

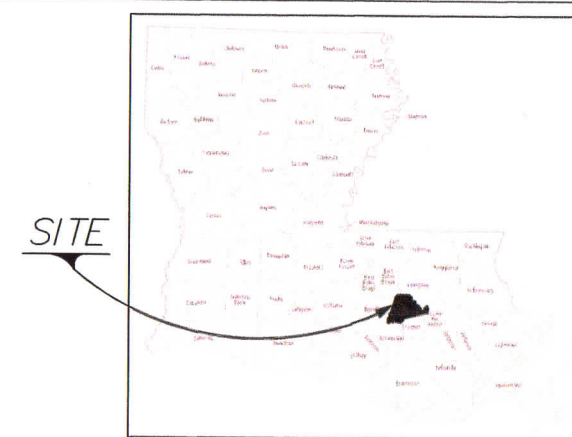
INDEX TO DRAWINGS	
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8	METAL BUILDING CANOPY ADDITION
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THE ARC PROJECT WESTBANK

DONALDSONVILLE, LA
ASCENSION PARISH
SEPTEMBER 2025

CLINT COINTMENT
OLIVIER JOSEPH
JOEL ROBERT
TRAVIS TURNER
BRETT ARCENAU
TODD VARNADO
CHASE MELANCON
BRIAN HILLENBECK
BLAINE PETITE
PAM ALONSO
DENNIS CULLEN
MICHAEL MASON

PARISH PRESIDENT
COUNCILMAN DISTRICT 1
COUNCILMAN DISTRICT 2
COUNCILMAN DISTRICT 3
COUNCILMAN DISTRICT 4
COUNCILMAN DISTRICT 5
COUNCILMAN DISTRICT 6
COUNCILMAN DISTRICT 7
COUNCILMAN DISTRICT 8
COUNCILWOMAN DISTRICT 9
COUNCILMAN DISTRICT 10
COUNCILMAN DISTRICT 11



VICINITY MAP
SCALE : NTS



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

NO.	REVISION / ISSUE	DATE
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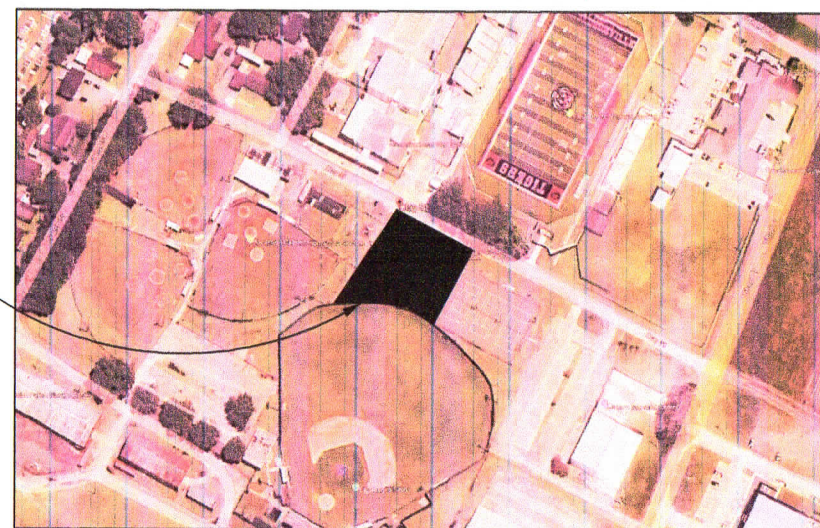
FIRM NAME & ADDRESS
MB DESIGN CONSULTANTS
JATINDER GOEL
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P.O. Box 82974
BATON ROUGE, LA 70884

NOTES:

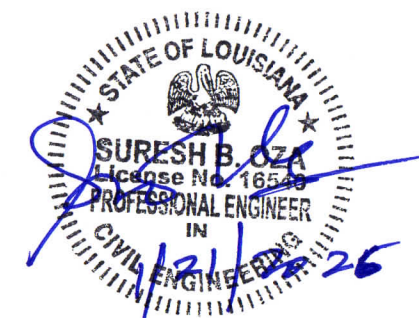
DRAWING NAME
TITLE SHEET AND
LAYOUT MAP

SHEET NO.
1

SITE



LAYOUT MAP
SCALE : NTS



APPROVED BY

JATINDER GOEL
MB DESIGN CONSULTANTS, LLC

DATE

SCHEDULE OF REVISION					
DATE	RECOMMENDED	DATE	REVISION	DATE	APPROVED

GENERAL CONSTRUCTION & CONCRETE NOTES

1. ALL CONCRETE SHALL BE 4000 PSI AVERAGE COMPRESSION STRENGTH AT 28 DAYS, UNLESS OTHERWISE NOTED.
2. ALL CONCRETE MUST BE AIR ENTRAINED.
3. ALL CONCRETE CONSTRUCTION AND REINFORCING BARS DETAILS SHALL CONFORM TO THE LATEST CRSI MANUAL OF STANDARD PRACTICE ACI 318 AND ACI 350-R, WHICHEVER IS MORE STRINGENT.
4. ALL REINFORCING STEEL SHALL BE GRADE 60, CONFORMING TO ASTM 1-815.
5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185
6. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTES:
 - A. PRIMARY REINFORCEMENT EXPOSED TO EARTH = 3" CLEAR. SECONDARY REINFORCEMENT EXPOSED TO EARTH = 2" CLEAR.
 - B. CONTINUOUS REINFORCEMENT SHALL BE LAPPED FOR REQUIREMENTS OF ACI 318, USING CLASS B SPLICE.
7. THE USE OF CONSTRUCTION JOINTS (OTHER THAN INDICATED) SHALL BE ONLY APPROVED BY THE ENGINEER.
8. ALL CONCRETE SLABS AND BEAMS SHALL BE BUILT TO MINIMIZE THE EFFECT OF SHRINKAGE, PREFERABLY BY SKIPPING SECTIONS THAT ARE TO BE PLACED UNTIL THE EARLIER PLACED CONCRETE HAS CURED FOR 72 HOURS, FOR MOST CURING SEE SPECIFICATIONS.
9. EXPOSED CONCRETE EDGES SHALL BE ¼" CHAMFER BEAMS AND SLABS.
10. PANEL SIZE OF PAVEMENT SHALL NOT EXCEED 20'-0" IN ANY DIRECTION. SAW CUTTING OF CONCRETE SHALL BE FULL DEPTH.
11. CONTRACTOR SHALL FINISH GRADE WITH APPROVED TOPSOIL AND PROVIDE POSITIVE DRAINAGE TOWARDS DRAINAGE DITCHES AT ALL AREAS DISTURBED BY CONSTRUCTION.
12. UPON COMPLETION OF WORK, CONTRACTOR SHALL CLEAN ALL AREAS WITHIN CONTRACT LIMITS, REMOVE ALL TOOLS, SUPPLIES AND EQUIPMENT, WASH DOWN ALL PAVEMENT AREAS AND PROVIDE SITE CLEAN AND SUITABLE FOR USE AS INTENDED.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REGULATION OF ALL TRAFFIC DURING CONSTRUCTION AND SHALL COMPLY WITH ALL REGULATIONS TO ENSURE THE SAFETY OF ALL WORKERS AND THE PUBLIC DURING ALL CONSTRUCTION.
14. CONTRACTOR TO BORE UNDER EXISTING CONCRETE PAVEMENT FOR ELECTRIC SERVICE.
15. CONTRACTOR TO ADD 2" SAND UNDER NEW BUILDING CONCRETE SLAB.

STRUCTURAL STEEL GENERAL NOTES:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A-992 GRADE 50, MISC. STEEL ASTM A36, HSS ASTM A500 GRADE B, UNO, THE MINIMUM SIZE OF GUSSET PLATES SHALL BE 3/8", UNLESS OTHERWISE SPECIFIED ON THE DRAWING.
2. ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A-325 SPECIFICATIONS.
3. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO THE E70 SERIES OF THE STRUCTURAL WELDING CODE. A.W.S. D1.1, LATEST REVISION.
4. FABRICATION SHALL BE IN ACCORDANCE WITH A.I.S.C. SPECIFICATION AND THE A.I.S.C. CODE OF STANDARD PRACTICE.
5. FABRICATOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL BEFORE FABRICATION IS STARTED.
6. ALL SHOP CONNECTIONS SHALL BE WELDED, AND ALL FIELD CONNECTIONS SHALL BE BOLTED, UNLESS OTHERWISE STATED BY THE FABRICATOR FOR SOUND SHIPPING REASONS
7. ALL STRUCTURAL STEEL SHALL BE ERECTED IN ACCORDANCE WITH THE A.I.S.C. SPECIFICATION AND THE A.I.S.C. CODE OF STANDARD PRACTICE.
8. THE FABRICATOR SHALL APPLY ONE COAT OF INORGANIC ZINC PRIMER THOROUGHLY COVERING ALL SURFACES WHICH HAVE BEEN PREPARED FOR PAINTING ABOVE.
9. ALL SUBSEQUENT FINISH COATS OF PAINT FOR STEELWORK SHALL BE DONE BY THE PAINTING PROFESSIONAL IN ACCORDANCE WITH THE SPECIFICATIONS
10. METAL ROOF DECK SHALL BE 26 GA. STANDING SEAM TYPE.
11. REFER TO SPECIFICATION FOR ANY INFORMATION NOT SHOWN.
12. BASED ON THE REACTIONS PROVIDED BY THE STEEL BUILDING MANUFACTURER, THE FOUNDATIONS SHALL BE REVISED, IF REQUIRED.
13. ALL STEEL BAR JOISTS SHALL BE K-SERIES CONFORMING THE FOUNDATIONS SHALL BE REVISED IF REQUIRED.

NOTE:

1. Contractor to remove electric service at canopy
2. Demolish canopy and dispose off site
3. Contractor to reinstall electric service at new canopy

PRE-FABRICATED STEEL BUILDING NOTES:

DESIGN CRITERIA	2012 I.B.C.
BASIC WIND SPEED	130 M.P.H.
EXPOSURE 'C'	
ENCLOSURE CLASS	CLOSED BUILDING
IMPORTANCE FACTOR	CATEGORY II
DEAD LOAD	PER MANUFACTURER
LIVE LOAD	20 P.S.F. @ 3:12 SLOPE
ROOF DECK AS PER A.S.C.E. - 7 PUBLICATION	
APPLICABLE CODES:	
MECHANICAL:	2021 I.B.C.
PLUMBING:	2021 I.P.C.
ELECTRICAL:	2020 NATIONAL ELECTRIC CODE
FIRE / LIFE SAFETY:	2024 LIFE SAFETY CODE: (NFPA 101)
ENERGY:	2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
PORTABLE FIRE EXTINGUISHER:	2024 PORTABLE FIRE EXTINGUISHER CODE (NFPA 101)
ACCESSIBILITY:	2010 AMERICAN WITH DISABILITY ACT (ADA - ABA)



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

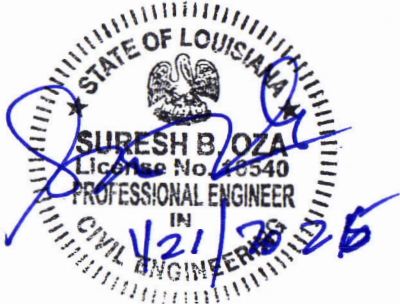
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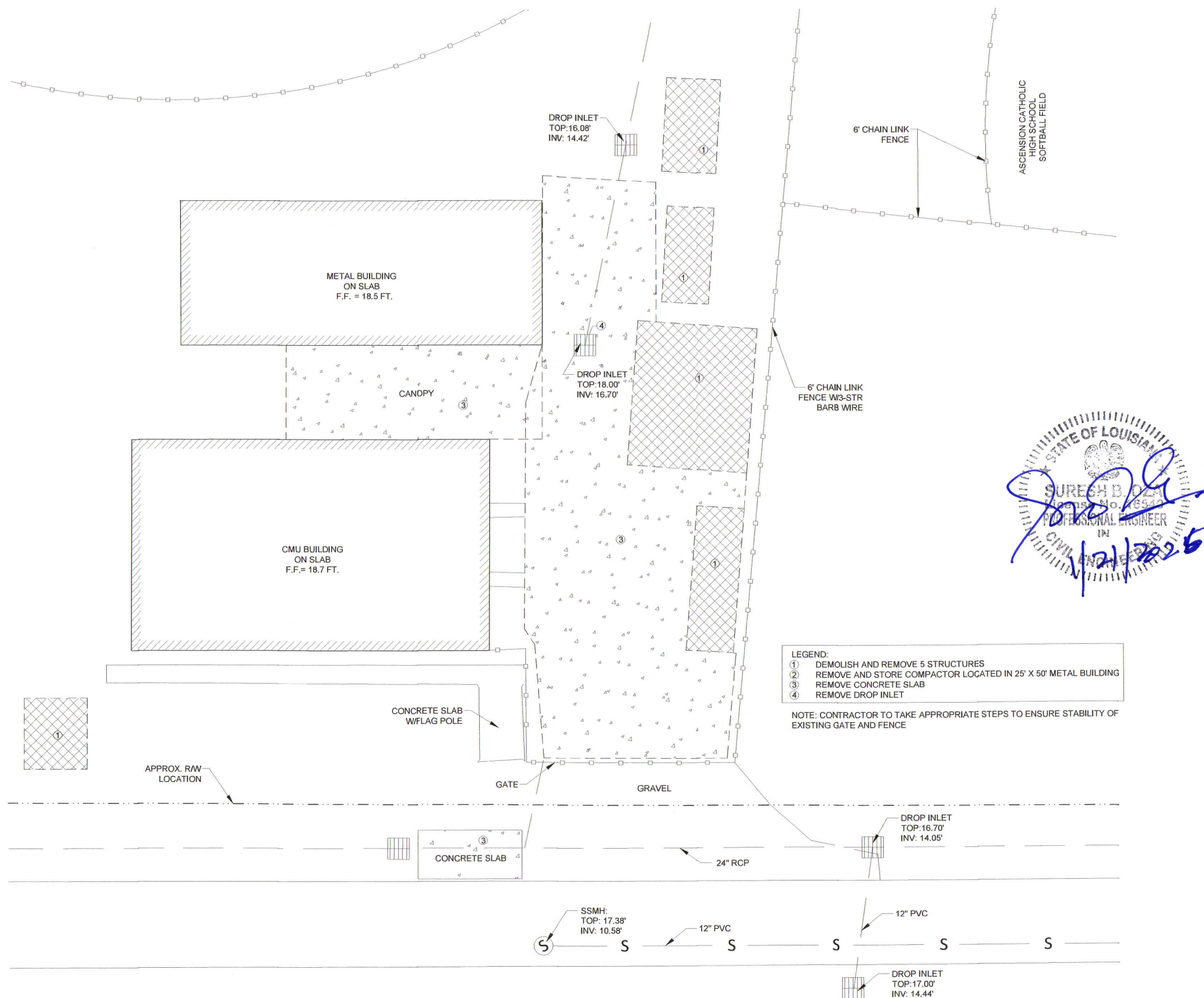
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NOTES:

DRAWING NAME:
GENERAL NOTES

SHEET NO.
2





PROJECT NAME & ADDRESS

THE ARC PROJECT DONALDSONVILLE, LA

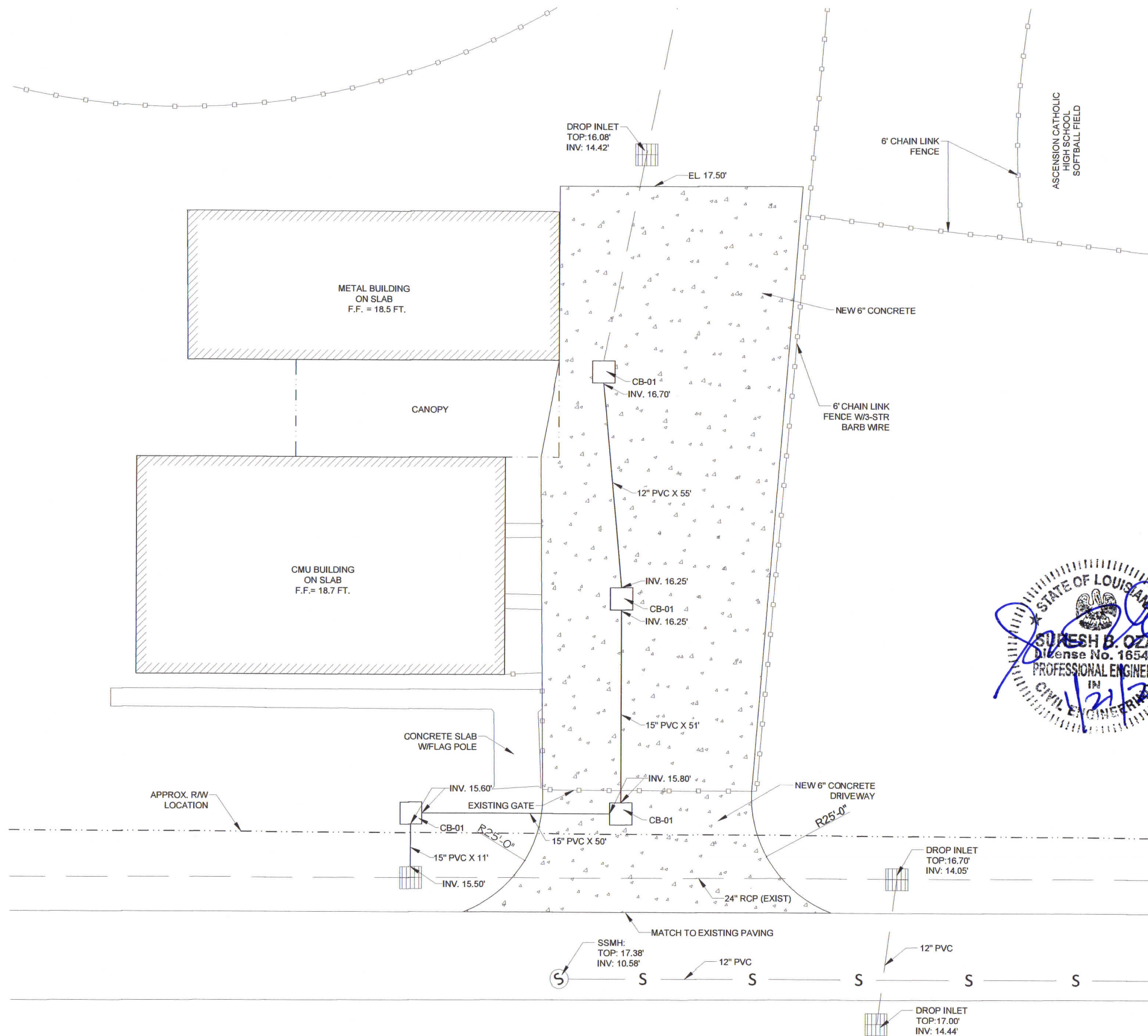
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NOTES:

DRAWING NAME
DEMOLITION SITE PLAN

SHEET NO.
3



PROJECT NAME & ADDRESS

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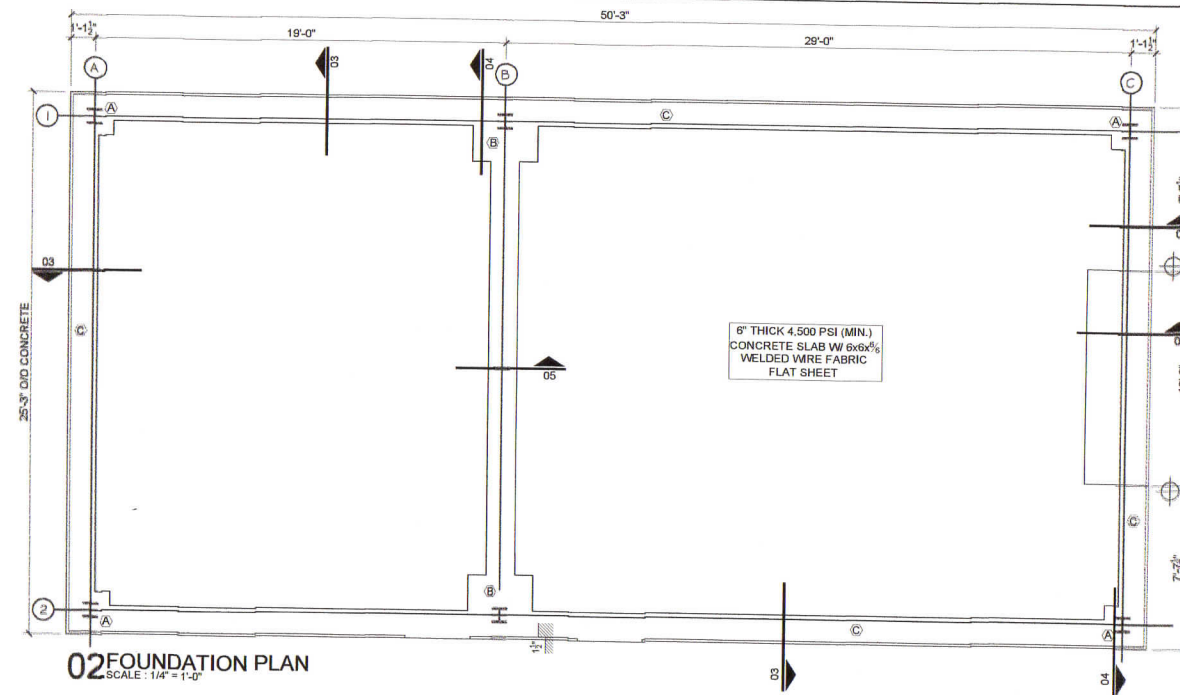
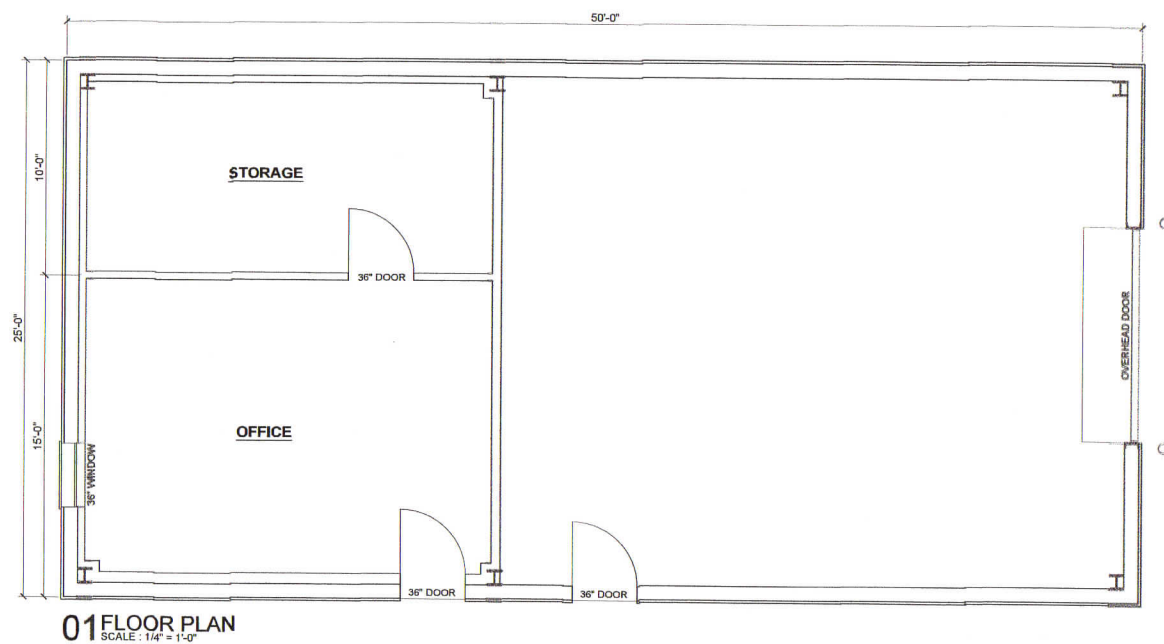
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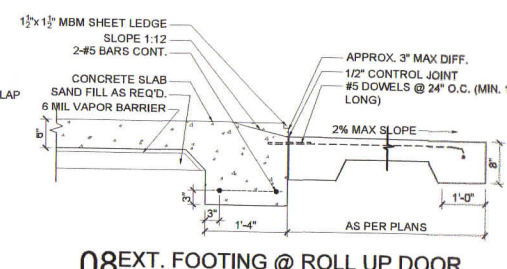
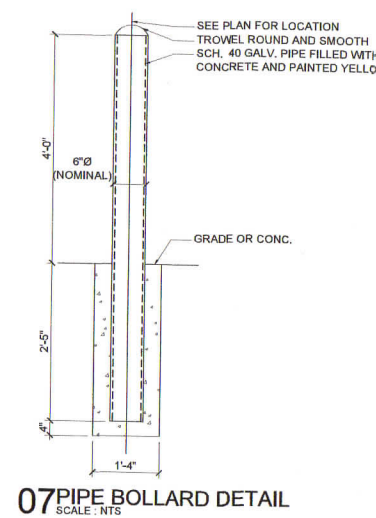
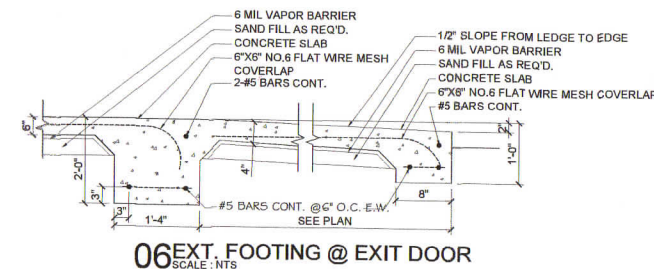
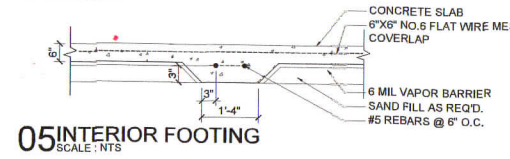
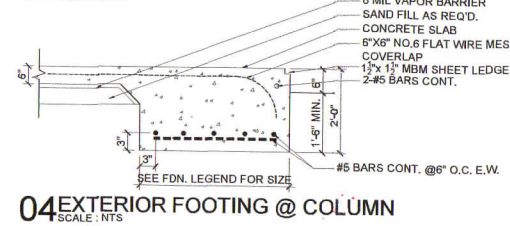
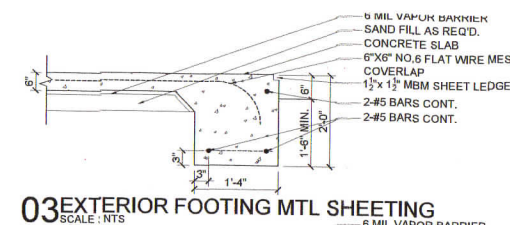
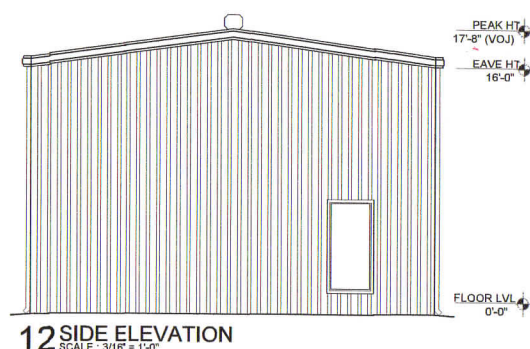
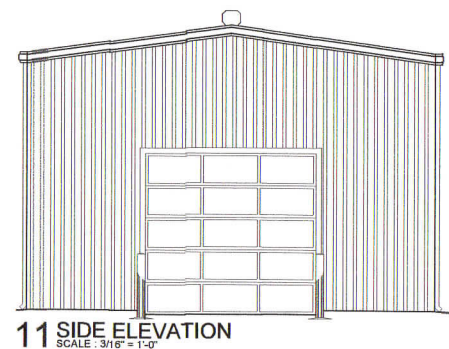
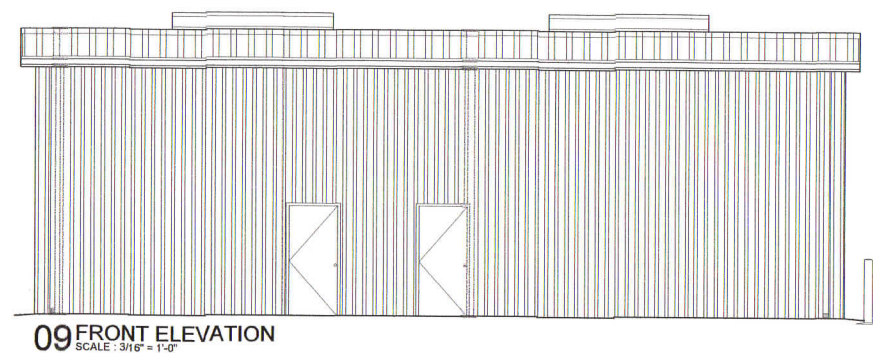
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DRAWING NAME
DRAINAGE PLAN

SHEET NO.
4



FOUNDATION LEGEND: TYP. FOOTING REINFORCEMENT: #5 BARS @ 6" MAX. CENTERS EA. WAY
 (A) 2'-0" SQUARE x 24" DEEP MIN. CONCRETE PAD FOOTING w/ #5 REBARS @ 6" MAX. CENTERS EA. WAY
 (B) 3'-0" SQUARE x 24" DEEP MIN. CONCRETE PAD FOOTING w/ #5 REBARS @ 6" MAX. CENTERS EA. WAY
 (C) 1'-4" x 2'-0" GRADE BEAM CONT. #5 REBARS - 2 @ TOP, 2 @ BOTTOM



MBD
Design Consultants

PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

JATINDER GOEL
License No. 16540
PROFESSIONAL ENGINEER
IN
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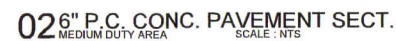
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 METAL BUILDING FLOOR PLAN,
 FOUNDATION PLAN & ELEVATIONS

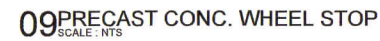
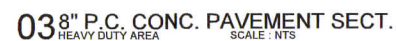
SHEET NO.
 5



PAVING SECTIONS SHALL BE CONSTRUCT
AS PER GEOTECH REPORT BY GULF SOUTH
ENGINEERING & TESTING, DATED 10/5/18



PAVING SECTIONS SHALL BE CONSTRUCT
AS PER GEOTECH REPORT BY GULF SOUTH
ENGINEERING & TESTING, DATED 10/5/18



1.) CONTRACTOR SHALL INSTALL ALL PIPE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS FOR EACH TYPE PIPE MATERIAL AND/OR LADOTD STANDARDS AND SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

2.) PIPE IS BEING INSTALLED WITH MINIMAL COVER AND CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN SUFFICIENT COVER OVER PIPE DURING CONSTRUCTION.

3.) PVC DRAINAGE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F949 AND INSTALLED IN ACCORDANCE WITH ASTM D3321 FOR TYPE IV SOILS. JOINTS SHALL MEET REQUIREMENTS OF ASTM D3312 WITH GASKETS PER ASTM F477 AS MANUFACTURED BY CONTECH CONSTRUCTION PRODUCTS OR APPROVED EQUAL.

4.) RCP SHALL BE ASTM C76, CLASS III AND SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE TO LADOT STANDARDS AND SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

5.) THE MATERIALS AND INSTALLATION USED IN THE CONSTRUCTION OF ALL CATCH BASINS AND DRAINAGE STRUCTURES (I.E. GRATE INLETS, JUNCTION BOXES, ETC.) SHALL CONFORM TO LADOTD STANDARDS AND SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

6.) CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-74 CLASS 30B STANDARDS.

7.) TOP ELEVATIONS OF ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL, UNLESS OTHERWISE NOTED, MATCH THE PROPOSED PAVEMENT ELEVATIONS.

8.) ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL HAVE EXPANSION MATERIAL ADJACENT TO EDGE

9.) ALL PAVEMENT JOINTS SHALL BE EXTENDED TO AND THROUGH THE CONJUNCTIVE PORTLAND CEMENT CONCRETE CURBS. DOWELS SHALL NOT EXTEND THROUGH ANY JOINT.

10.) ALL ELEVATIONS FOR PAVEMENT SHOWN HEREIN, UNLESS OTHERWISE NOTED, ARE TOP OF PAVEMENT ELEVATIONS.

11.) ALL CONCRETE PAVEMENT SHALL BE A MINIMUM THICKNESS OF 5" UNLESS OTHERWISE NOTED.

