

# HVAC UPGRADES FOR BWHS, LJHS, AND ARENDS ARTS CENTER

BENTONVILLE & CENTERTON, AR

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Project No.: 2549

**MECHANICAL / ELECTRICAL ENGINEER:**

HSA ENGINEERING  
7405 ELLIS ST  
FORT SMITH, AR 72916

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# Hight Jackson

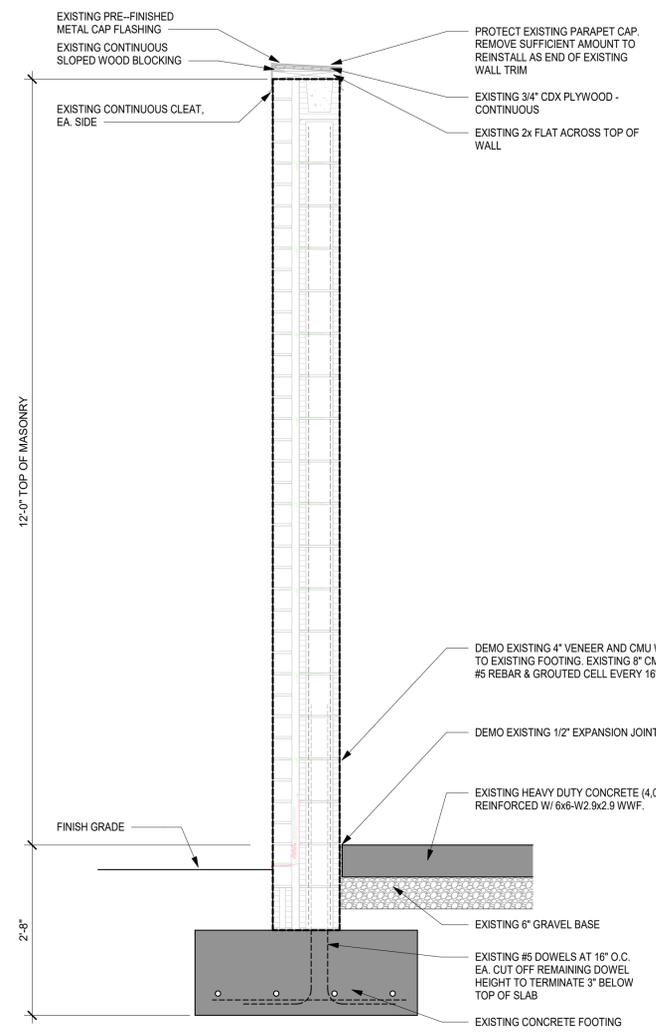
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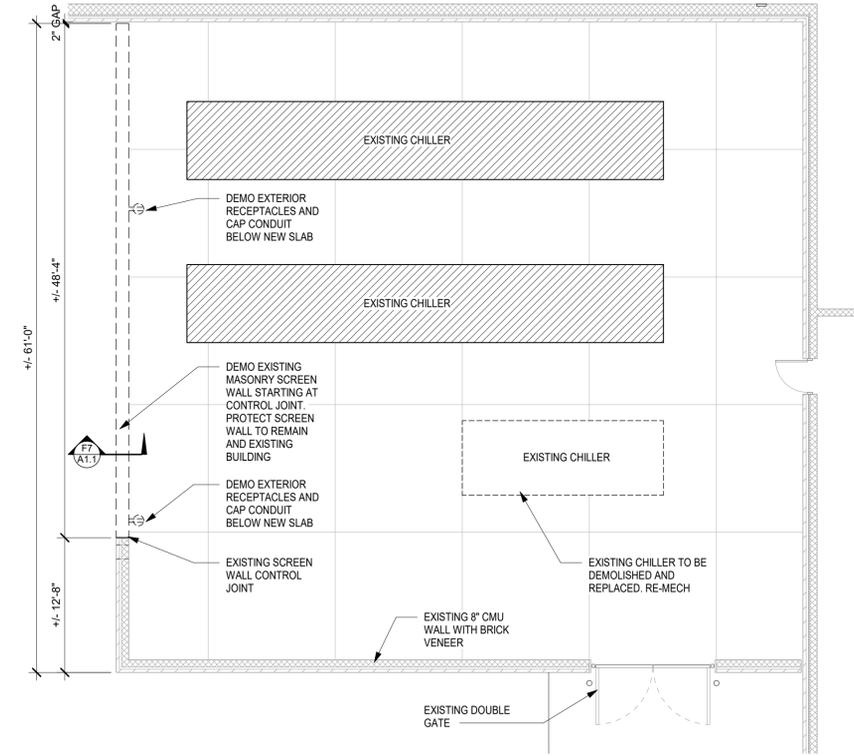
A QUALITY CONTROL CHECK, INCLUDING THE APPROPRIATE COORDINATION AMONG DISCIPLINES, HAS BEEN MADE ON THIS PROJECT'S DOCUMENTS, AND CORRECTIONS RELATED TO THIS CHECK HAVE BEEN MADE. THE UNDERSIGNED PRINCIPAL/OWNER STATES THAT THESE PLANS AND SPECIFICATIONS AS SUBMITTED FOR REVIEW ARE, TO THE BEST OF HIS OR HER KNOWLEDGE AND ABILITY, COMPLETE AND READY FOR REVIEW



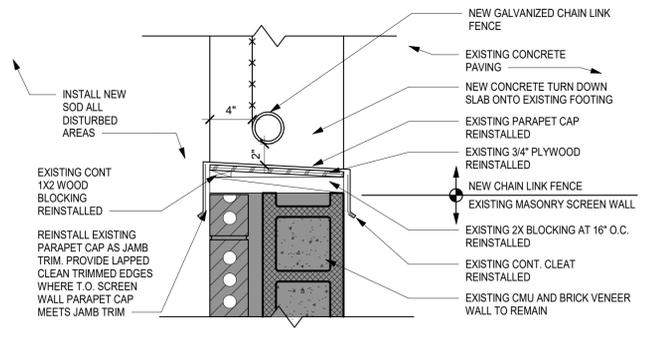
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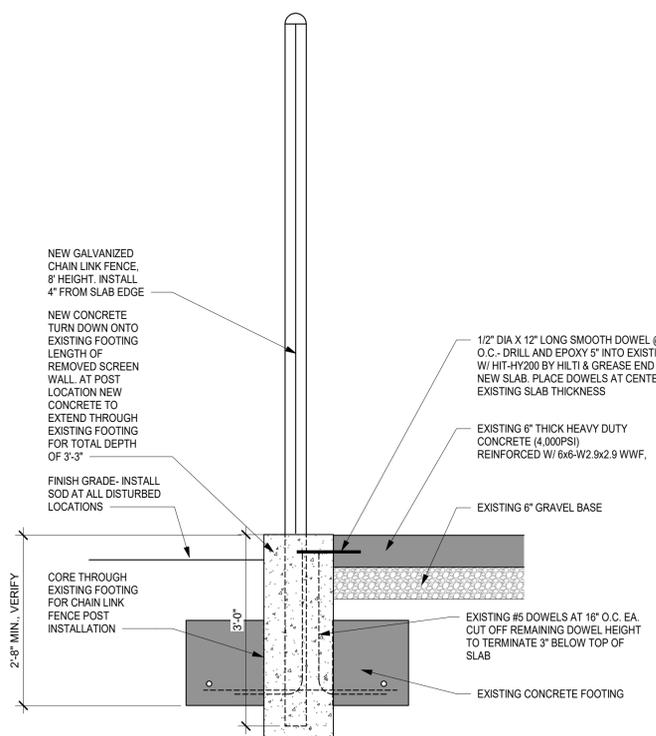
**F7** DEMO SCREEN WALL SECTION  
 3/4" = 1'-0" Ref: G11/A1.1



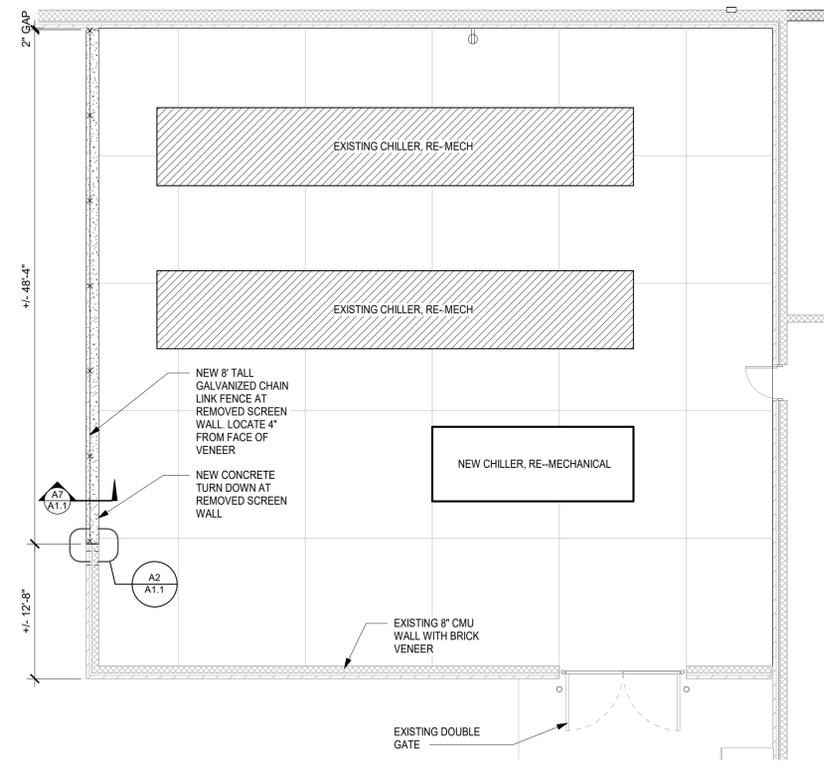
**G11** DEMO SITE PLAN - BWHS MECH. COURTYARD  
 1/8" = 1'-0"



