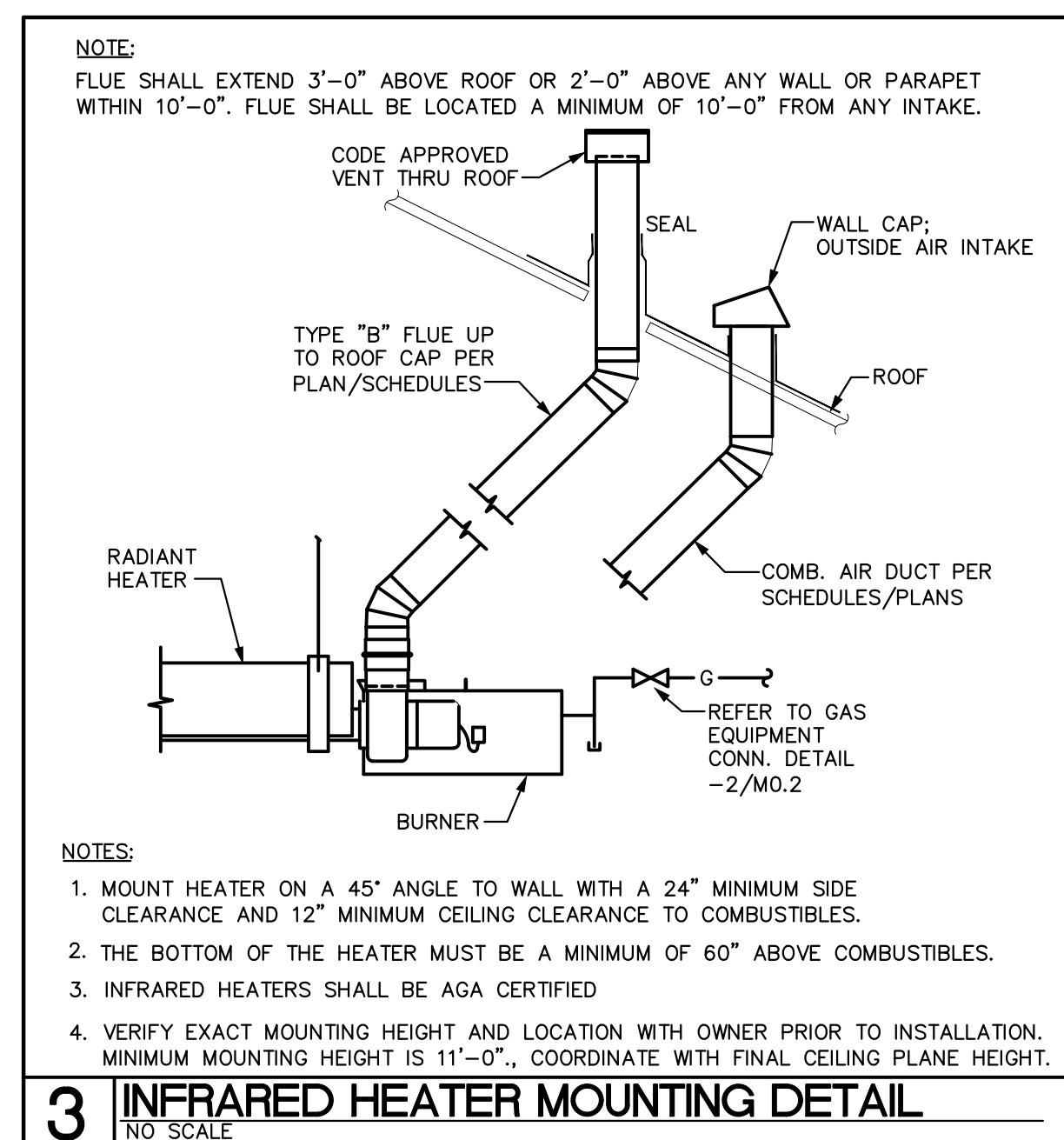
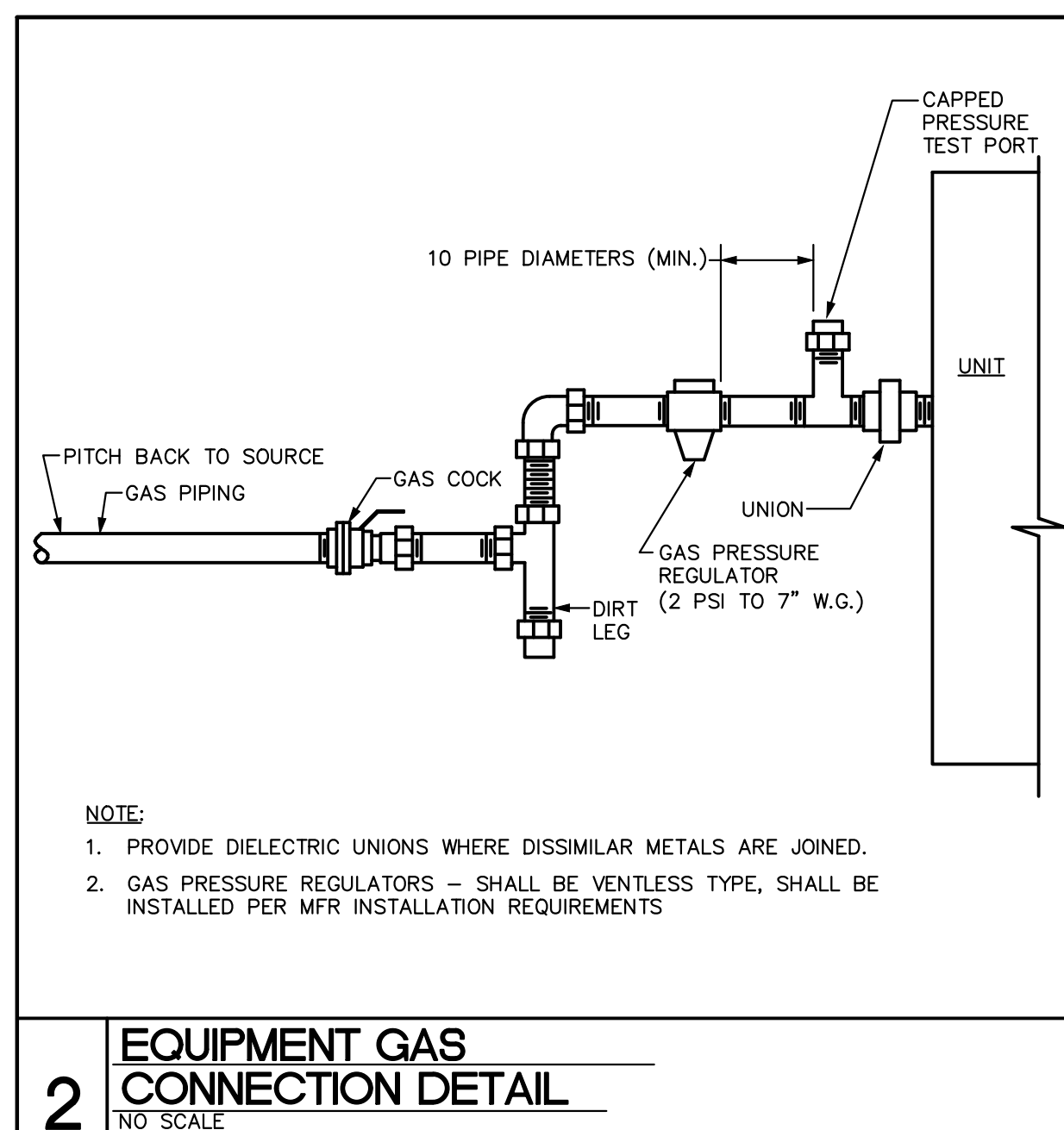
A: DISCONNECT SWITCH	D: HANGING BRACKETS WITH VIBRATION ISOLATION	G: MAGNETIC STARTER WITH AUXILIARY CONTACTS	J: GREASE TRAP
B: BACKDRAFT DAMPER	E: BELT GUARD	H: PREFAB. ROOF CURB	K: INLET GUARD
C: ACOUSTICAL LINING	F: EXTENDED LUBE LINES	I: BIRDSCREEN	M: UL LISTED FOR GREASE
			U: PROVIDE GUY WIRES PER MFR INSTALLATION REQUIREMENTS
			V: CEILING MOUNTING BRACKET