12.) ALL SIDEWALKS SHOWN SHALL BE 4" THICK CONCRETE.

13.) THE PORTLAND CEMENT CONCRETE USED FOR PAVEMENT AND CURBS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000-PSI AND CONFORM TO LADOTD STANDARDS AND SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION AND/OR ASTM STANDARD C-94 (STANDARD SPECIFICATIONS FOR READY-MIXED CONCRETE).

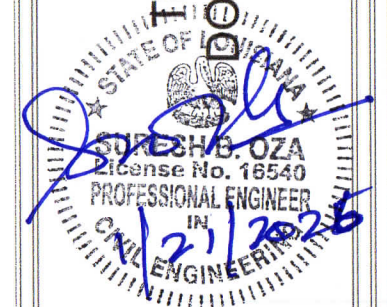
14.) ALL PAVEMENT JOINT CONSTRUCTION AND SEALING DETAILS SHALL CONFORM TO THE LADOTD STANDARD PLAN NO. CP-01 FOR PORTLAND CEMENT CONCRETE PAVEMENT DETAILS. JOINT MATERIAL SHALL BE A POLYURETHANE SEALANT AND SHALL CONFORM TO LADOTD STANDARDS AND SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

15.) WHERE SAW CUT JOINTS ARE USED, THE SAWING OPERATOR SHALL BEGIN AS SOON AS CONCRETE HAS REACHED SUFFICIENT STRENGTH TO SUPPORT EQUIPMENT. THE SAWING OPERATION SHALL BE COMPLETED WITHIN 12 HOURS OF THE INITIAL POUR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA



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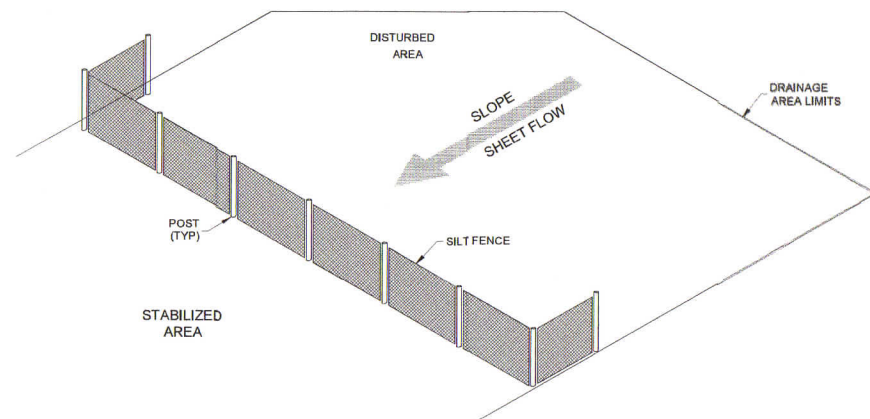
BATON ROUGE, LA 70884

NOTES:

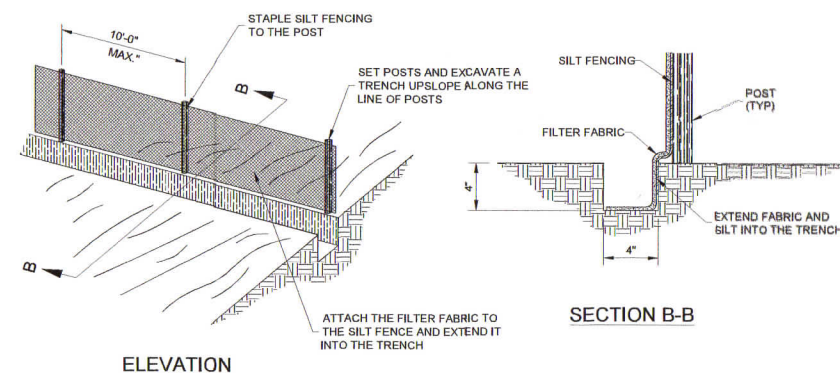
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TYPICAL CIVIL DETAILS

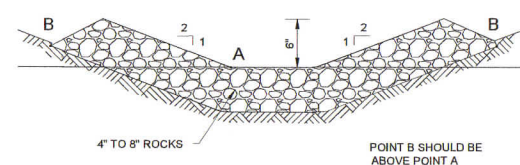
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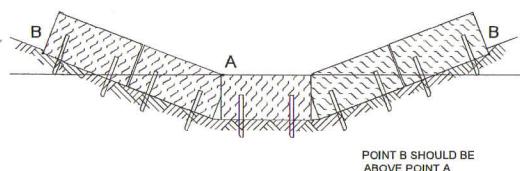
01 SILT FENCE IN SHEET FLOW
SCALE: NTS



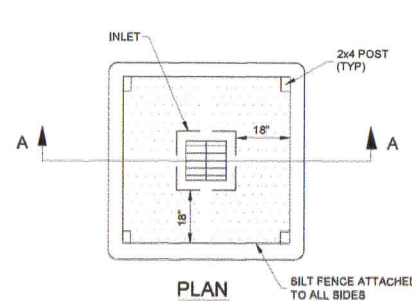
02 CONSTRUCTION OF SILT FENCE
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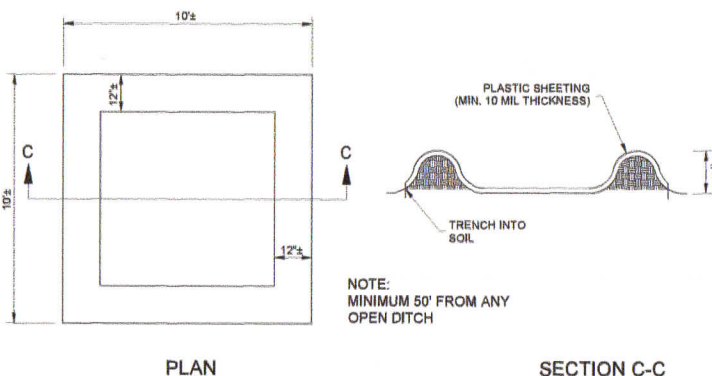
03 ROCK CHECK DAM
SCALE: NTS



04 STRAW BALES CHECK DAM
SCALE: NTS



05 INLET SEDIMENT TRAP - ALT 1
SCALE: NTS



06 CONCRETE WASHOUT DETAIL
SCALE: NTS

TEMPORARY METHODS:

MULCHES - (DISTURBED AREA STABILIZATION)

VEGETATIVE COVER - (DISTURBED AREA STABILIZATION WITH TEMPORARY SEEDING)

TILLAGE - ROUGHEN AND BRING CLODS TO THE SURFACE BY USE OF CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART

IRRIGATION - SITE SPRINKLED WITH WATER UNTIL WET. REPEAT AS NEEDED

BARRIERS - FENCES, HAY BALES, AND CRATE WALLS PLACED AT INTERVALS 15 TIMES THEIR HEIGHT AND PERPENDICULAR TO AIR CURRENTS

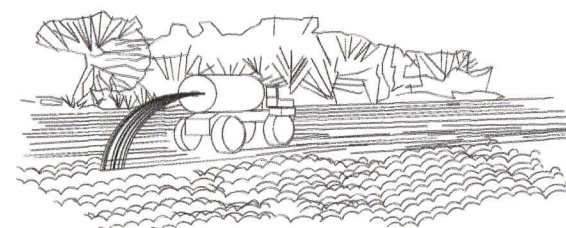
CALCIUM CHLORIDE - APPLY TO KEEP SURFACE WET. REPEAT AS NEEDED.

PERMANENT METHODS:

PERMANENT VEGETATION - (DISTURBED AREA STABILIZATION WITH PERMANENT VEGETATION)

TOPSOILING - COVERING THE SURFACE WITH A LESS EROSION SOIL MATERIAL

STONE - SURFACE WITH CRUSHED STONE OR COARSE GRAVEL (SEE CR - CONSTRUCTION ROAD STABILIZATION)



07 DUST CONTROL
SCALE: NTS

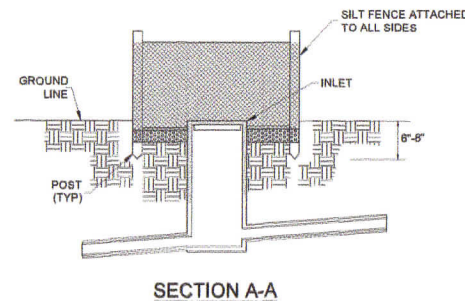
STRAW BALE DIKE CONSTRUCTION SPECIFICATIONS CHANNEL FLOW APPLICATIONS:

1) BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE, ORIENTED PERPENDICULAR TO THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY BUTTING ONE ANOTHER.

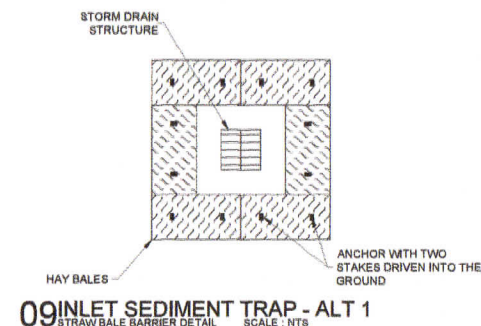
2) THE BARRIER SHALL BE EXTENDED TO SUCH A LENGTH THAT THE BOTTOMS OF THE END BALES ARE HIGHER IN ELEVATION THAN THE TOP OF THE LOWEST MIDDLE BALE TO ASSURE THAT SEDIMENT-LOADED RUNOFF WILL FLOW EITHER THROUGH OR OVER THE BARRIER BUT NOT AROUND IT.

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.



08 SECONDARY SPILL CONTAINMENT DETAIL
SCALE: NTS



09 INLET SEDIMENT TRAP - ALT 1
SCALE: NTS

MAINTENANCE:

- 1) STRAW BALE BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- 2) CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED BALES, END RUNS AND UNDERCUTTING BENEATH BALES.
- 3) NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BALES SHALL BE ACCOMPLISHED PROMPTLY.
- 4) SEDIMENT DEPOSITS MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- 5) ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE STRAW BALE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

MATERIALS:

- 1) SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.
- 2) POSTS FOR SILT FENCE SHALL BE EITHER 4-INCH DIAMETER WOOD OR 1.33 POUNDS PER LINEAR FOOT STEEL WITH A MINIMUM LENGTH OF 5 FEET. STEEL POSTS SHALL HAVE PROJECTIONS FOR FASTENING WIRE TO THEM INSTALLED WITH A MINIMUM ABOVE GROUND LENGTH OF 3 FT. AND INSTALLED TO A MINIMUM 1 FT. DEPTH.
- 3) STAKES FOR FILTER BARRIERS SHALL BE 1\"/>

SEEDING SCHEDULE:

CRITICAL AREA VEGETATIVE PLAN

GENERAL: THIS VEGETATIVE PLAN WILL BE CARRIED OUT ON ROAD CUT AND FILL SLOPES, SHOULDERS AND OTHER CRITICAL AREAS CREATED BY CONSTRUCTION IN AN AREA AS COMPLETED. PLANTINGS WILL BE MADE TO CONTROL EROSION, TO REDUCE DAMAGES FROM SEDIMENT AND RUNOFF TO DOWNSTREAM AREAS AND TO IMPROVE THE SAFETY AND BEAUTY OF THE DEVELOPMENT AREA.

SOIL CONDITIONS: DUE TO GRADING AND CONSTRUCTION, THE AREAS TO BE TREATED ARE MAINLY SUBSOIL AND SUBSTRATA. FERTILITY IS LOW AND THE PHYSICAL CHARACTERISTICS OF THE EXPOSED MATERIAL ARE UNFAVORABLE TO ALL BUT THE MOST HARDY PLANTS.

TREATMENT SPECIFICATIONS

CONVENTIONAL SEEDING EQUIPMENT: GRADE, SHAPE AND SMOOTH WHERE NEEDED TO PROVIDE FOR SAFE EQUIPMENT OPERATION AT SEEDING TIME AND FOR MAINTENANCE PURPOSES. THE LIME AND FERTILIZER IN DRY FORM WILL BE SPREAD UNIFORMLY OVER THE AREA IMMEDIATELY BEFORE SEEDBED PREPARATION. A SEEDBED WILL BE PREPARED BY SCARIFYING TO A DEPTH OF 1 TO 4 INCHES AS DETERMINED ON SITE. THE SEEDBED MUST BE WELL PULVERIZED, SMOOTHED AND FIRMED. SEEDING WILL BE DONE WITH CULTRIPACKER-SEEDER, DRILL, ROTARY SEEDER OR OTHER MECHANICAL OR HAND SEEDER. SEED WILL BE DISTRIBUTED UNIFORMLY OVER THE AREA, LEAVING ABOUT 25 PERCENT OF THE GROUND SURFACE EXPOSED. MULCH WILL BE SPREAD WITH BLOWER-TYPE MULCH EQUIPMENT OR BY HAND AND ANCHORED IMMEDIATELY AFTER IT IS SPREAD. A DISK HARROW WITH THE DISK SET STRAIGHT OR A SPECIAL PACKER DISK MAY BE USED TO PRESS THE MULCH INTO THE SOIL. THE PER ACRE APPLICATION RATES ARE AS FOLLOWS:

A. SEEDING WITH MULCH: (CONVENTIONAL SEEDING EQUIPMENT ON SLOPES LESS THAN 3:1)

AGRICULTURAL LIMESTONE FERTILIZER	4000 lbs./acre
5-10-15 MULCH	1500 lbs./acre
STRAW OR HAY	5000 lbs./acre

SEED SPECIES	APP. RATE/ACRES	PLANTING DATES
HULLED COMMON BERMUDA GRASS	10 LBS	3/1 - 6/15
FESCUE	50 LBS	8/1 - 10/31
FESCUE RYE GRASS	50 LBS	1/11 - 2/28
HAY MULCH FOR TEMP. COVER	5000 LBS	6/15 - 8/3

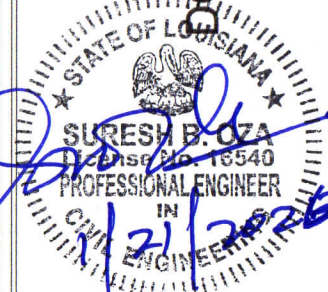
B. TOPDRESSING: APPLY WHEN PLANTS ARE 2 TO 4 INCHES TALL
FERTILIZER (AMMONIUM NITRATE 33.5%) 300 LBS/ACRE

C. SECOND-YEAR FERTILIZER: (5-10-15 OR EQUIVALENT) 800 LBS/ACRE

MB
Design Consultants

PROJECT NAME & ADDRESS

THE ARC PROJECT
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SEDIMENTATION DETAILS

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PROJECT NAME & ADDRESS

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DONALDSONVILLE, LA

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SHEKH B. OZA
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IN
CIVIL ENGINEERING
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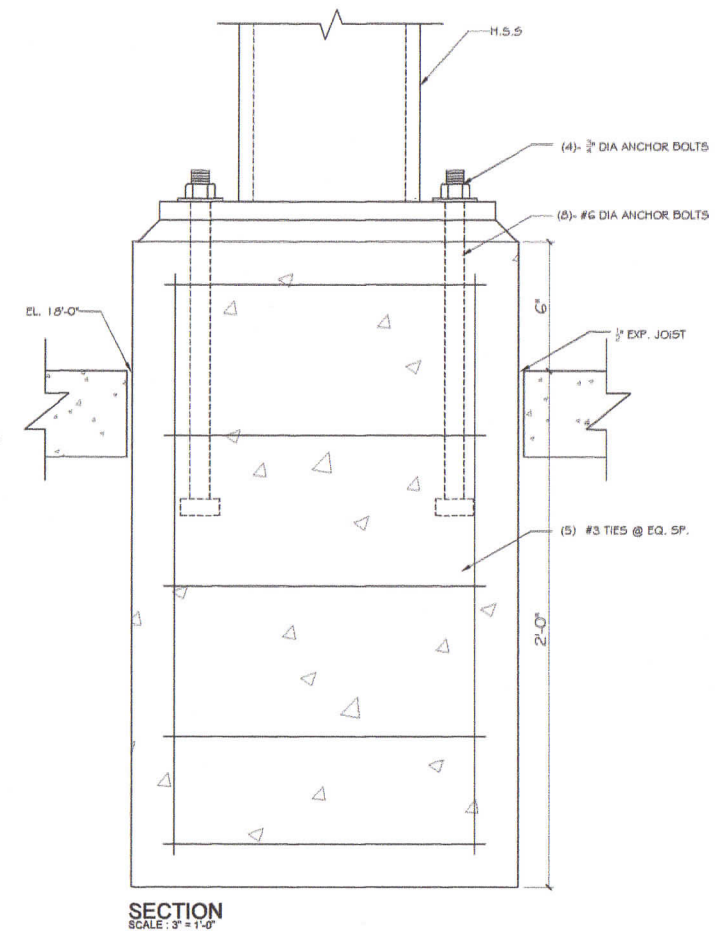
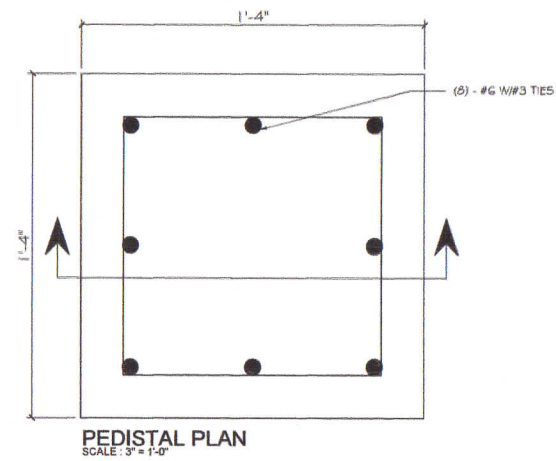
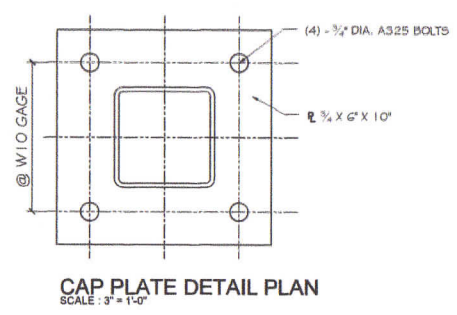
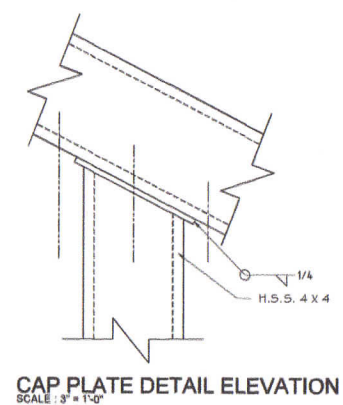
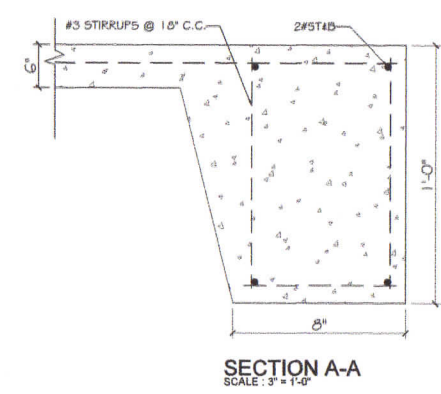
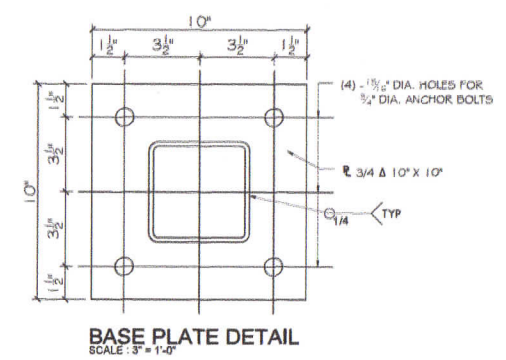
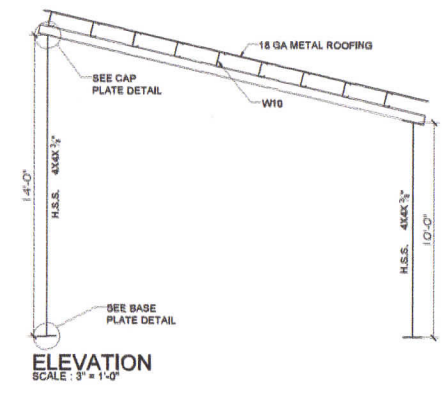
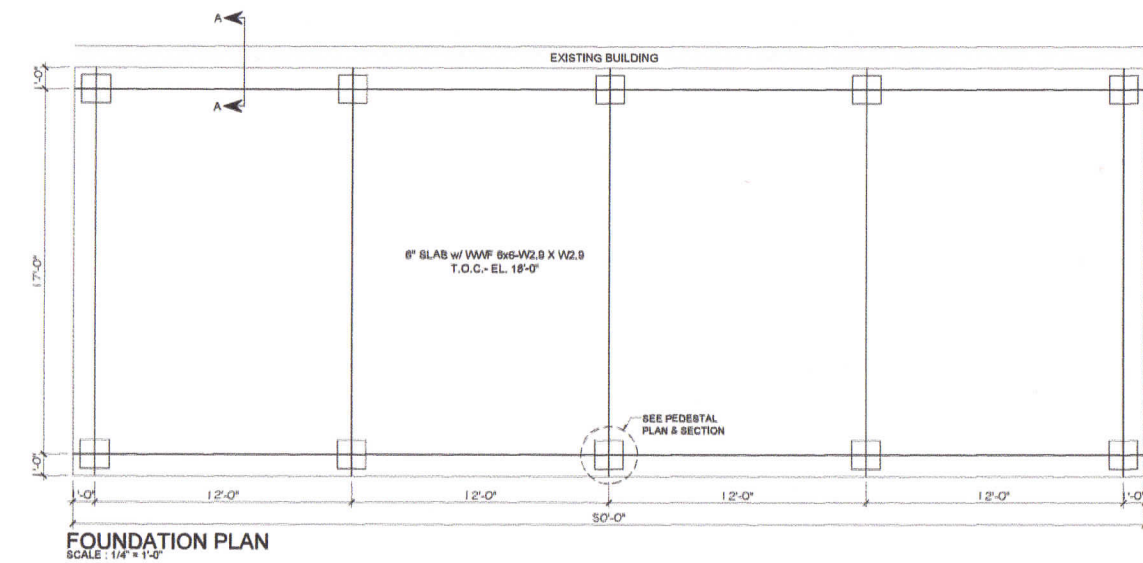
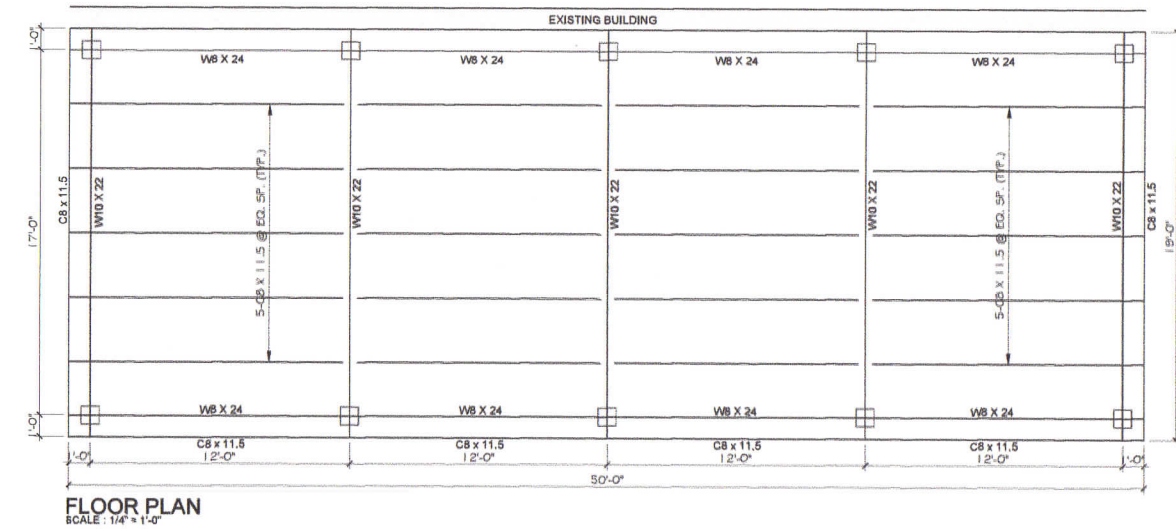
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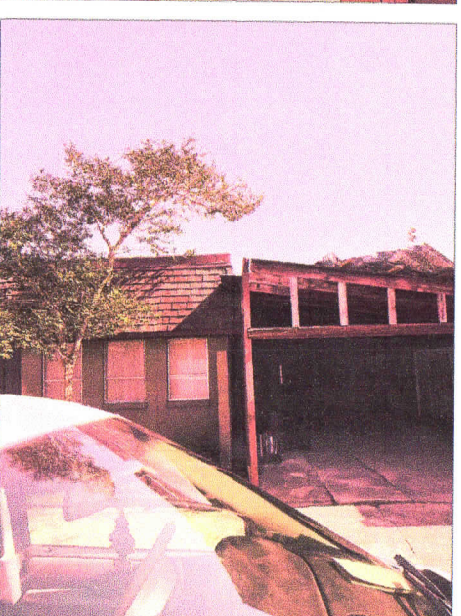
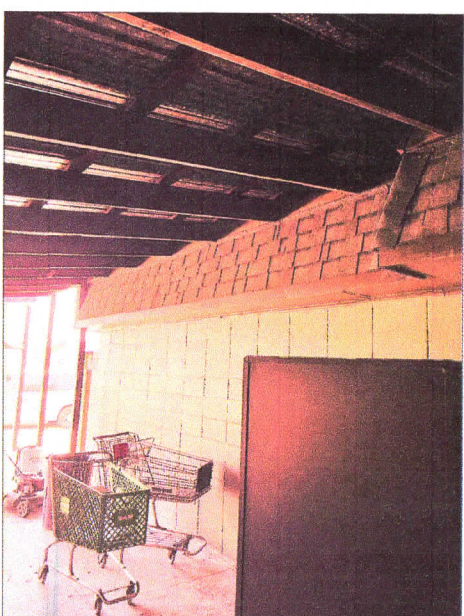
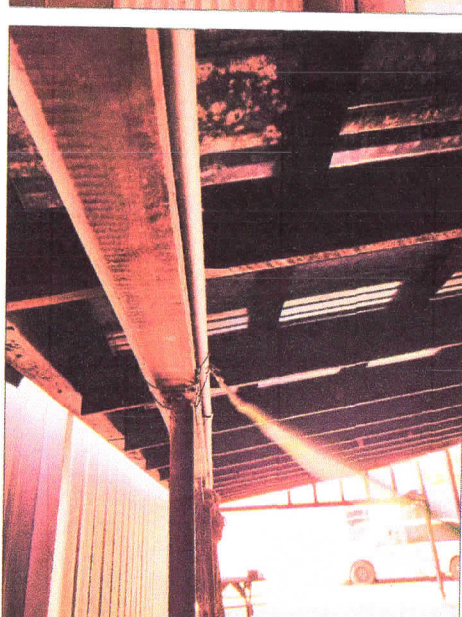
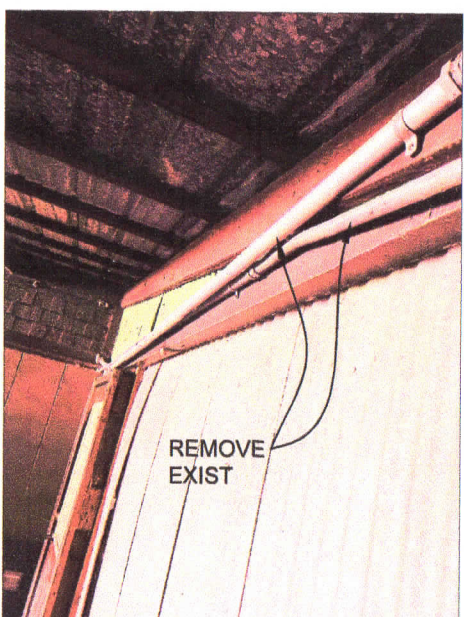
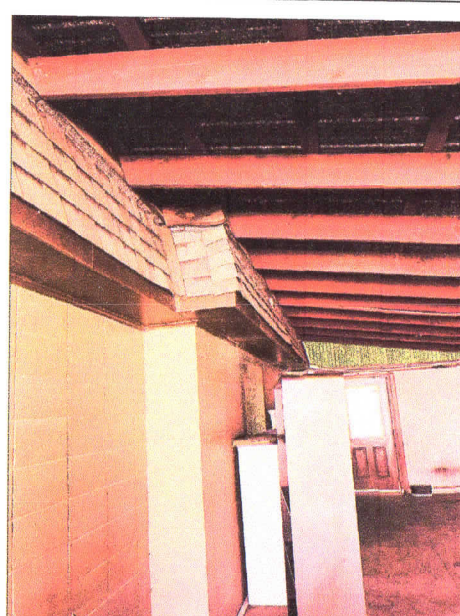
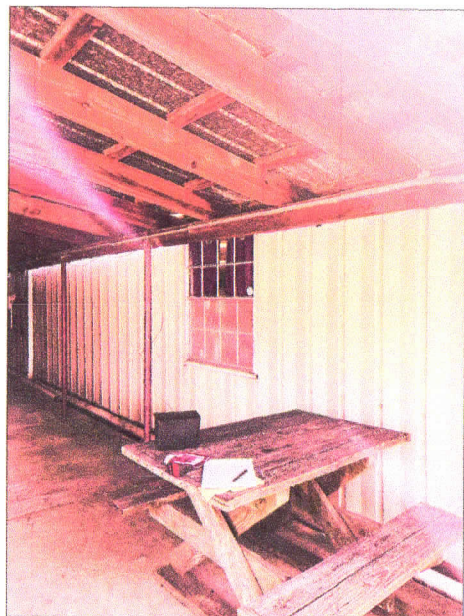
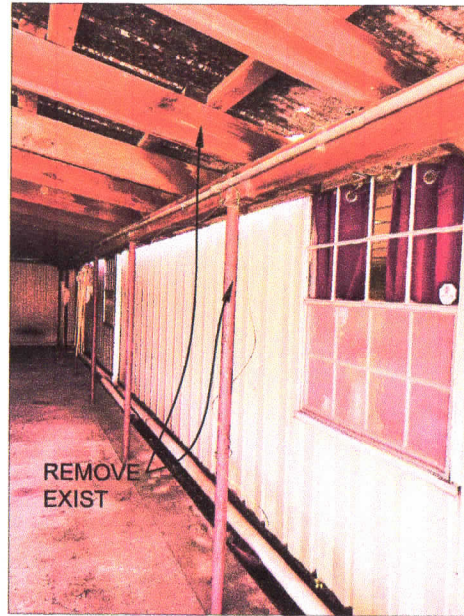
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MECHANICAL GENERAL NOTES