**A2** NEW FENCE TO EXST SCREEN WALL DETAIL  
 1 1/2" = 1'-0" Ref: A11/A1.1



**A7** CHAIN LINK FENCE SECTION  
 3/4" = 1'-0" Ref: A11/A1.1



**A11** SITE PLAN - BWHS MECH. COURTYARD  
 1/8" = 1'-0"

**GENERAL NOTES:**

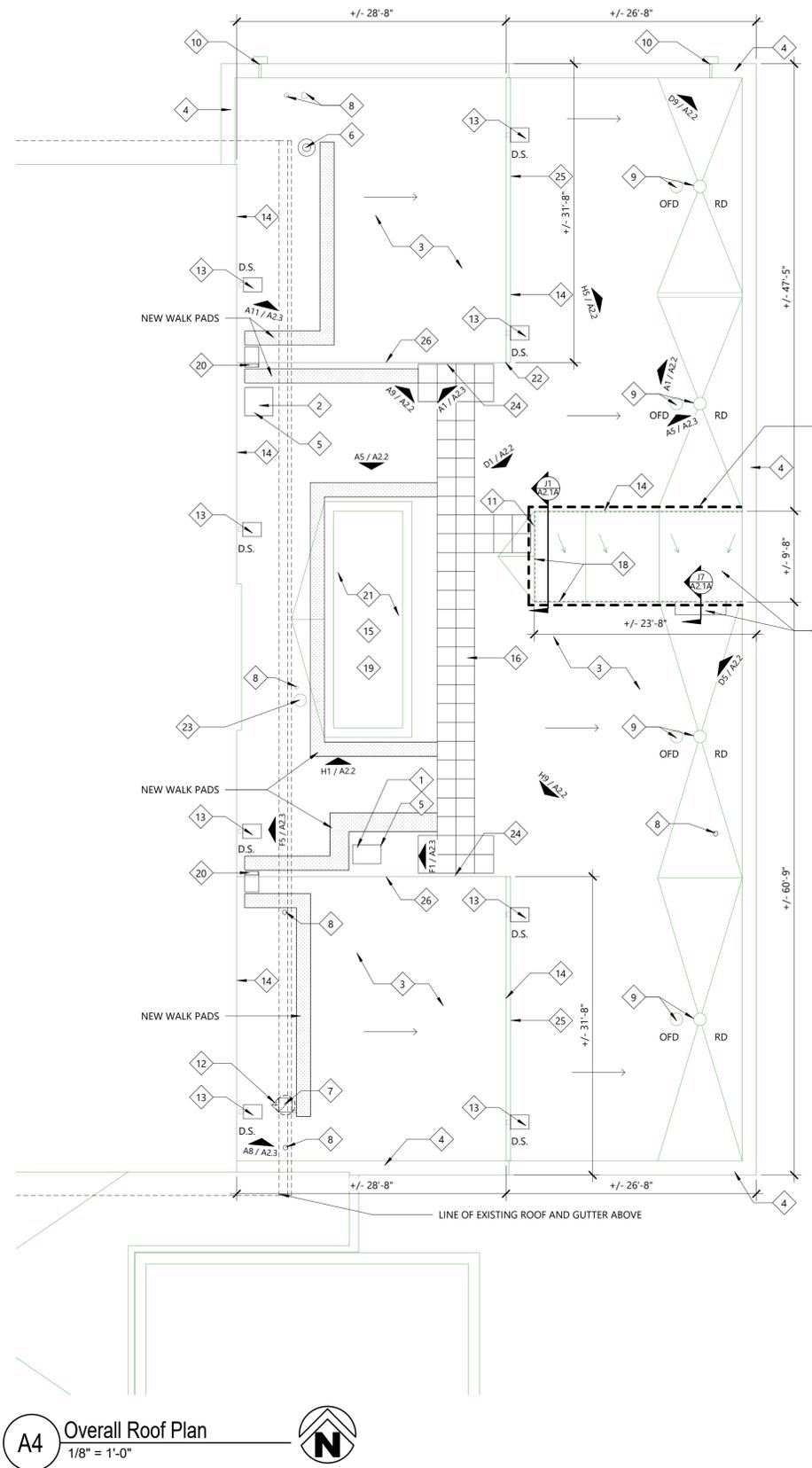
1. PROVIDE NEW TPO MEMBRANE ROOFING SYSTEM OVER 1/2" RIGID INSULATION OVER EXISTING MODIFIED BITUMEN ROOFING. MAINTAIN OR PROVIDE 'CRICKET' TAPERED ROOF INSULATION BEHIND ALL ROOF PENETRATIONS AND CURBS AS REQUIRED FOR PROPER POSITIVE DRAINAGE TO GUTTERS AND ROOF DRAINS. TOTAL MINIMUM INSULATION THICKNESS TO BE 3 1/2" (1/2" NEW + 3" EXISTING.)
2. IT IS HIGHLY ENCOURAGED THAT ALL CONTRACTORS ATTEND SITE TO REVIEW EXISTING CONDITIONS, FIELD VERIFY ROOF DIMENSIONS AND AREAS, AND BECOME FULLY FAMILIAR WITH THE PROJECT REQUIREMENTS, RE-SPECS. VISITS TO THE SITE MAY BE COORDINATED WITH THE CONSTRUCTION MANAGER. ROOF PLAN PROVIDED IS FOR GUIDANCE ONLY. ROOFING CONTRACTOR IS RESPONSIBLE FOR ALL SCOPE OF WORK REQUIRED TO PROVIDE A NEW ROOFING SYSTEM WITH A COMPLETE AND WATER TIGHT SEAL. ROOFING CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTING ALL ROOF CONDITIONS AND SHALL WARRANT ALL RE-WORKED AREAS.
3. IN ADDITION TO VERIFYING EXISTING CONDITIONS ON TOP AND AROUND AREAS OF RE-ROOF, BIDDERS ARE ALSO TO INVESTIGATE BELOW ROOF STRUCTURE TO DETERMINE IF ANY ELECTRICAL CONDUIT, CONTROL WIRING, GAS PIPING, DUCTWORK, ETC. WILL BE EFFECTED BY ROOFING OPERATIONS. BIDDERS WILL FIGURE INTO THEIR BID. COORDINATION WITH EXISTING ITEMS SO THAT EXISTING ITEMS ARE NOT DAMAGED OR AFFECTED BY ROOFING WORK.
4. ROOFING CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTION OF THE EXISTING BUILDING AND SHALL NOT LEAVE ANY OPENINGS IN THE ROOF AT THE END OF EACH WORK DAY THAT ARE NOT WATER TIGHT.
5. CONTRACTOR SHALL REPORT TO THE ARCHITECT AND OWNER IMMEDIATELY ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND EXISTING CONDITIONS.
6. REFER TO ROOF PLAN FOR APPROX. ROOF AREA, CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, SLOPES AND ROOF TOP EQUIPMENT LOCATIONS.
7. REMOVE EXISTING METAL FLASHING, BOOT FLASHING AND CAP FLASHING AS NEEDED FOR NEW ROOF INSTALLATION.
8. DURING NEW ROOF INSTALLATION ALL NEW ROOFING MEMBRANE, EXISTING ROOFING MEMBRANE, AND ALL GROUND LEVEL SURROUNDING CONSTRUCTIONS IS TO BE KEPT CLEAN OF ANY DEBRIS.
9. REPAIR/ REPLACE ANY DAMAGED ROOF INSULATION AS REQUIRED TO PROVIDE ACCEPTABLE SURFACE TO RE-ROOF OVER. RE-DETAILS AND PHOTOS FOR ADDITIONAL INFORMATION
10. ANY INTERRUPTION OF SERVICES/ UTILITIES MUST BE COORDINATED WITH OWNER AT LEAST 24HRS PRIOR TO SHUT-OFF.
11. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL ITEMS BELOW THE ROOF FROM DUST AND WATER DAMAGE DURING CONSTRUCTION. COORDINATE AREAS OF COVERAGE WITH OWNER AS WORK PROGRESSES.
12. REPLACE DAMAGED TREATED WOOD NAILERS AND BLOCKING PER UNIT PRICE.
13. DEMOLISH EXISTING METAL PARAPET CAPS, FLASHING AND TRIM, AND REPLACE WITH NEW, PRE-FINISHED METAL FINISH TO MATCH EXISTING, RE-SPECS
14. NOT ALL PLUMBING VENT PENETRATIONS ARE SHOWN ON PLAN. CONTRACTOR SHALL FIELD VERIFY QUANTITY AND LOCATIONS OF ALL PLUMBING VENTS AND INCLUDE WITHIN BID AND SCOPE.
15. AT ALL EXISTING PLUMBING VENT PENETRATIONS, INSTALL NEW FLEXIBLE BOOT FLASHING AND STAINLESS STEEL BAND CLAMP PER ROOFING MANUFACTURER'S DETAILS, TYPICAL ALL PLUMBING VENT AND MECHANICAL PIPE PENETRATIONS. EXTEND VENT PIPING AS NECESSARY TO MEET MANUFACTURERS MINIMUM HEIGHT. USE ALTERNATE MANUFACTURER'S STANDARD DETAILS FOR PENETRATION POCKETS WHERE REQUIRED FOR SQUARE OR RECTANGULAR PENETRATIONS. TYPICAL ALL ROOF PENETRATIONS.
16. EXTEND OR MODIFY EXISTING ROOF DRAINS AND OVERFLOW DRAINS FOR INCREASED ROOF INSULATION. INSURE DEPRESSION IS MAINTAINED AT PRIMARY DRAIN.
17. AT STAIR ROOF, ALONG NORTH EDGE AND EAST END PROVIDE ADDITIONAL TAPERED INSULATION TO DRAIN WATER OFF EDGES TO THE SOUTH. PROVIDE ADDITIONAL LAYER OF SACRIFICIAL TPO MEMBRANE ALONG DRAINAGE EDGE.
18. AT STAIR ROOF, PROVIDE NEW GRAVEL GUARD DAM AT ALL PERIMETER EDGES OF ROOF WITH EXCEPTION OF DISCHARGE EDGE AT LOWER ROOF SOUTH SIDE.
19. EXISTING ROOF CONSIST OF 3" INSULATION WITH MODIFIED BITUMEN ROOFING. EXISTING ROOF SLOPES TO ROOF DRAINS OR GUTTER. MAINTAIN EXISTING DRAINAGE PATTERNS. EXISTING DECKING IS SLOPED STRUCTURE. MAINTAIN CURRENT SLOPE OF 1/4" PER 1 FT. MINIMUM SLOPE OR GREATER. NO PONDING WATER IS ALLOWED.
20. TAKE CARE NOT TO DAMAGE EXISTING EIFS BASE FLASHING TO REMAIN.
21. PROTECT ALL PLUMBING, MECHANICAL AND ELECTRICAL EQUIPMENT AND LINES THAT ARE TO REMAIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PAY FOR ANY REPAIR OR REPLACE ANY ITEMS DAMAGED DURING WORK TO LIKE NEW CONDITION PRIOR TO PROJECT CLOSE OUT.
22. CONTRACTOR TO INCLUDE IN BID PRICING TO HAUL AWAY AND DISPOSE OF ALL EXISTING ROOF MATERIALS REQUIRED TO BE REMOVED.
23. THERMAL SCAN EXISTING ROOF SURFACE PRIOR TO BEGINNING ROOFING TO VERIFY ROOF IS DRY WITH NO TRAPPED MOISTURE. IF MOISTURE IS FOUND DOCUMENT EXTENT OF LOCATION ON PLAN AND SUBMIT TO ARCHITECT. UNIT PRICING WILL BE UTILIZED TO REMOVE EXISTING WET ROOFING AREAS.
24. AT ALL EXISTING ELECTRICAL CONDUIT, CHILLER PIPING, AND STRUCT STEEL LOCATIONS THROUGH ROOF INSTALL PITCH PAN WITH POURABLE SEALANT.

**SYMBOL LEGEND**

<p><b>A1</b> Floor Plan 1/8" = 1'-0" Ref: A1/A2.2</p> <p>DRAWING NUMBER BASED ON SHEET GRID DRAWING TITLE</p> <p>DRAWING SCALE BACK REFERENCE TO PARENT DRAWING</p> <p><b>N</b> NORTH ARROW</p> <p><b>A1/A1.1</b> SECTION OR DETAIL NUMBER SHEET NUMBER</p> <p><b>A1/A1.1</b> SECTION DETAIL</p>	<p><b>ROOF SYMBOLS:</b></p> <p>EXISTING EXHAUST FAN</p> <p>EXISTING PLUMBING VENT THRU ROOF</p> <p>EXISTING FLUE VENT</p> <p>ROOF OVERHANG ABOVE</p> <p>DS DOWNSPOUT W/ METAL SPLASH PAN</p> <p>A1/A1.1 PHOTOGRAPH DIRECTION</p> <p>RD EXISTING ROOF DRAIN</p> <p>OFD EXISTING OVERFLOW DRAIN</p> <p>EXISTING ROOF SLOPE</p> <p>WALK PAD</p> <p>EXISTING CONCRETE PAVERS TO REMAIN - NO WORK</p> <p>GRAVEL GUARD PROFILE</p> <p>ROOF EDGE TRIM</p>
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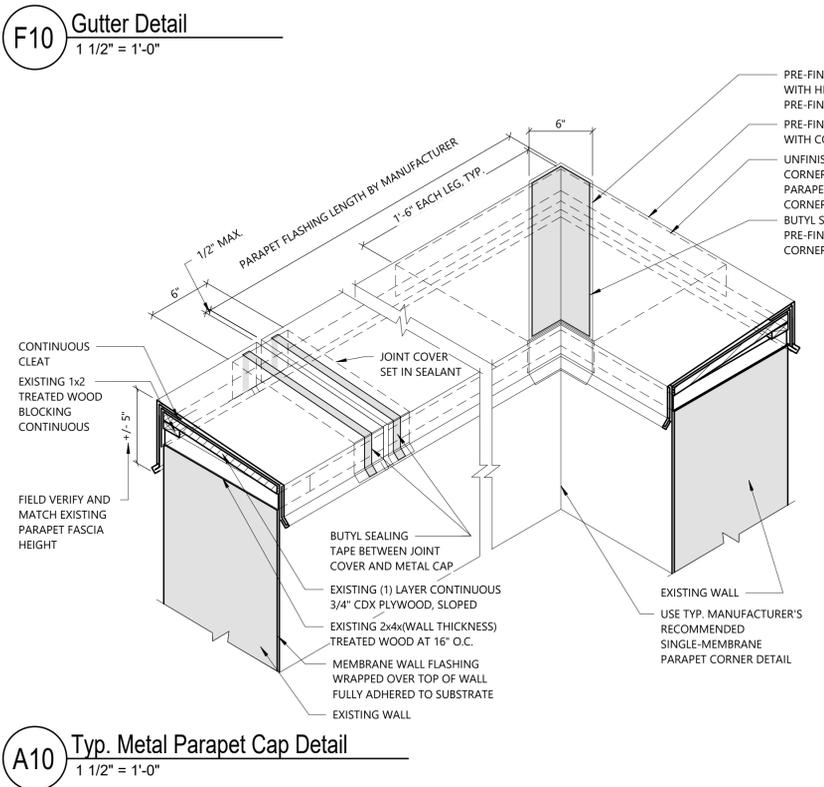
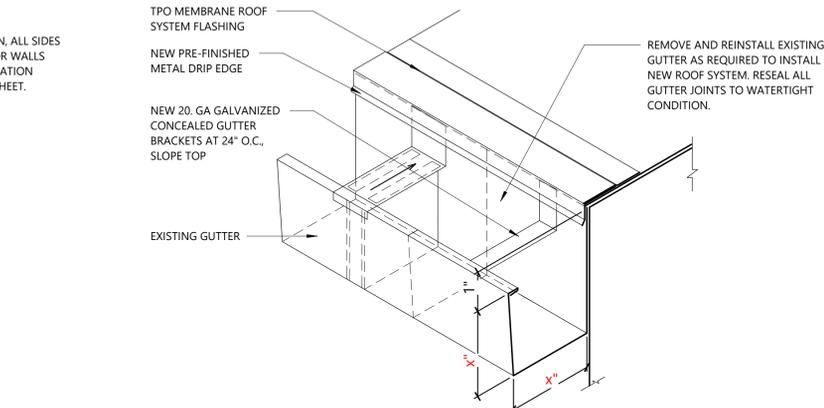
**EIFS RESTORATION NOTES - - - - -**

1. ALL EIFS AT STAIR EXTERIOR WALLS TO BE CLEANED, REPAIRED AND RECOATED PER SPECIFICATION 07 24 21.
2. DAMAGED EIFS AT DOOR JAMB TO BE COMPLETELY REPAIRED. REMOVE EIFS TO EXTENTS NECESSARY FOR FULL REPAIR.
3. CONTRACTOR IS RESPONSIBLE TO VISIT SITE AND ACCESS EIFS AS PART OF BID.