CONTROLS

1: CONTROLLED BY BUILDING AUTOMATION SYSTEM	4: REMOTE MOUNTED WIRED WALL ANALOG CONTROL WITH VARIABLE SPEED (NOTE: PROVIDE CONDUIT AND JUNCTION BOXES FOR FAN CONTROLS)
2: ROOM THERMOSTAT	
3: INTERLOCK WITH ASSOCIATED KITCHEN HOOD	

NOTES:

- ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW. ALL FANS INSTALLED INSIDE, ABOVE, OR ADJACENT TO OCCUPIED SPACES SHALL HAVE A MAXIMUM 9.0 INLET SONE LEVEL.
- ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
- MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
- INSTALL INLINE FANS TIGHT TO BOTTOM OF STRUCTURE.
- ALL FANS SHALL BE INTEGRATED INTO NEW BAS TO MONITOR FAN STATUS.
- PROVIDE ALL DIRECT DRIVE FANS WITH SPEED CONTROLLERS.
- F-1-3; WEIGHT 175LBS, MCA-13.9A, MOCP-15A
- ALL ELECTRICAL COMPONENTS SERVING ALL FANS SHALL HAVE A MINIMUM SCRR RATING OF 65 KAIC.
- PROVIDE FIRE ALARM INTERLOCK WITH F-1-3, FOR SHUTDOWN UPON ACTIVATION OF FIRE ALARM SYSTEM



INFRARED RADIANT HEATER SCHEDULE

SYMBOL	GAS INPUT (MBH)	MOUNTING ANGLE	TUBE LENGTH	FLUE SIZE	ELECTRICAL DATA		MANUFACTURER SPACE RAY MODEL	NOTES
					FLA	VOLTAGE		
IRH-1	40	45°	20'	4"	2.6	120V-1	LTS-40	
IRH-2	40	45°	20'	4"	2.6	120V-1	LTS-40	
IRH-3	40	45°	20'	4"	2.6	120V-1	LTS-40	
IRH-4	40	45°	20'	4"	2.6	120V-1	LTS-40	
IRH-5	40	45°	20'	4"	2.6	120V-1	LTS-40	
IRH-6	40	45°	20'	4"	2.6	120V-1	LTS-40	

NOTES:

- INFRARED HEATERS SHALL BE AGA CERTIFIED
- UNITS SHALL BE SUPPLIED WITH: GLO-BAR OR OTHER NON-PILOT IGNITION, 120V CONTROLS.
- PROVIDE THERMOSTAT FOR EACH UNIT.
- PROVIDE 6" DUCT CONNECTION FOR COMBUSTION AIR
- COORDINATE MOUNTING HEIGHT WITH ADJACENT UTILITIES AND LIGHTS (MIN. 11' PER MFR) - MOUNT AS HIGH AS POSSIBLE.
- PROVIDE 2 STAGE MODULATING GAS VALVE CONTROLS
- PROVIDE UNIT WITH FUSED DISCONNECT

ALL O.A. IS PROVIDED BY NATURAL VENTILATION:
GYM (BASED ON 2012 NCMC 402.2):
5900 SQ. FT. X 4% = 236 SQ. FT. REQUIRED
ROLL UP DOORS (8) X 8'W X 10'H = 640 SQ. FT.
640 SQ. FT. PROVIDED

PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
CAM

REVISIONS

No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____

Issue Date: 01/29/2018

MECHANICAL
SCHEDULES AND
DETAILS

Code: 41626 Item: 309

Sheet Number:

MO.2

Seal



01/29/18

Issue Date: 01/29/2018

Code: 41626 Item: 309

Sheet Number:

SEQUENCE OF OPERATION

A COMPLETE AND OPERATIONAL DDC CONTROL SYSTEM (BAS) SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS INTENDED ON THESE PLANS.

