W.K. KELLOGG AIRPORT
FAA FIS HANGAR REHABILITATION

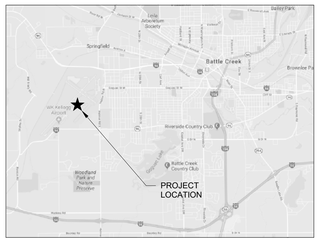
16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI 49015

PROJECT No.: 022880-170289.01

STATE MAP:

STATE OF MICHIGAN

VICINITY MAP:



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SHEET CONTENTS
COVER SHEET

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G-001

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GENERAL NOTES APPLICABLE TO ALL WORK AND TRADES:

1. SEE SPECIFICATION SECTION 011000 FOR AN OVERALL SUMMARY OF THE WORK. WORK ITEMS NUMBERS (WI-#) HAVE BEEN ASSIGNED FOR GENERAL REFERENCE (EG: "REF.WI-#") TO PRIMARY ELEMENTS OF THE WORK. NOTE THAT ALL WORK ITEMS REQUIRED BY THE CONTRACT MAY NOT BE SHOWN OR NOTED ON THESE DRAWINGS!
2. CONTRACTOR SHALL INCLUDE ANY/ALL WORK INCIDENTAL TO OR OTHERWISE NEEDED TO COMPLETE THE WORK NOTED OR SPECIFIED, COMPLETE AND READY FOR USE AND WITH PROFESSIONAL WORKMANSHIP.
3. PROVIDE ALL RESTORATION AND PREPARATION OF EXISTING WORK NEEDED AND PER MANUFACTURER'S RECOMMENDATIONS FOR PROPER INSTALLATION OF NEW WORK. COORDINATE WITH ALL TRADES.
4. ANY MATERIALS, PRODUCTS, SURFACES OR FINISHES DISTURBED, REMOVED OR DAMAGED IN THE PROCESS OF COMPLETING THE WORK SHALL BE RESTORED, REPLACED OR REPAIRED TO ORIGINAL OR BETTER CONDITION TO THE SATISFACTION OF THE OWNER. COORDINATE WITH ALL TRADES.
5. ALL WORK SHALL COMPLY WITH PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
6. ALL PRODUCTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS FOR FULLY WARRANTED PERFORMANCE.
7. THESE DRAWINGS PROVIDE A GENERAL REPRESENTATION OF THE EXISTING FACILITY FOR THE PURPOSE OF IDENTIFYING VARIOUS WORK ITEMS INCLUDED IN THE SCOPE OF THE WORK, HOWEVER, THEY DO NOT FULLY REFLECT ACTUAL CONDITIONS, SIZES OR LOCATIONS OF EXISTING ITEMS IN THE FIELD.
8. CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE HIMSELF WITH ACTUAL CONDITIONS AND VERIFY ANY INFORMATION OR DIMENSIONS PERTINENT TO THEIR WORK PRIOR TO SUBMITTING A BID, AND PRIOR TO SUBMITTING SHOP DRAWINGS, ORDERING MATERIALS OR FABRICATING COMPONENTS. SITE VISITS SHALL BE COORDINATED WITH THE OWNER.
9. REFERENCE DRAWINGS FROM ORIGINAL CONSTRUCTION OR SUBSEQUENT WORK AT THE FACILITY ARE AVAILABLE FOR GENERAL REFERENCE WITH NO GUARANTEE OF ACCURACY OR COMPLETENESS. ANY USE SHALL BE AT THE SOLE DISCRETION AND RISK OF THE CONTRACTOR AND SUBJECT TO HIS OWN VERIFICATION OF ACTUAL CONDITIONS.
10. FOR ITEMS BEING REPLACED, THE EXTENT OF NEW WORK SHALL MATCH THE EXTENT OF THE EXISTING WORK UNLESS SPECIFICALLY NOTED OTHERWISE OR OTHERWISE NECESSARY TO PROPERLY COMPLETE THE WORK.
11. ALL ACTIVITIES WITHIN THE WITHIN THE AIRPORT PERIMETER FENCE SHALL COMPLY WITH THE AIRPORT'S REQUIREMENTS FOR ACTIVITIES WITHIN THE AIRPORT OPERATIONS AREA.
12. ACTIVITIES WITHIN THE FIS FACILITY SITE SHALL BE SEQUENCED AND COORDINATED WITH THE AIRPORT AND FIS MANAGER TO MAINTAIN SECURITY AND AVOID DISRUPTION OF NORMAL FACILITY OPERATIONS.
13. CONTRACTOR SHALL PROVIDE BADGED ESCORTS FOR ALL UN-BADGED PERSONNEL AT ALL TIMES WORKING WITHIN SECURED FAA SITE/FACILITY AND AIRPORT OPERATIONS AREA. NO ESCORTS WILL BE PROVIDED BY THE AIRPORT, FAA, OR OWNER'S REPRESENTATIVES. COORDINATE BADGING/ESCORT REQUIREMENTS WITH AIRPORT AND FIS.
14. PROVIDE PROTECTIVE BARRIERS AND SIGNAGE AS NEEDED TO PROTECT THE FACILITY AND PERSONNEL FROM WORK ACTIVITIES.
15. COORDINATE THE USE OF POWER EQUIPMENT WITH THE FAA IN ADVANCE TO AVOID DETRIMENTAL AFFECTS ON ELECTRONICS, AIRCRAFT, EQUIPMENT AND PERSONNEL.
16. KEEP ALL EXITS REQUIRED BY CODE OPEN DURING THE WORK. PROVIDE TEMPORARY EXIT SIGNS IF EXIT ROUTES ARE TEMPORARILY ALTERED.
17. DO NOT OBSTRUCT ROADWAYS, SIDEWALKS OR OTHER PUBLIC WAYS WITHOUT PERMISSION.
18. PREVENT ACCIDENTAL DISRUPTION OF UTILITY SERVICES AND MINIMIZE PLANNED OUTAGES NEEDED TO COMPLETE THE WORK. COORDINATE AND SCHEDULE PLANNED OUTAGES IN ADVANCE WITH THE AIRPORT AND FAA MANAGER.
19. SEE SECTION 011000, 013523, 015000, AND DRAWINGS G-050 AND G-051 FOR OTHER SPECIFIC REQUIREMENTS AND RESTRICTIONS PERTAINING TO ALL WORK AT THIS SITE.

ATTENTION!

RE: SCOPE OF WORK / WORK ITEMS "WI-_ _" NOTED IN THESE DOCUMENTS REFER TO PRIMARY WORK ITEMS IDENTIFIED AND DESCRIBED IN SPEC SECTION 011000 - SUMMARY OF WORK. NOT ALL ITEMS ARE SO REFERENCED.
ANY SUCH REFERENCES ARE PROVIDED FOR CONVENIENCE AND ADDED CLARITY ONLY AND SHALL NOT BE CONSTRUED TO SUPERCEDE, LIMIT, OR DEFINE THE FULL EXTENT OF THE WORK REQUIRED. SEE RELATED NOTES ON THIS AND OTHER DRAWINGS. KEEP SPECIFICATIONS WITH DRAWINGS FOR REFERENCE AT ALL TIMES.

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SHEET CONTENTS
GENERAL NOTES APPLICABLE TO ALL WORK AND TRADES

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G-002

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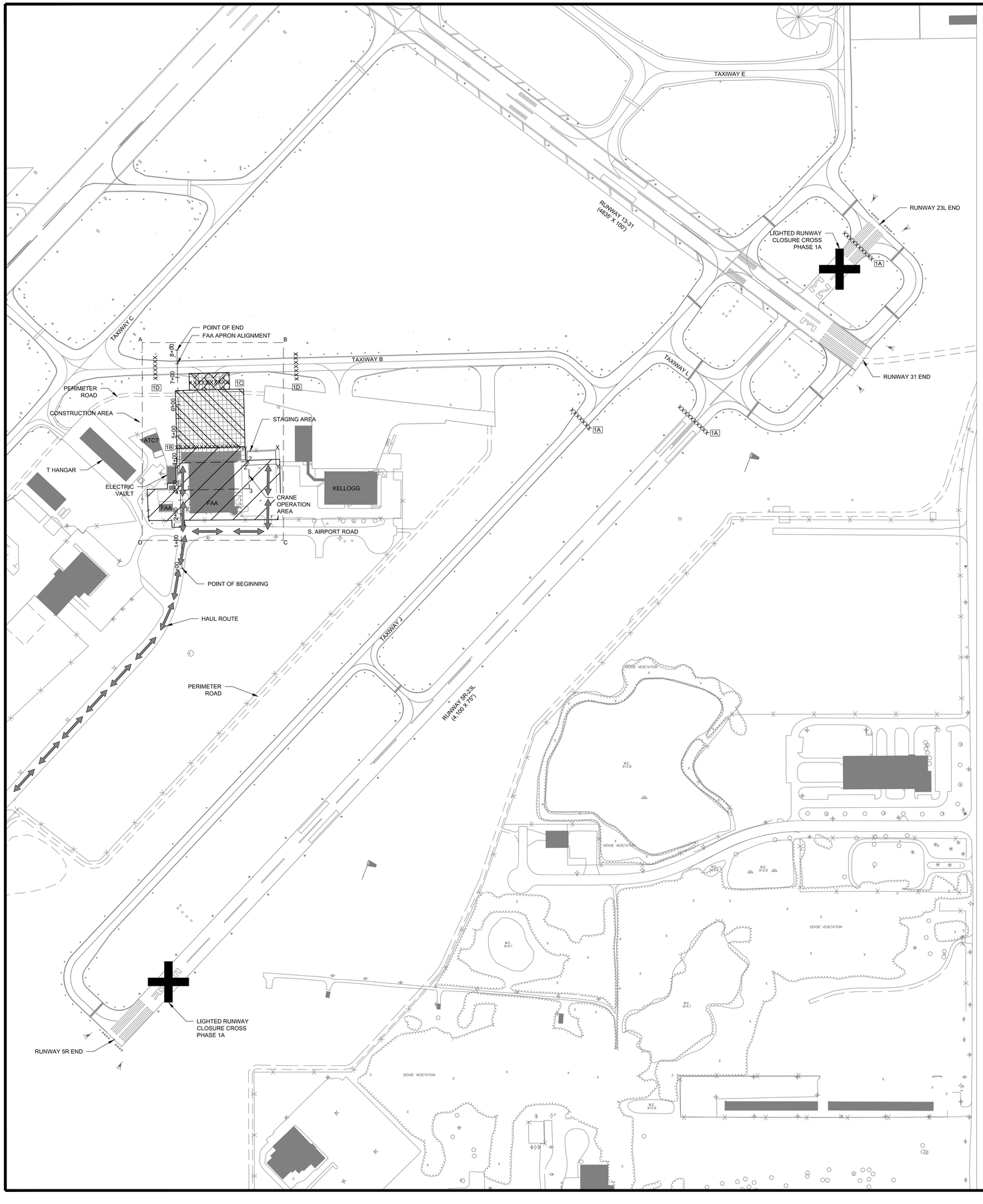

PHASE	CONSTRUCTION	AFFECTED ACTIVE OPERATION AREAS (AOAS)	WORK HOURS	SAFETY AND SECURITY	CONTRACT TIME (DAYS)
1	BUILDING IMPROVEMENTS TO THE FAA BUILDINGS	VARIOUS WORK AREAS WITHIN AND ON EXTERIOR OF FAA HANGAR, COORDINATE WITH FAA	7 AM - 5 PM	CONTRACTOR SHALL COORDINATE WITH ENGINEER AND AIRPORT 30 DAYS PRIOR TO STARTING CONSTRUCTION. AIRPORT MANAGER SHALL ISSUE ALL NOTAMS. MAXIMUM EQUIPMENT HEIGHT SHALL BE 35'.	180
1A	BUILDING IMPROVEMENTS UTILIZING CRANE	TWY J CLOSED SOUTH OF TWY B AND RUNWAY 5R-23L CLOSED	7 AM - 5 PM	CONTRACTOR SHALL INSTALL LOW-LEVEL BARRICADES AT LOCATIONS SHOWN ON THE PLANS. LIGHTED RUNWAY CLOSURE CROSSES SHALL BE INSTALLED AS LABELED AS 1A. CONTRACTOR SHALL DISCONNECT APPROPRIATE EDGE LIGHTING CICUITS AND INSTALL JUMPERS AS NECESSARY. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND AIRPORT 7 DAYS PRIOR TO STARTING CONSTRUCTION. AIRPORT MANAGER SHALL ISSUE ALL NOTAMS. MAXIMUM EQUIPMENT HEIGHT SHALL BE 100'.	2 DAYS WITHIN PHASE 1
1B	RECONSTRUCT FAA DRIVE AND PARKING PAVEMENTS, GRADING TURF WITHIN FAA FENCE, INSTALLATION OF HEATED PAVEMENT ON FAA APRON, ALL EXTERIOR SITE WORK	FAA HANGAR CLOSED	7 AM - 5 PM	CONTRACTOR SHALL INSTALL LOW-LEVEL BARRICADES AT LOCATIONS SHOWN ON THE PLANS. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND AIRPORT 7 DAYS PRIOR TO STARTING CONSTRUCTION. AIRPORT MANAGER SHALL ISSUE ALL NOTAMS. MAXIMUM EQUIPMENT HEIGHT SHALL BE 25'.	30 DAYS WITHIN PHASE 1
1C	REMOVE AND REPLACE JOINT SEALANT ON FAA APRON	FAA APRON CLOSED	7 AM - 5 PM	CONTRACTOR SHALL INSTALL LOW-LEVEL BARRICADES AT LOCATIONS SHOWN ON THE PLANS. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND AIRPORT 7 DAYS PRIOR TO STARTING CONSTRUCTION. AIRPORT MANAGER SHALL ISSUE ALL NOTAMS. MAXIMUM EQUIPMENT HEIGHT SHALL BE 25'.	4 DAYS WITHIN PHASE 1
1D	REMOVE AND REPLACE JOINT SEALANT ON FAA APRON CONNECTOR.	TWY B CLOSED BETWEEN TWY C AND KELLOGG APRON CONNECTOR, FAA APRON CLOSED	7 AM - 5 PM	CONTRACTOR SHALL INSTALL LOW-LEVEL BARRICADES AT LOCATIONS SHOWN ON THE PLANS. CONTRACTOR SHALL COVER LIGHTS WITHIN THE CLOSURE AREA. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND AIRPORT 7 DAYS PRIOR TO STARTING CONSTRUCTION. AIRPORT MANAGER SHALL ISSUE ALL NOTAMS. MAXIMUM EQUIPMENT HEIGHT SHALL BE 25'.	1 DAY WITHIN PHASE 1

SAFETY & PHASING NOTES:

1. USE OF CRANE OR OTHER EQUIPMENT ABOVE THE EXISTING BUILDING EAVE SHALL BE LIMITED TO DAYLIGHT HOURS. ALL BOOMS AND LIFTS SHALL BE LOWERED WHEN NOT IN USE, DURING NIGHTTIME HOURS, AND DURING PERIODS OF LOW VISIBILITY
2. ACCESS SHALL BE THROUGH THE ACCESS GATES SHOWN ONLY, UNLESS GIVEN WRITTEN PERMISSION FROM THE AIRPORT OR ENGINEER. ANY WORK NECESSARY TO IMPROVE THE STAGING AREA SITE FOR THE CONTRACTOR OPERATIONS SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
3. ALL VEHICLES ENTERING OR EXITING THE THE AIRFIELD SHALL BE DRIVEN BY EMPLOYEES THAT HAVE OBTAINED AIRFIELD DRIVING PRIVILEGES THOUGH THE AIRPORTS BADGING PROCESS OR SHALL BE ESCORTED TO THE CONSTRUCTION SITE BY A VEHICLE DRIVEN BY AN EMPLOYEE THAT HAS OBTAINED AIRFIELD DRIVING PRIVILEGES THROUGH THE AIRPORTS BADGING PROCESS. AT NO POINT SHALL THE CONTRACTOR RELY ON THE AIRPORT OR ENGINEER TO PROVIDE ESCORTING SERVICES. ALL PERSONNEL WORKING ON THE PROJECT SHALL EITHER OBTAIN A VALID BADGE FROM THE AIRPORT OR BE UNDER DIRECT SUPERVISION OF A BADGED EMPLOYEE AT ALL TIMES. DIRECT SUPERVISION REQUIRES LINE OF SIGHT AT A DISTANCE NO GREATER THAN CAN BE REASONABLY EXPECTED TO HEAR VOCAL COMMANDS FROM THE BADGED EMPLOYEE.
4. AIRFIELD LIGHTS AND SIGNS IN CLOSED AREAS OR LEADING TO CLOSED AREAS SHALL BE DISABLED.
5. THE USE OF THE CRANE SHALL NOT DAMAGE ANY OF THE WORK THAT WAS PREVIOUSLY DONE DURING THE PROJECT. THE CRANE IS ONLY ALLOWED TO OPERATE DURING PHASE 1A.
6. IF THE HEATED PAVEMENT OPTION IS SELECTED, PHASE 1B MAY, AT THE FAA'S DISCRETION, BE SPLIT INTO A MAXIMUM OF TWO SUBPHASES IN THE HEATED PAVEMENT SECTION TO ALLOW FOR INCREASED USED OF THE APRON FOR FAA FIS PERSONNEL.
7. IF THE JOINT SEALANT OPTION IS SELECTED, PHASE 1C MAY, AT THE FAA'S DISCRETION, BE SPLIT INTO A MAXIMUM OF TWO SUBPHASES TO ALLOW FOR INCREASED USE OF THE APRON BY FAA FIS PERSONNEL.
8. ALL EMPLOYEES SHALL BE REQUIRED TO SUBMIT TO A BACKGROUND CHECK AND BE BADGED, OR BE ESCORTED BY A BADGED EMPLOYEE AT ALL ALL TIMES. ALL EMPLOYEES SHALL BE REQUIRED TO SIGN IN/SIGN OUT EACH DAY AND WEAR/DISPLAY THEIR FAA BADGE OR TEMPORARY BADGE FOR THE DAY INDICATING THEY ARE UNDER ESCORT. BADGE FEES WILL BE PAID FOR BY THE FAA. THE CONTRACTOR SHALL LIMIT THE PERSONNEL THAT APPLY FOR FAA BADGES TO SUPERVISORS AND OTHER EMPLOYEES THAT MAY NOT BE ABLE TO BE ESCORTED BY A BADGED EMPLOYEE DUE TO REQUIRED JOB DUTIES.
9. BADGED EMPLOYEES ARE LIMITED TO ESCORTING A MAXIMUM OF TEN UNBADGED EMPLOYEES UNLESS OTHERWISE APPROVED BY THE FAA. ESCORTED EMPLOYEES MUST REMAIN WITHIN VIEW OF THEIR ESCORT AT ALL TIMES. AT NO POINT SHALL THE CONTRACTOR RELY ON THE AIRPORT, FAA, OR CONSTRUCTION INSPECTORS TO ESCORT EMPLOYEES.

CONSTRUCTION AREA COORDINATES (MAX EQUIPMENT HEIGHT 35')

CORNER	LATITUDE	LONGITUDE	GROUND ELEVATION
A	N42° 18' 23.21"	W85° 14' 59.72"	926'
B	N42° 18' 23.26"	W85° 14' 52.83"	925'
C	N42° 18' 17.96"	W85° 14' 54.42"	924'
D	N42° 18' 16.05"	W85° 14' 59.62"	924'

CRANE AREA COORDINATES (MAX EQUIPMENT HEIGHT 100')

CORNER	LATITUDE	LONGITUDE	GROUND ELEVATION	MAXIMUM ELEVATION
1	N42° 18' 18.86"	W85° 14' 57.92"	926'	1026'
2	N42° 18' 18.93"	W85° 14' 54.46"	927'	1027'
3	N42° 18' 17.96"	W85° 14' 54.42"	927'	1027'
4	N42° 18' 17.87"	W85° 14' 57.87"	926'	1026'

CONTRACTOR STAGING AREA COORDINATES

CORNER	LATITUDE	LONGITUDE
W	N42° 18' 19.30"	W85° 14' 54.55"
X	N42° 18' 19.35"	W85° 14' 53.16"
Y	N42° 18' 18.85"	W85° 14' 53.13"
Z	N42° 18' 18.81"	W85° 14' 54.53"

ALIGNMENT DATA

ALIGNMENT NAME	POINT OF BEGINNING			POINT OF ENDING		
	STA	NORTHING	EASTING	NORTHING	EASTING	STA
FAA APRON	0+00	294318.888	12884588.999	295118.666	12884570.155	8+00

0 150 300

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SHEET CONTENTS
CONSTRUCTION SAFETY PHASING PLAN

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G-050

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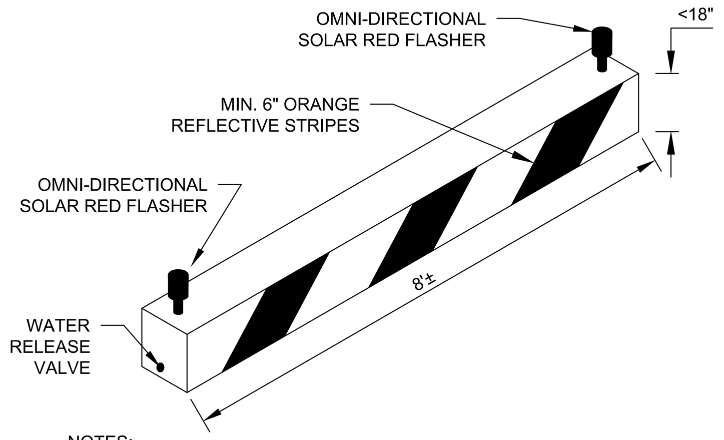
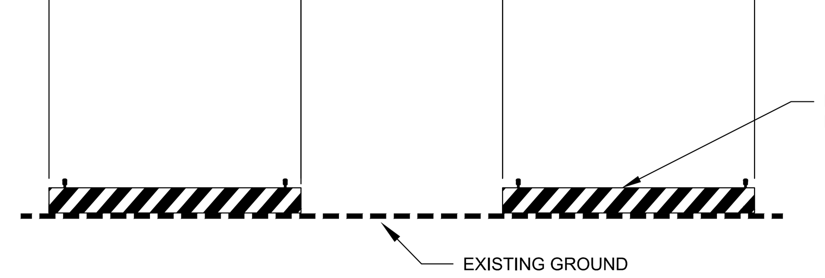
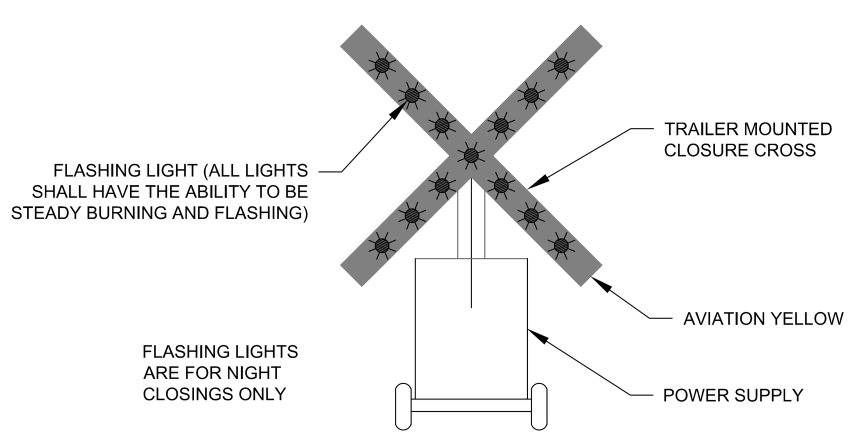


NOTES:
1. MAINTENANCE OF LOW-LEVEL LIGHTED BARRICADES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR THE DURATION OF THE PROJECT.
2. GAPS IN BARRICADES SHALL NOT EXCEED 4-FEET.
3. ALL BARRICADES SHALL BE FILLED WITH WATER OR OTHER APPROVED LIQUID SOLUTIONS SO THAT THEY RESIST MOVEMENT DUE TO HIGH WINDS OR JET BLASTS. THE CONTRACTOR SHALL CHECK THE LIQUID LEVEL DAILY AND SHALL FILL AS NEEDED THROUGHOUT THE PROJECT.

1 LOW-LEVEL LIGHTED BARRICADE DETAIL
NOT TO SCALE



2 LOW-LEVEL LIGHTED BARRICADE DETAIL LAYOUT
NOT TO SCALE



NOTE:
GENERATOR POWERED, LIGHTED RUNWAY CLOSURE MARKERS SHALL BE PLACED, MOVED, FUELED, OILED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE PROJECT. LIGHTED CLOSURE CROSSES WILL NOT BE PROVIDED BY THE AIRPORT, THE CONTRACTOR SHALL OBTAIN THEIR OWN MARKERS INCIDENTAL TO ITEM NO. 1000410 - SAFETY AND SECURITY.

MARKERS SHALL BE PLACED ON RUNWAY NUMERALS, OR WHERE DESIGNATED ON THE PLANS.

3 LIGHTED RUNWAY CLOSURE CROSS
NOT TO SCALE

THE FOLLOWING NOTES ARE IN ACCORDANCE WITH FAA AC 5370-2G, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.

SAFETY PLAN COMPLIANCE DOCUMENT:
THE CONTRACTOR SHALL PREPARE A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) DESCRIBING HOW THE REQUIREMENTS OF THE CONSTRUCTION SAFETY PHASING PLAN (CSPP) WILL BE MET. THE SPCD SHALL INCLUDE A CERTIFICATION STATEMENT BY THE CONTRACTOR THAT: 1) INDICATES FULL UNDERSTANDING OF THE OPERATIONAL SAFETY REQUIREMENTS OF THE CONSTRUCTION SAFETY PHASING PLAN AND 2) ASSERTS NO DEVIATIONS SHALL BE MADE FROM THE APPROVED CONSTRUCTION SAFETY PHASING PLAN AND SPCD UNLESS WRITTEN APPROVAL IS GRANTED BY THE AIRPORT OPERATOR. THE SPCD SHALL FOLLOW THE FORMAT OF FAA AC 150/5370-2F, SECTION 204(b) AND SHALL ADDRESS ITEMS (1) - (18) PER THE REQUIREMENTS OF THE AC.

THE CONTRACTOR SHALL SUBMIT THE SPCD TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL BY THE AIRPORT SPONSOR FOURTEEN (14) DAYS PRIOR TO THE ANTICIPATED ISSUE OF THE NOTICE TO PROCEED. COPIES OF THE APPROVED CONSTRUCTION SAFETY PHASING PLAN AND SAFETY PLAN COMPLIANCE DOCUMENT SHALL BE MAINTAINED AT THE PROJECT SITE.

GENERAL CONSIDERATIONS:
AIRPORT OPERATORS, OR TENANTS CONDUCTING CONSTRUCTION ON LEASED PROPERTIES, SHOULD USE THE PRE-DESIGN, PRE-BID, AND PRE-CONSTRUCTION MEETINGS TO INTRODUCE AIRPORT OPERATIONAL SAFETY DURING CONSTRUCTION. COORDINATE THE FOLLOWING AS REQUIRED:

A. OPERATIONAL SAFETY SHOULD BE A STANDING AGENDA ITEM DURING EVERY PROGRESS MEETING.

B. CHANGES IN THE SCOPE OR DURATION OF THE PROJECT MAY REQUIRE REVISIONS TO THE SAFETY PHASING PLAN (AND REVIEW AND APPROVAL BY THE AIRPORT OPERATOR AND FAA). **REVISIONS WILL BE THE RESPONSIBILITY OF THE AIRPORT OR ENGINEER**.

C. EARLY COORDINATION WITH FAA ATO IS REQUIRED TO SCHEDULE AIRWAY FACILITY SHUTDOWNS AND RESTARTS. RELOCATION OR ADJUSTMENTS TO NAVAIDS OR THEIR CRITICAL AREAS MAY REQUIRE AN FAA FLIGHT INSPECTION PRIOR TO RESTARTING THE FACILITY. FLIGHT INSPECTIONS MUST BE COORDINATED WELL IN ADVANCE AND MAY REQUIRE A REIMBURSABLE AGREEMENT BETWEEN THE AIRPORT AND FAA ATO. REIMBURSABLE AGREEMENTS SHOULD BE COORDINATED A MINIMUM OF 12 MONTHS PRIOR TO THE START OF CONSTRUCTION.

AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITY:
SEE THE CSPP FOR A DEPICTION OF ALL AREAS AFFECTED BY CONSTRUCTION, CLOSED OR PARTIALLY CLOSED RUNWAYS, TAXIWAYS, AND APRONS.

A. IF AFFECTED, ACCESS ROUTES AND DETOURS WILL BE SHOWN FOR AIRCRAFT RESCUE AND FIREFIGHTING (ARFF) OR AIRPORT AND AIRLINE SUPPORT VEHICLES.

B. IF AFFECTED, INTERRUPTIONS OF UNDERGROUND UTILITIES, INCLUDING WATER SUPPLY FOR FIREFIGHTING WILL BE SHOWN.

C. RUNWAY APPROACH/DEPARTURE AREAS AND CLEARWAYS WILL BE PROTECTED PER CSPP.

D. CONSTRUCTION AREAS, STORAGE AREAS AND ACCESS ROUTES WILL BE SHOWN.

E. THE CSPP ADDRESSES TEMPORARY CHANGES TO RUNWAY AND/OR TAXIWAY OPERATIONS, MAINTENANCE OF ESSENTIAL UTILITIES, AND TEMPORARY CHANGES TO AIR TRAFFIC CONTROL PROCEDURES TO BE COORDINATED WITH THE ATO.

NAVAIDS:
A. BEFORE COMMENCING CONSTRUCTION ACTIVITY, PARKING VEHICLES, OR STORING CONSTRUCTION EQUIPMENT AND MATERIALS NEAR A NAVAID, COORDINATE WITH THE APPROPRIATE FAA ATO/TECH OPS OFFICE TO EVALUATE THE EFFECT OF CONSTRUCTION ACTIVITY AND THE REQUIRED DISTANCE AND DIRECTION FROM THE NAVAID. SEE THE CSPP FOR APPLICABLE NAVAID CRITICAL AREAS. **ALL COORDINATION WITH THE FAA A TO/TECH OPS WILL BE THE RESPONSIBILITY OF THE AIRPORT OR ENGINEER.**

B. IF THIS PROJECT AFFECTS RUNWAY NAVAIDS, COORDINATION WITH LOCAL TECHNICAL OPERATIONS WILL BEGIN AT THE PRE-CONSTRUCTION MEETING. A LIST OF RESPONSIBLE PARTY REPRESENTATIVES, INCLUDING PROCEDURES FOR CONTACT AFTER-HOURS, SHOULD BE OBTAINED PRIOR TO CONSTRUCTION. A 45-DAY MINIMUM NOTICE SHOULD BE PROVIDED TO FAA ATO/TECH OPS REGARDING SHUT-DOWN OF A NAVAID MORE THAN 24 HOURS OR MORE THAN 4 HOURS ON CONSECUTIVE DAYS. **ALL COORDINATION WITH THE FAA ATO/TECH OPS WILL BE THE RESPONSIBILITY OF THE AIRPORT OR ENGINEER.**

C. INTERFERENCE FROM CONSTRUCTION EQUIPMENT AND ACTIVITIES MAY REQUIRE NAVAID SHUTDOWN OR ADJUSTMENT OF INSTRUMENT APPROACH MINIMUMS FOR LOW VISIBILITY OPERATIONS. THIS REQUIRES THAT A NOTAM BE FILED.

CONTRACTOR ACCESS:
A. SEE THE CSPP FOR AREAS ACCESSIBLE TO THE CONTRACTOR AND ACCESS ROUTES.

B. STOCKPILED MATERIALS AND EQUIPMENT STORAGE ARE NOT PERMITTED WITHIN THE SAFETY AREA OR OBJECT FREE AREA OF AN OPERATIONAL RUNWAY OR TAXIWAY (OFA STOCKPILES REQUIRE FAA APPROVAL). IF THE CONTRACTOR WISHES TO STOCKPILE MATERIALS OR EQUIPMENT ADJACENT TO AN OFA, HE MUST FIRST COORDINATE WITH THE ENGINEER AND AIRPORT OPERATOR TO ENSURE THAT 1) APPROPRIATE LIGHTING AND BARRICADES ARE IN PLACE, AND 2) THE STOCKPILED MATERIALS DO NOT CREATE A WILDLIFE ATTRACTANT OR FOREIGN OBJECT DEBRIS (FOD) HAZARD. EXCAVATION AND RESULTANT STOCKPILES ADJACENT TO OTHER PAVED SURFACES MUST BE APPROPRIATELY MARKED WITH BARRICADES, AS DIRECTED BY THE ENGINEER.

C. THE CONTRACTORS' EQUIPMENT IS STRICTLY LIMITED TO THE CONSTRUCTION AREAS DURING CONSTRUCTION AND TO THE CONTRACTOR STORAGE AREA DURING NON-CONSTRUCTION PERIODS, EXCEPT AS PROVIDED ON THE PLANS, IN THE CONTRACT SPECIAL PROVISIONS, OR AS AUTHORIZED BY THE ENGINEER IN WRITING. CONTRACTOR PARKING SHALL BE LIMITED TO THE STAGING AREA, EXCEPT AS ALLOWED BY THE AIRPORT.

D. HAUL ROUTES AND ACCESS TO THE CONSTRUCTION SITE(S) WILL BE AS SHOWN ON THE CONSTRUCTION SAFETY PHASING PLAN AND DISCUSSED AT THE PRE-BID MEETING. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL HAUL ROADS, PLANT SITES, STAGING AND STORAGE AREAS TO ORIGINAL CONDITION OR TO THE SATISFACTION OF THE ENGINEER/AIRPORT. THIS WILL INCLUDE BUT NOT BE LIMITED TO GRADING (FILLING IF NECESSARY) AND SEEDING AND MULCHING ALL TURF AREAS USED BY THE CONTRACTOR. ANY PAVEMENT AREAS USED BY THE CONTRACTOR AS A HAUL ROUTE WHICH ARE DAMAGED WILL BE REPAVED AS APPROVED BY THE PROJECT ENGINEER AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL INSPECT ALL HAUL ROUTES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY DOCUMENTATION OF EXISTING HAUL ROUTES, EITHER WITH PICTURES OR VIDEO. ANTICIPATED COSTS ASSOCIATED WITH DOCUMENTING EXISTING HAUL ROUTE CONDITIONS, OR RECONSTRUCTING OR RESTORING HAUL ROUTES AND STORAGE AREAS, WILL BE INCLUDED IN THE PROJECT ITEMS.

E. ALL CONSTRUCTION EQUIPMENT MUST BE MARKED WITH A 3' X 3' ORANGE AND WHITE CHECKERED FLAG AND/OR AMBER BEACON. FOR NIGHT CONSTRUCTION, ALL EQUIPMENT MUST BE EQUIPPED WITH AN AMBER BEACON. ALL CONSTRUCTION VEHICLES MUST BE CLEARLY MARKED WITH THE COMPANY NAME/LOGO AT ALL TIMES. MARKING AND LIGHTING SHALL OTHERWISE BE IN ACCORDANCE WITH AC 150/5210-5.

F. AIRPORT RADIOS, FLAG PERSON AND DRIVER TRAINING: THE CONTRACTOR SHALL MAINTAIN AND MONITOR AN AIRPORT RADIO ON-SITE. DURING HOURS THAT THE TOWER IS OPEN THE CONTRACTOR SHALL MONITOR GROUND CONTROL 121.7 MHz. AND DURING HOURS THAT THE TOWER IS CLOSED THE CONTRACTOR SHALL MONITOR CTAF RADIO FREQUENCY, 126.825 MHz. RADIOS ARE NOT AVAILABLE FROM THE AIRPORT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AN ADEQUATE NUMBER OF RADIOS FOR THEIR OPERATIONS. TRAINING OF CONTRACTORS ON PROPER COMMUNICATION PROCEDURES IS ESSENTIAL FOR MAINTAINING AIRPORT OPERATIONAL SAFETY. IF THE AIRPORT PROVIDES RADIO COMMUNICATION TRAINING, CONTRACTOR ATTENDANCE WILL BE REQUIRED PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED TO HAVE A TRAINED FLAG PERSON EQUIPPED WITH AN AIRPORT RADIO OPERATING ON GROUND CONTROL FOR THE AIRPORT 121.7 MHZ WHEN THE TOWER IS OPEN AND CTAF FOR AIRPORT 126.825 MHZz WHEN THE TOWER IS CLOSED TO ESCORT ANY CONTRACTOR VEHICLES WHEN CROSSING ACTIVE AOA'S. COST OF MAINTAINING THE FLAG PERSON SHALL BE INCLUDED IN THE PROJECT ITEMS. KEY CONTRACTOR PERSONNEL MAY BE EXPECTED TO TRAVEL ON OR NEAR ACTIVE AOA'S. THESE INDIVIDUALS MUST COMPLY WITH THE AIRPORT OPERATOR'S RULES AND REGULATIONS BY PARTICIPATING IN ANY APPLICABLE AIRFIELD DRIVER'S TRAINING PROCEDURES PROVIDED BY THE AIRPORT.

G. AIRPORTS SUBJECT TO 49 CFR PART 1542, AIRPORT SECURITY, SHALL BE REQUIRED TO MEET ALL APPLICABLE STANDARDS. THE CONTRACTOR SHALL PROVIDE A GATE GUARD AT ALL POINTS OF ENTRY USED BY THE CONTRACTOR. GATES MUST BE LOCKED WHEN NOT IN USE OR NOT GUARDED BY THE CONTRACTOR. AIRPORT OPERATORS AND CONTRACTORS MUST TAKE CARE TO MAINTAIN A HIGH LEVEL OF SAFETY AND SECURITY DURING CONSTRUCTION WHEN ACCESS POINTS ARE CREATED IN THE SECURITY FENCING TO PERMIT THE PASSAGE OF CONSTRUCTION VEHICLES OR PERSONNEL. TEMPORARY GATES SHALL BE EQUIPPED SO THEY CAN BE SECURELY CLOSED AND LOCKED TO PREVENT ACCESS BY ANIMALS AND PEOPLE. PROCEDURES SHALL BE IN PLACE TO ENSURE THAT ONLY AUTHORIZED PERSONS AND VEHICLES HAVE ACCESS TO THE AOA AND TO PROHIBIT PIGGYBACKING BEHIND ANOTHER VEHICLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER OPERATION AND PRESERVATION OF ALL AIRFIELD PERIMETER GATES, EITHER MANUAL OR AUTOMATED. FOR THE PURPOSES OF THIS CONTRACT, ALL FENCING/GATES SHALL BE CONSIDERED PART OF CONTRACTOR HAUL ROUTES. AS SUCH, ANY DAMAGE TO FENCING/GATES AS A RESULT OF CONSTRUCTION TRAFFIC SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

WILDLIFE MANAGEMENT:
THE CSPP AND SPCD MUST BE IN COMPLIANCE WITH THE AIRPORT'S WILDLIFE MANAGEMENT PLAN, IF APPLICABLE. CONTRACTORS MUST CAREFULLY CONTROL AND CONTINUOUSLY REMOVE WASTE OR LOOSE MATERIALS THAT CAN CREATE WILDLIFE HAZARDS OR ATTRACTANTS. THESE INCLUDE TRASH, STANDING WATER, TALL GRASS, SCATTERED SEEDS, POORLY MAINTAINED FENCING, AND DISRUPTION OF EXISTING HABITAT.

FOREIGN OBJECT DEBRIS MANAGEMENT:
A. DEBRIS SHALL NOT BE DEPOSITED ON ANY PORTION OF AN OPERATIONAL RUNWAY, TAXIWAY OR APRON. SHOULD ANY DEBRIS BE ACCIDENTALLY DEPOSITED ON ACTIVE OPERATIONAL AREAS, IT SHALL BE REMOVED IMMEDIATELY. THE CONTRACTOR SHALL HAVE SWEEPING AND/OR VACUUMING CAPABILITIES ON-SITE IN ORDER TO CONTINUOUSLY REMOVE DEBRIS FROM ACTIVE OPERATIONAL AREAS DURING THE CONSTRUCTION PROJECT. PRIOR TO OPENING AIRCRAFT MOVEMENT AREAS CLOSED FOR THIS PROJECT, THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE SITE, INCLUDING ADJACENT PAVEMENTS AND HAUL ROUTES, IS CLEAR OF ANY FOREIGN OBJECT DEBRIS (FOD) AND IS ACCEPTABLE TO THE AIRPORT. THE CONTRACTOR SHALL CONDUCT DAILY INSPECTIONS OF THE WORK AND ADJACENT AREAS FOR SAFETY AND CLEANLINESS. THE AIRPORT MAY ALSO PERFORM DAILY INSPECTIONS. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE SITE, INCLUDING ADJACENT PAVEMENTS AND HAUL ROUTES, IS RETURNED TO ORIGINAL CONDITION.

B. CONTRACTOR SHALL USE ALL MEANS NECESSARY TO MINIMIZE DUST DURING CONSTRUCTION OPERATIONS. IF THE AIRPORT OR ENGINEER REQUESTS DUST CONTROL IT SHALL BE APPLIED IMMEDIATELY.

HAZARDOUS MATERIALS MANAGEMENT:
ANY TYPE OF FUELING SUPPORT FACILITY OR DEVICE USED TO REFUEL CONSTRUCTION EQUIPMENT IS SUBJECT TO LOCAL FIRE INSPECTION. LOCAL FIRE CODES AND SAFETY STANDARDS SHALL BE MET PRIOR TO COMMENCEMENT OF WORK. CONTRACTORS OPERATING CONSTRUCTION VEHICLES AND EQUIPMENT ON THE AIRPORT MUST BE PREPARED TO EXPEDITIOUSLY CONTAIN AND CLEAN UP SPILLS RESULTING FROM FUEL OR HYDRAULIC FLUID LEAKS. TRANSPORT AND HANDLING OF OTHER HAZARDOUS MATERIALS ALSO REQUIRE SPECIAL PROCEDURES (SEE AC 150/5320-15, MANAGEMENT OF AIRPORT INDUSTRIAL WASTE).

NOTIFICATION OF CONSTRUCTION ACTIVITIES:
A. THE CONTRACTOR SHALL INCLUDE IN THE SPCD A PROCEDURE FOR IMMEDIATE NOTIFICATION OF THE AIRPORT AND LOCAL FAA OF ANY ADVERSE CONDITIONS AFFECTING SAFETY ON THE AIRPORT.

B. THE CONTRACTOR SHALL OBTAIN CONTACT INFORMATION FOR ALL INVOLVED PARTIES AND PROCEDURES FOR CONTACTING THEM 24 HOURS A DAY, 7 DAYS A WEEK. THIS INCLUDES, IF APPLICABLE, A LIST OF LOCAL FAA ATO PERSONNEL, ATCT MANAGERS ON DUTY, AUTHORIZED REPRESENTATIVES TO THE FAA OPERATIONS CONTROL CENTER (OCC).

C. THE AIRPORT SHALL ISSUE ALL NOTAMS RELEVANT TO THE CONSTRUCTION PROGRESS. THE AIRPORT OPERATOR MAY NEED TO PROVIDE INFORMATION ON CLOSED OR HAZARDOUS CONDITIONS TO THE OCC.

D. THE CONTRACTOR SHALL PREPARE AND SUBMIT CONTACT INFORMATION FOR LOCAL MEDICAL, FIREFIGHTING, AND POLICE RESPONSE IN CASE OF EMERGENCIES DURING CONSTRUCTION.

E. THE CONTRACTOR MAY BE REQUIRED TO COORDINATE WITH AIRPORT ARFF PERSONNEL EVEN FOR NON-EMERGENCIES, SUCH AS DEACTIVATION OF WATERLINES, REROUTING OF EMERGENCY ACCESS ROUTES, OR USE OF HAZARDOUS MATERIALS.

F. PER 14 CFR PART 77, THIS CSPP HAS BEEN SUBMITTED TO THE FAA BY THE TIME OF CONSTRUCTION. 14 CFR PART 157 IS NOT APPLICABLE TO THIS PROJECT.

G. TO REPORT EMERGENCY IMPACTS TO NAVAIDS, CALL (866) 432-2622.

INSPECTION REQUIREMENTS:
A. AIRPORT SAFETY SELF-INSPECTIONS SHOULD BE CONDUCTED BY THE CONTRACTOR AT LEAST DAILY, BUT MORE FREQUENTLY IF NECESSARY TO CONFORM WITH THE CSPP. A SAMPLE DAILY INSPECTION CHECKLIST IS AVAILABLE IN APPENDIX D OF AC 150/5370-2G.

B. A FINAL INSPECTION MEETING WILL ALSO BE HELD FOR THIS PROJECT THAT MUST BE ATTENDED BY THE CONTRACTOR.

UNDERGROUND UTILITIES:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF EXISTING AIRPORT UTILITIES, AND ELECTRICAL CIRCUITS, WHETHER OWNED BY THE AIRPORT OR OTHER AGENCIES OPERATING AT THE AIRPORT (SEE GENERAL PROVISION 70-15). ANY LOCATIONS OF EXISTING CABLE SHOWN IN THE PLANS ARE BASED ON AVAILABLE AS-BUILT DATA AND ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ANY CROSSING OF UNDERGROUND ELECTRICAL CIRCUITS WITH THE AIRPORT AND FAA FACILITIES PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROVIDE TONING EQUIPMENT CAPABLE OF DETECTING A 60 Hz SIGNAL FOR LOCATING CABLES IN THE CONSTRUCTION AREA. WORKING IN CONJUNCTION WITH THE ENGINEER, THE CONTRACTOR SHALL LOCATE EXISTING CABLES PRIOR TO START OF CONSTRUCTION. COST OF LOCATING THE CABLES AND PROVIDING THE TONING EQUIPMENT SHALL BE INCLUDED IN THE PROJECT ITEMS. ANY ELECTRICAL CIRCUITS TO BE CROSSED SHALL THEN BE TESTED FOR RESISTANCE TO GROUND BY THE CONTRACTOR UNDER SUPERVISION OF THE ENGINEER AND THE READINGS RECORDED. FOLLOWING CONSTRUCTION, THE CONTRACTOR, UNDER THE SUPERVISION OF THE ENGINEER, SHALL CHECK ALL CIRCUITS CROSSED DURING THE PROJECT. ANY CIRCUITS SHOWING A DECREASE IN RESISTANCE TO GROUND SHALL BE CORRECTED BY THE CONTRACTOR SO AS TO PROVIDE AT LEAST 50 MEGOHMS RESISTANCE IN THAT CIRCUIT. NO ADDITIONAL COMPENSATION WILL BE MADE FOR ANY CORRECTIVE ELECTRICAL WORK DUE TO CONTRACTOR'S OPERATIONS.

B. A 7-DAY ADVANCE NOTICE SHALL BE GIVEN TO THE SSC MANAGER BEFORE LOCATION OF FAA CABLES IS REQUIRED. FAA SHALL LOCATE CABLES ONLY ONCE DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR RECORDING FAA CABLE LOCATIONS IN THE EVENT THAT MARKS ARE LOST DURING CONSTRUCTION. THE CONTRACTOR SHALL HYDRO-EXCAVATE ONLY WHEN DIGGING WITHIN 5 FEET OF ANY MARKED FAA BURIED CABLE LOCATION. ANY FAA CABLE(S) DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE COMPLETELY REPLACED (NOT SPLICED OR REPAIRED), AT THE CONTRACTOR'S EXPENSE.

PENALTIES:
THIS PROJECT INVOLVES WORK NEAR ACTIVE AIRCRAFT OPERATIONAL AREAS. ANY RUNWAY OR TAXIWAY INCURSIONS OCCURRING DURING THE PROJECT, AS DETERMINED BY THE JUDGEMENT OF THE ENGINEER AND/OR AIRPORT, MAY BE SUBJECT TO FAA FINES IN EXCESS OF $10,000. FAA DEFINES A RUNWAY INCURSION AS "ANY OCCURRENCE AT AN AERODROME INVOLVING THE INCORRECT PRESENCE OF AN AIRCRAFT, VEHICLE OR PERSON ON THE PROTECTED AREA OF A SURFACE DESIGNATED FOR THE LANDING AND TAKEOFF OF AIRCRAFT."

RUNWAY & TAXIWAY VISUAL AIDS--MARKING, LIGHTING, SIGNS, AND VISUAL NAVAIDS:
A. AIRPORT MARKINGS, LIGHTING, SIGNS, AND VISUAL NAVAIDS MUST BE CLEARLY VISIBLE TO PILOTS, NOT MISLEADING, CONFUSING OR DECEPTIVE. ALL MUST BE SECURED IN PLACE TO PREVENT MOVEMENT BY PROP WASH, JET BLAST, WING VORTICES OR OTHER WIND CURRENTS, BUT FRANGIBLE AND CONSTRUCTED OF MATERIALS THAT WOULD MINIMIZE DAMAGE TO AN AIRCRAFT IN THE EVENT OF INADVERTENT CONTACT.

B. THE FOLLOWING ARE APPLICABLE STANDARDS FOR ANY TEMPORARY OR PERMANENT INSTALLATIONS OF THESE RESPECTIVE ITEMS:
AIRPORT MARKINGS: AC 150/5340-1
LIGHTING: AC 150/5340-30, 150/5345-50, 150/5345-53
SIGNAGE: AC 150/5345-44, 150/5340-18, 150/5345-53, ENGINEERING BRIEF 93

C. SHOULD A RUNWAY BE TEMPORARILY CLOSED; THE CONTRACTOR SHALL MARK THE AFFECTED RUNWAY WITH A CLOSURE CROSS IN ACCORDANCE WITH THE RUNWAY CLOSURE CROSS SPECIFICATIONS FOUND IN THE PLANS. CLOSURE CROSSES SHALL REMAIN IN PLACE UNTIL NORMAL RUNWAY OPERATIONS RESUME.