1. ALL WORK BY CONTRACTORS SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES, INCLUDING THE CURRENT INTERNATIONAL ENERGY CONSERVATION CODE.
2. MATERIALS FURNISHED UNDER THE CONTRACT SHALL BE NEW & SHALL BEAR THE UL LABEL WHERE APPLICABLE, UNLESS NOTED OTHERWISE. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS & WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE YEAR AFTER COMPLETION & ACCEPTANCE BY THE OWNER, LONGER IF STATED OTHERWISE ELSEWHERE IN THE SPECIFICATION.
3. CONTRACTOR SHALL INSTALL SYSTEMS WITHOUT INTERFERENCE & PROVIDE MANUFACTURERS RECOMMENDED AIR & SERVICE CLEARANCES. CONTRACTOR SHALL COORDINATE WITH ALL TRADES & DISCIPLINES.
4. MECHANICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR ON LOCATION OF ALL FIRE & SMOKE WALL PENETRATIONS. GENERAL CONTRACTOR SHALL FRAME OUT OPENING AS REQUIRED FOR LIFE SAFETY DAMPERS. PROVIDE LIFE SAFETY DAMPERS WHERE SHOWN ON DRAWINGS AND WHERE REQUIRED BY NFPA AND LOCAL BUILDING CODES.
5. ALL FIRE DAMPERS SHALL BE 2-HOUR RATED UNLESS SPECIFIED OR NOTED OTHERWISE ON DRAWINGS AND/OR SPECIFICATIONS.
6. SEAL ALL FIRE WALL PENETRATIONS (DUCT, PIPE, ETC.) WITH UL-LISTED FIRE CAULK IN ACCORDANCE WITH NFPA 101.
7. MECHANICAL CONTRACTOR SHALL COORDINATE BETWEEN ELECTRICAL AND OTHER TRADES FOR PENETRATIONS AT WALLS, FLOORS AND ROOFS, EXACT EQUIPMENT LOCATIONS, AND REQUIRED EQUIPMENT SERVICE AND AIR FLOW CLEARANCE.
8. INSTALLATION OF DUCTWORK SHALL TAKE PRECEDENCE OVER INSTALLATION OF PLUMBING PIPING THAT IS NOT GRADE SENSITIVE (SEWER, STORM DRAINAGE, GREASE WASTE, ETC.) AND ELECTRICAL CONDUIT. CONTRACTOR TO COORDINATE CEILING SPACE AVAILABLE, EXACT MECHANICAL ROOM LAYOUT, DUCT AND PIPE ROUTING AND EXACT EQUIPMENT LOCATIONS WITH GENERAL, ELECTRICAL, STRUCTURAL AND PLUMBING CONTRACTORS. PROVIDE OFFSETS AND TRANSITIONS AT OBSTRUCTIONS WHERE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
9. MECHANICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR AND ARCHITECT PRIOR TO INSTALLATION OF THERMOSTATS/TEMPERATURE SENSORS ON WALL. COORDINATE THERMOSTATS/TEMPERATURE SENSORS WITH ALL WALL MOUNTED FURNISHINGS (ART, SCREENS, FURNITURE, ETC.), LOCATE THERMOSTATS AND HUMIDISTATS 4' ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
10. CONTRACTOR SHALL VISIT THE SITE FOR INSPECTION REGARDING ANY WORK REQUIRED TO COMPLETE THE SCOPE OF WORK FOR THE PROJECT PRIOR TO BID. THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR BIDDERS AWARDED THE WORK FOR FAILURE TO EXAMINE SITE PRIOR TO BID.
11. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS AND VISIT THE SITE AND COORDINATE DUCT, PIPE AND EQUIPMENT SIZES AND ROUTING. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER WHERE DISCREPANCIES OCCUR BETWEEN CONTRACT DOCUMENTS AND EXISTING CONDITIONS.
12. CONTRACTOR SHALL VERIFY CEILING SPACE AND MECHANICAL ROOM SPACE AVAILABLE FOR DUCT, PIPING AND EQUIPMENT AND MAKE REQUIRED ALLOWANCES FOR THE SIZE AND ROUTING OF DUCT, PIPING AND EQUIPMENT.
13. MECHANICAL CONTRACTOR TO REVIEW CEILING SPACE AVAILABLE AND VERIFY FIELD MEASUREMENTS AND COORDINATION DRAWINGS PRIOR TO FABRICATING DUCT. BRANCH DUCT RUNS SHOWN DIAGMAMMATICALLY. CONTRACTOR SHALL ROUTE BRANCH DUCT RUNS IN MOST DIRECT MANNER.
14. COORDINATE EXACT LOCATION OF ALL SLAB, FLOOR, WALL AND ROOF PENETRATIONS WITH EXISTING STRUCTURAL BEAMS, JOIST AND COMPONENTS. DO NOT CUT OR MODIFY EXISTING STRUCTURAL COMPONENTS WITHOUT APPROVAL FROM STRUCTURAL ENGINEER.
15. CONTRACTOR SHALL VERIFY EQUIPMENT TO BE SUPPLIED TO PROJECT CAN BE INSTALLED IN SPACE PROVIDED AND ALL SERVICE AND AIRFLOW CLEARANCES MAINTAINED PRIOR TO ORDERING EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR EQUIPMENT THAT IS SUPPLIED THAT IS DIFFERENT THAN EQUIPMENT THAT IS BASIS OF DESIGN.
16. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT AND RELATED SYSTEM COMPONENTS FOUND POSITIVE FOR MOLD, MILDEW, ASBESTOS, HARMFUL BACTERIA OR ANY OTHER CONTAMINATION BE PLACED INTO SERVICE.
17. INSTALL DUCT SLEEVES IN WALLS AS HIGH AS POSSIBLE. DUCT SLEEVE SHALL EXTEND PAST WALL PENETRATION ON BOTH SIDES MINIMUM 24". RETURN AIR TRANSFER SLEEVES SHALL BE PROVIDED WITH TWO (2) DUCT ELBOWS.
18. COORDINATE ALL UNDERGROUND PIPING & WORK WITH EXISTING SYSTEMS, INCLUDING EXISTING UTILITIES, SEWER, GAS, DOMESTIC WATER, CHILLED/HEATING WATER, ELECTRIC DUCT BANKS AND POWER. NOT ALL EXISTING SYSTEMS SHOWN. COORDINATE ALL EXISTING SYSTEMS PRIOR TO BEGINNING WORK. MARKED UTILITIES AND EXISTING SYSTEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AND REPAIRED BACK TO ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONSTRUCTION CONTRACT.
19. MODEL NUMBERS SCHEDULED REPRESENT THE TYPE AND QUALITY OF EQUIPMENT REQUIRED TO MEET THE DESIGN REQUIREMENTS. CONTRACTOR SHALL REVIEW SUBMITTALS AND VERIFY PERFORMANCE REQUIREMENTS MEET SPECIFICATIONS PRIOR TO SUBMITTING FOR APPROVAL. EQUIPMENT THAT DIFFERS FROM BASIS OF DESIGN IS SUBJECT TO REJECTION. CONTRACTOR TO COORDINATE ALL DIFFERENCE IN EQUIPMENT WITH STRUCTURAL, ELECTRICAL AND PLUMBING CONTRACTORS.
20. ALL CONDENSATE LINES SHALL BE RIGID COPPER, INSULATED WITH CELLULAR FOAM UNLESS NOTED OTHERWISE OR SUBMITTED AND APPROVED BY MECHANICAL ENGINEER. SUPPORT WITH UNISTRUT PIPE EVERY 4' AND AT TURNS. PROVIDE NEOPRENE SLEEVES BETWEEN UNISTRUT AND COPPER CONDENSATE LINE.
21. DUCT SIZES SHOWN ARE SHEET METAL SIZES. ALLOWANCES HAVE BEEN INCLUDED FOR INTERNAL LINER WHERE APPLICABLE.
22. COORDINATE EXACT LOCATION OF AIR DEVICES WITH NEW AND EXISTING LIGHTS TO BE INSTALLED PRIOR TO CONSTRUCTION.
23. EXPOSED DUCTWORK SHALL BE PAINT GRIPPED SHEET METAL UNLESS INDICATED OTHERWISE. ALL EXPOSED DUCT TO BE PAINTED IN FIELD BY PAINTING CONTRACTOR DURING CONSTRUCTION. COORDINATE WITH ARCHITECT & MECHANICAL ENGINEER PRIOR TO INSTALLATION OF EXPOSED DUCT AND COLOR. EXPOSED DUCTWORK SHALL BE FREE OF SIZE MARKS OR ASSEMBLY CODE NUMBERS. ALL MARKS SHALL BE ON THE INSIDE OF DUCTWORK. KEEP OUTSIDE SURFACES OF DUCT CLEAN DURING FABRICATION. BANDS SHALL JOIN ON TOP. CONCEALED FROM NORMAL VIEW OF THE DUCT AND SPIRALS SHALL BE CONTINUOUS. THREADED RODS FROM HANGER STRAPS SHALL BE NEATLY CLIPPED AND SECURED WITHOUT EXCESS. GREATER ATTENTION TO APPEARANCE FOR EXPOSED DUCT IS EXPECTED AND DENTED/SCARRED DUCTS SHALL NOT BE ACCEPTABLE.
24. PROVIDE ELECTRICAL DISCONNECTS FOR MECHANICAL EQUIPMENT (VAV BOXES, FANS, VFDs, ETC.) FACTORY INSTALLED BY EQUIPMENT MANUFACTURER UNLESS NOTED OTHERWISE. COORDINATE WITH ELECTRICAL CONTRACTOR.
25. DO NOT ROUTE PIPING CONTAINING WATER OVER ELECTRICAL EQUIPMENT.
26. PROVIDE PERMANENT LABELS FOR ALL SCHEDULED EQUIPMENT. LABELS SHALL BE MINIMUM 3/8" ENGRAVED BLACK LETTERS ON WHITE BACKGROUND, CONSTRUCTED OF MINIMUM 1" WIDE, LENGTH AS REQUIRED LAMINATED PLASTIC, SECURELY FASTENED TO EQUIPMENT WITH STAINLESS STEEL OR NONCORRODING HARDWARE. STICK ON LABELS NOT ACCEPTABLE.
27. EXHAUST OUTLETS SHALL BE LOCATED MINIMUM 10' FROM ANY AIR INTAKE OR OPERABLE BUILDING OPENING.
28. INDOOR MINISPLITS, FAN COIL UNITS AND CEILING CASSETTES SHALL HAVE GRAVITY DRAINAGE WHERE POSSIBLE. PROVIDE WITH INTEGRAL CONDENSATE PUMPS WHERE NOT POSSIBLE.
29. PROVIDE RETURN AIR GRILLES OPEN TO RETURN AIR PLENUM WITH SOUND ATTENUATING BOOT ON REAR OF GRILLE (RIGID DUCT WITH INSULATED LINER & TWO ELBOWS, END OPEN TO RETURN AIR PLENUM). CONTRACTOR HAS OPTION TO PROVIDE PRICE MODEL #RAC RETURN AIR CANOPY ON REAR OF RETURN AIR GRILLES OPEN TO RA PLENUM IN LIEU OF SOUND ATTENUATING BOOT.
30. ELECTRONIC BALANCING DAMPERS - MANUAL DAMPER AT INACCESSIBLE LOCATIONS:
- 30.1. PROVIDE REMOTE BALANCING DAMPER WITH POSITION INDICATOR AT INACCESSIBLE MANUAL VOLUME DAMPERS
- 30.2. INACCESSIBLE LOCATIONS:
- 30.2.1. ABOVE GYPSUM BOARD/HARDY CEILING
- 30.2.2. WHERE LOCATED HIGHER THAN 4'-0" ABOVE ACCESSIBLE CEILING TILE
- 30.2.3. WHERE LOCATED ABOVE 14'-0" FROM FINISHED FLOOR
- 30.2.4. REFER TO ARCHITECTURAL REFLECTED CEILING DRAWINGS FOR REFLECTED CEILING PLAN
- 30.3. ELECTRONIC BALANCING DAMPER SHALL BE PROVIDED WITH POSITION INDICATOR AND SHALL BE GREEN/HECK MODEL R8DR-50 (ROUND) & RBD-10 (RECTANGULAR) OR APPROVED EQUAL, UNLESS INDICATED OTHERWISE.
- 30.4. REMOTE BALANCING DAMPER SHALL BE 12 VOLT DC POWER BALANCE SYSTEM (DAMPER, PULSE ACTUATOR, CAT 5 CABLE, WALL OR CEILING PLATE AND HAND HELD POWER PACK). PROVIDE WALL/CEILING ACCESS PORT ON WALL WITHIN CLOSEST MECHANICAL ROOM OR ABOVE ACCESSIBLE CEILING MOUNTED ON WALL. ALL ACCESS PORTS TO BE PROPERLY LABELED NUMERICALLY BY RESPECTIVE AIR SYSTEM & ROOM DAMPER SERVES. COORDINATE WITH MECHANICAL ENGINEER PRIOR TO LABELING & COORDINATE LOCATION WITH MECHANICAL ENGINEER & ARCHITECT PRIOR TO INSTALLING ANY ACCESS PORT ABOVE ACCESSIBLE CEILINGS. PROVIDE TILE IDENTIFICATION WHERE LOCATED ABOVE CEILING. PROVIDE DRAWINGS IDENTIFYING PORT LOCATION & PORT SCHEDULE AS PART OF CLOSE OUT DOCUMENTS.
31. PROVIDE UL LISTED SMOKE DETECTORS IN THE MAIN SUPPLY DUCT AND RETURN ON THE DOWNSTREAM SIDE OF THE FILTERS IN ALL RECIRCULATING AIR SYSTEMS HANDLING OVER 2000 CFM NOTE: SMOKE DETECTORS TO BE WIRED TO BUILDING FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. FIRE ALARM CONTRACTOR IS TO PROVIDE AND INSTALL ALL WIRING, TERMINATIONS, ETC. TO PROVIDE A COMPLETE, PROPERLY FUNCTIONING AND OPERATING SYSTEM.
32. PROVIDE SMOKE DAMPER IN THE MAIN SUPPLY & RETURN DUCT IN ALL AIR HANDLING UNITS HANDLING OVER 15,000 CFM. SMOKE DAMPERS TO BE INTERCONNECTED TO SMOKE DETECTORS.
33. PROVIDE ACCESS PANELS FOR EQUIPMENT, VALVES, DAMPER, ETC. LOCATED ABOVE A NON ACCESSIBLE CEILING. ACCESS PANELS SHALL BE LARGE ENOUGH FOR ALL REQUIRED MAINTENANCE, ADJUSTMENT, ETC. PROVIDE MULTIPLE ACCESS PANELS AS REQUIRED. COORDINATE COLOR AND LOCATIONS WITH ARCHITECT. PROVIDE FIRE AND/OR SMOKE RATED ACCESS PANELS WHERE REQUIRED IN RATED CEILINGS. REFERENCE ARCHITECTURAL DRAWINGS FOR RATED CEILING LOCATIONS. WHERE ACCESS PANELS ARE SHOWN ON ARCHITECTURAL REFLECTED CEILING PLAN, COORDINATE EXACT LOCATION OF EQUIPMENT, DEVICES, ETC. WITH ACCESS PANEL LOCATIONS.
34. PROVIDE TEMPORARY CAPS/PLUGS/COVERING ON ALL OPEN ENDED PIPING & DUCT DURING CONSTRUCTION TO PREVENT DIRT/DEBRIS FROM ENTERING PIPE/DUCT SYSTEMS.
35. PROVIDE PROTECTIVE LOCKABLE THERMOSTAT COVERS FOR THERMOSTATS. COORDINATE WITH OWNER.
36. MECHANICAL CONTRACTOR SHALL COORDINATE WITH PLUMBING CONTRACTOR ON LOCATION OF ALL FLOOR DRAINS & HUB DRAINS AS NOT TO INTERFERE WITH EQUIPMENT & EQUIPMENT PADS. COORDINATE NEW FLOOR DRAIN & HUB LOCATION WHERE EQUIPMENT DOES NOT ALLOW FOR THE INSTALLATION SHOWN FOR DRAIN. COORDINATE HEIGHT OF HUB DRAINS FOR FAN COIL UNITS & CEILING CASSETTES.
37. PROVIDE TRANSITIONS FROM REAR OF ALL GRILLES TO BRANCH DUCTS AND TO ALL EQUIPMENT AS REQUIRED. REFER TO CONSTRUCTION DOCUMENTS FOR SIZES OF GRILLES AND DUCTS.
38. PRESSURE TEST ALL REUSED/ROUTED PIPING SYSTEMS. TESTING SHALL BE PERFORMED AT NORMAL SYSTEM OPERATING PRESSURE UNLESS INDICATED/SPECIFIED OTHERWISE. REPAIR AND RETEST AS REQUIRED UNTIL SYSTEMS ARE PROVEN TIGHT WITHOUT LEAKS.
39. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
40. LOCATE ALL TEMPERATURE PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP AND DOWN STREAM AS RECOMMENDED BY THE MANUFACTURER.
41. REINFORCEMENT, DETAILING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ASTM 315 AND ACI 318. CONCRETE SHALL CONFORM TO ASTM C94. CONCRETE WORK SHALL CONFORM TO ACI 318, PART ENTITLED "CONSTRUCTION REQUIREMENTS." COMPRESSIVE STRENGTH IN 28 DAYS SHALL BE 3,000 PSI. TOTAL AIR CONTENT OF EXTERIOR CONCRETE SHALL BE BETWEEN 5 AND 7 PERCENT BY VOLUME. SLUMP SHALL BE BETWEEN 3 AND 4 INCHES. CONCRETE SHALL BE CURED FOR 7 DAYS AFTER PLACEMENT.
42. COORDINATE ALL EQUIPMENT CONNECTION WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
43. MINIMUM CONCRETE PAD THICKNESS SHALL BE 4 INCHES. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6 INCHES ON EACH SIDE UNLESS OTHERWISE DIRECTED IN THESE DOCUMENTS 15 LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED. REFER TO SPECIAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
44. INSTALL TRANSITION DUCT FROM INLET AND OUTLET OF EQUIPMENT TO DUCT SIZE SHOWN ON PLOT. CONSULT EQUIPMENT MANUFACTURER FOR INLET AND OUTLET SIZE.
45. ALL DUCT ELBOWS, BENDS, AND TEES SHALL BE PROVIDED WITH DOUBLE THICKNESS TURNING VANES OR RADIUS ELBOWS UNLESS SHOWN OR NOTED OTHERWISE. ELBOWS IN DISHWASHER, KITCHEN, AND LAUNDRY EXHAUST SHALL BE VANELESS SMOOTH RADIUS CONSTRUCTION WITH A RADIUS OF 1.5 TIMES THE WIDTH OF THE DUCT.
46. PROVIDE ESCUTCHEONS AT ALL EXPOSED LOCATIONS WHERE PIPE PENETRATES WALL.
47. THE CONDENSATE DRAIN LINE SHALL NOT DECREASE IN SIZE FROM THE DRAIN PAN CONNECTION TO THE FLOOR DRAIN; ELEVATE UNIT TO ACCOMMODATE P-TAP.
48. ALL EQUIPMENT AND DEVICES TO BE FURNISHED AND INSTALLED PER THE REQUIREMENTS OF CONTRACT DRAWINGS, SPECIFICATIONS, MANUFACTURERS RECOMMENDATIONS, AND ACCORDING TO CODE.
49. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS, FANS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE DIRECTED IN THESE DOCUMENTS.
50. UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION.
51. ALL ROOF CURBS SHALL BE INSTALLED TO THE ROOFING STRUCTURE AND FINISH A MINIMUM 12" ABOVE THE FINISHED ROOF FOR COUNTER FLASH ENDORSED BY ROOF MANUFACTURER. ROOF CURBS SHALL BE PITCHED WHERE REQUIRED TO ENSURE EQUIPMENT IS INSTALLED LEVEL.
52. ALL MISCELLANEOUS ROOFTOP DIRECTION SUPPORTS SHALL BE ENDORSED BY BOTH THE RESPECTIVE EQUIPMENT MANUFACTURER AND ROOF SYSTEM MANUFACTURER.
53. ALL WALL APPLIED ITEMS SHALL BE INSTALLED PLUMB, LEVEL, AND IN LOCATIONS DESIGNATED IN CONTRACT DOCUMENTS. ALL DEVICE COVERS AND TRIM SHALL FIT TIGHT TO WALL SURFACE ON ALL SIDES. WHERE SPECIFIC LOCATIONS FOR ITEMS NOT SHOWN OR CLEAR, CONTRACTOR SHALL OBTAIN CLARIFICATION AND DIRECTION FROM ARCHITECT AND MECHANICAL ENGINEER PRIOR TO INSTALLATION.
54. ALL FLEX DUCT SERVING DIFFUSERS SHALL BE LIMITED TO RUNS OF 6'. FLEX DUCT SHALL BE FLEXMASTER 1M-R6 OR APPROVED EQUAL AND USE STAINLESS STEEL (OR NYLON IF APPROVED BY MECHANICAL ENGINEER) TO CONNECT FLEX TO DUCT AND GRILLES.
55. FLEXIBLE DUCT NOT ACCEPTABLE FOR EXHAUST, RETURN AND FRESH AIR SYSTEMS UNLESS SPECIFIED OR NOTED OTHERWISE. FLEX DUCT SHALL NOT PENETRATE ANY WALLS UNLESS SUBMITTED AND APPROVED ON TO BOTH THE ARCHITECT AND MECHANICAL ENGINEER.
56. PROVIDE ADDITIONAL SUSPENDED SUPPORTS AS REQUIRED TO PREVENT FLEXIBLE DUCT FROM CONTACTING THE CEILING MATERIAL AND/OR CEILING FRAME/GRID ASSEMBLY.
57. ALL ROUND TAPS OFF RECTANGULAR DUCTWORK TO DIFFUSERS SHALL BE MADE WITH HIGH EFFICIENCY SIDE TAKEOFFS WITH 2" INSULATION STANDOFF BRACKETS AND LOCKING QUADRANT, FLEXMASTER MODEL STD-BO3 OR APPROVED EQUAL.
58. ALL GRILLES LOCATED IN LAV-IN CEILINGS SHALL HAVE 24x24 FRAMES, STYLES TO FIT THE GRID TYPE. EITHER 1516" OR 9116" GRID, VERIFY GRID WITH ARCHITECTURAL DRAWINGS. PROVIDE PLASTER FRAMES FOR SURFACE MOUNT APPLICATIONS, PRICE MODEL AMF OR APPROVED EQUAL.
59. PROVIDE MANUAL VOLUME DAMPERS IN ALL BRANCH DUCT CONNECTIONS TO LOW PRESSURE MAIN DUCTS.
60. ALL EQUIPMENTS SUPPLIED TO THE PROJECT SHALL BE PER SPECIFICATIONS. OBTAINING APPROVED SUBMITTALS DOES NOT RELIEVE THE CONTRACTOR/SUPPLIER OF PROVIDING ALL FEATURES, OPTIONS AND ACCESSORIES INCLUDED WITHIN THE CONSTRUCTION DOCUMENTS.

SCHEDULE - DUCT & INSULATION

LOCATION	DUCT SERVICE	CONSTRUCTION	TYPE	INSULATION		
				DENSITY (lb/ft³)	THICKNESS	MINIMUM R-VALUE (R" x F" x IN/Btu)
INDOOR, CONCEALED	SUPPLY, RETURN, OUTSIDE, EXHAUST AIR	SINGLE WALL GALVANIZED	EXTERNAL DUCT WRAP WITH FSK JACKET	1.5	2"	R-6
INDOOR, EXPOSED	SUPPLY, RETURN, OUTSIDE, EXHAUST AIR	DOUBLE WALL GALVANIZED	INTERNAL FIBROUS GLASS LINER	1.5	2"	R-6
INDOOR, TOP OF AIR DEVICES	ALL	-	EXTERNAL DUCT WRAP WITH FSK JACKET	1.5	2"	R-6

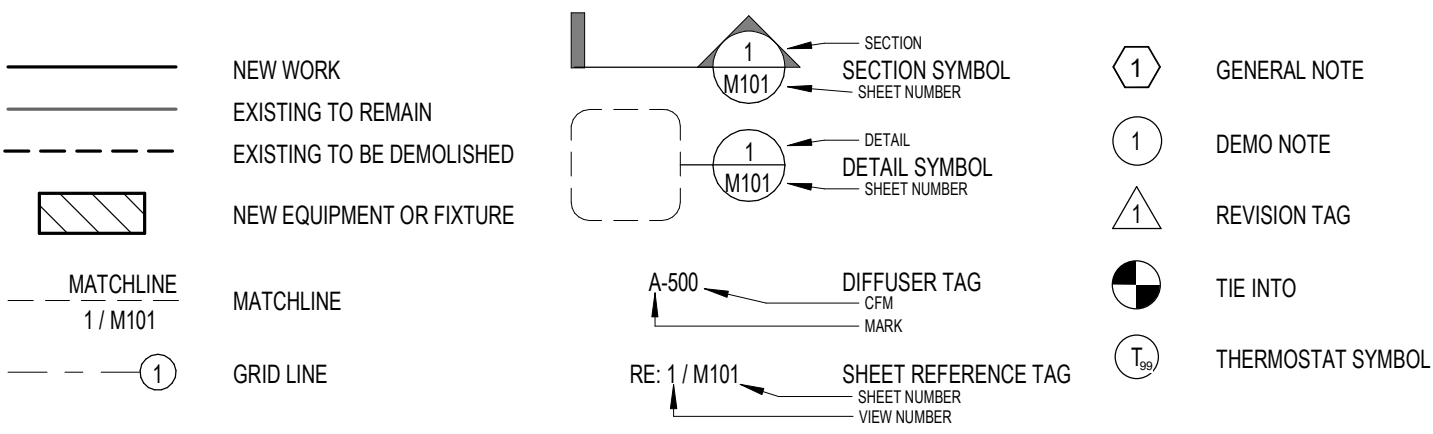
NOTES:

1. EXTERNAL DUCT WRAP INSULATION:
- A. MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN.
- B. FACTORY APPLIED FSK JACKET, ALUMINUM-FOL, FIRE/GLASS-REINFORCED SKRM WITH KRAFT-PAPER BACKING COMPLYING WITH ASTM C 1136.
2. INSTALL DUCT PENETRATIONS THROUGH EXTERIOR WALL IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT DUCT ROUTING & LENGTH WITH DUCT MANUFACTURER AS TO ENSURE DUCT JOINT IS NOT LOCATED WITHIN EXTERIOR WALL.
- EXPOSED DOUBLE WALL SHEET METAL:
- A. PROVIDE WITH WATER BASE EPOXY ANTIMICROBIAL COATING
- a. COORDINATE WITH ARCHITECT, GENERAL CONTRACTOR & OWNER FOR COLOR (CLEAR, WHITE, SILVER).
- b. TOUGH, HEAVY DUTY, CHEMICAL RESISTANT EPOXY FOR PROTECTION AGAINST BACTERIA, MOLD, MILDER, FUNGI AND ALGAE.
- c. PROVIDE SURFACE PREPARATION & NUMBER OF COATINGS AS RECOMMENDED BY MANUFACTURER.
- d. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- e. INSTALL COATING PRIOR TO CONNECTING FABRIC DUCT & FABRIC DUCT ACCESSORIES.

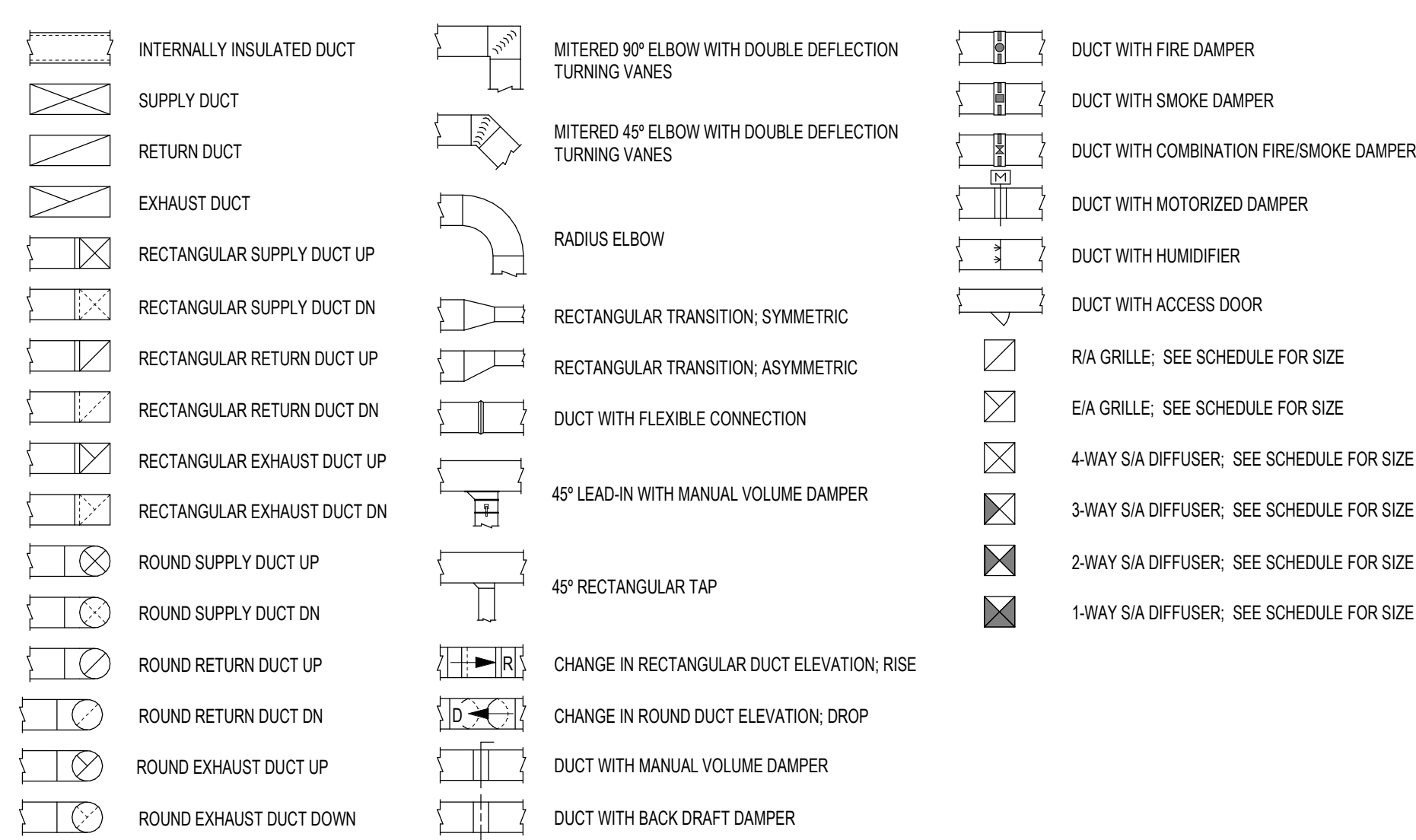
MECHANICAL SYMBOL LEGEND

(REFER TO DRAWINGS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS).

GENERAL



DUCTWORK



THERMAL DESIGN CONDITIONS

ROOM DESCRIPTION	INDOOR		OUTDOOR		
	SUMMER	WINTER	SUMMER	WINTER	
	DB(°F)	RH(%)	DB(°F)	DB(°F)	WB(°F)
CONDITIONED AREAS	75°	50%	70°	95°	80°

DB(°F): DRY BULB
WB(°F): WET BULB
RH(%): RELATIVE HUMIDITY

INDEX - MECHANICAL SHEETS

M0.0	MECHANICAL COVER SHEET
M1.0	MECHANICAL PLAN
M2.0	MECHANICAL DETAILS
M3.0	MECHANICAL SPECIFICATIONS

ABBREVIATION LEGEND

AC	AIR CONDITIONING
ACU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AFS	AIR FLOW STATION
AHU	AIR HANDLING UNIT
AMB	AMBIENT
AS	AIR SEPARATOR
AV	AIR VENT
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTER
BOD	BOTTOM OF DUCT
BTUH	BRITISH THERMAL UNIT PER HOUR
CC	COOLING COIL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWC	CHILLED WATER CHEMICAL FEED
CHP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
COMP	COMPRESSOR
CP	CIRCULATING PUMP
CU	CONDENSING UNIT
CT	COOLING TOWER
CV	CONTROL VALVE
CW	COLD WATER
CWCF	CONDENSER WATER CHEMICAL FEED
CWR	CONDENSER WATER RETURN
CWP	CONDENSER WATER PUMP
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB TEMP (DEG F)
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DPS	DIFFERENTIAL PRESSURE SWITCH
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAD	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EL	ELEVATION
ELEC	ELECTRICAL
ENT	ENTERING
ECU	ELECTRIC CONDENSING UNIT
ERU	ELECTRIC REFRIGERANT UNIT
ESP	EXTERNAL STATIC PRESSURE
EXT	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EVAP	EVAPORATOR
EX	EXHAUST
EXT	EXTERNAL
F	FRESH AIR
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FT	FEET
FLA	FULL LOAD AMPS
FFM	FEET PER MINUTE
FV	FACE VELOCITY
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GPH	GALLONS PER HOUR
GUH	GAS UNIT HEATER
HC	HEATING COIL
HP	HORSEPOWER
HR	HOUR
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
ID	INSIDE DIAMETER
IN	INCHES
KW	KILOWATTS
LVG	LEAVING
MA	MIXED AIR
MAX	MAXIMUM
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
NG	NATURAL GAS
MIN	MINIMUM
MVD	MANUAL VOLUME DAMPER
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OAU	OUTSIDE AIR UNITS
OS&Y	OUTSIDE STEM AND YOKE
OZ	OUNCES (PRESSURE)
PD	PRESSURE DROP
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
REF	REFERENCE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RND	ROUND
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY AIR FAN
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
TEMP	TEMPERATURE
TOD	TOP OF DUCT
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LISTED
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
W	WITH
W/O	WITHOUT
WB	WET BULB (DEG F)



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

NO.	REVISION / ISSUE	DATE

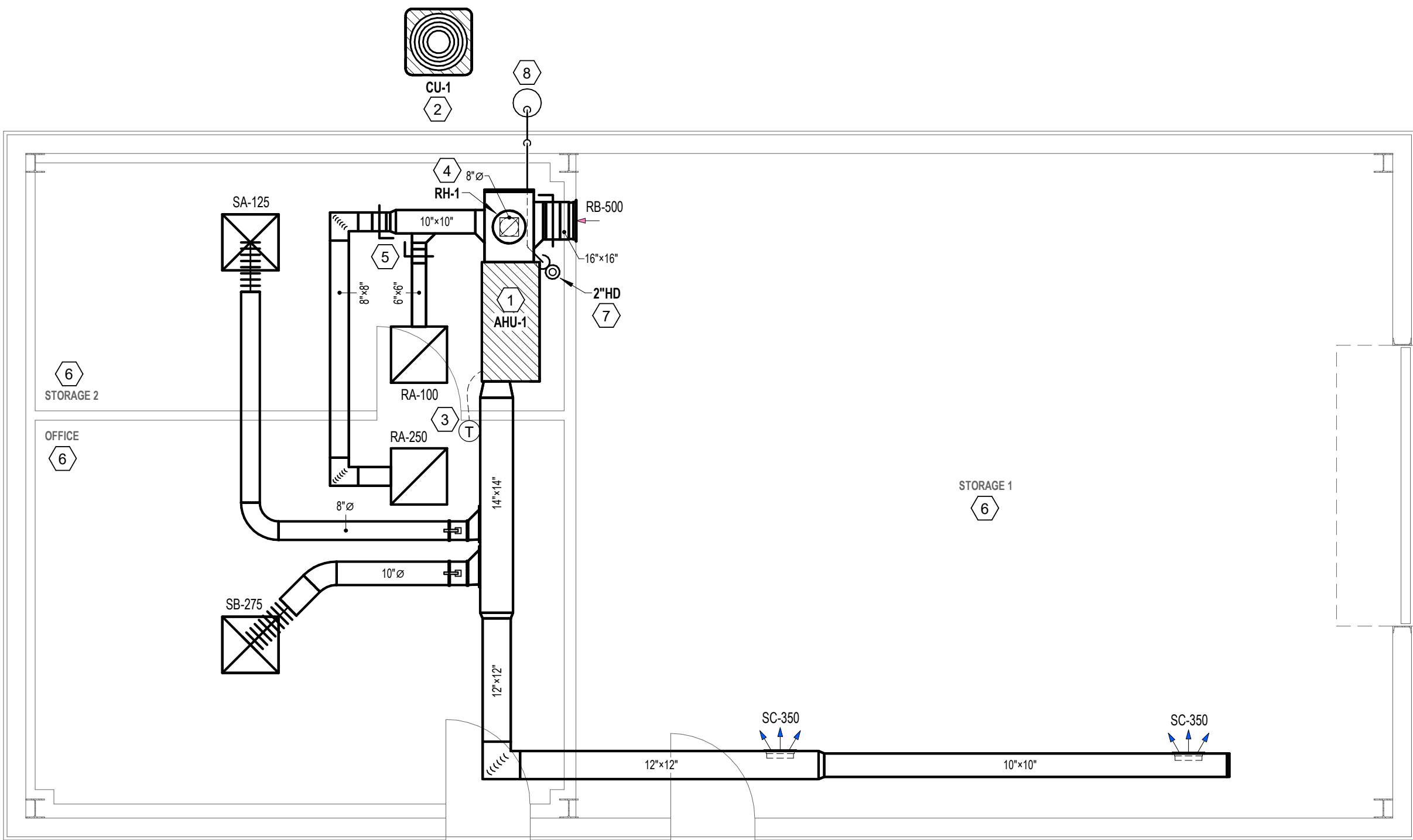
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DRAWING NAME
MECHANICAL COVER SHEET
SHEET NO.
M0.0





1 MECHANICAL PLAN

SCHEDULE - AIR HANDLING UNITS																										
MARK	DESCRIPTION	NOMINAL TONS	SUPPLY FAN					DX COOLING COIL		DX COOLING COIL					ELECTRIC HEAT COIL					ELECTRICAL SERVICE					WEIGHT	MANUFACTURER / MODEL
			AIRFLOW			MOTOR		TOT CAP	SENS CAP	EADB	EAWB	LADB	LAWB	MAX FACE VELOCITY	MIN STAGES	TOT CAP	BTU/H	EADB	LADB	VOLTS	PH	FREQ	MCA	MOCP		
			SA	OA	EXT SP	QTY	POWER																			
AHU-1	DX SPLIT AIR HANDLER WITH ELECTRIC HEAT	2.5	1100 CFM	100 CFM	0.50 in-wg	1	0.5 hp	30000 Btu/h	24000 Btu/h	75.91 °F	63.64 °F	55 °F	54 °F	500 FPM	1	9.4 kW	32100 Btu/h	65.45 °F	92.45 °F	208 V	1	60 Hz	62 A	70 A	200 lb	LENNOX CBK47UHET-030 OR APPROVED EQUAL

NOTES:

- PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
- PROVIDE WITH COMMERCIAL PROGRAMMABLE THERMOSTAT.
- PROVIDE 4" TALL 16 GA. GALVANIZED STEEL DRAIN PAN WITH FLOAT SWITCH (CONDENSING UNIT TO DE-ENERGIZE WHEN FLOAT SWITCH IS TRIPPED) UNDER ENTIRE UNIT. PROVIDE NIPPLE ON AUXILIARY DRAIN PAN. ROUTE CONDENSATE DRAIN LINE FROM AUXILIARY DRAIN PAN TO HUB DRAIN. PROVIDE SHUT OFF VALVE (NORMALLY CLOSED) IN AUXILIARY DRAIN PAN CONDENSATE DRAIN LINE. FIELD ROUTE 3/4" COPPER CONDENSATE DRAIN LINE TO HUB DRAIN. CONDENSATE LINE SHALL BE RIGID INSULATED COPPER.
- PROVIDE FULL SIZE PLENUM ON BOTTOM/REAR OF AIR HANDLING UNIT. LENGTH AS REQUIRED FOR BRANCH DUCT CONNECTIONS.
- INSTALL WITH MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE. ENSURE THAT PROPER CLEARANCE FOR FILTER REMOVAL IS PROVIDED.
- PROVIDE MANUAL VOLUME DAMPER ON OUTSIDE AIR AND RETURN AIR DUCT.

SCHEDULE - CONDENSING UNITS

MARK	DESCRIPTION	NOMINAL TONS	COMPRESSOR				FAN		ELECTRICAL SERVICE				EER	WEIGHT	MANUFACTURER / MODEL	
			TYPE	QTY	REF. TYPE	AMBIENT TEMP	QTY	POWER	VOLTS	PH	FREQ	MCA				MOCp
CU-1	DX SPLIT CONDENSER, AC	2.5	SCROLL	1	R-454B	95 °F	1	0.13 hp	208 V	1	60 Hz	16.6 A	25 A	13.5	200 lb	LENNOX ML14KC1-030 OR APPROVED EQUAL

NOTES:

- PROVIDE SUCTION ACCUMULATORS.
- LIQUID AND SUCTION LINES SHALL BE SIZED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS WITH CONSIDERATIONS FOR ALL ACCESSORIES, LENGTH OF RUNS, TURNS AND RISES TO ENSURE PROPER OPERATION AND CAPACITY.
- PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PAD WITH CHAMFERED EDGES (REINFORCED WITH RODS) 6" BEYOND THE EDGE OF THE UNIT FOOTPRINT ON ALL SIDES.
- INSTALL WITH MANUFACTURER'S RECOMMENDED AIRFLOW AND SERVICE CLEARANCES.

SCHEDULE - AIR DEVICES

MARK	SERVICE	GRILLE	DIFFUSER	SLOT	CEILING	WALL	DAMPER	DUCT	DESCRIPTION	FACE SIZE	NECK		MATERIAL	FINISH	MANUFACTURER / MODEL
											TYPE	SIZE			
RA	RETURN	X		X		X			LOUVER FACE WITH 3/4" BLADE SPACING	24 X 24	RECT	24 X 24	ALUMINUM	BAKED ENAMEL	PRICE 630 OR APPROVED EQUAL
RB	RETURN	X				X			45° DEFLECTION SIDEWALL GRILLE W/ 3/4" BLADE SPACING	16 X 16	RECT	16 X 16	ALUMINUM	BAKED ENAMEL	PRICE 630 OR APPROVED EQUAL
SA	SUPPLY		X	X					SQUARE PLAQUE DIFFUSER	24 X 24	ROUND	8	ALUMINUM	BAKED ENAMEL	PRICE ASPD OR APPROVED EQUAL
SB	SUPPLY		X	X					SQUARE PLAQUE DIFFUSER	24 X 24	ROUND	10	ALUMINUM	BAKED ENAMEL	PRICE ASPD OR APPROVED EQUAL
SC	SUPPLY	X				X	X		DOUBLE DEFLECTION, 3/4" BLADE SPACING, DAMPER ON REAR	12 X 8	RECT	12 X 8	ALUMINUM	BAKED ENAMEL	PRICE 620 OR APPROVED EQUAL

NOTES:

- REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE. PROVIDE PLASTER FRAME FOR GYPSUM BOARD CEILING INSTALLATION.
- ALL GRILLES AND DIFFUSERS SHALL COME WITH WHITE FINISH UNLESS SPECIFIED OTHERWISE BY THE ARCHITECT. FINISH SHALL BE SUITABLE FOR FIELD PAINTING WITHOUT ANY ADDITIONAL PREPARATION.
- MANUFACTURERS AND MODEL NUMBERS LISTED REPRESENT BASIS OF DESIGN AND QUALITY OF EQUIPMENT TO BE INSTALLED.
- FOR BIDDING, FIGURE SQUARE TO ROUND TRANSITIONS FOR ALL SQUARE NECK GRILLES AND DIFFUSERS FOR CONNECTION TO ROUND BRANCH DUCTS.

SCHEDULE - GRAVITY VENTILATORS

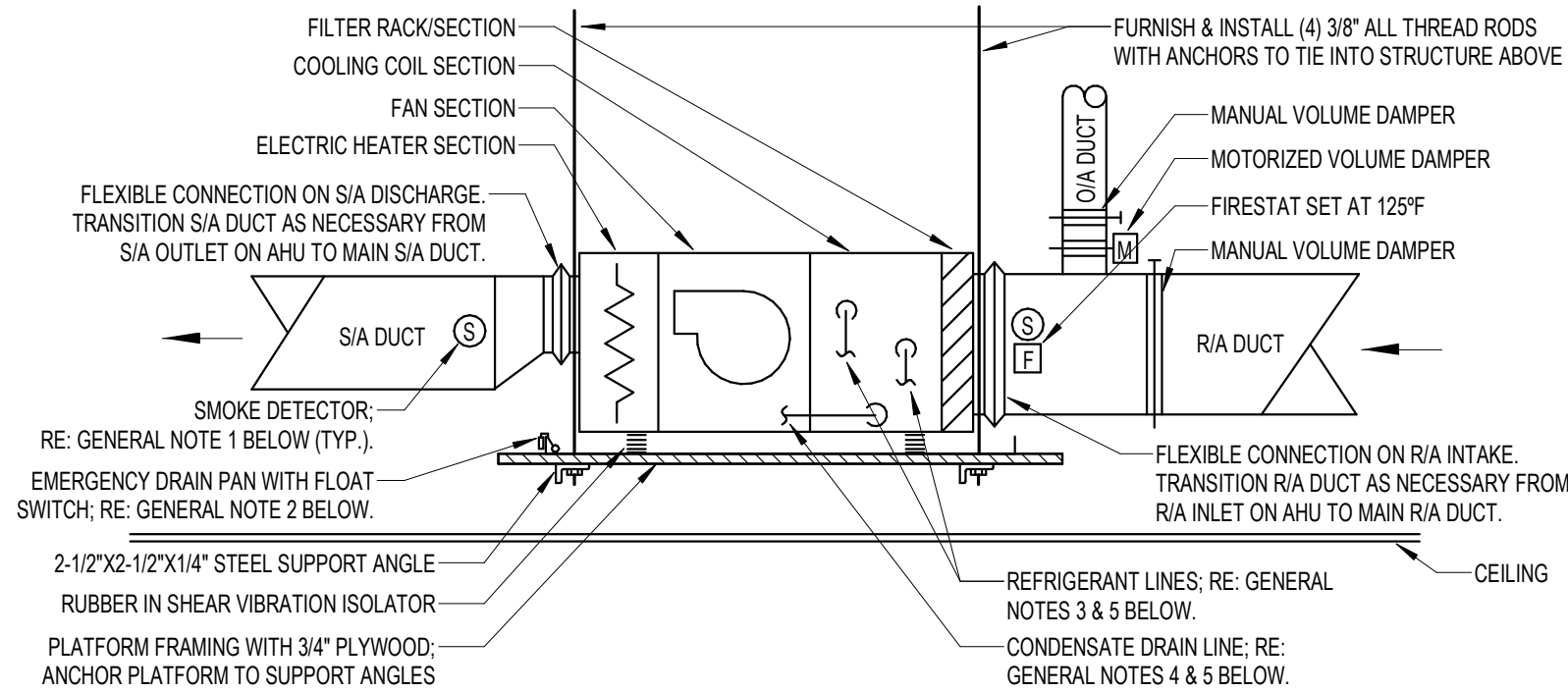
MARK	SERVICE	AIRFLOW	THROAT SIZE	ROOF OPENING	THROAT VELOCITY	STATIC PRESSURE DROP	MANUFACTURER / MODEL
RH-1	AHU-1 OA	100 CFM	8"x8"	12"x12"	270 FPM	0.01 in-wg	GREENHECK GRSJ-8 OR APPROVED EQUAL

NOTES:

- ALUMINUM CONSTRUCTION - HOUSING, 1/2" ALUMINUM MESH BIRDSCREEN.
- HOOD SHALL HAVE HINGED OPENING OR SHALL BE ABLE TO BE COMPLETELY REMOVED FROM BASE.
- PROVIDE WITH PREFABRICATED ROOF CURB. COORDINATE WITH GENERAL CONTRACTOR ON EXACT HEIGHT REQUIRED FOR COUNTER FLASHING.
- 1" THICK HOOD INSULATION.
- CONTRACTOR SHALL COORDINATE & VERIFY EXACT ROOF OPENING REQUIRED WITH MANUFACTURER OF ACTUAL EQUIPMENT SUPPLIED TO PROJECT.
- COORDINATE WITH ARCHITECT ON FINISH/COLOR.

MECHANICAL KEYNOTES:

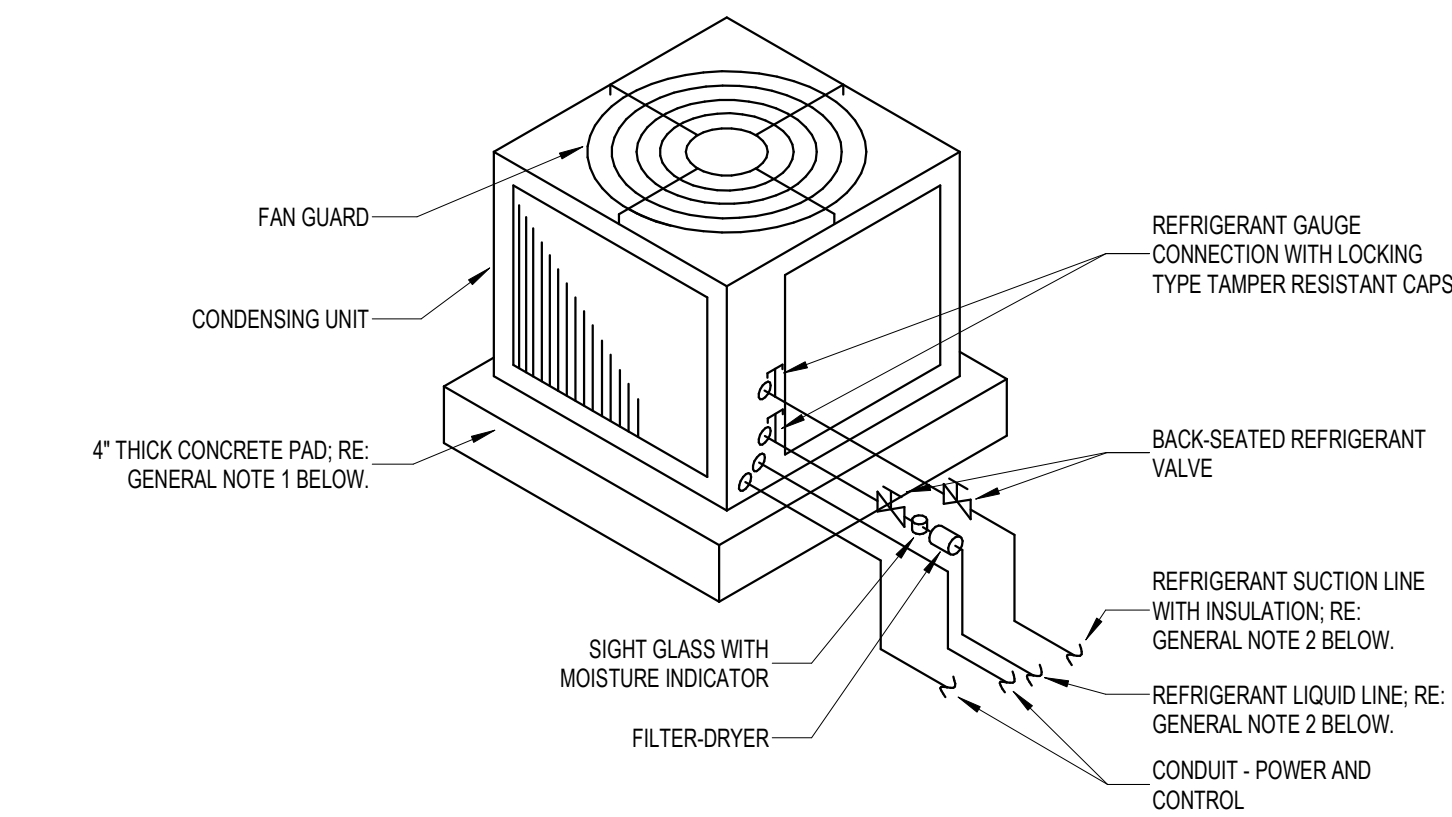
- HORIZONTAL AIR HANDLING UNIT SUSPENDED ABOVE CEILING. PROVIDE 4" TALL 16 GAUGE GALVANIZED STEEL DRAIN PAN WITH FLOAT SWITCH (TO DEENERGIZE ASSOCIATED CONDENSING UNIT WHEN TRIPPED) UNDER ENTIRE UNIT. ROUTE INSULATED 3/4" COPPER CONDENSATE DRAIN LINE FROM UNIT TO HUB DRAIN AND TURN DOWN. PROVIDE NIPPLE ON AUXILIARY DRAIN PAN. ROUTE CONDENSATE DRAIN LINE FROM AUXILIARY DRAIN PAN WITH SHUT OFF VALVE (NORMALLY CLOSED) TO HUB DRAIN AND TURN DOWN WITH AIR GAP. PROVIDE FULL SIZE PLENUM ON REAR OF AIR HANDLING UNIT. LENGTH AS REQUIRED FOR BRANCH DUCT CONNECTIONS. PROVIDE MANUAL VOLUME DAMPERS ON OUTSIDE AIR AND RETURN AIR DUCT CONNECTIONS. PROVIDE MOTORIZED DAMPER IN OUTSIDE AIR DUCT (TO CLOSE WHEN UNIT DEENERGIZES). COORDINATE WITH ELECTRICAL CONTRACTOR FOR MOTORIZED DAMPER POWER (120/160). RE: DETAIL.
- CONDENSING UNIT ON 4" HIGH CONCRETE HOUSEKEEPING PAD, EXTENDED MINIMUM 6" AROUND ENTIRE UNIT. CONTINUOUS WITH BUILDING SLAB. ROUTE REFRIGERANT LINES AND CONTROL WIRE/CONDUIT DOWN LOW THROUGH EXTERIOR WALL WITHIN COMMON WALL SLEEVE, UP WITHIN EXTERIOR WALL, INTO CEILING SPACE TO THE ASSOCIATED INDOOR UNIT. PROVIDE REFRIGERANT PIPE SUPPORTS MINIMUM EVERY 4'-0" AND AT ANY CHANGE IN DIRECTION. SEAL ALL BUILDING PENETRATIONS WEATHER TIGHT. COORDINATE EXACT LOCATION WITH THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. RE: DETAIL.
- THERMOSTAT. COORDINATE EXACT LOCATION WITH ARCHITECT, OWNER'S REPRESENTATIVE, AND THE WORK OF OTHER TRADES PRIOR TO INSTALLATION. TYPICAL.
- DUCT UP TO GRAVITY VENTILATOR ON PRE-FABRICATED ROOF CURB; TRANSITION DUCT TO GRAVITY VENTILATOR AS REQUIRED; COORDINATE COLOR SELECTION AND CURB HEIGHT WITH ARCHITECT AND GENERAL CONTRACTOR. RE: DETAIL.
- MANUAL VOLUME DAMPER WITH STAND-OFF BRACKET; ADJUSTABLE AND LOCKABLE. TYPICAL.
- COORDINATE WITH ARCHITECT FOR EXACT CEILING TYPES AND AREAS OPEN TO STRUCTURE PRIOR TO ORDERING ANY EQUIPMENT OR DEVICES. COORDINATE PAINTING OF EXPOSED DUCT AND AIR DEVICES WITH THE ARCHITECT.
- 2" PVC HUB DRAIN WITH FUNNEL ABOVE CEILING FOR MECHANICAL EQUIPMENT CONDENSATE. COORDINATE EXACT LOCATION WITH THE AHU INSTALLATION LOCATION PRIOR TO ROUGH-IN. INSULATE HUB DRAIN TRAP AND HORIZONTAL DRAIN LINE BACK TO VERTICAL PIPE DROP. PROVIDE HUB DRAIN WITH TRAP GUARD (PROVENT SYSTEMS #TG23FHD OR EQUAL). RE: DETAIL. ROUTE 2" PVC AS SHOWN, CONCEALED WITHIN WALLS AND ABOVE CEILING, DOWN TO BELOW GRADE, INTO DRYWELL AND TURN DOWN.
- DRYWELL FOR AIR HANDLING UNIT CONDENSATE REMOVAL. RE: DETAIL.



GENERAL NOTES:

- ALL UNITS 2000 CFM AND ABOVE: FURNISH AND INSTALL DUCT MOUNTED SMOKE DETECTORS IN THE MAIN RETURN AND SUPPLY AIR DUCTS UPSTREAM OF ANY FILTERS, DUCT CONNECTIONS, ETC. PROVIDE LOCAL AUDIO/VISUAL ALARM IN VISIBLE AREA ON NEARBY WALL.
- EMERGENCY DRAIN PAN TO BE CONSTRUCTED OUT OF 16 GA. GALVANIZED SHEET METAL AND TO BE OF ALL WELDED CONSTRUCTION. DRAIN PAN DIMENSIONS TO BE 4" HIGH AND EXTEND A MINIMUM OF 8" ALL AROUND AHU.
- ALL REFRIGERANT LINES SHALL BE SIZED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFRIGERANT LINES SHALL BE ROUTED EXPOSED THROUGH ATTIC OR CEILING SPACE AND DOWN EXTERIOR WALL TO RESPECTIVE CONDENSING UNIT. TURN REFRIGERANT LINES OUT OF EXTERIOR WALL 0'-6" ABOVE GRADE AND SEAL WALL PENETRATION WATER TIGHT.
- CONDENSATE DRAIN LINE SHALL BE INSTALLED WITH "P-TRAP" AND SHALL BE INSULATED. CONDENSATE DRAIN LINE SHALL BE ROUTED WITH DISCHARGE TO NEAREST HUB DRAIN AND MUST MAINTAIN MINIMUM 2" AIR GAP BETWEEN DRAIN TERMINATION AND HUB DRAIN RIM. COORDINATE NEAREST HUB DRAIN LOCATION WITH PLUMBING PLAN.
- ALL REFRIGERANT AND CONDENSATE DRAIN LINES SHALL BE ROUTED IN SUCH A MANNER AS TO NOT BLOCK OR OBSTRUCT ANY ACCESS (FILTER, COOLING COIL, FAN, ECT.) TO AIR HANDLING UNIT.

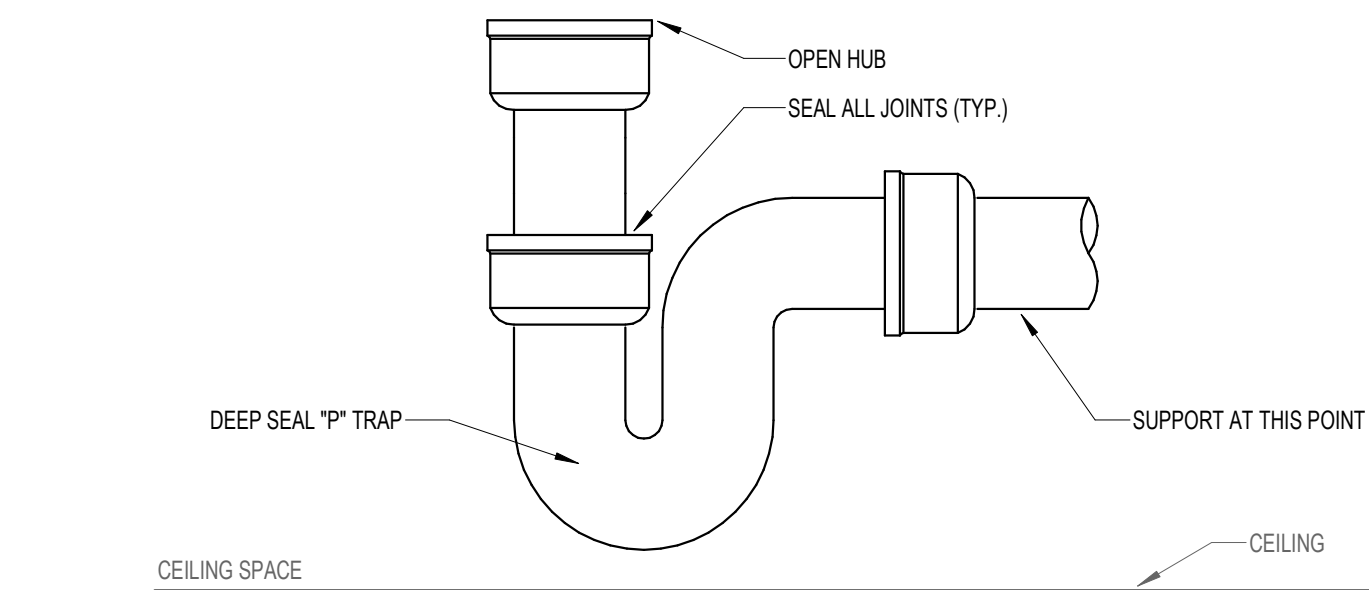
2 DETAIL - HORIZONTAL DX AIR HANDLING UNIT N.T.S.



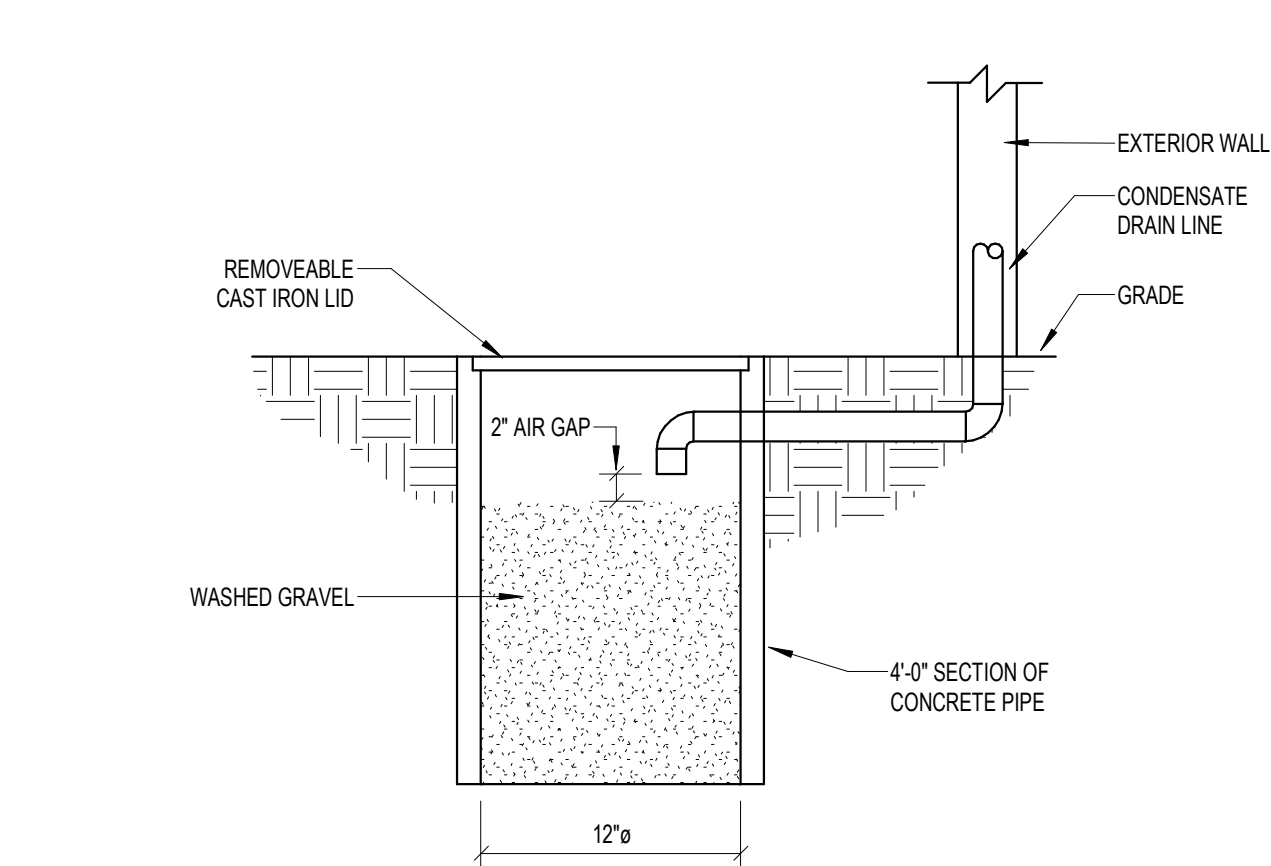
GENERAL NOTES:

- CONDENSING UNIT SHALL BE MOUNTED ON 4" THICK CONCRETE PAD TO EXTEND A MINIMUM OF 6" ALL AROUND UNIT. CONDENSING UNITS SHALL BE LOCATED WITH A MINIMUM OF 3'-0" CLEARANCE BETWEEN UNITS.
- ALL REFRIGERANT LINES SHALL BE SIZED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFRIGERANT LINES SHALL BE ROUTED UP EXTERIOR WALL AND EXPOSED THROUGH ATTIC OR CEILING SPACE TO RESPECTIVE AIR HANDLING UNIT. SEAL WALL PENETRATION WATER TIGHT.

3 DETAIL - AIR COOLED DX CONDENSING UNIT N.T.S.



4 DETAIL - HUB DRAIN N.T.S.



5 DETAIL - DRYWELL N.T.S.



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

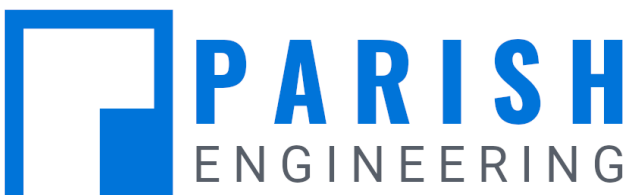
NO.	REVISION / ISSUE	DATE

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DRAWING NAME

MECHANICAL PLAN

SHEET NO.

M1.0



EXTERNAL INSULATION: SEE SPECIFICATIONS.