**KEYED ROOFING NOTES**

#	Description
1	LIEBERT CONDENSER UNIT BEING REPLACED BY BENTONVILLE SCHOOL DISTRICT. COORDINATE INSTALLATION WITH ROOFING ACTIVITIES PROVIDE NEW RUBBER BLOCKING ON SLIP SHEETS FOR NEW UNIT TO MOUNT ON. PER DETAIL A5/A2.1A.
2	EXISTING CONDENSER TO REMAIN. PROTECT DURING NEW ROOF INSTALLMENT. PROVIDE NEW RUBBER BLOCKING ON SLIP SHEETS AND RESET CONDENSOR PER DETAIL A5/A2.1A.
3	PROVIDE AND INSTALL NEW SINGLE PLY MEMBRANE ROOFING SYSTEM OVER NEW 1/2" RIGID INSULATION, OVER EXISTING SINGLE LAYER OF MODIFIED BITUMEN AND EXISTING RIGID INSULATION. USE ROOFING MANUFACTURER'S COMPONENTS AND MATERIALS PER ROOFING MANUFACTURER'S STANDARD DETAILS. PROVIDE SLOPE FOR POSITIVE DRAINAGE.
4	REMOVE AND REPLACE EXISTING PARAPET CAP WITH NEW METAL PARAPET CAP, NEW ROOF MEMBRANE TO TURN UP AND OVER PARAPET CAP. REFER TO ROOF DETAILS FOR SPECIAL CONDITIONS. PROVIDE BLOCKING AS NEEDED. FINISH TO MATCH EXISTING RE A10/A2.1
5	DEMOLISH EXISTING WOOD SKIDS, RESET EXISTING OR NEW CONDENSORS ON RUBBER BLOCKING PER DETAIL A5/A2.1A
6	EXISTING ROOF VENT TO REMAIN. PROTECT DURING NEW INSTALLMENT. PROVIDE BOOT FLASHING PER MANUFACTURER'S DETAILS FOR WATER TIGHT SEAL
7	EXISTING EXHAUST / INTAKE TO REMAIN. PROTECT DURING NEW INSTALLMENT. RAISE AND RE-FLASH EXISTING CURB AS NEEDED PER MANUFACTURER REQUIREMENTS RE E5/A2.1A
8	EXISTING PLUMBING VENT TO REMAIN. RE-FLASH ALL PLUMBING VENTS WITH FLEXIBLE BOOT FLASHING WITH STAINLESS STEEL BAND CLAMP PER MANUFACTURING REQUIREMENTS, RE A11/A2.1A
9	EXISTING ROOF DRAIN ASSEMBLY. REPLACE ALL DAMAGED DRAIN BASKETS AND REPAIR / REPLACE ASSEMBLIES DAMAGED DURING NEW ROOFING INSTALLMENT. ALL OTHER DRAINS TO BE RE-USED AND ADJUSTED AS NEEDED FOR INSTALLATION OF NEW ROOFING MEMBRANE TO ALLOW FOR POSITIVE DRAINAGE.
10	REMOVE AND REINSTALL EXISTING LIGHT AT PARAPET CAP AND ASSOCIATED WIRING AND JUNCTION BOX. CREATE WATERTIGHT FLASHING. PAINT EXPOSED CONDUIT AND LIGHT MOUNTING BRACKET.
11	AT ROOFTOP ACCESS DOORS REMOVE EXISTING THRESHOLD AND INSTALL NEW FLASHING INTO DOOR SILL AND RESET THRESHOLD IN NEW BED OF BUTYL SEALANT. RE: A1/A2.1A
12	NEW ROOF CRICKET TO PROVIDE POSITIVE DRAINAGE.
13	DEMOLISH EXISTING SPLASH PAN AND REPLACE WITH NEW, RE E1/A2.1A
14	FLASH NEW MEMBRANE ROOFING UNDER EXISTING METAL DRIP FLASHING AT BASE OF EXISTING EIFS. INSTALL COUNTER FLASHING REFER TO DETAIL E11/A2.1A
15	CHILLER UNIT TO BE DEMOLISHED AND NEW CHILLER UNIT INSTALLED. RE-MECH.
16	REMOVE AND RE-INSTALL CONCRETE PAVERS. PROVIDE SECONDARY LAYER OF TPO MEMBRANE BELOW CONCRETE PAVES SUPPORT STRUCTURE. MAKE ANY REPAIRS NECESSARY TO CONCRETE PAVERS AND SUPPORT STRUCTURE.
17	AT STAIR ROOF, EAST END PROVIDE ADDITIONAL TAPERED INSULATION TO DRAIN WATER OFF EDGES TO THE SOUTH. PROVIDE ADDITIONAL LAYER OF SACRIFICIAL TPO MEMBRANE ALONG DRAINAGE EDGE. RE J7/A2.1A
18	AT STAIR ROOF, PROVIDE NEW GRAVEL GUARD DAM AT ALL PERIMETER EDGES OF ROOF WITH EXCEPTION OF DISCHARGE EDGE AT LOWER ROOF SOUTH SIDE. RE J1/A2.1A
19	PAINT EXPOSED CHILLER STEEL STRUCTURE PRIOR TO INSTALLATION OF NEW CHILLER COMPLETELY PREP. REMOVE RUST, LOOSE PAINT TO GUARANTEE ADHESION OF NEW PAINT.
20	PREP AND REPAINT EXISTING ROOF LADDERS. REMOVE RUST AND LOOSE PAINT TO GUARANTEE ADHESION OF NEW PAINT.
21	AT ALL EXISTING ELECTRICAL CONDUIT, CHILLER PIPING, AND STRUCT STEEL LOCATIONS THROUGH ROOF INSTALL PITCH PAN WITH POURABLE SEALANT.
22	REPAIR DAMAGED EIFS PER SPECIFICATION 07 24 21 AT THIS LOCATION. PROVIDE WALL STOP WITH KEEPER, ROCKWOOD 476, AT DOOR TO PREVENT FUTURE DAMAGE.
23	REMOVE BITUMEN BUCKET AND EXCESS BITUMEN REMAINS STUCK TO ROOF
24	REMOVE EXISTING WOOD KICK PLATE AND ALUMINUM THRESHOLD. INSTALL NEW ROOFING MEMBRANE PER ROOFING MANU. INSTALL NEW TREATED WOOD KICK PLATE AND RE-INSTALL THRESHOLD IN BUTYL SEALANT. RE J11/A2.1A
25	EXISTING GUTTER TO REMAIN REMOVE AND RE-INSTALL AS REQUIRED TO INSTALL NEW ROOFING SYSTEM, RE F10/A2.1
26	DEMO EXISTING FASCIA FLASHING. INSTALL NEW FASCIA FLASHING WITH CONCEALED CONT. CLEAT AND GRAVEL GUARD

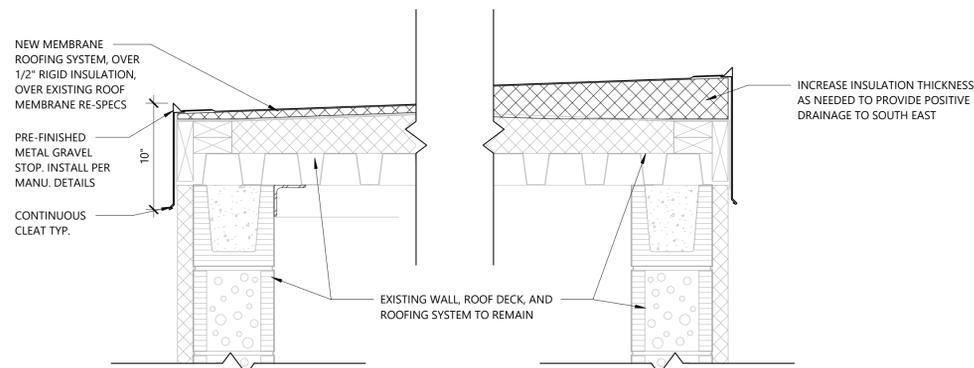


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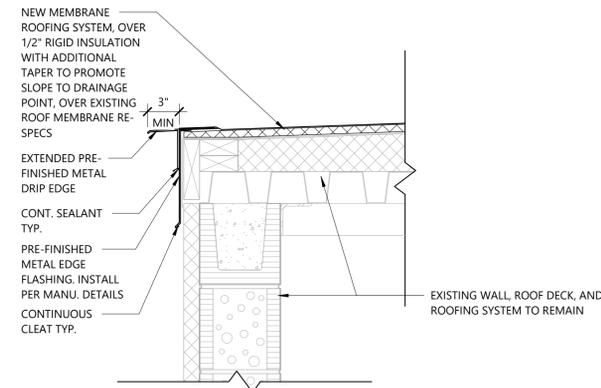
**HVAC UPGRADES FOR BWHS, LJHS, AND ARENDS ARTS CENTER**  
BENTONVILLE & CENTERTON, AR

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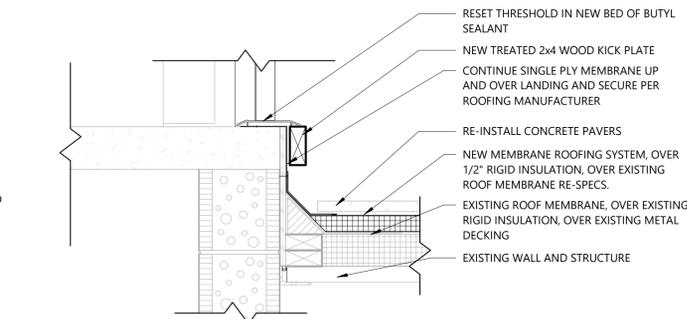
AAC - ROOF PLAN AND DETAILS  
**SHEET**  
**A2.1**  
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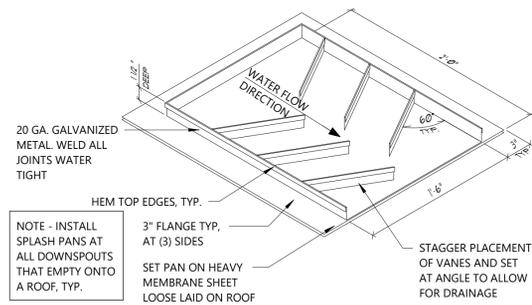
**J1** Roof Edge Detail  
1 1/2" = 1'-0"



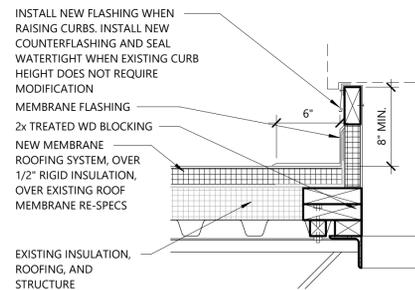
**J7** Roof Edge Detail  
1 1/2" = 1'-0"



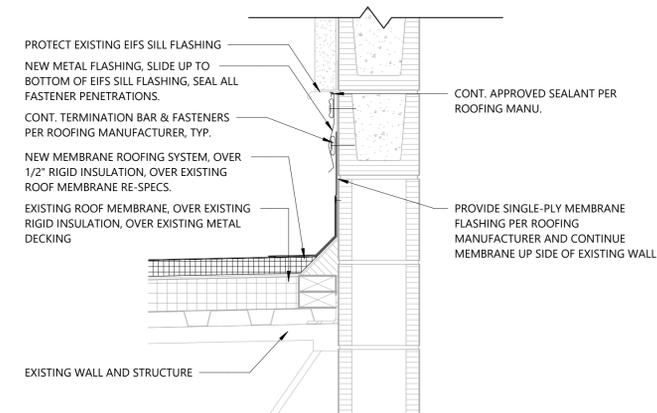
**J11** Sill Detail  
1 1/2" = 1'-0"