D. SHOULD A TAXIWAY BE TEMPORARILY CLOSED WITH AN OPEN RUNWAY; THE CONTRACTOR SHALL MARK THE AFFECTED TAXIWAY WITH A CLOSURE CROSS IN ACCORDANCE WITH THE TAXIWAY CLOSURE CROSS SPECIFICATIONS FOUND IN THE PLANS. CLOSURE CROSSES SHALL REMAIN IN PLACE UNTIL NORMAL TAXIWAY OPERATIONS RESUME.

E. WHEN NECESSARY TO CLOSE OR CHANGE THE STANDARD OPERATIONS OF A RUNWAY OR TAXIWAY, THE CONTRACTOR SHALL, THROUGH THE ENGINEER, NOTIFY THE AIRPORT 72 BUSINESS HOURS IN ADVANCE OF THE PROPOSED CHANGE IN OPERATIONS.

F. IF REQUIRED, CONSTRUCTION SIGNS SHALL COMPRISE A MESSAGE IN BLACK ON AN ORANGE BACKGROUND AT LOCATIONS SHOWN ON THE CSPP.

MARKING AND SIGNS FOR ACCESS ROUTES:
PAVEMENT MARKINGS AND SIGNS INTENDED FOR CONSTRUCTION PERSONNEL SHOULD CONFORM TO AC 150/5340-18, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND/OR STATE HIGHWAY SPECIFICATIONS AS PRACTICAL.

HAZARD MARKING AND LIGHTING:
A. IF ANY AIRCRAFT MOVEMENT AREAS MUST BE CLOSED, THE CONTRACTOR SHALL FURNISH AND PLACE PORTABLE BARRICADES ACROSS RUNWAYS OR TAXIWAYS TO KEEP VEHICLES FROM ENTERING ACTIVE OPERATION AREAS AND TO KEEP AIRCRAFT FROM TAXIING INTO CONSTRUCTION AREAS. BARRICADES SHALL BE HIGHLY-REFLECTIVE, MARKED WITH DIAGONAL, ALTERNATING ORANGE AND WHITE STRIPES AND SUPPLEMENTED WITH EITHER FLASHING OR STEADY-BURNING LIGHTS DURING HOURS OF RESTRICTED VISIBILITY OR DARKNESS. LIGHTS SHALL BE BARRICADE TYPE TYPICAL FOR CONSTRUCTION ZONES AND RED IN COLOR, MEETING ALL STATE HIGHWAY REQUIREMENTS. BARRICADES LOCATED WITHIN AIRCRAFT MOVEMENT AREAS (RUNWAYS, TAXIWAYS, APRONS) SHALL BE LOW LEVEL AVIATION BARRICADES (NO HIGHER THAN 18") SPECIFICALLY MANUFACTURED AND DESIGNED FOR SUCH PURPOSE. THEY SHALL BE ALTERNATING ORANGE AND WHITE IN COLOR 10" HIGH AND 96" LONG, MADE OF UV-RESISTANT POLYETHYLENE AS MANUFACTURED BY MULTI-BARRIER (MODEL AR 10x96 HDPE), OR APPROVED EQUAL. ENOUGH BARRICADES MUST BE PROVIDED TO SAFELY DELINEATE ALL CONSTRUCTION BOUNDARIES. BARRICADES SHALL BE PLACED CLOSELY ENOUGH TO PREVENT TRAFFIC FROM ENTERING THE CONSTRUCTION AREA, GENERALLY NO MORE THAN 4 FEET APART. BARRICADES SHALL BE FILLED WITH WATER TO PREVENT MOVEMENT BY JET BLAST. BARRICADES LOCATED OUTSIDE OF AIRCRAFT MOVEMENT AREAS MAY BE MADE FROM VARIOUS MATERIALS, INCLUDING RAILROAD TIES, SAWHORSES, JERSEY BARRICADES, BARRELS, OR OTHER STANDARD HIGHWAY BARRICADES. IF BARRICADES ARE SUBJECT TO PROP WASH, JET BLAST, WIND VORTEX OR ANY OTHER SURFACE WIND CURRENTS, THE BARRICADES WILL BE WEIGHTED OR FASTENED TO THE GROUND TO PREVENT DISPLACEMENT.

B. HAZARDS SUCH AS OPEN MANHOLES, AREAS UNDER REPAIR, STOCKPILE AND WASTE AREAS SHOULD ALSO BE MARKED.

C. THE CONTRACTOR MUST ALSO PROVIDE AN EMERGENCY CONTACT AVAILABLE 24 HOURS FOR MAINTENANCE OF CONSTRUCTION LIGHTING AND BARRICADING.
D. USE HIGHLY REFLECTIVE BARRICADES WITH LIGHTS TO CLOSE TAXIWAYS LEADING TO CLOSED RUNWAYS. CLOSE RUNWAY/TAXIWAY INTERSECTIONS WITH BARRICADES EVEN FOR SHORT (TEMPORARY) CLOSURES.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MOVEMENT OF BARRICADES BETWEEN PHASES, OR AS OTHERWISE CRITICAL TO AIRPORT OPERATIONS. ALL BARRICADE LIGHTS MUST BE CHECKED NIGHTLY AND REPLACED BY THE CONTRACTOR IF NOT FUNCTIONING. CONTRACTOR SHALL BE COMPENSATED FOR COST OF ALL BARRICADES, THEIR MAINTENANCE AND MOVEMENT UNDER THE PROJECT ITEMS.

WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION:
LIGHTING EQUIPMENT MUST ADEQUATELY ILLUMINATE THE WORK AREA IF THE CONSTRUCTION IS TO BE PERFORMED DURING NIGHTTIME HOURS. LIGHT TOWERS SHOULD BE POSITIONED AND ADJUSTED TO AIM AWAY FROM ATCT CAB AND ACTIVE RUNWAYS TO PREVENT BLINDING EFFECTS. TOWERS MUST BE REMOVED PRIOR TO REOPENING TO AIRCRAFT OPERATIONS.

PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS:
A. NO CONSTRUCTION MAY OCCUR WITHIN THE EXISTING RUNWAY SAFETY AREA (RSA) WHILE THE RUNWAY IS OPEN TO AIRCRAFT OPERATIONS. RSA DIMENSIONS MAY BE TEMPORARILY ADJUSTED, IF THE RUNWAY IS RESTRICTED TO AIRCRAFT OPERATIONS REQUIRING AN RSA EQUAL TO THE WIDTH AND LENGTH THAT ARE AVAILABLE. THIS ADJUSTMENT MUST BE COORDINATED WITH THE FAA REGIONAL OR DISTRICT OFFICE AND LOCAL AIR TRAFFIC MANAGER BY THE AIRPORT OPERATOR, AND APPROPRIATE NOTAMS ISSUED. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE RSA WHILE OPEN. OPEN TRENCHES AND EXCAVATIONS WITHIN THE CONSTRUCTION AREA(S) MUST BE PROMINENTLY MARKED WITH RED OR ORANGE FLAGS, AND LIGHTED DURING HOURS OF LOW VISIBILITY/DARKNESS. IF THE RUNWAY MUST BE OPENED BEFORE EXCAVATIONS ARE BACKFILLED, THE EXCAVATIONS MUST BE COVERED IN SUCH A WAY AS TO ALLOW THE HEAVIEST AIRCRAFT OPERATING ON THE RUNWAY TO CROSS THE COVERING WITHOUT DAMAGE. SOIL EROSION MUST BE CONTROLLED TO MAINTAIN RSA STANDARDS (NO POTENTIALLY HAZARDOUS RUTS, HUMPS, DEPRESSIONS, OR OTHER SURFACE VARIATIONS, AND CAPABLE UNDER DRY CONDITIONS OF SUPPORTING SNOW REMOVAL EQUIPMENT (SRE), ARFF, AND THE OCCASIONAL PASSAGE OF AIRCRAFT WITHOUT STRUCTURAL DAMAGE.

B. CONSTRUCTION, INCLUDING EXCAVATIONS, MAY BE PERMITTED IN THE RUNWAY OBJECT FREE AREA (ROFA). EQUIPMENT MUST BE REMOVED FROM THE ROFA WHEN NOT IN USE, AND MATERIAL SHOULD NOT BE STOCKPILED IN IT IF NOT NECESSARY. STOCKPILING WITHIN THE ROFA REQUIRES SUBMITTAL OF A 7460-1 FORM AND FAA APPROVAL.

C. NO CONSTRUCTION MAY OCCUR WITHIN THE EXISTING TAXIWAY SAFETY AREA (TSA) WHILE THE TAXIWAY IS OPEN TO AIRCRAFT OPERATIONS. TSA DIMENSIONS MAY BE TEMPORARILY ADJUSTED, IF THE TAXIWAY IS RESTRICTED TO AIRCRAFT OPERATIONS REQUIRING A TSA EQUAL TO THE WIDTH THAT IS AVAILABLE. THIS ADJUSTMENT MUST BE COORDINATED WITH THE FAA REGIONAL OR DISTRICT OFFICE AND LOCAL AIR TRAFFIC MANAGER BY THE AIRPORT OPERATOR, AND APPROPRIATE NOTAMS ISSUED. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE TSA WHILE OPEN. OPEN TRENCHES AND EXCAVATIONS WITHIN THE CONSTRUCTION AREA(S) MUST BE PROMINENTLY MARKED WITH RED OR ORANGE FLAGS, AND LIGHTED DURING HOURS OF LOW VISIBILITY/DARKNESS. IF THE TAXIWAY MUST BE OPENED BEFORE EXCAVATIONS ARE BACKFILLED, THE EXCAVATIONS MUST BE COVERED IN SUCH A WAY AS TO ALLOW THE HEAVIEST AIRCRAFT OPERATING ON THE RUNWAY TO CROSS THE COVERING WITHOUT DAMAGE. SOIL EROSION MUST BE CONTROLLED TO MAINTAIN TSA STANDARDS (NO POTENTIALLY HAZARDOUS RUTS, HUMPS, DEPRESSIONS, OR OTHER SURFACE VARIATIONS, AND CAPABLE UNDER DRY CONDITIONS OF SUPPORTING SRE, ARFF, AND THE OCCASIONAL PASSAGE OF AIRCRAFT WITHOUT STRUCTURAL DAMAGE.

IN RARE CIRCUMSTANCES WHERE THE SECTION OF TAXIWAY IS INDISPENSABLE FOR AIRCRAFT MOVEMENT, OPEN TRENCHES OR EXCAVATIONS MAY BE PERMITTED WHILE OPEN IF SUBJECT TO THE FOLLOWING: TAXIING IS LIMITED TO 10 MPH; APPROPRIATE NOTAMS ARE ISSUED; APPROPRIATE LIGHTING AND MARKING ARE IMPLEMENTED; LOW MASS, LOW PROFILE LIGHTED BARRICADES ARE INSTALLED; APPROPRIATE TEMPORARY ORANGE CONSTRUCTION SIGNS ARE INSTALLED.

D. UNLIKE THE ROFA, NO CONSTRUCTION MAY OCCUR WITHIN THE TAXIWAY OBJECT FREE AREA (TOFA) WHILE OPEN TO AIRCRAFT OPERATIONS, UNLESS 1) THE TOFA DIMENSION IS TEMPORARILY ADJUSTED FOR USE BY SMALLER AIRCRAFT ONLY; 2) TEMPORARY OFFSET TAXIWAY MARKINGS ARE USED.

CONSTRUCTION, INCLUDING OPEN EXCAVATIONS, MAY BE ACCOMPLISHED WITHOUT ADJUSTING THE TOFA SUBJECT TO THE FOLLOWING RESTRICTIONS: TAXIING IS LIMITED TO 10 MPH; APPROPRIATE NOTICES TO AIRMEN (NOTAM'S) HAVE BEEN ISSUED BY THE AIRPORT; MARKING AND LIGHTING PROVISIONS HAVE BEEN IMPLEMENTED BY THE CONTRACTOR, APPROPRIATE ORANGE CONSTRUCTION SIGNS ARE INSTALLED (IF DESIRED); FIVE-FOOT CLEARANCE BETWEEN EQUIPMENT AND ANY PART OF AN AIRCRAFT IS MAINTAINED (MOVING PERSONNEL AND EQUIPMENT FOR PASSAGE OF AN AIRCRAFT MAY BE NECESSARY); AND CONTRACTOR'S FLAGGERS ARE UTILIZED TO DIRECT AND CONTROL EQUIPMENT AND PERSONNEL TO A PRE-ESTABLISHED SETBACK DISTANCE. (AIRLINES SHOULD PROVIDE FLAGGERS TO DIRECT THE ACTUAL TAXIING AIRCRAFT.)

E. PERSONNEL, MATERIAL, AND/OR EQUIPMENT MAY NOT PENETRATE THE RUNWAY OBSTACLE FREE ZONE (OFZ) WHILE THE RUNWAY IS OPEN. IF WORK IN THE OFZ IS NECESSARY, IT MAY BE POSSIBLE TO CONTINUE AIRCRAFT OPERATIONS THROUGH OPERATIONAL RESTRICTIONS (COORDINATE WITH THE FAA).

F. ALL PERSONNEL, MATERIAL, AND/OR EQUIPMENT MUST REMAIN CLEAR OF APPLICABLE THRESHOLD SITING SURFACES. OBJECTS THAT DO NOT PENETRATE MAY STILL BE OBSTRUCTIONS TO AIR NAVIGATION AND MAY AFFECT STANDARD INSTRUMENT APPROACH PROCEDURES (COORDINATE WITH THE FAA).

G. ADEQUATE DISTANCE FROM BLASTING OPERATIONS: N/A

OTHER LIMITATIONS ON CONSTRUCTION:
THE FOLLOWING ARE PROHIBITED FROM USE ON THE AIRFIELD: TALL EQUIPMENT BEYOND THE MAXIMUM EQUIPMENT HEIGHT SHOWN ON THE SAFETY/PHASING PLAN, OPEN-FLAME WELDING/TORCH CUTTING (UNLESS PROPER PRECAUTIONS ARE TAKEN, AND AIRPORT APPROVAL IS OBTAINED), ELECTRICAL BLASTING CAPS (WITHIN 1000 FEET OF AIRPORT PROPERTY).

OTHER CONSTRUCTION NOTES:
A. CRITICAL AIRCRAFT DURING CONSTRUCTION OPERATIONS CONSIST OF DESIGN GROUP III AIRCRAFT.

B. CONSTRUCTION SHALL BEGIN IN MAY, 2019. THERE SHALL BE 180 CALENDAR DAYS FOR THE BASE BID.

C. LIQUIDATED DAMAGES IN THE AMOUNT OF $500 SHALL BE ASSESSED FOR EACH CALENDAR DAY CONSTRUCTION EXCEEDS 180 DAYS FOR THE TOTAL PROJECT. $1,000 FOR EACH CALENDAR DAY WORK ON ALL SUB-PHASES 1A, 1B, 1C AND 1D THAT EXCEEDS THE CONTRACT TIME ALLOTTED.

D. ALL SAFETY AND SECURITY ITEMS REQUIRED ON THE CONSTRUCTION SAFETY PHASING PLAN OR IN SAFETY AND CONSTRUCTION NOTES WILL BE INCLUDED IN THE COST FOR THE PROJECT ITEMS.

CONSTRUCTION STAKE AND LATH REQUIREMENTS:
THE PROJECT ENGINEER SHALL FURNISH ENOUGH WOOD STAKES AND LATH TO ESTABLISH ALL LINES, GRADES AND MEASUREMENTS CONSIDERED BY THE PROJECT ENGINEER AS NECESSARY TO THE PROPER PROSECUTION AND CONTROL OF THE WORK CONTRACTED FOR UNDER THESE SPECIFICATIONS. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO PROTECT THE LINES AND GRADES ESTABLISHED BY THE ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING ALL LINES, GRADES AND MEASUREMENTS OUTLINE IN THE SPECIFICATIONS.

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WK KELLOGG AIRPORT
FAA FIS HANGAR REHABILITATION

16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI, 49015

ISSUED
3/29/19 ISSUED FOR BIDDING

ISSUED FOR BIDDING

M&H NO.: 0228800-170289.01
DATE: March, 29 2019
DESIGNED BY: ALP
DRAWN BY: ALP
CHECKED BY: JET
DO NOT SCALE DRAWINGS

SHEET CONTENTS
CONSTRUCTION SAFETY PHASING NOTES

SHEET NO.
G-051

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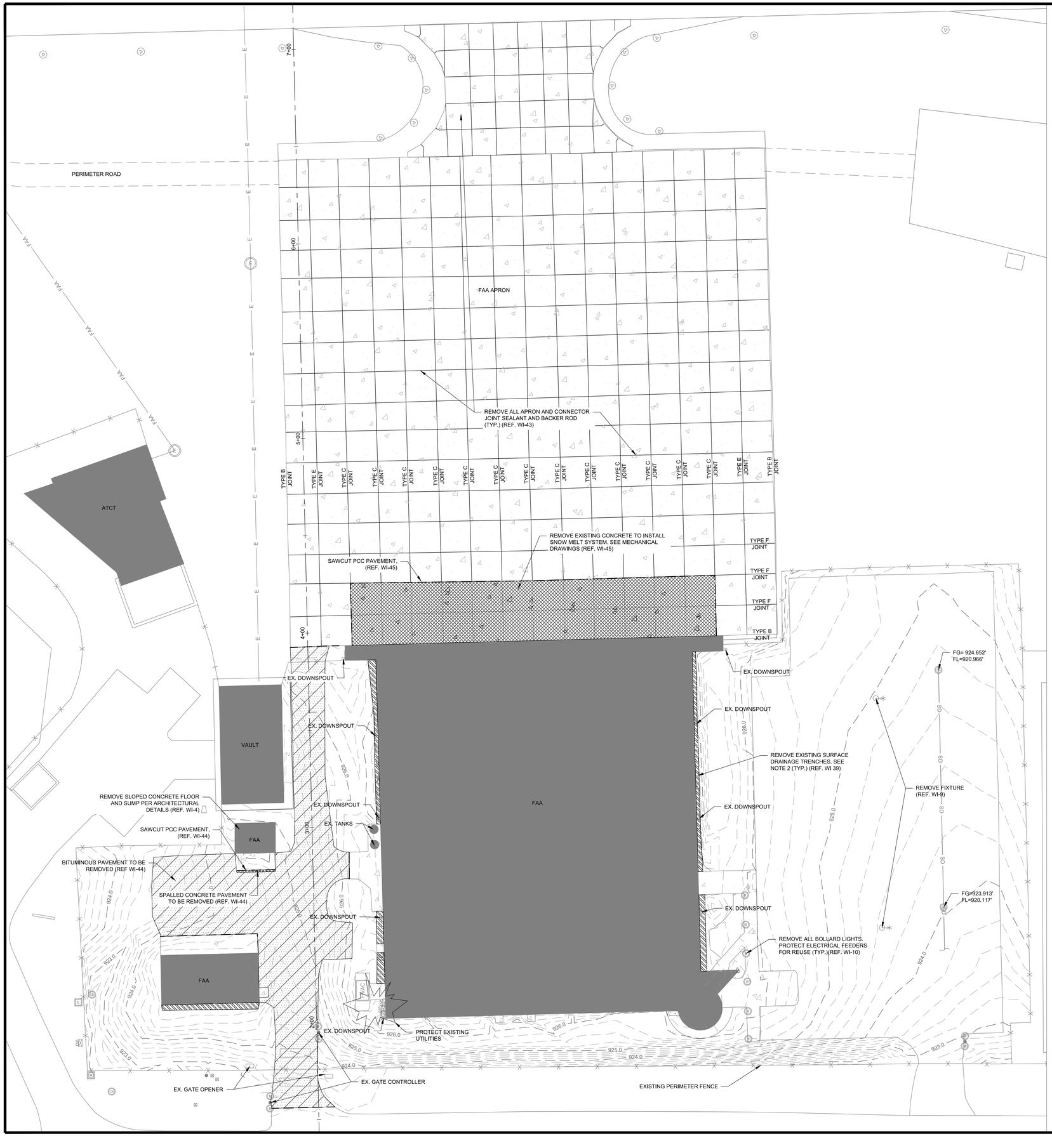
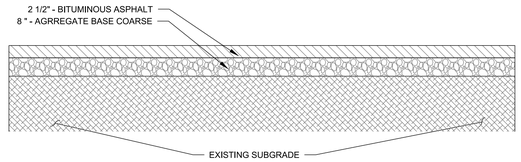
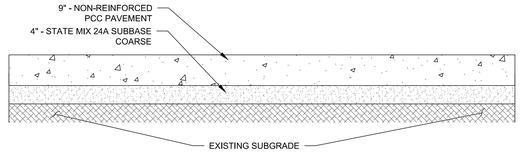
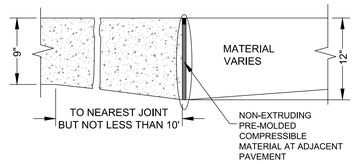




1 TYPICAL EXISTING BITUMINOUS PAVEMENT SECTION
NOT TO SCALE

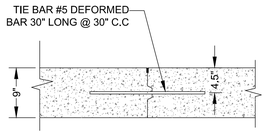


2 TYPICAL EXISTING PCC PAVEMENT SECTION APRON
NOT TO SCALE

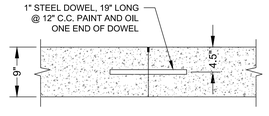


3 EXISTING JOINT TYPE B - THICKENED EDGE
NOT TO SCALE

5 EXISITNG JOINT TYPE C - KEYED
NOT TO SCALE



4 EXISTING JOINT TYPE E - HINGED
NOT TO SCALE



6 EXISTING JOINT TYPE F - DOWELED
NOT TO SCALE

NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS
2. REMOVE AND REPLACE ALL EXISTING SURFACE DRAINAGE TRENCHES ALONG EAST AND WEST WALLS. PROVIDE NEW 16 OZ GEOTEXTILE WRAP ON BOTTOM AND SIDES OF TRENCH AND ADD CONTINUOUS EDGING. REMOVE, CLEAN OUT AND REUSE (OR PROVIDE NEW) 6" DIAMETER PERFORATED PVC PIPE WITH (2) $\frac{1}{2}$" HOLES AT 120 DEGREES 12" O.C. FACING DOWN. RECONNECT TO STORM SEWER AT DOWNSPOUTS AS EXISTING AND CAP OPPOSITE ENDS. PROVIDE NEW CONTINUOUS 16 OZ. GEOTEXTILE FILTER WRAP ON PIPE. PROVIDE NEW MDOT 4AA WASHED GRAVEL IN TRENCH.
3. THE CONTRACTOR SHALL USE CAUTION WHEN REMOVING ANY ITEMS MARKED FOR REMOVALS AS TO NOT CAUSE UNNECESSARY DAMAGE TO THE ITEMS. THE AIRPORT SHALL HAVE THE OPTION TO SALVAGE ANY OF THE REMOVED ITEMS PRIOR TO THE CONTRACTOR'S DISPOSAL.

0 20 40

LEGEND

EXISTING ASPHALT PAVEMENT	EXISTING DRAINAGE STRUCTURE	EXISTING GAS UTILITY METER
EXISTING PCC PAVEMENT	EXISTING ELECTRIC HANDHOLE	EXISTING ELECTRICAL SERVICE PANEL
ASPHALT PAVEMENT TO BE REMOVED	EXISTING UTILITY METER	EXISTING LIGHT
PCC PAVEMENT TO BE REMOVED	UTILITY MARKER	
REMOVE EXISTING SURFACE DRAINAGE TRENCH	EXISTING BOLLARD LIGHTS	

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WK KELLOGG AIRPORT
FAA FIS HANGAR REHABILITATION

16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI, 49015

ISSUED
3/29/19 ISSUED FOR BIDDING

ISSUED FOR BIDDING

M&H NO.: 0228800-170289.01
DATE: March, 29 2019
DESIGNED BY: ALP
DRAWN BY: ALP
CHECKED BY: JET
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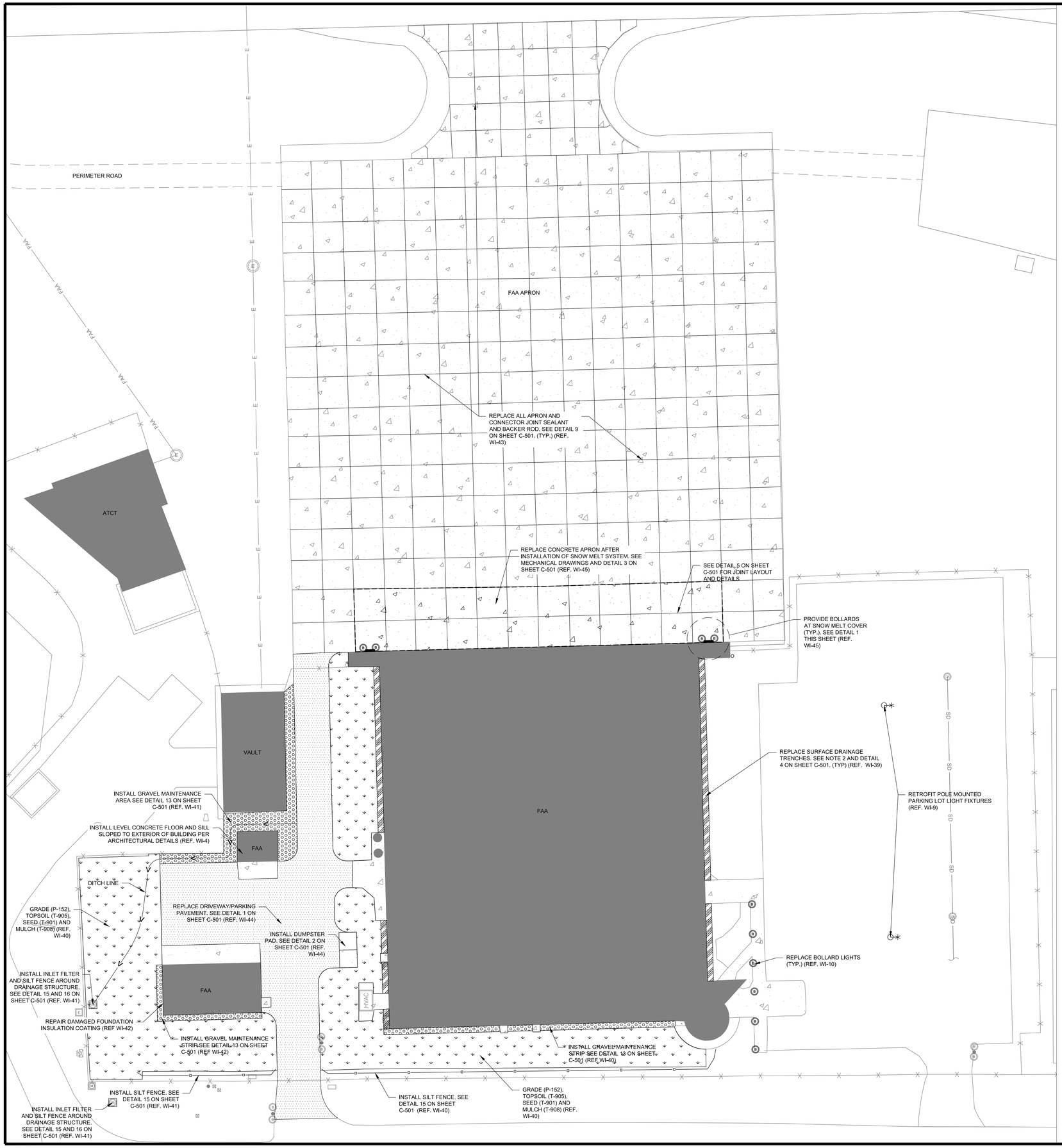
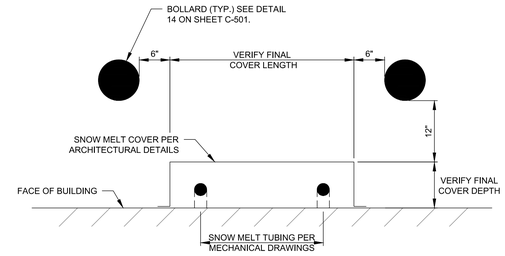
SHEET CONTENTS
EXISTING CONDITION AND DEMO PLAN

SHEET NO.
CD-101

X:\0228800\170289.011\TECH\CAD\CD - EXISTING CONDITION AND DEMO SHEETS.DWG
4/1/2019 1:52:49 PM





1 PLAN:
BOLLARDS AT SNOW MELT COVER
NOT TO SCALE (TYP. 2 LOCATIONS)

0 20 40

NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS
2. REMOVE AND REPLACE ALL EXISTING SURFACE DRAINAGE TRENCHES ALONG EAST AND WEST WALLS. PROVIDE NEW 16 OZ GEOTEXTILE WRAP ON BOTTOM AND SIDES OF TRENCH AND ADD CONTINUOUS EDGING. REMOVE, CLEAN OUT AND REUSE (OR PROVIDE NEW) 6" DIAMETER PERFORATED PVC PIPE WITH (2) ½" HOLES AT 120 DEGREES 12" O.C. FACING DOWN. RECONNECT TO STORM SEWER AT DOWNSPOUTS AS EXISTING AND CAP OPPOSITE ENDS. PROVIDE NEW CONTINUOUS 16 OZ. GEOTEXTILE FILTER WRAP ON PIPE. PROVIDE NEW MDOT 4AA WASHED GRAVEL IN TRENCH.

LEGEND

EXISTING ASPHALT PAVEMENT	INSTALL GRAVEL MAINTENANCE AREA/STRIP	BOLLARD LIGHTS
EXISTING PCC PAVEMENT	EXISTING DRAINAGE STRUCTURE	EXISTING GAS UTILITY METER
PROPOSED ASPHALT PAVEMENT	EXISTING ELECTRIC HANDHOLE	EXISTING ELECTRICAL SERVICE PANEL
PROPOSED PCC PAVEMENT	EXISTING UTILITY METER	EXISTING LIGHT
INSTALL SURFACE DRAINAGE TRENCH	UTILITY MARKER	

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SHEET CONTENTS
SITE PLAN

SHEET NO.
CS-101

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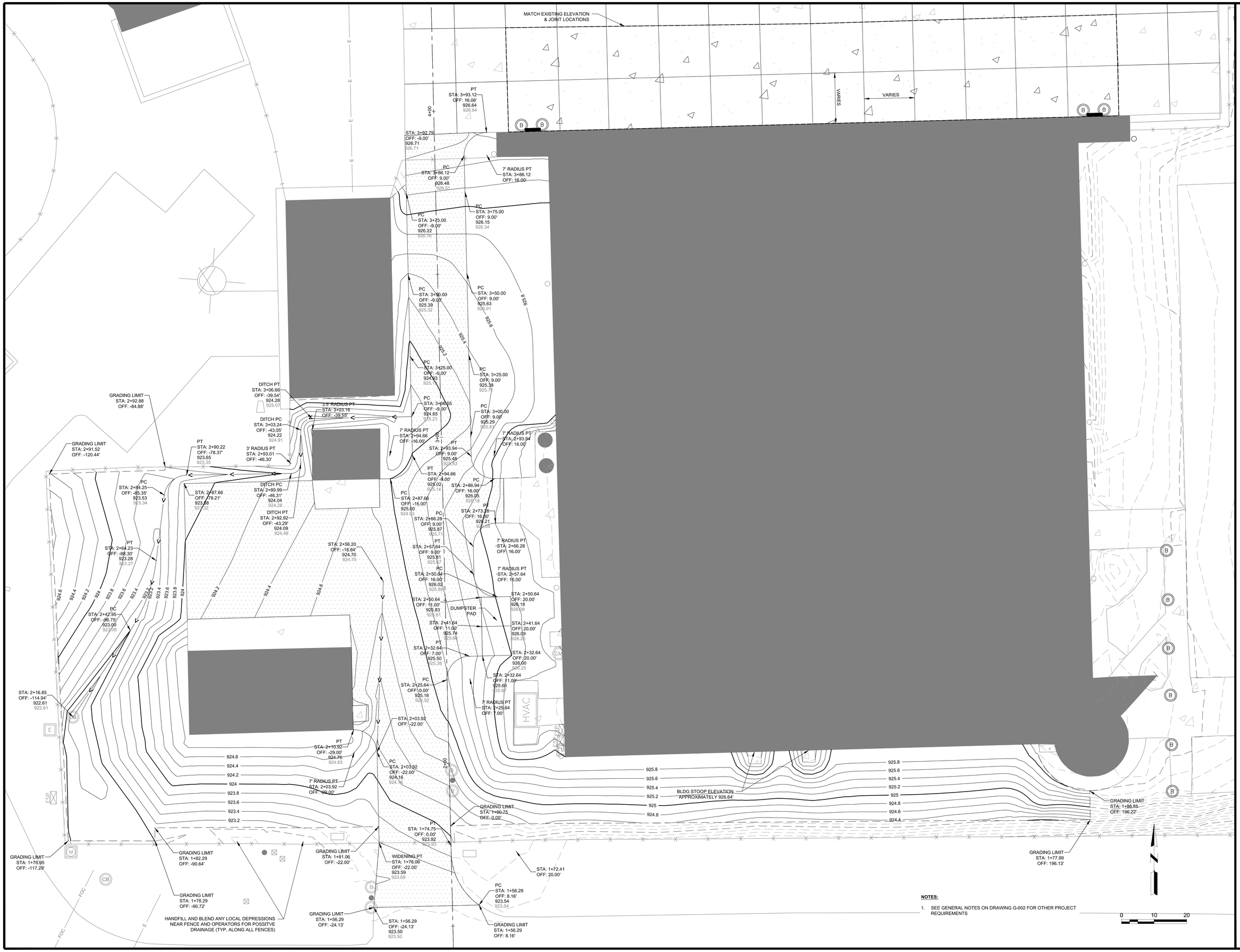

NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS

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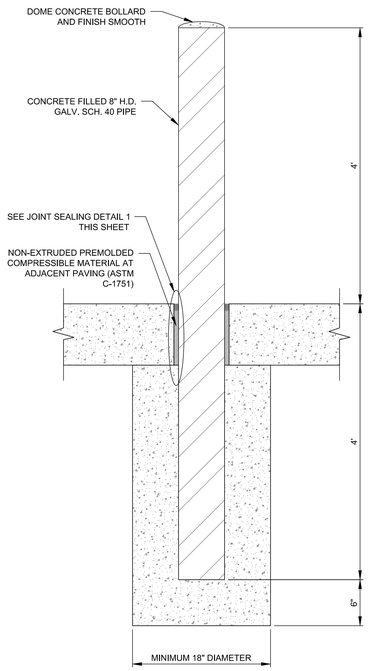
SHEET CONTENTS
GEOMETRY & GRADING PLAN

SHEET NO.
CG-101

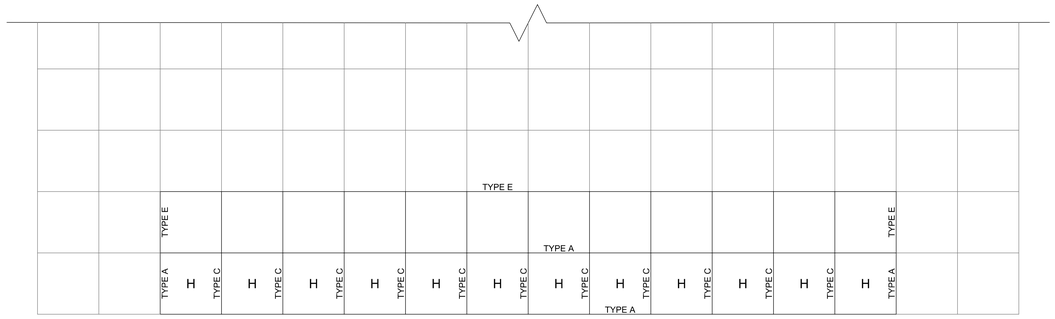
X:\0228800\170289.01\TECH\CAD\CG - GRADING PLAN SHEET.DWG
4/1/2019 1:50:26 PM



NOTE:

1. SET BOLLARD BEFORE INSTALLING HEATED PAVEMENT TUBING.

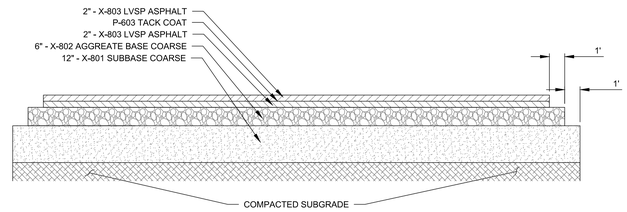
14 BOLLARD DETAIL (IN HEATED SLAB)
NOT TO SCALE



NOTES:

1. NOT ALL SLABS ARE PROPOSED TO BE HEATED. H = HEATED SLAB
2. MATCH EXISTING JOINT LOCATIONS

5 APRON JOINT LAYOUT
NOT TO SCALE



1 TYPICAL PROPOSED PAVEMENT SECTION
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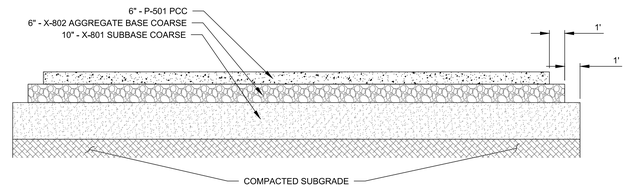
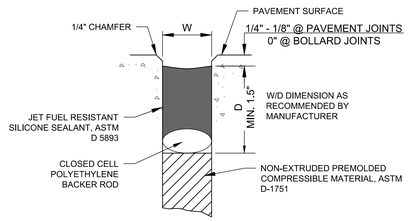
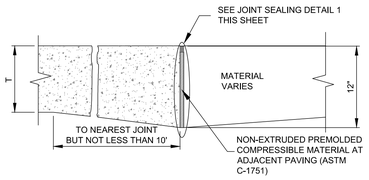


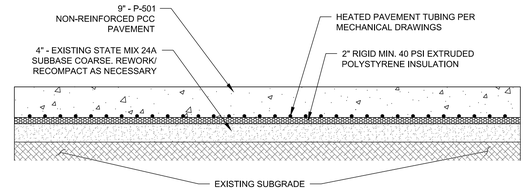
2 TYPICAL PROPOSED DUMPSTER PAD PAVEMENT SECTION
NOT TO SCALE



10 JOINT SEALING DETAIL 1
NOT TO SCALE



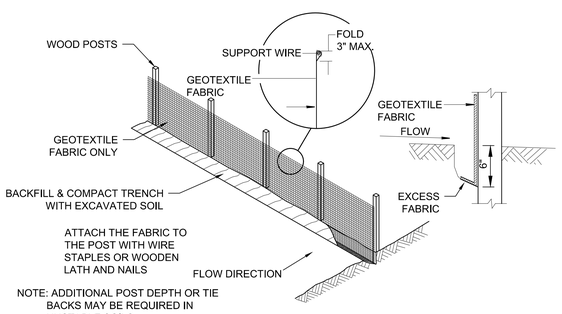
6 TYPE "A" THICKENED EDGE
NOT TO SCALE



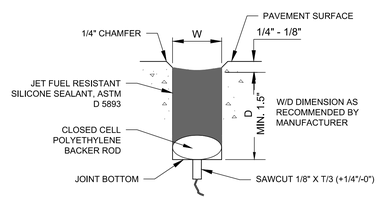
NOTE:

1. HEATED PAVEMENT TUBING AND RIGID EXTRUDED POLYSTYRENE INSULATION NOT PLACED UNDER ALL SLABS TO BE REPLACED. TUBING AND RIGID EXTRUDED POLYSTYRENE INSULATION PLACED ONLY UNDER SLABS DIRECTLY NEXT TO HANGAR BUILDING PER DETAIL 5/C-501. SEE MECHANICAL DRAWINGS FOR LAYOUT AND SPACING OF TUBING.

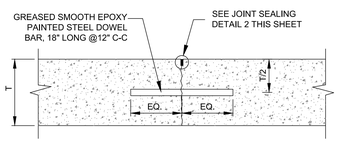
3 PCC PAVEMENT SECTION APRON
NOT TO SCALE



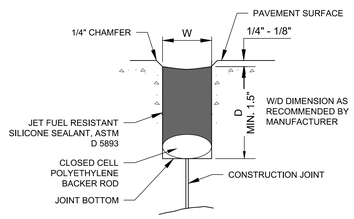
15 EROSION CONTROL P-156 SILT FENCE DETAIL
NOT TO SCALE



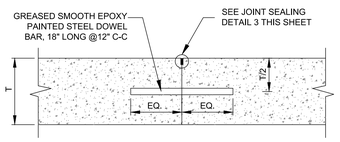
11 JOINT SEALING DETAIL 2
NOT TO SCALE



7 TYPE 'C' DOWELED CONTRACTION JOINT DETAIL
NOT TO SCALE



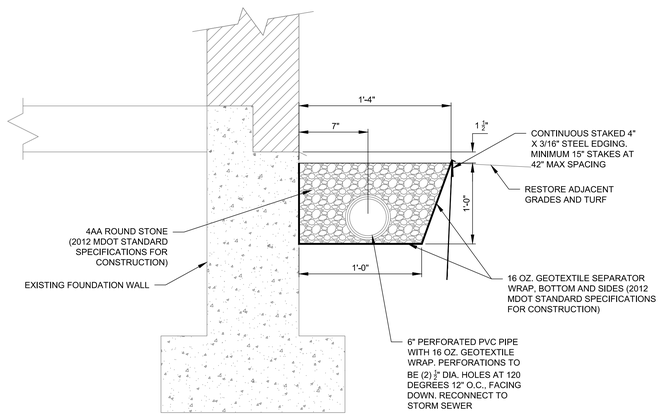
12 JOINT SEALING DETAIL 3
NOT TO SCALE



NOTE:

1. HOLES FOR DOWELS MUST BE DRILLED AFTER CONCRETE HAS SET USING A PRECISION MECHANICAL GUIDE TO ENSURE EACH HOLE IS EXACTLY PERPENDICULAR IN ALL DIRECTIONS TO THE FACE OF THE SLAB.

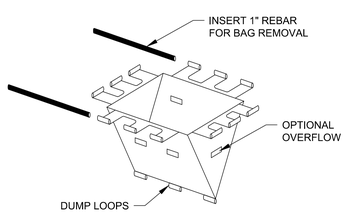
8 TYPE 'E' DOWELED CONSTRUCTION JOINT DETAIL
NOT TO SCALE



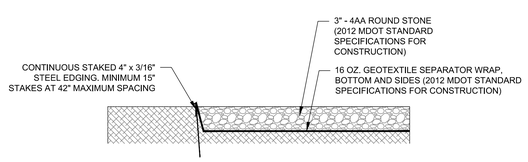
NOTE:

1. SEE NOTE 2 ON SHEET CD-101 AND CS-101

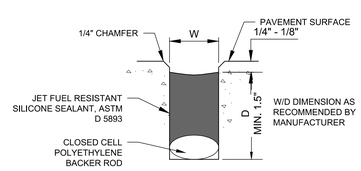
4 DRAINAGE TRENCH DETAIL
NOT TO SCALE



16 EROSION CONTROL P-156 INLET FILTER
NOT TO SCALE



13 GRAVEL MAINTENANCE AREA/STRIP
NOT TO SCALE



9 JOINT SEALANT REPLACEMENT
NOT TO SCALE

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SHEET CONTENTS
CONSTRUCTION DETAIL

SHEET NO.
C-501

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ABBREVIATIONS

∠	ANGLE
@	AT
AB	ANCHOR BOLT
AC	ACOUSTIC
ACC	ACCESS
ACT	ACOUSTIC CEILING TILE
ACP	ACOUSTIC CEILING PANEL
AD	AREA DRAIN
ADD	ADDITIONAL
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AP	ACCESS PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT
BB	BOND BEAM
BD	BOARD
BF	BOTH FACES
BFC	BELOW FINISH CEILING
BG	BUMPER GUARD
BIT	BITUMINOUS
BLDG	BUILDING
BLKG	BLOCKING
BLKT	BLANKET
BM	BEAM/BENCH MARK
BLK	BLOCK
BOT	BOTTOM
BRG	BEARING
BRKR	BREAKER
BRK	BRICK
BRKT	BRACKET
BS	BACK SPLASH
BSMT	BASEMENT
BTWN	BETWEEN
	CHANNEL
CAB	CABINET
CER	CERAMIC
CFCI	CONTRACTOR FURNISHED, CONTRATOR INSTALLED
CG	CORNER GUARD
CH	COAT HOOK
CIP	CAST IN PLACE
CJ	CONTROL JOINT/CONSTRUCTION JOINT
CLG	CEILING
CLO	CLOSET/CLOSURE
CLR	CLEAR
COL	COLUMN
COMB	COMBINATION
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONF	CONFERENCE
CONN	CONNECTION/CONNECT
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CORR	CORRIDOR
CPT	CARPET
CR	COAT RACK/CURTAIN ROD
CSG	CASING
CT	CERAMIC TILE
CTR	CENTER/COUNTER
CTSK	COUNTERSUNK
CUH	CABINET UNIT HEATER
CW	COLD WATER
D	DEPTH
DBL	DOUBLE
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIR	DIRECTION
DIV	DIVISION
DM	DEMOUNTABLE PARTITION
DN	DOWN
DO	DITTO
DR	DOOR
DRWR	DRAWER
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
DWS	DEFORMED WELDED STUD
EA	EACH
EC	ELECTRICAL CONTRACTOR
EF	EACH FACE
EH	ELECTRICAL HEATER/EXHAUST HOOD
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR/ELEVATION
EMBED	EMBEDDED
EMER	EMERGENCY
ENT	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER
ESR	ELASTOMERIC SHEET ROOFING
ETR	EXISTING TO REMAIN
EVC	ELASTIC VINYL COATING
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXC	EXCAVATE
EXP	EXPANSION
EXPD	EXPOSED
EXPF	EXPLOSION PROOF
EXT	EXTERIOR
FA	FIELD ADJUSTABLE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FIN	FINISH
FIX	FIXTURE
FLEX	FLEXIBLE
FLR	FLOOR
FLRG	FLOORING
FP	FIREPROOF/FIRE PROTECTION
FR	FIRE RETARDANT
FS	FULL SIZE/FULL SCALE
FT	FEET
FTG	FOOTING
FURG	FURRING
FV	FIELD VERIFY
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERAL
GFCI	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED
GFGI	GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
GFRC	GLASS FIBER REINFORCED CONCRETE
GFRG	GLASS FIBER REINFORCED GYPSUM
GL	GLASS
GMU	GLAZED MASONRY UNIT
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEIGHT
HDBD	HARDBOARD
HDCP	HANDICAPPED
HDWD	HARDWOOD
HDWE	HARDWARE
HK	HOOK
HM	HOLLOW METAL
HP	HIGH POINT
HR	HANDRAIL
HT	HEIGHT
HVAC	HEATING VENTILATION AND AIR CONDITIONING
HWS	HEAD WELDED STUDS
ID	INSIDE DIAMETER
IMP	INSULATED METAL PANEL
IN	INCHES
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
IPW	INSULATED PLENUM WALL
IRF	INSULATED ROOF FILL
JAN	JANITOR
JS	JANITOR SINK
JST	JOIST
JT	JOINT
KD	KNOCKED DOWN
KO	KNOCK-OUT / KNEE OPENING
L	LENGTH
LAB	LABORATORY
LAM	LAMINATED
LB	POUND
LBS	POUNDS
LD	LINEAR DIFFUSER
LDG	LANDING
LF	LINEAR FOOT
LG	LONG
LGT	LIGHT
LKR	LOCKER
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LP	LOW POINT
LSH	LONG SLOTTED HOLE
LTG	LIGHTING
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
MACH	MACHINE
MAN	MANUAL
MAR	MARBLE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MBW	MASONRY BEARING WALL
MC	MECHANICAL CONTRACTOR
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MK	MARK
ML	METAL LATH
MLDG	MOLDING
MO	MASONRY OPENING
MP	METAL PARTITION
MS	MACHINE SCREW
MTD	MOUNTED
MTG	MOUNTING
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NONSHRINK
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER/OVERFLOW DRAIN
O.F.C.I.	OWNER FURNISHED, CONTRACTOR INSTALLED
OFF	OFFICE
OPNG	OPENING
OPP	OPPOSITE
OZ	OUNCE
PART	PARTITION
PC	PIECE
PCC	PRECAST CONCRETE
PCPL	PORTLAND CEMENT PLASTER
PDWR	PAPER TOWEL DISPENSER & WASTE RECEPTACLE
PH	PHILLIPS HEAD/PHASE
PL	PLASTIC LAMINATE/PLATE/PROPERTY LINE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD
PM	PROTECTED METAL
PNL	PANEL
PNLG	PANELING
POL	POLISHED
PR	PAIR
PRE FAB	PREFABRICATED
PRE FIN	PRE-FINISHED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT/PAINT
PTM	PAINT TO MATCH
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
RAD	RADIUS
RAH	ROOFTOP AIR HANDLING UNIT
RB	RUBBER BASE
RC	REINFORCED CONCRETE
RCP	RADIANT CEILING PANEL / REFLECTED CEILING PLAN
RD	ROOF DRAIN
REC	RECESSED
REF	REFERENCE
REINF	REINFORCING
REL	RELOCATE
REM	REMAINDER
REQD	REQUIRED
RES	RESILIENT
RET	RETURN
RI	ROUGH IN
RM	ROOM
RO	ROUGH OPENING
RT	RUBBER TILE
RUB	RUBBER
SAT	STANDARD AGGREGATE TOPPING
SB	SOIL BEARING
SC	SEAMLESS COATING
SCF	SPECIAL CONCRETE FINISH
SCHD	SCHEDULE
SD	SOAP DISPENSER
SE	SHELF EDGE
SECT	SECTION
SF	SAND FLOAT
SG	SUPPLY AIR GRILLE
SGL	SINGLE
SH	SHELF
SHD	SHOWER DOOR
SHT	SHEET
SIM	SIMILAR
SJ	STEEL JOIST
SLV	SHORT LEG VERTICAL
SM	SMOOTH
SND	SANITARY NAPKIN DISPENSER
SNV	SANITARY NAPKIN VENDER
SOG	SLAB ON GRADE
SPEC	SPECIFICATION
SPR	SPRINKLER
SQ	SQUARE
SR	SHOWER ROD
SS	STAINLESS STEEL
ST	STREET
STD	STANDARD
STL	STEEL
STO	STORAGE
STRU	STRUCTURAL/STRUCTURE
SUSP	SUSPENDED
SV	SHEET VINYL
SYM	SYMMETRICAL
T & B	TOP AND BOTTOM
TB	TACKBOARD/TOWEL BAR
TBR	TO BE REMOVED
TCP	THIN COAT PLASTER
TD	TOWEL DISPENSER
TDW	TOWEL DISPENSER AND WASTE
TEMP	TEMPERATURE/TEMPERED
TER	TERRAZZO
TEX	TEXTURE
TFC	TROWELED FLOOR COVERING
T & G	TONGUE AND GROOVE
THK	THICK
TOB	TOP OF BEAM
TOC	TOP OF CURB/TOP OF CONCRETE
TOD	TOP OF DECK/TOP OF DUCT ELEVATION
TOF	TOP OF FOOTING
TOJ	TOP OF JOIST
TOP	TOP OF PIPE ELEVATION
TOS	TOP OF SLAB/TOP OF STEEL
TOW	TOP OF WALL
TPG	TOPPING
TPH	TOILET PAPER HOLDER
TRAN	TRANSOM
TRANS	TRANSVERSE
TS	TUBE STEEL
TWS	THREADED WELDED STUD
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
V	VINYL
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
V.I.F.	VERIFY IN FIELD
VOL	VOLUME
VWC	VINYL WALL COVERING
W	WIDE FLANGE STEEL BEAM
W/	WITH
WAF	WELDED ANGLE FRAME
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE
WG	WIRE GLASS
W/O	WITHOUT
WP	WEATHERPROOF
WPFG	WATERPROOFING
WR	WASTE RECEPTACLE
WSCT	WAINSCOT
WSTP	WEATHERSTRIP
WTR	WATER
WWF	WELDED WIRE FABRIC
X	EXISTING

ABBREVIATIONS ABOVE ARE FOR ARCHITECTURAL SHEETS ONLY.