DUCTWORK

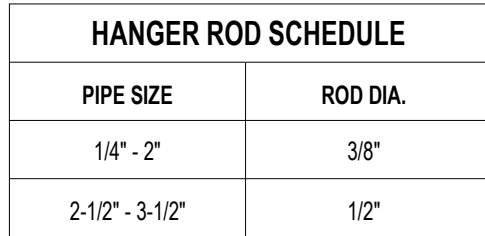
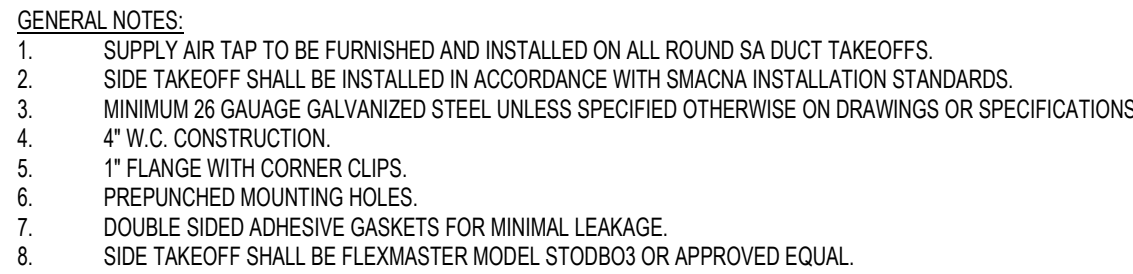
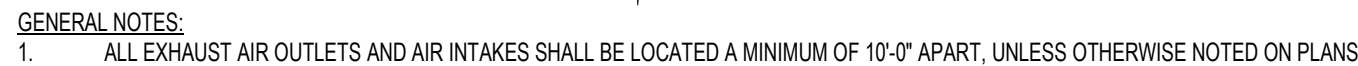
HANGER STRAPS; STRAPS SHALL BE TIGHT TO DUCT AND SECURED TO STRUCTURE ABOVE

DUCTWORK

SECURE STRAPS WITH SELF-TAPPING CADMIUM PLATED HEX HEAD SHEET METAL SCREW; NO POP RIVETS ALLOWED

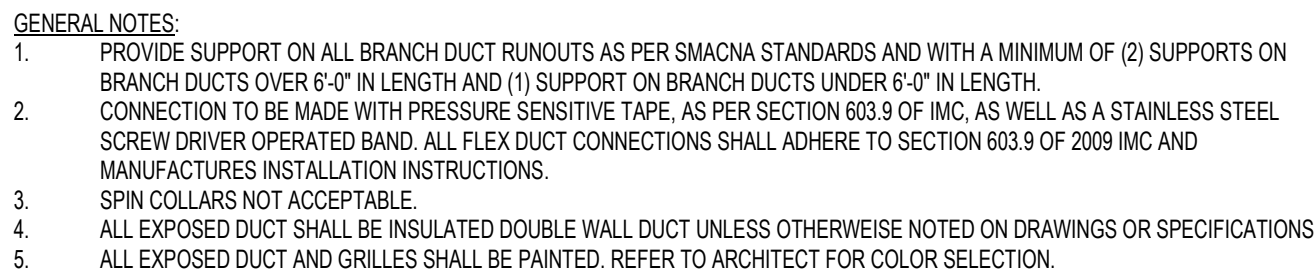
4" MIN.

1"

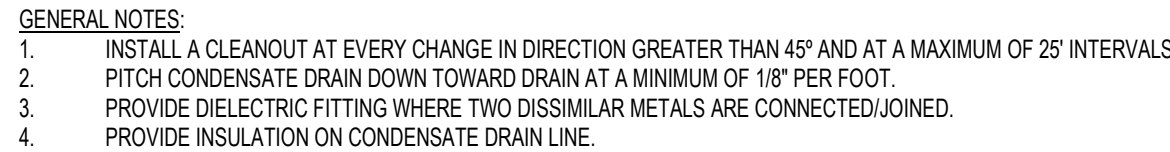
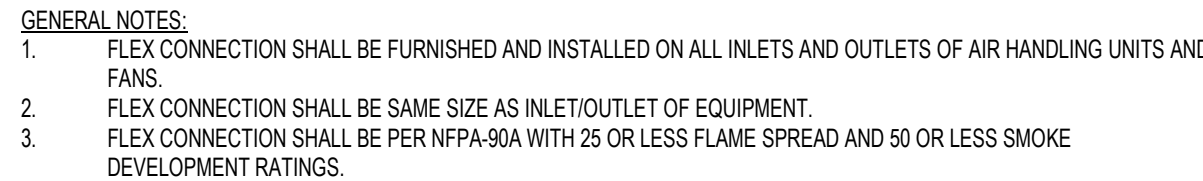


GENERAL NOTES:

1. HANGERS IN CONTACT WITH COPPER SHALL BE COPPER PLATED OR TEFLON COATED
2. MAXIMUM HORIZONTAL PIPE HANGER AND SUPPORT SPACING IS 5'-0".



ROUND BRANCH DUCT SIZING:	
DUCT SIZE	CFM RANGE
6"	000-120
8"	121-235
10"	236-340
12"	341-550
14"	551-745



THE ARC PROJECT
DONALDSONVILLE, LA

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DRAWING NAME

MECHANICAL DETAILS

SHEET NO.

M2.0



HVAC SPECIFICATIONS

15010 BASIC MECHANICAL REQUIREMENTS

GENERAL REQUIREMENTS

"PROVIDE" MEANS FURNISH AND INSTALL. THIS CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED "BY OTHERS" AND/OR OWNER.

CONTRACTOR IS RESPONSIBLE FOR A COMPLETE SYSTEM. ALL EQUIPMENT AND RELATED ITEMS BY HVAC CONTRACTOR UNLESS OTHERWISE NOTED IN THESE SPECIFICATIONS.

IT IS THE INTENT OF THESE CONSTRUCTION DOCUMENTS TO DEPICT ENGINEERED DUCT, PIPE, AND EQUIPMENT ARRANGEMENTS THAT MINIMIZE CONFLICTS AND/OR INTERFERENCES WITH STRUCTURES AND OTHER TRADES. FINAL CONSTRUCTION COORDINATION WITH OTHER TRADES TO AVOID SUCH CONFLICTS IS THE RESPONSIBILITY OF THIS HVAC SUBCONTRACTOR.

DIFFERENCES AND/OR CONFLICTS BETWEEN CONTRACT DRAWING AND SPECIFICATION AND SHOP DRAWINGS, SHALL BE CALLED TO THE ENGINEER'S ATTENTION. IF DIFFERENCES AND/OR CONFLICTS ARE NOT NOTED TO CONTRACTOR PRIOR TO CONTRACT, CONTRACTOR SHALL DETERMINE GOVERNING CONDITION AND SUBCONTRACTOR SHALL PERFORM WORK AT NO ADDITIONAL COST TO THE OWNER.

TRADE NAMES ARE USED TO ESTABLISH QUALITY. SUBSTITUTIONS OF EQUIVALENT QUALITY MAY BE USED IF PRIOR APPROVED BY THE ENGINEER.

RECORD DRAWINGS

PROVIDE RECORD DRAWINGS SHOWING LOCATIONS OF ALL CHANGES IN EQUIPMENT, PIPING AND DUCT ARRANGEMENTS. DRAWINGS SHALL BE RED PENCIL ON BLUE OR BLACK LINE PRINTS, DETAILS AND SCHEDULES SHALL BE KEPT UP TO DATE ON A DAILY BASIS. THESE DRAWINGS SHALL BE AVAILABLE TO THE BUILDER OR HIS REPRESENTATIVE AT THE JOB SITE.

AT COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT UPDATED PRINTS TO THE BUILDER, BEFORE RECEIPT OF FINAL PAYMENT.

MATERIALS FURNISHED BY OWNER

WILL BE RECEIVED, CHECKED FOR PROPER ACCESSORIES AND STORED AT THE SITE IN A CONVENIENT LOCATION FOR THE CONTRACTOR. UNLESS OTHERWISE SPECIFIED, ALL EQUIPMENT INDICATED IN THE SPECIFICATIONS, DETAILS, SCHEDULES, AND/OR ON THE DRAWINGS AS "FURNISHED BY OWNER" WILL BE FURNISHED BY OWNER AND INSTALLED BY THE CONTRACTOR. ALL OTHER EQUIPMENT AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR.

CONTRACTOR'S EQUIPMENT STORAGE

EQUIPMENT STORED AT THE SITE SHALL BE ADEQUATELY PROTECTED FROM THE WEATHER.

START UP

CONTRACTOR TO LUBRICATE BEARINGS AS REQUIRED, INSTALL BELTS AND CHECK FOR PROPER BELT TENSION AND MOTOR ROTATION, INSTALL ALL SAFETY DEVICES, RELIEF VALVES, AND FILTERS, CONNECT ALL DAMPER LINKAGES AND REMOVE ALL SHIPPING HOLD DOWN CLAMPS AND BLOCKING.

SYSTEM BALANCING

OBTAIN THE SERVICES OF AN INDEPENDENT AIR BALANCE AND TESTING AGENCY WHICH SPECIALIZES IN THE TESTING, AND BALANCING OF HEATING, VENTILATING, AIR CONDITIONING SYSTEMS; TO TEST, ADJUST AND BALANCE ALL SUPPLY, RETURN, AND EXHAUST SYSTEMS.

ALL WORK TO BE PERFORMED IN COMPLETE ACCORDANCE WITH THE ASSOCIATED AIR BALANCE COUNCIL (AABC) NATIONAL STANDARDS FOR FIELD MEASUREMENTS AND INSTRUMENTATION, LATEST ADDITION, THOSE SECTIONS APPLICABLE TO AIR DISTRIBUTION.

EQUIPMENT SUPPORT

ALL HEATING DEVICES AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT DEPEND UPON CEILING OR WALL SURFACES FOR THEIR SUPPORT. THEY SHALL BE INCAPABLE OF BEING ROTATED OR DISPLACED. THE SUPPORT ATTACHMENT SHALL ADEQUATELY SUPPORT THE WEIGHT OF THE FIXTURE, DEVICE, OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT.

TOUCH UP AND COMPLETION

BUILDER WILL PAINT ALL EXTERIOR EXPOSED HVAC EQUIPMENT INCLUDING DUCTS, PIPES, LOUVERS, ETC. WHICH ARE SCRATCHED OR MARRED DURING CONSTRUCTION.

HVAC CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND KEEPING CLEAN HVAC EQUIPMENT DURING INSTALLATION. HVAC CONTRACTOR TO TEST EACH SYSTEM OR PIECE OF EQUIPMENT INSTALLED AND REPORT TO BUILDER ANY EQUIPMENT DAMAGE OR MALFUNCTION.

ELECTRICAL WIRING

ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE ALL POWER WIRING INCLUDING CONDUIT, WIRE AND CONNECTIONS. ALL STARTERS, FUSES, AND DISCONNECTS BY OTHERS EXCEPT WHERE SPECIFIED AS PART OF PACKAGE EQUIPMENT. STARTERS THAT COME WITH EQUIPMENT SHALL BE AUTOMATIC AND HAVE 1/2" O.L. APPROPRIATE COVERS AND INTERLOCKS. ALL MOTORS LESS THAN 1/2 HP ARE 115/200V1 WITH INTEGRAL THERMAL OVERLOAD UNLESS OTHERWISE SPECIFIED.

ELECTRICAL CONTRACTOR SHALL LABEL ALL REMOVABLE PANELS FOR DISCONNECTS IN EQUIPMENT CABINETS WITH NAMEPLATE FURNISHED BY BUILDER (LABELED "ELECTRICAL SERVICE DISCONNECT LOCATED BEHIND THIS PANEL.")

SHOP DRAWINGS

SUBMIT TO THE ENGINEER FOR REVIEW IMMEDIATELY AFTER AWARD OF CONTRACT, SIX (6) COPIES OF COMPLETE DESCRIPTIVE INFORMATION AND DIMENSIONAL DATA ON ALL ITEMS OF EQUIPMENT, MATERIALS, AND ACCESSORIES. SUBMIT ALL SHOP DRAWINGS AT ONE TIME. PIECE MEAL SUBMISSION SHALL NOT BE ACCEPTABLE.

"AS BUILT DRAWINGS": CONTRACTOR SHALL BE FURNISHED WITH ONE (1) SET OF BLUE OR BLACK LINE PRINTS, ON WHICH CONTR. SHALL SHOW ANY CHANGES IN THE WORK CAUSED BY UNFORESEEN CIRCUMSTANCES AND THESE DRAWINGS SHALL BE TURNED OVER TO THE ENGINEER IN GOOD ORDER PRIOR TO FINAL ACCEPTANCE OF THE BLDG. ENGINEER IN TURN PREPARE RECORD DRAWINGS FROM INFORMATION FURNISHED BY CONTR.

"PARTS CATALOG": FURNISH TO THE ENGINEER FOR THE OWNER, THREE (3) COMPLETE SETS OF PARTS CATALOGS AND OPERATING INSTRUCTIONS BOUND IN LARGE BINDERS FOR HIS USE. CONTR. SHALL INSTRUCT OWNER'S OPERATOR IN THE PROPER CARE, OPERATION, LUBRICATION, AND MAINTENANCE OF MECHANICAL EQUIPMENT INSTALLED.

GUARANTEE AND SERVICE

GUARANTEE ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FOLLOWING DATE OF ACCEPTANCE. GUARANTEE ALL EQUIPMENT CONTAINING ALL RECIPROCATING REFRIGERATION COMPRESSORS FULL FIVE (5) YEARS COVERING COMPRESSORS, LABOR, AND REFRIGERANT. GUARANTEE DOES NOT INCLUDE NORMAL MAINTENANCE ITEMS.

15050 BASIC MATERIALS AND METHODS

MECHANICAL IDENTIFICATION

EQUIPMENT STENCILS SHALL IDENTIFY THE TYPE AND SERVICE WITH THE SAME NAMES, NUMBERS, AND/OR LETTERS USED TO IDENTIFY THE EQUIPMENT ON THE DRAWINGS. ALL STARTERS SHALL BE SIMILARLY STENCILED. UNIT IDENTIFICATION OF MINOR HEATING EQUIPMENT LOCATED IN THE ROOM IT SERVES, SUCH AS CONVECTORS, FINNED PIPE, UNIT HEATERS, ETC.

VIBRATION ISOLATORS

INSTALL VIBRATION ISOLATORS AS SHOWN ON DETAILS OR AS NOTED ON SCHEDULES.

PIPE INSULATION - REFRIGERANT SUCTION & CONDENSATE DRAIN LINES

INSTALL 3/4 INCH ARMAFLEX PER MANUFACTURER'S INSTRUCTIONS. ALL OUTSIDE LINES TO BE PAINTED WITH ARMAFLEX WB OUTDOOR FINISH. FOR LINES IN CEILING PLENUMS USE 1-1/2 INCH GLASS FIBER WITH INTEGRAL VAPOR BARRIER. MUST HAVE A CONTINUOUS SEALED VAPOR BARRIER ON ALL SUCTION LINES.

PIPE INSULATION - HOT AND COLD WATER DOMESTIC PIPING

INSULATE ALL HW AND CW PIPING IN EXTERIOR WALLS AND IN ATTIC SPACE W/ 3/4 INCH THK. FIBERGLASS INSULATION WITH FRJ JACKET. ALL JOINTS AND ELBOWS SHALL BE NEATLY MITERED AND SEALED COVERED PVC COVER/JACKET.

REFRIGERATION PIPING

HVAC CONTRACTOR TO INSTALL PRE-CLEANED, (DRIED AND SEALED) FACTORY REFRIGERANT LINE SETS. SEE DRAWINGS FOR SIZES AND ROUTING.

REFRIGERATION SYSTEMS PIPE WORK

PITCH HORIZONTAL PIPING DOWN IN THE DIRECTION OF REFRIGERANT FLOW NOT LESS THAN 1 INCH IN 40 FEET.

PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUDGING AT THE COMPRESSOR AND TO INSURE PROPER LUBRICATION.

SLEEVES

PIPE SLEEVES: WROUGHT IRON OR STEEL, OF SUFFICIENT SIZE FOR PIPING INSTALLATION IN FLOORS, WALLS, BELOW GRADE, AND GRADE BEAMS WHERE PIPING PASSES THROUGH. PVC MAY ONLY BE USED WHERE SPECIFICALLY NOTED.

HANGERS AND SUPPORTS

HORIZONTAL PIPING ABOVE GRADE, RIGIDLY SUPPORTED ON MALLEABLE IRON SPLIT RING HANGERS, SUPPORTS FOR TWO OR MORE SYSTEMS OF PIPING IN PARALLEL, AND WITH SAME GRADE, TRAPEZE HANGERS MAY BE USED. USE ALL THREADED RODS FOR HANGERS AND SUPPORTS.

MAXIMUM SPACING OF SUPPORTS AND HANGERS FOR HORIZONTAL RUNS OF PIPE: FIVE (5) FEET FOR SOIL; TEN (10) FEET FOR PIPE OTHER THAN SOIL EXCEPT PIPING 1-1/2 INCH AND SMALLER SUPPORT EVERY SIX (6) FEET. PROVIDE GALVANIZED IRON SHIELDS BETWEEN HANGERS AND PIPE COVERINGS ON INSULATED PIPING. NO STRAP HANGERS OR WIRE WILL BE ACCEPTED.

SET INSERTS IN CONCRETE FOR HANGER RODS AND DUCT HANGERS WHERE APPLICABLE.

CONTR. SHALL SUPPORT DUCTWORK IN STRICT ACCORDANCE TO SMACNA STANDARDS, REFER TO DUCTWORK SPECIFICATION, THIS SHEET.

ACCESS PANELS

FACTORY MADE ACCESS DOORS AND FRAMES, PRIME COAT FINISH, SCREWDRIVER LATCH(S) OF SUITABLE SIZE AS REQUIRED; ACCESS PANELS IN RATED CEILING TO HAVE SAME RATING AS CEILING. ACCESS PANELS IN LINED DUCTWORK TO BE DOUBLE WALL TYPE WITH INSULATION SANDWICHED IN BETWEEN. SAME INSULATION VALUE AS ADJACENT DUCTWORK, WHERE VALVES, DAMPERS, CONTROLS, FIRE DAMPERS, SMOKE DAMPERS AND DETECTORS, REHEAT COILS, ETC. ARE CONCEALED IN WALLS OR NON-ACCESSIBLE CEILINGS, INSTALL FACTORY MADE ACCESS DOORS AND FRAMES.

FLOOR, WALL, AND CEILING PLATES (ESCUTCHEONS)

WHERE ANY PIPE OR RISERS PASS EXPOSED THROUGH WALLS, PARTITIONS, FLOORS OR CEILING, USE CHROME PLATED FLOOR OR CEILING PLATES. PLATES SHALL BE LARGE ENOUGH TO COMPLETELY CLOSE HOLE AROUND THE PIPES AND BE ROUND WITH THE LEAST DIMENSION NOT LESS THAN 1-1/2" LARGER THAN THE DIAMETER OF THE PIPE. PLATES SHALL BE SECURED IN AN APPROVED MANNER.

CUTTING AND PATCHING

CUT ALL OPENINGS AS REQUIRED FOR THE WORK UNDER THIS SECTION. PATCHING SHALL BE DONE BY THE CRAFT WHOSE WORK IS INVOLVED. FURNISH AND INSTALL ALL NECESSARY SLEEVES, THIMBLES, HANGERS, INSERTS, ETC., AT SUCH TIME AND IN SUCH A MANNER SO AS NOT TO DELAY OR INTERFERE WITH WORK OF OTHER TRADES. NO BEAMS OR JOISTS SHALL BE CUT. AFTER RESURFACING HAS BEEN DONE, ANY FURTHER CUTTING, PATCHING AND PAINTING SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.

15400 PLUMBING

ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LOUISIANA STATE SANITARY CODE ALONG WITH ALL LOCAL CODES, ORDINANCES, AND REGULATIONS.

SLOPE DRAINAGE LINES, 3" AND SMALLER, 1/4" PER FOOT AND LINES 4" AND LARGER 1/8" PER FOOT.

ALL PIPES THRU WALL TO BE EQUIPPED WITH ESCUTCHEONS, CHROME PLATED.

SANITARY SEWER PIPING: ASTM D2556, PVC-DWV, SCHEDULE 40 SEWER PIPE WITH PVC FITTINGS, SOLVENT WELD JOINTS, ASTM D2564.

SANITARY SEWER PIPING: SERVICE WEIGHT ASTM A74 HUB-AND-SPIGOT OR CISPI 301HUBLESS CAST IRON PIPE, ALL FITTING SHALL MATCH PIPE IN STANDARDS AND QUALITY. JOINTS SHALL BE CISPI HSN COMPRESSION TYPE WITH ASTM C564 NEOPRENE GASKET OR CISPI 310 NEOPRENE GASKET AND STAINLESS STEEL CLAMP AND SHIELD ASSEMBLIES. JOINT SHALL MATCH PIPE IN STANDARDS AND QUALITY

WATER PIPING: COPPER TUBING, ASTM B88 TYPE "L" SOFT DRAWN (UNDERGROUND) AND TYPE "L" HARD (ABOVE SLAB) DRAWN WITH ANSI/ASME B16.29 WROUGHT COPPER FITTINGS, JOINT SILVER SOLDERED NO JOINTS ALLOWED UNDERGROUND.

CONTRACTOR SHALL PROVE EITHER AIR CHAMBERS (MIN. 18" HIGH) OR SHOCK ABSORBERS AT ALL FIXTURES TO PREVENT WATER HAMMER, APPLIES ALL RISER DIAS.

SUPPORT ALL PIPING W/ CLEVIS TYPE HANGERS, EIGHT (8) FOOT CENTERS.

CONTRACTOR SHALL PROVIDE NEW WATER SERVICE. CONTRACTOR SHALL OBTAIN PRICES FROM LOCAL WATER COMPANY FOR THEIR REQUIRED SERVICES. PRICES SHALL INCLUDE ALL NECESSARY EQUIPMENT, LABOR, ETC. FOR TIE-INS TO MAIN INCLUDING COST OF BUT NOT LIMITED TO ALL METERS, FEES, PERMITS, ETC.

PLUMBING CONTRACTOR SHALL INSTALL AND CONNECT ALL OWNER FURNISHED EQUIP. REQUIRING SERVICES (WATER OR SANITARY WASTE).

CONTRACTOR SHALL PROVIDE NEW SANITARY SEWER SERVICES. CONTRACTOR SHALL COORDINATE WITH CITY: PARISH FOR LOCATION OF TIE-IN ALONG WITH INCLUDING COSTS OF ALL PERMITS, FEES, ETC. IN HIS BID. BEFORE COMMENCING WORK CHECK ALL INVERT ELEVATIONS FOR SEWER CONNECTIONS, CONFIRM INVERTS AND ENSURE THAT THESE CAN BE PROPERLY CONNECTED WITH PROPER SLOPE FOR DRAINAGE.

CONTRACTOR SHALL PROVIDE EXTERIOR CLEANOUTS EVERY 75 FEET AND AT ALL TURNS.

15650 REFRIGERATION

AIR HANDLING UNIT / CONDENSING
SEE MECHANICAL SCHEDULES SHEET M1.0.

15850 AIR HANDLING

SEE MECHANICAL SCHEDULES SHEET M1.0.

GENERAL

ALL RIGHTS AND LEFTS FOR FAN UNITS SHALL BE DETERMINED BY LOOKING INTO THE AIR OUTLET, CLOCKWISE AND COUNTERCLOCKWISE ROTATION SHALL BE DETERMINED BY VIEWING FROM THE DRIVE SIDE.

15880 AIR DISTRIBUTION

DUCTWORK

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

VERIFY ALL DIMENSIONS. DIMENSIONS SHOWN ARE METAL TO METAL AREAS. ALL DUCTWORK SHALL HAVE MAXIMUM 5% LEAKAGE.

GALVANIZED SHEET METAL DUCTWORK FIRST QUALITY, COLD ROLLED, GALVANIZED, OPEN HEARTH SOFT STEEL SHEETS, CAPABLE OF DOUBLE SEAMING WITHOUT FRACTURE. TRANSVERSE JOINTS ON RECTANGULAR DUCTWORK WITH SLIPS AND DRIVES SHALL HAVE DRIVES BENT OVER AT CORNERS, GAUGES AND JOINT CONNECTORS PER LOCAL CODES, SMACNA, OR ASHRAE RECOMMENDATIONS AND THE FOLLOWING UNLESS OTHERWISE NOTED. FLEX DUCT WILL BE PERMITTED FOR RUN-OUTS SHORTER THAN 10 FEET AND THE LAST 4 FEET OF A RUN OUT.

ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P. WITH THE FOLLOWING METAL THICKNESS.

ROUND DUCTS - SNAP LOCK

UP TO 12" DIAMETER #26 GAUGE MINIMUM.
13 INCH TO 18 INCH DIAMETER #24 GAUGE MINIMUM.
19 INCH TO 24 INCH DIAMETER #22 GAUGE MINIMUM

SPIRAL LOCK SEAM ROUND DUCTS MAY BE ONE GAUGE LIGHTER THAN GAUGES SHOWN.

RECTANGULAR DUCTS AND PLENUMS

MAXIMUM SIDE UP TO 12 INCH #26 GAUGE MINIMUM
MAXIMUM SIDE 13 INCH TO 30 INCH #24 GAUGE MINIMUM
MAXIMUM SIDE 31 INCH TO 50 INCH #22 GAUGE MINIMUM
MAXIMUM SIDE 51 INCH TO 84 INCH #20 GAUGE MINIMUM
MAXIMUM SIDE 85 INCH AND UP #18 GAUGE MINIMUM

AS NOTED ON DRAWINGS #16 GAUGE

FOR GREATER THAN 24 INCHES USE REINFORCEMENT AS LISTED IN LATEST SMACNA LOW PRESSURE SHEET METAL CONSTRUCTION GUIDE, SECURELY HUNG, BRACED AND STIFFENED TO PREVENT BREATHING, RATTLING, VIBRATION AND SAGGING.

DUCT SIZES 19 INCHES WIDE AND LARGER WHICH HAVE MORE THAN 10 SQUARE FEET OF UNBRAZED PANEL SHALL BE CROSS BROKEN OR BEADED.

SUPPORT ALL DUCTS IN ACCORDANCE WITH SMACNA, EXCEPT WIRE HANGERS SHALL NOT BE PERMITTED. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD.

SEAL ALL DUCTWORK SERVING SYSTEMS HAVING FANS RATED FOR LESS THAN 2 INCHES STATIC PRESSURE IN ACCORDANCE WITH SMACNA, SEAL CLASS C. ALL TRANSVERSE JOINTS, FITTING CONNECTIONS, AND SQUARE OR RECTANGULAR TO ROUND CONNECTIONS IN DUCTWORK SHALL BE SEALED USING ADHESIVE TYPE SLIPS, DUCT SEALER OR HARD CAST. ROUND TO ROUND CONNECTIONS WITH FIRM FIT AND SEALED. SEAL ALL DUCTWORK SERVING SYSTEMS HAVING FANS RATED FOR 2 INCHES STATIC PRESSURE OR GREATER IN ACCORDANCE WITH SMACNA SEAL CLASS A. ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, DUCT WALL PENETRATIONS TO BE SEALED.

BRANCH TAKEOFFS NOT TO EXCEED 45 DEGREES. PROVIDE A VOLUME DAMPER IN EACH AND EVERY BRANCH OF SUPPLY, RETURN AND EXHAUST DUCT. (SEE FLOOR PLANS AND DETAILS).

NO FIBERGLASS DUCT WILL BE ALLOWED ON THIS PROJECT

CANVAS CONNECTORS

18 OUNCE FIREPROOF CANVAS OR NEOPRENE AT ALL FANS AND HVAC UNITS (EXCEPT ROOF VENTILATORS AND VANE AXIAL FANS WITH COMPANION FLANGES).

DUCT INSULATION

INSULATION PRODUCTS PER NFPA-90A WITH 25 OR LESS FLAME SPREAD AND 50 OR LESS SMOKE DEVELOPMENT RATINGS. NO PLASTIC LINERS OR COVERS PERMITTED.

DUCT LINER INSULATION

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

OWENS-CORNING AEROFLEX OR EQUIVALENT MANVILLE LINACUSTIC OR KNAUF DUCT LINER M FIRE RESISTANT MATTE FACED GLASS FIBER DUCT LINER, 1-1/2 LB DENSITY, CERTIFIED EROSION RESISTANT DUCT LINER FOR DUCT AIR VELOCITIES UNDER 2000 FPM. APPROX. 0.24 AT 30 DEGREES F. DUCT LINERS SHALL BE ADHERED TO THE SHEET METAL WITH A 100% COVERAGE OF ADHESIVE, AND ALL EXPOSED LEADING EDGES AND ALL TRANSVERSE JOINTS COATED WITH ADHESIVE. DUCT LINER SHALL BE CUT TO ASSURE OVERLAPPED AND COMPRESSED LONG-LONGITUDINAL CORNER JOINTS. THE DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS WHICH SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. FOR VELOCITIES TO 2000 FPM.

FASTENERS SHALL START WITHIN 3 INCHES OF THE UPSTREAM TRANSVERSE EDGES OF THE DUCT LINER AND 3 INCHES FROM THE LONGITUDINAL JOINTS AND SHALL BE SPACED A MINIMUM OF 12 INCHES O.C. AROUND THE PERIMETER OF THE DUCT, EXCEPT THAT THEY MAY BE A MAXIMUM OF 12 INCHES FROM A CORNER BREAK. ELSEWHERE THEY SHALL BE A MAXIMUM OF 18 INCHES O.C. EXCEPT THAT THEY SHALL BE PLACED NOT MORE THAN 6 INCHES FROM A CORNER BREAK.

DUCT WRAP INSULATION

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

OWENS-CORNING FIBERGLASS ALL-SERVICE FACED DUCT WRAP INSULATION, OR EQUAL, INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. IF DUCTS ARE RECTANGULAR, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. SEAMS SHALL BE STAPLED APPROX. 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES.

SEAL SEAMS WITH PRESSURE-SENSITIVE TAPE MATCHING THE FACING. WHERE RECTANGULAR DUCTS ARE 24 INCHES IN WIDTH OR GREATER, DUCT WRAP INSULATION SHALL BE ADDITIONALLY SECURED TO THE BOTTOM OF THE DUCT WITH MECH. FASTENERS SUCH AS PINS AND SPEED CLIP WASHERS, SPACED ON 18 INCH CENTERS (MAXIMUM) TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF WRAP INSULATION SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. SEAL ALL TEARS, PUNCTURES, AND OTHER PENETRATIONS OF THE DUCT WRAP INSULATION FACING WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM.

DUCT INSULATION LOCATION

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

EXHAUST DUCTS

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

WRAP ALL RECTANGULAR AND ROUND EXHAUST DUCTS AND EXHAUST PLENUMS AT ROOF EXHAUST FANS WITH 1-1/2 INCH THICK DUCT WRAP INSULATION. WRAP FOR ENTIRE LENGTH. LINE ALL EXHAUST GRILLE BOOTS WITH 1/2" DUCT LINER.

SUPPLY AIR DUCTS

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

WRAP ALL RECTANGULAR SUPPLY AIR DUCTS WITH 2" WRAP. LINEAR DIFFUSER BOOTS W/ 1" THICK DUCT LINER. WRAP ALL ROUND SUPPLY AIR DUCTS AND DUCTS 4" OR LESS IN ANY DIMENSION WITH 2" DUCT WRAP INSULATION.

RETURN AIR DUCTS

SEE DUCT & INSULATION SCHEDULE SHEET M0.0.

WRAP ALL RECTANGULAR DUCTS WITH 2" DUCT WRAP. GRILLE BOOTS W/ 1" THICK DUCT LINER. INSTALL RETURN GRILLE ACOUSTICAL PLENUMS FURNISHED BY BUILDER. WRAP ALL ROUND DUCTS AND DUCTS 4" OR LESS IN ANY DIMENSION WITH 2" THICK DUCT WRAP INSULATION.

TURNING VANES

TURNING VANES TO BE DOUBLE WALL FABRICATED PER SMACNA STANDARDS.

VOLUME DAMPERS

MANUAL VOLUME DAMPERS, FABRICATED PER SMACNA STANDARDS, W/ LOCKING QUADRANT. PROVIDE MULTIBLADE DAMPERS FOR ALL DUCTS 12" DEEP AND LARGER.

BALANCING DAMPERS WIDTH OF THE BRACH TAKEOFF. PROVIDE CEILING ACCESS FOR OPERATING DAMPERS. LEAVE ALL DAMPERS OPEN. VOLUME DAMPERS WHERE SHOWN ON DRAWING.

BACK DRAFT DAMPERS

INSTALL PER MANUFACTURER'S INSTRUCTIONS. SEE SCHEDULE INTERLOCKED, FELT EDGED BLADE, ADJUSTABLE SPRING LOADED. PREFCO PHL OR EQUIVALENT.

DUCT ACCESS PANELS

FOR MAINTENANCE, CLEANING, RESETTING, OR EXAMINATION. AIR TIGHT HINGED ACCESS DOORS W/ FELT OR TUBULAR NEOPRENE GASKET. WITH CAM LATCHES (NOT SCREWS), KARP OR EQUIVALENT. INSULATED AT INSULATED DUCTS.

GRILLES AND DIFFUSERS

ALL GRILLES AND DIFFUSERS SHALL BE AS INDICATED ON THE PLANS AND SHALL BE EQUIPPED W/ OPPOSED BLADE DAMPERS AND HAVE A WHITE BAKED ON ENAMEL FINISH UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.

FILTERS

FILTERS FURNISHED W/ ALL AIR HANDLING UNITS AND FURNACES. SEE SCHEDULES. SPARE FILTERS PROVIDED WHERE INDICATED IN SCHEDULE. HVAC CONTRACTOR IS REQD DURING AND AT THE COMPLETION OF THE BUILDING CONSTRUCTION TO PROVIDE NEW REPLACEMENT AIR FILTERS OF EQUAL EFFICIENCY AT ALL HVAC UNITS USED DURING CONSTRUCTION.

HVAC CONTROLS - SEQUENCE OF OPERATION (HEAT PUMPS)

AIR CONDITIONING SYSTEM (TYPICAL): PROVIDE ROOM TYPE THERMOSTATS TO CYCLE THE HEAT PUMP CONDENSING UNIT ON THE COOLING CYCLE AND THE HEATING CYCLE. REFER TO SCHEDULE, AND THE AUX. HEAT AS REQD TO MAINTAIN SPACE CONDITIONS. AIR HANDLING UNIT SHALL BE WIRED FOR AND ELECTRICALLY INTERLOCKED SUCH THAT THE CONDENSING UNIT MAY NOT RUN NOR THE ELECTRIC HEATER BE ENERGIZED UNLESS THE EVAPORATOR FAN IS OPERATIONAL. THERMOSTAT SHALL BE EQUIPPED WITH "HEAT-OFF-COOL" AND "ON-AUTO" SELECTOR SWITCHES AND SHALL BE WIRED FOR EITHER CONSTANT FAN OPERATION OR AUTOMATIC FAN OPERATION ON BOTH THE HEATING AND COOLING CYCLE. IF RETURN AIR TEMP. RISES ABOVE FIRESTAT SET-POINT THEN FIRESTAT SHALL DE-ENERGIZES UNIT EVAPORATOR FAN IF SUPPLY AIR CONTAINS SMOKE. THE SMOKE DETECTOR SHALL DE-ENERGIZE FAN MOTOR AUX. DRAIN PAN FILLS W/ WATER. FLOAT SWITCH SHALL DE-ENERGIZE CONDENSING UNIT.



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

NO.	REVISION / ISSUE	DATE

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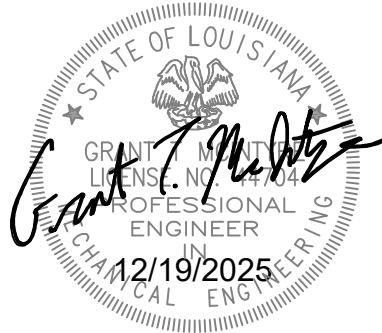
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DRAWING NAME

MECHANICAL SPECIFICATIONS

SHEET NO.

M3.0



ELECTRICAL SYMBOL LEGEND

GENERAL

	KEYNOTE
A-1.3	CIRCUIT TAG; PANEL AND CIRCUIT DESIGNATION AS INDICATED, E.G. PANEL "A", CIRCUIT #1.3

WIRE, CONDUIT, AND RACEWAY

	ABOVE-SLAB CONDUIT & WIRE/CABLING
	BELOW-SLAB CONDUIT & WIRE/CABLING; 3/4" MINIMUM CONDUIT SIZE UON
	HOMERUN TO PANEL; TICK MARKS INDICATED NUMBER OF WIRES

DISTRIBUTION

	PANEL BOARD, SWITCHBOARD, OR OTHER DISTRIBUTION EQUIPMENT AS NOTED; INSTALL WITH SUFFICIENT WORKING SPACE AND CLEARANCES TO MEET ALL REQUIREMENTS OF NEC SECTION 110.26.
GEN-ANNC	GENERATOR REMOTE ANNUNCIATOR PANEL; PROVIDE CONDUIT/CABLING TO GENERATOR AS REQUIRED PER THE MANUFACTURER'S SPECIFICATIONS.

EQUIPMENT CONNECTIONS

(PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE)

	FUSED SAFETY DISCONNECT SWITCH; LOCATE WITHIN SIGHT OF THE EQUIPMENT SERVED WITH 36" MINIMUM CLEAR WORKING SPACE IN FRONT OF THE SWITCH; DO NOT MOUNT DIRECTLY TO EQUIPMENT
J	JUNCTION BOX
M	JUNCTION BOX FOR MOTORIZED DAMPER
S ^M	MOTOR RATED SWITCH WITH THERMAL OVERLOAD; LOCATE WITHIN SIGHT OF THE EQUIPMENT SERVED; DO NOT MOUNT DIRECTLY TO EQUIPMENT; WHEN LOCATED ABOVE CEILING, MOUNT TO STRUCTURAL MEMBER NEARBY.
6	ELECTRICAL MOTOR, HORSEPOWER AS NOTED

POWER DEVICES

(PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE)

	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE MOUNTED FLUSH TO CEILING OR MOUNTED TO STRUCTURE IN AREAS WITH NO CEILING; SUBSCRIPT (WHEN USED): CR - CORD REEL
	ABOVE-COUNTER DUPLEX RECEPTACLE; MOUNT AT 4" ABOVE COUNTER OR BACKSPASH OR 44" (WHICHEVER IS LOWER)
	GFCI DUPLEX RECEPTACLE
	ABOVE-COUNTER GFCI DUPLEX RECEPTACLE; MOUNT AT 4" ABOVE COUNTER OR BACKSPASH OR 44" (WHICHEVER IS LOWER)
	QUADRAPLEX RECEPTACLE
	ABOVE-COUNTER QUADRAPLEX RECEPTACLE; MOUNT AT 4" ABOVE COUNTER OR BACKSPASH OR 44" (WHICHEVER IS LOWER)
	SPECIAL PURPOSE RECEPTACLE; VERIFY NEMA CONFIGURATION WITH THE MANUFACTURER OF THE EQUIPMENT SERVED
	VOICE/DATA/POWER FLUSH FLOOR BOX
	DUPLEX RECEPTACLE FLUSH FLOOR BOX
	QUADRAPLEX RECEPTACLE FLUSH FLOOR BOX
	RECEPTACLE SWITCHING; EDGE SHADING INDICATES: NONE - DEVICE NOT SWITCHED LEFT - BOTTOM (DUPLEX) OR LEFT TWO (QUAD) SWITCHED RIGHT - TOP (DUPLEX) OR RIGHT TWO (QUAD) SWITCHED

PUBLIC ADDRESS

(PROVIDE 3/4"EC WITH PULL STRING FROM THE DEVICE LOCATION SHOWN ON THE DRAWINGS TO AN ACCESSIBLE LOCATION ABOVE CEILING)

PA	PA SYSTEM SPEAKER
V	PA SYSTEM SPEAKER VOLUME CONTROL
I	PA SYSTEM SPEAKER MOUNT CALL-IN SWITCH

ABBREVIATIONS

A	AMPERE(S)	CATV	CABLE TELEVISION	EF	EXHAUST FAN	FOC	FIBER OPTIC CABLE
AC	ABOVE COUNTER (6" ABOVE BACKSPASH)	CB	CIRCUIT BREAKER	EGC	EQUIPMENT GROUNDING CONDUCTOR	G, GND	GROUND
AF	AMPERE(S) FUSED	CKT	CIRCUIT	EMER	EMERGENCY	GEC	GROUNDING ELECTRODE CONDUCTOR
AFCI	ARC FAULT CIRCUIT INTERRUPTER	CLG	CLG	EMT	ELECTRICAL METALLIC TUBING	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR	CORR	CORRIDOR	EQ	EQUAL	GRS	GALVANIZED RIGID STEEL
AFG	ABOVE FINISHED GRADE	CT	CURRENT TRANSFORMER	EQUIP.	EQUIPMENT	HH	HANDHOLE
AIC	AMP SYMMETRICAL INTERRUPTING CAPACITY RMS	CTRL	CONTROLLER	EWC	ELECTRIC WATER COOLER	HP	HORSEPOWER
AT	AMPERE(S) TRIP	D	TO BE DEMOLISHED	EWI	ELECTRIC WATER HEATER	KAIC	1,000 AMP SYMMETRICAL INTERRUPTING CAPACITY RMS
AWG	AMERICAN WIRE GAUGE	DISC.	DISCONNECT	EXIST.	EXISTING	KWH	1,000 WATT HOURS
BG	BELOW GRADE	DIST.	DISTRIBUTION	FACP	FIRE ALARM CONTROL PANEL	KVA	1,000 VOLT AMPERES
BLDG	BUILDING	DWG	DRAWING	FACPRA	FIRE ALARM CONTROL PANEL REMOTE ANNUNCIATOR	LAN	LOCAL AREA NETWORK
BKR	BREAKER	E	EXISTING TO REMAIN	FC	FOOTCANDLE	LC	LIGHTING CONTACTOR
C	CONDUIT	EC	EMPTY CONDUIT	FCU	FAN COIL UNIT	LTG	LIGHTING
CAT	CATEGORY	ECB	ENCLOSED CIRCUIT BREAKER	FLA	FULL LOAD AMPERE(S)	MCA	MINIMUM CIRCUIT AMPACITY

(REFER TO DRAWINGS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS)

FIRE ALARM

(PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE FOR POWER AND CONDUIT AND CABLING PER THE MANUFACTURER'S SPECIFICATIONS)

FACP	FIRE ALARM CONTROL PANEL
F	FIRE ALARM SYSTEM PULL STATION
	FIRE ALARM SYSTEM STROBE
	FIRE ALARM SYSTEM CHIME/STROBE
	FIRE ALARM SYSTEM HORN/STROBE
	FIRE ALARM SYSTEM SPEAKER/STROBE
	FIRE ALARM SYSTEM CEILING MOUNT STROBE
	FIRE ALARM SYSTEM CEILING MOUNT CHIME/STROBE
	FIRE ALARM SYSTEM CEILING MOUNT HORN/STROBE
	FIRE ALARM SYSTEM CEILING MOUNT SPEAKER/STROBE
C	FIRE ALARM SYSTEM CARBON MONOXIDE DETECTOR
T	FIRE ALARM SYSTEM THERMAL DETECTOR
D	FIRE ALARM SYSTEM DUCT SMOKE DETECTOR
S	FIRE ALARM SYSTEM SMOKE DETECTOR

SECURITY (EQUIPMENT PROVIDED BY OWNER/OTHERS)

(EQUIPMENT PROVIDED BY OTHERS)

KF	JUNCTION BOX FOR KEYPAD; INSTALL 48" AFF AND PROVIDE 3/4"EC WITH PULL STRING FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING
DC	JUNCTION BOX FOR DOOR CONTACT (MAGNETIC LOCK); PROVIDE 3/4"EC WITH PULL STRING FROM THE DOOR FRAME TO THE JUNCTION BOX AND FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING
CR	JUNCTION BOX FOR CARD READER; PROVIDE 3/4"EC WITH PULL STRING FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING
ES	JUNCTION BOX FOR ELECTRIC STRIKE LOCK; PROVIDE 3/4"EC WITH PULL STRING FROM THE DOOR FRAME TO THE JUNCTION BOX AND FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING
+	JUNCTION BOX FOR DOOR OPERATOR; PROVIDE 3/4"EC WITH PULL STRING FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING NEAR THE CONTROLLED DOOR
MC	JUNCTION BOX FOR MOTION DETECTOR; PROVIDE 3/4"EC WITH PULL STRING FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING
C	JUNCTION BOX FOR CEILING MOUNTED CAMERA; PROVIDE 3/4"EC WITH PULL STRING FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING
HC	JUNCTION BOX FOR WALL MOUNTED CAMERA; PROVIDE 3/4"EC WITH PULL STRING FROM THE JUNCTION BOX TO AN ACCESSIBLE LOCATION ABOVE CEILING

SOUND

(PROVIDE 1"EC WITH PULL STRING FROM THE DEVICE LOCATION SHOWN ON THE DRAWINGS TO AN ACCESSIBLE LOCATION ABOVE CEILING)

M	FLOOR MOUNTED MICROPHONE OUTLET
SP	CEILING MOUNTED SPEAKER
SP	WALL MOUNTED SPEAKER

HEALTHCARE

(PROVIDE 1"EC WITH PULL STRING FROM THE DEVICE LOCATION SHOWN ON THE DRAWINGS TO AN ACCESSIBLE LOCATION ABOVE CEILING)

D	DOCTOR'S DICTATION
+M	NURSE CALL SYSTEM EMERGENCY CALL-IN STATION
+P	NURSE CALL SYSTEM BEDSIDE PATIENT STATION
S	NURSE CALL SYSTEM STAFF STATION
H-D	NURSE CALL SYSTEM CORRIDOR DOME LIGHT
V	NURSE CALL SYSTEM CODE BLUE STATION

ELECTRICAL GENERAL NOTES

- ALL ELECTRICAL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS ADOPTED BY THE AHJ.
- THE WORDS "PROVIDE" AND "PROVIDED" AS USED HEREIN SHALL BE UNDERSTOOD TO MEAN, "PROVIDE COMPLETE IN PLACE," THAT IS "FURNISH AND INSTALL." EQUIPMENT AND MATERIAL INDICATED TO BE PROVIDED SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE OF THE MOST SUITABLE GRADE FOR THE PURPOSES INTENDED.
- ROUTE NEW CONDUIT AND WIRING CONCEALED IN WALLS AND CEILING WHERE POSSIBLE. COORDINATE INSTALLATION OF EXPOSED CONDUIT AND WIRING WITH THE ARCHITECT.
- CONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE TO NEW HVAC UNITS AS FURNISHED BY THE MECHANICAL CONTRACTOR. VERIFY THE EXACT ELECTRICAL REQUIREMENTS WITH THE REVIEWED HVAC SUBMITTALS PRIOR TO ORDERING ELECTRICAL EQUIPMENT.
- BEFORE INSTALLATION, CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS TO THE ENGINEER FOR REVIEW COVERING PROPOSED LOCATIONS, MOUNTING, AND ROUTING FOR ALL CONDUITS, SERVICES, FITTINGS, GROUND RODS, SUPPORTS, ETC.
- CONTRACTOR IS RESPONSIBLE FOR OVER-CURRENT PROTECTIVE DEVICE SHORT CIRCUIT, COORDINATION, AND ARC-FLASH STUDIES
- MATERIALS AND MANUFACTURERS NOTED ON DRAWINGS ARE TO BE USED AS BASIS OF DESIGN TO ESTABLISH QUALITY AND PERFORMANCE STANDARDS AND SHALL BE PROVIDED AS SPECIFIED. SUBSTITUTIONS WILL BE CONSIDERED WHERE SUFFICIENT PRODUCT INFORMATION IS PROVIDED TO MAKE A PROPER EVALUATION. REVIEW OF A SUBSTITUTION IS AT THE SOLE DISCRETION OF THE PROFESSIONAL.
- THE CONTRACTOR SHALL SUBMIT COPIES OF THE PRODUCT DATA, SHOP DRAWINGS, ETC. OF ALL MATERIALS NOTED ON THE DRAWINGS. ALL SUBMITTED PRODUCT DATA, SHOP DRAWINGS, ETC. SHALL BE MARKED WITH THE NAME OF THE PROJECT AND SHALL BEAR THE STAMP OF APPROVAL OF THE CONTRACTOR AS EVIDENCE THAT THE MATERIAL HAS BEEN CHECKED BY THE CONTRACTOR.
- DRAWINGS SPECIFIC TO THIS TRADE DO NOT LIMIT THE RESPONSIBILITY OR WORK REQUIRED BY THE CONTRACT DOCUMENTS. REFER TO DRAWINGS AND SPECIFICATIONS OF OTHER TRADES FOR COMPLETE INFORMATION PRIOR TO BID.
- WHERE CONFLICTS EXIST AMONG DRAWINGS, SPECIFICATIONS, AND EQUIPMENT SCHEDULES, THE MOST STRINGENT REQUIREMENT OR QUANTITY SHALL APPLY. NOTIFY THE ARCHITECT/ENGINEER OF ALL CONFLICTS FOR RESOLUTION OR INTERPRETATION.
- NO EQUIPMENT SHALL BE ORDERED OR INSTALLED UNTIL THE PROJECT ENGINEER HAS RECEIVED A COPY STAMPED "NO EXCEPTIONS TAKEN." NO EXCEPTIONS TAKEN DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMANCE WITH THE CONTRACT. EXTEND TO QUANTITIES OR DIMENSIONS, IMPLY THAT THE EQUIPMENT CAN BE INSTALLED OR OPERATE SATISFACTORILY, THAT THE EQUIPMENT CONTAINS ALL NECESSARY COMPONENTS, OR THAT IT WILL COORDINATE WITH OTHER REVIEWED ITEMS.
- OMISSION FROM THIS SHEET OF ANY ITEM SHOWN ELSEWHERE IN THE PLANS DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY FOR ANY ASSOCIATED WORK.
- COORDINATE INSTALLATION OF NEW ITEMS AND EQUIPMENT WITH THE OWNERS REPRESENTATIVE AND THE WORK OF OTHER TRADES. THE CONTRACTOR SHALL INCUR ALL COSTS ASSOCIATED WITH THE RELOCATION OF EQUIPMENT CONFLICTING WITH NEW WORK BY OTHER TRADES THAT HAS NOT BEEN COORDINATED.
- COORDINATE ALL ASPECTS OF NEW SERVICE WITH UTILITY COMPANY AND INCLUDE ALL COSTS IN BID.
- WARNING TAPE SHALL BE INSTALLED 12 TO 18 INCHES BELOW GRADE OVER ALL CONDUITS.
- PROVIDE 1/4" MINIMUM DIAMETER PULL ROPE. PULL ROPE SHALL NOT BE NYLON STRING.
- FOR SERVICE ENTRANCE CONDUITS, UTILIZE LONG RADIUS (36") CONDUIT BENDS.
- ALL CONDUIT ENTERS FROM UNDERGROUND SHALL HAVE RIGID METAL ELBS AND RISERS.
- PRIOR TO CONSTRUCTION, VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES. AVOID DISTURBANCE OF EXISTING UTILITIES NOT INCLUDED IN THIS PROJECT.
- SET SCREW CONDUIT FITTINGS SHALL NOT BE PERMITTED.

LIGHTING GENERAL NOTES

- VERIFY THE EXACT LOCATION OF ALL LIGHTING SWITCHES WITH THE ARCHITECT PRIOR TO ROUGH-IN.
- VERIFY THE EXACT LOCATION OF ALL LIGHTING FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ROUGH-IN.
- VERIFY THE EXACT LOCATION OF CEILING MOUNTED OCCUPANCY SENSORS WITH THE MANUFACTURERS SPECIFICATIONS PRIOR TO INSTALLATION FOR MAXIMUM PERFORMANCE.
- EMERGENCY FIXTURES AND EXIT FIXTURES SHALL BE CONNECTED TO THE NEAREST LIGHTING CIRCUIT. BRANCH CIRCUIT WIRING TO EXIT FIXTURES AND TO BATTERY INVERTERS WITHIN FIXTURES WITH INTEGRAL BATTERY UNITS SHALL BE UNSWITCHED, CONNECTED AHEAD OF ANY CONTROL SWITCHING.
- WALL MOUNT TYPE "Z" FIXTURES ABOVE DOOR AS SHOWN ON DRAWINGS. COORDINATE WITH THE ARCHITECT PRIOR TO ROUGH-IN.
- MOUNT TYPE "EM" FIXTURES 8'-0" AFF UNLESS OTHERWISE NOTED.
- VERIFY THE CEILING TYPES FOR ALL LIGHT FIXTURES TO BE FLUSH MOUNTED OR SUSPENDED AND ADJUST FIXTURE MOUNTING TYPES IN ACCORDANCE WITH THE CEILING TYPE, AS REQUIRED. CONTRACTOR SHALL PROVIDE ALL REQUIRED MOUNTING HARDWARE.
- ALL VANTY FIXTURES SHALL BE MOUNTED WITH 0'-3" OF SPACE BETWEEN THE BOTTOM OF THE FIXTURE AND THE TOP OF THE MIRROR UNLESS OTHERWISE NOTED.
- VERIFY THE EXACT MOUNTING LOCATION FOR ANY PHOTOELECTRIC CELLS WITH THE ARCHITECT PRIOR TO ROUGH-IN. ALL PHOTOELECTRIC CELLS MUST FACE NORTH.
- CONTRACTOR SHALL CONFIRM COMPATIBILITY OF ALL LIGHTING CONTROL DEVICES/SWITCHES/DIMMERS WITH LIGHTING FIXTURES AND BALLASTS/DRIVERS PRIOR TO SUBMITTAL.
- COORDINATE LOCATION OF LIGHT FIXTURES IN MECHANICAL ROOMS WITH DIVISION 1523 PLANNED EQUIPMENT LOCATION AND DUCT INSTALLATION. WALL MOUNT LIGHTS OR PROVIDE PENDANT MOUNTINGS AS REQUIRED TO ILLUMINATE THE SPACE.
- WHERE MULTIPLE OCCUPANCY SENSORS ARE SHOWN IN THE SAME AREA, MOTION DETECTION BY ONE SENSOR SHALL ILLUMINATE ALL LIGHTING IN THE RESPECTIVE AREA.

TELECOMMUNICATIONS GENERAL NOTES

- PROVIDE 1" CONDUIT AND TWO (2) CAT 6 CABLES AT EACH DATA OUTLET SHOWN. ROUTE TO ABOVE CEILING AND ROUTE TO TELEPHONE BACKBOARD IN IT ROOM. TERMINATE AND CONNECT STATION CABLES TO PATCH PANEL, FOLLOWING THE OWNERS LABELING CONVENTIONS FOR ALL HORIZONTAL CABLING.
- OWNER SHALL PROVIDE THE WALL MOUNT DATA RACK, ALL ITEMS INCLUDED IN THE DATA RACK, AND ANY NECESSARY TELEPHONE EQUIPMENT.
- PLYWOOD FOR BACKBOARDS SHALL BE 0'-1" AC INDOOR GRADE, FIRE RETARDANT, AND PAINTED AS SPECIFIED. COMMON BOND RACKS, PATCH PANELS, CABLE SHIELDS, PROTECTORS, AND THE BUILDING MAIN ELECTRICAL GROUNDING CONDUCTORS SHALL BE, AT MINIMUM, #6 AWG INSULATED AND STRANDED COPPER. FASTENERS SHALL BE RECESSED AND ANCHORED.
- SUBMIT DIGITAL PHOTOGRAPHS OF ALL TERMINATIONS TO MAIN ELECTRICAL SERVICE GROUNDING MEANS.
- ALL BACKBOARDS SHALL BE EQUIPPED WITH D-RINGS SPACED AT 1'-0" APART AROUND ALL EDGES OF THE PLYWOOD TO SUPPORT CABLE AND WIRE.
- CAT 6 CABLES FOR DATA OUTLETS SHALL HAVE BLUE JACKETS AND CAT 6 CABLES FOR VOICE OUTLETS SHALL HAVE WHITE JACKETS.

SPECIAL SYSTEMS GENERAL NOTES

- VERIFY EXACT LOCATION, VOLTAGE, PHASE, AMPERAGE, ETC. OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ORDERING ELECTRICAL GEAR.
- INTERCONNECT THE HOOD EXHAUST AND SUPPLY FANS WITH HOOD EXTINGUISHING SYSTEM SUCH THAT WHEN HOOD EXTINGUISHING SYSTEM IS ACTIVATED, THE EQUIPMENT BELOW THE HOOD AND HOOD SUPPLY FAN ARE DE-ENERGIZED AND THE HOOD EXHAUST FAN WILL START IF NOT RUNNING.
- INTERCONNECT THE HOOD EXTINGUISHING SYSTEM WITH THE FIRE ALARM SYSTEM IF APPLICABLE.
- FOR ALL CAMERA LOCATIONS, PROVIDE ONE (1) GREEN JACKETED CAT 6 CABLE IN 3/4" CONDUIT BACK TO ASSOCIATED DATA CLOSET.
- FOR ALL WIRELESS ACCESS POINT LOCATIONS, PROVIDE ONE (1) YELLOW JACKETED CAT 6 CABLE IN 3/4" CONDUIT BACK TO ASSOCIATED DATA CLOSET.
- PROVIDE AN ADDITIONAL, 10%, OR ONE (1), WHICHEVER IS GREATER, OF THE FOLLOWING DEVICES WHICH ARE INCLUDED IN THE PROJECT, AND INSTALL THEM AT THE DIRECTION OF THE ARCHITECT, ENGINEER, OR AHJ DURING THE COURSE OF THE PROJECT. PROVIDE ALL REQUIRED CONDUIT, INTERCONNECTIONS, CONDUCTORS, PROGRAMMING, ETC. AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER: INITIATING DEVICES (PULL STATIONS, SMOKE DETECTORS, THERMAL DETECTORS, ETC.), NOTIFICATION APPLIANCES (STROBES, HORN STROBES, SPEAKER STROBES, SPEAKERS, DUCT DETECTORS, ETC.), AND MONITORING MODULES.
- VERIFY REQUIRED QUANTITY OF DUCT DETECTORS WITH DUCTWORK CONFIGURATION AS IT IS ACTUALLY INSTALLED. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

DEMOLITION GENERAL NOTES

- THE LOCATIONS OF EXISTING CIRCUITS AND EQUIPMENT ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING ELECTRICAL DEVICES, EQUIPMENT, AND WIRING BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTORS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING PORTIONS OF THE ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR ON THE DRAWINGS OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.
- ALL EQUIPMENT REMOVED THAT IS NOT BEING REUSED SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF AS REQUIRED.
- EXCEPT AS OTHERWISE NOTED, ALL EXISTING ELECTRICAL WORK WHICH WILL NOT BE RENDERED OBSOLETE AND WHICH MAY BE DISTURBED DUE TO ANY CHANGES REQUIRED UNDER THIS CONTRACT, SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION. OTHER ELECTRICAL WORK OR MATERIAL RENDERED OBSOLETE SHALL BE ABANDONED WHERE CONCEALED AND REMOVED WHERE EXPOSED. OLD, UNUSED WIRING AND DEVICES SHALL BE REMOVED FROM THE ABANDONED (CONCEALED) CONDUITS. OUTLETS SHALL BE PROVIDED WITH BLANK COVERS. ANY CONDUITS STUBBED OUT OF MASONRY SURFACE SHALL BE CUT INTO SURFACE AND PATCHED.
- WHERE EXISTING ELECTRICAL WORK INTERFERES WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE, THE INSTALLATIONS SHALL BE DISCONTINUED AND RELOCATED AND/OR RECONNECTED TO COORDINATE WITH THE WORK INDICATED ON THE CONTRACT DRAWINGS AS SPECIFIED.
- WHERE EXISTING RACEWAYS THAT ARE NOT TO BE REUSED INTERFERE WITH NEW WORK, THESE RACEWAYS SHALL BE REMOVED BACK TO THE NEAREST JUNCTION BOX OR PULL BOX AND THE OPENINGS BLANKED.
- CONTRACTOR SHALL MAINTAIN CONTINUITY OF BRANCH CIRCUITS SERVING MULTIPLE ITEMS OF WHICH ONE OR MORE ARE BEING DEMOLISHED. CONDUCTORS AND CONDUITS FOR THOSE ITEMS BEING DEMOLISHED SHALL BE REMOVED AS FAR AS PRACTICABLE.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AND DATA WIRING NOT REUSED OR NOT NECESSARY FOR THE COMPLETION OF THIS PROJECT.
- IF ANY BRANCH CIRCUIT WIRING FEEDING EQUIPMENT TO REMAIN IN PLACE FOR REUSE IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE THE NEW BRANCH CIRCUIT WIRING OF THE SAME SIZE AND TYPE AS THAT OF THE EXISTING AT NO COST TO THE OWNER.
- EXISTING DEVICES ARE SHOWN IN GRAY. CONDUIT AND WIRING ARE NOT GENERALLY SHOWN AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ADDITIONAL DEMOLITION WORK AND CLARIFICATION OF INDICATED WORK WILL BE GIVEN BY RFI.
- COORDINATE THE REMOVAL AND REINSTALLATION (OR PROTECTION IN PLACE) OF EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITH THE WORK OF OTHER TRADES TO REPLACE OR REFINISH EXISTING WALLS AND CEILINGS.
- WHERE EXISTING CIRCUITS ARE BEING REMOVED IN EXISTING PANELS, PROVIDE A NEW, NEATLY TYPED DIRECTORY WHICH INDICATES WHERE "SPARE" BREAKERS ARE LOCATED. ANY EXISTING BREAKERS THAT ARE NOT FEEDING DEVICES SHALL REMAIN AND BE LABELED AS A "SPARE."
- WHERE NEW LOADS ARE CONNECTED TO EXISTING PANELS, AND WHERE LOADS ARE REARRANGED IN EXISTING PANELS AS PART OF THIS PROJECT, UPDATE THE RESPECTIVE PANEL DIRECTORY SO AS TO PROVIDE A COMPLETE, ACCURATE, AND TYPEWRITTEN PANEL SCHEDULE. THE NEW PANEL SCHEDULED SHALL INCORPORATE ALL EXISTING LOADS, INCLUDING LOADS "EXISTING TO REMAIN". PROVIDE ALL REQUIRED TESTING AND INVESTIGATIONS NECESSARY TO ACCOMPLISH THIS WORK.

INDEX - ELECTRICAL SHEETS

E0.0	ELECTRICAL COVER SHEET
E1.0	ELECTRICAL PLANS, RISER DIAGRAM, & SCHEDULES
E2.0	ELECTRICAL DETAILS
E3.0	ELECTRICAL SPECIFICATIONS



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

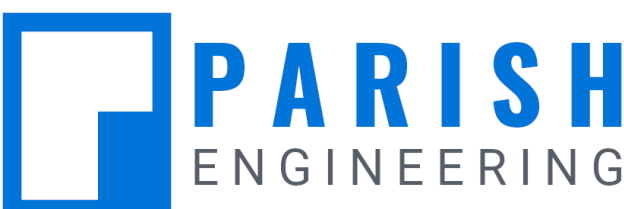
NO.	REVISION / ISSUE	DATE

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DRAWING NAME

ELECTRICAL COVER SHEET

SHEET NO.