NOTE: NEW BAS SHALL BE INTEGRATED WITH THE OWNER'S EXISTING CAMPUS BAS SYSTEM. BAS CONTRACTOR SHALL INCLUDE ALL NECESSARY HARDWARE AND SOFTWARE TO FULLY INTEGRATE NEW SYSTEM WITH THE EXISTING SYSTEM. MECHANICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT COMMUNICATION REQUIREMENTS WITH CONTROLS VENDOR PRIOR TO ORDERING EQUIPMENT.

UNIT HEATERS

A SPACE TEMPERATURE SENSOR SHALL CONTROL UNIT TO MAINTAIN SPACE TEMPERATURE, 65° F. (ADJ.). AS SPACE TEMPERATURE FALLS BELOW SETPOINT, THE UNIT SHALL BE STARTED AND THE GAS VALVE SHALL OPEN TO THE UNIT TO SATISFY SETPOINT.

MISC. EXHAUST FANS

PROVIDE WALL SWITCHES, WALL THERMOSTATS, INTERLOCKS, ETC. AS INDICATED ON THE FAN SCHEDULE TO CONTROL FANS AS INDICATED ON PLANS.

SHUT DOWN F-1,2,3 FANS UPON RECEIPT OF ALARM FROM FIRE ALARM SYSTEM

UTILITY MONITORING:

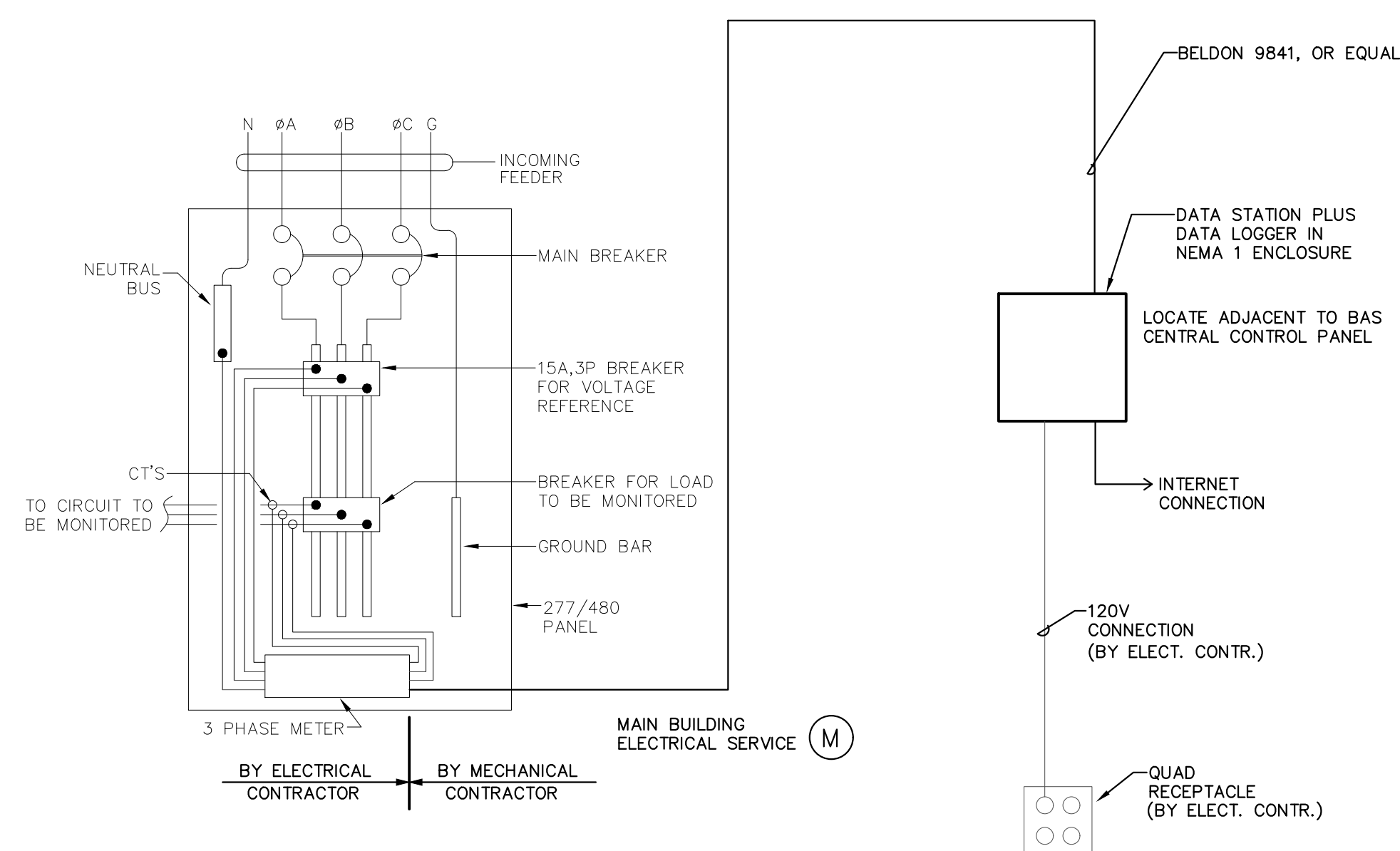
THE INTENT OF THE SYSTEM IS TO CONSTANTLY MEASURE THE NOTED UTILITIES. THE CONTROLS CONTRACTOR (SYSTEM INTEGRATOR) WILL PROVIDE THE DATA LOGGING DEVICES AS REQUIRED TO MONITOR THE BUILDING UTILITIES FOR THIS PROJECT.