HATCH SYMBOLS

EARTHWORK	PLYWOOD
GRAVEL	FINISH LUMBER
PLASTER, SAND, GROUT	WOOD STUDS, BLOCKING
CONCRETE	STEEL STUDS
CONCRETE MASONRY	GYPSUM WALLBOARD
CLAY MASONRY	ACOUSTICAL TILE
PRECAST CONCRETE	BATT INSULATION
METAL	RIGID INSULATION

LEGEND - PLAN SYMBOLS

SIM 1 A-101	BUILDING SECTION SYMBOL
SIM 1 A-101	WALL SECTION SYMBOL
1 A-101	DETAIL SYMBOL
1 A-101	ENLARGED PLAN SYMBOL
A-201 1	EXTERIOR ELEVATION SYMBOL
A-211 1	INTERIOR ELEVATION SYMBOL
4.XXX	KEYED NOTE IDENTIFICATION
ROOM NAME 000	ROOM NAME AND NUMBER
XXX X	WALL TYPE IDENTIFICATION
W?	WINDOW IDENTIFICATION
101A	DOOR IDENTIFICATION
	1 HOUR FIRE RATED WALL
F.E.	FIRE EXTINGUISHER - SURFACE MOUNT
F.E.C.	FIRE EXTINGUISHER CABINET AND FIRE EXTINGUISHER - SEMI-RECESSED
FD	FLOOR DRAIN
A100	EXISTING GRID LINES
A100	NEW GRID LINES
XXX X' - X"	LEVEL OR SPOT ELEVATIONS

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SHEET CONTENTS
NOTES & SYMBOLS

SHEET NO.:
A-001

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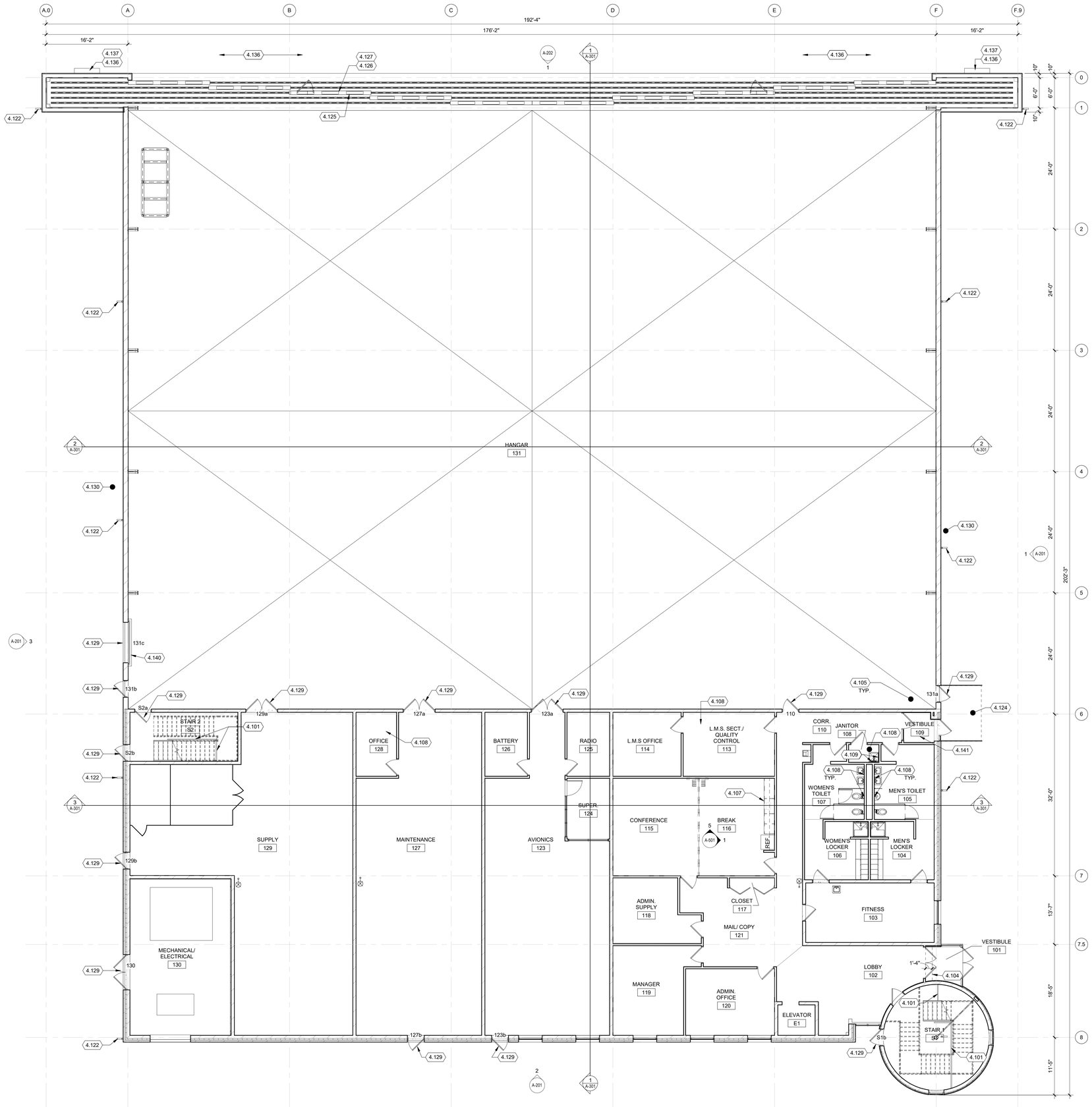


N 1 **FIRST FLOOR PLAN**
1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. SITE DATUM OF FINISHED FIRST FLOOR INDICATED ON CIVIL SITE PLAN = ELEVATION 100'-0" ON ARCHITECTURAL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.

KEYED NOTES

4.101 PROVIDE ADA LOW CLEARANCE BARRIER PER DETAIL 17/A-501. LOCATE DIRECTLY BELOW BEAM OR STRINGER IN LOCATIONS SHOWN. FIELD VERIFY EXACT DIMENSIONS. (REF. WI-3)

4.104 EXTEND OVERHEAD SOFFIT TO EAST AS INDICATED ON PLAN TO ACCOMMODATE DUCT MODIFICATIONS AND NEW GRILLS PER MECHANICAL DRAWINGS. SOFFIT MATERIALS, 20 GA. METAL STUDS AND 5/8" GWB WITH PAINTED FINISH ON BOTTOM OF SOFFIT AT TOP OF TRANSOM FRAME. CLEAN AND REPAIR EDGES AND SEAMS OF EXISTING VINYL WALL FINISHES, CLEAN ALUMINUM FRAMES AND SOFFITS OF PAINT, TAPE, ETC. AND CAULK JOINTS FOR UNIFORM APPEARANCE. (REF. WI-17)

4.105 RESECURE SAGGING ROOF INSULATION IN HANGAR 131. (REF. WI-22)

4.107 REPLACE CABINETS, COUNTER AND SINK IN BREAKROOM 116. REINSTALL EXISTING FAUCET AND GARBAGE DISPOSAL. EXPOSED SURFACES TO BE PLASTIC LAMINATE. COUNTERTOP TO BE PLASTIC LAMINATE WITH FULL 180 DEGREE BULLNOSE EDGE AND 4" INTERGRAL RADIUS BACKSPLASH. COLOR/PATTERN TO BE SELECTED BY OWNER. SEE DETAILS ON SHEET A-501 AND SPECIFICATIONS. CAULK ALL EDGES WITH MATCHING SEALANT. RESTORE OR REPLACE DAMAGED ADJACENT SURFACES AND FINISHES TO MATCH EXISTING. (REF. WI-24)

4.108 REMOVE AND REPLACE INTERIOR CAULKING IN THE FOLLOWING AREAS (REF. WI-25):
- AROUND EXTERIOR WINDOWS ON SECOND FLOOR.
- AROUND ALL PLUMBING FIXTURES AT WALLS IN TOILET ROOMS.
- AROUND ALL SERVICE (MOP) AND UTLITY SINKS.

4.109 PROVIDE NEW 18 GAUGE TYPE 316 STAINLESS STEEL SPLASH GUARDS (#4 BRUSHED FINISH) WITH STAINLESS STEEL FASTENERS AT SERVICE SINKS IN JANITORS CLOSETS 108 & 203. EXTEND 48" MINIMUM ABOVE SINK RIMS AND 16" BEYOND SINK SIDES ON BOTH ADJACENT WALLS DOWN TO THE FLOOR. APPLY CONTINUOUS SEALANT AT ALL EDGES. COORDINATE WITH FAUCET REPLACEMENT. (REF. WI-26)

4.122 REMOVE AND REPLACE ALL DOWNSPOUTS. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING. REPLACE EXISTING ANCHORS TO WALL AND PROVIDE ADDITIONAL ANCHORS BETWEEN EXISTING ANCHORS. DOWNSPOUT LOCATIONS TO MATCH EXISTING STORM SEWER CONNECTIONS. (REF. WI-31)

4.124 REPLACE FABRIC ON AWNING AT EMPLOYEE ENTRANCE. OWNER TO SELECT COLOR/PATTERN FROM AVAILABLE OPTIONS. FABRIC SHALL BE AS SPECIFIED. (REF. WI-33)

4.125 REPLACE INSULATED GLASS UNITS THAT HAVE BROKEN SEALS (4 THUS) IN HANGAR DOOR WINDOWS WITH EQUIVALENT UNITS TO MATCH EXISTING. (REF. WI-34)

4.126 REPLACE SILL WEATHERSEALS ON EXTERIOR FACE OF ALL ROLLING HANGAR DOOR LEAVES WITH JACOR, INC. OR APPROVED EQUAL 3/16" THICK FLAP-TYPE SHEET NYLON-INSERTED NEOPRENE OR EPDM WEATHERSEALS OF WIDTH NEEDED TO FLEX 90 DEGREES OUTWARD TO SEAL FLAT AGAINST THE EXTERIOR SURFACE OF THE CONCRETE SILL. INSTALL IN CONTINUOUS LENGTHS WITH NO JOINTS ON EACH LEAF. PROVIDE RETURN SEALS AND CUSTOM FIT CUTOUTS AT ENDS TO SEAL TO RAIL, VERTICAL SEALS AND ADJACENT LEAVES. REUSE EXISTING RETAINERS AND FASTENERS OR INSTALL CORROSION RESISTANT REPLACEMENTS. FIELD VERIFY PERTINENT DIMENSIONS AND CONDITIONS. (REF. WI-35)

4.127 PROVIDE NEW BIRD SPIKES AT TOP OF HANGAR DOORS, FULL LENGTH. REPLACE EXISTING PORTIONS. (REF. WI-36)

4.129 SEE DOOR REHAB SCHEDULE FOR DOOR, FRAME AND HARDWARE UPGRADES. (REF. WI-38)

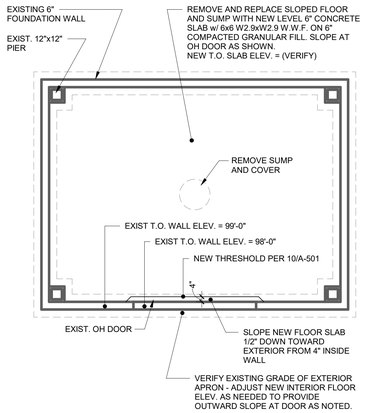
4.130 REMOVE AND REPLACE EXISTING SURFACE DRAINAGE TRENCH ALONG WALL. PROVIDE NEW GEOTEXTILE WRAP ON BOTTOM AND SIDES OF TRENCH AND ADD CONTINUOUS STEEL EDGING. REMOVE, CLEAN OUT, AND REUSE (OR PROVIDE NEW) 6" DIAMETER PERFORATED PVC PIPE WITH (2) ½" HOLES AT 120 DEGREES 12" O.C. FACING DOWN. RECONNECT TO STORM SEWER AT DOWNSPOUTS AND CAP OPPOSITE ENDS. PROVIDE NEW GEOTEXTILE FILTER WRAP ON PIPE. PROVIDE NEW WASHED GRAVEL IN TRENCH. SEE DETAIL 4/C501. RESTORE ADJACENT GRADES TO SLOPE TO TRENCH. (REF. WI-39)

4.136 PROVIDE SNOW MELT SYSTEM UNDER EXTERIOR APRON ADJACENT TO HANGAR DOOR. SEE MECHANICAL DRAWINGS, SITE DRAWINGS AND DETAIL 16/A-501. (REF. WI-45)

4.137 PROVIDE CUSTOM FABRICATED STAINLESS STEEL COVER FOR SNOW MELT TUBING PER DETAIL 16/A-501.

4.140 PROVIDE WATER STOP AT OVERHEAD DOOR THRESHOLD PER DETAIL 10/A-501.

4.141 REMOVE EXISTING FLOOR GRATE AND INFILL RECESS WITH APPROVED PRE-MIXED CONCRETE REPAIR PRODUCT. REMOVE AND REINSTALL CABINET UNIT HEATER HOUSING AS NECESSARY. (WI-21)



2 **SHED FLOOR SLAB PLAN (WI-4)**
1/4" = 1'-0"

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SHEET CONTENTS
FIRST FLOOR PLAN

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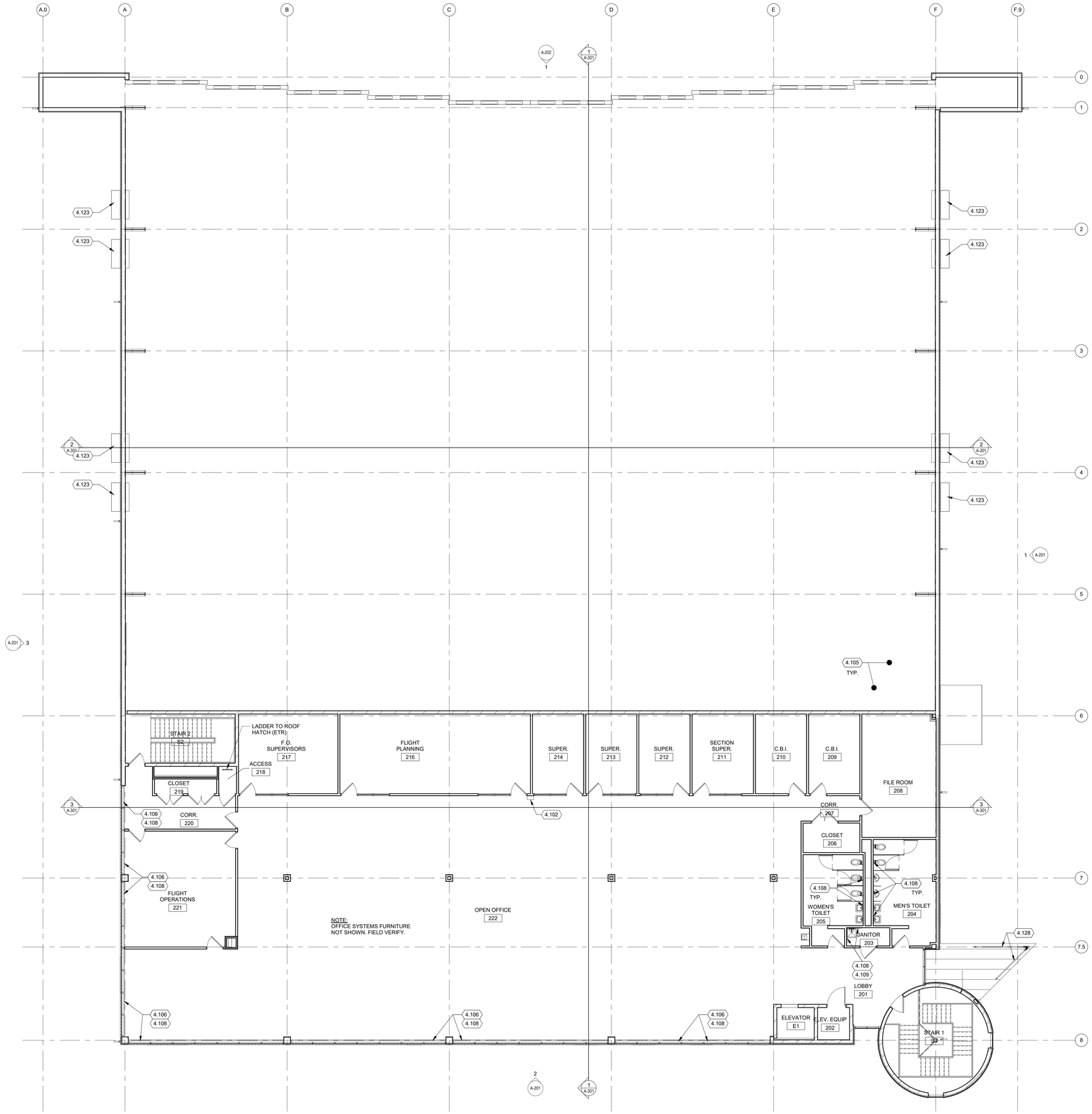

SECOND FLOOR PLAN

1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. SITE DATUM OF FINISHED FIRST FLOOR INDICATED ON CIVIL SITE PLAN = ELEVATION 100'-0" ON ARCHITECTURAL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.

KEYED NOTES

4.102 INSTALL 18X24 MIN SURFACE MOUNTED CABINET JL INDUSTRIES MODEL #3013 FOR ADA PROJECTION BARRIER BELOW EXISTING 18X18 AED CABINET. VERIFY FIT. (REF. WI-3)

4.105 RESECURE SAGGING ROOF INSULATION IN HANGAR 131. (REF. WI-22)

4.106 REPLACE WINDOW TREATMENTS (ROOMS 220, 221, & 222) WITH NEW SHADES. LOCATE JOINTS AT VERTICAL MULLIONS. PROVIDE 1 UNIT FOR EACH WINDOW PANE. MOUNT SHADE BOX TIGHT TO SOFFIT ABOVE. (REF. WI-23)

4.108 REMOVE AND REPLACE INTERIOR CAULKING IN THE FOLLOWING AREAS (REF. WI-25).
- AROUND EXTERIOR WINDOWS ON SECOND FLOOR.
- AROUND ALL PLUMBING FIXTURES AT WALLS IN TOILET ROOMS.
- AROUND ALL SERVICE (MOP) AND UTLITY SINKS.

4.109 PROVIDE NEW 18 GAUGE TYPE 316 STAINLESS STEEL SPLASH GUARDS (#4 BRUSHED FINISH) WITH STAINLESS STEEL FASTENERS AT SERVICE SINKS IN JANITORS CLOSETS 108 & 203. EXTEND 48" MINIMUM ABOVE SINK RIMS AND 16" BEYOND SINK SIDES ON BOTH ADJACENT WALLS DOWN TO THE FLOOR. APPLY CONTINUOUS SEALANT AT ALL EDGES. COORDINATE WITH FAUCET REPLACEMENT. (REF. WI-26)

4.123 INSTALL NEW INTAKE HOODS AND ANCHORAGES (8 THUS) PER DETAIL 18/A-501. (REF. WI-32)

4.128 REPAINT EXTERIOR ENTRY AWNING HANGER ROD AND ASSOCIATED HARDWARE ABOVE THE ENTRY AWNING. CLEAN, PREPARE AND PAINT PER SPECIFICATIONS. (REF. WI-37)

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SHEET CONTENTS
SECOND FLOOR PLAN

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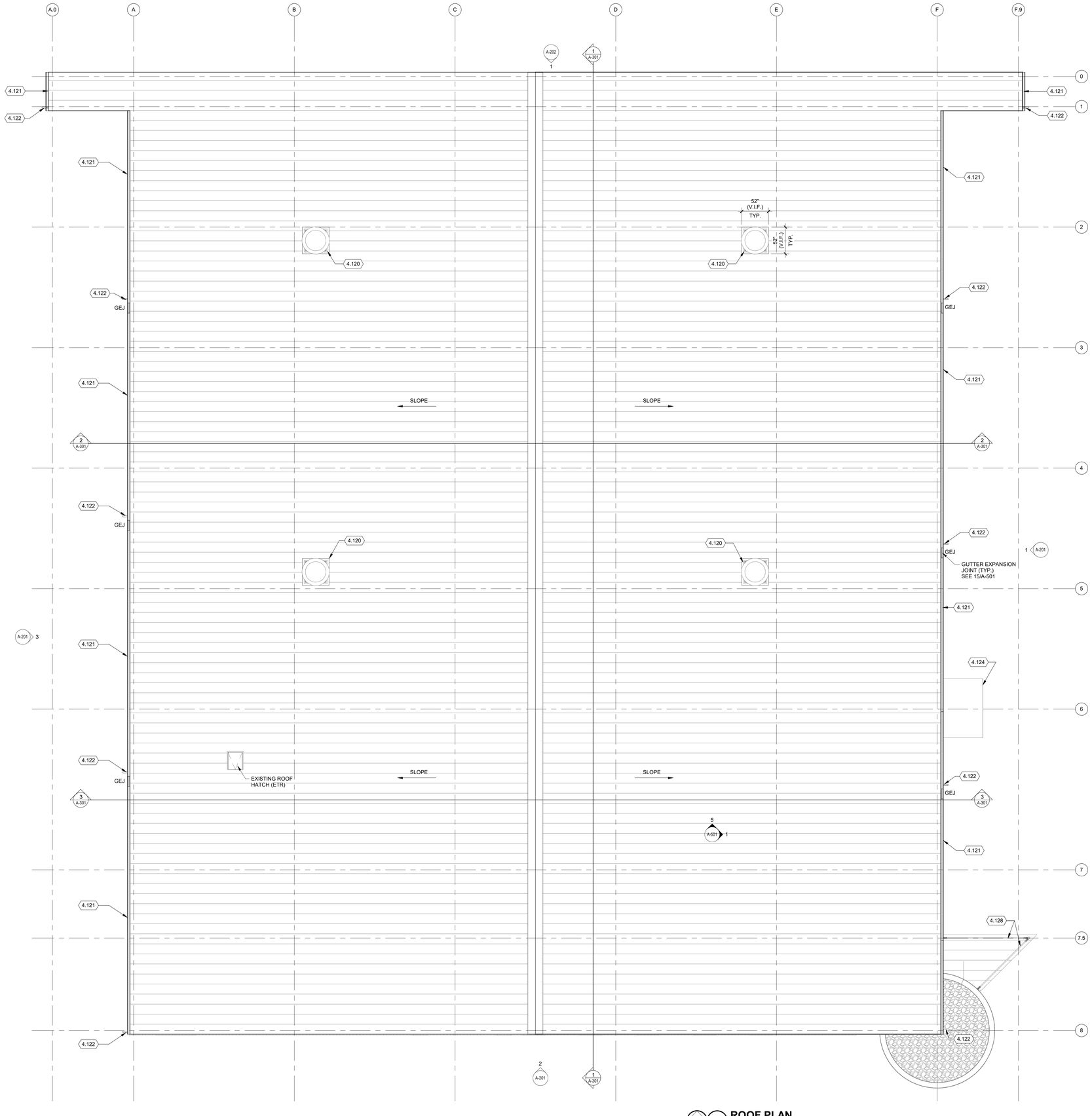

N 1 **ROOF PLAN**
1/8" = 1'-0"

ROOF PLAN GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. SITE DATUM OF FINISHED FIRST FLOOR INDICATED ON CIVIL SITE PLAN = ELEVATION 100'-0" ON ARCHITECTURAL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.

KEYED NOTES

4.120 REPLACE ROOF CURBS AT EXHAUST FANS (4 THUS). TEMPORARILY REMOVE EXISTING EXHAUST FANS; REMOVE EXISTING CURBS; CLEAN AND PREPARE ROOF PANELS; PROVIDE NEW CUSTOM PRE-FABRICATED RETROFIT CURBS TO MATCH EXHAUST FANS AND ROOFING RIB PROFILES AND LOCATIONS; AND REINSTALL, SEAL, RECONNECT AND TEST EXISTING EXHAUST FANS. FIELD MEASURE ACTUAL RIB LOCATIONS AT EACH LOCATION BEFORE FABRICATION. FABRICATE AND INSTALL WATERTIGHT PER MFR AND SMACNA RECOMMENDATIONS. MAINTAIN INSULATION AND VAPOR BARRIERS. COORDINATE CRANE OPERATION WITH AIRPORT. (REF. WI-30)

4.121 REMOVE AND REPLACE ALL GUTTERS. PROVIDE BUTT-TYPE EXPANSION JOINTS PER DETAIL 15/A-501 IN LOCATIONS SHOWN. REUSE EXISTING HANGERS AND PROVIDE ADDITIONAL HANGERS AND HARDWARE IF NEEDED. PROVIDE CONTINUOUS LENGTHS WITH NO JOINTS BETWEEN BUTT JOINTS NOTED. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING GUTTERS. COORDINATE WITH DOWNSPOUTS. (REF. WI-31)

4.122 REMOVE AND REPLACE ALL DOWNSPOUTS. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING. REPLACE EXISTING ANCHORS TO WALL AND PROVIDE ADDITIONAL ANCHORS BETWEEN EXISTING ANCHORS. DOWNSPOUT LOCATIONS TO MATCH EXISTING STORM SEWER CONNECTIONS. (REF. WI-31)

4.124 REPLACE FABRIC ON AWNING AT EMPLOYEE ENTRANCE. OWNER TO SELECT COLOR/PATTERN FROM AVAILABLE OPTIONS. FABRIC SHALL BE AS SPECIFIED. (REF. WI-33)

4.128 REPAINT EXTERIOR ENTRY AWNING HANGER ROD AND ASSOCIATED HARDWARE ABOVE THE ENTRY AWNING. CLEAN, PREPARE AND PAINT PER SPECIFICATIONS. (REF. WI-37)

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SHEET CONTENTS
ROOF PLAN

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A-103

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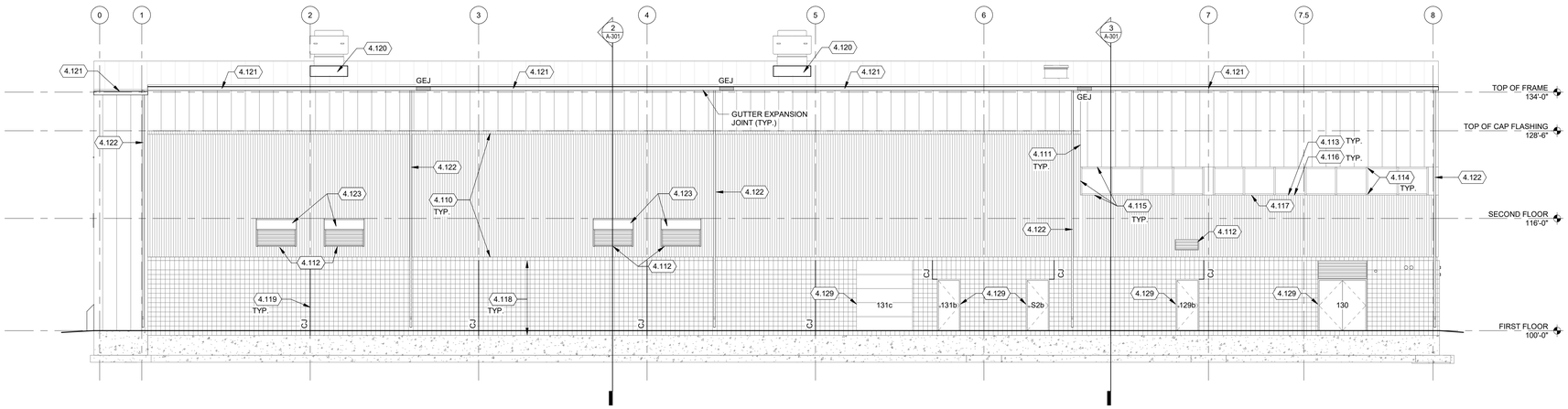
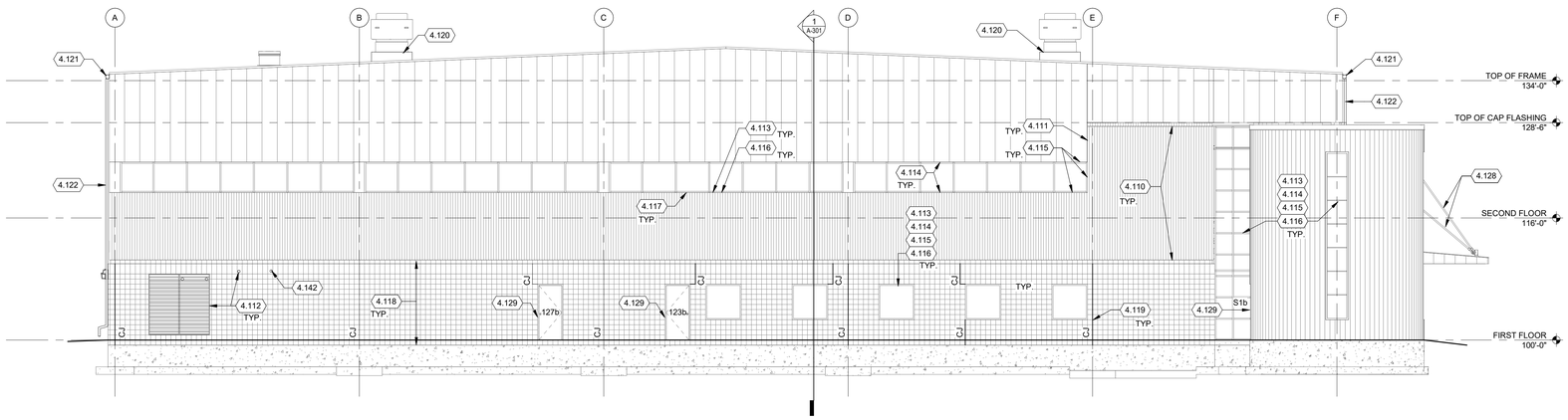
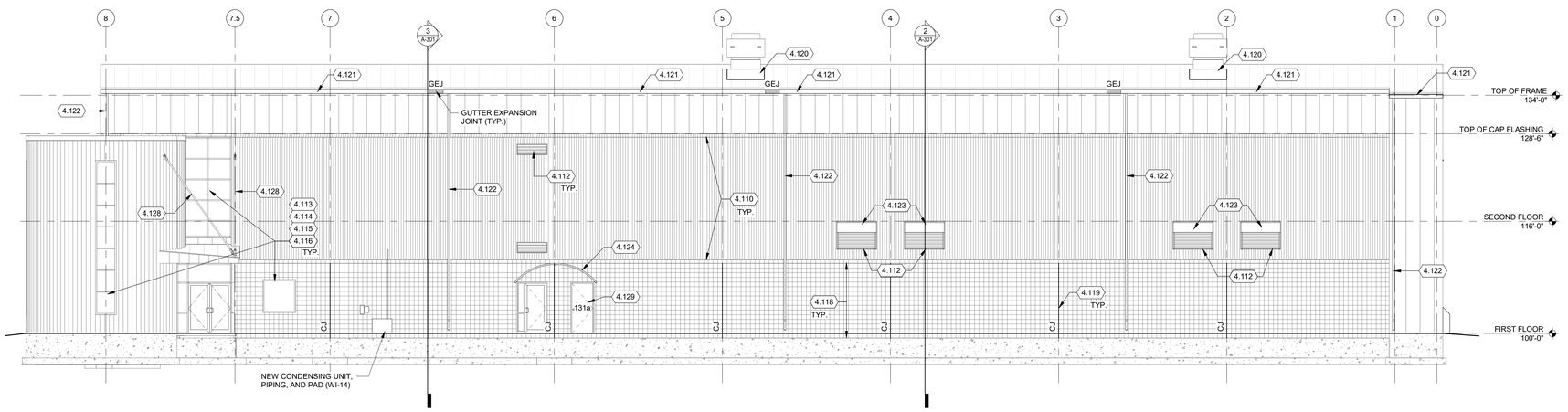


3 WEST ELEVATION
1/8" = 1'-0"



2 SOUTH ELEVATION
1/8" = 1'-0"



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

EXTERIOR ELEVATIONS GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. SITE DATUM OF FINISHED FIRST FLOOR INDICATED ON CIVIL SITE PLAN = ELEVATION 100'-0" ON ARCHITECTURAL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
4. REPAIR ANY EXISTING COMPONENTS THAT ARE DAMAGED OR LOOSE TO PROPERLY COMPLETE NEW WORK ITEMS.
5. INTENT OF WORK NOTED IS TO UTILIZE BEST PRACTICES AND EXPERIENCED TRADESMEN TO REPAIR AND IMPROVE BUILDING ENVELOPE TO EFFECTIVELY PREVENT WATER AND AIR PENETRATION. COORDINATE AND REVIEW ANY SPECIAL CONDITIONS WITH OWNER'S REPRESENTATIVE.

KEYED NOTES

4.110 REMOVE PORTIONS OF PREVIOUS FLASHINGS; MODIFY, REPAIR, AND SECURE EXISTING FLASHINGS; AND PROVIDE NEW FLASHING AND SEALS AT ALL UPPER AND LOWER REVEALS ON WEST, SOUTH AND EAST WALLS PER DETAILS ON DRAWING A-501. (REF. WI-27A)

4.111 REPLACE AND SEAL ALL VERTICAL INSULATED METAL PANEL (IMP) BUTT-JOINT TRIM/FLASHING PER DETAIL 6/A-501. (REF. WI-27B)

4.112 RESEAL PERIMETERS OF ALL EXTERIOR WALL PENETRATIONS AND WALLMOUNTED OBJECTS. REMOVE EXISTING SEALANT, PREPARE, AND PROVIDE NEW BACKERS RODS AND SEALANTS PER MANUFACTURER. NOTE: NOT ALL PENETRATIONS SHOWN HERE. (REF. WI-27C)

4.113 SECURE LOOSE WINDOW FLASHINGS AND RESEAL OPEN HOLES AND JOINTS IN ALL EXISTING FLASHINGS. SEE DETAIL 12/A-501. (REF. WI-27D)

4.114 REMOVE AND REPLACE ALL FAILED WINDOW GLAZING SEALANTS. RESEAL ALL JOINTS IN ALL ALUMINUM WINDOW FRAMES. REMOVE EXISTING SEALANTS, PREPARE AND RESEAL WITH POLYURETHANE WINDOW SEALANTS IN MATCHING COLOR PER MANUFACTURER. RESEAL GAPS IN WINDOW GLAZING SEALANTS WITH MATCHING SEALANT. (REF. WI-27E)

4.115 RESEAL PERIMETERS OF ALL ALUMINUM WINDOW FRAMES. REMOVE EXISTING SEALANTS, PREPARE AND RESEAL WITH POLYURETHANE WINDOW SEALANT IN MATCHING COLOR PER MANUFACTURER. (REF. WI-27F)

4.116 RESEAL ENDS OF ALL WINDOW SILL FLASHING AT JAMBS. (REF. WI-27G)

4.117 INSTALL FLASHING AND SEALS BELOW WINDOW SILL FLASHING AT ALL SECOND FLOOR WINDOWS PER DETAIL 7/A-501. (REF. WI-27H)

4.118 CLEAN/MEDIA BLAST EXTERIOR MASONRY SURFACES TO REMOVE EFLUORESENCE. PREPARE AND REFINISH WITH SPECIFIED COATING SYSTEM. CLEAN, REPAIR, AND REPAINT EXPOSED STEEL LINTELS. (REF. WI-28)

4.119 REMOVE AND REPLACE EXISTING SEALANT AND BACKER MATERIAL IN ALL EXTERIOR MASONRY CONTROL JOINTS. INSTALL POLYURETHANE SEALANT TO MATCH NEW MASONRY FINISH COLOR AFTER APPLYING NEW MASONRY FINISH. (REF. WI-29)

4.120 REPLACE ROOF CURBS AT EXHAUST FANS (4 THUS). TEMPORARILY REMOVE EXISTING EXHAUST FANS; REMOVE EXISTING CURBS; CLEAN AND PREPARE ROOF PANELS; PROVIDE NEW CUSTOM PRE-FABRICATED RETROFIT CURBS TO MATCH EXHAUST FANS AND ROOFING RIB PROFILES AND LOCATIONS; AND REINSTALL, SEAL, RECONNECT AND TEST EXISTING EXHAUST FANS. FIELD MEASURE ACTUAL RIB LOCATIONS AT EACH LOCATION BEFORE FABRICATION. FABRICATE AND INSTALL WATERTIGHT PER MFR AND SMACNA RECOMMENDATIONS. MAINTAIN INSULATION AND VAPOR BARRIERS. COORDINATE CRANE OPERATION WITH AIRPORT. (REF. WI-30)

4.121 REMOVE AND REPLACE ALL GUTTERS. PROVIDE BUTT-TYPE EXPANSION JOINTS PER DETAIL 15/A-501 IN LOCATIONS SHOWN. REUSE EXISTING HANGERS AND PROVIDE ADDITIONAL HANGERS AND HARDWARE IF NEEDED. PROVIDE CONTINUOUS LENGTHS WITH NO JOINTS BETWEEN BUTT JOINTS NOTED. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING GUTTERS. COORDINATE WITH DOWNSPOUTS. (REF. WI-31)

4.122 REMOVE AND REPLACE ALL DOWNSPOUTS. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING. REPLACE EXISTING ANCHORS TO WALL AND PROVIDE ADDITIONAL ANCHORS BETWEEN EXISTING ANCHORS. DOWNSPOUT LOCATIONS TO MATCH EXISTING STORM SEWER CONNECTIONS. (REF. WI-31)

4.123 INSTALL NEW INTAKE HOODS AND ANCHORAGES (8 THUS) PER DETAIL 18/A-501. (REF. WI-32)

4.124 REPLACE FABRIC ON AWNING AT EMPLOYEE ENTRANCE. OWNER TO SELECT COLOR/PATTERN FROM AVAILABLE OPTIONS. FABRIC SHALL BE AS SPECIFIED. (REF. WI-33)

4.128 REPAINT EXTERIOR ENTRY AWNING HANGER ROD AND ASSOCIATED HARDWARE ABOVE THE ENTRY AWNING. CLEAN, PREPARE AND PAINT PER SPECIFICATIONS. (REF. WI-37)

4.129 SEE DOOR REHAB SCHEDULE FOR DOOR, FRAME AND HARDWARE UPGRADES. (REF. WI-38)

4.142 ADJUST EXISTING PHOTO EYE FOR NEW REVEAL FLASHING.

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W.K. KELLOGG AIRPORT
FAA FIS HANGAR REHABILITATION

16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI 49015

ISSUED
3/29/19 ISSUED FOR BIDDING

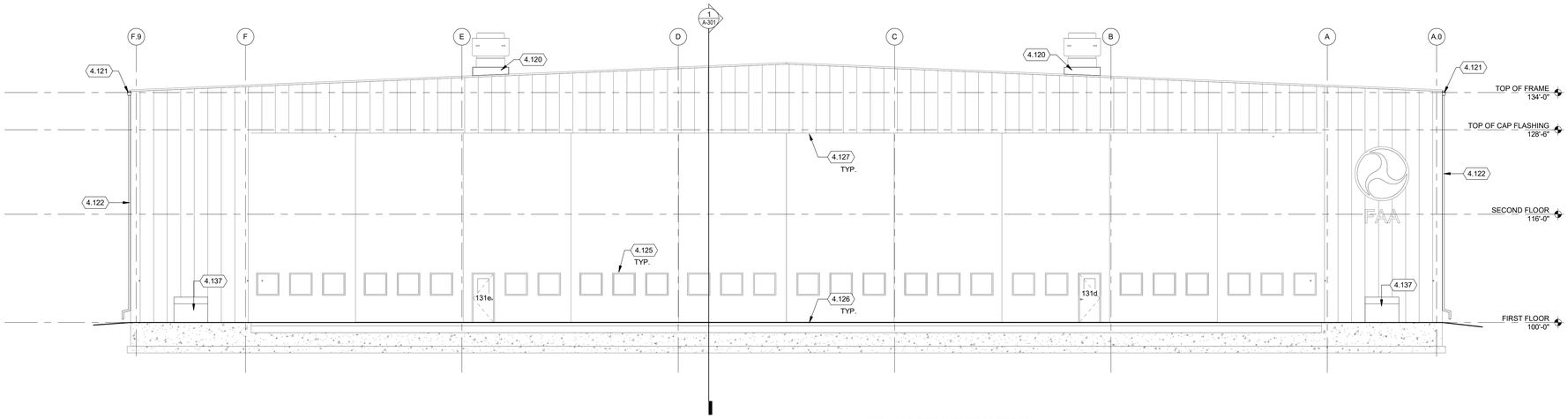
ISSUED FOR BIDDING

M&H NO.: 022880-170289.01
DATE: March 29, 2019
DESIGNED BY: KSK
DRAWN BY: NJD
CHECKED BY: KSK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
EXTERIOR ELEVATIONS

SHEET NO.:
A-201

3/29/2019 3:10:13 PM C:\Revit Local\022880-170289.01-A-CENTRAL-2018_799mh.rvt



1 NORTH ELEVATION

1/8" = 1'-0"

EXTERIOR ELEVATIONS GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. SITE DATUM OF FINISHED FIRST FLOOR INDICATED ON CIVIL SITE PLAN = ELEVATION 100'-0" ON ARCHITECTURAL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
4. REPAIR ANY EXISTING COMPONENTS THAT ARE DAMAGED OR LOOSE TO PROPERLY COMPLETE NEW WORK ITEMS.
5. INTENT OF WORK NOTED IS TO UTILIZE BEST PRACTICES AND EXPERIENCED TRADESMEN TO REPAIR AND IMPROVE BUILDING ENVELOPE TO EFFECTIVELY PREVENT WATER AND AIR PENETRATION. COORDINATE AND REVIEW ANY SPECIAL CONDITIONS WITH OWNER'S REPRESENTATIVE.

KEYED NOTES

4.120 REPLACE ROOF CURBS AT EXHAUST FANS (4 THUS). TEMPORARILY REMOVE EXISTING EXHAUST FANS; REMOVE EXISTING CURBS; CLEAN AND PREPARE ROOF PANELS; PROVIDE NEW CUSTOM PRE-FABRICATED RETROFIT CURBS TO MATCH EXHAUST FANS AND ROOFING RIB PROFILES AND LOCATIONS; AND REINSTALL, SEAL, RECONNECT AND TEST EXISTING EXHAUST FANS. FIELD MEASURE ACTUAL RIB LOCATIONS AT EACH LOCATION BEFORE FABRICATION. FABRICATE AND INSTALL WATERTIGHT PER MFR AND SMACNA RECOMMENDATIONS. MAINTAIN INSULATION AND VAPOR BARRIERS. COORDINATE CRANE OPERATION WITH AIRPORT. (REF. WI-30)

4.121 REMOVE AND REPLACE ALL GUTTERS. PROVIDE BUTT-TYPE EXPANSION JOINTS PER DETAIL 15/A-501 IN LOCATIONS SHOWN. REUSE EXISTING HANGERS AND PROVIDE ADDITIONAL HANGERS AND HARDWARE IF NEEDED. PROVIDE CONTINUOUS LENGTHS WITH NO JOINTS BETWEEN BUTT JOINTS NOTED. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING GUTTERS. COORDINATE WITH DOWNSPOUTS. (REF. WI-31)

4.122 REMOVE AND REPLACE ALL DOWNSPOUTS. PROVIDE SAME PROFILE, MATERIAL, GAUGE AND FINISH/COLOR AS EXISTING. REPLACE EXISTING ANCHORS TO WALL AND PROVIDE ADDITIONAL ANCHORS BETWEEN EXISTING ANCHORS. DOWNSPOUT LOCATIONS TO MATCH EXISTING STORM SEWER CONNECTIONS. (REF. WI-31)

4.125 REPLACE INSULATED GLASS UNITS THAT HAVE BROKEN SEALS (4 THUS) IN HANGAR DOOR WINDOWS WITH EQUIVALENT UNITS TO MATCH EXISTING. (REF. WI-34)

4.126 REPLACE SILL WEATHERSEALS ON EXTERIOR FACE OF ALL ROLLING HANGAR DOOR LEAVES WITH JACOR, INC. OR APPROVED EQUAL 3/16" THICK FLAP-TYPE SHEET NYLON-INSERTED NEOPRENE OR EPDM WEATHERSEALS OF WIDTH NEEDED TO FLEX 90 DEGREES OUTWARD TO SEAL. FLAT AGAINST THE EXTERIOR SURFACE OF THE CONCRETE SILL. INSTALL IN CONTINUOUS LENGTHS WITH NO JOINTS ON EACH LEAF. PROVIDE RETURN SEALS AND CUSTOM FIT CUTOUTS AT ENDS TO SEAL TO RAIL, VERTICAL SEALS AND ADJACENT LEAVES. REUSE EXISTING RETAINERS AND FASTENERS OR INSTALL CORROSION RESISTANT REPLACEMENTS. FIELD VERIFY PERTINENT DIMENSIONS AND CONDITIONS. (REF. WI-35)

4.127 PROVIDE NEW BIRD SPIKES AT TOP OF HANGAR DOORS, FULL LENGTH. REPLACE EXISTING PORTIONS. (REF. WI-36)

4.137 PROVIDE CUSTOM FABRICATED STAINLESS STEEL COVER FOR SNOW MELT TUBING PER DETAIL 16/A-501.

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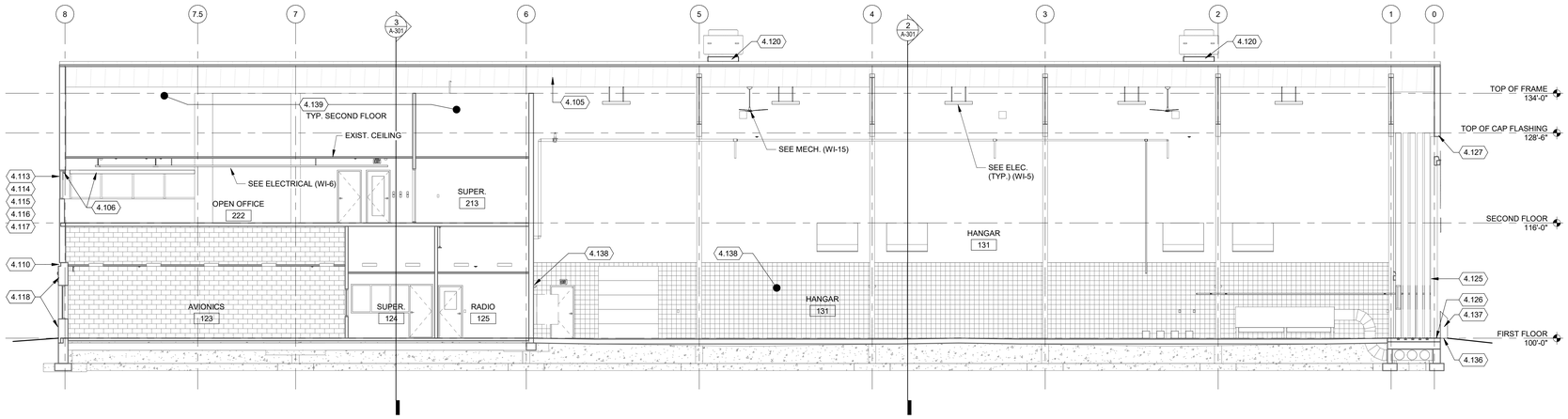
SHEET CONTENTS
EXTERIOR ELEVATIONS

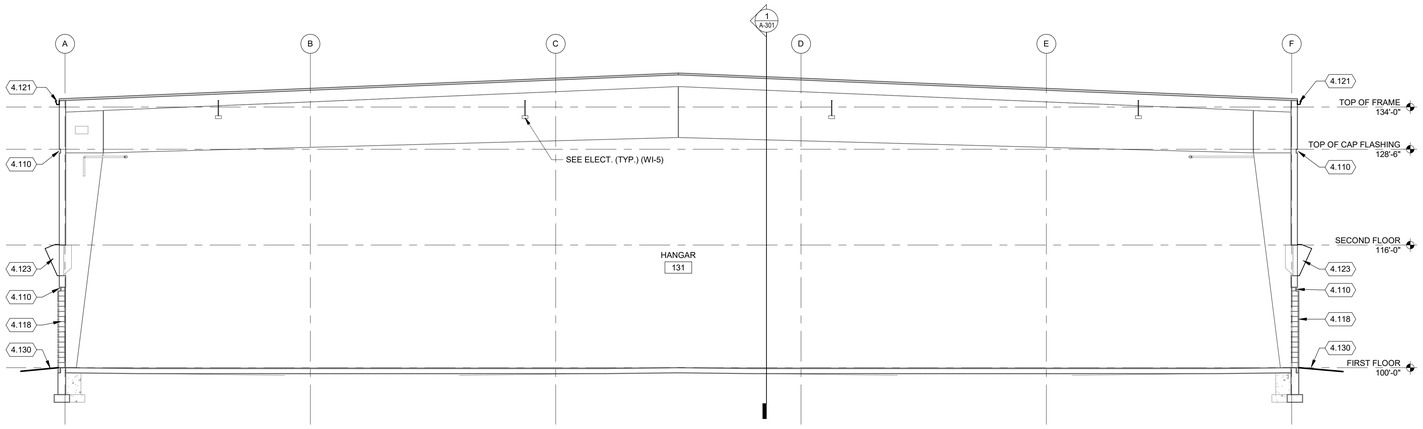
SHEET NO.:
A-202

3/29/2019 3:10:13 PM C:\Revit Local\022880-170289.01-A-CENTRAL-2018_799tmh.rvt



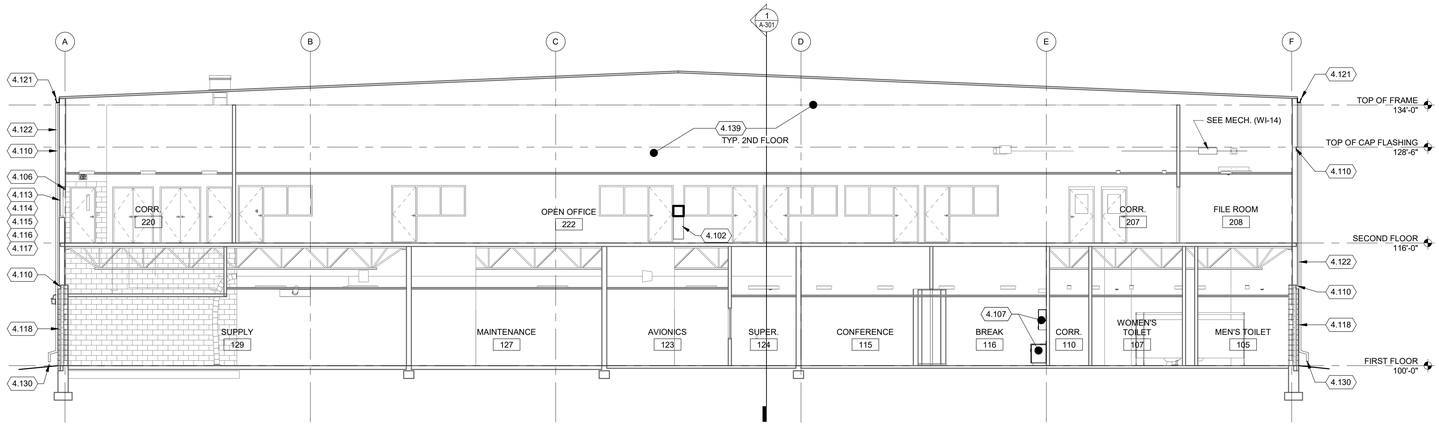
1 N/S BUILDING SECTION WEST OF GRID LINE 'D' - LOOKING WEST

1/8" = 1'-0"



2 E/W BUILDING SECTION NORTH OF GRID LINE '4' - LOOKING NORTH

1/8" = 1'-0"



3 E/W BUILDING SECTION NORTH OF GRID LINE '7' - LOOKING NORTH

1/8" = 1'-0"

BUILDING SECTIONS GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. SITE DATUM OF FINISHED FIRST FLOOR INDICATED ON CIVIL SITE PLAN = ELEVATION 100'-0" ON ARCHITECTURAL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
4. REPAIR ANY EXISTING COMPONENTS THAT ARE DAMAGED OR LOOSE TO PROPERLY COMPLETE NEW WORK ITEMS.