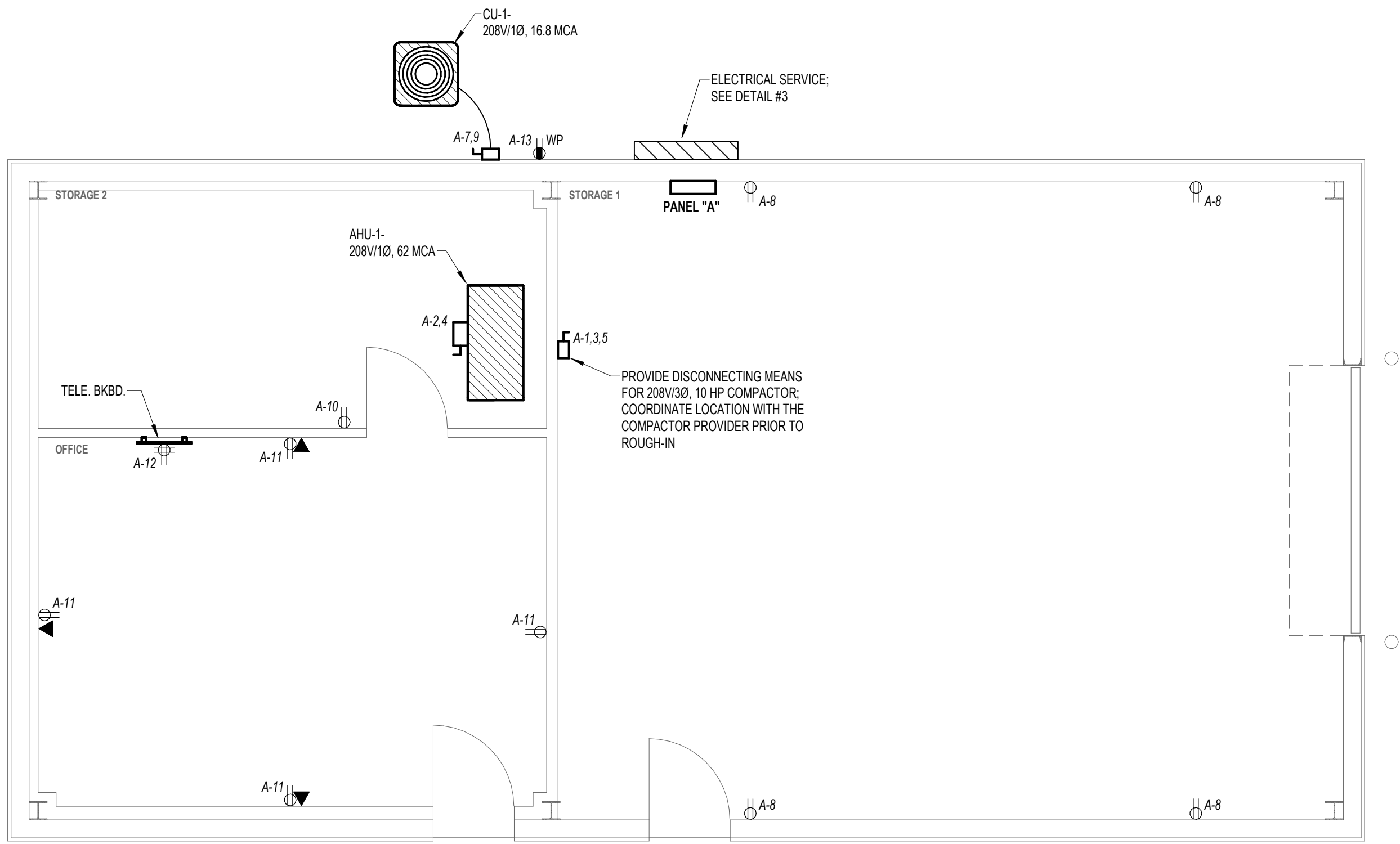
E0.0



ALL SYMBOLS, ABBREVIATIONS, AND NOTES ABOVE ARE TYPICAL AND ARE NOT NECESSARILY USED IN THESE CONSTRUCTION DOCUMENTS

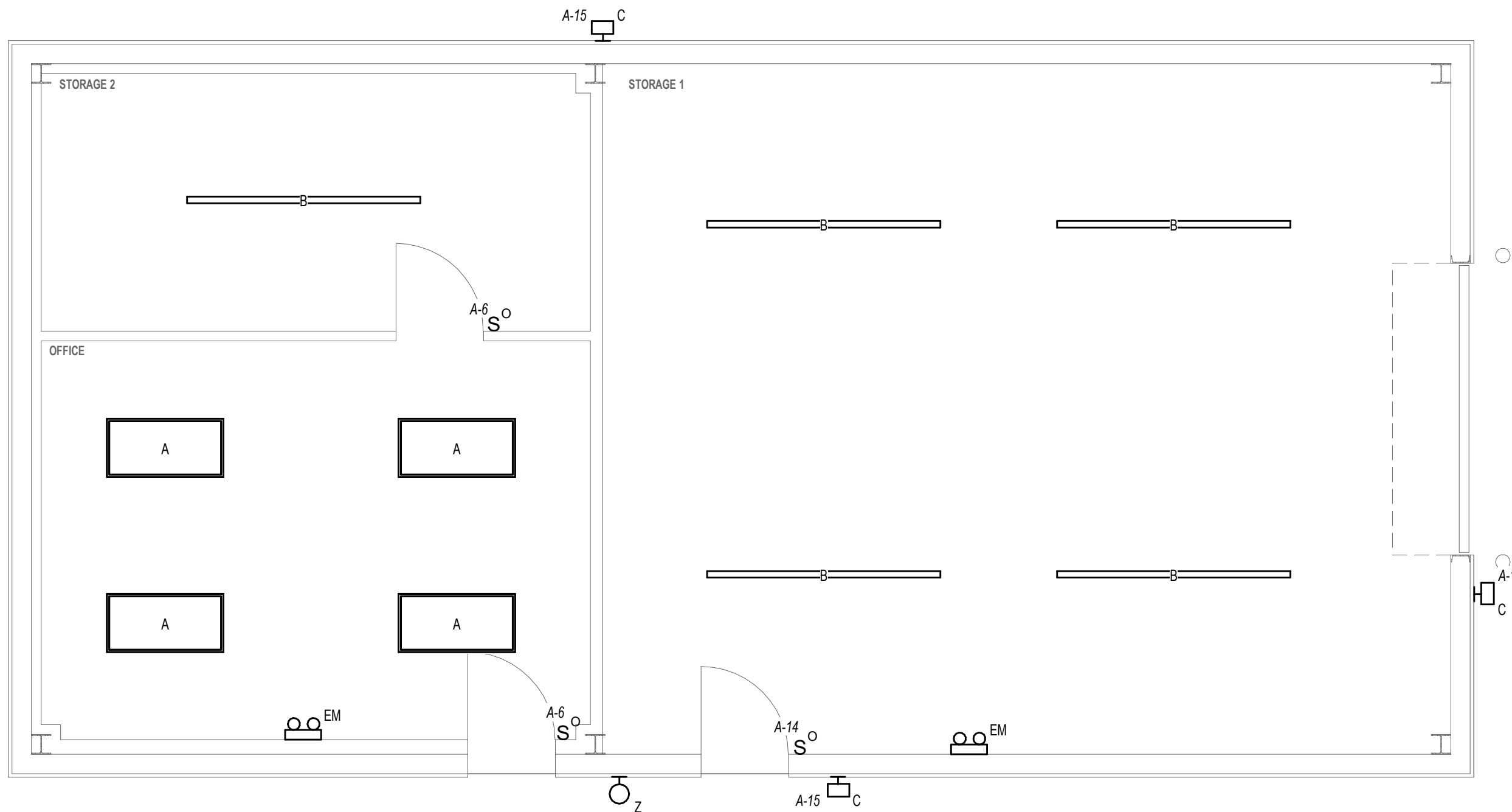
1 POWER PLAN

1/4" = 1'-0"



2 LIGHTING PLAN

1/4" = 1'-0"

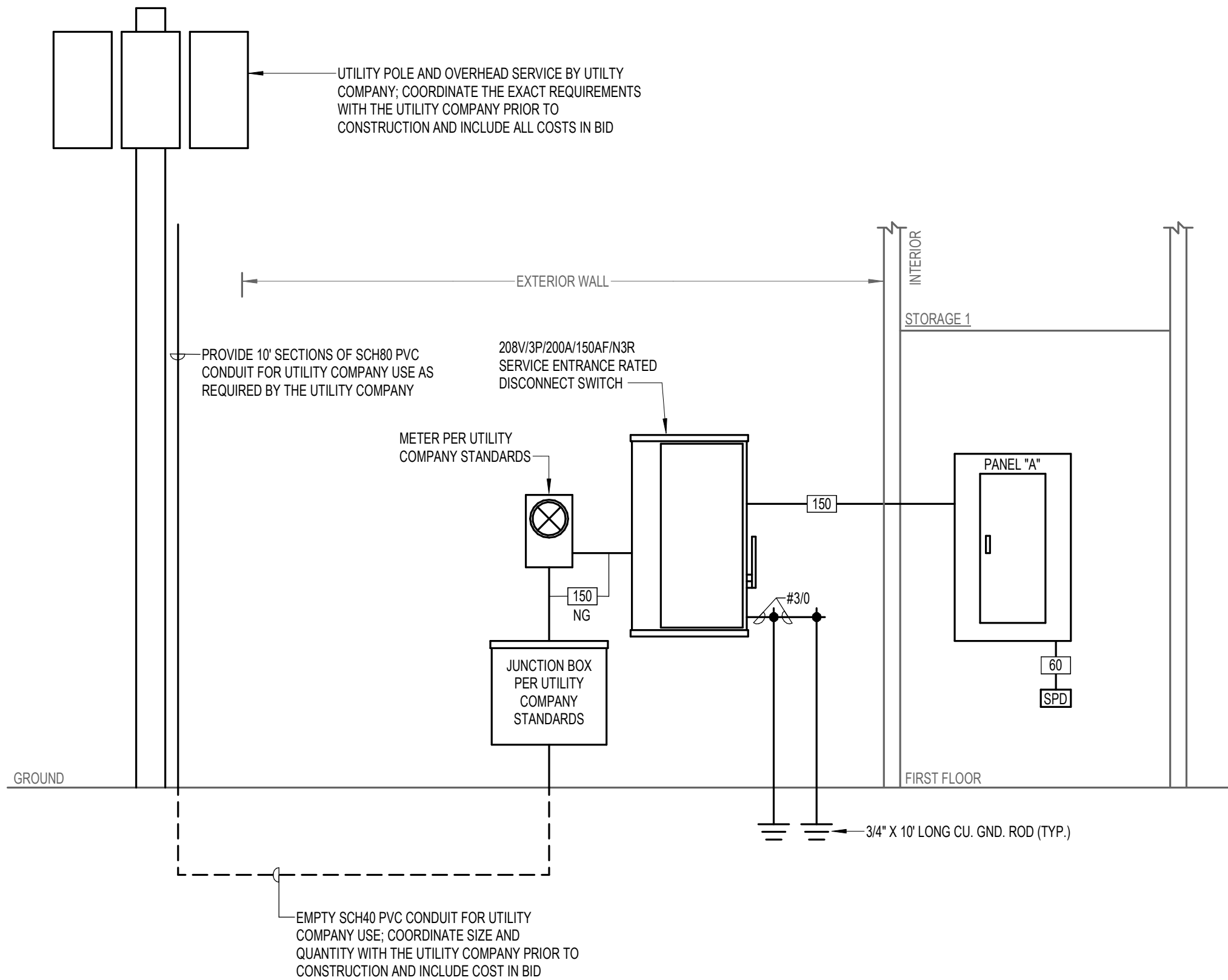


SCHEDULE - LIGHTING FIXTURES

NOTES:										
** FINISH TO BE SELECTED BY ARCHITECT										
MARK	DESCRIPTION	LAMPS	VOLTS	LOAD	TEMP.	LUMENS	MOUNTING	BASIS OF DESIGN		COUNT
								MANUFACTURER	CATALOG NO.	
A	2'X4' FULLY SWITCHABLE FLAT PANEL	LED	120	26 VA	3500K	4000	RECESSED	LITHONIA LIGHTING	CPX-2X4-AL08-80CRI-SWW7-SWL-MVOLT	4
B	8' LED STRIP LIGHT WITH SEMI-FROSTED LENS. PROVIDE SUSPENSION HARDWARE AS REQUIRED.	LED	120	43 VA	3500K	6000	SUSPENDED	LITHONIA LIGHTING	CSS-L96-AL04-MVOLT-MIN10-ZT-SWW3-80CRI-HC36-M12	5
C	LED WALL PACK WITH PHOTOELECTRIC CELL	LED	120	36 VA	4000K	5300	SURFACE	LITHONIA LIGHTING	TWR1-LED-ALO-SWW2-UVOLT-PE-DOB8TXD	3
EM	EMERGENCY LIGHTING UNIT EQUIPMENT WITH TWO ADJUSTABLE LED HEADS. INTEGRAL BATTERY WITH SELF-DIAGNOSTICS.	LED	120	2 VA	N/A	N/A	SURFACE	LITHONIA LIGHTING	ELM6L	2
Z	WET LOCATION LED EMERGENCY UNIT EQUIPMENT WITH INTEGRAL BATTERY BACKUP	LED	120	1 VA	N/A	N/A	SURFACE	LITHONIA LIGHTING	AFF-OEL-**-UVOLT-LTP-SDRT-WT	1

3 POWER RISER DIAGRAM - 208V/3PH

N.T.S.



Branch Panel: A

Location: STORAGE 1 5						Volts: 208Y/120				A.I.C. Rating: 14,000									
Supply From:						Phases: 3				Mains Rating: 200 A									
Mounting: SURFACE						Wires: 4				MCB Rating: 150 A									
Enclosure: NEMA-1																			
Number of Sections:																			
Panel Schedule Notes:																			
CKT	TRIP	POLES	WIRE	GND	CONDUIT	Circuit Description	A		B		C		Circuit Description	CONDUIT	GND	WIRE	POLES	TRIP	CKT
1							3.7 kVA	5.2 kVA					AHU-1	1-1/4"	#8	3#4	2	70 A	2
3	60 A	3	4#6	#8	1"	COMPACTOR			3.7 kVA	5.2 kVA									4
5											3.7 kVA	0.1 kVA	LTG - OFFICE & STORAGE 2	3/4"	#12	2#12	1	20 A	6
7							1.4 kVA	0.7 kVA					RCPT - STORAGE 1	3/4"	#12	2#12	1	20 A	8
9	25 A	2	3#10	#10	3/4"	CU-1			1.4 kVA	0.2 kVA			RCPT - STORAGE 2	3/4"	#12	2#12	1	20 A	10
11	20 A	1	2#12	#12	3/4"	RCPT - OFFICE					0.7 kVA	0.4 kVA	RCPT - TELE. BKBD.	3/4"	#12	2#12	1	20 A	12
13	20 A	1	2#12	#12	3/4"	RCPT - EXTERIOR	0.2 kVA	0.2 kVA					LTG - STORAGE 1	3/4"	#12	2#12	1	20 A	14
15	20 A	1	2#12	#12	3/4"	LTG - EXTERIOR			0.1 kVA	--			SPACE	--	--	--	1	--	16
17	--	1	--	--	--	SPACE					--	--	SPACE	--	--	--	1	--	18
19	--	1	--	--	--	SPACE	--	--					SPACE	--	--	--	1	--	20
21	--	1	--	--	--	SPACE			--	--			SPACE	--	--	--	1	--	22
23	--	1	--	--	--	SPACE					--	--	SPACE	--	--	--	1	--	24
25	--	1	--	--	--	SPACE	--	0.0 kVA											26
27	--	1	--	--	--	SPACE			--	0.0 kVA									28
29	--	1	--	--	--	SPACE					--	0.0 kVA	SPD	--	--	--	3	60 A	30
							11157 VA		10544 VA		4883 VA								
							100 A		95 A		41 A								
Load Classification						Connected Load	Demand Factor		Estimated Demand		Panel Totals								
Cooling						2796 VA	100.00%		2796 VA										
Heating						10317 VA	100.00%		10317 VA		Total Conn. Load: 26583 VA								
Motor						11097 VA	125.00%		13871 VA		Total Est. Demand: 29410 VA								
Receptacle						2160 VA	100.00%		2160 VA		Total Conn.: 74 A								
Lighting						302 VA	125.00%		377 VA		Total Est. Demand: 82 A								
Load Summary Notes:																			

4-WIRE FEEDER SCHEDULE			
STD. FUSE OR BKR TRIP SIZE	# OF SETS	WIRE QUANTITY AND SIZE	CONDUIT SIZE (MINIMUM)
30	1	4#10 THWN, 1#10 GND	3/4"
60	1	4#6 THWN, 1#6 GND	1-1/4"
100	1	4#3 THWN, 1#6 GND	1-1/4"
125	1	4#1 THWN, 1#6 GND	1-1/2"
150	1	4#1/0 THWN, 1#6 GND	2"
200	1	4#3/0 THWN, 1#4 GND	2"
400	2	4#3/0 THWN, 1#3 GND	2-1/2"
600	2	4#350 THWN MCM, 1#1 GND	3"
800	3	4#300 THWN MCM, 1#1/0 GND	3"
NOTES:			
1. ALL FEEDER SIZES LISTED MAY NOT BE SHOWN IN POWER RISER DIAGRAM.			
2. ELECTRICAL CONTRACTOR TO VERIFY SIZE REQUIRED IF WIRE TYPES OTHER THAN THOSE LISTED ABOVE ARE USED.			
3. REFER TO THE LATEST EDITION OF THE NEC FOR CONDUIT TYPES REQUIRED PER THEIR TABLES.			
4. ALL CONDUCTORS TO BE COPPER.			
5. "VD" INDICATES WIRE UPSIZED FOR VOLTAGE DROP.			
6. "NG" INDICATES NO GROUND CONDUCTOR REQUIRED.			



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DRAWING NAME

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SHEET NO.

E1.0



PROJECT NAME & ADDRESS

THE ARC PROJECT
DONALDSONVILLE, LA

NO.	REVISION / ISSUE	DATE
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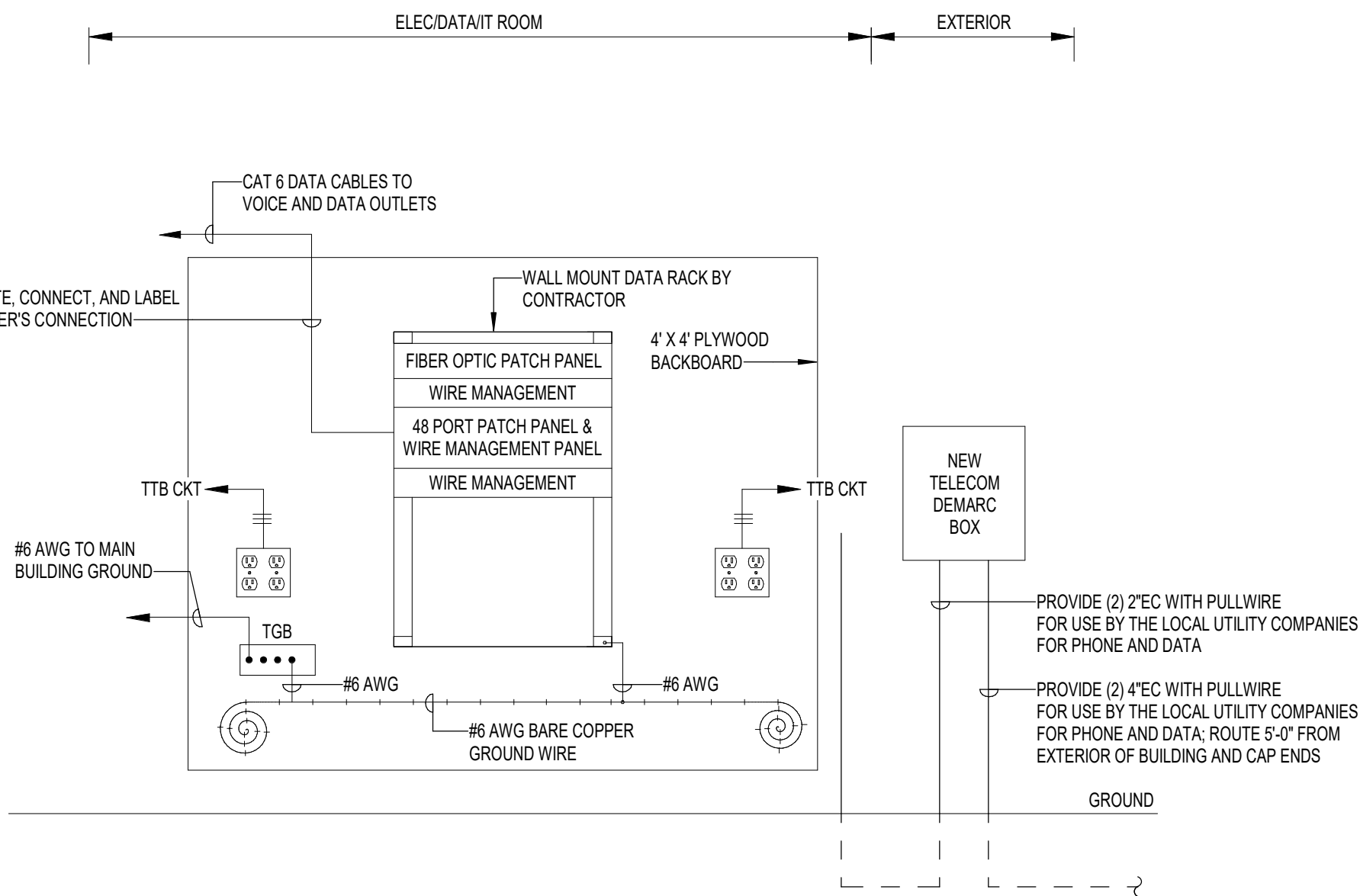
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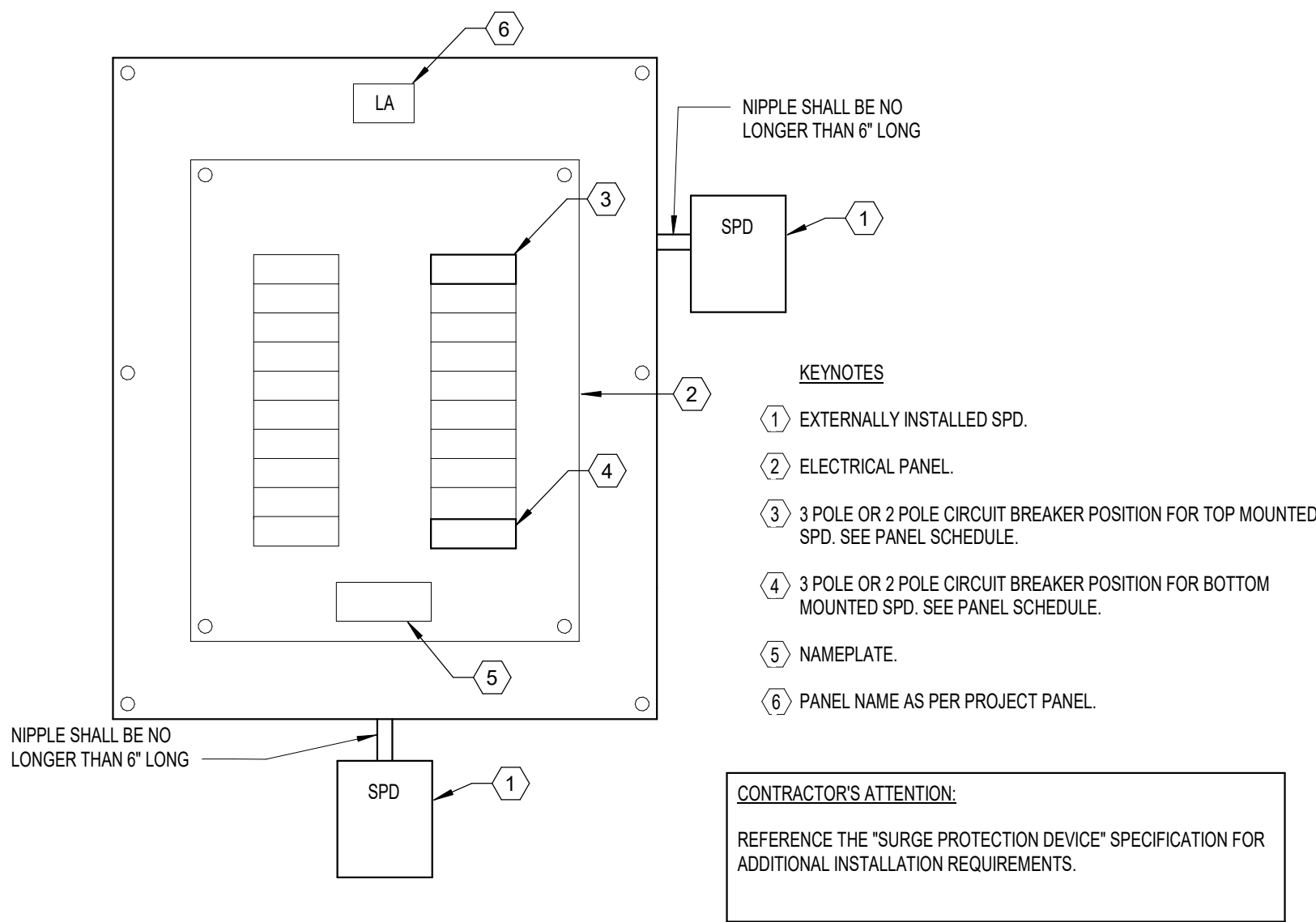
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DRAWING NAME
ELECTRICAL DETAILS

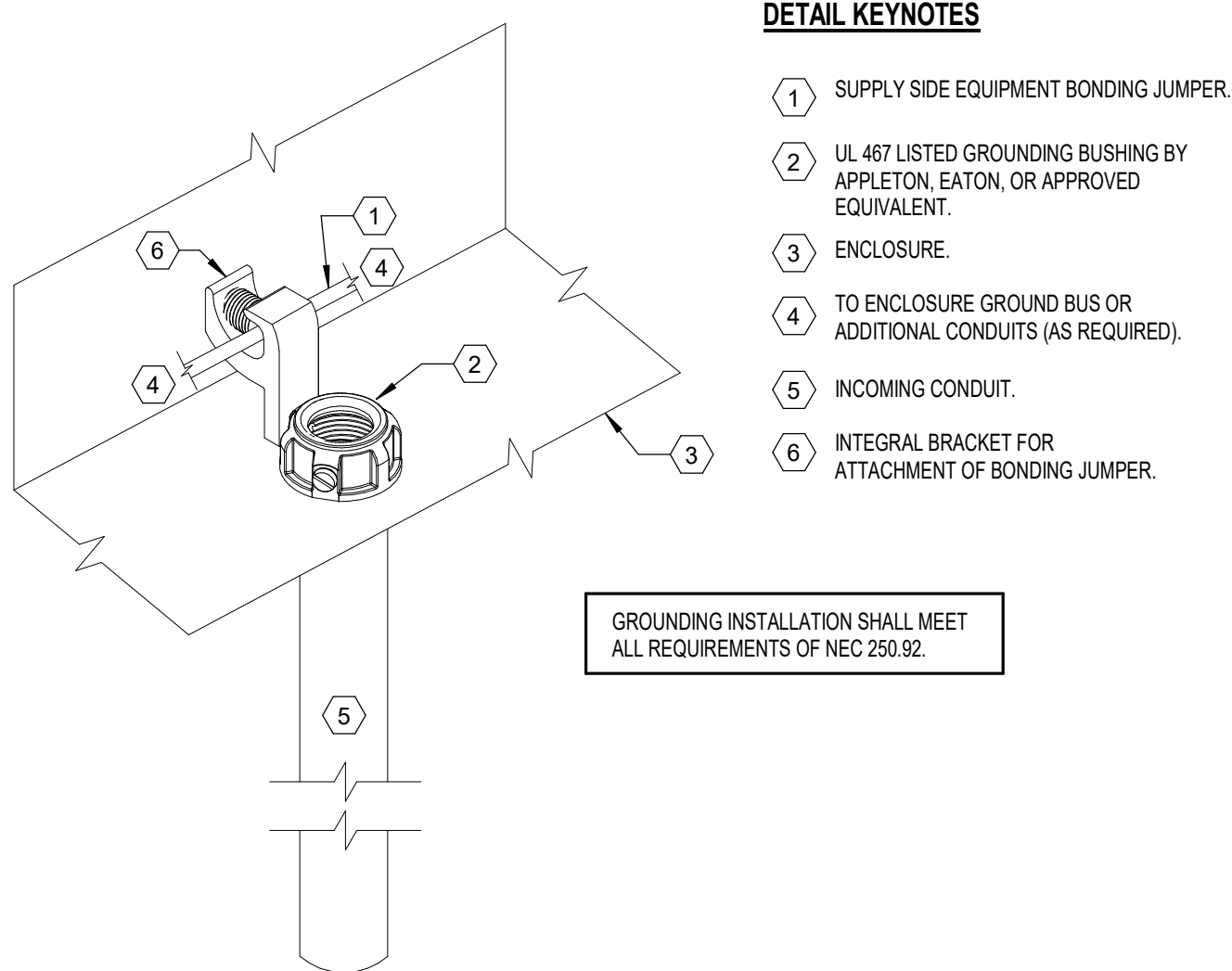
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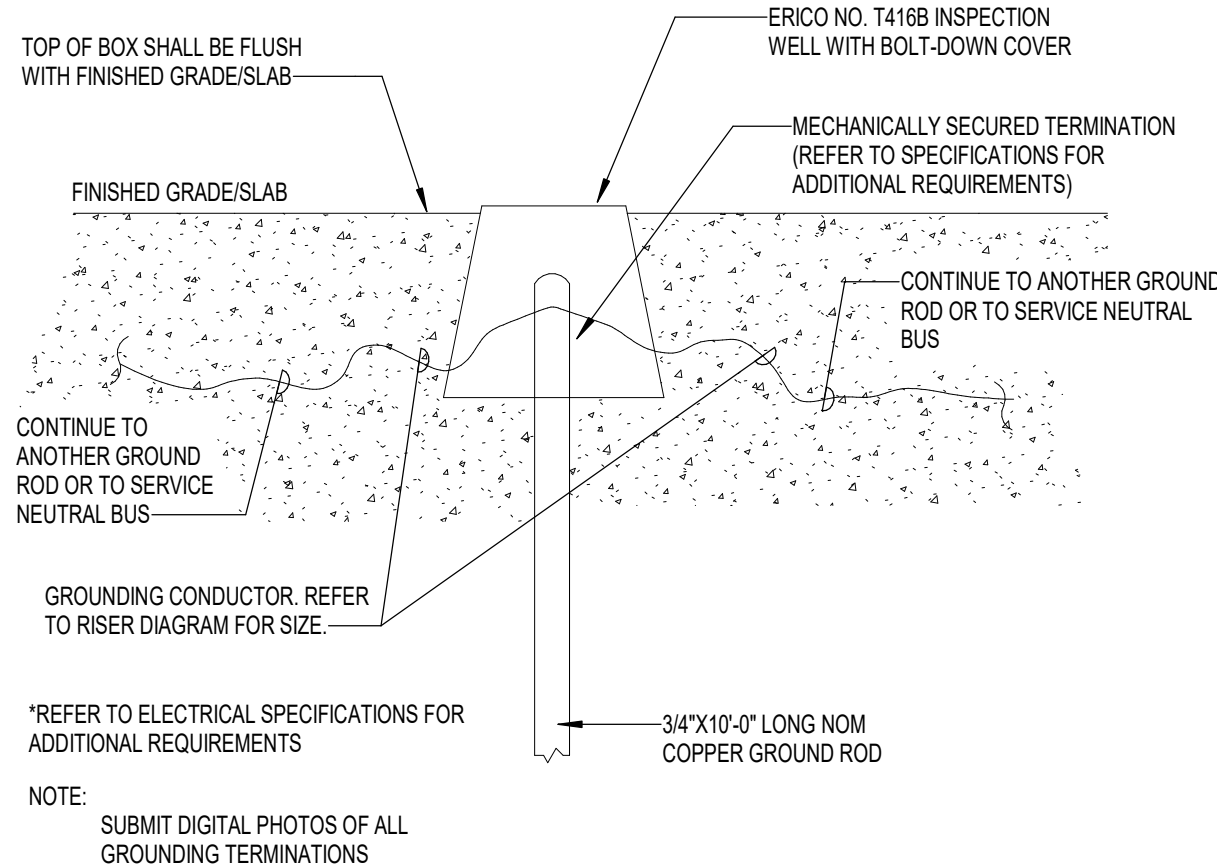
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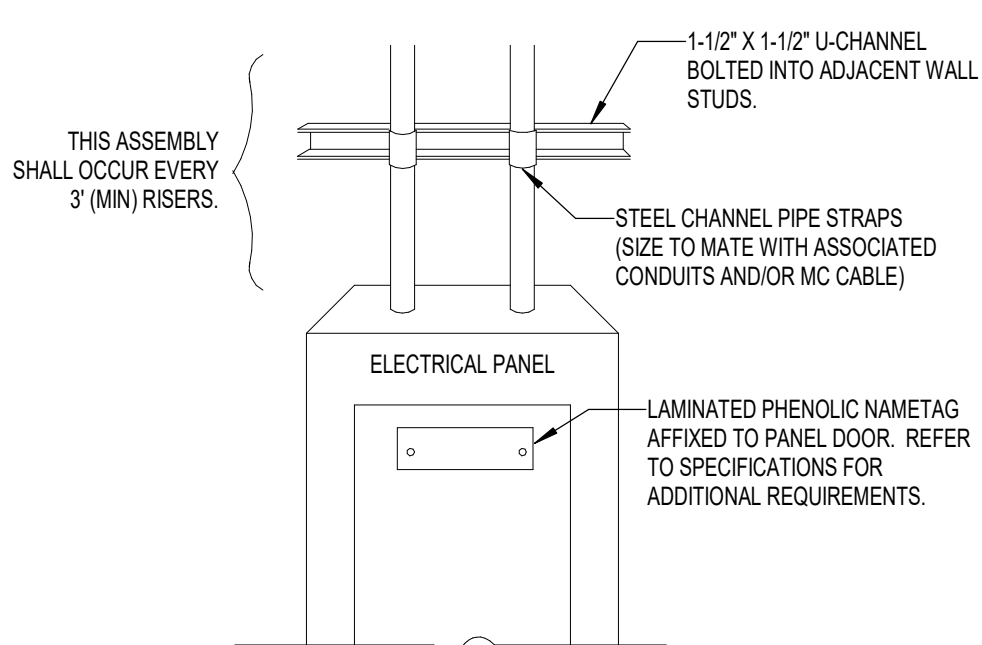
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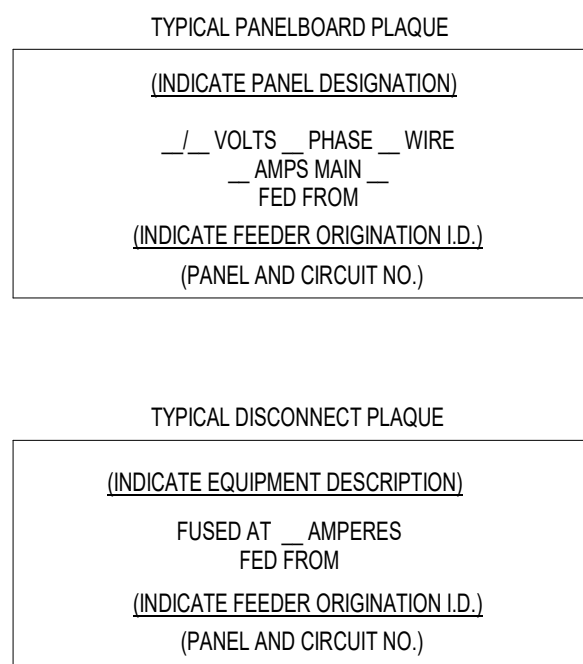
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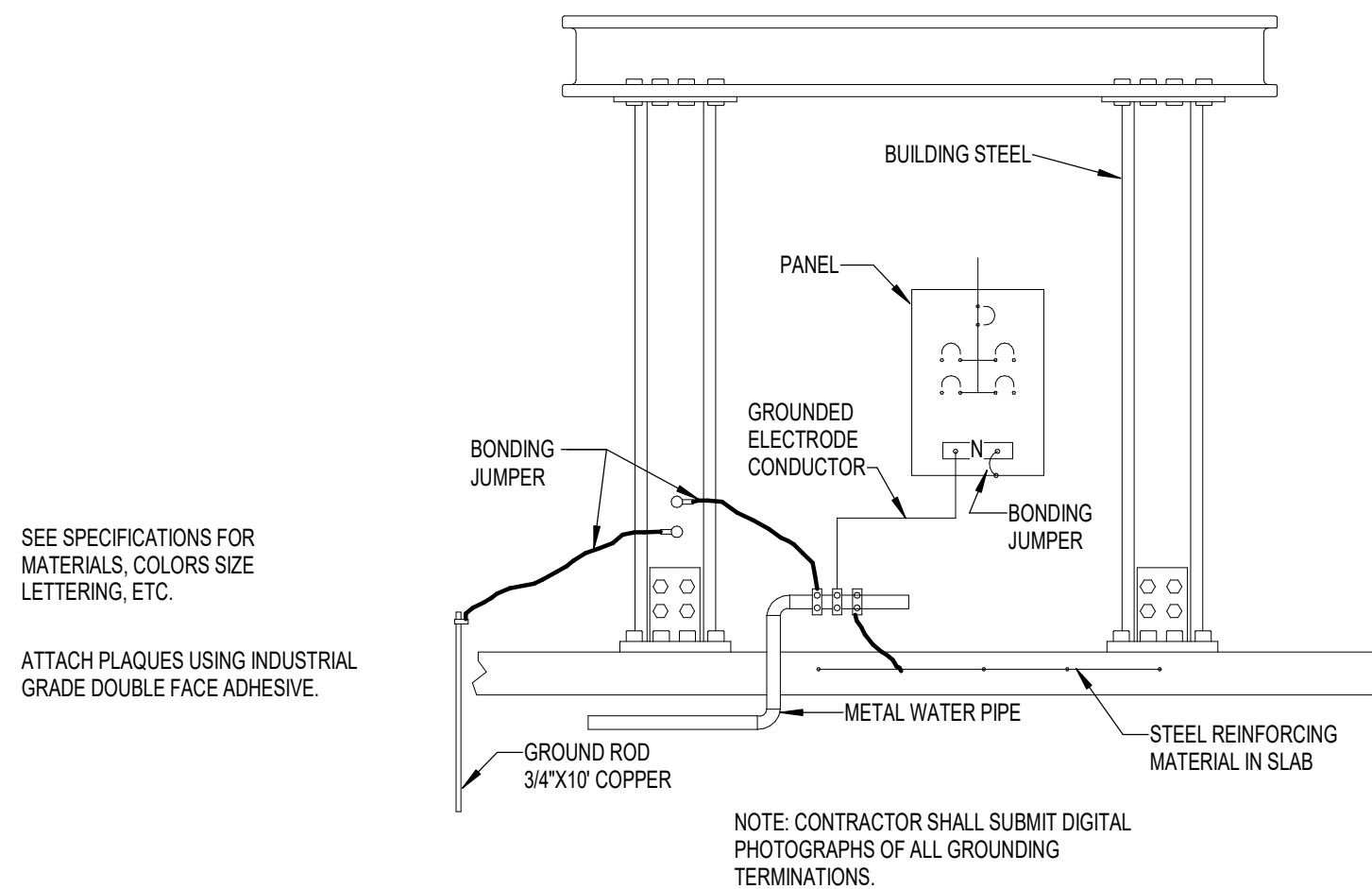
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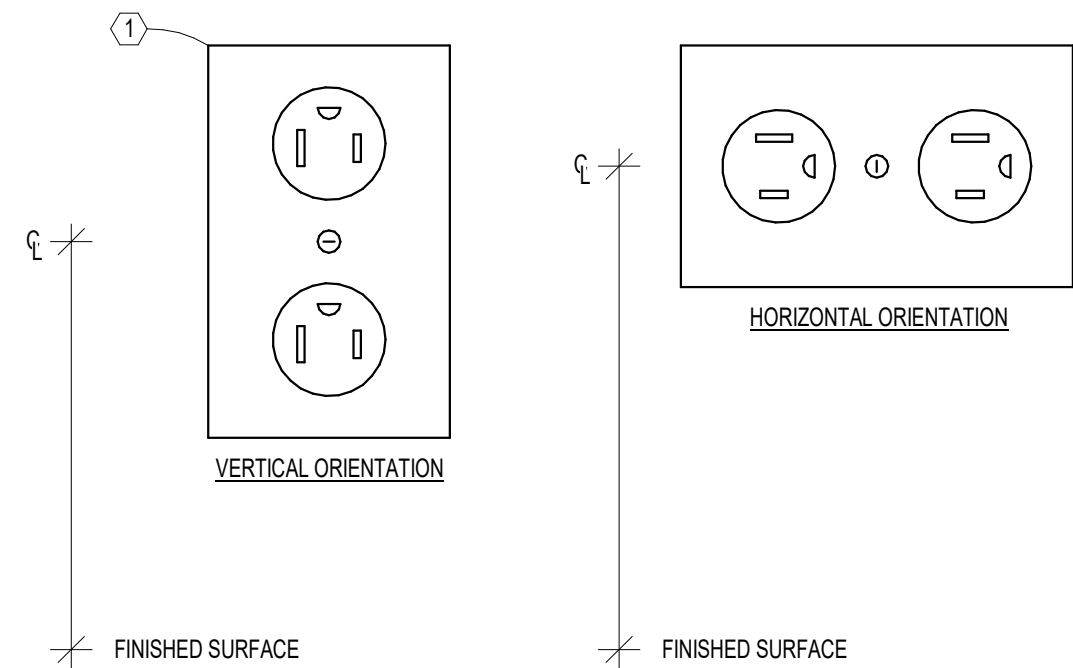
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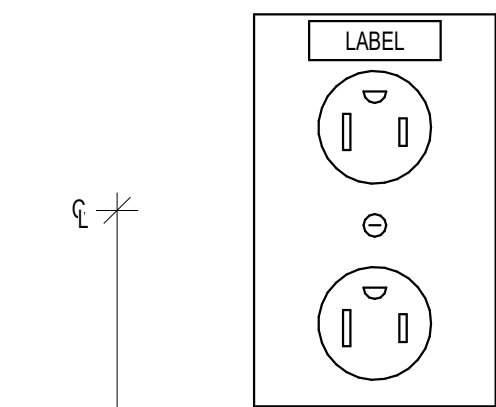
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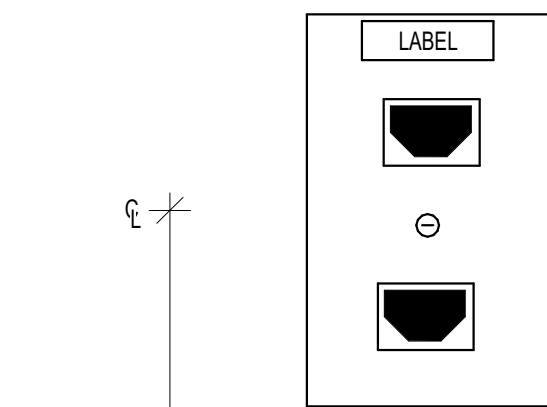
7 DETAIL - GROUNDING TO BLDG STEEL
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8 DETAIL - RECEPTACLE
N.T.S.



9 DETAIL - RECEPTACLE LABELING
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10 DETAIL - DATA LABELING
N.T.S.

ELECTRICAL SPECIFICATIONS

PART 1.0 GENERAL

1.1 GENERAL CONDITIONS
A. The General Conditions and Supplementary General Conditions are a part of this section of these Specifications. The Contractor is cautioned to read and be thoroughly familiar with all provisions of the General Conditions. These conditions shall be complied with in every aspect. The word "shall" where used, is to be understood, as mandatory and the word "should" as advisory. "May" is used in the permissive sense.

1.2 MINIMUM STANDARDS
A. Applicable rules of the National Electrical Code apply as a minimum standard for this contract, but do not replace or reduce any specific requirement herein.

1.3 LAWS, PERMITS AND FEES
A. The entire electrical work shall comply with the rules and regulations of the State, including the State Fire Marshal and State Board of Health, whether so shown on plans or not.

1.4 PRIOR APPROVALS
A. The Contractor shall base his proposal on materials as specified herein. Any references to a specific manufacturer or trade name is made to establish a standard of quality and to define a type of product and in no way is intended to indicate a preference for a particular manufacturer. It is the intent of these specifications to allow all manufacturers of equipment, products, etc., judged equal to the specified product to bid on a competitive basis.

1.5 MEASUREMENTS
A. The Contractor shall verify all measurements and shall be responsible for the correctness of same, before ordering any materials or doing any work. No extra charge or compensation will be allowed for any differences between the actual measurements and those indicated on the drawings.

PART 2.0 PRODUCTS

2.1 RACEWAYS AND FITTINGS
A. Raceways permitted on this project shall be hot dipped galvanized rigid steel conduit, electrical metallic tubing (EMT), flexible metallic tubing, and liquid-tight flexible metal conduit. All conduits shall be new and shall bear the inspection label of the Underwriter's Laboratories, Inc. Metallic conduit shall be metalized. Non-metallic conduit shall be schedule 40 PVC.

B. Fittings for conduit shall be an approved type specially designed and manufactured for their purpose. EMT fittings shall be water tight, compression type. Setscrew connector fittings shall not be permitted.

C. Galvanized conduit furnished in accordance with these specifications shall be of mild steel piping, galvanized inside and outside, and shall conform in all respects to the American Standard Association Rigid Steel Conduit Specification C80.1-1959 and Underwriter's Laboratories Specifications.

2.2 OUTLET AND SWITCH BOXES

A. Outlet boxes in concealed conduit systems shall be flush mounted. Boxes shall be galvanized steel of sufficient size to accommodate devices shown and shall have raised covers where required to meet requirements of NEC Article 314. All boxes shall be stamped, one piece, galvanized steel, of proper size and shape for conduits entering them, and shall be UL listed and NEC approved for the intended use.

B. Boxes for lighting fixtures shall be 4 inches octagon, not less than 1-1/2 inches deep, with fixtures stud fastened through from back box. Outlet boxes for switches in concealed work shall be standard switch boxes of required number of gangs. Outlet boxes for receptacles, telephone, and communication use in concealed work shall be 4 inch square, not less than 1-1/2 inches deep.

C. Boxes are not to be installed back to back in walls. Do not use long, extended boxes that would effectively couple light and sound between adjoining spaces.

2.3 WIRE (600 VOLT AND BELOW)

A. All conductors used in the work shall be of soft drawn annealed copper having a conductivity of not less than 98% of that of pure copper. Conductors shall be standard code gauge in size, insulated and shall have insulation rated for use at 600 volts. Unless noted otherwise or specified, insulation shall be type MC, THW, THWN, or THHN for sizes up to and including No. 2 AWG. Insulation for wire sizes larger than No. 2 AWG shall be type THW, XHHW, or THHN. Lighting fixture wire shall be heat resistant type TF (150°C) with 300-volt insulation minimum. Wires shall be of the single conductor type. Sizes No. 8 AWG and larger shall be stranded. Sizes No. 12 thru No. 14 shall be single strand solid copper.

B. Throughout the system, all conductors shall be identified as to the phase and voltage of the system by color-coding in accordance with NEC 210.5. Color-coding shall be continuous the full length of the wire with surface printing at regular intervals on all conductors and for neutral conductors.

2.4 CIRCUIT BREAKER PANELBOARDS

A. Panelboards shall be sized as shown on the drawings and schedules, and shall be the bolted breaker panelboard type. Panelboards shall have door-in-door trim. All panelboard bussing shall be copper. Load centers are not acceptable.

B. Panelboard shall be dead front safety type with main breaker or main lugs, as required by Code. Panelboards shall have single, feed through, or double lugs to accommodate feeder conductors. Panelboards with neutrals shall have a neutral buss and a neutral bar insulated from the enclosure for terminating feeder and branch circuit neutral conductors. Each panelboard shall have an equipment grounding bar connected to the cabinet for terminating feeder and branch circuit ground conductors.

C. All breakers shall be bolt on type. Panelboards for 120/208 volt service shall be GE type NLAB, Square D type NOOD, Siemens type CDP, Eaton POW-R-LINE series, or equal. Panelboards for 277/480 volt service shall be Square D type NEHB, Siemens type Sentron, Eaton POW-R-LINE series, or equal.

D. Replacement breakers to be installed in existing panels shall be fully compatible with the existing panel and shall be sized as shown on the Drawings. Breakers shall be bolt-on breaker type to match existing breakers or plug-on breaker type if plug-on breakers are utilized in the panel. If both bolt-on and plug-on breakers exist in the panel, bolt-on breakers shall be installed.

2.5 SAFETY SWITCHES

A. Furnish and install safety switches as shown on the Drawings. All switches shall be fused NEMA Heavy Duty Type HD and Underwriter's Laboratories listed. All switches shall have blades that are fully visible in the "OFF" position with the door open. Switches shall be dead-front construction with permanently attached arc suppressors. Lugs shall be UL listed for copper and aluminum conductor and front removable. All current carrying parts shall be plated to resist corrosion. Switches shall be quick-make, quick-break type. During operation of the switch, the movable contacts shall not be able to be restrained by the handle once the closing or the opening action of the contacts has been initiated. Switches shall have cover interlocks to prevent opening of the switch door while the switch is in the "ON" position or closing the switch with the door open. Switch shall have padlocking capabilities in the "OFF" position.

B. Safety switches shall be rated 600 volts for 480 volt service and rated 240 volts for 208 volt service. Switches shall be motor rated when used for motor loads. Switches shall be NEMA 1 enclosed for indoor applications and NEMA 3R for outdoor or wet area locations.

C. Safety switches shall be Square D Heavy Duty Class 3110 type, Eaton Heavy Duty type, Siemens Heavy Duty Vacu-Break type, or prior approved equal.

2.6 WIRING DEVICES

A. Unless otherwise specified, all outlets including voice/data outlets shall be fitted with cover plates. Cover plates shall be standard size, uniform in design and finish for switches, receptacles and other outlets requiring cover plates.

B. Wiring devices shall be as listed. The color of device shall match color of outlet cover plate. It shall be the responsibility of the Contractor to provide plugs, receptacles, and fittings required for any equipment furnished or installed or connected under the contract. Color shall be white unless otherwise directed by the Owner.

Toggle Switches: 20A, 120/277V	Leviton	P&S	Hubbell
Single pole	1221-I	20AC1-I	1221-I
Three-way	1223-I	20AC3-I	1223-I

Duplex Receptacle: 20A, 125V, NEMA 5-20R	5362-I	5362-I	5363-I
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Ground Fault Circuit Interrupter: 20A, 125V, Feed Through, NEMA 5-20R	6899-I	2091-S	GF-5362-I
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C. Quad receptacles shall be 20 amp, 125 volt rated, NEMA 5-20R, with two (2) duplex receptacles or single four-plex device.

D. Weatherproof receptacles shall be GFCI duplex receptacles as specified under WIRING DEVICES, mounted in cast iron type FD conduit box and fitted with gasketed metal cover with spring. Weatherproof receptacles shall be flush mounted in exterior walls.

2.7 VOICE & DATA STATION CABLES

A. Voice and data station wiring shall be Category 6 enhanced (Cat 6e) communications wire and cable. Station Cable shall be four-pair, unshielded, twisted pair, inside station cable, and shall be constructed of solid 24 gauge annealed copper. Each conductor shall be insulated with a continuous layer of fluorinated ethylene propylene (FEP). The sheath shall be all weather, flame resistant, polyvinyl chloride. Station wire shall be constructed of 4 twisted pair sharing one sheath. Cable shall have Category 6e transmission characteristics as specified by ANSI/EIA/TIA-568-B2.1. Cables routed in air plenum shall have a sheath and conductor insulation constructed of material so as to be classified as type CMP as defined by the NEC 800-3(b)(3). Voice cable shall be GRAY. Data station cables shall be BLUE.

2.8 LED LIGHTING
A. Lighting fixtures with LED light sources shall meet the following fixture and light source requirements

1. LED Color Temperature - Cool White (CW), 4000K nom., CRI > 70
2. Line Voltage - Universal Voltage 120-277 volts
3. Governmental Standards - LM79 and LM80 Compliant
4. Expected Lamp Life - LED Life Rating (L70 B10) to be 60,000 hours to 100,000 hours. Defined as time of operation (in hours) to 30% lumen depreciation (i.e. 70% lumen maintenance), derived from Luminaire in-situ temperature measurement testing (i.e. LED chip package temperature (TS) measurement obtained with the LED chip package operating in given luminaire and in a given stabilized ambient environment) under UL1588 environments and directly correlated to LED package manufacturers IESNA LM-80-08 data. Predicted (L70 B10) Limits (@ 25°C luminaire ambient operating environment): Greater than 60,000 hours @ 350mA Drive Current
5. Driver - Components must be fully encased in potting material for moisture resistance, and must comply with IEC and FCC standards
6. Surge Protection - Surge protection must be provided including separate surge protection built into electronic driver
7. Mechanical - Luminaire LED system components to be low copper aluminum, with high performance heat sink(s) designed specifically for LED luminaires. No active cooling features (Fans, etc.). Luminaire configuration must allow for modular upgradability and/or field repair of all electrical components (i.e. LED modules, Driver(s), etc.). Drivers and vertical light bars must be all mounted to a twist-lock tool-less assembly for ease of installation and trouble-shooting.
8. Drivers shall be provided with a minimum warranty of 5 years.

2.9 OCCUPANCY SENSORS

A. Sensor shall be a self-contained dual voltage ceiling mounted device capable of directly switching loads upon detection of human activity. Sensor must be circular, and mount to either a single gang enclosure, or surface mount to a round pancake box.

B. Sensor must be rated for 120 through 277 VAC and be capable of switching zero to 1200 watts of electronic ballast loads. Sensors must be capable of parallel wiring for multi-sensor applications.

C. Sensor time delay shall be factory set for typical applications and field adjustable from 30 seconds to 20 minutes. Sensor must provide a green LED motion indicator. Red LED denoting life safety shall not be permitted.

D. Passive Dual Technology (PDT) sensing must incorporate PIR with Microphonics, which utilizes a passive microphone with automatic gain control (AGC) to sense both occupants moving and sounds. The PIR must be used to initiate an ON condition. Once on, the PIR or Microphonics shall keep the load on. After the time delay expires and the load goes off, the Microphonics shall remain active up to 10 seconds as a back-up grace period.

E. PIR sensing must utilize a high density Fresnel domed lens, providing a circular view pattern of at least 360 degrees by 56 degrees.

F. Wall box mounted occupancy sensors shall mount in a standard utility box. Sensor shall have self-contained relay (no power pack required), utilize PIR and Microphonics detection, and include auto sensitivity adjustment. Wall box sensor shall be intrinsically grounded and include ON/OFF switch and adjustable time delay.

G. Occupancy Sensor:

- a. Ceiling mount for offices and restrooms - Lutron #LOS-CUS-1000-WH / PP-DV; Wattstopper UT-305-2/BZ-50; Sensor Switch CM PDT9
- b. Wall mount for offices, storage rooms, etc. - Lutron #MS-OPSSM-DV-color; Wattstopper WD-170-FINISH; Sensor Switch WSX
- c. Ceiling mount in large rooms - Lutron #LOS-CDT-2000WH, with #PP-DV universal power pack; Wattstopper DT-205 / BZ-50; Sensor Switch CM PDT10 with PP16
- d. Wall/ceiling mount at end of corridors - Lutron #LOS-WIR-WH / PP-DV 1600T coverage; Wattstopper CX-105 / BZ-50; Sensor Switch WV16 with PP16
- e. Wall/ceiling mount at center of corridors - Watt Stopper #CX-100-3 series, with #BZ-50 universal power pack; Sensor Switch WV16 with PP16
- f. Room controllers - Wattstopper #LMRC-101; nLight #PP-16

2.10 SURGE PROTECTION DEVICES FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS

A. Transient voltage surge suppression (TVSS) shall be in accordance with the following standards:

1. Underwriters Laboratory (UL)
2. American National Standards Institute (ANSI)
3. Institute of Electrical and Electronics Engineers (IEEE)
4. National Electrical Manufacturers Association (NEMA)
5. National Fire Protection Association (NFPA)
6. Occupational Safety and Health Act (OSHA)
7. Federal Information Processing Standards, Pub 94 (FIPS)
8. ANSI/IEEE C62.41, Recommended Practice for Surge Voltages in Low-Voltage
9. C Power Circuits, Category C
10. ANSI/IEEE C62.45, Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits.
11. UL 1449, Current Edition - Transient Voltage Surge Suppressors
12. NEMA LS-1 (1992), Low Voltage Surge Protective Devices
13. NEC Article 285 Manufacturers meeting these requirements will be accepted. Submittal information must include Test Reports from a NRTL (R&B Labs preferred) showing single impulse testing matching label rating, including fuses, UL documents showing SVR ratings and symmetrical fault current withstand ratings, and NRTL report showing the device capable of surviving a minimum of 5,000 impulses using 10x1000s waveform.

B. Electrical Requirements:

1. System voltage shall be as indicated on drawings.
2. The TVSS shall be UL Tested and labeled as a complete assembly to a symmetrical fault current rating greater than or equal to the rating of the connected panel, in accordance with NEC Article 285, without the requirement of a dedicated breaker feeder to obtain the fault current withstand rating.
3. The Voltage Protection Rating (VPR) shall be tested with the integral disconnect in accordance with UL-1449, Third Edition. The UL VPR values shall not exceed the following (including disconnect): If the device is remote mounted it shall be fed by a circuit breaker and the UL VPR rating shall include the breaker in series with the TVSS.
VPR Values Wye Module:
120/208 volt L-N 700, 14-G 700, L-G 700
277/480 volt L-N 1500, N-G 1500, L-G 1500
4. Protection and Filtering Elements The TVSS shall have a maximum surge current rating of:
Service Entrance 300kA per mode
Distribution Panel 200kA per mode
Branch Panel 100kA per mode
5. Devices that derive a maximum surge current rating by adding test results of individual components are not acceptable. Systems using selenium, gas tubes or silicon avalanche diodes in surge current path are not acceptable. The Maximum Continuous Operating Voltage (MCOV) for all voltage configurations shall be 115% of nominal or greater.
6. Standard Monitoring features:
 - i. Operational status indicating lights.
 - ii. Audible alarm and alarm indicating light and test switch.
 - iii. Dry contacts for remote monitoring purposes.
 - iv. Transient voltage surge counter.
7. Equipment Mounting
 - a. Switchboard & Distribution Panel TVSS The TVSS device shall include an integral disconnect switch which has been tested to the surge current rating of the TVSS and match or exceed the fault current rating of the board per NEC 285. The Disconnect must switch the phases and neutral. Use of circuit breakers for disconnect mean is not acceptable due to impedance and the requirement for neutral disconnect. The TVSS shall be externally mounted next to the switchboard or distribution panel. The TVSS device shall be externally mounted next to the panel.
 - b. Branch panel TVSS The TVSS device shall be externally mounted next to the panel.

2.11 GENERATOR

RESERVED

2.12 AUTOMATIC TRANSFER SWITCH

RESERVED

PART 3.0 EXECUTION

3.1 WIRING - GENERAL

A. Unless otherwise specified, all wiring shall be installed in conduit. No wire shall be smaller than No. 12 unless noted otherwise. Wire for each branch circuit shall be of single size and type from the branch circuit protective device the last outlet of the circuit. BX wiring shall not be allowed.

3.2 CONDUIT - MATERIALS AND METHODS

A. Conduit shall be installed as per NEC and NEMA regulations and the manufacturer's recommendations. Electrical Metallic Tubing shall be used for feeders, branch circuit and communications and control wiring. In places where EMT is permitted, 1/2" through 2" sizes shall be the only sizes permitted. Fittings for EMT shall be the compression ring type fittings. Communications wiring may be installed without conduits above accessible ceilings.

B. Flexible metallic conduit or liquid-tight flexible metal conduit shall be used for the final connection of runs to motors. Flexible conduit shall be at least twelve (12) inches long, but not more than forty-eight (48) inches long. Where used, an external grounding conductor shall be run with conduit unless conductor is made as a part of the conduit.

C. Rigid Steel Conduit shall be used for all conduits exposed to the weather, and underground conduit except where non-metallic conduit is specified or approved. Underground and under slab runs are to be watertight. All horizontal runs of underground conduit shall utilize rigid steel elbows on vertical risers. Conduits used for receptacles and run under the building slab shall be hot dipped galvanized rigid steel and shall be 3/4" minimum size.

3.3 MOUNTING HEIGHTS

A. Unless otherwise noted on the drawings or required by the Architect, the following mounting heights shall apply: Toggle Switches - 4'-0"; Receptacles - 1'-6"; Communication Outlets - 1'-6" (48" for wall phone); Panelboards - 6'-0" to top; Safety Switches - 5'-0" to top; Motor Control Equipment - 5'-0" to top; Wiring Devices above counters - 1'-6" above counter top

3.4 COMMUNICATIONS WIRING INSTALLATION

A. Unless otherwise specified, all communications systems shall be permanently installed and connected to the wiring system. The systems must be installed according to manufacturer standards and recommendations. Wiring installation shall be tested after completion of installation. Test results and as-built documents will be provided to architect in both hard copy and electronic copy, furnished on a CD.

B. Wiring maps/pla built documents showing voice and data outlets, device numbers, room locations, and termination locations will be displayed in each wiring closet.

C. Wireless drop wiring shall be punched down on a separate punch down block at the end of the data punch down blocks. The wireless punch down block shall be a different color.

D. Voice and data wiring routed above accessible ceilings shall be supported on J-hooks, and shall be loose bundled using Velcro wraps. Voice and data wire bundles shall not include power wiring or wiring for other low voltage systems (fire alarm, intercom, security, CCTV, etc.).

E. COMMUNICATIONS SYSTEM CABLES ROUTED EXPOSED ABOVE CEILINGS SHALL BE PLENUM RATED.

3.5 LIGHTING INSTALLATION

A. Unless otherwise specified, lighting fixtures shall be permanently installed and connected to the wiring system. The Contractor shall support each fixture, independently from the building structure. Ceiling framing members shall not be used to support fixtures except in specified areas where ceiling supports for this purpose have been specified elsewhere in these specifications. Each fixture shall have at least two fixture supports. Flexible conduit used for fixture whips shall be at least twelve (12) inches, but not more than 48 inches long.

3.6 OVERCURRENT PROTECTIVE DEVICE SHORT-CIRCUIT STUDY

A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable. Computer software developers shall comply with IEEE 399 and IEEE 551 and software shall be capable of plotting and diagramming time-current-characteristic curves as part of its output.

3.7 OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY

A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable. Computer software developers shall comply with IEEE 242 and IEEE 399 and software shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.

3.8 OVERCURRENT PROTECTIVE DEVICE ARC-FLASH STUDY

A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable. Computer software developers shall comply with IEEE 1584 and NFPA 70E.

3.9 FACTORY TESTS

A. RESERVED

3.10 TRAINING

A. The equipment supplier shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than 4 hours in duration and the class size shall be limited to 5 persons. Training date shall be coordinated with the facility owner.

3.11 COMPLETION

A. The Contractor shall leave all electrical equipment with proper connections, and in proper working order. He shall test the entire electrical system to show that it is properly installed. Contractor shall leave all panels and switches completely fused or complete with circuit breakers.

3.12 RECORD DRAWINGS

A. The Contractor shall furnish one (1) complete set of drawings on which any changes in the work shall be shown. These drawings must be turned over to the Architect prior to final acceptance of the work.

3.13 GUARANTEE

A. The Contractor shall guarantee to keep the entire electrical system as installed by him or his subcontractors in repair and in perfect working order for one (1) year from the date of the final Certification of Final Acceptance, and shall furnish free of cost to the Owner, all material and labor necessary to comply with the above guarantee, said guarantee shall be based upon defective material and workmanship. In any case where equipment has a factory warranty exceeding this one-year limit, the full extent of the warranty shall apply.

3.14 CLEANING

A. When all work has been finally tested, the Contractor shall clean all fixtures, equipment, conduits, ducts, and all exposed work. All cover plates and other finished products shall be thoroughly cleaned.

3.15 INSTRUCTION MANUALS

A. The Contractor shall provide three (3) operating and maintenance instruction manuals on all systems and equipment installed in the electrical work.

3.16 CONTRACTOR SPECIAL NOTE

A. The Contractor is again cautioned to refer to all parts of these Specifications and all Drawings, not just electrical sections, and the individual cross references made to other standard specifications or details describing any electrical work, which may be required under these other sections. The Contractor is cautioned to note carefully any other sections which may reference electrical work in order for this Contractor to fully understand the wiring requirements and electrical work that is required. Any conflicts found between the electrical sections of these Specifications or Drawings shall be immediately directed to the General Contractor for clarification.

B. These Specifications and the electrical Drawings size equipment, wire, conduit, etc. based on the horsepower of motors and/or wattages of equipment as shown on the plans or specified herein. The Contractor shall install electrical raceways, conductors, fuses, safety switches, breakers, contactors, starters or any other electrical equipment with the capacities to suit the horsepower and/or wattages of the equipment actually furnished and installed. The Contractor shall not furnish or install any electrical raceways, conductors, safety switches, contactors or motor starters of sizes smaller than those shown on the Drawings or specified herein. The Contractor shall coordinate with the various sections of the Specifications and/or Drawings and with the various Sub-Contractors to provide the properly sized equipment without additional cost to the Owner.

C. The Contractor shall be required to install electrical services underground. Existing underground utilities should be disconnected. Refer to the electrical and mechanical drawings for demolition plans. However, some existing underground utilities may remain in service at the site. Contractor is cautioned to exercise extreme care when digging to not damage any existing utilities or equipment. Contractor shall be required to repair any utilities or equipment he may damage during construction



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DRAWING NAME

ELECTRICAL SPECIFICATIONS

SHEET NO.

E3.0

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