UTILITY MONITORING NOTES:

- ELECTRICAL CIRCUITS AND CT'S FOR MONITORING POWER SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE AND INSTALL 3-PHASE AND MULTI-CIRCUIT METERS.
- THE CONTROLS CONTRACTOR (SYSTEM INTEGRATOR) SHALL COORDINATE COMMUNICATION PROTOCOL REQUIREMENTS FOR ALL METERS AND MONITORING DEVICES WITH ALL OTHER DIVISIONS TO ENSURE SYSTEM COMPATIBILITY.
- DATA LOGGER SHALL BE EQUAL TO TRIDIUM JACE

CONTROL SYSTEM NOTES

- PROVIDE ALL CONTROL PANELS WITH 3RD PARTY U.L. LISTING
- THE SEQUENCE OF OPERATION AND POINTS LIST IS INTENDED TO COMMUNICATE THE MINIMUM REQUIREMENTS AND GENERAL DESIGN INTENT TO THE CONTROLS CONTRACTOR AND IS NOT INTENDED TO BE A FULLY DEVELOPED OR COMPLETE SEQUENCE OF OPERATION. IN THE CONTROLS SUBMITTAL THE CONTROLS CONTRACTOR SHALL FULLY DEVELOP THE SEQUENCE OF OPERATIONS FOR ALL SYSTEMS IDENTIFIED AND SHALL PRESENT ALL SETPOINTS, CONTROL PARAMETERS, TIME DELAYS, ALARM POINTS, ETC. AS REQUIRED TO COMPLY WITH THE DESIGN INTENT. THE CONTROLS CONTRACTOR SHALL INCORPORATE STANDARD FEATURES SUCH AS MINIMUM RUN TIME DELAYS AND DEAD BANDS TO PREVENT SHORT CYCLING. ALL MONITORED POINTS SHALL INCLUDE EARLY HIGH/LOW ALARM NOTIFICATIONS PRIOR TO REQUIRED CORRECTIVE ACTIONS OR UNIT SHUT-DOWNS. CONTROL CONTRACTOR SHALL SPECIFY IN THE CONTROL SUBMITTAL FAIL SAFE POSITION FOR OUT OF RANGE, FAIL SAFE POSITIONING FOR OPEN CIRCUITS OR LOSS OF COMMUNICATION.
- ALL CONTROL SETPOINTS SHALL BE ADJUSTABLE AND TRENDABLE. INDICATED TEMPERATURE SETPOINTS SHOULD BE USED FOR ORIGINAL SYSTEM SET-UP. ANY CHANGES IN SETPOINT SETTINGS REQUIRED FOR INTENDED SYSTEM OPERATION SHALL BE NOTED ON AS-BUILT CONTROL DRAWINGS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE DEDICATED 120V CIRCUIT(S) IN A J-BOX FOR CONTROL POWER. CONTROLS CONTRACTOR SHALL EXTEND 120V POWER FROM J-BOX TO CONTROL PANELS, DAMPER ACTUATORS, TRANSFORMERS, ETC. AS REQUIRED FOR OPERATION OF CONTROL SYSTEM.
- LOCATE MAIN DDC CONTROL PANEL(S) AS NOTED ON FLOOR PLANS. COORDINATE EXACT LOCATION PANEL WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
- PROVIDE EXPORT TAGGING AND CONTROLS PROGRAMMING AS REQUIRED TO FULLY INTEGRATE WITH THE UNIVERSITY BAS SERVER PLATFORM TO SIMPLY IMPORTING TO EXISTING ALC PLATFORM, POINTS LIST, AND GRAPHIC CONTROL SCREENS. TAGGING REQUIRED ON ALL PROJECTS. POINTS SHALL BE TAGGED APPROPRIATELY WITH HAYSTACK, NIAGARA, AND UNCC TAG LIBRARIES. EQUIPMENT SHALL BE TAGGED WITH THE SAME NAME AS ON THE DRAWINGS