KEYED NOTES

4.102 INSTALL 18X24 MIN SURFACE MOUNTED CABINET JL INDUSTRIES MODEL #30I13 FOR ADA PROJECTION BARRIER BELOW EXISTING 18X18 AED CABINET. VERIFY FIT. (REF. WI-3)

4.105 RESECURE SAGGING ROOF INSULATION IN HANGAR 131. (REF. WI-22)

4.106 REPLACE WINDOW TREATMENTS (ROOMS 220, 221, & 222) WITH NEW SHADES. LOCATE JOINTS AT VERTICAL MULLIONS. PROVIDE 1 UNIT FOR EACH WINDOW PANE. MOUNT SHADE BOX TIGHT TO SOFFIT ABOVE. (REF. WI-23)

4.107 REPLACE CABINETS, COUNTER AND SINK IN BREAKROOM 116. REINSTALL EXISTING FAUCET AND GARBAGE DISPOSAL. EXPOSED SURFACES TO BE PLASTIC LAMINATE. COUNTERTOP TO BE PLASTIC LAMINATE WITH FULL 180 DEGREE BULLNOSE EDGE AND 4" INTERGRAL RADIUS BACKSPLASH. COLOR/PATTERN TO BE SELECTED BY OWNER. SEE DETAILS ON SHEET A-501 AND SPECIFICATIONS. CAULK ALL EDGES WITH MATCHING SEALANT. RESTORE OR REPLACE DAMAGED ADJACENT SURFACES AND FINISHES TO MATCH EXISTING. (REF. WI-24)

4.110 REMOVE PORTIONS OF PREVIOUS FLASHINGS; MODIFY, REPAIR, AND SECURE EXISTING FLASHINGS; AND PROVIDE NEW FLASHING AND SEALS AT ALL UPPER AND LOWER REVEALS ON WEST, SOUTH AND EAST WALLS PER DETAILS ON DRAWING A-501. (REF. WI-27A)

4.113 SECURE LOOSE WINDOW FLASHINGS AND RESEAL OPEN HOLES AND JOINTS IN ALL EXISTING FLASHINGS. SEE DETAIL 12/A-501. (REF. WI-27D)

4.114 REMOVE AND REPLACE ALL FAILED WINDOW GLAZING SEALANTS. RESEAL ALL JOINTS IN ALL ALUMINUM WINDOW FRAMES. REMOVE EXISTING SEALANTS. PREPARE AND RESEAL WITH POLYURETHANE WINDOW SEALANTS IN MATCHING COLOR PER MANUFACTURER. RESEAL GAPS IN WINDOW GLAZING SEALANTS WITH MATCHING SEALANT. (REF. WI-27E)

4.115 RESEAL PERIMETERS OF ALL ALUMINUM WINDOW FRAMES. REMOVE EXISTING SEALANTS, PREPARE AND RESEAL WITH POLYURETHANE WINDOW SEALANT IN MATCHING COLOR PER MANUFACTURER. (REF. WI-27F)

4.116 RESEAL ENDS OF ALL WINDOW SILL FLASHING AT JAMBS. (REF. WI-27G)

4.117 INSTALL FLASHING AND SEALS BELOW WINDOW SILL FLASHING AT ALL SECOND FLOOR WINDOWS PER DETAIL 7/A-501. (REF. WI-27H)

4.118 CLEAN/MEDIA BLAST EXTERIOR MASONRY SURFACES TO REMOVE EFLUORESENCE, PREPARE AND REFINISH WITH SPECIFIED COATING SYSTEM. CLEAN, REPAIR, AND REPAINT EXPOSED STEEL LINTELS. (REF. WI-28)

4.120 REPLACE ROOF CURBS AT EXHAUST FANS (4 THUS). TEMPORARILY REMOVE EXISTING EXHAUST FANS; REMOVE EXISTING CURBS; CLEAN AND PREPARE ROOF PANELS; PROVIDE NEW CUSTOM PRE-FABRICATED RETROFIT CURBS TO MATCH EXHAUST FANS AND ROOFING RIB PROFILES AND LOCATIONS; AND REINSTALL, SEAL, RECONNECT AND TEST EXISTING EXHAUST FANS. FIELD MEASURE ACTUAL RIB LOCATIONS AT EACH LOCATION BEFORE FABRICATION. FABRICATE AND INSTALL WATERTIGHT PER MFR AND SMACNA RECOMMENDATIONS. MAINTAIN INSULATION AND VAPOR BARRIERS. COORDINATE CRANE OPERATION WITH AIRPORT. (REF. WI-30)

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4.127 PROVIDE NEW BIRD SPIKES AT TOP OF HANGAR DOORS, FULL LENGTH. REPLACE EXISTING PORTIONS. (REF. WI-36)

4.130 REMOVE AND REPLACE EXISTING SURFACE DRAINAGE TRENCH ALONG WALL. PROVIDE NEW GEOTEXTILE WRAP ON BOTTOM AND SIDES OF TRENCH AND ADD CONTINUOUS STEEL EDGING. REMOVE, CLEAN OUT, AND REUSE (OR PROVIDE NEW) 6" DIAMETER PERFORATED PVC PIPE WITH (2) ½" HOLES AT 120 DEGREES 12" O.C. FACING DOWN. RECONNECT TO STORM SEWER AT DOWNSPOUTS AND CAP OPPOSITE ENDS. PROVIDE NEW GEOTEXTILE FILTER WRAP ON PIPE. PROVIDE NEW WASHED GRAVEL IN TRENCH. SEE DETAIL 4/C501. RESTORE ADJACENT GRADES TO SLOPE TO TRENCH. (REF. WI-39)

4.136 PROVIDE SNOW MELT SYSTEM UNDER EXTERIOR APRON ADJACENT TO HANGAR DOOR. SEE MECHANICAL DRAWINGS, SITE DRAWINGS AND DETAIL 16/A-501. (REF. WI-45)

4.137 PROVIDE CUSTOM FABRICATED STAINLESS STEEL COVER FOR SNOW MELT TUBING PER DETAIL 16/A-501.

4.138 REFINISH WALLS PER ROOM FINISH SCHEDULE.

4.139 REPLACE UPPER HANGER CLIPS WITH BEAM CLAMPS FOR SUSPENDED CEILING SYSTEM PER ROOM FINISH SCHEDULE.

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SHEET CONTENTS
BUILDING SECTIONS

SHEET NO.:
A-301

3/29/2019 3:10:16 PM C:\Revit Local\022880-170289.01-A-CENTRAL-2018_799tmh.rvt

19 GUTTER REPLACEMENT
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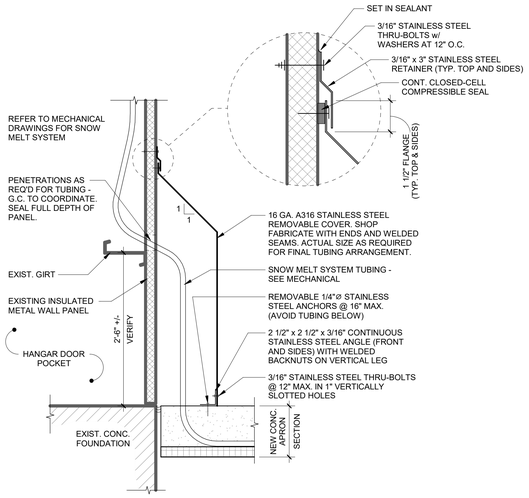
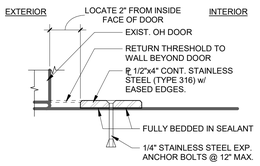
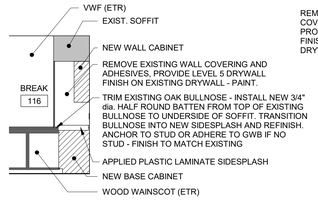


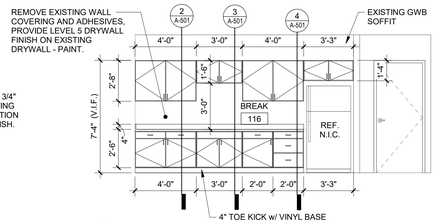
16 SNOW MELT COVER
1" = 1'-0"



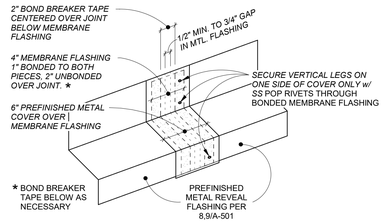
10 O.H. DOOR THRESHOLD
3" = 1'-0"



5 BREAK ROOM 116 - NORTH WALL
1/4" = 1'-0"



1 BREAK ROOM 116 - EAST WALL
1/4" = 1'-0"



11 REVEAL FLASHING JOINTS (TYP.)
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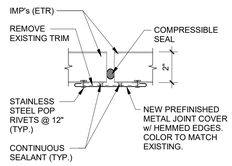
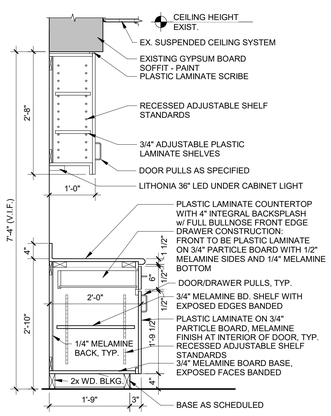
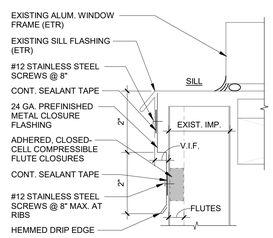


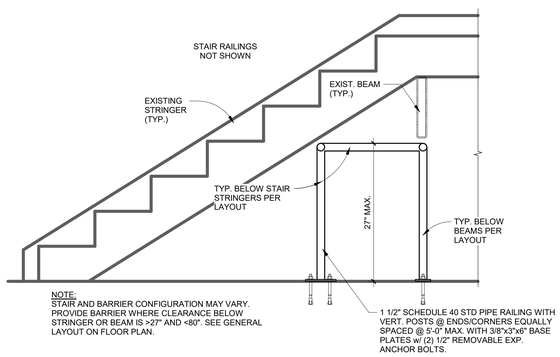
6 VERTICAL IMP BUTT-JOINT TRIM FLASHING
NO SCALE



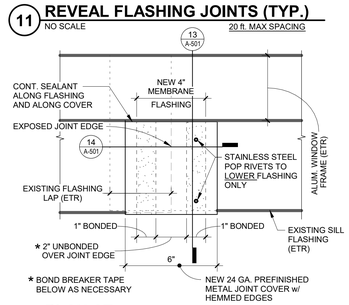
2 CASEWORK SECTION
3/4" = 1'-0"



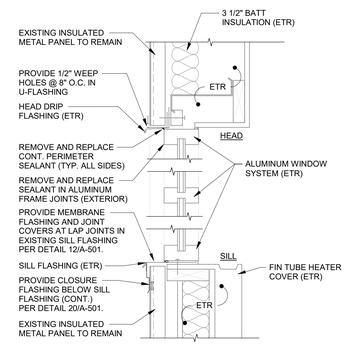
CLOSURE FLASHING BELOW SILL FLASHING
20 6" = 1'-0"



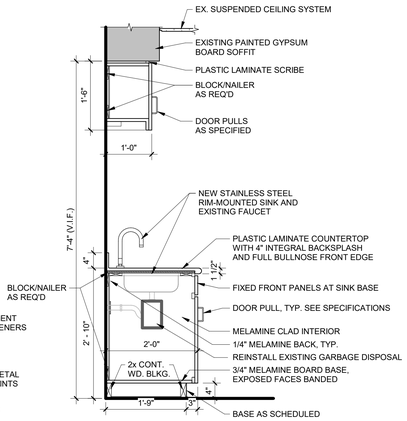
17 ADA LOW CLEARANCE BARRIER @ STAIRS (WI-3)
1" = 1'-0"



PLAN AT LAPPED SILL FLASHING JTS. (TYP.)
12 3" = 1'-0"

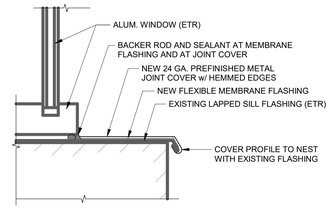


7 WINDOW OPENING
1 1/2" = 1'-0"

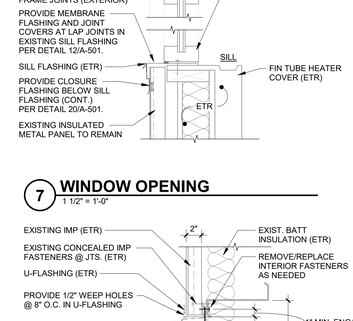


3 CASEWORK SECTION
3/4" = 1'-0"

UPPER REVEAL FLASHING AT IMP TO IMP
8 1 1/2" = 1'-0"

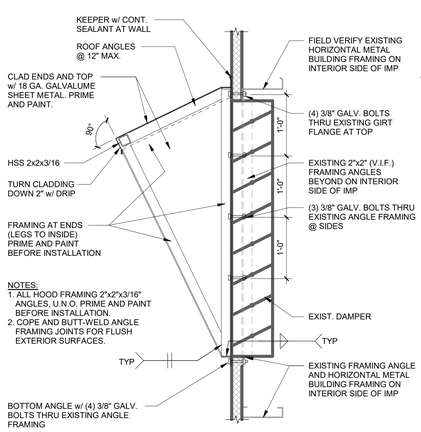


14 LAPPED JOINT FLASHING SECTON
3" = 1'-0"



LOWER REVEAL FLASHING AT IMP TO CMU
9 1 1/2" = 1'-0"

4 CASEWORK SECTION
3/4" = 1'-0"



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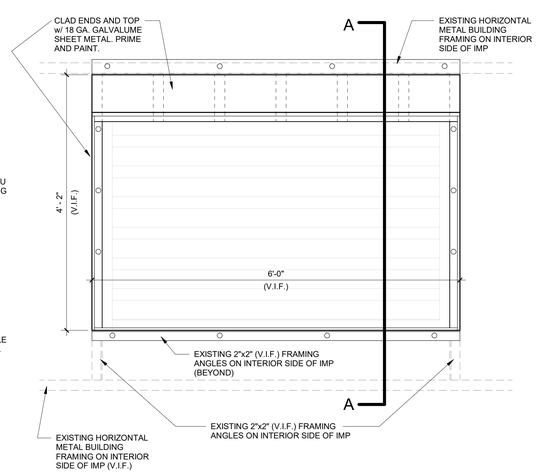
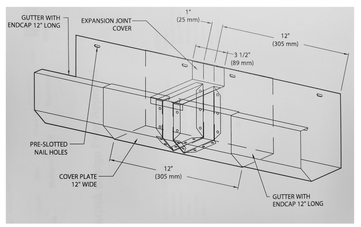


EXTERIOR ELEVATION

18 LOUVER HOOD
1" = 1'-0"



SMACNA STYLE 1 GUTTER EXPANSION JOINT
15 NO SCALE

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DATE: March 29, 2019
DESIGNED BY: KSK
DRAWN BY: NJD, TH
CHECKED BY:
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SHEET CONTENTS
DETAILS

SHEET NO.:
A-501

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ARCHITECTURAL FINISHES SCHEDULE	
FINISH MARK	BASIS OF DESIGN
CPT-1	INTERFACE NIMBUS 103706 FELDSPAR w/ GLASBAC; 25cm x 1 m; "ASHLAR" PATTERN
PT-1	TBD
PT-2	TBD
PT-3	TBD
RB-1	TBD
RB-2	
RB-3	MATCH EXISTING IN STAIR 1
RBT-1	MATCH EXISTING IN VESTIBULE 101
RBT-2	MATCH EXISTING IN STAIR 1
VCT-1	TBD

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	APPROXIMATE SIZE			FLOOR				WALLS										CEILING		REMARKS
		PERIMETER (LF)	AREA (SF)	HEIGHT (FT)	FLOOR		BASE		NORTH		EAST		SOUTH		WEST		DOOR/WINDOW FRAMES				
					EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	
101	VESTIBULE	29'-6"	53 SF	10'-0"	RBT		RB		VWF		VWF		VWF		VWF		AL		MTL		
102	LOBBY	86'-1"	371 SF	9'-0"	CPT	VCT-1	RB	RB-1	VWF		VWF		VWF		VWF		PT		AT		
103	FITNESS	74'-5"	299 SF	9'-0"	ATH RBT		RB		PT		PT		PT		PT		PT		AT		
104	MEN'S LOCKER	49'-2"	116 SF	9'-0"	CT		CT		CT		CT		CT		CT		PT		AT		
105	MEN'S TOILET	59'-4"	168 SF	9'-0"	CT		CT		CT		CT		CT		CT		PT		AT		
106	WOMEN'S LOCKER	49'-1"	116 SF	9'-0"	CT		CT		CT		CT		CT		CT		PT		AT		
107	WOMEN'S TOILET	59'-7"	153 SF	9'-0"	CT		CT		CT		CT		CT		CT		PT		AT		
108	JANITOR	19'-0"	21 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT		PT (GB)		
109	VESTIBULE	23'-11"	35 SF	9'-0"	REC. GRILL	RBT-1	RB	RB-1	VWF		VWF		VWF		VWF		AL		PT (GB)		1
110	CORR.	151'-7"	374 SF	9'-0"	CPT	VCT-1	RB	RB-1	VWF		VWF		VWF		VWF		PT		AT		
113	L.M.S. SECT / QUALITY CONTROL	61'-6"	229 SF	9'-0"	CPT		RB		VWF		VWF		VWF		VWF		PT		AT		
114	L.M.S OFFICE	52'-4"	171 SF	9'-0"	CPT		RB		VWF		VWF		VWF		VWF		PT		AT		
115	CONFERENCE	72'-2"	324 SF	9'-0"	CPT	VCT-1	WD	RB-1	VWF/WD		VWF/WD		VWF/WD		VWF/WD		PT		AT		4
116	BREAK	72'-6"	285 SF	9'-0"	CPT	VCT-1	WD	RB-1	VWF/WD		VWF/WD		VWF/WD		VWF/WD		PT		AT		4, 7
117	CLOSET	21'-1"	14 SF	8'-0"	CPT	VCT-1	RB	RB-1	PT		PT		PT		PT		PT		PT (GB)		
118	ADMIN. SUPPLY	61'-1"	194 SF	9'-0"	CPT		RB		PT		PT		PT		PT		PT		AT		
119	MANAGER	70'-6"	263 SF	9'-0"	CPT		WD		VWF/WD		VWF/WD		VWF/WD		VWF/WD		PT		AT		
120	ADMIN. OFFICE	61'-7"	232 SF	9'-0"	CPT		WD		VWF/WD		VWF/WD		VWF/WD		VWF/WD		PT		AT		
121	MAIL/ COPY	73'-1"	265 SF	9'-0"	CPT	VCT-1	RB	RB-1	VWF		VWF		VWF		VWF		PT		AT		
123	AVIONICS	177'-4"	1238 SF	10'-0"	VCT		RB		PT		PT		PT		PT		PT		AT		
124	SUPER.	40'-11"	101 SF	9'-0"	VCT		RB		PT		PT		PT		PT		PT		AT		
125	RADIO	42'-3"	107 SF	9'-0"	VCT		RB		EMI PT		EMI PT		EMI PT		EMI PT		PT		AT / EMI PT		
126	BATTERY	42'-2"	107 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT		AT		
127	MAINTENANCE	177'-8"	1480 SF	10'-0"	SEALER		RB		PT		PT		PT		PT		PT		AT / PT		
128	OFFICE	41'-4"	101 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT		AT		
129	SUPPLY	216'-2"	1940 SF	10'-0"	SEALER		RB		EMI PT		EMI PT		EMI PT		EMI PT		PT		AT / EMI PT		
130	MECHANICAL/ ELECTRICAL	102'-1"	621 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT		PT		
131	HANGAR	637'-0"	20176 SF	34'-0"	HARDENER		-		PT (MAS)		PT (MAS)	PT (MAS)	PT (MAS)	PT (MAS)	PT (MAS)	PT (MAS)	PT	PT	(EXP)		5, 6
201	LOBBY	76'-0"	287 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6, 9
202	ELEV. EQUIP	25'-5"	40 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT	PT	PT		6
203	JANITOR	24'-3"	31 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT	PT	PT		6
204	MEN'S TOILET	75'-0"	242 SF	9'-0"	CT		CT		CT		CT		CT		CT		PT	PT	AT	HNGRS	3, 6
205	WOMEN'S TOILET	66'-4"	190 SF	9'-0"	CT		CT		CT		CT		CT		CT		PT	PT	AT	HNGRS	3, 6
206	CLOSET	34'-0"	65 SF	9'-0"	SEALER		RB		PT		PT		PT		PT		PT	PT	PT		6
207	CORR.	32'-9"	57 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
208	FILE ROOM	78'-0"	356 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
209	C.B.I.	51'-8"	159 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
210	C.B.I.	51'-8"	159 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
211	SECTION SUPER.	55'-8"	190 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
212	SUPER.	51'-8"	159 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
213	SUPER.	51'-8"	159 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
214	SUPER.	51'-8"	159 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
216	FLIGHT PLANNING	106'-8"	591 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	PT	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
217	F.O. SUPERVISORS	70'-8"	308 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
218	ACCESS	17'-9"	19 SF	16'-0"	SEALER		RB		PT		PT		PT		PT	PT	PT	PT	AT	HNGRS	3, 6
219	CLOSET	30'-4"	36 SF	9'-0"	SEALER	CPT-1	RB	RB-2	PT		PT		PT		PT		PT	PT	AT	HNGRS	3, 6
220	CORR.	68'-7"	175 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
221	FLIGHT OPERATIONS	89'-7"	497 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6
222	OPEN OFFICE	367'-4"	5734 SF	9'-0"	CPT	CPT-1	RB	RB-2	VWF	PT	VWF	PT	VWF	PT	VWF	PT	PT	PT	AT	HNGRS	3, 6, 8
E1	ELEVATOR	26'-10"	45 SF	23'-3"	CPT		-		-		-		-		-		PT				
S1	STAIR 1	68'-7"	346 SF	25'-8"	RBT		RB		PT		PT		PT		PT		PT	PT	(EXP) / PT		6
S2	STAIR 2	62'-2"	207 SF	32'-11"	RBT	RBT-2	RB	RB-3	PT		PT		PT		PT		PT	PT	AT	HNGRS	2, 3, 6

ROOM FINISH SCHEDULE ABBREVIATIONS:

AT = ACOUSTICAL CEILING TILE
ATH RBT = ATHLETIC RUBBER TILE
ACPN = ACOUSTICAL CEILING PANEL - NONPOROUS
CPT = CARPET TILE
CT = CERAMIC TILE
EMI PT =
EXP = EXPOSED
GB = GYPSUM BOARD
HARDENER = CONCRETE FLOOR HARDENER
HNGRS = HANGERS FOR ACOUSTICAL CEILING TILE SUSPENSION SYSTEM PER WORK ITEM
MTL = PREFINISHED METAL PANELS
PT = PAINT
REC GRILL = RECESSED FLOOR GRILL
RB = RUBBER BASE
RBT = RUBBER TILE
SEALER = CLEAR CONCRETE SEALER
VCT = VINYL COMPOSITE TILE
VWF = VINYL WALL FINISH
WD = WOOD

ROOM FINISH SCHEDULE GENERAL NOTES:

1. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AS APPLICABLE TO THE WORK PRIOR TO SUBMITTING A BID. FAILURE TO DO SO WILL NOT BE JUSTIFICATION FOR ADDITIONAL COMPENSATION.
2. REMOVE EXISTING FINISHES WHERE NEW FINISHES ARE NOTED, UNO. EXISTING FINISHES TO REMAIN WHERE NO NEW FINISHES ARE NOTED, UNO. NEW PAINT MAY BE APPLIED OVER EXISTING SOUND PAINTED SURFACES UNLESS OTHERWISE REQUIRED FOR PROPER SURFCE PREP, BOND, AND PERFORMANCE.
3. PREPARE ALL SURFACES FOR PROPER APPLICATION AND UNIFORM APPEARANCE OF NEW FINISHES. AFTER REMOVAL OF EXISTING VWF, ALL GYPSUM WALL BOARD SURFACES SHALL BE CLEANED OF ADHESIVES, LEVELED, PREPPED, SKIM-COATED AND PRIMED AS NECESSARY TO PROVIDE A LEVEL 5 UNTEXTURED, UNIFORM FINISH BEFORE APPLYING NEW FINISH.
4. RESTORE/REPLACE ALL FINISHES DAMAGED DURING COMPLETION OF VARIOUS WORK ITEMS.
5. PAINT ALL REPLACED HM DOORS AND FRAMES (SEE DOOR REHAB SCHEDULE).
6. DO NOT PAINT ALUMINUM FRAMES OR WOOD TRIMS, U.N.O.
7. REMOVE AND REINSTALL EXISTING WALL PLATES, HARDWARE, TRIMS, AND SIGNS WHEREVER POSSIBLE TO APPLY NEW FINISHES. MASK NON-REMOVABLE ITEMS.
8. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.

ROOM FINISH SCHEDULE REMARKS:

1. MATCH FLOORING PRODUCT AND COLOR WITH EXISTING IN VESTIBULE 101. REMOVE EXISTING FLOOR GRATE AND INFILL RECESS WITH APPROPRIATE PRE-MIXED CONCRETE REPAIR PRODUCT. REMOVE AND REINSTALL CABINET UNIT HEATER HOUSING AS NECESSARY. (WI-21)
2. MATCH EXISTING FLOORING & STAIR TREAD/RISER PRODUCTS AND COLORS IN STAIR 1.
3. REPLACE EXISTING CLIPS AT TOP END OF ALL HANGERS FOR ACOUSTIC CEILING TILE SUSPENSION GRID WITH PIPE HANGER CLAMPS, AND RE-LEVEL SUSPENSION GRID, (WI-20).
4. APPLY RB TO FACE OF EXISTING WOOD BASE.
5. PT MAS FULL HEIGHT AT EAST & WEST WALLS; TO 10' AFF AT SOUTH WALL.
6. PAINT ALL H.M. DOOR AND WONDOW FRAMES IN THIS ROOM. DO NOT PAINT ALUM. FRAMES OR WOOD DOORS.
7. REMOVE VWF, PROVIDE LEVEL 5 FINISH AND PAINT AT KITCHENETTE ONLY PER DETAIL 10/A-501.
8. DO NOT PAINT METAL RADIANT HEAT ENCLOSURE BELOW WINDOWS.
9. PAINT ELEVATOR DOOR AND FRAME.
10. REPAIR EDGES AND SEAMS OF EXISTING FINISHES, PAINT NEW GWB SOFFIT (WI-17).

DOOR REHAB SCHEDULE

DOOR NO.	NOMINAL DOOR SIZE	WALL TYPE	FRAME	DOOR(S)	LITES	RATING	INT/EXT	HARDWARE	ACCESSORIES	WI-# REF
110	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE	3-HOUR	INT	REPLACE ALL	SIGN PER KEYED NOTE 1 BOTH SIDES	WI-38a
123A	(2) 3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE	3-HOUR	INT	REPLACE ALL	SIGN PER KEYED NOTE 1 BOTH SIDES	WI-38a
127A	(2) 3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE	3-HOUR	INT	REPLACE ALL	SIGN PER KEYED NOTE 1 BOTH SIDES	WI-38a
129A	(2) 3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE	3-HOUR	INT	REPLACE ALL	SIGN PER KEYED NOTE 1 BOTH SIDES	WI-38a
S2A	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE	3-HOUR	INT	REPLACE ALL	SIGN PER KEYED NOTE 1 BOTH SIDES	WI-38a
131A	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
131B	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
131C	8-0 X 10-0	MASONRY	(KEEP)	(KEEP)	N/A		EXT	NEW WEATHERSEALS 4 SIDES	INSTALL THRESHOLD PER DETAIL 10/A-501	WI-38c
S2B	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
129B	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
130	(2) 3-4 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
127B	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
123B	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b
S1B	3-0 x 7-2	MASONRY	REPLACE	REPLACE	NONE		EXT	REPLACE ALL		WI-38b

DOOR SCHEDULE GENERAL NOTES:
1. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE ORDERING REPLACEMENTS.
2. SEE SPECIFICATIONS FOR DETAILED REQUIREMENTS FOR NEW ITEMS.
3. PAINT ALL NEW DOORS AND FRAMES TO MATCH EXISTING. SEE PAINTING SPECIFICATIONS.
4. CAULK PERIMETERS OF FRAMES ON BOTH SIDES.
5. REMOVE ALL EXISTING CAULK AND EXISTING FASTENERS AND REPAIR AND PREP SURFACES AS NEEDED FOR "AS-NEW" INSTALLATION.
6. NEW HARDWARE MFR, GRADE, STYLE AND FUNCTIONS TO MATCH EXISTING UNLESS NOTED OTHERWISE. ALL KEYING TO MATCH EXISTING.
7. SIZE, TYPE, AND HAND OF NEW DOORS AND FRAMES TO MATCH EXISTING UNO. NEW MATERIAL AND GAUGES PER SPECIFICATIONS.
8. ALL FRAMES TO BE FULLY WELDED OVER ENTIRE PROFILE AND PINNED WITHIN EXISTING OPENINGS.
9. ALL DOOR LEAVES TO BE FULLY WELDED SEAMLESS ON ALL EDGES TO EXCLUDE WATER.
10. ALL HARDWARE ON EXTERIOR DOORS AND FRAMES TO BE SEALED DURING INSTALLATION TO EXCLUDE WATER FROM FRAME AND DOOR LEAVES.
11. THRESHOLDS TO BE SET IN CONTINUOUS BED OF SEALANT TO EXCLUDE DRIVEN RAIN.
12. SALVAGE ALL REPLACED LOCKS, LATCHSETS, HINGES AND CLOSERS TO OWNER. LABEL WITH ORIGINAL DOOR LOCATION.
13. DO NOT INSTALL HOLD-OPEN DEVICES ON FIRE RATED DOORS.
14. INSTALL FIRE RATED DOORS PER NFPA.
15. REMOVE, REPLACE, AND RESERCURE INDIVIDUAL DOORS WITHIN THE SAME WORK DAY. DO NOT LEAVE UNSECURED OPENING UNATTENDED.

DOOR SCHEDULE KEYED NOTES:
1. SIGN: "FIRE DOOR; KEEP CLOSED; DO NOT BLOCK; DO NOT FASTEN OPEN" 5"H x 7"W; SELF-ADHESIVE; BRADY (EMEDCO SKU 28520FL)

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SHEET CONTENTS
SCHEDULES

SHEET NO.:
A-601

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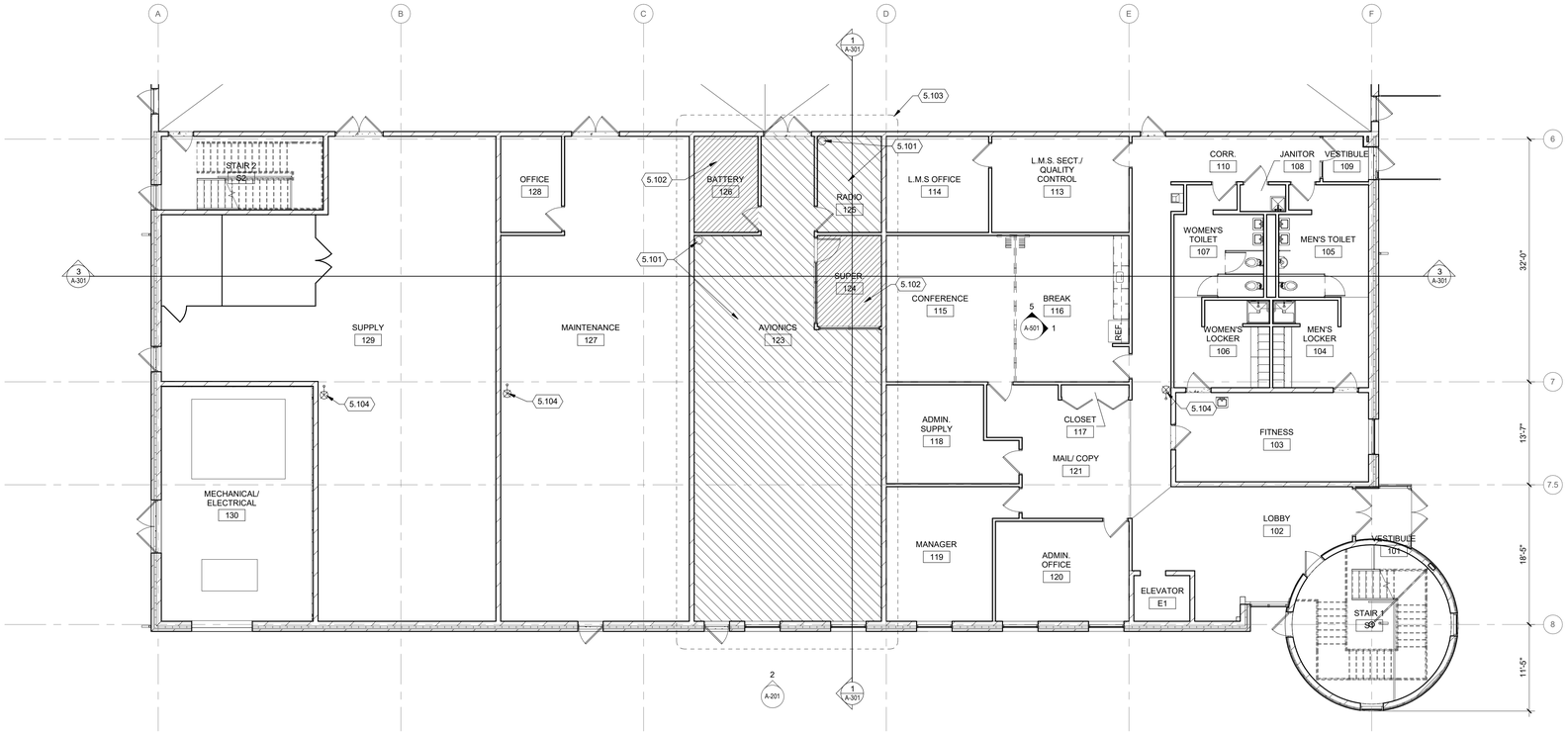
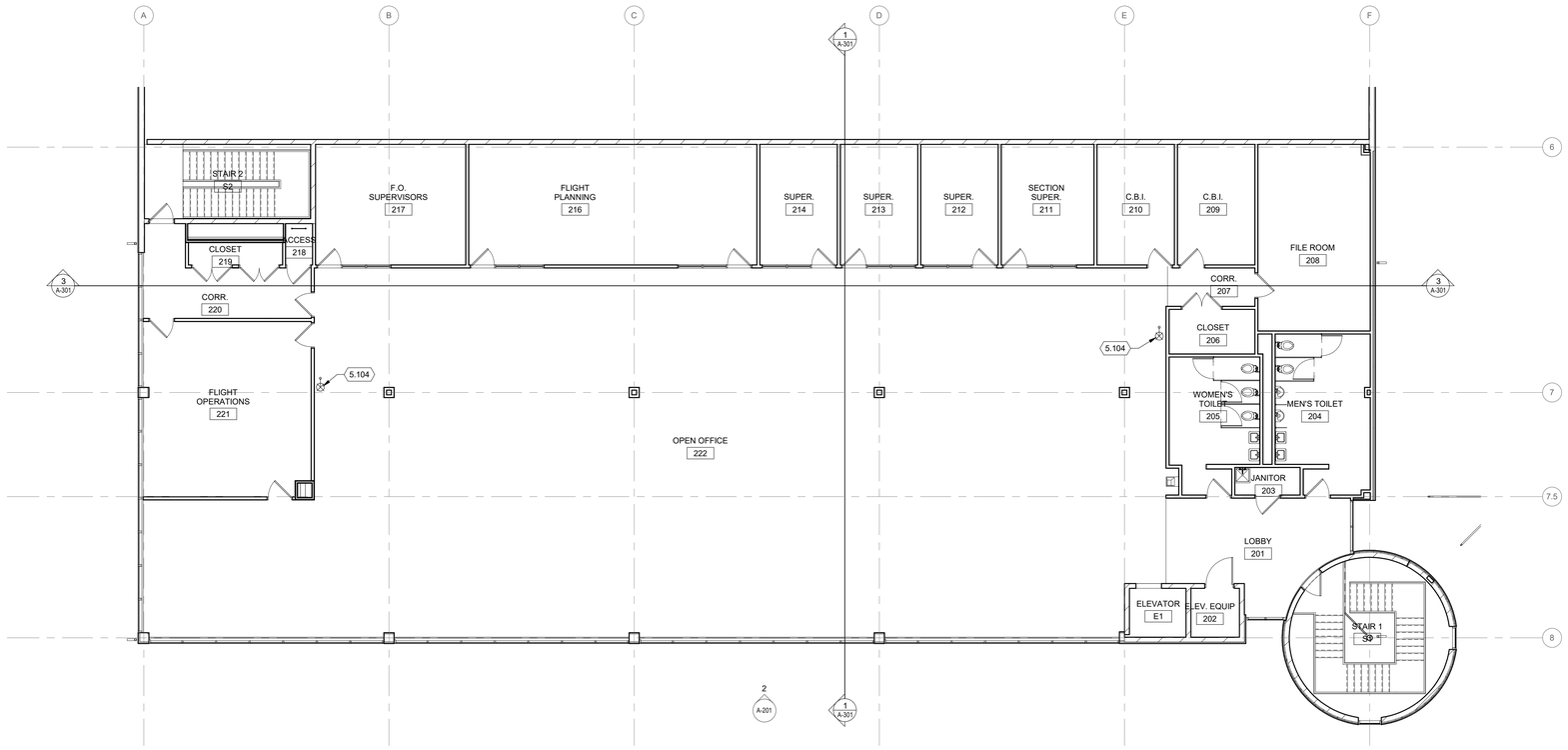


FIRST FLOOR PLAN

1/8" = 1'-0"



SECOND FLOOR PLAN

1/8" = 1'-0"

FIRE PROTECTION PLAN - GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. WORK SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES, INDUSTRY STANDARDS AND LOCAL REQUIREMENTS.
3. PROVIDE COMPLETE DESIGN BY LICENSED FIRE PROTECTION DESIGNER AND ALL SUBMITTALS NECESSARY TO ATTAIN APPROVAL OF GOVERNING AGENCIES.
4. INCLUDE ALL MODIFICATIONS AND INTERCONNECTIONS TO EXISTING FIRE PROTECTION, FIRE ALARM, ELECTRICAL, AND MECHANICAL SYSTEMS AND ALL NEW SYSTEM COMPONENTS NECESSARY TO PROPERLY COMPLETE AND INTEGRATE THE REQUIRED WORK.
5. PROVIDE SUBMITTALS FOR NEW SYSTEMS TO A/E FOR REVIEW FOR GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS.
6. PROVIDE FINAL SYSTEM DOCUMENTS AS APPROVED BY GOVERNING AGENCIES.
7. RESTORE/REPLACE ANY MATERIALS AND FINISHES DISTURBED BY THE WORK TO MATCH EXISTING.
8. MAINTAIN CODE COMPLIANCE AT ALL TIMES DURING THE WORK.
9. COORDINATE TEMPORARY OUTAGES WITH THE OWNER.
10. REMOVE ANY COMPONENTS NO LONGER NEEDED FOR THE NEW SYSTEM.
11. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES

5.101 REMOVE EXISTING HALON FIRE SUPPRESSIONS SYSTEMS IN AVIONICS ROOM 123 AND RADIO ROOM 125. (REF. WI-1)

5.102 REPLACE EXISTING SPRINKLER HEADS IN BATTERY ROOM 126 AND SUPERVISOR OFFICE 124. RELEASE TEMPERATURE OF NEW HEADS TO BE HIGHER THAN NEW CLEAN-AGENT HEADS. (REF. WI-1)

5.103 PROVIDE A NEW NOVEC 1230 SYSTEM IN AVIONICS ROOM 123, RADIO ROOM 125, BATTERY ROOM 126 AND AVIONICS OFFICE 124. SUPPRESSION SHALL BE ACTIVATED IN ALL ROOMS UPON ACTIVATION IN ANY INDIVIDUAL ROOM. LOCATE CLEAN AGENT TANK AND SYSTEM CONTROLS IN SAME LOCATION AS EXISTING HALON EQUIPMENT IN AVIONICS ROOM123. INCLUDE ADDITIONAL INTERCONNECTIONS AND DEVICES NEEDED TO PROPERLY SHUT DOWN HVAC SYSTEMS AND EXHAUST FANS SERVING THESE ROOMS (REF. WI-1)

5.104 REMOVE EXISTING HOSE STATIONS AND RELATED PIPING TO BEHIND WALL SURFACE (5 THUS). DISCONNECT AND CAP ABANDONED PIPE LEGS AT SOURCE TO ELIMINATE DEAD LEGS AND MEET CODES. (REF. WI-2)

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SHEET CONTENTS
FIRE PROTECTION PLANS

SHEET NO.:
FP100

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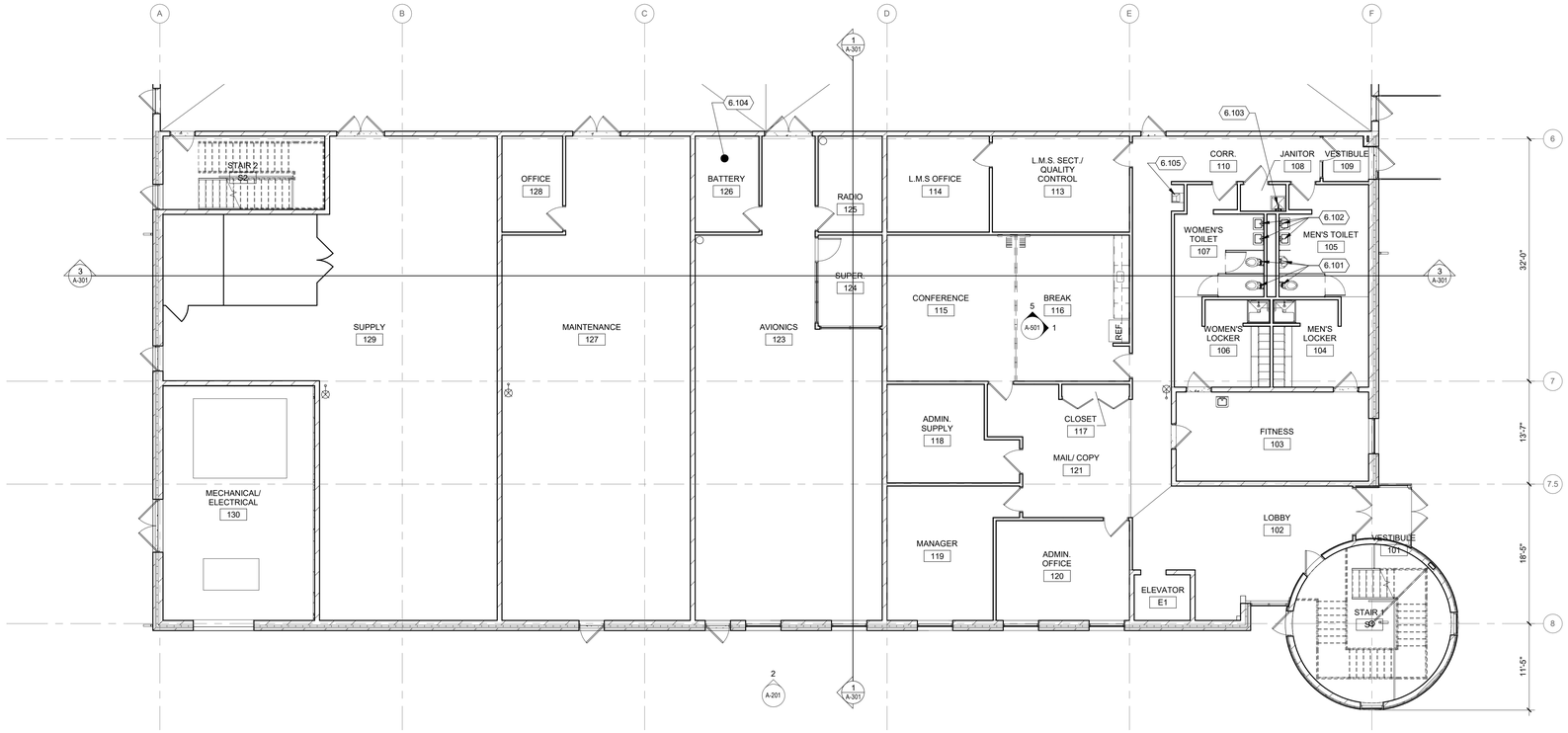
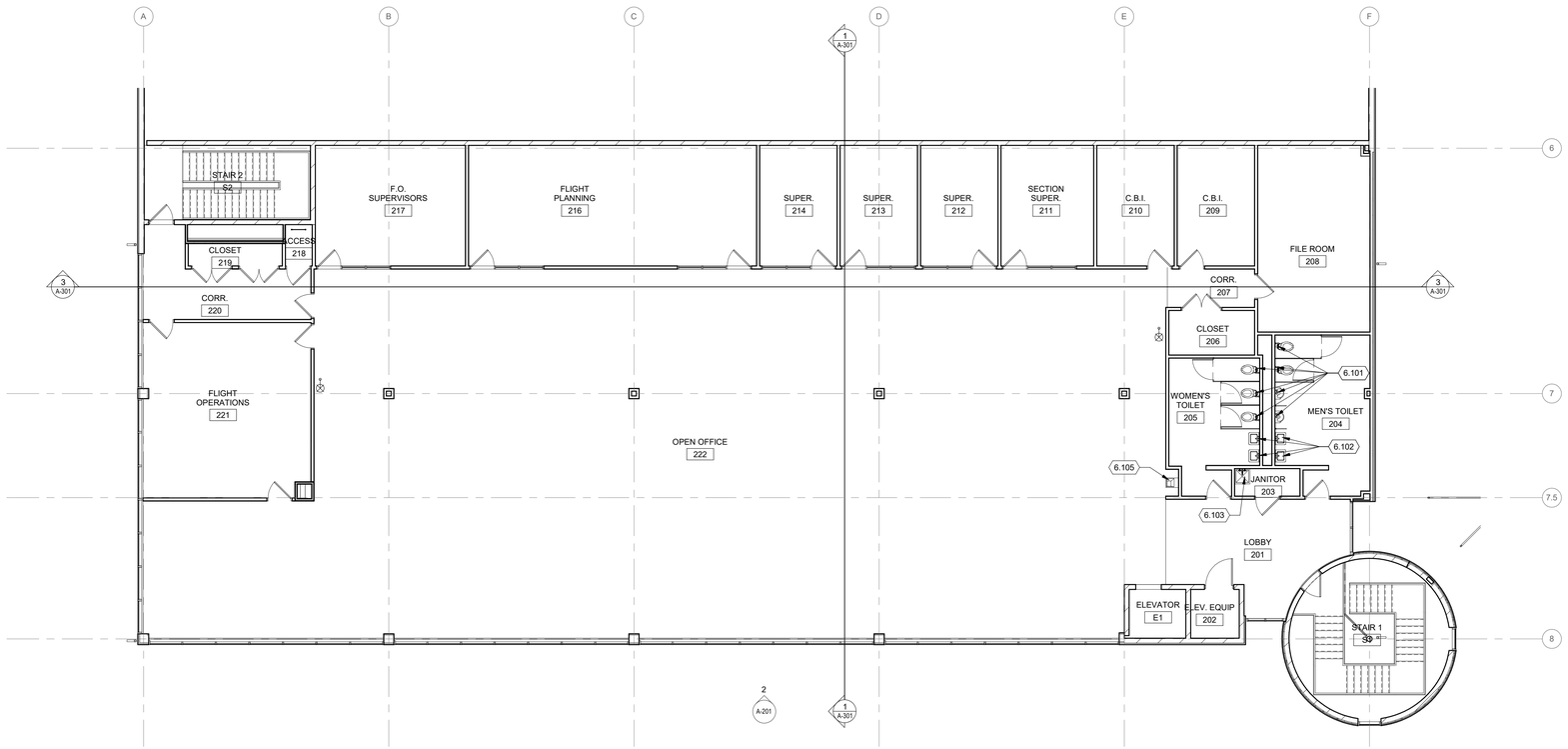


FIRST FLOOR PLAN

1/8" = 1'-0"



SECOND FLOOR PLAN

1/8" = 1'-0"

PLUMBING PLAN - GENERAL NOTES:

1. SEE GENERAL NOTES ON DRAWING G-002 FOR OTHER PROJECT REQUIREMENTS.
2. WORK SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES, INDUSTRY STANDARDS AND LOCAL REQUIREMENTS.
3. INCLUDE ALL MODIFICATIONS TO EXISTING PLUMBING COMPONENTS NECESSARY TO PROPERLY COMPLETE AND INTEGRATE THE REQUIRED WORK.
4. PROVIDE SUBMITTALS FOR NEW COMPONENTS TO A/E FOR REVIEW FOR GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS.
5. RESTORE/REPLACE ANY MATERIALS AND FINISHES DISTURBED BY THE WORK TO MATCH EXISTING.
6. MAINTAIN CODE COMPLIANCE AT ALL TIMES DURING THE WORK.
7. COORDINATE TEMPORARY OUTAGES WITH THE OWNER.
8. SEE MECHANICAL DRAWINGS FOR OTHER PLUMBING RELATED UPGRADES.
9. CLEAN AND FLUSH PLUMBING COMPONENTS OF ALL CONTAMINANTS.
10. TEST ALL JOINTS AND DEVICES TO ENSURE PROPER LEAK FREE INSTALLATION.

KEYED NOTES

6.101 REPLACE FLUSH VALVES AND ASSOCIATED STOP VALVES AND PIPE FITTINGS TO MATCH EXISTING AT ALL TOILETS (8 THUS) AND URINALS (3 THUS). (REF. WI-18A)

6.102 REPLACE FAUCETS AT LAVATORIES IN TOILET ROOMS WITH EQUAL OR BETTER GRADE MANUAL OPERATION FAUCETS (8 THUS). (REF. WI-18B)

6.103 REPLACE FAUCETS AT SERVICE SINKS IN JANITORS CLOSETS WITH EQUAL OR BETTER GRADE MANUAL OPERATION FAUCETS (2 THUS). (REF. WI-18C)

6.104 REPLACE FAUCET AT UTILTY SINK IN BATTERY ROOM 126 WITH EQUAL OR BETTER GRADE MANUAL OPERATION FAUCET (1 THUS). (REF. WI-18D)

6.105 REPLACE ELECTRIC WATER COOLER WITH ADA COMPLIANT EWC. MODIFY WALL FRAMING, PLUMBING AND ELECTRICAL SUPPLY AS NEEDED. RESTORE FINISHES TO MATCH EXISTING. (REF. WI-18E)

VALVES AND FAUCETS

1. THE FOLLOWING MAUNFACTURERS AND PRODUCTS ESTABLISH THE MINIMUM LEVEL OF QUALITY REQUIRED FOR NEW ITEMS.
2. FIELD VERIFY ALL EXISTING CONDITIONS AND PROVIDE SPECIFIC PRODUCTS/ MODELS/FEATURES/CONFIGURATIONS THAT ARE COMPATIBLE WITH EXISTING FIXTURES AND CONDITIONS.
3. MATCH EXISTING FINISHES UNLESS NOTED OTHERWISE.
4. FLUSH VALVES FOR WATER CLOSETS:
   A. SLOAN ROYAL 111 SERIES EXPOSED MANUAL FLUSHMETER
      a. POLISHED CHROME FINISH
      b. SINGLE FLUSH
      c. PROVIDE FLUSH VOLUME COMPATIBLE WITH EXISTING FIXTURE
5. FLUSH VALVES FOR URINALS:
   A. SLOAN ROYAL 186 SERIES EXPOSED MANUAL FLUSHMETER
      a. POLISHED CHROME FINISH
      b. SINGLE FLUSH
      c. PROVIDE FLUSH VOLUME COMPATIBLE WITH EXISTING FIXTURE
6. FAUCETS AT LAVATORIES:
   A. CHICAGO FAUCETS 420-E2805ABCP DECK MOUNTED SINGLE-LEVER MANUAL SINK FAUCET
      a. CHROME PLATED
      b. RIGID CAST BRASS SPOUT
      c. PRESSURE COMENSATING
      d. 0.5 GPM
      e. WASTE STRAINER #327-AC0CP
7. FAUCETS AT SERVICE SINKS / UTILITY SINKS:
   A. CHICAGO FAUCETS 540-LD897SXKCCP WALL MOUNTED HOT AND COLD WATER SINK FAUCET
      a. CHROME FINISH
8. ELECTRIC WATER COOLERS:
   A. ELKAY EZS8GBWSLK
      a. WALL MOUNT
      b. ADA
      c. NON-FILTERED
      d. 8GPH CHILLER
      e. LIGHT GRAY GRANITE CABINET
      f. RE-USE / MODIFY / REPLACE IN-WALL CARRIER AS NECESSARY
      g. BOTTLE FILLER

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FAA FIS HANGAR REHABILITATION

16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI 49015

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DATE: March 29, 2019
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SHEET CONTENTS
PLUMBING PLANS

SHEET NO.:
P-100

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HVAC SYMBOLS

- AIRFLOW (SUPPLY/OUTSIDE AIR)
- AIRFLOW (RETURN/EXHAUST)
- DG — DOOR GRILLE
- DCO — 3/4" DOOR UNDERCUT
- SUPPLY OR OUTDOOR AIR
- RETURN OR TRANSFER
- EXHAUST
- SUPPLY DUCT TURNED AWAY
- SUPPLY DUCT TURNED TOWARD
- 12x12 — RECTANGLE DUCT SIZE (FIRST FIGURE IS SIDE SHOWN)
- 12ø — ROUND DUCT (RIGID)
- 12/12a — OVAL DUCT
- S — SMOKE DETECTOR
- FLEXIBLE CONNECTION
- DUCT (FLEXIBLE ROUND)
- TURNING VANES
- TRANSITION (SQUARE-TO-ROUND)
- BD — BACKDRAFT DAMPER
- VOLUME DAMPER
- AD / FD — FIRE DAMPER & ACCESS DOOR
- AD / SD — SMOKE DAMPER & ACCESS DOOR
- AD / FSD — COMBINATION FIRE/SMOKE DAMPER & ACCESS DOOR
- MOD — MOTOR OPERATED DAMPER
- AP — CEILING MOUNTED ACCESS PANEL
- A / 100 — AIR OUTLET/INLET TYPE (CFM)

MECHANICAL PIPING

- A — COMPRESSED AIR
- BFW — BOILER FEED WATER
- BSD — BOILER SURFACE BLOW DOWN
- BBD — BOILER BOTTOM BLOW DOWN
- CF — CHEMICAL FEED
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- CTS — COOLING TOWER WATER SUPPLY
- CTR — COOLING TOWER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN
- CD — CONDENSATE DRAIN
- GWS — GLYCOL WATER SUPPLY
- GWR — GLYCOL WATER RETURN
- HPCR — HIGH PRESSURE CONDENSATE RETURN
- HPS — HIGH PRESSURE STEAM
- HWS — HOT WATER SUPPLY
- HWR — HOT WATER RETURN
- IWS — ICE WATER SUPPLY
- IWR — ICE WATER RETURN
- LP — LIQUID PETROLEUM
- LPS — LOW PRESSURE STEAM
- LPCR — LOW PRESSURE CONDENSATE RETURN
- MPS — MEDIUM PRESSURE STEAM
- MPCR — MEDIUM PRESSURE CONDENSATE RETURN
- G — NATURAL GAS
- PCR — PUMPED CONDENSATE RETURN
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- RHG — REFRIGERANT HOT GAS
- SRV — STEAM RELIEF VENT
- VAC — VACUUM

PIPING SYMBOLS

- PIPE TURNED TOWARD
- PIPE TURNED AWAY
- PIPE TURNED AWAY
- PIPE TURNED TOWARD
- FLEXIBLE CONNECTOR
- UNION
- FLANGES
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- PIPE CAP/CLEAN OUT
- PIPE PLUG
- FLUID FLOW DIRECTION
- PG — PIPE GUIDE
- PA — PIPE ANCHOR
- PITCH — PIPE PITCH DIRECTION
- PRESSURE GAUGE
- TEMPERATURE GAUGE
- WATER HAMMER ARRESTOR
- AV — AIR VENT (AUTO)
- MV — AIR VENT (MANUAL)
- AUTOMATIC CONTROL VALVE (2-WAY)
- AUTOMATIC CONTROL VALVE (3-WAY)
- BALL VALVE
- BALANCING VALVE
- BUTTERFLY VALVE
- BACKFLOW PREVENTION VALVE
- CHECK VALVE
- EQUIPMENT DRAIN VALVE
- FILTER
- FLOW MEASUREMENT STATION
- GATE VALVE
- GAUGE CONNECTION
- GLOBE ANGLE VALVE
- GLOBE VALVE
- ISOLATION/SHUT-OFF/MANUAL VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE
- PRESSURE REGULATING VALVE
- RELIEF VALVE
- SOLENOID VALVE ONE-WAY (ELECTRIC)
- STRAINER
- STRAINER WITH BLOW OFF VALVE AND NIPPLE
- THROTTLING VALVE
- VACUUM BREAKER
- PUMP
- FS — FLOW SENSOR
- LS — LEVEL SENSOR
- PS — PRESSURE SENSOR
- TS — TEMPERATURE SENSOR

GENERAL SYMBOLS

- CO — CARBON MONOXIDE (CO) SENSOR
- CO2 — CARBON DIOXIDE (CO2) SENSOR
- DP — DIFFERENTIAL PRESSURE SENSOR
- NO2 — NITROGEN DIOXIDE (NO2) SENSOR
- RS — ROOM SENSOR
- SP — STATIC PRESSURE SENSOR
- H — HUMIDISTAT
- S/I — SNOW/ICE SENSOR
- TS — TEMPERATURE SENSOR
- T — THERMOSTAT
- T — INSULATED BASE THERMOSTAT
- $ — SWITCH
- NEW CONNECTION TO EXISTING
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW TO BE INSTALLED

GENERAL NOTES

1. GENERAL NOTES ON SHEET G-002 APPLY TO ALL WORK.
2. THE MECHANICAL CONTRACTOR SHALL EXAMINE ALL CONTRACT DOCUMENTS AND IS REQUIRED TO DO ALL WORK WHICH IS SHOWN ON THE DRAWINGS, STATED IN THE SPECIFICATIONS, OR REASONABLY IMPLIED AS NECESSARY TO COMPLETE THEIR DIVISION OF WORK FOR THIS PROJECT REGARDLESS OF WHERE IN THE CONTRACT DOCUMENTS THE WORK IS REPRESENTED. MECHANICAL CONTRACTOR TO COORDINATE WORK WITH ALL OTHER TRADES. ALL OTHER TRADE DOCUMENTS ARE TO BE CONSIDERED PART OF THIS CONTRACTORS DOCUMENTS WITH RESPECT TO COORDINATION OF WORK BETWEEN TRADES OF WORK.
3. ABBREVIATIONS AND SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL ABBREVIATIONS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.
4. THESE DRAWINGS ARE DESIGN DRAWINGS AND ARE DIAGRAMMATIC, THEY MAY NOT SHOW ALL PHYSICAL ARRANGEMENTS, OFFSETS, BENDS, OR ELBOWS WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF VARIOUS MATERIALS, EQUIPMENT, PIPING AND DUCTWORK SYSTEMS IN ALLOTTED SPACES. EXAMINE THESE AND OTHER AVAILABLE DRAWINGS TO DETERMINE SPACE LIMITATIONS AND INTERFERENCES. MAKE ANY MINOR CHANGES IN LOCATIONS OF EQUIPMENT, PIPING, AND DUCTWORK FROM THAT SHOWN ON DRAWINGS AND FOR ALL PHYSICAL DETAILS REQUIRED FOR INSTALLATION. COST FOR ADAPTING WORK TO JOB SITE CONDITIONS SHALL NOT BE CONSIDERED AS BASIS OF AN EXTRA COST TO CONTRACT.
5. ELEVATION OF PIPING AND DUCTWORK INDICATED ON THESE DRAWINGS ARE TO BE USED AS GUIDELINES TO ASSIST WITH INSTALLATIONS. MINOR CHANGES TO THESE ELEVATIONS MAY BE NECESSARY TO ELIMINATE UNFORESEEN INTERFERENCES. ANY CHANGE IN ELEVATION SHALL BE APPROVED PRIOR TO CHANGE.
6. ANY AND ALL INFORMATION SHOWN ON THESE DRAWINGS WITH RESPECT TO EXISTING STRUCTURES, UTILITIES, AND MECHANICAL SYSTEMS, IS AS EXACT AS COULD BE SECURED. THE INFORMATION IS NOT WARRANTED NOR GUARANTEED ACCURATE, FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH WORK.
7. ACCURATE AND LEGIBLE AS-BUILT DRAWING MARKUPS SHALL BE MAINTAINED AT THE JOB SITE, AND BE SUBMITTED PRIOR TO FINAL PAYMENT FOR THE CREATION OF FINAL RECORD DRAWINGS.
8. ALL NEW AND EXISTING ROOFING SYSTEMS SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
9. TEMPORARILY PATCH ALL ROOF OPENINGS WATERTIGHT UNTIL FINAL CLOSURE CAN BE MADE.
10. VERIFY ALL EQUIPMENT LOCATIONS AND PIPE AND DUCT ROUTING WITH OWNER PRIOR TO INSTALLATION.
11. SEQUENCE OF WORK AND/OR PLACE OF COMMENCEMENT OF WORK SHALL BE APPROVED PRIOR TO WORK BEING STARTED. SCHEDULED SHUTDOWNS SHALL BE CLOSELY COORDINATED WITH EXISTING OPERATIONS.
12. MAINTAIN 3'-0" CLEAR HORIZONTALLY IN FRONT OF ALL ELECTRICAL EQUIPMENT.
13. COORDINATE POWER REQUIREMENTS FOR ALL POWER TO MECHANICAL EQUIPMENT INCLUDING CONTROL SYSTEM WITH ELECTRICAL CONTRACTOR AND INSURE ALL COSTS ASSOCIATED WITH SUCH ARE INCLUDED IN THE PROJECT BID COST. PROVIDE ELECTRICAL POWER, TRANFORMERS, RELAYS, ETC. AS NECESSARY TO ALL HVAC AND MECHANICAL CONTROLS.
14. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES ON ALL EQUIPMENT.

ABBREVIATIONS

A	AMPS
ABI	ALTERNATE BID ITEM
AC	DUCTLESS SPLIT SYSTEM
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ACH	AIR COOLED CHILLER
ACOMP	AIR COMPRESSOR
ACU	AIR CONDITIONING UNIT
ACV	AUTOMATIC CONTROL VALVE
AD	ACCESS DOOR OR AIR DROP
AF	AIR FILTER OR AIR FOIL
AFC	AFTER COOLER
AFF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMD	AIR MIXING DEVICE
ANG	AIR NATIONAL GUARD
APPROX	APPROXIMATELY
AS	AIR SEPARATOR
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AT	AIR TERMINAL
AWC	ABSORPTION CHILLER
BC	BOOSTER COIL
BH	BOOSTER HUMIDIFIER
BHP	BRAKE HORSEPOWER
BHR	CONTINUOUS BLOWDOWN HEAT RECOVERY SYSTEM
BI	BACKWARD INCLINED
BLD	BOILER BLOWDOWN SEPARATOR
BPD	BACKFLOW PREVENTION DEVICE
BRS	BRASS
BRZ	BRONZE
BS	BLACK (MILD) STEEL
BSB	BRANCH SELECTOR BOX
BTU	BUFFER TANK
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BW	BUTTWELD
BZ	BRONZE
C	CONVECTOR
CA	COMBUSTION AIR
CAD	COMPRESSED AIR DRYER
CAF	COMPRESSED AIR FILTER
CC	COOLING COIL OR CONTROLS CONTRACTOR
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
COMP	COMPRESSOR
COND	CONDENSATE
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CRP	CONDENSATE RETURN PUMP
CS	CENTRIFUGAL SEPARATOR
CT	COOLING TOWER
CTCLG	CLOSE TO CEILING
CTCLM	CLOSE TO COLUMN
CTW	CLOSE TO WALL
CU	COPPER
CUH	CABINET UNIT HEATER
DAC	DOOR AIR CURTAIN
DBA	DECIBELS, BAND A
DC	DUST COLLECTOR
DCVA	DOUBLE CHECK VALVE ASSEMBLY BPD
DDC	DIRECT DIGITAL CONTROL
DDH	DESICCANT DEHUMIDIFIER
DEMO	DEMOLISH
DF	DESTRATIFICATION FAN
DFD	DIVISION OF FACILITIES DEVELOPMENT
DIA	DIAMETER
DIM	DIMENSION
DISCH	DISCHARGE
DMPR	DAMPER
DN	DOWN
DOD	DEPARTMENT OF DEFENSE
DRC	DRY COOLER
DWG	DRAWING
DX	DIRECT EXPANSION
E	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBH	ELECTRIC BASEBOARD HEATER
EC	EVAPORATIVE COOLER OR ELECTRICAL CONTRACTOR
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFF	EFFICIENCY
EFT	ENTERING FLUID TEMPERATURE
EG	EXHAUST GRILLE
EGLY	ETHYLENE GLYCOL
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
EOM	END OF MAIN
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
ERV	AIR-TO-AIR HEAT EXCHANGER
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EWH	ELECTRIC WALL HEATER
EWT	ENTERING WATER TEMPERATURE
°F	FAHRENHEIT
FAF	FORCED AIR FURNACE
FC	FLUID COOLER
FCU	FAN COIL UNIT
FE	FUME EXTRACTOR
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FOP	FUEL OIL PUMP
FPM	FEET PER MINUTE
FRP	FIBERGLASS REINFORCED PLASTIC
FSD	COMBINATION FIRE/SMOKE DAMPER
FT	FLASH TANK OR FEET
FTC	FINNED TUBE CONVECTOR
FTWC	FEET WATER COLUMN PRESSURE
GA	GAUGE
GAL	GALLON
GC	GENERAL CONTRACTOR
GFT	GLYCOL FILL TANK
GPM	GALLONS PER MINUTE
GS	GALVANIZED STEEL
H	HEIGHT
HB	HUMIDIFICATION BOILER
HC	HEATING COIL
HD	HEAD (FT)
HDB	HYDROSTATIC DESIGN BASIS
HP	HEAT PUMP OR HORSEPOWER
HPC	ERV HEAT PUMP COIL
HR	HOSE REEL
HRW	ROTARY AIR-TO-AIR EXCHANGER
HUM	HUMIDIFIER
HWB	HOT WATER BOILER
HX	FLUID HEAT EXCHANGER
HZ	HERTZ
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCH
INHG	INCHES MERCURY PRESSURE
INWC	INCHES WATER COLUMN PRESSURE
IR	INFRARED HEATER
KH	KITCHEN HOOD
KW	KILOWATT
L	LOUVER OR LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUNDS
LD	LINEAR DIFFUSER
LFT	LEAVING FLUID TEMPERATURE
LPG	LIQUIFIED PETROLEUM GAS
LS	LEVEL SWITCH
LWT	LEAVING WATER TEMPERATURE
MADP	MAXIMUM ALLOWABLE DIFFERENTIAL PRESSURE
MAU	MAKE-UP AIR UNIT
MAWP	MAXIMUM ALLOWABLE WORKING PRESSURE
MAX	MAXIMUM
MBH	THOUSANDS BTU'S PER HOUR
MC	MECHANICAL CONTRACTOR OR MECHANICAL COUPLING
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MIN	MINIMUM
MMBH	MILLION BTU PER HOUR
MOCP	MINIMUM OVER CURRENT PROTECTION
MOD	MOTOR OPERATED CONTROL DAMPER
MSS	MANUFACTURERS STANDARDIZATION SOCIETY
MTL	MATERIAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NH	NO-HUB
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPSH	NET POSITIVE SUCTION HEAD
NPSHA	NPSH AVAILABLE
NPSHR	NPSH REQUIRED
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
P	HYDRONIC PUMP OR PRESSURE
PC	PLUMBING CONTRACTOR
PCP	PRESSURE POWERED CONDENSATE PUMP
PD	PRESSURE DROP/DIFFERENTIAL
PG	PROPYLENE GLYCOL
PH	PHASE
PPH	POUND PER HOUR
PROP	PROPELLER
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSID	PSI DIFFERENTIAL
PSIG	PSI GAGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PTHP	PACKAGED TERMINAL HEAT PUMP
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RCP	RADIANT CEILING PANEL
RDH	REFRIGERATED DEHUMIDIFIER
RG	RETURN GRILLE
RH	RELIEF HOOD
RPM	REVOLUTIONS PER MINUTE
RTD	RESISTIVE THERMAL DEVICE
RTU	ROOF TOP UNIT
RZ	RADIANT FLOOR HEATING ZONE
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SB	SECURITY BARRIER
SCFM	STANDARD CFM
SCH	SCHEDULE
SD	SLOT DIFFUSER
SD	SOLDER
SF	STEAM FILTER OR SUPPLY FAN
SG	SUPPLY GRILLE
SHT	SHEET
SMLS	SEAMLESS
SMS	SNOW MELTING SYSTEM DISTRIBUTION MANIFOLD
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
SQ	SQUARE
SRV	SAFETY RELIEF VALVE
SS	STAINLESS STEEL
ST	STEAM TRAP
STD	STANDARD
STL	STEEL
SV	SOLVENT WELD
SW	SOCKET WELD
T	TEMPERATURE
TA	TRANSFER AIR
TCP	TEMPERATURE CONTROL PANEL
TDH	TOTAL DEVELOPED HEAD
TDS	TOTAL DISSOLVED SOLIDS
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TH	THREADED
TMC	TECHNOLOGY MANAGEMENT CENTER
TMV	THERMOSTATIC MIXING VALVE
TONR	TONS COOLING
TYP	TYPICAL
UC	UNIT COOLER
UFC	UNIFIED FACILITIES CRITERIA
UGD	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATOR OR ULTRAVIOLET
V	VOLTS
VA	VENT AIR
VER	VEHICLE EXHAUST REEL
VFD	VARIABLE FREQUENCY DRIVE
VI	VIBRATION ISOLATORS
VLV	VALVE
VRF	VARIABLE REFRIGERANT FLOW
W	WATTS OR WIDTH
WC	WATER COLUMN
WCC	WATER COOLED CONDENSER
WCH	WATER COOLED CHILLER
WF	WATER FILTER
WIV	WATER INLET VALVE
WHA	WATER HAMMER ARRESTOR

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W.K. KELLOGG AIRPORT
FAA FIS HANGAR REHABILITATION

16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI 49015

ISSUED
3/29/19 ISSUED FOR BIDDING

ISSUED FOR BIDDING

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DATE: March 29, 2019
DESIGNED BY: BGD
DRAWN BY: RJH
CHECKED BY: KML
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SHEET CONTENTS
NOTES, SYMBOLS AND ABBREVIATIONS

SHEET NO.:
M-001

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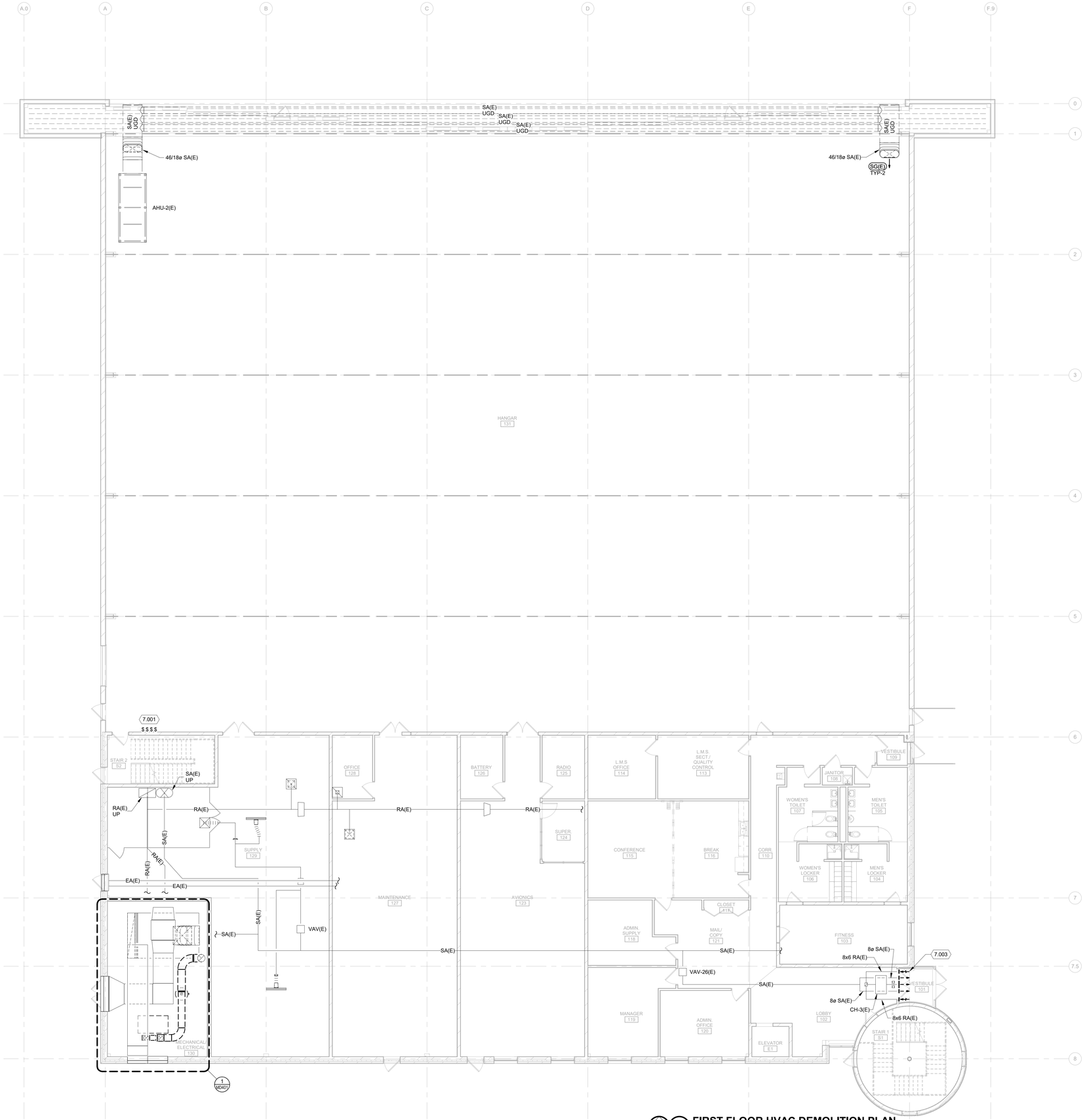

GENERAL HVAC DEMOLITION NOTES:

1. COMPLETELY DEMOLISH ALL EXISTING DUCTWORK AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGER SUPPORTS, ETC. FOR REMAINING DUCT SYSTEM. PLUG OR CAP ALL OPENINGS CREATED BY DUCT DEMOLITION. TEST DUCTWORK AS SPECIFIED, AND INSULATE OR PAINT SAME AS NEW WORK. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
2. COMPLETELY DEMOLISH ALL EXISTING EQUIPMENT AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGERS, SUPPORTS, BASES, CONTROLS, ETC. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
3. DELIVER INDICATED EQUIPMENT TO OWNER'S DESIGNATED STORAGE SPACE ON SITE. PLUG OR CAP ALL EQUIPMENT OPENINGS TO PREVENT DIRT AND MOISTURE FROM ENTERING EQUIPMENT.
4. REINSTALL INDICATED EQUIPMENT, SAME AS NEW WORK, IN NEW LOCATION WHERE INDICATED. COMPLETELY CLEAN AND RESTORE EQUIPMENT TO GOOD OPERATING CONDITION.
5. INSTALL TEMPORARY COVERS OVER EXISTING EXTERIOR ENVELOPE OPENINGS CREATED BY REMOVED EQUIPMENT/DUCT. COVER SHALL BE WATERTIGHT, AND MEET OSHA AND OWNER REQUIREMENTS. COMPLETELY REMOVE TEMPORARY COVER WHEN OPENINGS ARE PATCHED TO FINAL CONDITION. REPAIR ANY DAMAGE TO EXISTING BUILDING COMPONENTS CAUSED BY TEMPORARY COVER.
6. WHERE BRANCH DUCTWORK IS SHOWN TO BE DEMOLISHED BACK TO THE MAIN DUCT AND THE EXISTING MAIN DUCT OPENING IS NOT TO BE RE-USED, CAP AND SEAL THE MAIN DUCT BRANCH OPENING AIRTIGHT.

KEYED NOTES

7.001 DEMOLISH CEILING FAN CONTROLS. IF CONTROLS ARE IN GOOD SHAPE AND COMPATIBLE WITH NEW CEILING FANS, CONTROLLERS MAY BE RE-USED.

7.003 DEMOLISH FIVE EXISTING GRILLES IN VESTIBULE.

N 1 **FIRST FLOOR HVAC DEMOLITION PLAN**
1/8" = 1'-0"

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SHEET CONTENTS
FIRST FLOOR HVAC DEMOLITION PLAN

SHEET NO.:
MD101

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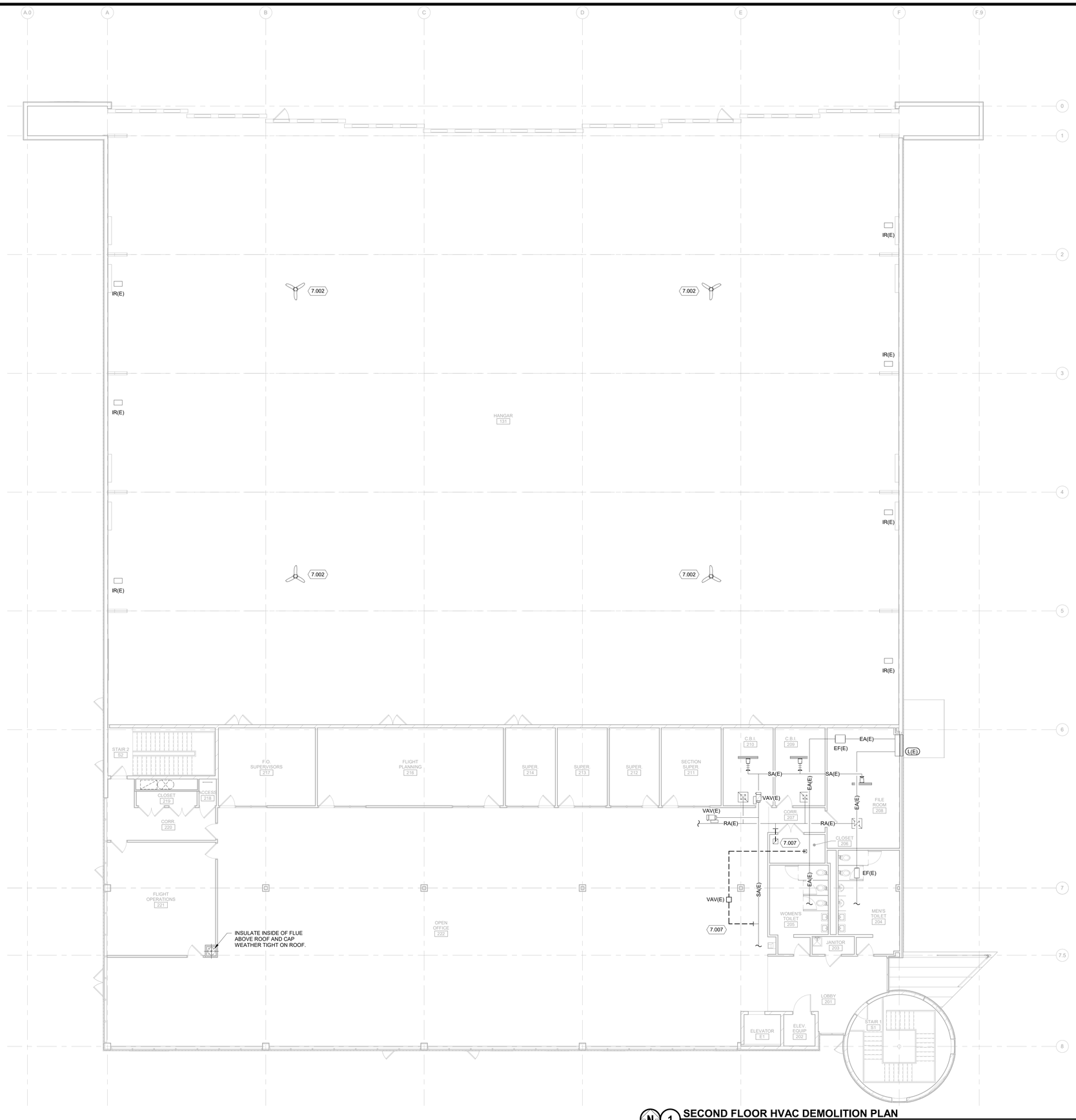

N 1 **SECOND FLOOR HVAC DEMOLITION PLAN**
1/8" = 1'-0"

GENERAL HVAC DEMOLITION NOTES:

1. COMPLETELY DEMOLISH ALL EXISTING DUCTWORK AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGER SUPPORTS, ETC. FOR REMAINING DUCT SYSTEM. PLUG OR CAP ALL OPENINGS CREATED BY DUCT DEMOLITION. TEST DUCTWORK AS SPECIFIED, AND INSULATE OR PAINT SAME AS NEW WORK. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
2. COMPLETELY DEMOLISH ALL EXISTING EQUIPMENT AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGERS, SUPPORTS, BASES, CONTROLS, ETC. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
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6. WHERE BRANCH DUCTWORK IS SHOWN TO BE DEMOLISHED BACK TO THE MAIN DUCT AND THE EXISTING MAIN DUCT OPENING IS NOT TO BE RE-USED, CAP AND SEAL THE MAIN DUCT BRANCH OPENING AIRTIGHT.

KEYED NOTES

7.002 DEMOLISH CEILING FAN.

7.007 DEMOLISH EXISTING SUPPLY AIR DUCT, AIR TERMINAL BOX, RETURN AIR DUCT AND GRILLES AS SHOWN. CAP DUCT AT MAIN.

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SHEET CONTENTS
SECOND FLOOR HVAC DEMOLITION PLAN

SHEET NO.:
MD102

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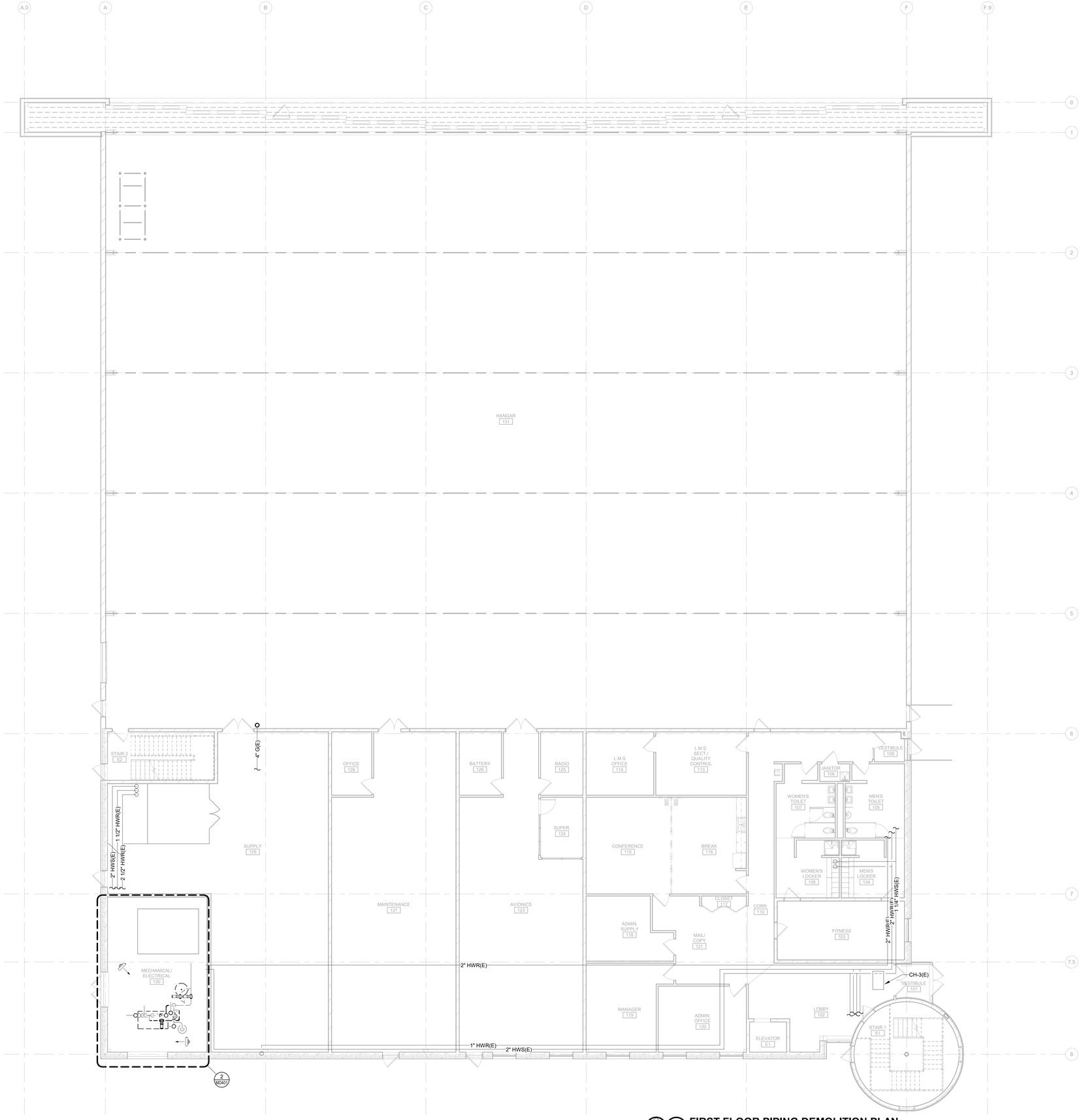

N 1 **FIRST FLOOR PIPING DEMOLITION PLAN**
1/8" = 1'-0"

GENERAL PIPING DEMOLITION NOTES:

1. COMPLETELY DEMOLISH ALL INDICATED EXISTING PIPING SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED PIPING, VALVES, INSULATION, HANGERS, SUPPORTS, ETC. FOR REMAINING PIPING SYSTEMS. PLUG OR CAP ALL OPENINGS CREATED BY PIPING DEMOLITION. TEST PIPING SYSTEMS AS SPECIFIED, AND INSULATE OR PAINT SAME AS NEW WORK. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
2. COMPLETELY DEMOLISH ALL EXISTING EQUIPMENT SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED PIPING, VALVES, INSULATION, HANGERS, SUPPORTS, BASES, CONTROLS, ETC. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
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4. WHERE PIPES ARE REMOVED AND NOT RE-CONNECTED, REMOVE PIPE BACK TO NEXT BRANCH THAT IS TO REMAIN. INSTALL CAPS OR PLUGS ON OPENINGS. PRIME, PAINT, AND INSULATE DISTURBED PIPE SAME AS SPECIFIED FOR NEW WORK.
5. REINSTALL INDICATED EQUIPMENT, SAME AS NEW WORK, IN NEW LOCATION WHERE INDICATED. COMPLETELY CLEAN AND RESTORE EQUIPMENT TO GOOD OPERATING CONDITION.
6. ABANDON IN PLACE UNDERGROUND PIPES SHOWN ON DRAWINGS AS PHANTOM.
7. WHERE PIPES ARE ROUTED INSIDE CMU WALLS, PIPE MAY BE ABANDONED PIPE IN PLACE. REMOVE PIPE TO 1" INSIDE WALL AT BOTH ENDS.
8. WHERE PIPES PASS THROUGH FLOOR SLABS, SAW-CUT SLAB AND REMOVE CONCRETE TO MINIMUM EXTENT NECESSARY TO GAIN ACCESS BELOW SLAB. REMOVE PIPE DOWN TO HORIZONTAL PIPING BELOW FLOOR. SEAL AND CAP ABANDONED PIPE ENDS.
9. COORDINATE WITH ARCHITURAL AND STRUCTURAL TRADES. PATCH EXISTING ROOFS, WALLS, AND FLOORS DISTURBED BY DEMOLITION. RESTORE TO MATCH CONDITION OF ORIGINAL SURROUNDING SURFACES.

KEYED NOTES

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SHEET CONTENTS
FIRST FLOOR PIPING DEMOLITION PLAN

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MD131

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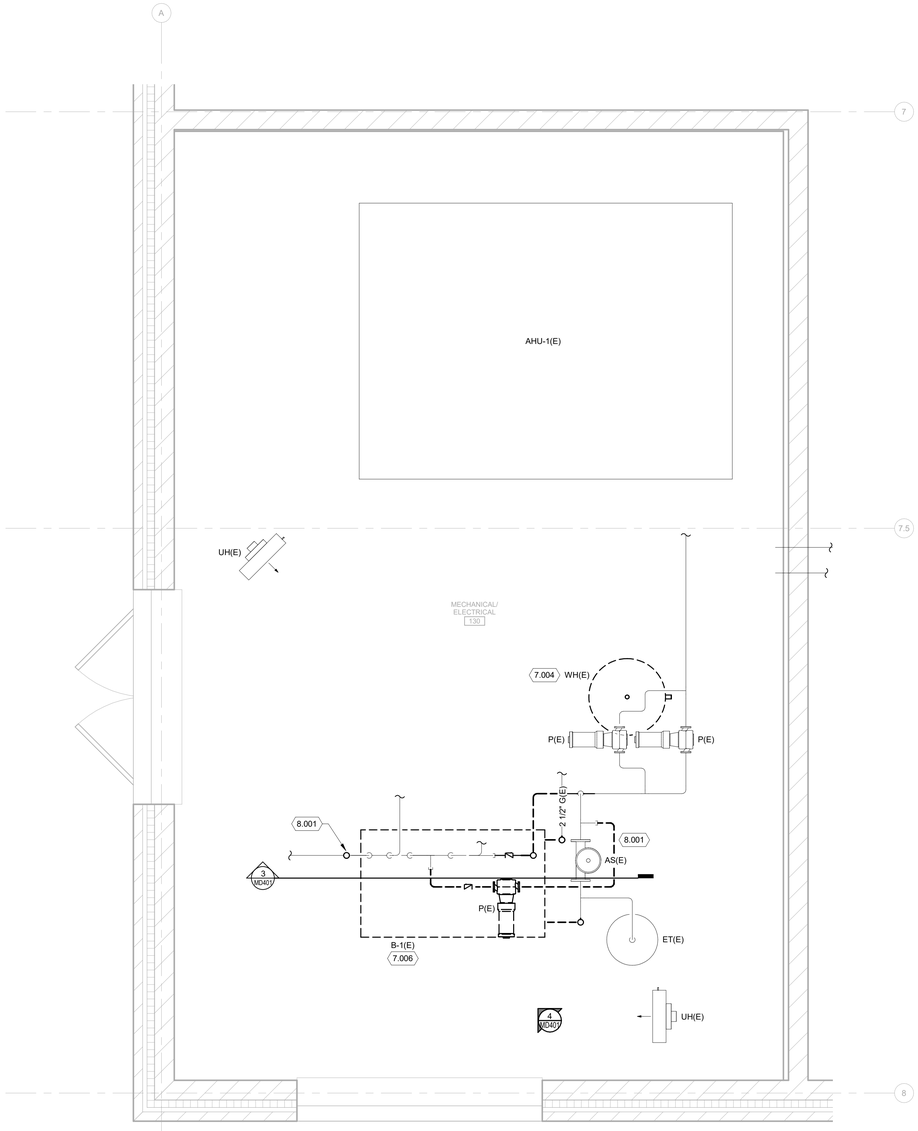
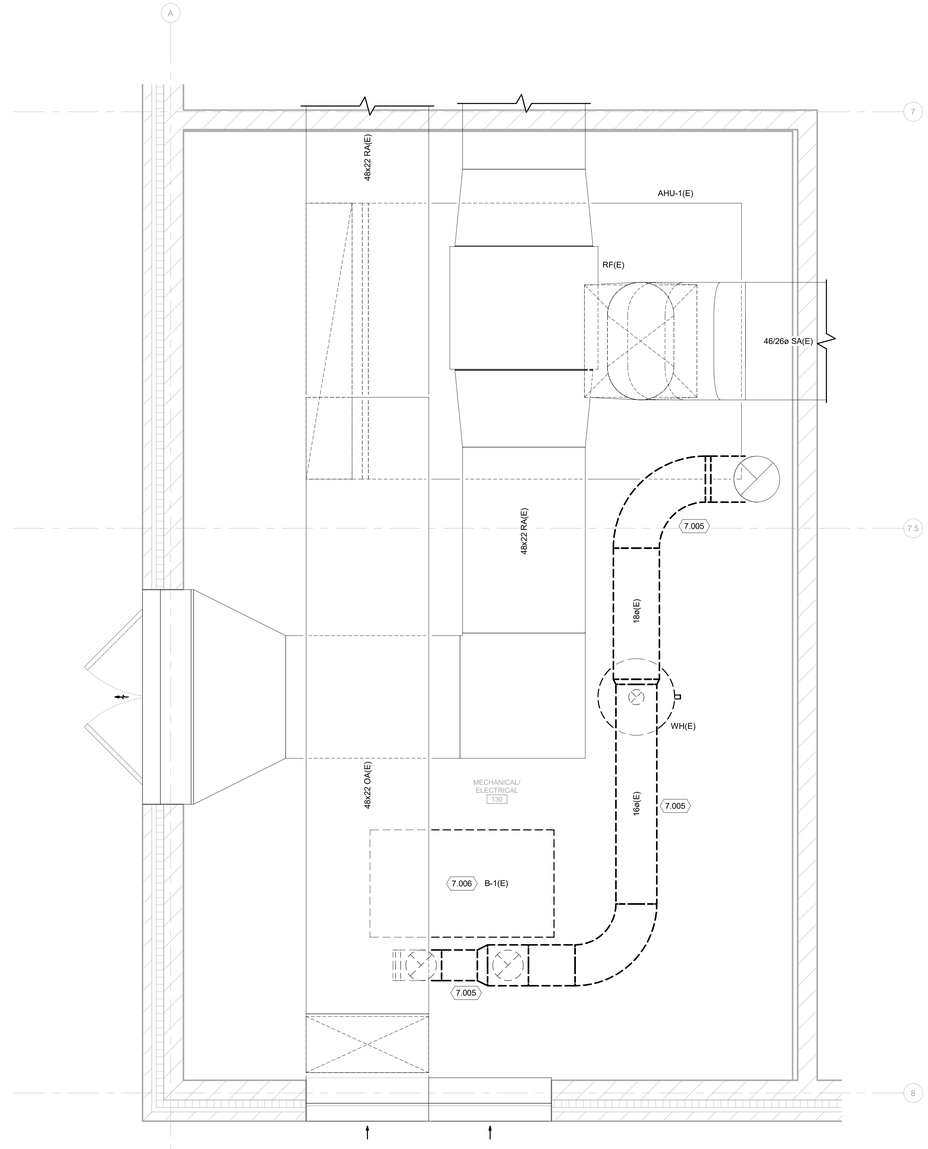


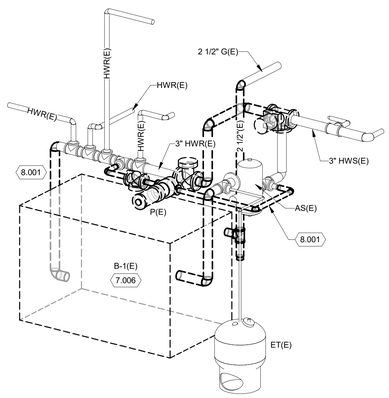
2 ENLARGED MECHANICAL ROOM PIPING DEMOLITION PLAN

1/2" = 1'-0"



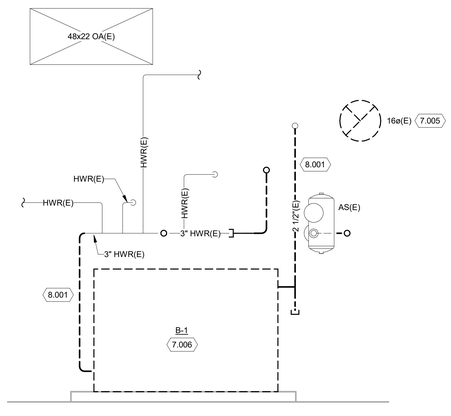
1 ENLARGED MECHANICAL ROOM HVAC DEMOLITION PLAN

1/2" = 1'-0"



4 ISOMETRIC DEMOLITION VIEW OF BOILER PIPING

NO SCALE



3 BOILER PIPING DEMOLITION SECTION

1/2" = 1'-0"

GENERAL HVAC DEMOLITION NOTES:

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7. WHERE PIPES ARE ROUTED INSIDE CMU WALLS, PIPE MAY BE ABANDONED PIPE IN PLACE. REMOVE PIPE TO 1" INSIDE WALL AT BOTH ENDS.
8. WHERE PIPES PASS THROUGH FLOOR SLABS, SAW-CUT SLAB AND REMOVE CONCRETE TO MINIMUM EXTENT NECESSARY TO GAIN ACCESS BELOW SLAB. REMOVE PIPE DOWN TO HORIZONTAL PIPING BELOW FLOOR. SEAL AND CAP ABANDONED PIPE ENDS.
9. COORDINATE WITH ARCHITURAL AND STRUCTURAL TRADES. PATCH EXISTING ROOFS, WALLS, AND FLOORS DISTURBED BY DEMOLITION. RESTORE TO MATCH CONDITION OF ORIGINAL SURROUNDING SURFACES.

KEYED NOTES

7.004 REMOVE EXISTING WATER HEATER AND TURN OVER TO OWNER.

7.005 DEMOLISH EXISTING BOILER AND WATER HEATER VENTING. CAP EXISTING VENT RISER AT BOTTOM. RISER THROUGH ROOF TO BE ABANDONED.

7.006 DEMOLISH EXISTING BOILER.

8.001 DEMOLISH PIPING NEAR EXISTING BOILER TO ACCOMMODATE PIPING TO NEW BOILERS.

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SHEET CONTENTS
ENLARGED DEMOLITION PLANS AND SECTIONS

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MD401

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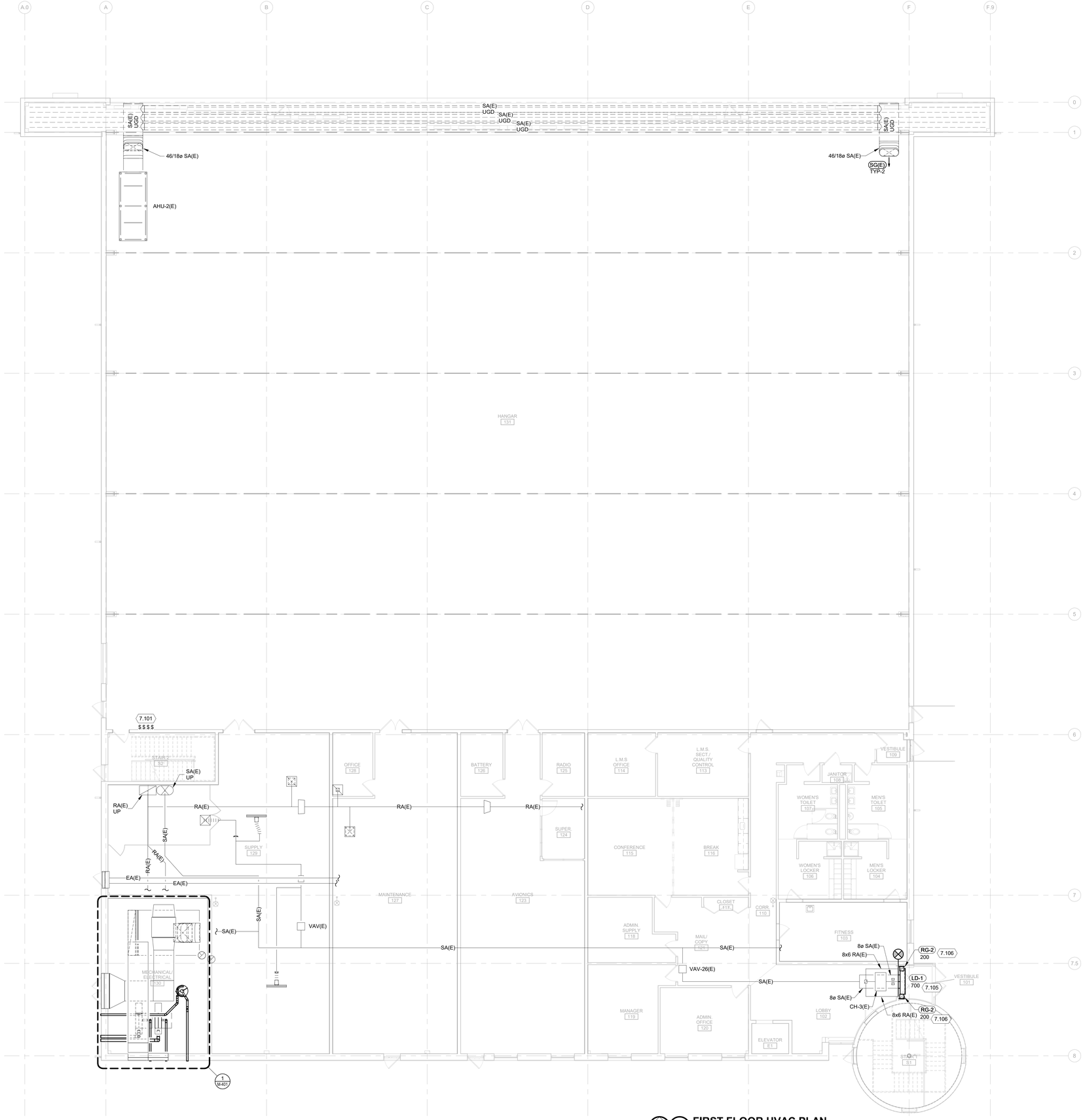

FIRST FLOOR HVAC PLAN

1/8" = 1'-0"

GENERAL HVAC NOTES:

1. INLET DUCT SIZE TO AIR TERMINAL DEVICES SHALL BE SAME AS INLET SIZE UNLESS OTHERWISE NOTED. IF RUNOUT TO AIR TERMINAL BOX IS GREATER THAN 6 FEET IN LENGTH, SIZE RUNOUT ONE EVEN INCREMENT SIZE LARGER (MINIMUM 2" LARGER) UNLESS OTHERWISE NOTED TO WITHIN 3 FEET OF BOX BEFORE REDUCING TO BOX INLET SIZE.
2. DUCTWORK DOWNSTREAM OF AIR TERMINAL BOXES TO BE INTERNALLY LINED FOR A MINIMUM OF 6'-0" FOR SOUND ATTENUATION. OUTLET DUCT SIZES TO MATCH AIR TERMINAL BOX OUTLET UNLESS NOTED OTHERWISE.
3. PROVIDE MANUAL BALANCE DAMPER AT EACH DIFFUSER, GRILLE, AND BRANCH TAKE-OFF IN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK EXCEPT KITCHEN GREASE EXHAUST DUCT. LOCATE BALANCE DAMPER AS CLOSE TO BRANCH TAKE-OFF AS POSSIBLE.
4. DUCT SIZE TO DIFFUSERS, REGISTERS, AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS NOTED OR DETAILED OTHERWISE.
5. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH REFLECTED CEILING PLAN.
6. PROVIDE FLEXIBLE DUCTWORK FOR FINAL CONNECTIONS TO SUPPLY AIR DIFFUSERS UNLESS NOTED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS. FLEXIBLE DUCT SIZE SHALL BE SAME AS NECK SIZE OF DIFFUSER AND SHALL NOT EXCEED 5 FEET IN LENGTH.
7. PROVIDE PLENUM RATED INSULATION AND WIRING IN RETURN AIR CEILING PLENUM. MATERIALS WITHIN PLENUMS SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME AND SMOKE SPREAD INDEX OF NOT MORE THAN 25/50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

KEYED NOTES

7.101 CEILING FAN SPEED CONTROLLERS.

7.105 EXTEND THREE EXISTING SUPPLY DUCTS TO NEW LD-1 LOCATED IN VERTICAL FACE OF NEW SOFFIT. CREATE SEPARATE PLENUMS BEHIND LD-1 FOR EACH SUPPLY DUCT. LD-1 TO BE ONE CONTINUOUS GRILLE ACROSS THE THREE SUPPLY PLENUMS.

7.106 EXTEND EXISTING RETURN DUCT TO NEW RETURN GRILLE. NEW RETURN GRILLE LOCATED IN HORIZONTAL SURFACE OF NEW SOFFIT.

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FIRST FLOOR HVAC PLAN

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M-101

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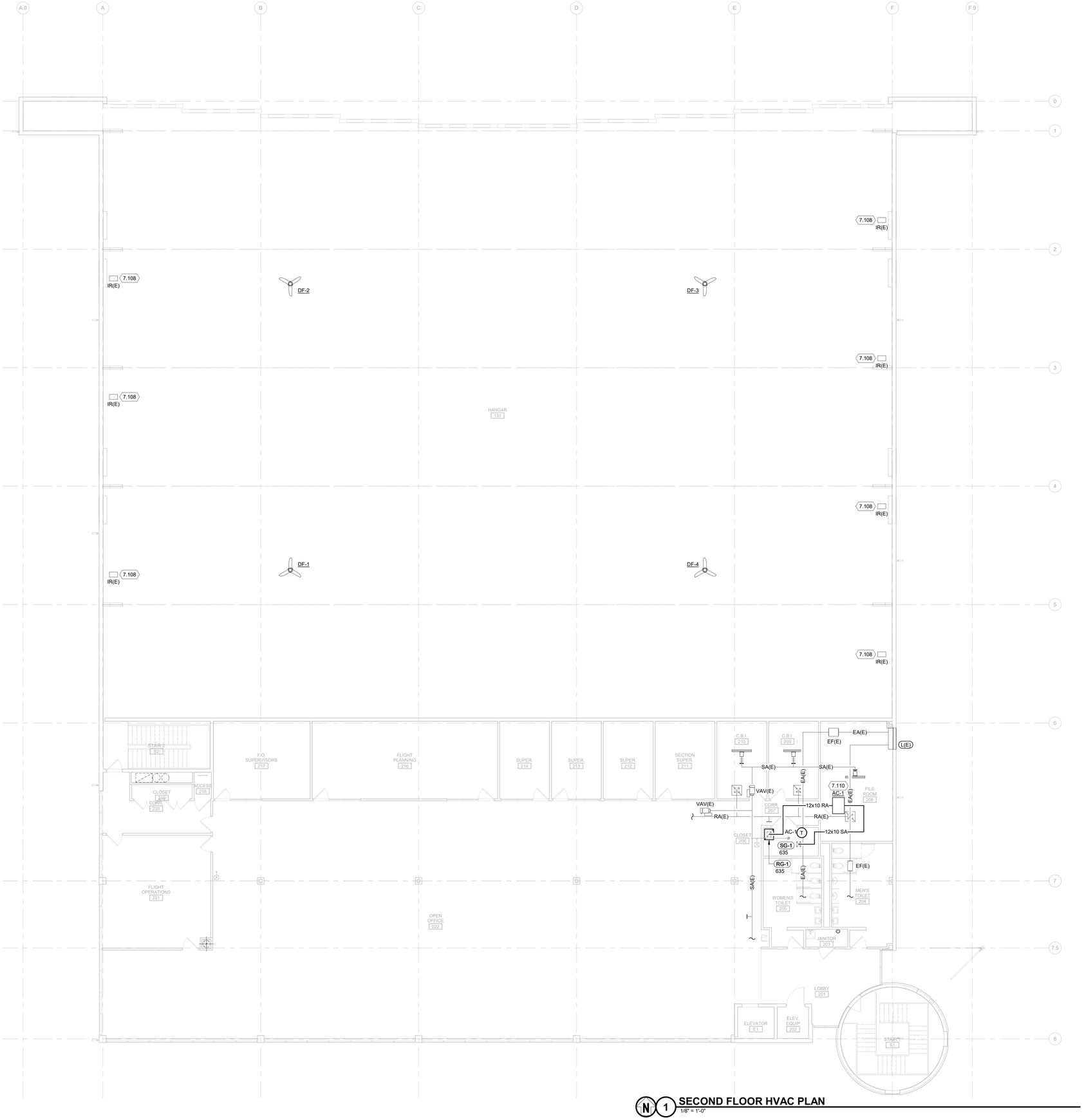

N 1 **SECOND FLOOR HVAC PLAN**
1/8" = 1'-0"

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KEYED NOTES

7.108 ADD CONTROLS AND TIE INTO THE EXISTING BAS THAT LOCKOUT EXISTING INFRA-RED HEATERS WHENEVER HANGAR DOORS ARE OPEN AND THE OUTSIDE AIR TEMPERATURE IS ABOVE 30°F (ADJUSTABLE).

7.110 AFTER STARTUP OF NEW DUCTLESS SPLIT AIR CONDITIONING UNIT, MODIFY AND ADJUST EXISTING CONTROLS TO ALLOW EXISTING AHU TO GO TO UNOCCUPIED MODES.

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SHEET CONTENTS
SECOND FLOOR
HVAC PLAN

SHEET NO.:
M-102

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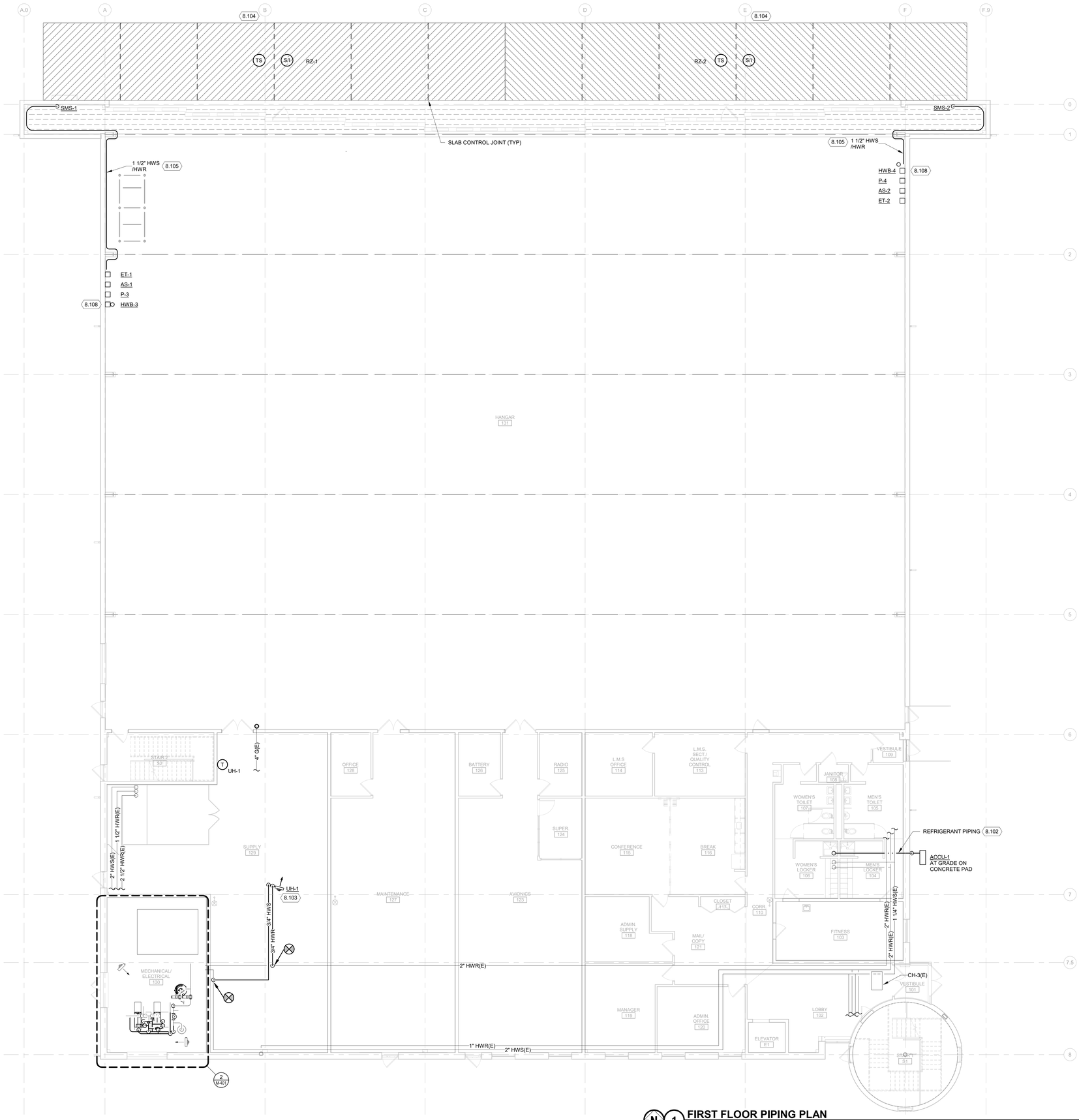

N 1 **FIRST FLOOR PIPING PLAN**
1/8" = 1'-0"

GENERAL PIPING NOTES:

1. PIPING RUNOUTS TO ALL EQUIPMENT TO BE 3/4" UNLESS NOTED OTHERWISE.
2. WELD-O-LETS AND THREAD-O-LETS MAY BE USED FOR BRANCH TAKE-OFFS UP TO ONE-HALF THE DIAMETER OF THE MAIN.
3. INSTALL DIELECTRIC FITTINGS WHERE PIPING OF DIFFERENT MATERIALS IS JOINED.
4. INSTALL PIPING FREE OF SAGS AND BENDS.
5. LOCATE ALL VALVES FOR EASY ACCESS. INSTALL VALVES WITH STEM UP OR HORIZONTAL.
6. INSTALL DRAIN VALVES AT ALL LOW POINTS IN PIPING SYSTEM AND ELSEWHERE AS REQUIRED FOR SYSTEM DRAINAGE. INSTALL MANUAL AIR VENTS AT ALL HIGH POINTS IN PIPING, AT HEAT-TRANSFER COILS, AND ELSEWHERE AS REQUIRED FOR SYSTEM AIR VENTING.

KEYED NOTES

8.102 ROUTE REFRIGERANT PIPING DOWN CHASE FROM ABOVE, THEN ACROSS CEILING OF FIRST FLOOR LOCKER ROOM, PENETRATING EXTERIOR WALL AND DOWN THE OUTSIDE OF THE EXTERIOR WALL. REFRIGERANT PIPING SIZED PER MANUFACTURER'S INSTRUCTIONS.

8.103 HANG NEW HOT WATER UNIT HEATER NEAR COLUMN TO BE UNOBTRUSIVE AS POSSIBLE BUT SO AS NOT TO HINDER AIR FLOW.

8.104 SEE SHEETS CG-101 AND CS-101 FOR LAYOUT OF CONCRETE SLABS.

8.105 ROUTE HWS AND HWR PIPE BETWEEN BOILER AND MANIFOLD BETWEEN FIRST AND SECOND GIRT ABOVE FLOOR, BUT BELOW LIGHT IN DOOR POCKET. HOLD PIPE TIGHT TO WALL AND AVOID INTERFERENCE WITH OPERATION OF HANGAR DOOR. SEE DETAIL 9/M-511.

8.108 BOILER VENT AND INTAKE THROUGH SIDEWALL PER MANUFACTURER'S INSTRUCTIONS.

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W.K. KELLOGG AIRPORT
FAA FIS HANGAR REHABILITATION

16085 SOUTH AIRPORT ROAD
BATTLE CREEK, MI 49015

ISSUED
3/29/19 ISSUED FOR BIDDING

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DESIGNED BY: BGD
DRAWN BY: RJH
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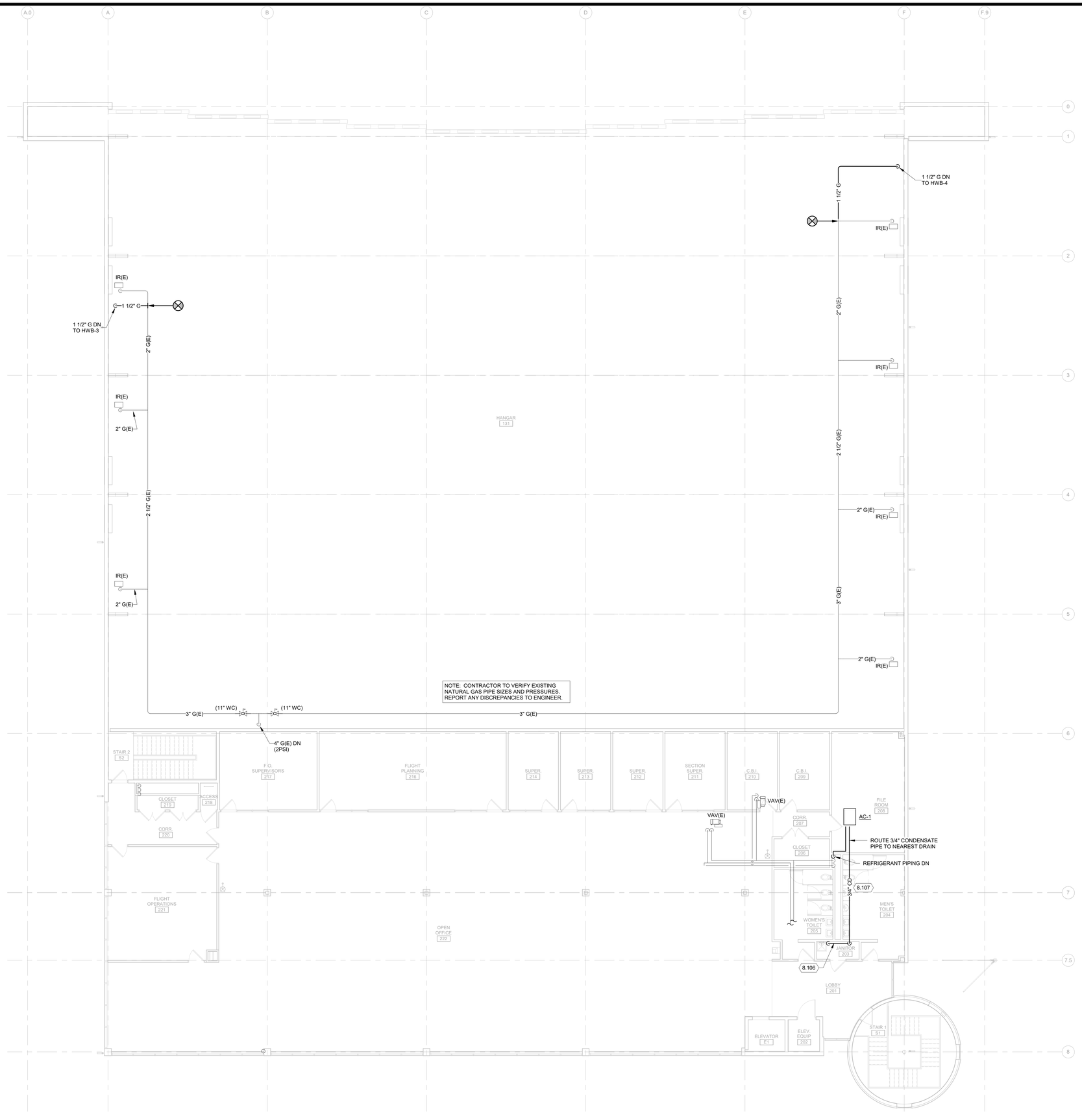
SHEET CONTENTS
FIRST FLOOR PIPING PLAN

SHEET NO.:
M-131

3/29/2019 3:36:15 PM C:\Revit Local\0228800-170289.01-M-CENTRAL-2018_461rnw.rvt



SECOND FLOOR PIPING PLAN

1/8" = 1'-0"

GENERAL PIPING NOTES:

1. PIPING RUNOUTS TO ALL EQUIPMENT TO BE 3/4" UNLESS NOTED OTHERWISE.
2. WELD-O-LETS AND THREAD-O-LETS MAY BE USED FOR BRANCH TAKE-OFFS UP TO ONE-HALF THE DIAMETER OF THE MAIN.
3. INSTALL DIELECTRIC FITTINGS WHERE PIPING OF DIFFERENT MATERIALS IS JOINED.
4. INSTALL PIPING FREE OF SAGS AND BENDS.
5. LOCATE ALL VALVES FOR EASY ACCESS. INSTALL VALVES WITH STEM UP OR HORIZONTAL.
6. INSTALL DRAIN VALVES AT ALL LOW POINTS IN PIPING SYSTEM AND ELSEWHERE AS REQUIRED FOR SYSTEM DRAINAGE. INSTALL MANUAL AIR VENTS AT ALL HIGH POINTS IN PIPING, AT HEAT-TRANSFER COILS, AND ELSEWHERE AS REQUIRED FOR SYSTEM AIR VENTING.

KEYED NOTES

8.106 ROUTE 3/4" CONDENSATE PIPE BELOW GYPSUM CEILING IN JANITOR'S CLOSET TO DRAIN IN SLOP SINK.

8.107 ROUTE 3/4" CONDENSATE PIPE ABOVE CEILING IN MEN'S TOILET AND DROP BELOW CEILING WITHIN JANITOR CLOSET.

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SHEET CONTENTS
SECOND FLOOR PIPING PLAN

SHEET NO.:
M-132

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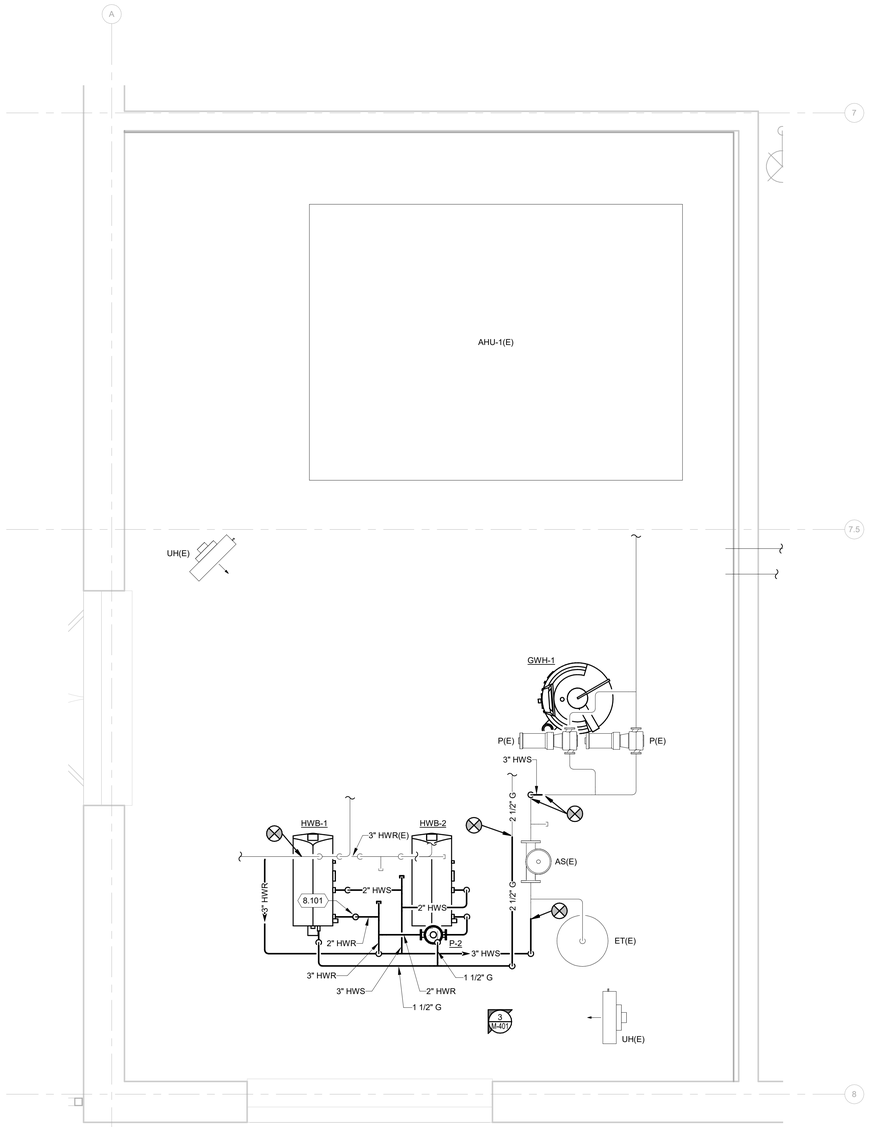
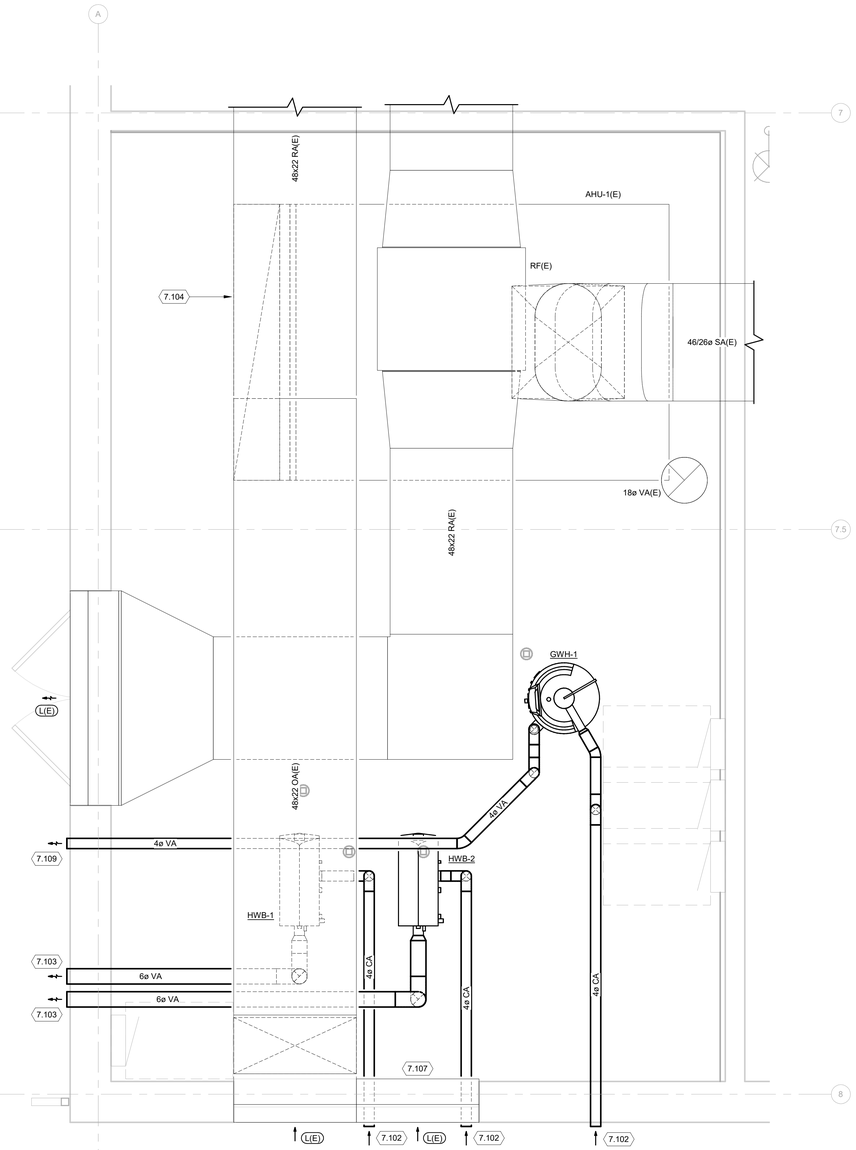


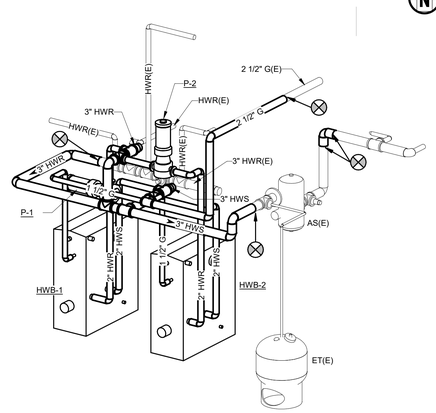
N 2 ENLARGED MECHANICAL ROOM PIPING PLAN

1/2" = 1'-0"



N 1 ENLARGED MECHANICAL ROOM HVAC PLAN

1/2" = 1'-0"



3 ISOMETRIC VIEW OF BOILER PIPING

NO SCALE

GENERAL HVAC NOTES:

1. INLET DUCT SIZE TO AIR TERMINAL DEVICES SHALL BE SAME AS INLET SIZE UNLESS OTHERWISE NOTED. IF RUNOUT TO AIR TERMINAL BOX IS GREATER THAN 6 FEET IN LENGTH, SIZE RUNOUT ONE EVEN INCREMENT SIZE LARGER (MINIMUM 2" LARGER) UNLESS OTHERWISE NOTED TO WITHIN 3 FEET OF BOX BEFORE REDUCING TO BOX INLET SIZE.
2. DUCTWORK DOWNSTREAM OF AIR TERMINAL BOXES TO BE INTERNALLY LINED FOR A MINIMUM OF 6'-0" FOR SOUND ATTENUATION. OUTLET DUCT SIZES TO MATCH AIR TERMINAL BOX OUTLET UNLESS NOTED OTHERWISE.
3. PROVIDE MANUAL BALANCE DAMPER AT EACH DIFFUSER, GRILLE, AND BRANCH TAKE-OFF IN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK EXCEPT KITCHEN GREASE EXHAUST DUCT. LOCATE BALANCE DAMPER AS CLOSE TO BRANCH TAKE-OFF AS POSSIBLE.
4. DUCT SIZE TO DIFFUSERS, REGISTERS, AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS NOTED OR DETAILED OTHERWISE.
5. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH REFLECTED CEILING PLAN.
6. PROVIDE FLEXIBLE DUCTWORK FOR FINAL CONNECTIONS TO SUPPLY AIR DIFFUSERS UNLESS NOTED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS. FLEXIBLE DUCT SIZE SHALL BE SAME AS NECK SIZE OF DIFFUSER AND SHALL NOT EXCEED 5 FEET IN LENGTH.
7. PROVIDE PLENUM RATED INSULATION AND WIRING IN RETURN AIR CEILING PLENUM. MATERIALS WITHIN PLENUMS SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME AND SMOKE SPREAD INDEX OF NOT MORE THAN 25/50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

GENERAL PIPING NOTES:

1. PIPING RUNOUTS TO ALL EQUIPMENT TO BE 3/4" UNLESS NOTED OTHERWISE.
2. WELD-O-LETS AND THREAD-O-LETS MAY BE USED FOR BRANCH TAKE-OFFS UP TO ONE-HALF THE DIAMETER OF THE MAIN.
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KEYED NOTES

7.102 4"Ø AIR INTAKES PER MANUFACTURER'S INSTRUCTIONS. TERMINATE WITH APPROVED WALL CAP.

7.103 6"Ø VENT PER MANUFACTURER'S INSTRUCTIONS. TERMINATE WITH APPROVED WALL CAP.

7.104 REPAIR PARTIALLY COLLAPSED DUCT AND REINFORCE DUCT NEAR REPAIRED SEAM WITH ANGLE IRON. REINSTALL INSULATION AS REQUIRED TO BE SIMILAR TO EXISTING.

7.107 CHANGE CONTROLS FOR OPERATION OF LOUVER FOR LOUVER TO OPEN UPON SPACE TEMPERATURE WITHIN BOILER ROOM OF 80° (ADJUSTABLE) OR HIGHER AND TO CLOSE UPON SPACE TEMPERATURE WITHIN BOILER ROOM OF 70° (ADJUSTABLE) OR LOWER. LOUVER CLOSED AND LOCKED OUT WHENEVER UNIT HEATERS ARE ACTIVATED.

7.109 4"Ø VENT PER MANUFACTURER'S INSTRUCTIONS. TERMINATE WITH APPROVED WALL CAP.

8.101 P-1 IN VERTICAL. SEE 3/M-401.

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SHEET CONTENTS
ENLARGED PLANS AND SECTIONS

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M-401

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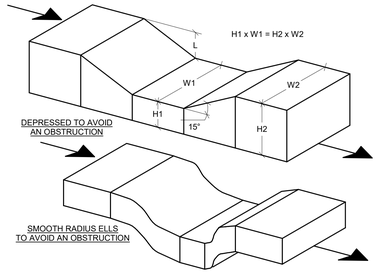
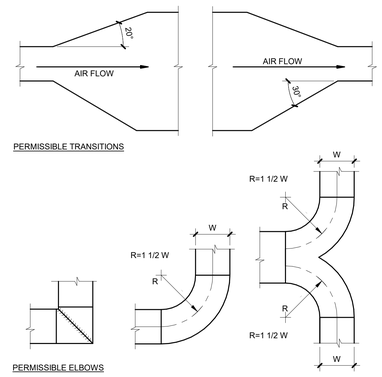


1 TYPICAL DUCT OFFSET
NO SCALE



2 TYPICAL DUCT TRANSITIONS
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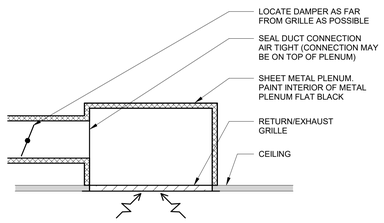

3 RETURN/EXHAUST GRILLE DUCT CONNECTION
NO SCALE

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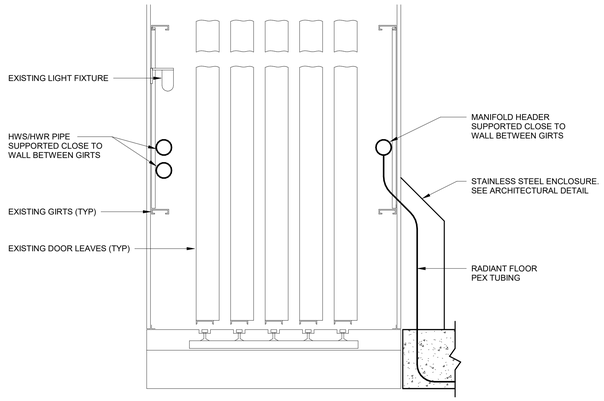
SHEET CONTENTS
HVAC DETAILS

SHEET NO.:
M-501

3/28/2019 3:36:18 PM C:\Revit Local\0228800-170289.01-M-CENTRAL-2018_461rnw.rvt



9 PIPING AT HANGAR DOOR POCKET SECTION
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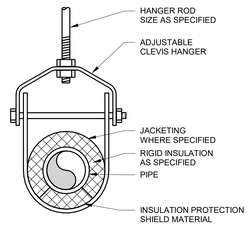
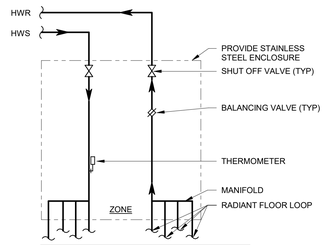
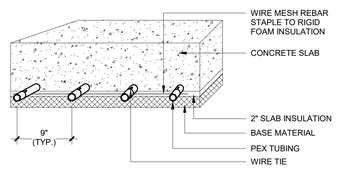


5 CLEVIS PIPE HANGER
NO SCALE

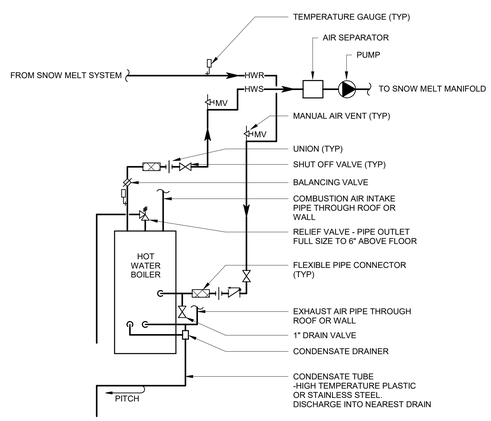


NOTE:
UNLESS OTHERWISE INDICATED, SEE PLANS AND SPECIFICATIONS FOR PIPE SIZE AND MATERIALS.

6 RADIANT MANIFOLD
NO SCALE

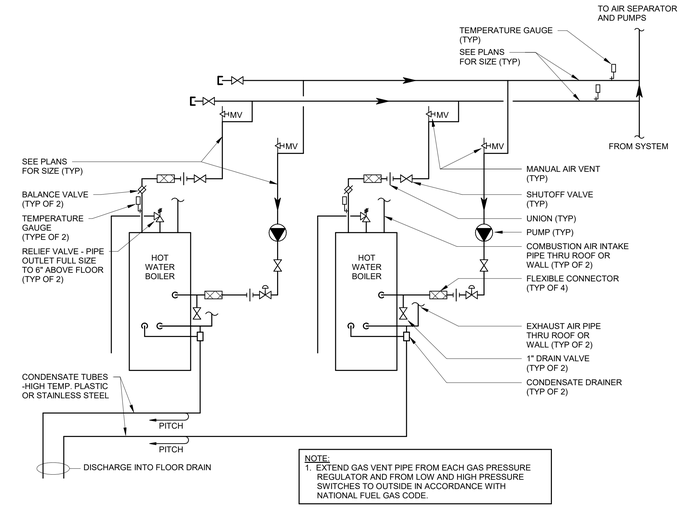


7 RADIANT FLOOR PIPING BELOW SLAB
NO SCALE



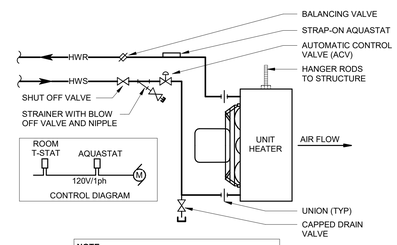
NOTES:
1. UNLESS OTHERWISE INDICATED, SEE PLANS AND SPECIFICATIONS FOR PIPE SIZE AND MATERIAL.
2. EXTEND GAS VENT PIPE FROM EACH GAS PRESSURE REGULATOR AND FROM LOW AND HIGH PRESSURE SWITCHES TO OUTSIDE IN ACCORDANCE WITH NATIONAL FUEL CODE.

8 SINGLE HWB PIPING SCHEMATIC
NO SCALE



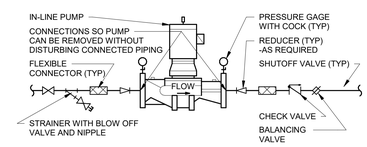
NOTE:
1. EXTEND GAS VENT PIPE FROM EACH GAS PRESSURE REGULATOR AND FROM LOW AND HIGH PRESSURE SWITCHES TO OUTSIDE IN ACCORDANCE WITH NATIONAL FUEL GAS CODE.

1 DOUBLE HWB PIPING SCHEMATIC
NO SCALE



NOTE:
UNLESS OTHERWISE INDICATED, SEE PLANS AND SPECIFICATIONS FOR PIPE SIZE AND MATERIAL.

2 HOT WATER UNIT HEATER PIPING WITH TEMPERATURE CONTROL AND ACV
NO SCALE



3 IN-LINE PUMP PIPING
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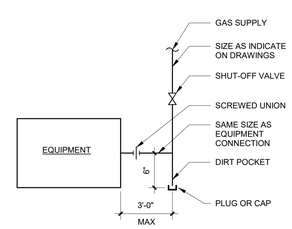

4 EQUIPMENT GAS CONNECTION (TYP)
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SHEET CONTENTS
PIPING DETAILS

SHEET NO.:
M-511

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HVAC DUCT SCHEDULE

	SYSTEM	DUCT MATERIAL TYPE	DUCT MATERIAL REFERENCE STANDARD	DUCT MATERIAL FINISH	PRESS. CLASS (IN WC)	SEAL CLASS	LEAKAGE CLASS RECT.	LEAKAGE CLASS ROUND	COMMENTS
SUPPLY AIR	DUCT CONNECTED TO FAN COIL UNITS, FURNACES, HEAT PUMPS, AND TERMINAL UNITS	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	
	DUCT CONNECTED TO CONSTANT VOLUME AIR HANDLING UNITS	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	
	DUCT CONNECTED TO VARIABLE AIR VOLUME AIR HANDLING UNITS	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	
	DUCT CONNECTED TO OTHER FAN POWERED EQUIPMENT	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	
RETURN AIR	DUCT CONNECTED TO FAN COIL UNITS, FURNACES, HEAT PUMPS, AND TERMINAL UNITS	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	
	DUCT CONNECTED TO AIR HANDLING UNITS	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	
	DUCT CONNECTED TO OTHER FAN POWERED EQUIPMENT	G90 GALV.	ASTM A 653	MILL PHOSPHATIZED	3	A	12	6	

FITTINGS

RECTANGULAR DUCT ELBOWS (COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-2, "RECTANGULAR ELBOWS.")
RADIUS TYPE RE 1 WITH MINIMUM 1.5 RADIUS-TO-DIAMETER RATIO.
RADIUS TYPE RE 3 WITH MINIMUM 1.0 RADIUS-TO-DIAMETER RATIO AND TWO VANES.
MITERED TYPE RE 2 WITH VANES COMPLYING WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-3, "VANES AND VANE RUNNERS," AND FIGURE 2-4, "VANE SUPPORT IN ELBOWS."

ROUND DUCT ELBOWS (COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-3, "ROUND DUCT ELBOWS.")
RADIUS TO DIAMETER RATIO: 1.5
ROUND ELBOWS, 12 INCHES AND SMALLER IN DIAMETER: STAMPED OR PLEATED
ROUND ELBOWS, 14 INCHES AND LARGER IN DIAMETER: WELDED

RECTANGULAR BRANCH DUCT CONFIGURATION (COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-6, "BRANCH CONNECTIONS.")
RECTANGULAR MAIN TO RECTANGULAR BRANCH: 45° ENTRY
RECTANGULAR MAIN TO ROUND BRANCH: SPIN IN

ROUND BRANCH DUCT CONFIGURATION (COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-4, "90 DEGREE TEES AND LATERALS," AND FIGURE 3-5, "CONICAL TEES." SADDLE TAPS ARE PERMITTED IN EXISTING DUCT)
VELOCITY 1500 FT/MIN AND LOWER: CONICAL TAP
VELOCITY GREATER THAN 1500 FT/MIN: 45° LATERAL

REMARKS:

(1) PROVIDE PAINT GRIP TYPE DUCT WHERE DUCT IS EXPOSED AND INDICATED TO BE PAINTED.
(2) INSTALL DUCT ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" UNLESS OTHERWISE INDICATED.
(3) INTERMEDIATE REINFORCEMENT MATERIAL SHALL MATCH DUCT MATERIAL.
(4) SUPPLY AIR DUCTS PASSING THROUGH UNCONDITIONED OR OUTDOOR SPACES SHALL BE SEAL CLASS A (ASHRAE 90.1 - 2007).
(5) RETURN AIR DUCTS PASSING THROUGH OUTDOOR SPACES SHALL BE SEAL CLASS A (ASHRAE 90.1 - 2007).
(6) SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.
(7) LINED DUCTWORK MUST STILL BE WRAPPED TO MEET TOTAL INSULATING VALUE PER INSULATION SPECIFICATION AND SCHEDULE.

AIR OUTLET AND INLET SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	APPLICATION	(4) MAX AIRFLOW (CFM)	OUTLET / INLET	TYPE	MOUNTING SYSTEM	(5) DAMPER	(3) FACE SIZE (IN)	NECK SIZE (IN)	(2) MAX NOISE LEVEL (NC)	PATTERN	MAX SP (IN WG)	FINISH	MATERIAL	(1) MOUNTING HEIGHT (IN)	ACCESSORIES	LOCATION	REMARKS
SG-1	TITUS, 272RS	SUPPLY	710	3	2	2	NONE	21x13	18x10	20	-	0.1	W	STEEL	CEILING		206	(6)
LD-1	TITUS, CT-481	SUPPLY	140 PER FT	3	5	3	NONE	62x8	60x6	20	1-WAY	0.1	A	ALUMINUM	111	15 DEG DEFLECTION	101	(7)
RG-1	TITUS, 23RL	RETURN	725	3	3	2	NONE	26x20	24x18	20	-	0.1	W	STEEL	CEILING		206	(8)
RG-2	TITUS, 23RL	RETURN	210	3	3	2	NONE	12x12	10x10	20	-	0.1	W	STEEL	CEILING		101	(8)

OUTLET/INLET		TYPE				MOUNTING SYSTEM		DAMPER		FINISH	
1	DIFFUSER	1	SINGLE DEFLECTION	9	LOUVERED	1	T-BAR CEILING	N	NONE	M	MILL
2	REGISTER	2	DOUBLE DEFLECTION	10	HOODED	2	PLASTER/CONCRETE CEILING	BF	BUTTERFLY	W	MFR. STANDARD WHITE
3	GRILLE	3	FIXED BLADE	11	DOOR TRANSFER	3	PLASTER/MASONRY WALL	G	GRAVITY	S	MFR. SPECIAL COLOR
4	LOUVER	4	PERFORATED	12	BRICK	4	EXPOSED DUCTWORK	MP	MOTORIZED PNEUMATIC	A	ANODIZED ALUMINUM
5	PENTHOUSE	5	LINEAR	13	PUNKAH	5	METAL PANEL WALL	ME	MOTORIZED ELECTRIC	P	PRIME COAT (FINAL COAT BY GC)
6	VENT	6	PLENUM SLOT	14	LAMINAR	6	FLOOR	OB	OPPOSED BLADE	O	OTHER (SEE SPECIFICATIONS)
		7	PLAQUE	15	DRUM	7	ROOF	PB	PARALLEL BLADE		
		8	EGGCRATE			8	EXTERIOR STUD WALL	LL	LOW LEAKAGE, INSUL.		

REMARKS:

(1) MOUNTING HEIGHT SHALL BE FROM FINISHED FLOOR TO BOTTOM OF OPENING.
(2) ALL GRILLES AND DIFFUSERS SHALL NOT EXCEED NOISE CRITERIA LISTED (BASED ON 10 DB ROOM ATTENUATION) AND AT THE SCHEDULED MAXIMUM STATIC PRESSURE DROP.
(3) BORDER TYPES SHALL BE COMPATIBLE WITH CEILING OR WALL TYPES WHERE AIR DEVICE IS LOCATED. REFER TO ARCHITECTURAL PLANS AND ALL OTHER TRADES.
(4) SEE PLANS FOR ACTUAL INDIVIDUAL AIR QUANTITIES OF EACH DEVICE.
(5) IF DAMPER IS SCHEDULED 'NONE', EACH SUPPLY, RETURN, AND EXHAUST DEVICE TO HAVE A BALANCE DAMPER IN THE DUCT BRANCH TAKE-OFF UNLESS AN ASSOCIATED VAV BOX SERVES A SINGLE DEVICE.
(6) INDIVIDUALLY ADJUSTABLE AIRFOIL BLADE WITH 3/4" SPACING. FRONT BLADES PARALLEL TO THE SHORT DIMENSION. INITIALLY SET BLADES FOR APPROXIMATELY 30 DEGREE THROW.
(7) 1/8" BARS WITH 1/4" SPACING.
(8) AIRFOIL BLADES PARALLEL TO THE LONG DIMENSION WITH FIXED 45 DEGREE DEFLECTION AND 3/4" SPACING.

DESTRATIFICATION FAN (DF) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	FAN TYPE	AIRFLOW RATE (CFM)	MOTOR (W)	MOTOR TYPE	FAN SPEED (RPM)	ELECTRICAL (VOLTS/PH)	FAN DIAMETER (IN)	BLADE COLOR	(1) MOUNTING HEIGHT	WEIGHT (LB)	LOCATION	REMARKS
DF-1	LEADING EDGE, 60001	PADDLE	46,000	160	ODP	VARIES	120/1	60	WHITE	(4)	30	131	2,3
DF-2	LEADING EDGE, 60001	PADDLE	46,000	160	ODP	VARIES	120/1	60	WHITE	(4)	30	131	2,3
DF-3	LEADING EDGE, 60001	PADDLE	46,000	160	ODP	VARIES	120/1	60	WHITE	(4)	30	131	2,3
DF-4	LEADING EDGE, 60001	PADDLE	46,000	160	ODP	VARIES	120/1	60	WHITE	(4)	30	131	2,3

REMARKS:

(1) MOUNTING HEIGHT IS FROM FINISHED FLOOR TO BOTTOM OF FAN IN FEET.
(2) PROVIDE MOUNTING HARDWARE AND DROP TUBE.
(3) PROVIDE WITH WALL MOUNTED REMOTE CONTROL FOR ON/OFF AND SPEED CONTROL.
(4) HANG AT SIMILAR HEIGHT TO EXISTING DESTRATIFICATION FANS.

HVAC DUCT INSULATION SCHEDULE

INDOOR OR OUTDOOR	CONCEALED OR EXPOSED	DUCT SHAPE	DUCT SERVICE	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION JACKETING TYPE	REMARKS
INDOOR	CONCEALED	SQUARE	SUPPLY AIR	D1, D2	1 1/2	J1	-
			RETURN AIR	D1, D2	1 1/2	J1	-
		ROUND	SUPPLY AIR	D1	1 1/2	J1	-
			RETURN AIR	D1	1 1/2	J1	-
	EXPOSED	SQUARE	SUPPLY AIR	D1, D2	1 1/2	J1	-
			RETURN AIR	D1, D2	1 1/2	J1	-
		ROUND	SUPPLY AIR	D1	1 1/2	J1	-
			RETURN AIR	D1	1 1/2	J1	-

INSULATION TYPE		JACKETING TYPE	
D1	MINERAL FIBER BLANKET (ASTM C 553 TYPE II) (ASTM C 1290 TYPE III) AVAIL. MFR'S: CERTAINTEED CORP; DUCT WRAP JOHNS MANVILLE; MICROLITE. KNAUF INSULATION; DUCT WRAP OWENS CORNING; ALL-SERVICE DUCT WRAP	J1	FACTORY APPLIED FSK
D2	MINERAL FIBER BOARD (ASTM C 612 TYPE 1A OR 1B) AVAIL. MFR'S: CERTAINTEED CORP.; COMMERCIAL BOARD. JOHNS MANVILLE; 800 SERIES SPIN-GLAS KNAUF INSULATION; INSULATION BOARD. OWENS CORNING; FIBERGLAS 700 SERIES.		

REMARKS:

(1)

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SHEET CONTENTS
HVAC SCHEDULES

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M-601

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MECHANICAL PIPING & VALVE SCHEDULE

SYSTEM MARK	SERVICE	ROOM TYPE	PIPING SIZE (IN)	PIPING: MATERIAL TYPE	WALL THICKNESS	ASME PIPING: STD	GRADE	TYPE	PRESS. CLASS	FITTING TYPE	ENDS	JOINT TYPE	VALVE: TYPE	CHECK VALVES	PRESS. CLASS	CONNECTION TYPE	BODY MATERIAL	TRIM MATERIAL	VALVE EQUAL TO: [MANUFACTURER, MODEL]	REMARKS
G	NATURAL GAS	INDOORS	1/2 TO 2	BS	SCH 40	A 53	B	E or S	150#	MI	PLAIN	TH	2BV	-	125#	THREADED	BRONZE	BRONZE	APOLLO, 77-100	PAINT PIPE
-	- LOW PRESSURE (2 PSIG OR <)	-	2 1/2 OR MORE	BS	SCH 40	A 53	B	E or S	150#	WS	BEVELED	BW, FL	PV	-	125#	FLANGED	IRON	IRON	XOMOX TUFFLINE	PAINT PIPE
-	NATURAL GAS	INDOORS	1/2 TO 2	BS	SCH 40	A 53	B	E or S	150#	WS	PLAIN	SW	2BV	-	125#	THREADED	BRONZE	BRONZE	APOLLO, 77-100	PAINT PIPE
-	- HIGH PRESSURE (> 2 PSIG)	-	2 1/2 OR MORE	BS	SCH 40	A 53	B	E or S	150#	WS	BEVELED	BW, FL	PV	-	125#	FLANGED	IRON	IRON	XOMOX TUFFLINE	PAINT PIPE
HWS/R	HEATING WATER SUPPLY/RETURN	ALL AREAS	3/4 TO 2	BS	SCH 40	A 53	A or B	E or S	150#	MI	PLAIN	TH	2BV	SWING	125#	THREADED	BRONZE	BRONZE	APOLLO, 77-100	-
-	- (HVAC)	-	3/4 TO 2	Cu	L	B 88	-	-	-	WCu	PLAIN	SD	2BV	SWING	125#	THREADED	BRONZE	BRONZE	APOLLO, 77-100	-
-	-	-	2 1/2 OR MORE	BS	SCH 40	A 53	A or B	E or S	150#	WS,WC,FS	BEVELED	BW, FL	OGV	SWING	125#	FLANGED	IRON	BRONZE	CRANE 465 1/2	-
CD	HVAC CONDENSATE DRAIN	ALL AREAS	3/4 TO 2	PVC	SCH 40	D 1785	-	-	-	PS	PLAIN	SV	-	-	-	-	-	-	-	-
RL/RS	REFRIGERANT	ALL AREAS	ALL SIZES	Cu	ACR	B 280	-	-	-	WCu	PLAIN	SD	-	-	-	-	-	-	-	-

MATERIAL TYPE	
BS	BLACK STEEL
SS	STAINLESS STEEL
GS	GALVANIZED STEEL
PE	POLYETHYLENE
CU	COPPER
PVC	PVC

JOINT TYPE	
BW	BUTT WELD
SW	SOCKET WELD
TH	THREADED
FL	FLANGED
SF	SOCKET FUSION
BF	BUTT FUSION
SD	SOLDERED
BZ	BRAZED
SV	SOLVENT WELD

FITTING TYPE			
CI	CAST IRON (THREADED) (ASME B16.4 FOR IRON, ASME A 351 FOR SS) (FLANGED) (ASME B16.1)	WC	WROUGHT CAST (FLANGES, ASME B16.5)
MI	MALLEABLE IRON (THREADED) (ASME B16.3)	FS	FORGED STEEL (FLANGES, ASME B16.5)
WS	WROUGHT STEEL (ASTM A 234 FOR STEEL, ASTM A 403 FOR SS)	PS	PVC SOCKET
PE	POLYETHYLENE (ASTM D 2683 (SOCKET) OR ASTM D 3261 (BUTT))	WCu	WROUGHT COPPER (ASME B 16.22)
WW	WELDED WROUGHT STEEL (ASTM A 774 FOR SS)		

ASME PIPING TYPE	
S	SEAMLESS
E	ELECTRIC RESISTANCE WELDED
F	FURNACE BUTT WELDED

VALVE TYPE	
1BV	ONE PIECE FULL PORT BALL VALVE
2BV	TWO PIECE FULL PORT BALL VALVE
3BV	THREE PIECE FULL PORT BALL VALVE
SBV	STEEL BODY BALL VALVE
NGV	NON-RISING STEM GATE VALVE
RGV	RISING STEM GATE VALVE
OGV	OSY GATE VALVE
BFV	BUTTERFLY VALVE
PV	PLUG VALVE

PIPING SYSTEM JOINING MATERIALS

1. PIPE-FLANGE GASKET MATERIALS: SUITABLE FOR CHEMICAL AND THERMAL CONDITIONS OF PIPING SYSTEM CONTENTS.
2. PIPE FLANGE GASKETS: ASME B16.21, NONMETALLIC, FLAT, ASBESTOS-FREE, 1/8IN MAXIMUM THICKNESS UNLESS SPECIFIED OTHERWISE.
   A. FULL-FACE TYPE: FOR FLAT-FACE, CLASS 125, CAST-IRON AND CAST-BRONZE FLANGES.
   B. NARROW-FACE TYPE: FOR RAISED-FACE, CLASS 250, CAST-IRON AND STEEL FLANGES.
3. FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL, UNLESS OTHERWISE INDICATED.
4. PLASTIC, PIPE-FLANGE GASKET, BOLTS, AND NUTS: TYPE AND MATERIAL RECOMMENDED BY PIPING SYSTEM MANUFACTURER, UNLESS OTHERWISE INDICATED.
5. SOLDER FILLER METALS: ASTM B 32, LEAD-FREE ALLOYS. INCLUDE WATER-FLUSHABLE FLUX ACCORDING TO ASTM B 813.
6. GENERAL DUTY BRAZING FILLER METALS: AWS A5.8, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS UNLESS OTHERWISE INDICATED.
7. REFRIGERANT PIPING BRAZING FILLER METALS: AWS A5.8, BAG1, SILVER ALLOY UNLESS OTHERWISE INDICATED.
8. WELDING FILLER METALS: AWS D10.12 FOR WELDING MATERIALS APPROPRIATE FOR WALL THICKNESS AND CHEMICAL ANALYSIS OF STEEL PIPE.
9. SOLVENT CEMENTS FOR JOINING PLASTIC PIPING: CPVC PIPING: ASTM F 493, PVC PIPING: ASTM D 2564. INCLUDE PRIMER ACCORDING TO ASTM F 656.

REMARKS:

(1) FITTING MATERIAL SHALL MATCH PIPING MATERIAL (EXCEPTION: MI FITTINGS SHALL BE USED FOR BS PIPING WHERE INDICATED).
(2) PRESS. CLASS LISTED IS MIN. REQUIRED. PROVIDE GREATER PRESS. CLASS VALVE AND PIPE SYSTEM IF PRESS. CLASS INDICATED IS NOT AVAILABLE FOR GIVEN VALVE AND PIPE TYPE.
(3) FLANGES SHALL BE RAISED FACE WITH SPOT FACED BOLT HOLES.
(4) AIR VENT, VACUUM BREAKER, AND SAFETY VALVE PIPING SHALL BE THE SAME AS THE CONNECTED SERVICE PIPING.
(5) PROVIDE GEAR OPERATORS FOR VALVES LARGER THAN 6" IN SIZE.

HOT WATER BOILER (HWB) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	TYPE	INPUT (MBH) MAX.	INPUT (MBH) MIN.	OUTPUT (MBH) MAX.	OUTPUT (MBH) MIN.	(1) MIN. EFF. (%)	FUEL	FLUID	FLUID FLOW (GPM) MIN.	FLUID FLOW (GPM) DESIGN	FLUID FLOW (GPM) MAX.	(2) FLUID TEMP. (°F) IN	(2) FLUID TEMP. (°F) OUT	(2) PD (FT)	ELECTRICAL (VOLTS / PH)	ELECTRICAL (AMPS)	ACCESSORIES	WEIGHT (LB) EMPTY	WEIGHT (LB) OPER.	LOCATION	REMARKS
HWB-1	LOCHINVAR KNIGHT, KBN701	CN	700	140	658	132	94	NG	WTR	20.0	44.0	80.0	155	180	18	120/1	2.7	1,2,3,4,5,6,10,11	370	410	MECH RM	3,4,5
HWB-2	LOCHINVAR KNIGHT, KBN701	CN	700	140	658	132	94	NG	WTR	20.0	44.0	80.0	155	180	18	120/1	2.7	1,2,3,4,5,6,10,11	370	410	MECH RM	3,4,5
HWB-3	HTP, EFT-285	CN	285	29	262	26	95	NG	50% PG	18.0	20.0	30.0	120	145	4	120/1	6.3	2,3,4,5,6,10,11,12	210	260	HANGAR	4,5
HWB-4	HTP, EFT-285	CN	285	29	262	26	95	NG	50% PG	18.0	20.0	30.0	120	145	4	120/1	6.3	2,3,4,5,6,10,11,12	210	260	HANGAR	4,5

TYPE	
CI	CAST IRON
CN	CONDENSING
CU	COPPER FIN TUBE
FT	FIRE TUBE
PU	PULSE
SS	STAINLESS STEEL
WT	WATER TUBE

FUEL	
NG	NATURAL GAS
LPG	PROPANE
EL	ELECTRIC

FLUID	
WTR	WATER
XX% EG	XX% ETHYLENE GLYCOL
XX% PG	XX% PROPYLENE GLYCOL

ACCESSORIES			
1	VIBRATION ISOLATION CUBES	7	EXHAUST MUFFLER
2	CONDENSATE LIQUID DRAINER	8	INTAKE MUFFLER
3	WATER PIPE FLEXIBLE CONNECTORS	9	CIRCULATING PUMP
4	VENT/COMB. AIR PIPE FLEXIBLE CONNECTORS	10	BAS GATEWAY FOR BACNET CONNECTION
5	SCREENED INLET	11	LOW WATER CUTOFF W/ MANUAL RESET
6	EXHAUST VENT CAP	12	BRACKET FOR WALL HUNG INSTALLATION

REMARKS:

(1) MINIMUM EFFICIENCY AT MAXIMUM OUTPUT AND DESIGN FLOW AND TEMPERATURES.
(2) FLUID TEMPERATURES AND PRESSURE DROP AT DESIGN FLOW RATE.
(3) PROVIDE OUTDOOR AIR TEMPERATURE SUPPLY WATER RESET CONTROLLER.
(4) PROVIDE SCHEDULE 40 PVC INTAKE PIPING AND STAINLESS STEEL VENT PIPING.
(5) PROVIDE ALL REQUIRED STORM COLLARS AND ROOF FLASHING.

MECHANICAL PIPE & EQUIPMENT INSULATION SCHEDULE

MARK	SERVICE	PIPE SIZES (IN)	NON-PROCESS ROOMS: INSULATION TYPE	NON-PROCESS ROOMS: THICKNESS (IN)	NON-PROCESS ROOMS: JACKETING TYPE	OUTDOORS: INSULATION TYPE	OUTDOORS: THICKNESS (IN)	OUTDOORS: JACKETING TYPE	PIPE/EQUIP LABEL (Y/N)	HEAT TRACE	REMARKS
HWS/R	HEATING HOT WATER SUPPLY & RETURN	3/4 TO 1 1/4	I2	1 1/2	-	-	-	-	Y	NONE	-
	(141ºF - 200ºF)	1 1/2 OR MORE	I2	2	-	-	-	-	Y	NONE	-
RS	REFRIGERANT SUCTION	ALL SIZES	I2 OR I5	1		I2	1	J3	N	NONE	-
CD	COOLING COIL CONDENSATE DRAIN	ALL SIZES	I2	1	-	-	-	-	-	NONE	-

INSULATION TYPE	
I2	MINERAL FIBER, PRE-FORMED PIPE (ASTM C 547, Type I, Grade A) INCLUDING SSL-ASJ WITH PREFORMED FITTING JACKETS AVAIL. MFR'S: JOHNS MANVILLE; MICRO-LOK KNAUF INSULATION: 1000 PIPE INSULATION OWENS CORNING: FIBERGLAS PIPE INSULATION
I5	FLEXIBLE ELASTOMERIC (COMPLY WITH ASTM C 534, TYPE I FOR TUBE AND TYPE II FOR SHEET) AVAIL. MFR'S: AEROFLEX USA INC.; AEROCEL ARMACELL LLC; AP ARMAFLEX

JACKETING TYPE (FIELD APPLIED)	
J3	ALUMINUM, 0.016" THICK, EMBOSSED, ASTM B 209, ALLOY 3003, 3005, 3105, OR 5005, TEMPER H-14, FACTORY FABRICATED FITTING COVERS AVAIL. MFR'S: CHILDERS PRODUCTS, DIV OF ITW PABCO METALS CORP.; SUREFIT. RPR PRODUCTS, INC.; INSUL-MATE

REMARKS:

(1)

RADIANT SLAB SNOW MELT ZONE (RZ) SCHEDULE

MARK	ZONE TUBE SIZE (IN)	TUBE DISTANCE ON CENTER (IN)	SLAB SURFACE TEMP (ºF)	ENTERING WATER TEMP (ºF)	WATER TEMP DROP (ºF)	FLUID HEATING MEDIA	TOTAL ZONE AREA (FT²)	UNIT HEATING LOAD (BTUH/SF)	TOTAL ZONE LOAD (MBH)	MAXIMUM LOOP LENGTH (FT)	NUMBER OF LOOPS	FLOW PER LOOP (GPM)	TOTAL ZONE FLOW (GPM)	TOTAL LOOP HEAD PRESSURE (FT H20)	ASSOCIATED PUMP	LOCATION	REMARKS
RZ-1	5/8	9	38	145	25	50% PG	1430	145	207	250	10	2.0	20.0	12.8	P-3	APRON	
RZ-2	5/8	9	38	145	25	50% PG	1430	145	207	250	10	2.0	20.0	12.8	P-4	APRON	

SNOW MELTING SYSTEM DISTRIBUTION MANIFOLD (SMS) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	MANIFOLD PIPE SIZE (IN)	NUMBER OF BRANCHES	TOTAL AREA (FT²)	CAPACITY (MBH)	FLUID HEATING MEDIA	FLOW RATE (GPM)	LOCATION	REMARKS
SMS-1	-	1-1/2	10	1430	207	50% PG	20	HANGAR	
SMS-2	-	1-1/2	10	1430	207	50% PG	20	HANGAR	

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PIPING SCHEDULES

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DUCTLESS SPLIT SYSTEM (AC) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	UNIT TYPE	AIR FLOW (CFM) SUPPLY	AIR FLOW (CFM) OUTDOOR	AMBIENT TEMP. (°F) MINIMUM	AMBIENT TEMP. (°F) MAXIMUM	COOLING TYPE	COOLING EAT (°F) DB	COOLING EAT (°F) WB	COOLING CAPACITY (MBH) TOTAL	COOLING CAPACITY (MBH) SENS.	HEATING TYPE	HEATING EAT (°F)	HEATING CAP. (MBH)	HEATING STAGES	ELECTRICAL VOLTS/PH	ELECTRICAL MCA	ELECTRICAL MOCP (A)	ELECTRICAL HEATER (KW)	UNIT DIMENSIONS (IN) LENGTH	UNIT DIMENSIONS (IN) WIDTH	UNIT DIMENSIONS (IN) HEIGHT	ACCESSORIES	MTG. HEIGHT (FT)	ASSOCIATED CONDENSING UNIT	WEIGHT (LB)	LOCATION	REMARKS
AC-1	MITSUBISHI, PEA-A18	D	635	0	-20	120	DX	70		18	16	-	-	-	-	208/1	2	-	-	47	28	8	2,4,8,13,14,19	ABV CLG	ACCU-1	62	208	(1)

UNIT TYPE		ACCESSORIES							
R	RECESSED	1	POWERED OA VENT & DAMPER	6	WALL SLEEVE	11	LEVELING LEGS	16	FUSE HOLDER
SR	SEMI-RECESSED	2	REMOTE/WALL THERMOSTAT	7	ARCHITECTURAL OUTDOOR GRILLE	12	ADJOINING ROOM DUCT TRANSITION	17	HYDRONIC HEAT
W	WALL SURFACE	3	REMOTE TEMPERATURE SENSOR	8	CONDENSER BAFFLES	13	HARD WIRE JUNCTION BOX	18	HYDRONIC CONTROL VALVE
C	CEILING	4	CONDENSATE REMOVAL PUMP	9	CONDENSATE DRAIN	14	DISCONNECT SWITCH	19	FILTER
D	DUCTED	5	SUB-BASE	10	KEY LOCK CONTROL COVER	15	CIRCUIT BREAKER		

REMARKS:

(1) SINGLE POINT ELECTRICAL CONNECTION AT OUTDOOR UNIT.

UNIT HEATER (UH) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	TYPE	CAPACITY (MBH)	AIR FLOW (CFM)	AIR FLOW HOR. or VER.	AIR THROW (FT)	MOTOR (WATTS)	ELECTRICAL (VOLTS/PH)	EAT (°F)	LAT (°F)	STEAM PRESS. (PSI)	STEAM COND. (LB/H)	WATER FLOW (GPM)	WATER PD (FT)	WATER EWT (°F)	WATER LWT (°F)	FUEL FIRED FUEL TYPE	FUEL FIRED INPUT (MBH)	FUEL FIRED OUTPUT (MBH)	FUEL FIRED VENT TYPE	ACCESSORIES	(1) MTG. HEIGHT (FT)	WEIGHT (LB)	LOCATION	REMARKS
UH-1	STERLING, HS-125A	HYD	17	460	HOR.	29	25	120/1	65	111	-	-	1.7	2	180	160	-	-	-	-	5,8	8	25	129	

TYPE				VENT TYPE		ACCESSORIES			
HYD	HYDRONIC	XPL	EXPLOSION PROOF	GV	GRAVITY VENT	1	CONCENTRIC VENT ASSEMBLY	5	MANUFACTURER SUPPLIED MOUNTING HARDWARE
STM	STEAM	WD	WASH DOWN	PV	POWER VENT	2	DOWN TURN AIR NOZZLE	6	INTEGRAL THERMOSTAT
GF	GAS-FIRED			SC	SEPARATED COMBUSTION	3	STAINLESS STEEL HEAT EXCHANGER	7	REMOTE THERMOSTAT
EL	ELECTRIC					4	STAINLESS STEEL BURNER	8	DISCONNECT SWITCH

REMARKS:

(1) MOUNTING HEIGHT SHALL BE FROM FINISHED FLOOR TO BOTTOM OF UNIT.

GAS WATER HEATER (GWH) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	STORAGE TYPE	STORAGE CAP. (GAL)	STORAGE VENT TYPE	FUEL TYPE	FUEL PRESS. (PSI)	INPUT EL. (KW)	INPUT GAS (MBH)	WATER CAP. (GAL)	TEMP. RISE (°F)	RECOVERY RATE (GAL/H PER 100°F RISE)	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL FLA	THERMAL EFF. (%)	PIPE SIZE (IN) COLD	PIPE SIZE (IN) HOT	(1) FLUE SIZE (IN) INTAKE	(1) FLUE SIZE (IN) EXH.	OPER. TEMP. (°F)	ORIENT. (HOR. or VER.)	WEIGHT (LB) EMPTY	WEIGHT (LB) OPER.	LOCATION	REMARKS
GWH-1	AO SMITH BTH-199A	TANK	100	SC	NG	3.5-14	-	200	100	100	235	120	1	N/A	97	1 1/2	1 1/2	4	4	140	VER.	550	1400	100	

TYPE		VENT TYPE		FUEL TYPE	
TANK	STORAGE TANK	GV	GRAVITY VENT	NG	NATURAL GAS
INST	INSTANTANEOUS	PV	POWER VENT	LP	LIQUID PROPANE
		SC	SEALED COMBUSTION	EL	ELECTRIC

REMARKS:

(1) FLUE LENGTH AND SIZE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.

HYDRONIC PUMP (P) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	TYPE	SYSTEM SERVED	MEDIA	FLOW RATE (GPM)	TDH (FT)	MOTOR POWER (HP)	MOTOR SPEED (RPM)	MOTOR (VOLTS/PH)	IMPELLER DIA. (IN)	PUMP EFF. (%)	FLUID TEMP. (°F) MAX.	FLUID TEMP. (°F) MIN.	SIZE (IN) SUCT.	SIZE (IN) DISCH.	NPSHA (FT)	SUCTION DIFFUSER (IN)	TRIPLE DUTY VALVE (IN)	MTG. HEIGHT (IN)	WEIGHT (LB)	LOCATION	REMARKS
P-1	B&G, E-90-2AAC	IC	HWB-1	WATER	44.0	25	3/4	1,800	120/1	5.25	68.1	200	45	2	2	4.6	-	-	-		MECH RM	3,4,7
P-2	B&G, E-90-2AAC	IC	HWB-2	WATER	44.0	25	3/4	1,800	120/1	5.25	68.1	200	45	2	2	4.6	-	-	-		MECH RM	3,4,7
P-3	B&G, PL-55	IC	HWB-3	50% PG	20.0	25	2/5	3,250	120/1	-	-	200	45	1-1/2	1-1/2	-	-	-	-	15	HANGAR	3,4,7
P-4	B&G, PL-55	IC	HWB-4	50% PG	20.0	25	2/5	3,250	120/1	-	-	200	45	1-1/2	1-1/2	-	-	-	-	15	HANGAR	3,4,7

TYPE			
IC	IN-LINE CIRCULATOR	SP	SUBMERSIBLE PUMP
VCC	VERTICAL CLOSED COUPLED	VS	VERTICAL SUBMERSIBLE
CCES	CLOSE COUPLED END SUCTION	ES	EFFLUENT SUMP
FMES	FRAME MOUNTED END SUCTION	PMV	PUMPED MIXING VALVE
DS	DOUBLE SUCTION	WRC	WET ROTOR CIRCULATOR

REMARKS:

(1) PROVIDE WITH VFD RATED MOTORS.
(2) PROVIDE WITH MOUNTING HARDWARE.
(3) PROVIDE WITH FULL VOLTAGE CONTACTOR AND MOTOR OVERLOAD PROTECTION.
(4) SEE ELECTRICAL PLANS FOR COMBINATION MOTOR STARTER.
(5) PROVIDE A CHECK VALVE ON SUPPLY AND RETURN BETWEEN PUMP ASSEMBLY AND BOILER LOOP.
(6) PROVIDE WITH INERTIA BASE EQUAL TO MASON INDUSTRIES BMK6.
(7) PROVIDE MOUNTING HARDWARE TO SUPPORT PUMP.

AIR COOLED CONDENSING UNIT (ACCU) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	NOM. CAP. (TON)	MIN. EER	MIN. SEER	REF. TYPE	SST (°F)	HOT GAS BYPASS	NO. OF STAGES	AMB. AIR TEMP. (°F) MINIMUM	AMB. AIR TEMP. (°F) MAXIMUM	COMPRESSORS QTY.	COMPRESSORS TYPE	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL MCA	ELECTRICAL MOCP	(2) MAX. SOUND (DB)	MATCHING EQUIPMENT COOLING COIL	WEIGHT (LB)	LOCATION	REMARKS
ACCU-1	MITSUBISHI, PUY-A18	1 1/2	-	14.3	R-410A	45	NO	-	-20	120	1	SCR	208	1	13.0	20.0	48	AC-1	89	ON GRADE	1

COMPRESSOR TYPE	
RCP	RECIPROCATING
SCR	SCROLL
SCW	SCREW

REMARKS:

(1) MANUFACTURER SHALL SIZE REFRIGERANT PIPING, VALVES, AND ACCESSORIES FOR PROPER OPERATION OF SYSTEM.
(2) PER ARI STANDARD 320 "SOUND RATING OF LARGE OUTDOOR REFRIGERATING AND AIR-CONDITIONING EQUIPMENT".

AIR SEPARATOR (AS) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	TYPE	FLOW RATE (GPM)	FLOW RATE MAX. or NOM.	MAX. PD (FT)	PIPE CONNECTION SIZE (IN)	PIPE CONNECTION THD. or FLG.	INTEGRAL STRAINER (Y/N)	SYSTEM	WEIGHT (LB)	LOCATION	REMARKS
AS-1	BELL & GOSSETT, IAS-1-1/2	ASC	20	NOM.	3.0	1-1/2	THD.	N	HWB-3	10	HANGAR	
AS-2	BELL & GOSSETT, IAS-1-1/2	ASC	20	NOM.	3.0	1-1/2	THD.	N	HWB-4	10	HANGAR	

TYPE	
ASC	AIR SCOOP
TAN	TANGENTIAL

EXPANSION TANK (ET) SCHEDULE

MARK	MANUFACTURER, MODEL NUMBER	SYSTEM	TANK VOL. (GAL)	MIN. ACCEPTANCE VOL. (GAL) (MAX.)	DIMENSIONS (IN) DIA.	DIMENSIONS (IN) LENGTH	DIMENSIONS (IN) SYSTEM CONN.	AIR CHARGE PRESS. (PSI)	WEIGHT (LBS)	LOCATION	REMARKS
ET-1	TACO, CBX15	HWB-3	4	2.5	14	15	1/2	12	45	HANGAR	
ET-2	TACO, CBX15	HWB-4	4	2.5	14	15	1/2	12	45	HANGAR	

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DRAWN BY: RJH
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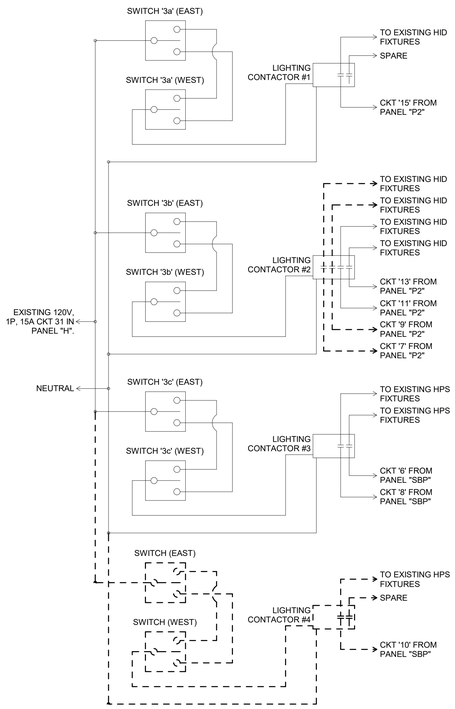
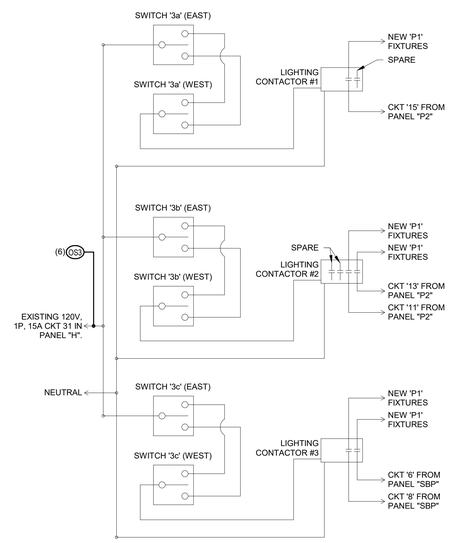


1 HANGAR LIGHTING CONTROL RISER DIAGRAM - DEMOLITION
NO SCALE



2 HANGAR LIGHTING CONTROL RISER DIAGRAM - NEW
NO SCALE

LUMINAIRE SYMBOLS

- RECESSED LUMINAIRE
- RECESSED TROFFER
- RECESSED LINEAR
- SURFACE INDUSTRIAL
- PENDANT ROUND LUMINAIRE
- PENDANT LINEAR
- WALL SURFACE BRACKET
- WALL SURFACE LINEAR
- WALL RECESSED LINEAR
- CEILING MOUNTED EXIT SIGN
- WALL MOUNTED EXIT SIGN
- ARROW DENOTES EXIT SIGN CHEVRON
- EMERGENCY BATTERY UNIT
- EMERGENCY SHADING MODIFIER

LUMINAIRE CIRCUITRY & CONTROL KEY:

A1 — LUMINAIRE TYPE
1Ra
- LOWER CASE LETTER INDICATES SWITCHLEG CONTROL
- "R" INDICATES LIGHTING CONTROL PANEL REFER TO LIGHTING CONTROL PANEL SCHEDULE
- NUMBER INDICATES BRANCH PANEL CIRCUIT NUMBER

LUMINAIRE CONTROL SYMBOLS

- OS X — OCCUPANCY SENSOR CEILING MOUNT (X REPRESENTS OCCUPANCY/PHOTO SENSOR SCHEDULE DESIGNATION)
- DS X — DAYLIGHT SENSOR (X REPRESENTS OCCUPANCY/PHOTO SENSOR SCHEDULE DESIGNATION)
- PE — PHOTO ELECTRIC CONTROL (X REPRESENTS OCCUPANCY/PHOTO SENSOR SCHEDULE DESIGNATION)
- LC — LIGHTING CONTACTOR
- S — SINGLE POLE SWITCH

SWITCH NOTATIONS:

3 DENOTES 3-WAY SWITCH
4 DENOTES 4-WAY SWITCH
D DENOTES WALL BOX DIMMER SWITCH
OSX DENOTES OCCUPANCY SENSOR (X REPRESENTS SCHEDULE DESIGNATION)

SERVICE & DISTRIBUTION SYMBOLS

- EXISTING PANELBOARD

MOTOR & EQUIPMENT CONNECTION SYMBOLS

- ELECTRICAL CONNECTION TO EQUIPMENT AND MOTORS, SIZED PER NEC. COORDINATE REQUIREMENTS WITH CONTRACTOR FURNISHING MOTOR OR EQUIPMENT. REFER TO SPECIFICATIONS AND EQUIPMENT WIRING SCHEDULE FOR ADDITIONALWORK ASSOCIATED WITH MOTOR OR EQUIPMENT.
- FUSIBLE DISCONNECT SWITCH
- S_{MS} — MOTOR STARTING SWITCH WITH OVERLOADS
- S_{MX} — MOTOR STARTING SWITCH WITHOUT OVERLOADS
- S_{CS} — 120V COMBO MOTOR STARTER AND DISCONNECT

SITE SYMBOLS

- DOUBLE LIGHT POLE ARM MOUNTED
- BOLLARD

GENERAL SYMBOLS

- #/E-### — DETAIL NUMBER / SHEET NUMBER
- 9.### — KEYED NOTE, USED TO DESCRIBE ADDITIONAL INFORMATION OF WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL IT IS SHOWN WITH.

LINE TYPE KEY

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK DASHED LINE)
- EXISTING TO REMAIN WORK (THIN SOLID LINE)

ELECTRICAL ABBREVIATIONS

3R	NEMA 3R RATING
4X	NEMA 4X RATING
A	AMPERES
A/E	ARCHITECT / ENGINEER
AAC	ABOVE ACCESSIBLE CEILING
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
APE	AIRCRAFT PROCESS EQUIPMENT
ATS	AUTOMATIC TRANSFER SWITCH
BLDG	BUILDING
BRKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CF	CIRCULATION FAN
CH	CHILLER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CP	CIRCULATION PUMP
CRAC	COMPUTER ROOM AIR CONDITIONER
CRP	CONDENSATION RETURN
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
DC	DROP CORD
DDC	DIGITAL CONTROL PANEL
DH	DUCT HEATER
DISC	DISCONNECT
DO	DOOR OPERATOR
DWG	DRAWING
E/O	ELECTRICAL-TO-OPTICAL CONVERTER
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ES	EQUIPMENT SUPPLIER
ETR	EXISTING TO REMAIN
EWC	ELECTRICAL WATER COOLER
EWH	ELECTRICAL WATER HEATER
F	FUSED
FA	FIRE ALARM
FAF	FORCED AIR FURNACE
FCU	FAN COIL UNIT
GC	GENERAL CONTRACTOR
GD	GARBAGE DISPOSAL
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GWH	GAS WATER HEATER
HD	HAND DRYER
HP	HORSEPOWER
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWB	HOT WATER BOILER
HWP	HOT WATER PUMP
IEWH	INSTANTANEOUS ELECTRIC WATER HEATER
IH	INFRARED HEATER
IMC	INTERMEDIATE METALLIC CONDUIT
IWH	INSTANTANEOUS WATER HEATER
J-BOX	JUNCTION BOX
LBS	POUNDS
LFS	LIGHTING FIXTURE SCHEDULE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MDF	MAIN DISTRIBUTION FRAME
MDP	MAIN DISTRIBUTION PANEL
MIN.	MINIMUM
MNS	MASS NOTIFICATION SYSTEM
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NL/EL	NIGHT LIGHT AND EMERGENCY LIGHT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE
RCP	RADIANT CEILING PANEL
RECPT	RECEPTACLE
REF	REFRIGERATOR
REQ'D	REQUIRED
RF	RETURN FAN
RGS	RIGID GALVANIZED STEEL CONDUIT MAY ALSO BE REFERENCED AS RMC OR GRC
RMC	RIGID METAL CONDUIT
RTU	ROOF TOP UNIT
S/N	SOLID NEUTRAL
SE	SERVICE ENTRANCE
SEC-P	SECURITY PANEL
SF	SUPPLY FAN
SP	SUMP PUMP
SS	STAINLESS STEEL
SW	SWITCH
SWBK	SWITCH BANK
TBR	TO BE REMOVED
TCP	TEMPERATURE CONTROL PANEL
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TYP	TYPICAL
UC	UNIT COOLER
UG	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATER
V	VOLTS
VER	VEHICLE EXHAUST REEL
VFD	VARIABLE FREQUENCY DRIVE
VS	VERSUS
W	WATTS
WCC	WATER COOLED CONDENSER
WFE	WELDING FUME EXTRACTOR
WH	WATER HEATER
WL	WET LOCATION LISTED
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

GENERAL NOTES:

1. REFER TO THE G SERIES DRAWINGS FOR GENERAL REQUIREMENTS THAT APPLY TO ALL WORK.
2. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE DETAILS OF WORK, VERIFY DIMENSIONS IN THE FIELD, AND ADVISE THE ARCHITECT/ENGINEER OF ANY DISCREPANCY BEFORE PERFORMING ANY WORK.
3. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADAAG (AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES).
4. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS AND FLOORS. MAKE RATED PENETRATIONS AS REQUIRED. SEAL ALL RATED PENETRATIONS AS IDENTIFIED IN DIVISION 1 REQUIREMENTS.
5. FLUSH MOUNT ALL TOGGLE SWITCHES AND RECEPTACLE AT HEIGHTS ABOVE FINISHED FLOOR AS SHOWN IN THE DEVICE MOUNTING HEIGHT DETAIL, EXCEPT WHERE OTHERWISE NOTED. DEVICES MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.
6. CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE PANEL SCHEDULES PROVIDED. BALANCE THE LOAD ON PANELS AS EVENLY AS POSSIBLE BETWEEN EACH PHASE. COMMON NEUTRALS SHALL NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH PHASE.
7. CIRCUITS SERVING EMERGENCY AND EXIT LUMINAIRES WILL BE RUN IN SEPARATE RACEWAY FROM ALL OTHER CIRCUITS.
8. A #12 GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED WITH CIRCUIT CONDUCTORS TO ALL RECEPTACLES.
9. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS, AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE. WHERE RACEWAY IS REQUIRED ON EXISTING CONCRETE AND MASONRY WALLS, SURFACE RACEWAY MAY BE USED IN LIEU OF CHANNELING WALLS TO ALLOW CONCEALED ROUTING. THE RACEWAY SHALL BE SINGLE CHANNEL STYLE TYPE WITH IVORY FINISH. THIS APPLIES FOR BRANCH CIRCUIT CONDUITS UP TO 3/4" SIZE. CONDUITS LARGER THAN 3/4" MAY BE ROUTED EXPOSED, BUT INSTALLED PARALLEL AND/OR PERPENDICULAR TO BUILDING LINES AND RUN AS UNOBTRUSIVELY AS POSSIBLE.
10. BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
11. ELECTRICAL AND TELECOMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO AVOID IMPEDANCE OF, OPERATION OF, AND/OR ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF ELECTRICAL AND TELECOMMUNICATIONS EQUIPMENT, ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR, SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
12. CONTRACTOR TO PROVIDE SUITABLE MECHANICAL PROTECTION AROUND ALL CONDUITS STUBBED OUT FROM FLOORS, WALLS OR CEILINGS DURING CONSTRUCTION TO PREVENT BENDING OR DAMAGING OF STUB OUTS DUE TO CARELESSNESS WITH CONSTRUCTION EQUIPMENT.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
14. CONTRACTOR SHALL REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF ELECTRICAL WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. CONTRACTOR SHALL REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.

DEMOLITION GENERAL NOTES:

1. THE INFORMATION SHOWN IS BASED ON EXISTING DRAWINGS AND SITE OBSERVATIONS TO ASSIST CONTRACTOR IN BIDDING. THE ELECTRICAL DRAWINGS INDICATE EXISTING ELECTRICAL ITEMS TO BE REMOVED. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF WORK REQUIRED AND DO NOT INDICATE EVERY BOX, CONDUIT, OR WIRE THAT MUST BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND VERIFY EXISTING CONDITIONS. REFER TO SPECIFICATION SECTION 26 05 02 FOR ADDITIONAL REQUIREMENTS.
2. ELECTRICAL ITEMS (i.e., LIGHTING FIXTURES, PANELBOARDS, DISCONNECTS, MOTOR CONTROLLERS , ETC.) REMOVED AND NOT RELOCATED REMAIN THE PROPERTY OF THE OWNER AND SHALL BE TURNED OVER TO THE OWNER, IN A STORAGE AREA TO BE DESIGNATED BY THE OWNER. EQUIPMENT BEING REMOVED SHALL BE HANDLED SO AS NOT TO FURTHER REDUCE ITS VALUE TO THE OWNER. THE CONTRACTOR SHALL DISPOSE OF MATERIAL THE OWNER DOES NOT WANT TO REUSE OR RETAIN FOR MAINTENANCE PURPOSES.
3. WHERE LIGHTS, SWITCHES, RECEPTACLES, ETC., ARE BEING REMOVED ALL ASSOCIATED CONDUIT AND WIRE BACK TO THE PANELBOARD OR FEEDER JUNCTION BOX SERVING THE DEVICE SHALL ALSO BE REMOVED, UNLESS THE CONDUIT CAN BE REUSED FOR NEW CONDUCTORS. THE CONTRACTOR SHALL DISPOSE OF MATERIAL THE OWNER DOES NOT WANT TO REUSE OR RETAIN FOR MAINTENANCE PURPOSES.
4. ALL BOXES THAT REMAIN IN PLACE IN EXISTING MASONRY WALLS THAT ARE TO REMAIN SHALL BE PROVIDED WITH A BLANK COVERPLATE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS ASSOCIATED WITH TYPE AND ATTACHMENT.
5. WHERE CONDUIT IS IN THE CONCRETE SLAB, CUT OFF FLUSH, PULL OUT WIRE, AND PLUG. WHERE CONDUIT IS RUN EXPOSED, ALL ASSOCIATED CLAMPS, SUPPORTS, HANGERS, ETC., SHALL ALSO BE REMOVED. CONDUIT CONCEALED IN WALL CONSTRUCTION MAY BE ABANDONED IN PLACE IF NOT AFFECTED BY OTHER CONSTRUCTION.
6. THIS CONTRACTOR SHALL COORDINATE ALL HIS WORK, INCLUDING PHASING WITH OTHER CONTRACTORS AT THE JOB SITE BEFORE REMOVING EXISTING ELECTRICAL AND INSTALLING NEW ITEMS.
7. EXISTING CONDUIT IN GOOD CONDITION, MAY BE REUSED IN PLACE. RELOCATED EXISTING CONDUIT SHALL NOT BE ALLOWED. BONDING CONDUCTORS SHALL BE INSTALLED IN ALL REUSED CONDUIT TO ASSURE PROPER GROUND PATH.
8. MAINTAIN CIRCUIT CONTINUITY OF DEVICES LOCATED OUTSIDE OF CONSTRUCTION AREA. DEVICE AND EQUIPMENT REMOVAL IN CERTAIN LOCATIONS MAY REQUIRE THE INSTALLATION OF A JUNCTION BOX TO RECONNECT CIRCUITS THAT REMAIN IN OPERATION. EXTEND CONDUIT AND WIRING AS REQUIRED TO MAINTAIN POWER TO REMAINING EQUIPMENT.
9. BALLASTS MANUFACTURED PRIOR TO 1980 CONTAIN PCBs AND SHALL BE DISPOSED OF IN ACCORDANCE WITH SPECIFICATIONS.
10. HID AND FLUORESCENT LAMPS CONTAIN MERCURY AND SHALL BE DISPOSED OF IN ACCORDANCE WITH SPECIFICATIONS.
11. CONTRACTOR SHALL REMOVE AND INSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF ELECTRICAL WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. CONTRACTOR SHALL REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
12. PROVIDE REVISED TYPED CIRCUIT DIRECTORY IN PANELBOARDS THAT HAVE CIRCUITS REMOVED OR ADDED CIRCUITS.
13. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT RACEWAY FLUSH WITH WALLS AND FLOORS. PATCH SURFACES TO MATCH EXISTING. REMOVE ALL ASSOCIATED CLAMPS, HANGERS, SUPPORTS, ETC. ASSOCIATED WITH RACEWAY REMOVAL.
14. DISCONNECT AND REMOVE ABANDONED LUMINAIRES, INCLUDING BRACKETS, STEMS, HANGERS, AND OTHER ACCESSORIES.
15. DISCONNECT AND REMOVED ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

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SHEET CONTENTS
NOTES, SYMBOLS, ABBREVIATIONS & DETAILS

SHEET NO.:
E-001

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KEYED NOTES

9.011 DISCONNECT AND REMOVE EXISTING POLE MOUNTED FIXTURE. UTILIZE THE EXISTING POLE, CIRCUIT AND CONTROL FOR NEW FIXTURE INSTALLATION. REFER TO SHEET E601 FOR ADDITIONAL INFORMATION.

9.012 DISCONNECT AND REMOVE EXISTING LIGHTED BOLLARD FROM CONCRETE BASE. MODIFY EXISTING BASE ANCHOR BOLTS AS NECESSARY TO ACCOMMODATE ANCHOR BOLT PATTERN OF NEW BOLLARD FIXTURE. RECONNECT EXISTING CIRCUIT AND CONTROL TO NEW FIXTURE. REFER TO SHEET E601 FOR ADDITIONAL INFORMATION.

N 1 **ELECTRICAL SITE PLAN**
1" = 20'-0"

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ELECTRICAL SITE PLAN

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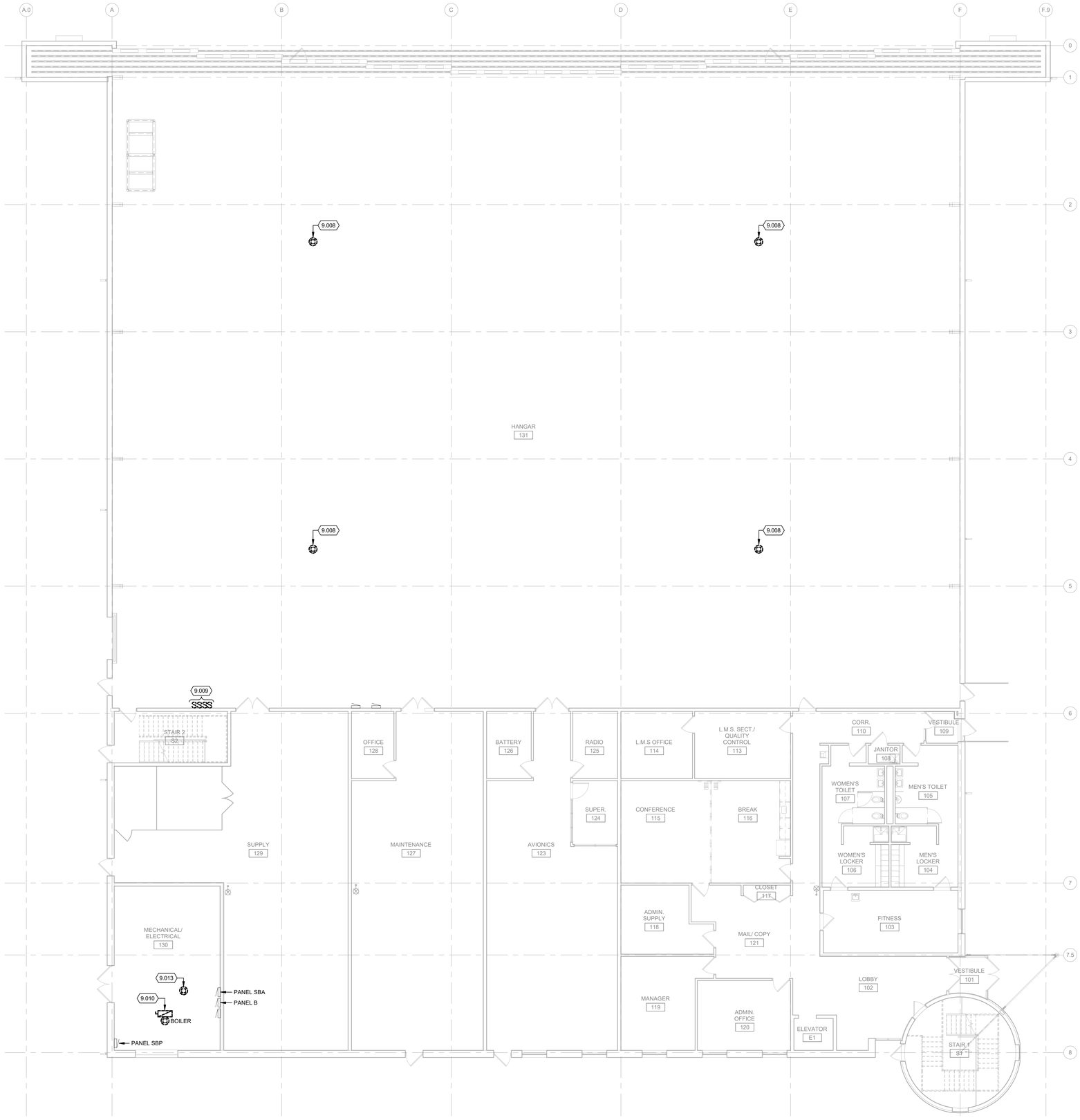

N 1 **FIRST FLOOR POWER DEMOLITION PLAN**
1/8" = 1'-0"

KEYED NOTES

9.008 UNATTACHED CEILING FAN SHALL BE DEMOLISHED. EXISTING RACEWAY AND CIRCUIT SHALL REMAIN TO SERVE NEW CEILING FAN. REFER TO SHEET E-101 FOR COORDINATION.

9.009 EXISTING CONDUIT AND WIRING SHALL REMAIN TO SERVE NEW CEILING FAN. REFER TO SHEET E-101 FOR COORDINATION.

9.010 DISCONNECT AND DEMOLISH FEED BACK TO SOURCE. EXISTING CIRCUIT BREAKER SHALL REMAIN TO SERVE NEW HOT WATER BOILERS. REFER TO SHEET E-101 FOR COORDINATION.

9.013 DETACH EXISTING 4" SQUARE BOX WITH DUPLEX RECEPTACLES THAT IS FASTENED DIRECTLY TO THE WATER HEATER AND RE-SUPPORT. SEE E-101 FOR MORE INFORMATION.

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FIRST FLOOR
POWER DEMOLITION
PLAN

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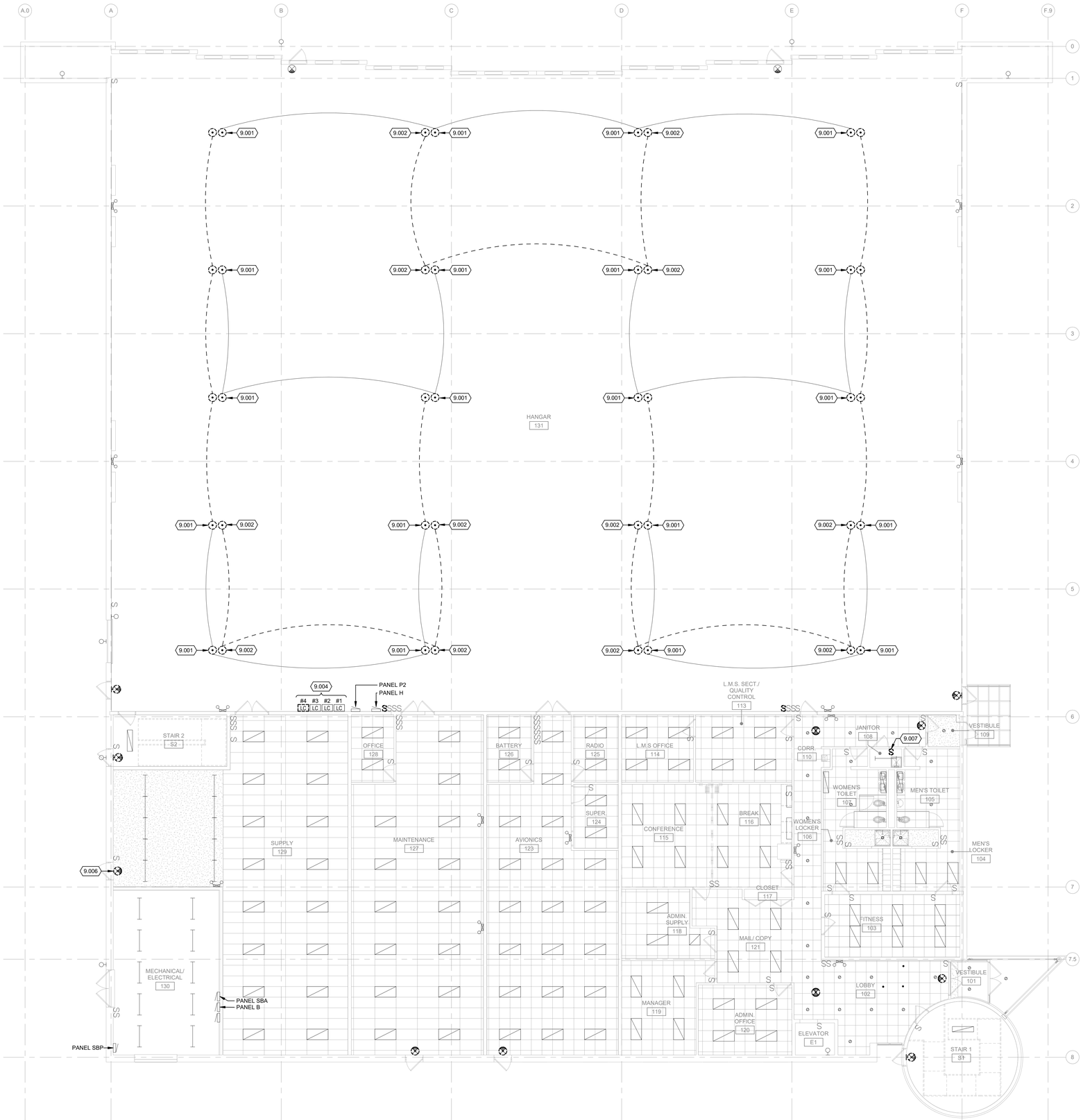

FIRST FLOOR LIGHTING DEMOLITION PLAN

1 1/8" = 1'-0"

KEYED NOTES

9.001 EXISTING RACEWAY AND CIRCUIT SHALL REMAIN TO SERVE NEW LIGHTING. REFER TO SHEET E-121 FOR COORDINATION.

9.002 DISCONNECT AND DEMOLISH FEED BACK TO SOURCE UNLESS NOTED OTHERWISE. EXISTING CIRCUIT BREAKER FEEDING THIS FIXTURE SHALL BE TURNED OFF AND LABELED AS "SPARE".

9.004 REFER TO HANGAR LIGHTING CONTROL RISER DIAGRAM - DEMOLITION ON SHEET E-001.

9.006 EXISTING BACK BOX, CONDUIT AND WIRING SHALL REMAIN TO SERVE NEW LIGHTING. REFER TO NEW LIGHTING PLANS FOR COORDINATION. TYPICAL FOR ALL DEMOLISHED EXIT SIGNS SHOWN ON THIS PLAN.

9.007 EXISTING BACK BOX, CONDUIT AND WIRING SHALL REMAIN TO SERVE NEW WALL MOUNTED OCCUPANCY SENSOR. REFER TO NEW LIGHTING PLANS FOR COORDINATION.

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BATTLE CREEK, MI 49015

ISSUED
3/29/19 ISSUED FOR BIDDING

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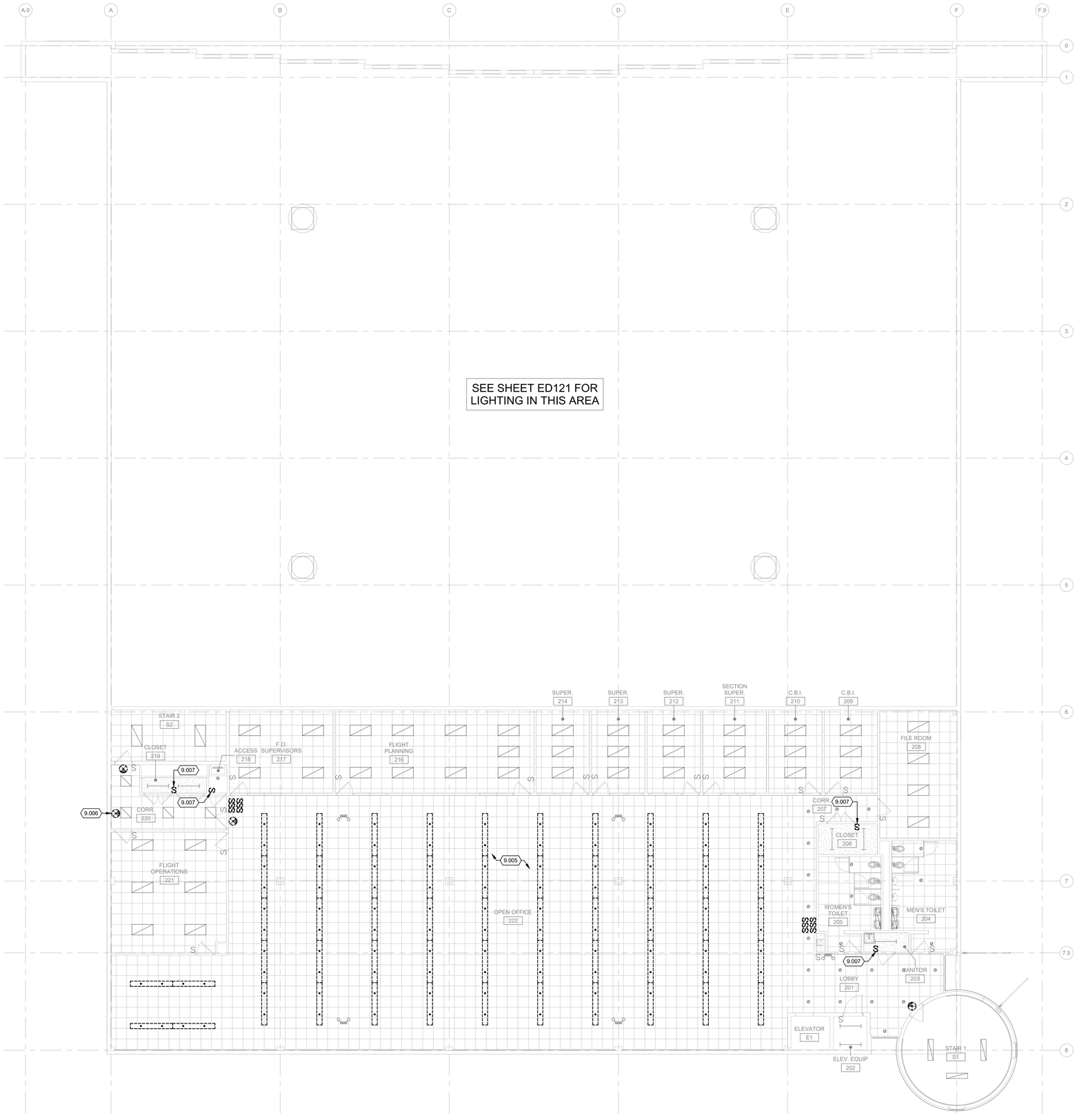
M&H NO.: 0228800-170289.01
DATE: March 29, 2019
DESIGNED BY: ARG
DRAWN BY: MRF
CHECKED BY: JRH
DO NOT SCALE DRAWINGS

SHEET CONTENTS
FIRST FLOOR
LIGHTING
DEMOLITION PLAN

SHEET NO.:
ED121

3/29/2019 9:31:12 AM C:\Revit Local\0228800-170289.01-E-CENTRAL-2018_799mh.rvt



N 1 **SECOND FLOOR LIGHTING DEMOLITION PLAN**
1/8" = 1'-0"

KEYED NOTES

9.005 DISCONNECT AND REMOVE EXISTING LIGHTING CONTROL DEVICES (WALL SWITCHES) AND ASSOCIATED WIRING BACK TO NEAREST JUNCTION BOX ABOVE ACCESSIBLE CEILING. EXISTING LIGHTING CONTROL DEVICE BACKBOX AND RACEWAY SHALL REMAIN. EXISTING RACEWAYS WILL REQUIRE RECONFIGURATION TO MATCH NEW SWITCHING ARRANGEMENT SHOWN ON NEW LIGHTING PLAN. DISCONNECT AND REMOVE EXISTING PENDANT LIGHT FIXTURES AND ASSOCIATED WIRING BETWEEN LIGHTING FIXTURES AND NEAREST BACKBOX, UNLESS NOTED OTHERWISE. REFER TO KEYED NOTE 9.208 ON SHEET E-122 FOR NEW WORK REQUIREMENTS IN THIS ROOM.

9.006 EXISTING BACK BOX, CONDUIT AND WIRING SHALL REMAIN TO SERVE NEW LIGHTING. REFER TO NEW LIGHTING PLANS FOR COORDINATION. TYPICAL FOR ALL DEMOLISHED EXIT SIGNS SHOWN ON THIS PLAN.

9.007 EXISTING BACK BOX, CONDUIT AND WIRING SHALL REMAIN TO SERVE NEW WALL MOUNTED OCCUPANCY SENSOR. REFER TO NEW LIGHTING PLANS FOR COORDINATION.

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SHEET CONTENTS
SECOND FLOOR LIGHTING DEMOLITION PLAN

SHEET NO.:
ED122

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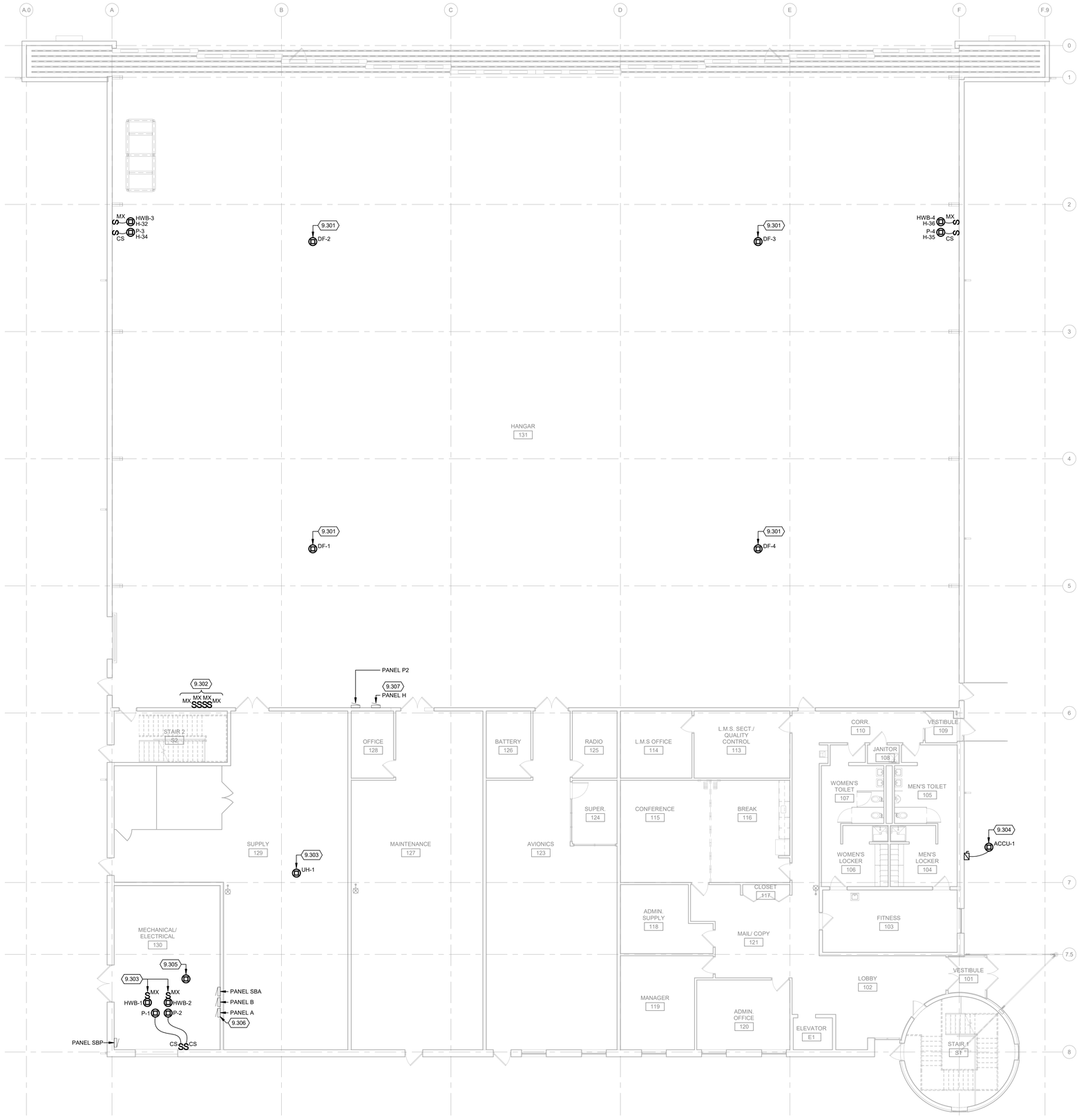

N 1 **FIRST FLOOR POWER PLAN**
1/8" = 1'-0"

KEYED NOTES

9.301 UTILIZE EXISTING RACEWAYS AND CIRCUIT IN PLACE BECOMING AVAILABLE UPON DEMOLITION OF EXISTING CEILING FANS TO SERVE NEW CEILING FANS. SPLICE AND EXTEND EXISTING CIRCUIT AND PROVIDE NEW JUNCTION BOXES AS REQUIRED. REFER TO SHEET ED101 FOR COORDINATION.

9.302 UTILIZE EXISTING CONDUIT AND WIRING FOR INSTALLATION OF NEW CEILING FAN SWITCH. REFER TO SHEET ED101 FOR COORDINATION.

9.303 UTILIZE EXISTING 20A/1P CIRCUIT BREAKER IN PANEL 'SBA', CIRCUIT 34, BECOMING AVAILABLE UPON THE DEMOLITION OF THE EXISTING BOILER TO FEED THE NEW HOT WATER BOILERS AND UNIT HEATER.

9.304 FEED FROM NEW 20A/2P CIRCUIT BREAKER IN PANEL 'A',

9.305 PROVIDE PERMANENT STRUT SUPPORT FOR EXISTING RECEPTACLE BOX. FED WITH FLEXIBLE WHIP. COORDINATE EXACT MOUNTING LOCATION WITH NEW WATER HEATER, PIPING AND EXHAUST.

9.306 VERIFY EXISTING SPARE BREAKERS WITHIN PANEL. REMOVE (2) EXISTING SPARE SINGLE POLE BREAKERS AND REPLACE WITH NEW 20A, 2-POLE BREAKER TO SERVE NEW ACCU-1. NEW BREAKER SHALL BE SQUARE D TYPE QOB.

9.307 PROVIDE (4) NEW SQUARE D TYPE QOB BREAKERS IN EXISTING PANEL TO SERVE HWB-3, P-3, HWB-4 AND P-4.

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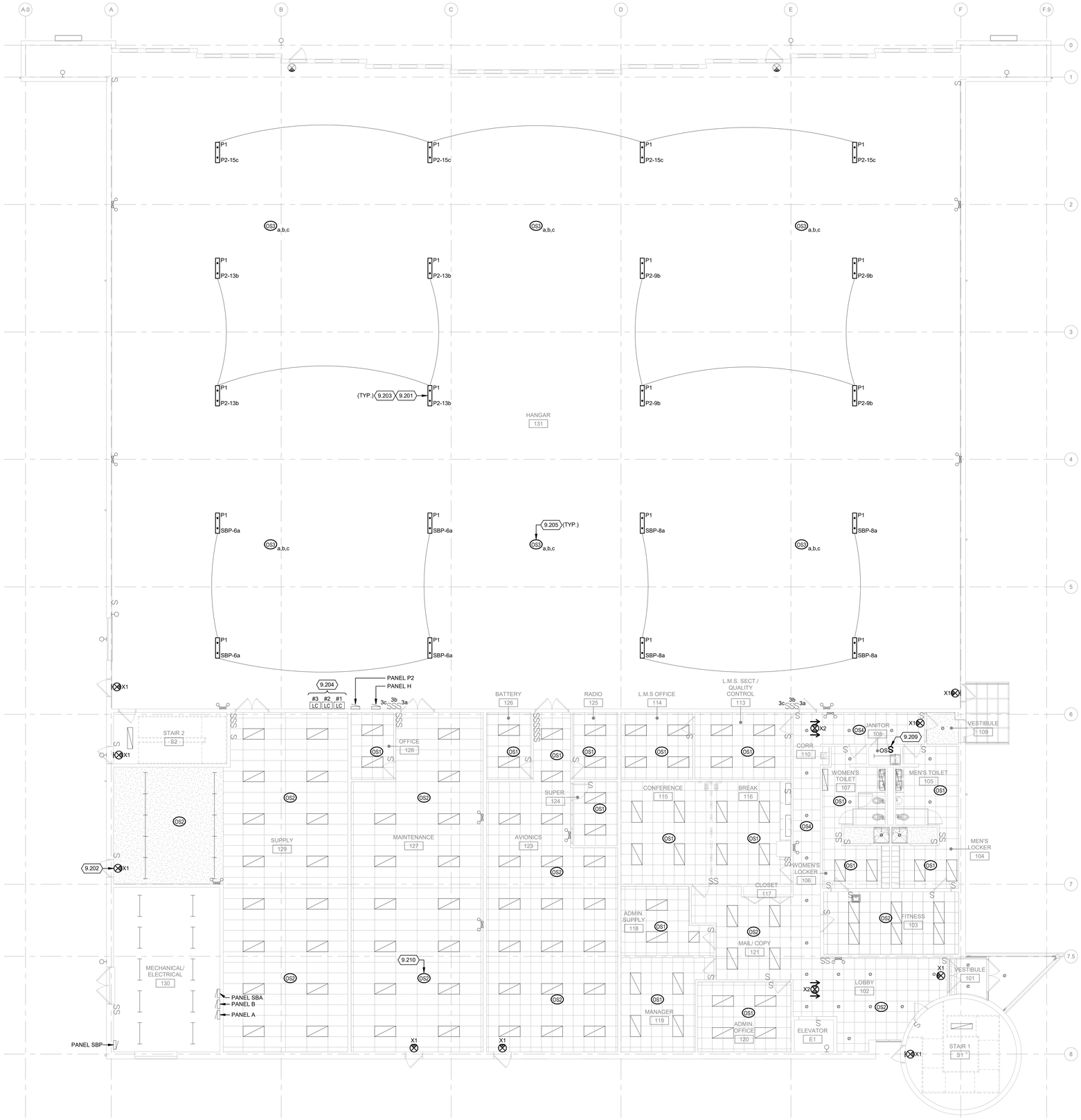
SHEET CONTENTS
FIRST FLOOR
POWER PLAN

SHEET NO.:
E-101

3/29/2019 9:31:02 AM C:\Revit Local\0228800-170289.01-E-CENTRAL-2018_799tmh.rvt



N 1 **FIRST FLOOR LIGHTING PLAN**
1/8" = 1'-0"

LIGHTING GENERAL NOTES:

1. ROOM OCCUPANCY SENSORS SHALL CONTROL ALL SWITCH LEGS OF LIGHTING (INCLUDE UNDER CABINET LIGHTING, WHERE APPLICABLE) WITHIN THE ROOM.
2. WHERE MULTIPLE OCCUPANCY SENSORS ARE SHOWN IN A SINGLE ROOM, SENSORS SHALL BE INSTALLED SO THAT DETECTION BY EITHER OCCUPANCY CONTROLS ALL LIGHTS IN ROOM.

KEYED NOTES

9.201 UTILIZE EXISTING RACEWAYS AND CIRCUIT IN PLACE BECOMING AVAILABLE UPON DEMOLITION OF EXISTING PENDANTS TO SERVE NEW FIXTURE. SPLICE AND EXTEND EXISTING CIRCUIT AND PROVIDE NEW JUNCTIONS BOX AS REQUIRED. REFER TO KEYED NOTE 9.003 ON SHEET ED121 FOR ADDITIONAL INFORMATION AND COORDINATION.

9.202 UTILIZE EXISTING BACK BOX, CONDUIT AND WIRING FOR INSTALLATION OF NEW EXIT SIGN. TYPICAL FOR ALL NEW EXIT SIGNS SHOWN ON THIS PLAN.

9.203 MOUNT FIXTURE AT 31'-6" AFF MEASURED FROM BOTTOM OF FIXTURE.

9.204 REFER TO HANGAR LIGHTING CONTROL RISER DIAGRAM - NEW ON SHEET E-001.

9.205 OCCUPANCY SENSOR SHALL BE PENDANT MOUNTED AT 28'-0" AFF.

9.209 UTILIZE EXISTING BACK BOX, CONDUIT AND WIRING FOR INSTALLATION OF NEW OCCUPANCY SENSOR.

9.210 OCCUPANCY SENSOR POWER PACK SHALL BE CONNECTED TO THE UNSWITCHED LOCAL LIGHTING CIRCUIT AHEAD OF THE LOCAL SWITCH. PROVIDE AUXILIARY CONTACTS AND ACCESSORIES AS REQUIRED TO ACCOMMODATE THE EXISTING SWITCHING AND CIRCUIT ARRANGEMENT. OCCUPANCY SENSOR CONTROL SHALL BE CONNECTED TO EACH SWITCH LEG BETWEEN LOCAL CONTROL AND FIRST LIGHT FIXTURE LOCATED IN THIS ROOM. TYPICAL FOR ALL CEILING MOUNTED OCCUPANCY SENSORS SHOWN ON THIS PLAN EXCEPT FOR IN ROOMS HANGAR 131 AND OPEN OFFICE 222.

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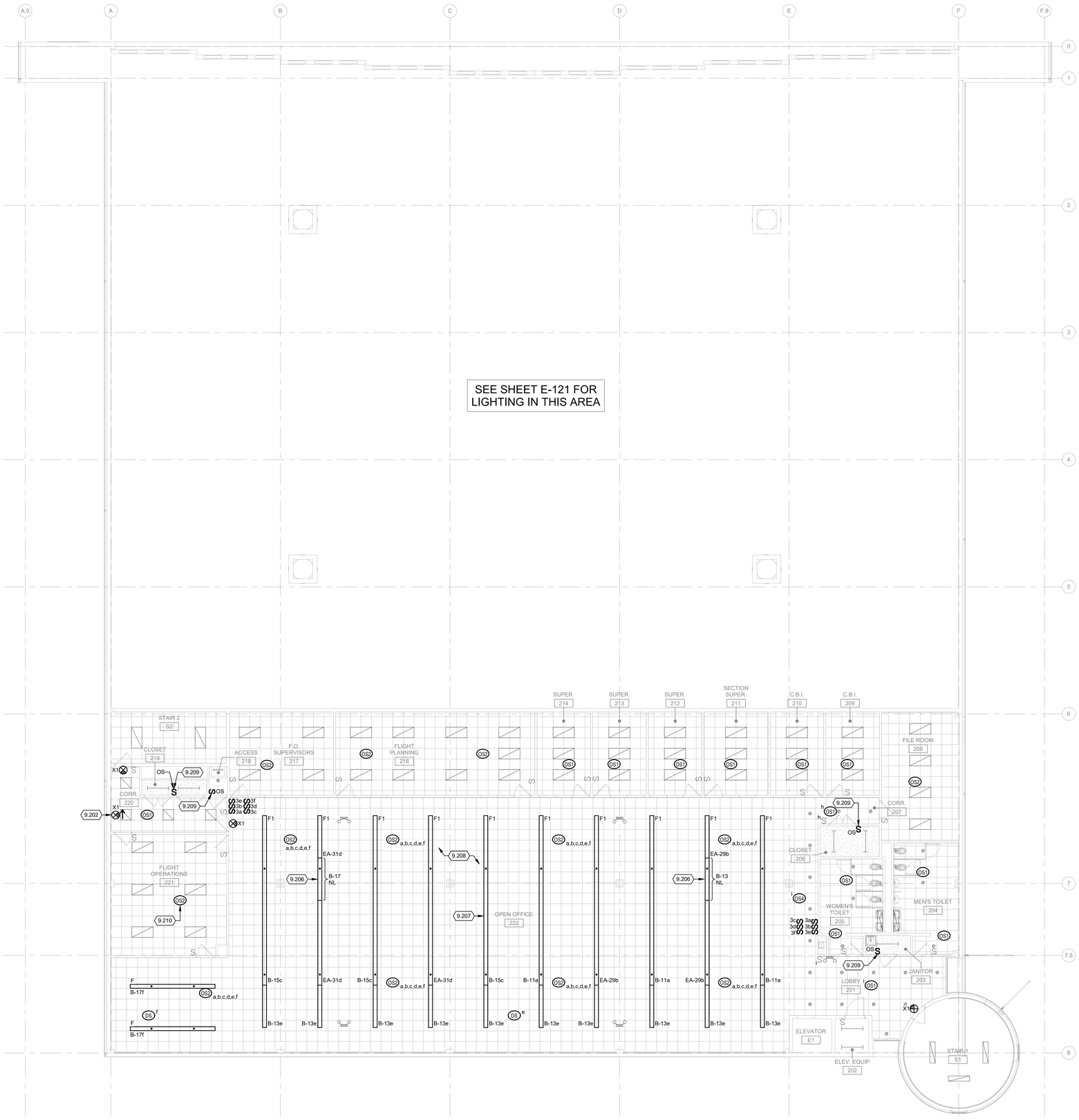
SHEET CONTENTS
FIRST FLOOR
LIGHTING PLAN

SHEET NO.:
E-121

3/29/2019 9:31:05 AM C:\Revit Local\0228800-170289.01-E-CENTRAL-2018_789mh.rvt



1 SECOND FLOOR LIGHTING PLAN

1/8" = 1'-0"

LIGHTING GENERAL NOTES:

1. ROOM OCCUPANCY SENSORS SHALL CONTROL ALL SWITCH LEGS OF LIGHTING (INCLUDE UNDER CABINET LIGHTING, WHERE APPLICABLE) WITHIN THE ROOM.
2. WHERE MULTIPLE OCCUPANCY SENSORS ARE SHOWN IN A SINGLE ROOM, SENSORS SHALL BE INSTALLED SO THAT DETECTION BY EITHER OCCUPANCY CONTROLS ALL LIGHTS IN ROOM.

KEYED NOTES

9.202 UTILIZE EXISTING BACK BOX, CONDUIT AND WIRING FOR INSTALLATION OF NEW EXIT SIGN. TYPICAL FOR ALL NEW EXIT SIGNS SHOWN ON THIS PLAN.

9.206 WIRE THIS 8' SECTION TO THE UNSWITCHED SIDE OF CIRCUIT SHOWN FOR ROW OF FIXTURES.

9.207 FIXTURE SHALL BE MOUNTED 1'-0" BELOW CEILING. TYPICAL FOR ALL 'F' AND 'F1' FIXTURES SHOWN ON THIS PLAN.

9.208 ALL WIRING BETWEEN NEW LIGHTING CONTROL DEVICES (WALL SWITCHES, OCCUPANCY SENSORS AND DAYLIGHT SENSORS) SHALL BE NEW. EXISTING BRANCH CIRCUIT SHALL BE EXTENDED FROM ABOVE CEILING JUNCTION BOX TO THE NEW 'F SERIES" PENDANT LIGHT FIXTURES. RE-CONFIGURE SWITCHES TO MATCH THE SWITCH LEG AND CIRCUIT SHOWN. REFER TO KEYED NOTE 9.005 FOR DEMOLITION REQUIREMENTS IN THIS ROOM.

9.209 UTILIZE EXISTING BACK BOX, CONDUIT AND WIRING FOR INSTALLATION OF NEW OCCUPANCY SENSOR.

9.210 OCCUPANCY SENSOR POWER PACK SHALL BE CONNECTED TO THE UNSWITCHED LOCAL LIGHTING CIRCUIT AHEAD OF THE LOCAL SWITCH. PROVIDE AUXILIARY CONTACTS AND ACCESSORIES AS REQUIRED TO ACCOMMODATE THE EXISTING SWITCHING AND CIRCUIT ARRANGEMENT. OCCUPANCY SENSOR CONTROL SHALL BE CONNECTED TO EACH SWITCH LEG BETWEEN LOCAL CONTROL AND FIRST LIGHT FIXTURE LOCATED IN THIS ROOM. TYPICAL FOR ALL CEILING MOUNTED OCCUPANCY SENSORS SHOWN ON THIS PLAN EXCEPT FOR IN ROOMS HANGAR 131 AND OPEN OFFICE 222.

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SHEET CONTENTS
SECOND FLOOR LIGHTING PLAN

SHEET NO.:
E-122

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OCCUPANCY/VACANCY/PHOTO SENSOR SCHEDULE

SENSOR ID	VOLTAGE	TECHNOLOGY		PATTERN	COVERAGE AREA	DESCRIPTION	MOUNTING	KEYED NOTE (TO BE SELECTED AS NEEDED)
		PIR	MICRO					
OS	120/277	X	X	180	UP TO 800 SF	SINGLE-POLE, WALL MOUNT SWITCH TYPE OCCUPANCY SENSOR. CAT# WSX PDT AUTO-ON OR VACANCY	WALL	1, 3
OS1	12-24V	X	X	360	UP TO 500 SF	CEILING MOUNTED PROGRAMMABLE WITH ADJUSTABLE TIME DELAY; CAT # CM PDT, SMALL MOTION	CEILING	4, 5, 6
OS2	12-24V	X	X	360	UP TO 2000 SF	CEILING MOUNTED PROGRAMMABLE WITH ADJUSTABLE TIME DELAY; CAT # CM PDT, LARGE MOTION	CEILING	4, 5, 6
OS3	12-24V	X		360	1.4:1 COVERAGE UP TO 30 FT MH	CEILING MOUNTED PROGRAMMABLE WITH ADJUSTABLE TIME DELAY, HIGH BAY	CEILING	6
OS4	12-24V	X	X	360	UP TO 28' @9' MH ; UP TO 36' @ 15' MH	CEILING MOUNTED PROGRAMMABLE WITH ADJUSTABLE TIME DELAY, CAT#CM PDT, HALLWAYS	CEILING	2, 6
DS	12-24V	N/A	N/A	N/A		SINGLE ZONE DAYLIGHT SENSOR WITH SELECTABLE ON/OFF OR DIMMING APPLICATION; CAT # CM PC ADC	CEILING	7
PE	12-24V	N/A	N/A	N/A		0 FC (MIN) TO 50-750 FC (MAX) OUTDOOR PHOTOCELL INSTALLED IN APPROPRIATELY RATED ENCLOSURE	ROOF	8

GENERAL NOTES:

1. COLOR OF DEVICES SHALL BE COORDINATED/MATCHING COLOR OF RECEPTACLES AND SWITCHES AS IDENTIFIED IN SPECIFICATION SECTION 26 27 26
2. PROVIDE ADEQUATE SUPPORT FOR CONTROL WIRING, REFER TO WIRING DIAGRAMS SUPPLIED WITH SELECTED DEVICES. FOLLOW MANUFACTURER INSTRUCTIONS
3. FOR ADDITIONAL INFORMATION REFER TO SPECIFICATION SECTION 26 09 42.23.
4. ALL LOW VOLTAGE SENSORS SHALL BE PROVIDED WITH 20A RATED POWER PACKS WITH ZERO CROSS SWITCHING TECHNOLOGY AND MANUAL ON MODE
5. PROVIDE 8' OF ADDITIONAL WIRING ABOVE ACCESSIBLE CEILING.
6. ALL POWER PACKS AND SLAVE PACKS SHALL BE INSTALLED IN APPROVED ENCLOSURES RATED FOR THE ENVIROMENTAL SPACES WHERE THEY ARE INSTALLED
7. WHERE OCCUPANCY SENSORS CONTROLLING LIGHTS OF A DIFFERENT VOLTAGES A SEPARATE POWER/SLAVE PACK SHALL BE PROVIDED.
8. POWER PACKS ARE NOT SHOWN ON THE PLANS, IT SHALL BE CONTRACTOR/SUPPLIER RESPONSIBIILTY TO VERIFY AND COORDINATE ALL REQURIED QUANTITIES.
9. WHERE DAYLIGHT HARVESTING IS SELECTED - PROVIDE ALL REQUIRED LABOR TO SET UP DAYTIME AND NIGHT TIME TRESHOLDS PER MANUFACTURER RECOMMENDATIONS
10. SENSOR SWITCH MANUFACTURER CAT # /SERIES ARE SHOWN IN THIS SCHEDULE AS A BASIS OF DESIGN - REFER TO SPECIFICATION SECTION 26 09 23 FOR ACCEPTABLE SUBSTITUTIONS.

KEYED NOTES:

1. SMALL MOTION DETECTION
2. INTEGRATED PHOTOCELL OPTION
3. INTEGRATED PHOTOCELL IS DISABLED. REFER TO LIGHTING PLANS FOR DAYLIGHT HARVESTING INTENT AND ENABLE PHOTOCELL OPERATION AS INDICATED
4. OCCUPANCY CONTROLLED DIMMING
5. INTEGRATED PHOTOCELL WITH DIMMING CAPABILITY
6. PROVIDE WITH AUXILLARY RELAY
7. INSTALL WITHIN 3'-4' FROM THE WINDOW, PROVIDE WITH POWER PACK.
8. EXTERIOR PHOTOCELL WIRED VIA LOW VOLTAGE LIGHTING CONTROL PANEL LCP AND/OR DIMMER RACK PANEL. REFER TO RESPECTIVE LIGHTING CONTROL SCHEDULES FOR COORDINATION.

LUMINAIRE SCHEDULE

NOTE: SEE SPECIFICATION FOR ADDITIONAL INFORMATION REGARDING LUMINAIRE AND INSTALLATION REQUIREMENTS. PROVIDE OPTIONS AND ACCESSORIES REFERENCED BY THE COLUMN TITLED " OPTIONS/ACCESSORIES". MANUFACTURERS LISTED ACCEPTABLE SHALL MEET ALL REQUIREMENTS AND FEATURES INDICATED. ACCEPTABLE MANUFACTURERS MUST MEET THE PHOTOMETRIC PERFORMANCE OF THE LISTED UNIT.

ABBREVIATIONS:
GWB = GYPSUM WALL BOARD; P = PENDANT; R = RECESSED; V = VARIES
ES = EXPOSED STRUCTURE; PLAS = PLASTER; S = SURFACE; W = WALL MOUNTED
LG = LAY-IN GRID; PL = POLE MOUNTED; UNV = UNIVERSAL VOLTAGE

DES.	MANUFACTURER	CATALOG SERIES	DESCRIPTION	LAMP DATA	VOLTAGE	BALLAST/ DRIVER	MOUNT	CEILING TYPE	FIXTURE DEPTH	LED SYSTEM INPUT WATTAGE	LED DELIVERED LUMENS	OPTIONS / ACCESSORIES	ACCEPTABLE MANUFACTURERS	KEYED NOTE
F	CORELITE	I2-WS-3-L40-1C-UNV-AC-48"-T9-16'-STD-DM8-W-E S	9" X 16" DIRECT/INDIRECT PENDANT	LED, 4000K	UNV	D	P	LG	2-1/2"	46.3 / 4FT	4,912 / 4FT		LUMENWERX FOCAL POINT	
F1	CORELITE	I2-WS-3-L40-1C-UNV-AC-48"-T9-40'-STD-DM8-W-E S	9" X 40" DIRECT/INDIRECT PENDANT	LED, 4000K	UNV	D	P	LG	2-1/2"	46.3 / 4FT	4,912 / 4FT		LUMENWERX FOCAL POINT	
P1	BIGASS SOLUTIONS	BAS-HPF1-48-05-01-02-1 0-01-00	9" X 46" INDUSTRIAL PENDANT	LED, 5000K	UNV	C	P	ES	4.63"	437	48,000		COLUMBIA LIGHTING RAB LIGHTING	
OA	MCGRAW-EDISON	GLEON-AF-03-LED-E1-T4 W-BZ	DOUBLE HEAD PARKING LUMINAIRE, TYPE IV WIDE DISTRIBUTION	LED, 4000K	UNV	C	P	-	21-3/4"	166 / HEAD	18,045 / HEAD		HUBBELL LITHONIA LIGHTING	1
OB	U.S. ARCHITECTURAL LIGHTING	BDA8-LED-WP-36LED-N W-120-RAL-7004-T	42" X 8" BOLLARD	LED, 4000K	120	C	GRADE	-	8"	42	2,600		SELUX LIGHTONIA LIGHTING	
X1	ISOLITE	RL-EM-R-WH-UN-SD	SINGLE FACE EXIT SIGN	LED	UNV	-	V	V	7-1/2"	2.5	-		LITHONIA LIGHTING	
X2	ISOLITE	RL-EM-R-WH-UN-SD	DOUBLE FACE EXIT SIGN	LED	UNV	-	V	V	7-1/2"	2.5	-		LIGTHONIA LIGHTING	

BALLAST/DRIVER CODE LISTING: (SEE SPECIFICATIONS)

C LED NON-DIMMABLE POWER SUPPLY.
D LED DIMMABLE POWER SUPPLY (0-10V).
E LED DIMMABLE POWER SUPPLY (TRAILING EDGE).
F LED DIMMABLE POWER SUPPLY 1% DIMMING LUTRON HI LUME OR EQUAL.
G LED DIMMABLE POWER SUPPLY ADVANCE XITANIUM OR EQUAL.

GENERAL NOTES:

1. ALL LED REPLACEMENT LAMPS SHALL BE TESTED FOR DIMMING COMPATABILITY WITH DIMMING SYSTEM BEING SUPPLIED. CONTRACTOR SHALL PROVIDE MINIMUM OF (4) FOUR LAMPS OF EACH TYPE LISTED IN THIS SCHEDULE OR ANY SUBSTITUTE TO BE SUPPLIES TO DIMMING SYSTEMS/DEVICE MANUFACTURER FOR TESTING TO VERIFY LAMP PERFORMANCE.
2. EC SHALL VERIFY AND COORDINATE ALL LUMINAIRE TRIMS/FLANGES WITH RESPECTIVE CEILING TYPES SCHEDULED AND/OR SUBMITTED BY THE GC PRIOR TO ORDERING OF THE LUMINAIRES. SCHEDULE INDICATES TRIM TYPES BASED ON THE GENERIC CEILING INFORMATION AVAILABLE AT THE TIME BIDDING DOCUMENTS WERE ISSUED AND DOES NOT REFLECT ACTUAL THICKNESS OF GYPSUM WALL BOARD OR PLASTER CEILING OR EXACT GRID TYPE SPECIFIED BY THE ARCHITECT.

KEYED NOTES:

1. FIXTURE SHALL BE MOUNTED TO EXISTING SQUARE STEEL POLE. PROVIDE MOUNTING BRACKET COMPATIBLE WITH EXISTING POLE.

ELECTRICAL EQUIPMENT WIRING SCHEDULE

STARTER/DISCONNECT TYPE:

MX - MANUAL MOTOR SWITCH	2SP - 2 SPEED, 2 WINDING	ECB - ENCLOSED CIRCUIT BREAKER
MS - MANUAL MOTOR STARTER (W/OVERLOAD RELAYS)	SW - 2 SPEED, 1 WINDING	
YD - WYE- DELTA	CS - COMBINATION MAGNETIC CONTROLLER	
FV - FULL VOLTAGE	FS - FUSED SWITCH	
SS - REDUCED VOLTAGE, SOLID STATE	VFD - VARIABLE FREQUENCY DRIVE	
RE - REVERSING	RVS - REDUCED VOLTAGE (MAGNETIC)	

KEY:
MFR - MANUFACTURER
F- FUSED
NF - NON-FUSED
EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
PC - PLUMBING CONTRACTOR

EQUIPMENT	EQUIPMENT DESCRIPTION	LOCATION	LOAD					EQUIPMENT		BRANCH WIRING				STARTER			DISCONNECT TYPE AND RATING				KEYED NOTE
			KW	HP	FLA (AMPS)	MCA (AMPS)	MOCP (AMPS)	VOLTS	PHASE	NO.	SIZE	GND.	C	TYPE	NEMA SIZE	FURNISHED/ INSTALLED BY	TYPE	SIZE / FUSE	NEMA ENCLOSURE	FURNISHED/ INSTALLED BY	
ACCU-1	AIR COOLED CONDENSER UNIT	EXTERIOR	-	-	-	13	20	208	1	3	8	8	1"	-	-	MC	F	30A/20A	NEMA 3R	EC / EC	2
DF-1	DISTRACTION FAN	131	0.16	-	-	-	-	120	1	2	12	12	3/4"	MX	-	MC/MC	-	-	-	-	1
DF-2	DISTRACTION FAN	131	0.16	-	-	-	-	120	1	2	12	12	3/4"	MX	-	MC/MC	-	-	-	-	1
DF-3	DISTRACTION FAN	131	0.16	-	-	-	-	120	1	2	12	12	3/4"	MX	-	MC/MC	-	-	-	-	1
DF-4	DISTRACTION FAN	131	0.16	-	-	-	-	120	1	2	12	12	3/4"	MX	-	MC/MC	-	-	-	-	1
HWB-1	HOT WATER BOILER	130	-	-	2.7	-	-	120	1	2	12	12	3/4"	-	-	-	MX	-	NEMA 1	EC / EC	-
HWB-2	HOT WATER BOILER	130	-	-	2.7	-	-	120	1	2	12	12	3/4"	-	-	-	MX	-	NEMA 1	EC / EC	-
HWB-3	HOT WATER BOILER	131	-	-	6.3	-	-	120	1	2	10	12	3/4"	-	-	-	MX	-	NEMA 1	EC / EC	-
HWB-4	HOT WATER BOILER	131	-	-	6.3	-	-	120	1	2	10	12	3/4"	-	-	-	MX	-	NEMA 1	EC / EC	-
P-1	HYDRONIC PUMP	130	-	0.75	-	-	-	120	1	2	12	12	3/4"	CS	0	EC	-	-	-	-	-
P-2	HYDRONIC PUMP	130	-	0.75	-	-	-	120	1	2	12	12	3/4"	CS	0	EC	-	-	-	-	-
P-3	HYDRONIC PUMP	131	-	0.5	-	-	-	120	1	2	10	12	3/4"	CS	0	EC	-	-	-	-	-
P-4	HYDRONIC PUMP	131	-	0.5	-	-	-	120	1	2	10	12	3/4"	CS	0	EC	-	-	-	-	-
UH-1	UNIT HEATER	129	-	FRAC.	-	-	-	120	1	2	12	12	3/4"	BY MANUFACTURER			BY MANUFACTURER				-

EQUIPMENT SCHEDULE GENERAL NOTES:

1. ALL WORK BY THIS CONTRACTOR TO COMPLY WITH ALL LOCAL, STATE AND NATIONAL ELECTRICAL CODES.
2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH OTHER TRADES TO AVOID CONFLICTS AND TO VERIFY ALL EQUIPMENT CONNECTIONS AND FOR COMPLETE INSTALLATION.
3. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE ELECTRICAL SYSTEM PER CONTRACT DRAWINGS AND ENSURING THAT THE SYSTEM IS OPERATIONAL UPON JOB COMPLETION.
4. PROVIDE ALL POWER WIRING INCLUDING ALL CIRCUITRY CARRYING ELECTRICAL ENERGY FROM PANELBOARD OR OTHER SOURCE THROUGH STARTERS AND DISCONNECTS TO MOTORS, PACKAGED EQUIPMENT OR PACKAGED CONTROL PANELS. PROVIDE ALL WIRING BETWEEN CONTROL PANELS AND MOTORS. INCLUDE STARTERS, DISCONNECTS AND OVERLOAD PROTECTION IF NOT INCLUDED HVAC SPECIFICATION. COORDINATE WITH HVAC SPECIFICATIONS.
5. MOTORS CONNECTED TO EMERGENCY SYSTEMS CIRCUITRY SHALL HAVE CIRCUITRY INSTALLED IN SEPARATE RACEWAY PER NEC ARTICLE 700.
6. THIS CONTRACTOR SHALL VERIFY WITH MECHANICAL CONTRACTOR, ELECTRICAL REQUIREMENTS INCLUDING VOLTAGES, HORSE POWER, DISCONNECTING MEANS, STARTERS FOR MOTORS AND EQUIPMENT PRIOR TO ORDERING CIRCUIT BREAKERS, FUSIBLE SWITCHES AND STARTERS.
7. ALL INTERLOCKING REQUIRED BY THE DRIVE MANUFACTURER BETWEEN THE VARIABLE FREQUENCY DRIVE AND THE DISCONNECT SWITCHES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

EQUIPMENT SCHEDULE KEYED NOTES:

1. FURNISHED BY MECHANICAL CONTRACTOR WITH WALL MOUNTED REMOTE CONTROL FOR ON/OFF AND SPEED CONTROL. CONTROL SHALL BE INSTALLED AND WIRED BY EC.
2. PROVIDE FUSE SIZES PER MANUFACTURER RECOMMENDATIONS.

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DRAWN BY: MRF
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DO NOT SCALE DRAWINGS

SHEET CONTENTS
SCHEDULES

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