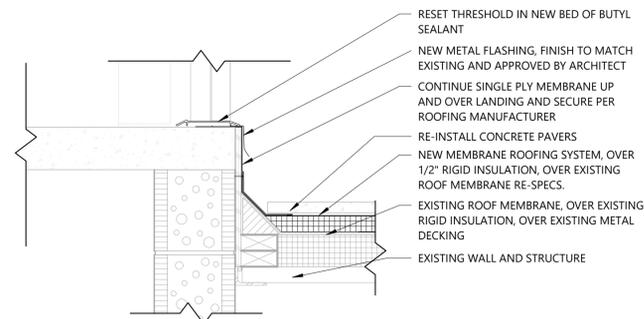
**E1** Splash Plan Detail  
1/8" = 1'-0"



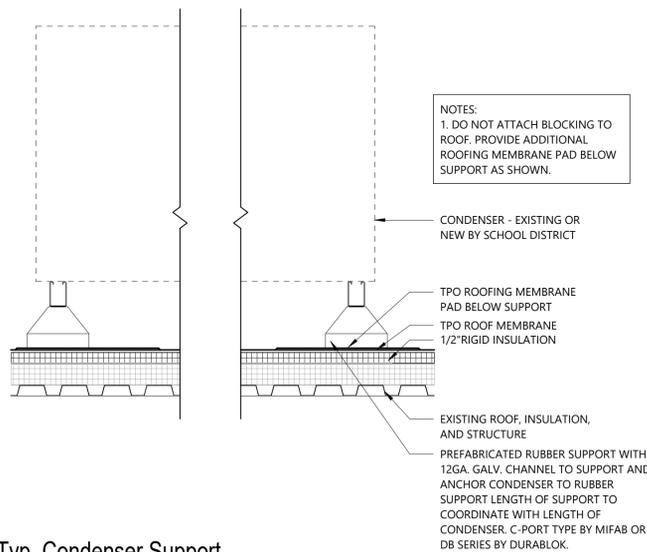
**E5** Typ. Exhaust Fan Curb Detail  
1 1/2" = 1'-0"



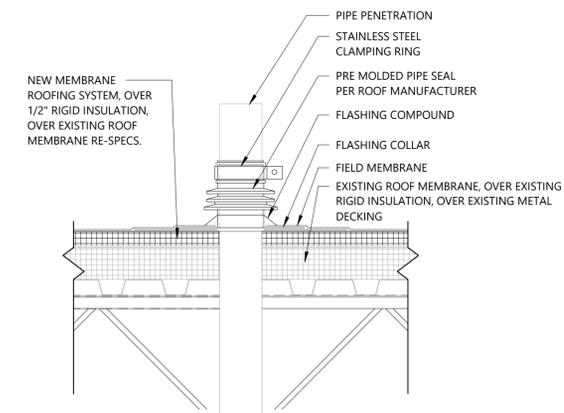
**E11** Roof Detail  
1 1/2" = 1'-0"



**A1** Sill Detail  
1 1/2" = 1'-0"



**A5** Typ. Condenser Support  
1" = 1'-0"



**A11** Typical Pipe Penetration  
1 1/2" = 1'-0"



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<b>A2.1A</b>	
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**H1** Picture 7  
3/8" = 1'-0"

**H5** Picture 8  
3/8" = 1'-0"

**H9** Picture 9  
3/8" = 1'-0"

**D1** Picture 4  
3/8" = 1'-0"

**D5** Picture 5  
3/8" = 1'-0"

**D9** Picture 6  
3/8" = 1'-0"

**A1** Picture 1  
3/8" = 1'-0"

**A5** Picture 2  
3/8" = 1'-0"

**A9** Picture 3  
3/8" = 1'-0"



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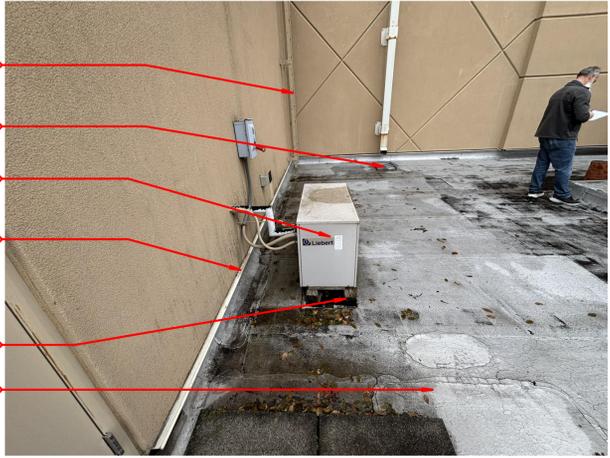
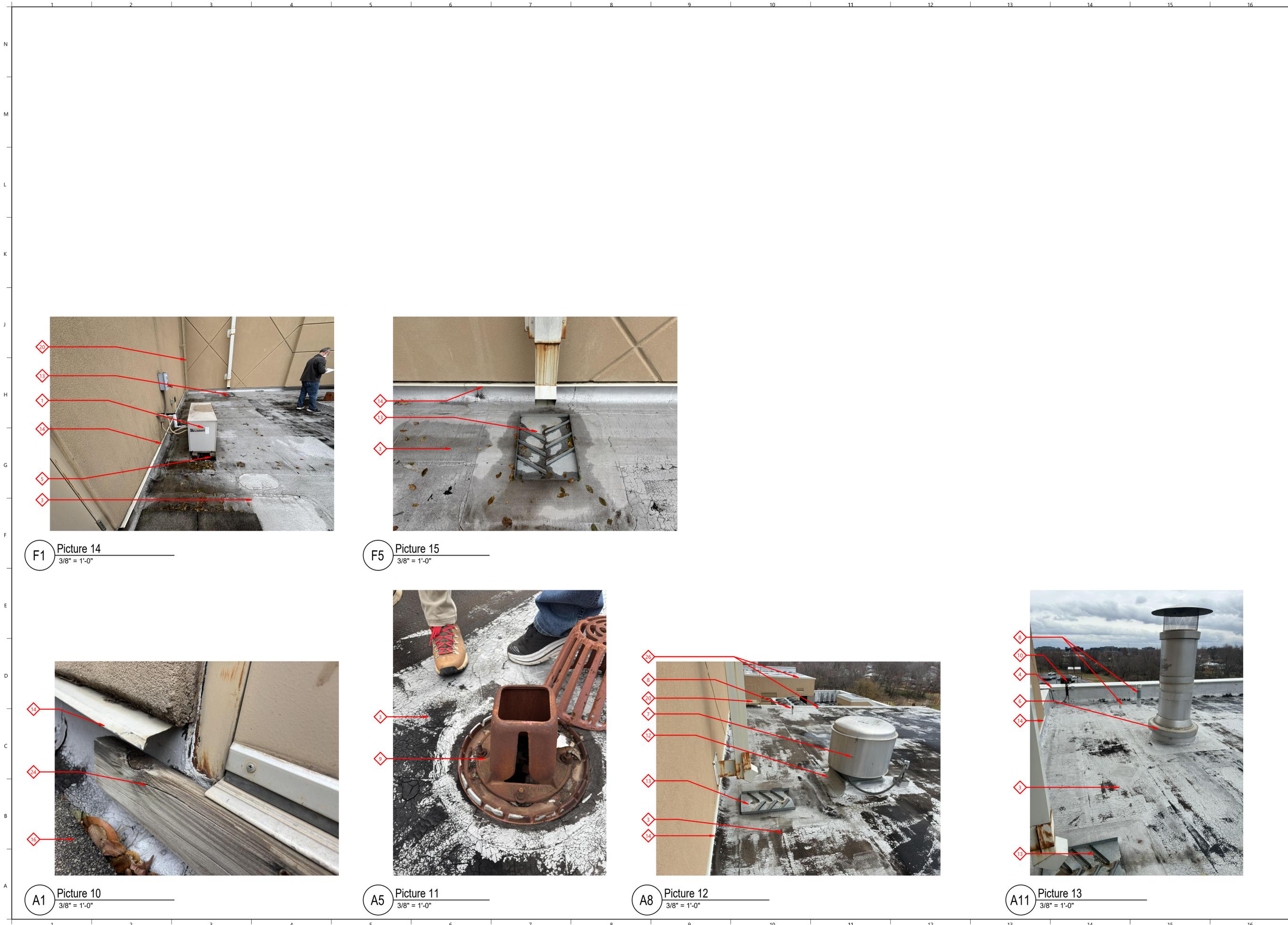
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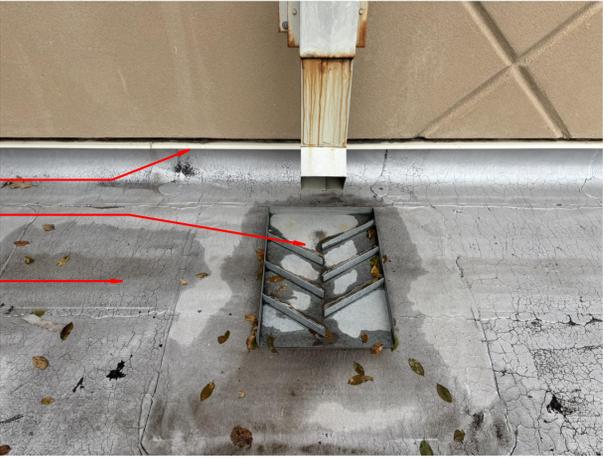
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AAC - PICTURES  
S H E E T  
**A2.2**

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F1 Picture 14  
3/8" = 1'-0"



F5 Picture 15  
3/8" = 1'-0"



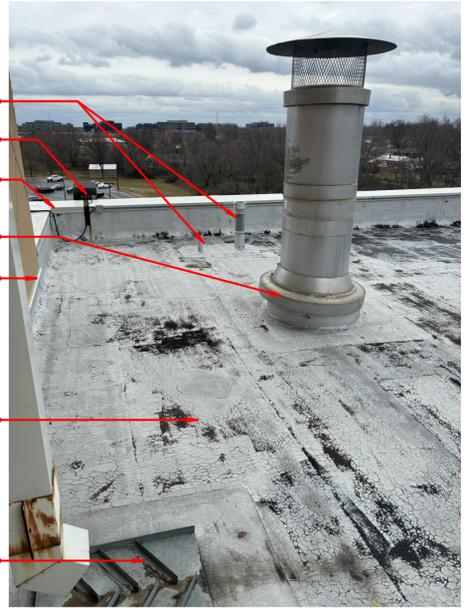
A1 Picture 10  
3/8" = 1'-0"



A5 Picture 11  
3/8" = 1'-0"



A8 Picture 12  
3/8" = 1'-0"



A11 Picture 13  
3/8" = 1'-0"



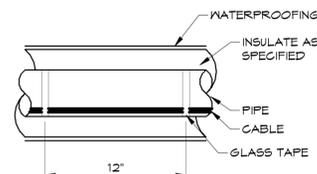
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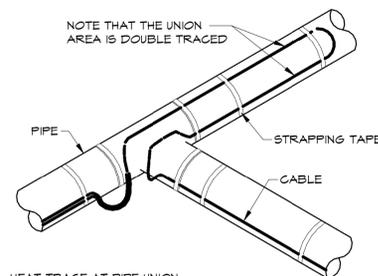
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AAC - PICTURES
S H E E T
<b>A2.3</b>
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## GENERAL MECHANICAL NOTES

- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, REVIEW AND COMPARE TO DRAWINGS AND SPECIFICATIONS TO AVOID POSSIBLE INSTALLATION CONFLICTS.
- EXTERNALLY INSULATE ALL EXPOSED CHILLED WATER SUPPLY AND RETURN WATER PIPES WITH 2" WALL THICKNESS INSULATION AND ALUMINUM JACKET.
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL PIPING WITH FIELD CONDITIONS AND PROVIDE ALL OFFSETS, BENDS, TRANSITIONS AND SPECIAL FITTINGS FOR A COMPLETE INSTALLATION OF THE SYSTEMS.
- ALL MECHANICAL INSTALLATIONS SHALL CONFORM TO THE LATEST ACCEPTABLE MECHANICAL CODE.
- DO NOT SCALE DIRECTLY FROM THE HVAC DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONAL INFORMATION.

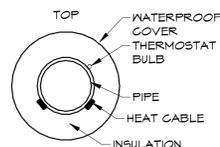


FOR SINGLE RUN FASTEN CABLE TO PIPE EVERY 12 INCHES ON CENTER.

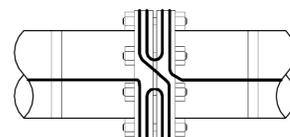


HEAT TRACE AT PIPE UNION

NOTE THAT THE CABLE IS TO BE RUN ON THE UNDERSIDE OF THE UNION AND NOT ON THE TOP AS ILLUSTRATED



FOR MULTIPLE RUNS LOCATE MULTIPLE HEATERS AT THE 4 AND 8 O'CLOCK POSITIONS, TYPICAL. LOCATE THE SENSOR AT THE 2 O'CLOCK POSITION.

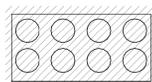


HEAT TRACE ON FLANGE

### 1 HEAT TAPE DETAIL NTS

## MECHANICAL LEGEND

	EXISTING CHILLED WATER SUPPLY
	EXISTING CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	PIPING TO BE REMOVED
	EXISTING HOT WATER SUPPLY
	EXISTING HOT WATER RETURN
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	TRIPLE DUTY VALVE
	STRAINER VALVE
	PIPING UNION CONNECTION
	PIPING FLEX CONNECTION
	PIPE MOUNTED PRESSURE GAUGE
	PIPE MOUNTED TEMPERATURE SENSOR
	CONNECTION POINT
	REFER TO KEYED NOTES

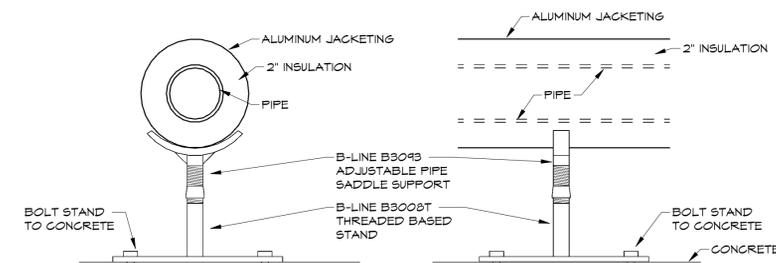


MECHANICAL EQUIPMENT TO BE REMOVED

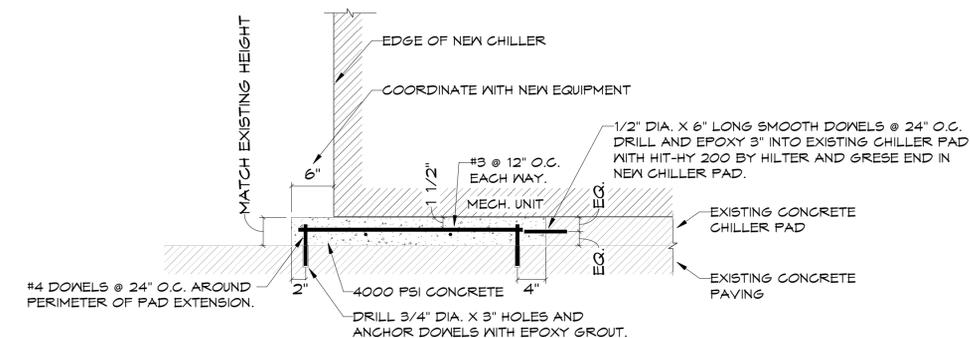
## GENERAL ELECTRICAL NOTES-ALL SHEETS

- THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR A COMPLETE WORKING INSTALLATION.
- INSTALL ALL CONDUIT STRAIGHT AND PARALLEL WITH THE BUILDING LINES. ALL CONDUIT IS CONCEALED IN PUBLIC PLACES.
- THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL PERMIT AND FEE COSTS AND SHALL INCLUDE THESE COSTS IN THE BID PRICE FOR THIS PROJECT.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES AND ORDINANCES. IF A CONFLICT IS FOUND BETWEEN APPLICABLE CODES, THE MORE STRINGENT SHALL APPLY. THE CONTRACTOR SHALL BE COMPLETELY FAMILIAR WITH ALL APPLICABLE MUNICIPAL CODES AND ORDINANCES.
- THE SUBMISSION OF A PROPOSAL WILL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS FAMILIARIZED THEMSELVES WITH THE DRAWINGS, SPECIFICATION BOOK, THE BUILDING SITE AND OTHER INFORMATION PRESENTED FOR THE CONSTRUCTION OF THIS PROJECT. CLAIMS MADE SUBSEQUENT TO THE PROPOSAL FOR MATERIALS AND LABOR BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED IF THEY COULD HAVE BEEN FORESEEN HAD A COMPLETE AND THOROUGH EXAMINATION BEEN MADE.
- DO NOT SCALE DIRECTLY FROM THE ELECTRICAL DRAWINGS. REFER TO THE ARCHITECTURAL DRAWINGS FOR DIMENSIONAL INFORMATION.
- THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR WHICH MATERIALS ARE FURNISHED, FABRICATED OR FIELD ERECTED. THIS CONTRACTOR GUARANTEE SHALL EXIST FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL OWNER ACCEPTANCE OF THE WORK AND SHALL APPLY TO ALL DEFECTS IN MATERIALS AND/OR WORKMANSHIP OF ANY KIND.
- WHERE JOB CONDITIONS REQUIRE CHANGES FROM THE CONTRACT DOCUMENTS THAT DO NOT CHANGE THE SCOPE OR NATURE OF THE WORK REQUIRED, THE CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT ADDITIONAL COST TO THE OWNER. NO OTHER CHANGES WILL BE MADE WITH OUT THE EXPRESSED WRITTEN CONSENT OF THE OWNER.
- IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE WITH ALL OTHER TRADES TO ENSURE THAT ALL CIRCUITS AND DEVICES ARE OF A PROPER SIZE FOR ACTUAL EQUIPMENT FURNISHED. THE ENGINEER SHALL BE NOTIFIED OF ANY CONFLICT WHICH CAUSES CHANGES TO ANY SYSTEM AS DESIGNED ON THESE DRAWINGS. FAILURE ON THE PART OF THE CONTRACTOR TO NOTIFY THE ENGINEER OR ARCHITECT OF SUCH CONFLICTS PLACES THE SUBSEQUENT CHANGES UPON THE CONTRACTOR.
- ALL 20A 120V AND 250V NON-LOCKING TYPE RECEPTACLES, UNLESS OTHERWISE NOTED, SHALL BE TAMPER RESISTANT TYPE PER NEC 406.12.
- LOW VOLTAGE WIRING IS TO BE ENCASED IN CONDUIT.
- ALL EMPTY CONDUITS ARE TO CONTAIN A NYLON PULL STRING. EMPTY CONDUITS 2" AND LARGER ARE TO BE SWABBED OUT AND LEFT WITH A NYLON PULL ROPE FOR THE USE OF THE OWNER.
- CABLE IS NOT TO BE INSTALLED EXPOSED.
- ALL CONDUITS ARE TO CONTAIN A GREEN GROUNDING CONDUCTOR, SIZED PER THE N.E.C.
- VERIFY EXACT FUSE SIZE AND EQUIPMENT REQUIREMENTS WITH THE ACTUAL EQUIPMENT FURNISHED BY THE OTHER CONTRACTORS.
- FINAL EQUIPMENT CONNECTIONS: THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS REQUIRED TO MAKE FINAL ELECTRICAL CONNECTIONS TO ALL EQUIPMENT FURNISHED ON THIS PROJECT. VERIFY ALL REQUIREMENTS, CONDUCTOR SIZES, OVERCURRENT PROTECTION, PHASES, VOLTAGES, MOTOR ROTATION ETC., WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. PROVIDE FUSED DISCONNECT IF REQUIRED BY MANUFACTURER. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT AND WIRING NECESSARY FOR LINE VOLTAGE CONTROL SYSTEMS.
- ALL LOW VOLTAGE CONTROL WIRING SHALL BE ENCLOSED IN CONDUIT IN SPACES WITH NO CEILING
- COORDINATE ALL HVAC WIRING WITH THE MECHANICAL DRAWINGS AND THE MECHANICAL CONTRACTOR.

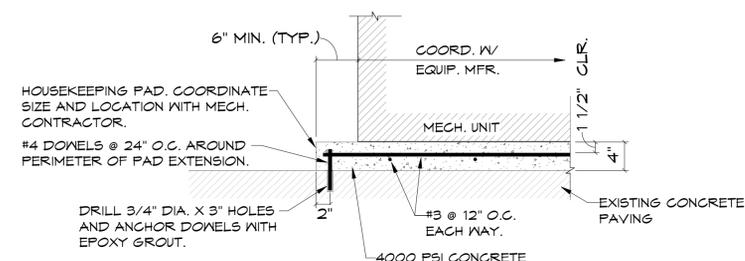
### 2 EXTERIOR PIPE SUPPORT DETAIL NTS



### 3 CHILLER CONCRETE PAD EXTENSION (BWJH) NTS

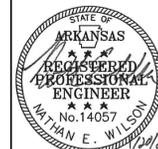


### 4 PUMP CONCRETE PAD (LJHS) NTS



NOTES:  
REFER TO SHEET M1.1 FOR MEP NOTES, LEGEND AND DETAILS.  
REFER TO SHEET M2.1 FOR BENTONVILLE WEST MEP PLANS.  
REFER TO SHEET M2.2 FOR AREND ART MEP PLANS.  
REFER TO SHEET M2.3 FOR LINCOLN JUNIOR HIGH MEP PLANS.  
REFER TO SHEET M3.1, M3.2 FOR CONTROL DETAILS.

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**Hight Jackson**  
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**HVAC UPGRADES FOR BWHS, LJHS, AND AREND'S ARTS CENTER**  
BENTONVILLE & CENTERTON, AR

DRAWN BY: RJK  
CHECK BY: NEW  
ISSUE DATE: 01/20/2026

PROJECT NO: 2549

REVISION DATES: 02/10/2026

MEP NOTES, LEGEND AND DETAILS

SHEET

M1.1

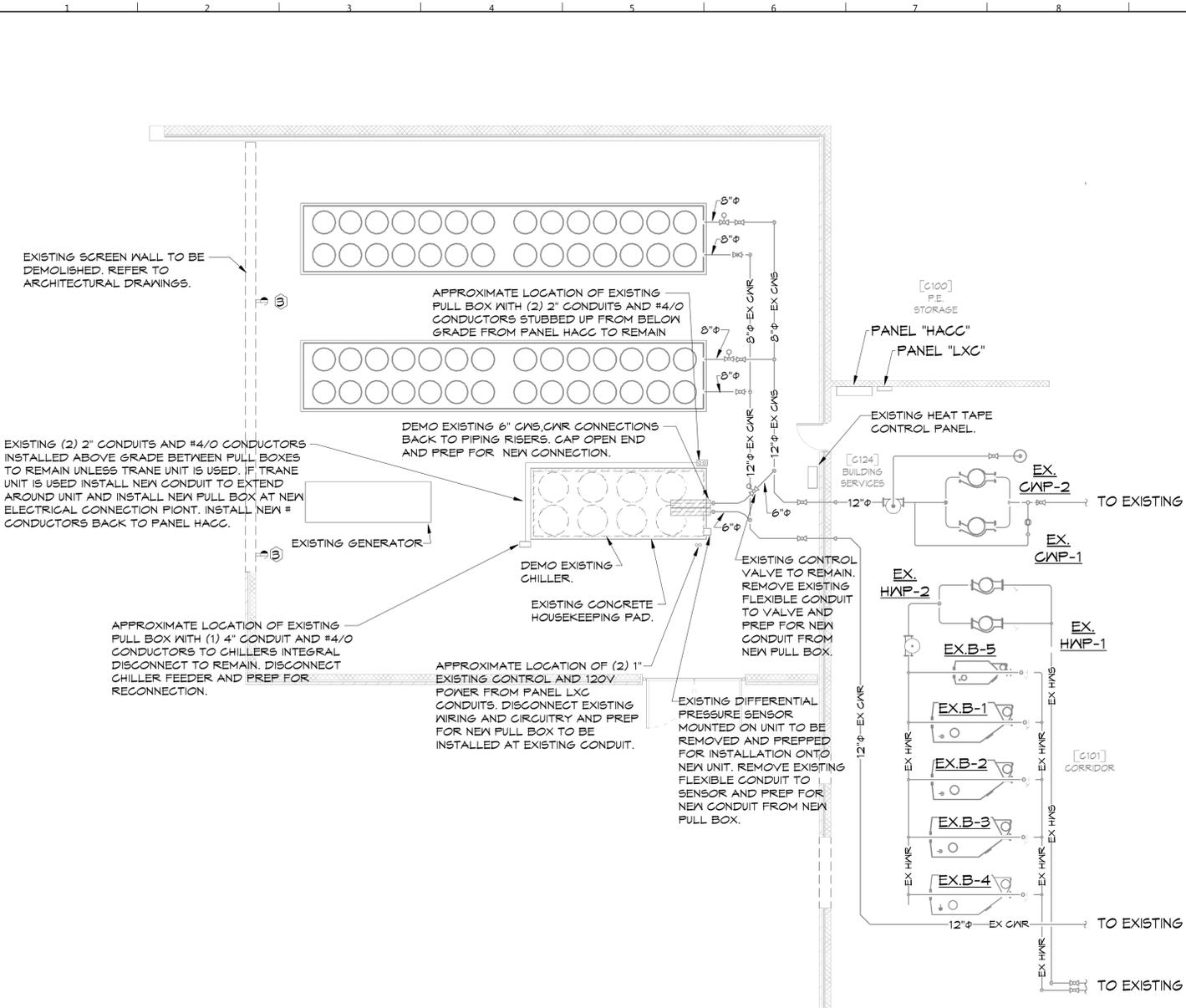
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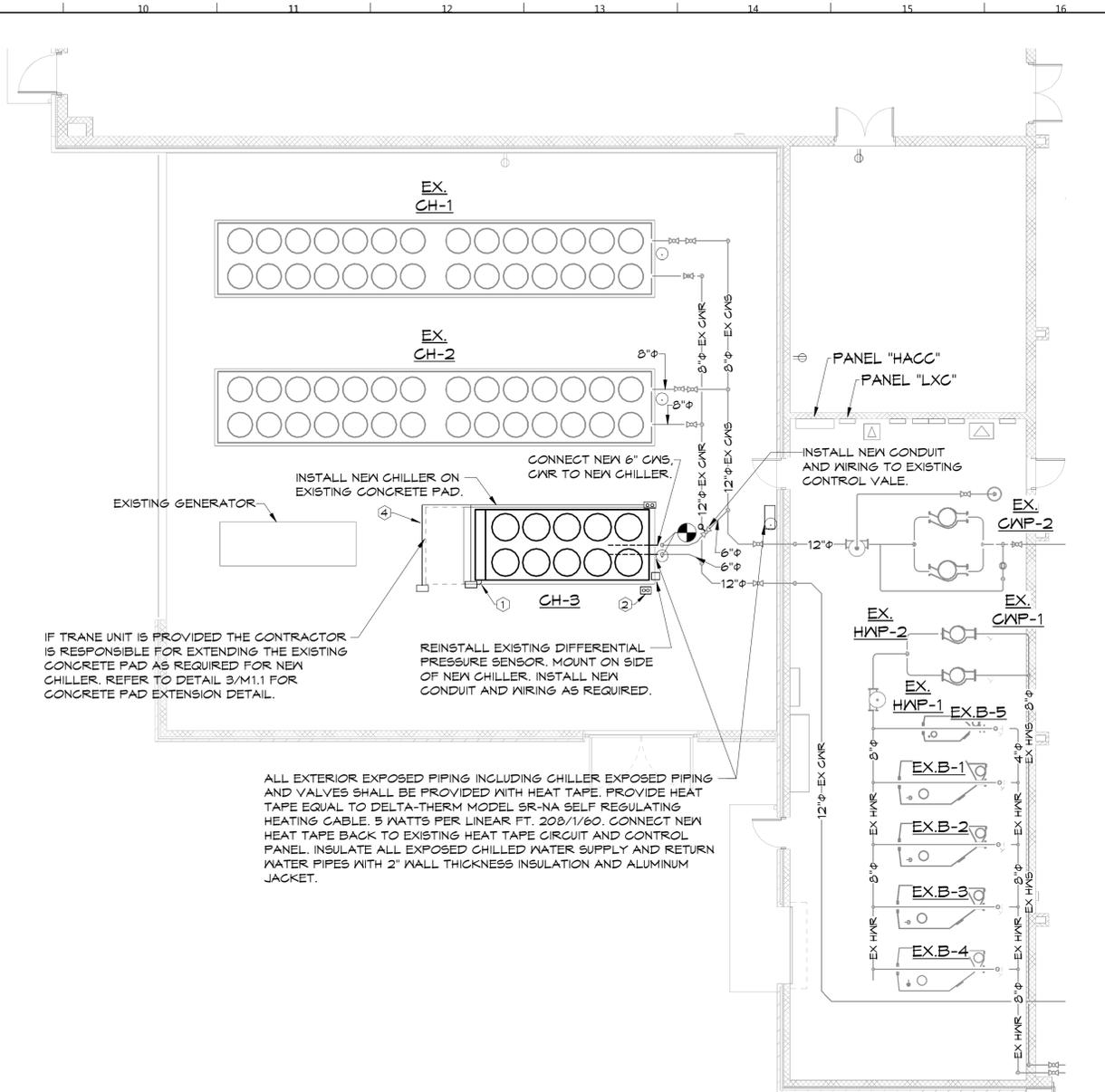
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BENTONVILLE WEST - MEP PLANS  
SHEET  
**M2.1**  
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**1** BWHS - MECHANICAL DEMO PLAN  
1/8" = 1'-0"



**2** BWHS - MECHANICAL PLAN  
1/8" = 1'-0"

AIR COOLED CHILLER SCHEDULE										RECOMMENDED OVERCURRENT PROTECTION	UNIT WEIGHT (LBS)	REMARKS/ ACCESSORIES
MARK	MFG	MODEL #	TONS (12°F)	LWT (°F)	OAT (°F)	GPM	WPD (FT.)	VLT / PH / HZ	M.C.A.			
CH-3	DAIKIN	AWV010B	150	44	95	346.9	6.2	460 / 3 / 60	330	400	12,010	1 THRU 15

- ACCESSORIES**
- PROVIDE FACTORY 5 YEAR PARTS WARRANTY ON COMPRESSORS FROM DATE OF SUBSTANTIAL COMPLETION.
  - PROVIDE FACTORY WATER FLOW INDICATOR.
  - PROVIDE FACTORY START-UP & FULL 1 YEAR PARTS, LABOR, AND REFRIGERANT LOSS WARRANTY FROM DATE OF SUBSTANTIAL COMPLETION.
  - PROVIDE SCREW TYPE COMPRESSORS. SCROLL COMPRESSORS ARE **NOT ALLOWED**.
  - PROVIDE FACTORY INSTALLED LOUVERED STEEL CONDENSER HAIL GAURDS.
  - PROVIDE FACTORY DDC UNIT CONTROL PANEL COMPATIBLE WITH BACNET BUILDING AUTOMATED CONTROL SYSTEM.
  - PROVIDE HUMAN INTERFACE DISPLAY PANEL WITH LCD DISPLAY.
  - PROVIDE SINGLE POINT CONNECTION WITH FACTORY CIRCUIT BREAKER DISCONNECT MEANS.
  - PROVIDE VARIABLE SPEED OPERATION ON COMPRESSORS AND MODULATING CONDENSER FAN MOTORS.
  - PROVIDE WITH FACTORY INSTALLED 3/4" ARMAFLEX II OR EQUAL (K=0.20) INSULATION FOR EVAPORATOR.
  - PROVIDE FACTORY INLET STRAINER KIT.
  - PROVIDE WITH RUBBER ISOLATOR KIT.
  - APPROVED MANUFACTURERS ARE ARE DAIKIN, TRANE, AND YORK PER SPECIFICATIONS.
  - IF TRANE UNIT IS PROVIDED THE CONTRACTOR IS RESPONSIBLE FOR EXTENDING THE EXISTING CONCRETE PAD AS REQUIRED FOR NEW CHILLER. REFER TO DETAIL 3/M1.1 FOR CONCRETE PAD EXTENSION DETAIL.
  - PROVIDE PHASE AND OVER/UNDER VOLTAGE PROTECTION.

**KEYED NOTES (THIS SHEET ONLY):**

- ELECTRICAL CONTRACTOR TO CONNECT EXISTING FEEDERS TO INTEGRAL DISCONNECT PROVIDED WITH NEW CHILLER. EXTEND CONNECTIONS AS NECESSARY. REQUIRES 2 SETS: 4-#3/0, 1-#3 GRD; 2" CONDUIT EACH.
- INSTALL NEW PULL BOX AT (2) 1" EXISTING CONTROL CONDUITS/CIRCUITS FED FROM PANEL "LXC" TO REMAIN. REMARK AS NECESSARY. EXTEND CONNECTIONS AS NECESSARY. MAKE ALL FINAL CONNECTIONS TO NEW CHILLER. VERIFY EXISTING CONDITIONS.
- DEMO EXISTING RECEPTACLE AND CONDUIT TO BELOW NEW SLAB. CAP CONDUIT. REMOVE EXISTING WIRING BACK TO NEAREST DEVICE THAT IS TO REMAIN.
- IF TRANE UNIT IS USED INSTALL NEW CONDUIT TO EXTEND AROUND UNIT AND INSTALL NEW PULL BOX AT NEW ELECTRICAL CONNECTION POINT. INSTALL NEW #3/0 CONDUCTORS BACK TO PANEL HACC. MATCH EXISTING CONDUIT TYPE.

**NOTES:**  
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REFER TO SHEET M2.1 FOR BENTONVILLE WEST MEP PLANS.  
REFER TO SHEET M2.2 FOR AREND ART MEP PLANS.  
REFER TO SHEET M2.3 FOR LINCOLN JUNIOR HIGH MEP PLANS.  
REFER TO SHEET M3.1, M3.2 FOR CONTROL DETAILS.

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HSA JOB #5-199



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AREND ARTS - MEP PLANS  
SHEET  
**M2.2**  
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**AIR COOLED CHILLER SCHEDULE**

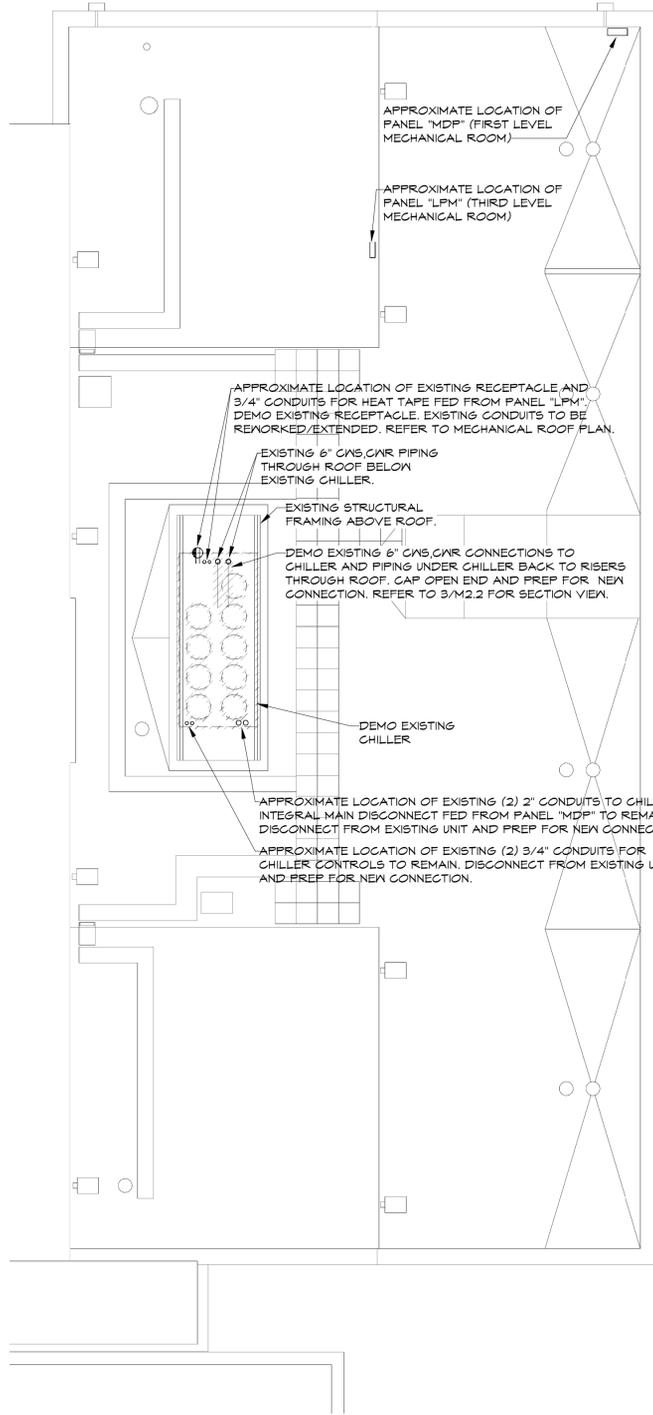
MARK	MFG	MODEL #	TONS (12°F)	LWT (°F)	OAT (°F)	GPM	WPD (FT.)	VLT / PH / HZ	M.C.A.	RECOMMENDED OVERCURRENT PROTECTION	UNIT WEIGHT (LBS)	REMARKS/ ACCESSORIES
CH-1	DAIKIN	AWV010B	150	44	45	346.9	6.2	460 / 3 / 60	330	400	12010	1 THRU 14

**ACCESSORIES**

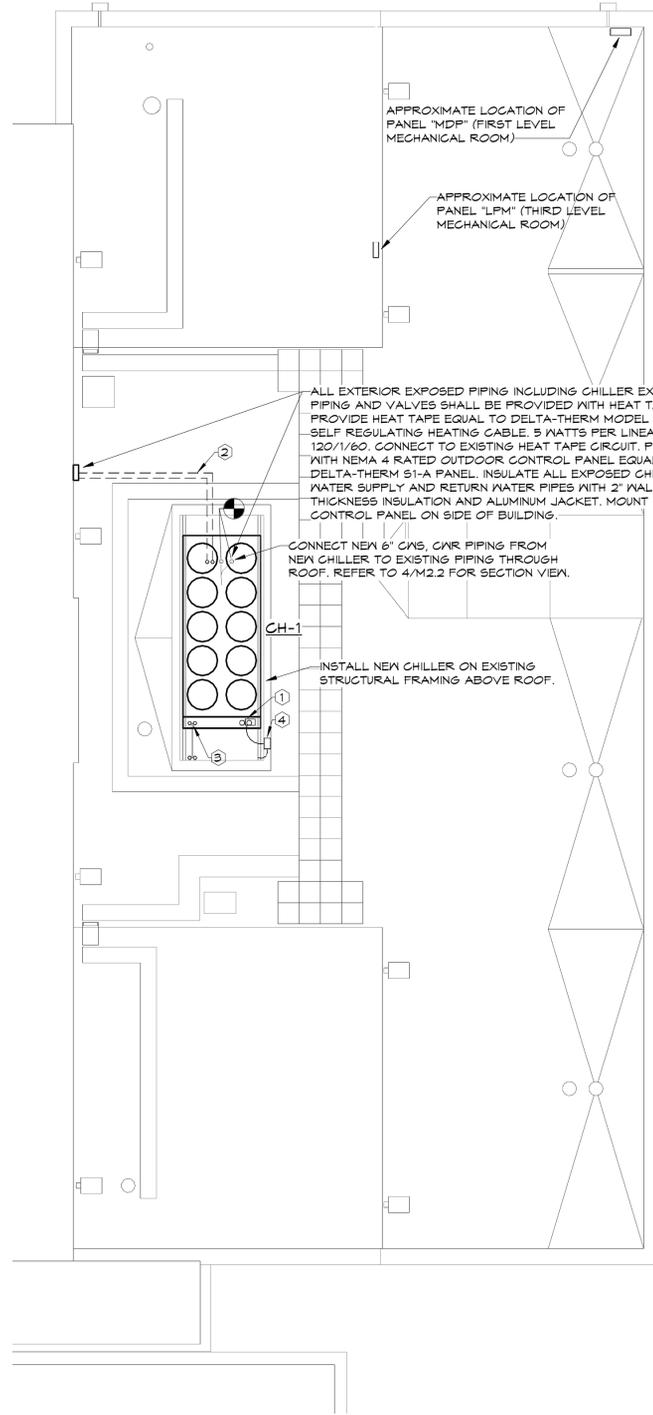
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2. PROVIDE FACTORY WATER FLOW INDICATOR.
3. PROVIDE FACTORY START-UP & FULL 1 YEAR PARTS, LABOR, AND REFRIGERANT LOSS WARRANTY FROM DATE OF SUBSTANTIAL COMPLETION.
4. PROVIDE SCREEN TYPE COMPRESSORS.
5. PROVIDE FACTORY INSTALLED LOUVERED STEEL CONDENSER HAIL GAURDS.
6. PROVIDE FACTORY DDC UNIT CONTROL PANEL COMPATIBLE WITH BAGNET BUILDING AUTOMATED CONTROL SYSTEM.
7. PROVIDE HUMAN INTERFACE DISPLAY PANEL WITH LCD DISPLAY.
8. PROVIDE SINGLE POINT CONNECTION WITH FACTORY CIRCUIT BREAKER DISCONNECT MEANS.
9. PROVIDE VARIABLE SPEED OPERATION ON COMPRESSORS AND MODULATING CONDENSER FAN MOTORS.
10. PROVIDE WITH FACTORY INSTALLED 3/4" ARMAFLEX II OR EQUAL (K-0.25) INSULATION FOR EVAPORATOR.
11. PROVIDE FACTORY INLET STRAINER KIT.
12. PROVIDE WITH RUBBER ISOLATOR KIT.
13. APPROVED MANUFACTURERS ARE ARE DAIKIN, TRANE, AND YORK PER SPECIFICATIONS.
14. PROVIDE PHASE AND OVER/UNDER VOLTAGE PROTECTION.

**KEYED NOTES (THIS SHEET ONLY)**

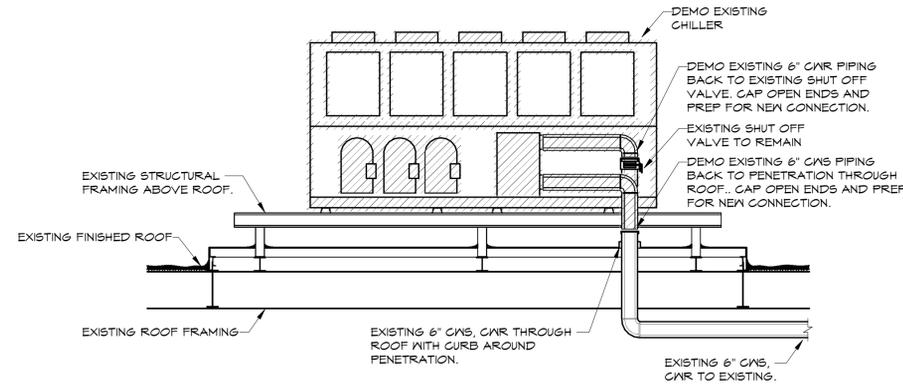
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2. EXISTING CONDUITS FOR HEAT TAPE TO BE REMORKED AND EXTENDED TO NEW HEAT TAPE CONTROL PANEL. CIRCUIT FROM PANEL "LPM" REQUIRES 2-#12, 1-#12 GRD; 3/4" CONDUIT. FIELD VERIFY EXISTING CONDITIONS.
3. EXISTING CONDUITS FOR CHILLER CONTROLS TO BE REMORKED AND EXTENDED TO NEW CHILLER. FIELD VERIFY EXISTING CONDITIONS. COORDINATE WITH MECHANICAL CONTRACTOR. IF TRANE UNIT IS USED CONDUITS ARE TO BE EXTENDED TO THE END OF THE UNIT.
4. IF TRANE UNIT IS USED INSTALL NEW CONDUIT TO EXTEND OUTSIDE OF THE STRUCTURAL FRAMING AND SET PULL BOX AT THIS LOCATION. INSTALL CONDUIT FROM PULL BOX TO NEW ELECTRICAL CONNECTION POINT. INSTALL NEW #4/0 CONDUCTORS BACK TO PANEL MDP.



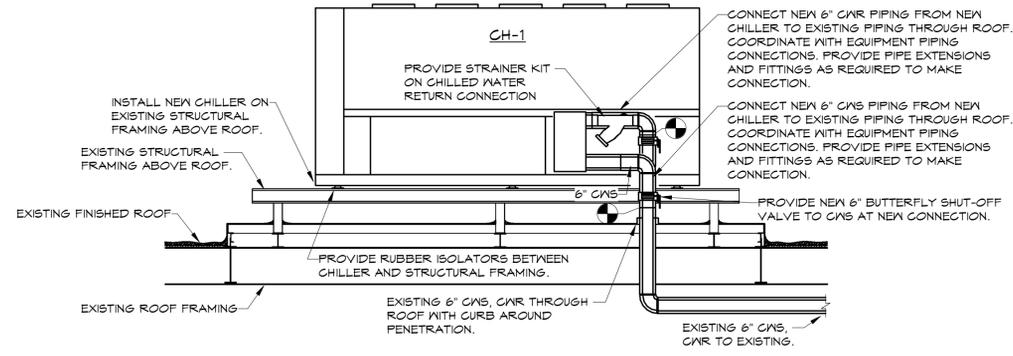
**1 AAC - MECH. ROOF DEMO PLAN**  
1/8" = 1'-0"



**2 AAC - MECHANICAL ROOF PLAN**  
1/8" = 1'-0"



**3 AAC - CHILLER DEMO SECTION**  
NTS



**4 AAC - CHILLER SECTION**  
NTS

**NOTES:**  
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REFER TO SHEET M2.2 FOR AREND ART MEP PLANS.  
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MECHANICAL CONTROLS  
SHEET  
**M3.1**  
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HSA JOB #5-199

NEW CHILLER (CH-3) IS TO BE TIED INTO EXISTING BUILDING SYSTEM VIA FACTORY BACNET CONTROLLER. EXISTING BUILDING CHILLER SYSTEM SEQUENCE OF OPERATIONS IS SHOWN BELOW FOR REFERENCE.

EXISTING CHILLER SYSTEM SEQUENCE OF OPERATIONS:

SYSTEM GENERAL DESCRIPTION:  
THE CHILLED WATER SYSTEM CONSISTS OF THE FOLLOWING:  
THREE (3) CHILLERS, CONFIGURED AS: ONE (1) LEAD, ONE (1) LAG 1 AND ONE (1) LAG 2  
TWO (2) MANIFOLDED VARIABLE FLOW CHILLED WATER PUMPS: ONE (ONE) LEAD, ONE (1) LAG 1  
ONE (1) CHILLED WATER SUPPLY ISOLATION VALVE PER CHILLER  
CHILLED WATER BYPASS VALVE

THE BUILDING AUTOMATION SYSTEM (BAS) CONTROLLER PROVIDES STAND-ALONE CONTROL OR CONTROL FROM A HIGHER LEVEL BAS AND PROVIDES LEAD/LAG 1 CONTROL FOR THE CHILLED WATER PUMPS AND CONTROLS THE CHILLED WATER BYPASS VALVE TO MAINTAIN MINIMUM FLOW THROUGH OPERATING CHILLERS.

CHILLED WATER SYSTEM ENABLE/DISABLE:  
THE CHILLED WATER SYSTEM SHALL BE ENABLED BY THE BAS. WHEN ENABLED, THE BAS CONTROLLER SHALL OPEN THE ISOLATION VALVE OF THE LEAD CHILLER AND START THE LEAD CHILLED WATER PUMP.

AS ADDITIONAL CHILLERS ARE REQUIRED, THE APPROPRIATE CHILLER ISOLATION VALVE SHALL BE MODULATED OPENED SLOWLY, AS TO NOT STARVE THE LEAD CHILLER OF WATER. ONCE AN APPROPRIATE FLOW IS ESTABLISHED, LAG CHILLER SHALL BE STARTED.

WHEN THE CHILLED WATER SYSTEM IS DISABLED, THE CHILLED WATER PUMPS SHALL BE OFF AND THE ISOLATION VALVES SHALL BE CLOSED UNLESS REQUESTED BY ONE OF THE CHILLERS. THE ISOLATION VALVE FOR THE FIRST CHILLER IN THE SEQUENCE SHALL BE AN EXCEPTION TO THIS. IF THE PLANT IS DISABLED, THE ISOLATION VALVE FOR THAT CHILLER SHALL BE OPENED SO THAT THE PUMP CAN START IMMEDIATELY WHEN THE PLANT IS ENABLED.

CHILLED WATER PUMP START/STOP:  
THE BAS CONTROLLER SHALL START A CHILLED WATER PUMP THROUGH A CONTACT CLOSURE OF THE PUMPS VARIABLE FREQUENCY DRIVE (VFD) RUN-ENABLE CONTACTS. WHEN THE BUILDING DIFFERENTIAL WATER PRESSURE DROPS BELOW SETPOINT FOR LONGER THAN 2 MINUTES, THE LAG PUMP SHALL BE BROUGHT ON. PUMPS SHALL BE RAMPED TOGETHER TO MAINTAIN PRESSURE. WHEN PUMP SPEED DROPS BELOW X%, LAG PUMP SHALL BE CYCLED OFF AND LEAD PUMP SHALL BE RAMPED UP TO MAINTAIN PRESSURE.

CHILLED WATER PUMP STATUS:  
THE BAS CONTROLLER SHALL DETECT CHILLED WATER PUMP RUN STATUS BY A VFD CURRENT SWITCH.

CHILLED WATER PUMP LEAD/LAG:  
THE CHILLED WATER PUMP LEAD/LAG SEQUENCE SHALL BE ROTATED ON A MONTHLY SCHEDULE.

CHILLED WATER PUMP FAILURE:  
IF THE LEAD START/STOP RELAY IS ENABLED AND THE CURRENT SWITCH STATUS IS OFF FOR MORE THAN 30 SECONDS (ADJ.), THE BAS CONTROLLER SHALL ANNUNCIATE A CHILLED WATER PUMP FAILURE ALARM TO THE BAS AND START THE NEXT PUMP IN THE SEQUENCE.

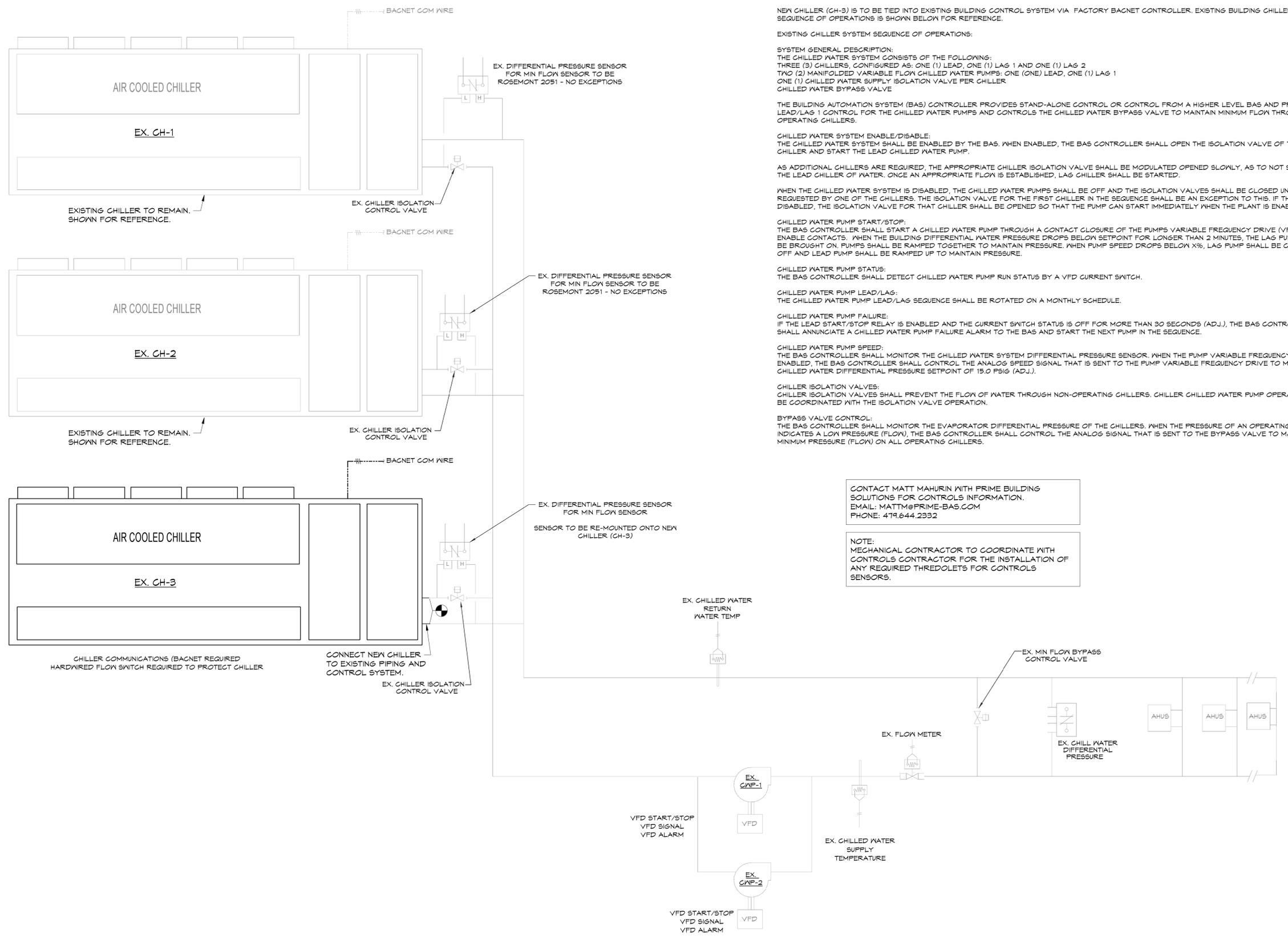
CHILLED WATER PUMP SPEED:  
THE BAS CONTROLLER SHALL MONITOR THE CHILLED WATER SYSTEM DIFFERENTIAL PRESSURE SENSOR. WHEN THE PUMP VARIABLE FREQUENCY DRIVE IS ENABLED, THE BAS CONTROLLER SHALL CONTROL THE ANALOG SPEED SIGNAL THAT IS SENT TO THE PUMP VARIABLE FREQUENCY DRIVE TO MAINTAIN A CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT OF 15.0 PSIG (ADJ.).

CHILLER ISOLATION VALVES:  
CHILLER ISOLATION VALVES SHALL PREVENT THE FLOW OF WATER THROUGH NON-OPERATING CHILLERS. CHILLER CHILLED WATER PUMP OPERATION WILL BE COORDINATED WITH THE ISOLATION VALVE OPERATION.

BYPASS VALVE CONTROL:  
THE BAS CONTROLLER SHALL MONITOR THE EVAPORATOR DIFFERENTIAL PRESSURE OF THE CHILLERS. WHEN THE PRESSURE OF AN OPERATING CHILLER INDICATES A LOW PRESSURE (FLOW), THE BAS CONTROLLER SHALL CONTROL THE ANALOG SIGNAL THAT IS SENT TO THE BYPASS VALVE TO MAINTAIN MINIMUM PRESSURE (FLOW) ON ALL OPERATING CHILLERS.

CONTACT MATT MAHURIN WITH PRIME BUILDING SOLUTIONS FOR CONTROLS INFORMATION.  
EMAIL: MATTM@PRIME-BAS.COM  
PHONE: 479.644.2332

NOTE:  
MECHANICAL CONTRACTOR TO COORDINATE WITH CONTROLS CONTRACTOR FOR THE INSTALLATION OF ANY REQUIRED THREDOLETS FOR CONTROLS SENSORS.



**1** BWHS - CHILLER CONTROLS  
NTS

NOTES:  
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HSAConsultants.com



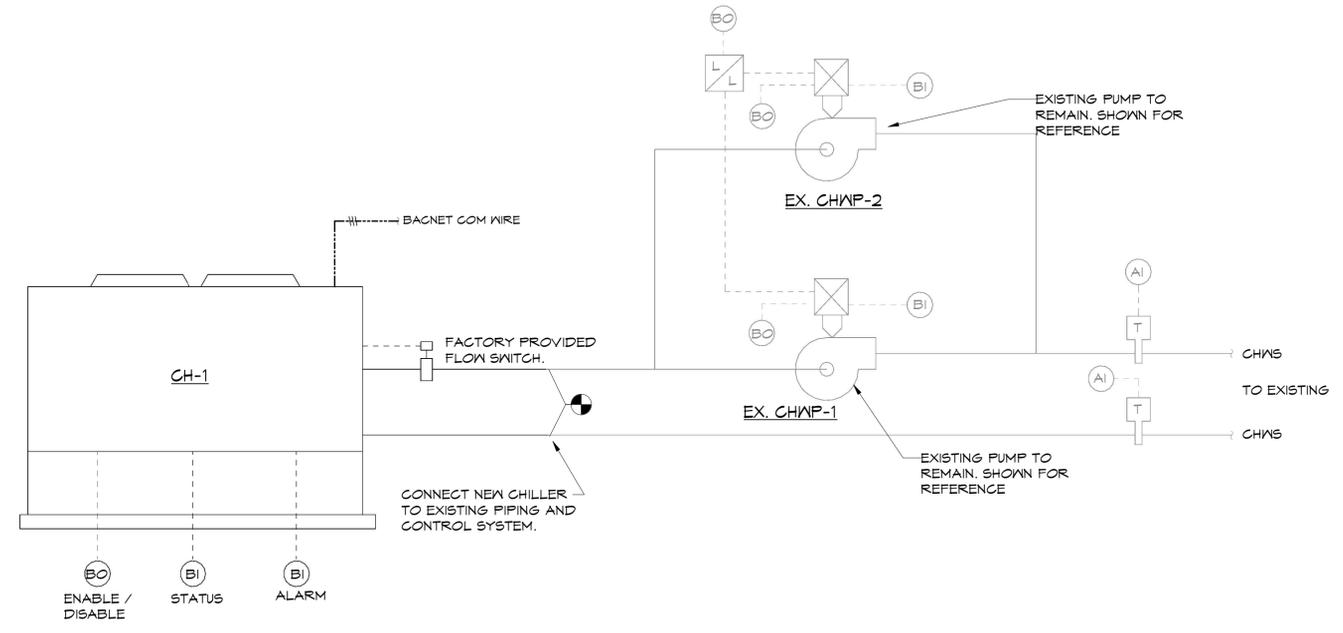
NOTE:  
MECHANICAL CONTRACTOR TO COORDINATE WITH  
CONTROLS CONTRACTOR FOR THE INSTALLATION OF  
ANY REQUIRED THREDOLETS FOR CONTROLS SENSORS.

CONTACT MATT MAHURIN WITH PRIME BUILDING  
SOLUTIONS FOR CONTROLS INFORMATION.  
EMAIL: MATTM@PRIME-BAS.COM  
PHONE: 479.644.2332

NEW CHILLER (CH-1) IS TO BE TIED INTO EXISTING BUILDING CONTROL SYSTEM VIA FACTORY BACNET CONTROLLER.

**CHILLED WATER CONTROL**

**CHILLER CONTROL:** THE CHILLER WILL BE ENABLED/DISABLED OVER BACNET BY THE BAS SYSTEM ALL OTHER CHILLER CONTROLS WILL BE CONTROLLED BY THE PACKAGED CHILLER CONTROLLER (BY OTHERS). THE BAS SYSTEM WILL ENABLE THE CHILLER WHENEVER ANY AIR HANDLER CALLS FOR COOLING. THE CALL FOR COOLING WILL HAPPEN WHENEVER ANY AIR HANDLER IS ON AND THE CHILLED WATER VALVE IS GREATER THAN 10% OPEN. THE CHILLER WILL BE DISABLED WHEN ALL THE AIR HANDLERS ARE OFF.



**1 AAC - CHILLER CONTROLS**  
NTS

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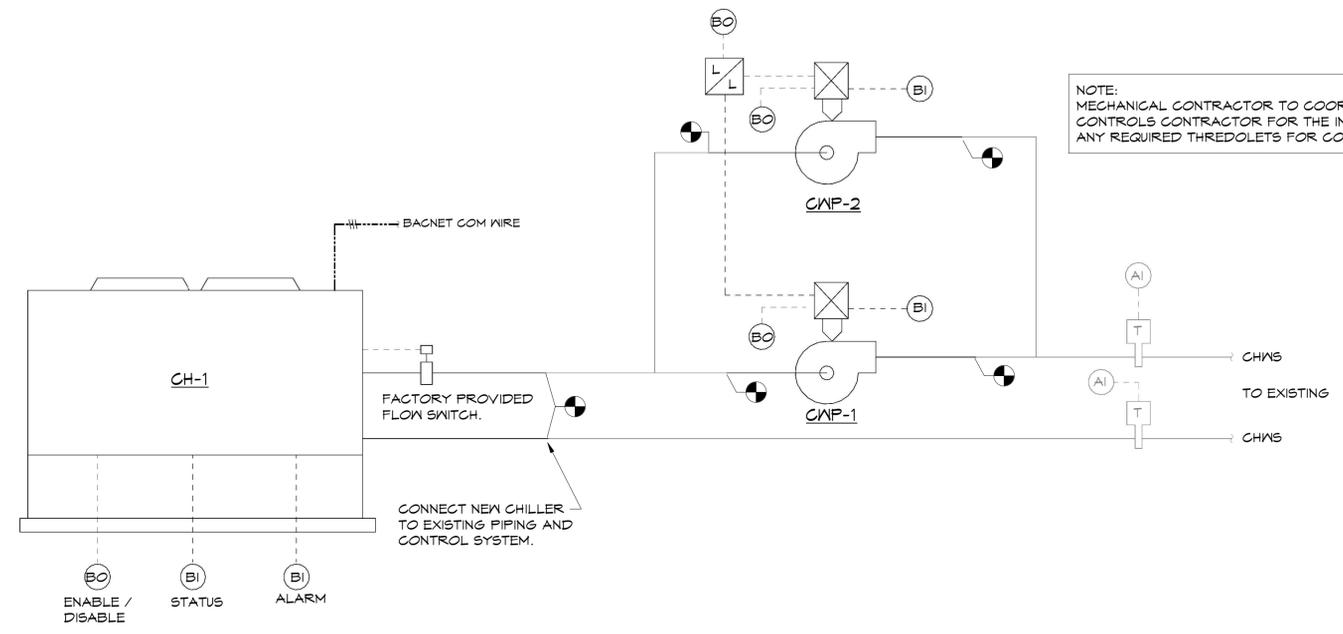
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**CHILLED WATER PUMP CONTROL:** THE CHILLED WATER PUMPS WILL BE ENERGIZED BY THE BAS SYSTEM. THE CHILLED WATER PUMPS WILL BE RUN IN A LEAD/LAG CONFIGURATION, BASED UPON ACTUAL RUN TIME AND CHANGE LEAD WHENEVER THE LEAD PUMP HAS RUN FOR 168 HRS. UPON FAILURE OF THE LEAD PUMP THE LAG PUMP WILL BE ENERGIZED AND AN ALARM SENT TO THE SYSTEM SERVER.

THE LEAD CHILL WATER PUMP WILL BE STARTED WHENEVER THE OUTSIDE AIR DROPS BELOW 32°F (ADJ.), WHILE THE CHILLER REMAINS DISABLED. THE AIR HANDLER CHILL WATER VALVE WILL MAINTAIN A 50% OPEN POSITION WHILE THE SYSTEM IS OPERATED IN THE LOW AMBIENT MODE.



**2 LJHS - CHILLER CONTROLS**  
NTS

NOTES:  
REFER TO SHEET M1.1 FOR MEP NOTES, LEGEND AND DETAILS.  
REFER TO SHEET M2.1 FOR BENTONVILLE WEST MEP PLANS.  
REFER TO SHEET M2.2 FOR AREND ART MEP PLANS.  
REFER TO SHEET M2.3 FOR LINCOLN JUNIOR HIGH MEP PLANS.  
REFER TO SHEET M3.1, M3.2 FOR CONTROL DETAILS.

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