NOTE:
THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR TO ENSURE THAT ALL METERING/MONITORING DEVICES HAVE THE PROPER COMMUNICATION PROTOCOL (BACNET MSTP) FOR FULL INTEGRATION WITH THE UTILITY MONITORING SYSTEM

1 **UTILITY MONITORING DETAIL**
NOT TO SCALE

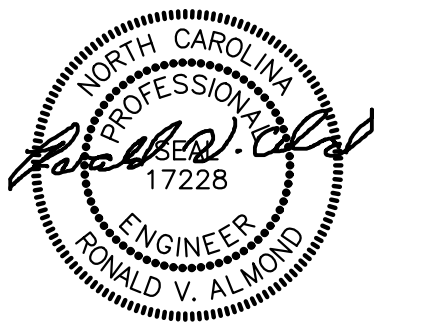
INPUT/OUTPUT SUMMARY

SYSTEM, APPARATUS, OR AREA POINT DESCRIPTION	INPUTS						OUTPUTS			SYSTEM FEATURES				GENERAL	SUPPLEMENTAL NOTES	
	ANALOG			BINARY	DIGITAL	ANALOG	ALARMS	PROGRAMS		GENERAL						
	MEASURED	CALC.						SCHEDULING	LIMITING							
Heaters																
Gas Heaters	X					X			X		X					X
Misc. Points																
Fire Alarm Status			X							X						FACP by Division 26
CO Detectors																
ELECTRICAL SYSTEMS																
TOTAL ELECT DEMAND			X			X					X					BY E.C.
TOTAL DEMAND			X			X										
TOTAL KWH	X		X			X										
CONSUMPTION	X		X			X										
PHASE AMPS				X												
PHASE VOLTS				X												
AVG VOLTS				X												
PHASE DEMAND			X													

GENERAL NOTE:

INPUT/OUTPUT SUMMARY IS A GENERAL LIST OF CONTROL POINTS REQUIRED FOR THE OPERATION OF THE MECHANICAL SYSTEM. IN ADDITION TO CONTROL POINTS INDICATED, THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADDITIONAL POINTS AS REQUIRED FOR OPERATION OF THE MECHANICAL SYSTEM AS SPECIFIED AND OUTLINED IN THE SEQUENCE OF OPERATION AND TO COMPLY WITH THE SPECIFICATIONS/PLANS.

Seal



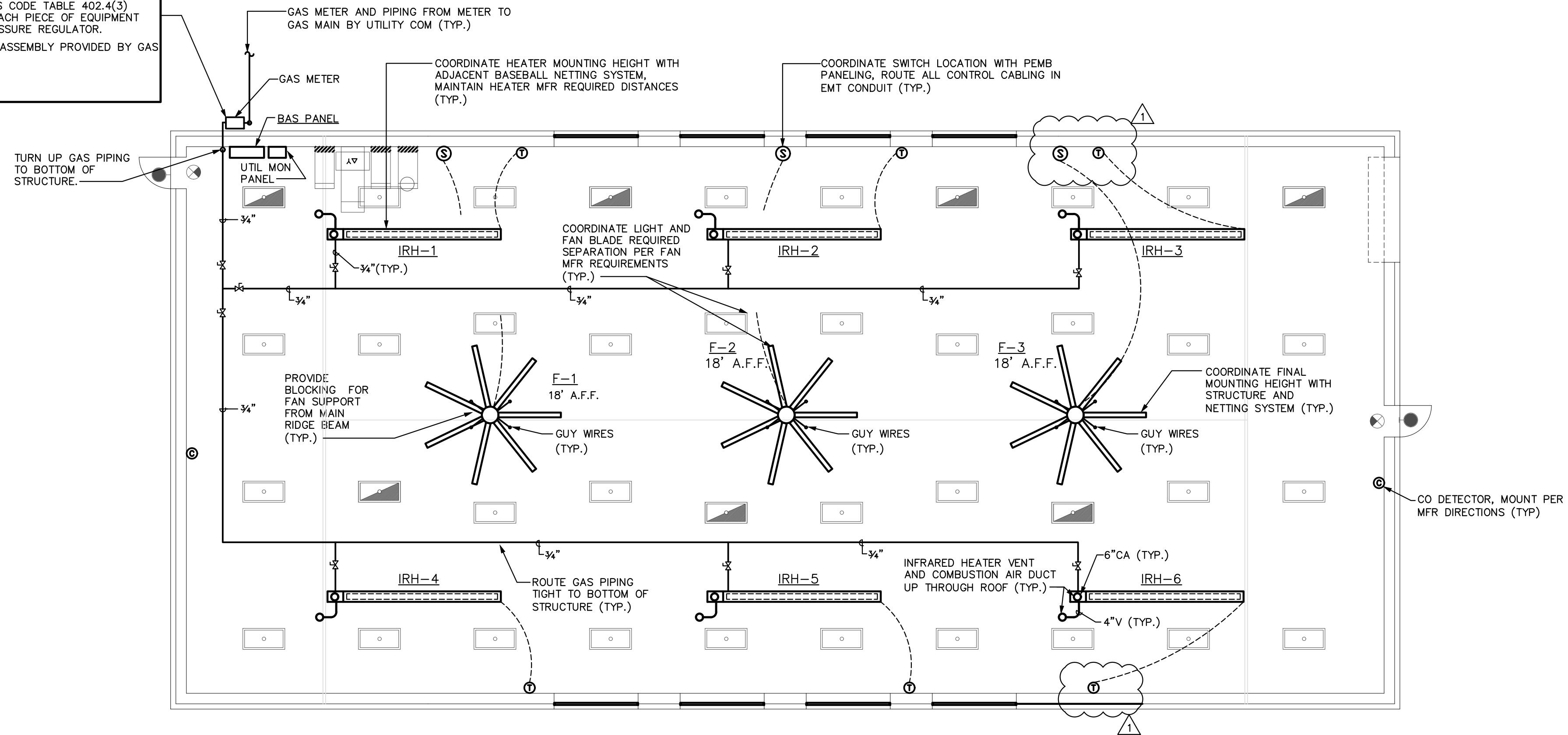
01/29/18

CONSTRUCTION
Documents

UNC
CHARLOTTE
BASEBALL
TRAINING
FACILITY

8711 PHILLIPS ROAD
CHARLOTTE, NC 28223

GAS PIPING DESIGN CRITERIA:
INITIAL GAS PRESSURE - 2.0 PSIG
GAS PRESSURE DROP - 1.0 PSIG
TOTAL EQUIV. LENGTH OF PIPING - 200 FT.
PIPING SIZED PER NC FUEL GAS CODE TABLE 402.4(3)
SCHEDULE 40 METALLIC PIPE EACH PIECE OF EQUIPMENT
IS PROVIDED WITH A GAS PRESSURE REGULATOR.
3/4" GAS SERVICE AND METER ASSEMBLY PROVIDED BY GAS
SUPPLIER.
TOTAL LOAD:
240 CFH @ 2 PSI.



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

PROJECT MANAGER:
JEFF SHERER, NCARB

DRAWN BY:
CAH

REVISIONS

No.	DATE	DESCRIPTION
1	01/29/18	ADDENDUM

Issue Date: 01/29/2018

MECHANICAL FIRST
FLOOR PLAN

Code: 41626 Item: 309

Sheet Number:

