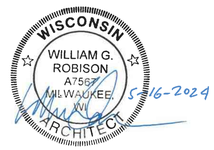
WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

CITY OF MADISON PARKS DIVISION

1625 NORTHPORT DRIVE
MADISON, WI 53704

PROJECT

SEAL



CONSULTANTS

CIVIL
JSD PROFESSIONAL SERVICES, INC.
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VERONA, WI 53593
PH 608-848-5060

LANDSCAPE
JSD PROFESSIONAL SERVICES, INC.
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VERONA, WI 53593
PH 608-848-5060

ARCHITECTURAL
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PH 608-250-0100

STRUCTURAL
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MILWAUKEE, WI 53226
PH 414-257-4200

FIRE PROTECTION
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MADISON, WI 53711
PH 608-277-1728

PLUMBING
JDR ENGINEERING, INC.
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MADISON, WI 53711
PH 608-277-1728

MECHANICAL
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5525 NOBEL DR #110
MADISON, WI 53711
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ELECTRICAL
JDR ENGINEERING, INC.
5525 NOBEL DR #110
MADISON, WI 53711
PH 608-277-1728

DRAWINGS

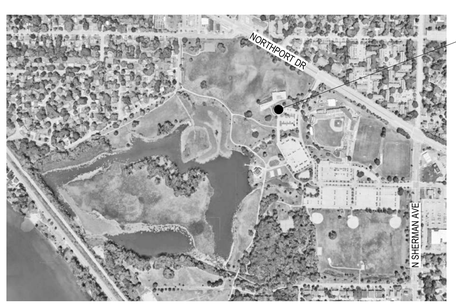
EXHIBIT A - DRAWINGS VOLUME 1

EXHIBIT B - DRAWINGS VOLUME 2

EXTERIOR RENDERING

SITE LOCATION MAP

PROJECT LOCATION



BUILDING ADDRESS:
1625 NORTHPORT DRIVE
MADISON, WI 53704

TRUE NORTH

Engberg Anderson ARCHITECTS

MILWAUKEE | MADISON | CHICAGO

WARNER PARK
COMMUNITY RECREATION
CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

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NO.	DESCRIPTION	DATE

DRAWN BY	DKB
CHECKED BY	JWH

TITLE SHEET

G000

APPLICABLE CODES

ZONING CODE	CITY OF MADISON ZONING CODE
BUILDING CODE	WISCONSIN SPS 362 / 2015 IBC
EXISTING BUILDING CODE	WISCONSIN SPS 366 / 2015 IEBC
ACCESSIBILITY CODE	2009 ICC A117.1
FIRE SAFETY CODE	WISCONSIN SPS 314 / 2012 NFPA 1
PLUMBING CODE	WISCONSIN SPS 381-387
ELECTRICAL CODE	WISCONSIN SPS 316 / 2017 NEC / 2017 NFPA 70
MECHANICAL CODE	WISCONSIN SPS 364 / 2015 IMC
ENERGY CODE	WISCONSIN SPS 363 / 2015 IECC

ZONING

CLASSIFICATION	PR PARKS AND RECREATION
PERMITTED USE	CONDITIONAL USE AS A COMMUNITY CENTER
MINIMUM LOT SIZE	5 ACRES
MAXIMUM HEIGHT	2 STORIES / 35' (MAXIMUM HEIGHT MAY BE EXCEEDED WITH CUP APPROVAL)
SETBACKS REQUIRED	
FRONT YARD	30'
SIDE YARD	30'
REAR YARD	30'
PARKING	
# OF SPACES REQ'D	STAFF TO PROVIDE DETERMINATION IN PR DISTRICT, DEPENDING UPON USE PROPOSED
# OF SPACES PROVIDED	78

NOTES

1. EXISTING OCCUPANCY, OCCUPANT LOAD, AND MEANS OF EGRESS TO REMAIN UNLESS NOTED OTHERWISE.
2. BUILDING PERIMETER IS GREATER THAN 30' FROM CLOSEST INTERIOR LOT LINE, ENTIRE WIDTH OF NEAREST PUBLIC WAY, AND ANY ADJACENT BUILDINGS. SEE BOUNDARY, TOPOGRAPHIC, AND UTILITY SURVEY FOR ADDITIONAL INFORMATION.
3. GRADE PLANE PER IBC CHAPTER 2 = EL 105'-0"

BUILDING DATA

DATE OF ORIGINAL CONSTRUCTION	1998	
OCC. CLASSIFICATION	A-3 (COMMUNITY HALL), B ACCESSORY (EXISTING)	
CONSTRUCTION TYPE	IIB (EXISTING)	
ALTERATION TYPE	ADDITION + LEVEL 2 ALTERATION	
SPRINKLERED	YES - NFPA 13	
FIRE ALARM	YES - COMPLIANT WITH IBC 907.5.2.2	
BUILDING HEIGHT (NEW CONSTRUCTION)	25'-3" ABOVE GRADE PLANE	
NUMBER OF STORIES	1 (EXISTING MEZZANINES)	
SQUARE FEET/ FLOOR	ALLOWABLE	ACTUAL
FIRST FLOOR	38,000 SF + 9,500 SF = 47,500 SF	42,940 SF
	100% FRONTAGE INCREASE	

CONSTRUCTION REQUIREMENTS

EXT. WALLS-NON BEARING	0 - HR
STRUCTURAL FRAME	0 - HR
PARTITIONS	0 - HR
SHAFT ENCLOSURES	1 - HR LESS THAN FOUR STORIES
FLOOR/CEILING	0 - HR
ROOF/CEILING	0 - HR
ROOFING CLASSIFICATION	CLASS C

ENERGY

CLIMATE ZONE	6		
ENVELOPE REQUIREMENTS	R-VALUE	U-FACTOR	PROVIDED
ROOF	20	0.048	R-35
WALLS	13.3	0.080	R-20
BELOW GRADE	7.5	0.119 (C-VALUE)	R-20
UNHEATED SLAB-ON-GRADE	10 @ 24" BELOW	0.54 (F-VALUE)	R-20 @ 48" BELOW
DOORS		0.70	U-0.70

FENESTRATION REQUIREMENTS	SHGC SEW	SHGC N	U-FACTOR	PROVIDED
FIXED	0.40	0.53	0.36	U-0.20, SHGC 0.37

MEANS OF EGRESS

OCCUPANT LOAD	1657 OCCUPANTS
EXITS PER STORY REQ'D	4
EXITS PER STORY PROVIDED	5
EXIT DOOR WIDTH REQ'D	249"
EXIT DOOR WIDTH PROVIDED	366"
EXIT ACCESS TRAVEL DISTANCE REQ'D	250'
EXIT ACCESS TRAVEL DISTANCE PROVIDED	SEE CODE CONFORMANCE PLAN

PLUMBING

IEBC 810.1 / IBC TABLE 2902.1

FIXTURES	OCCUPANT LOAD		REQUIREMENTS	REQUIRED	PROVIDED
WATER CLOSETS	MEN	829	1 PER 125 OCCUPANTS	7	8
	WOMEN	829	1 PER 65 OCCUPANTS	13	9 + 4 UNISEX
				20	21
LAVATORIES	MEN	829	1 PER 200 OCCUPANTS	5	5
	WOMEN	829	1 PER 200 OCCUPANTS	5	5 + 4 UNISEX
				10	14
DRINKING FOUNTAINS	1657		1 PER 500 OCCUPANTS	4	5
SERVICE SINKS				1	2

NOTES

1. FAMILY OR ASSISTED-USE TOILET ROOMS ARE PERMITTED TO BE INCLUDED IN THE NUMBER OF FIXTURES FOR MALE OR FEMALE OCCUPANTS IN ASSEMBLY OCCUPANCIES PER IBC 2902.1.2.
2. URINALS MAY BE SUBSTITUTED FOR UP TO 67 PERCENT OF REQUIRED WATER CLOSETS IN ASSEMBLY OCCUPANCIES PER IPC 419.2 (REFERENCED IN IBC TABLE 2902.1).

CODE CONFORMANCE LEGEND

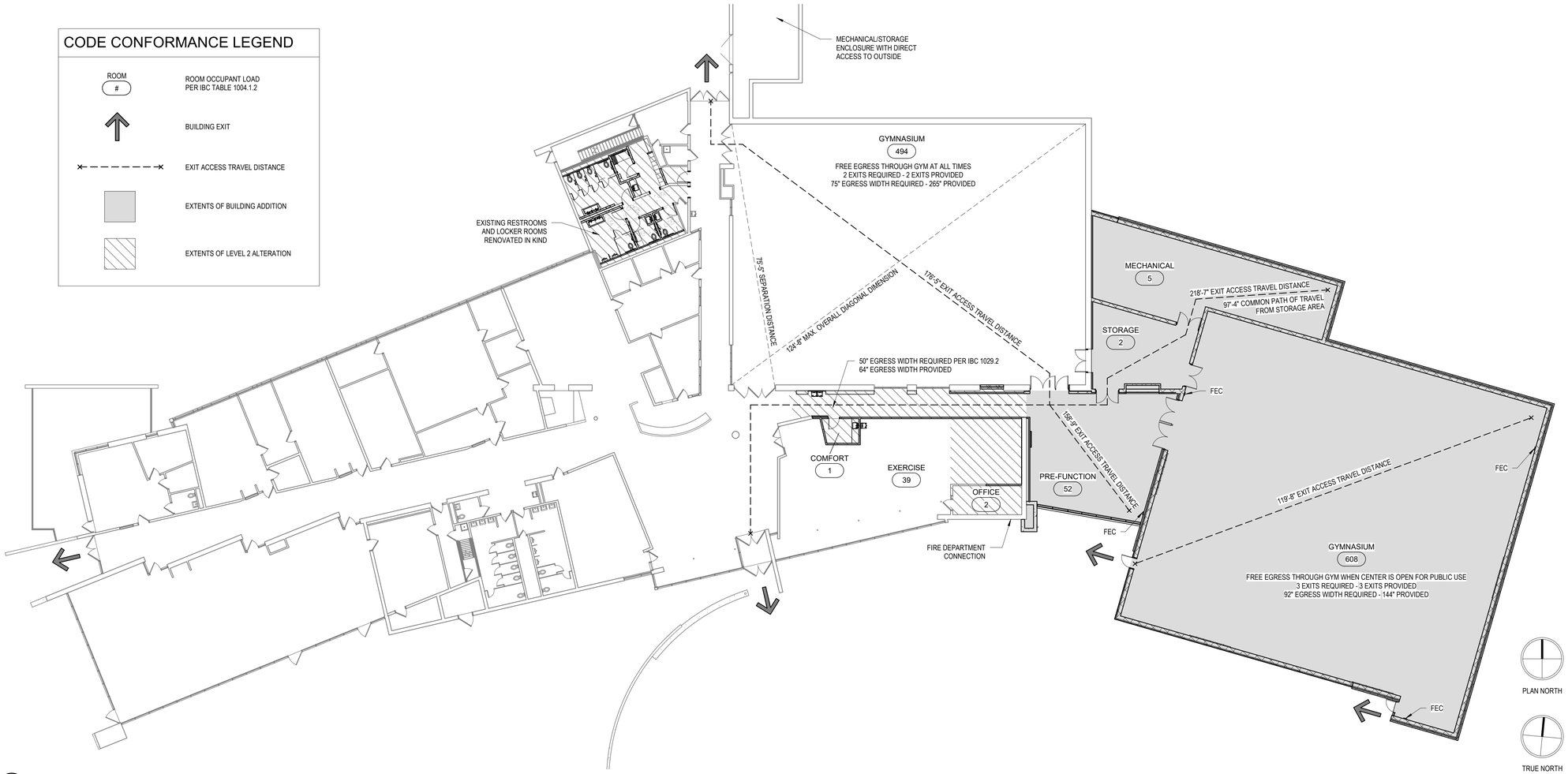
ROOM # — ROOM OCCUPANT LOAD PER IBC TABLE 1004.1.2

BUILDING EXIT

EXIT ACCESS TRAVEL DISTANCE

EXTENTS OF BUILDING ADDITION

EXTENTS OF LEVEL 2 ALTERATION



1 CODE CONFORMANCE PLAN
SCALE: 1/16" = 1'-0"

Engberg Anderson ARCHITECTS
MILWAUKEE | MADISON | CHICAGO

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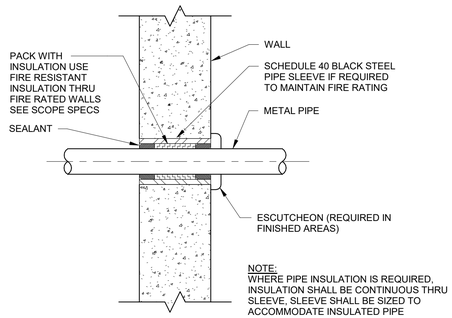
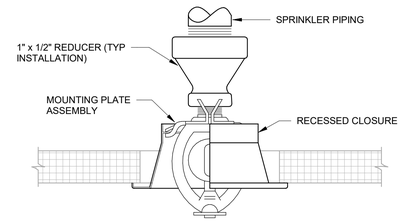
CODE CONFORMANCE

G001



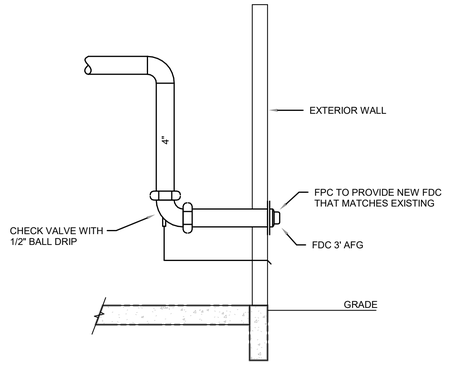
3 F000 SLEEVE THRU WALL DETAIL

SCALE: NONE



4 F000 RECESSED SPRINKLER HEAD

SCALE: NONE



5 F000 FIRE DEPARTMENT CONNECTION DETAIL

SCALE: 12" = 1'-0"

FIRE PROTECTION GENERAL NOTES

1. VERIFY UTILITY INFORMATION WITH LOCAL UTILITY COMPANIES, VISIT THE BUILDING SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS AFFECTING THE WORK.
2. VERIFY ALL MEASUREMENTS, PIPE SIZES, PIPE LOCATIONS, ELEVATIONS, ETC. AT SITE.
3. DRAWINGS OF ALL OTHER TRADES SHALL BE REVIEWED. COORDINATE THE INSTALLATION AND SCHEDULING OF THE WORK WITH OTHER TRADES TO PREVENT INTERFERENCE WITH THEIR RESPECTIVE INSTALLATION.
4. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL STRUCTURAL DIMENSIONS AND LAYOUT.
5. IT IS THE INTENT OF THESE DRAWINGS THAT A COMPLETE WORKING SYSTEM, PROPERLY TESTED, WILL BE OPERATIONAL UPON COMPLETION OF INSTALLATION.
6. CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BID OPENING. THE ENGINEER RESERVES THE RIGHT TO FINAL INTERPRETATION.
7. REFER TO SYMBOL SCHEDULE FOR SYMBOLS USED.
8. ALL SPRINKLER PIPING SHALL BE LOCATED WITHIN THE JOIST SPACE UNLESS INDICATED OTHERWISE.
9. SPRINKLER/FIRE SUPPRESSION SYSTEM(S) SHALL BE DEFINED FOR INDIVIDUAL AREAS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES, EXPOSED STRUCTURE AND CEILING DEVICES. IN EXPOSED AREAS, COORDINATE PIPE ROUTING AND HEAD LAYOUT TO PROVIDE A CLEAN SYMMETRICAL INSTALLATION WITH DUCTWORK, LIGHTING, ETC.
10. INSTALL SPRINKLERS IN CENTER OF CEILING TILES WHERE APPLICABLE.
11. BUILDING WILL BE OCCUPIED THROUGHOUT CONSTRUCTION. COORDINATE ALL INTERRUPTIONS WITH THE OWNER'S REPRESENTATIVE.
12. IT IS THE INTENT OF THESE DRAWINGS THAT A COMPLETE WORKING SYSTEM, PROPERLY TESTED, WILL BE OPERATIONAL UPON COMPLETION OF INSTALLATION.

FIRE PROTECTION DESCRIPTION

FIRE PROTECTION NARRATIVE

1. THE FIRE PROTECTION SYSTEM IS TO BE DESIGNED TO THE CONTRACT SCOPE DOCUMENTS, NFPA 13 LATEST EDITION, AND THE LOCAL AUTHORITY HAVING JURISDICTION REQUIREMENTS.
2. CONTRACTOR TO NOTE SPECIAL AESTHETIC CONDITION OF SPRINKLER INSTALLATION IN AREAS WITH NO CEILINGS.
3. SPRINKLER COVERAGE AND PIPING SHALL BE WET PIPE HYDRAULICALLY DESIGNED BY THE FIRE PROTECTION CONTRACTOR BASED ON NFPA 13 & 231.

FIRE PROTECTION SYSTEM CLASSICICATION

LIGHT HAZARD OCCUPANCY:

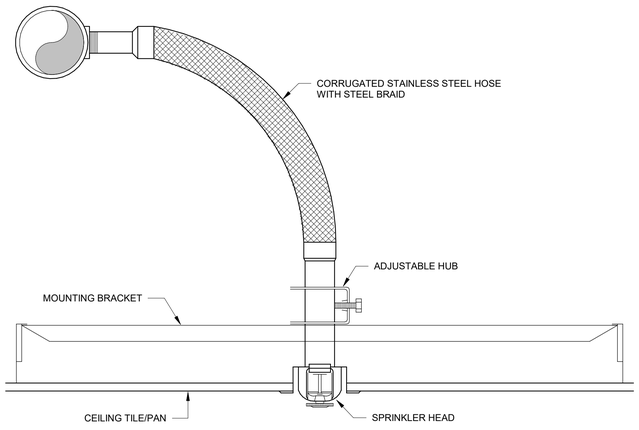
THE PROTECTION AREA ALLOTTED PER SPRINKLER SHOULD NOT EXCEED 225 SQUARE FEET WITH THE MAXIMUM DISTANCE BETWEEN LINES AND SPRINKLERS ON LINES BEING 15 FEET.

AREAS OF LIGHT HAZARD SHALL INCLUDE: ALL GENERAL OFFICE SPACE, TOILET ROOMS, GYMNASIUM AND CORRIDORS.

ORDINARY HAZARD OCCUPANCY:

THE PROTECTION AREA ALLOTTED PER SPRINKLER SHOULD NOT EXCEED 130 SQUARE FEET WITH THE MAXIMUM DISTANCE BETWEEN LINES AND SPRINKLERS ON LINES BEING 15 FEET.

AREAS OF ORDINARY HAZARD SHALL INCLUDE: MECHANICAL ROOMS, JANITOR CLOSETS AND STORAGE ROOMS.

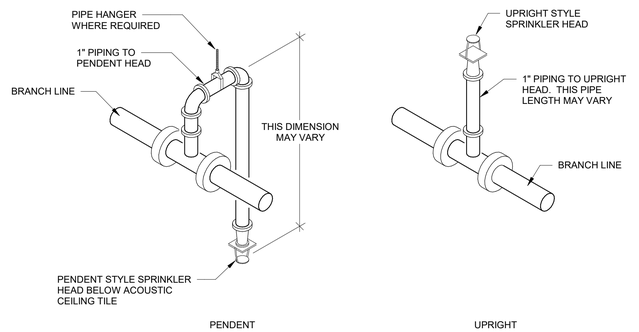


NOTES:

1. ALL HEADS ON WET SYSTEM UTILIZE FLEXIBLE ASSEMBLY WHERE POSSIBLE WHEN CLEARANCES ARE TIGHT - FINISH DROPS ARE HARD PIPED.
2. ALL HEADS SUPPLIED BY THE DRY SPRINKLER SYSTEM ARE HARD PIPED AS RETURN BENDS.

1 F000 FLEXIBLE SPRINKLER DROP DETAIL

SCALE: NONE



2 F000 SPRINKLER HEAD TAKE-OFF DETAILS

SCALE: NONE

GENERAL SYMBOLS:

- TEE (BRANCH TO SIDE)
- TEE (BRANCH DOWN)
- RISER UP
- RISER DOWN
- CLEANOUT (CO)
- OR
- WALL CLEANOUT (WCO)
- FLOOR CLEANOUT (FCO)
- YARD CLEANOUT (YCO)
- UNION
- FLANGE
- FLOW
- CHECK VALVE
- PRESSURE REGULATING VALVE
- EXISTING / NEW
- POINT OF CONNECTION (POC)
- CAP
- SHUTOFF VALVE
- PIPE STRAINER
- FS
- FLOW SWITCH
- TS
- TAMPER SWITCH
- OS&Y GATE VALVE
- FIRE DEPARTMENT CONNECTION (FDC)
- FIRE HYDRANT (HYD)
- FIXTURE STOP
- VALVE IN RISER
- P
- PRESSURE GAUGE
- ANGLE VALVE - FIRE HOSE CONNECTION
- RELIEF VALVE
- OR
- RPBP
- RPBP - REDUCED PRESSURE ZONE BACKFLOW PREVENTER
- FLOOR DRAIN (FD)
- HUB DRAIN (HD)
- FINISHED FLOOR ELEVATION
- #
- DEMOLITION KEYED NOTE
- #
- NEW WORK KEYED NOTE
- #
- REVISION KEYED NOTE
- X / PX
- TAG FOR CONTINUATION MATCH POINTS

FIRE PROTECTION LEGEND:

- F — FIRE SERVICE PIPING
- SPR — FIRE SUPPRESSION PIPING
- XX (E) — EXISTING PIPE (SERVICE DESIGNATED)
- XX — EXISTING PIPE TO BE REMOVED/DEMOLISHED

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
DCV	DOUBLE DETECTOR CHECK VALVE
DSP	DRY STANDPIPE
(E)	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
F	FIRE PROTECTION WATER SERVICE
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
PC	PLUMBING CONTRACTOR
PRV	PRESSURE REGULATING VALVE
SPR	SPRINKLER PIPING
W	DOMESTIC WATER SERVICE
WSP	WET STANDPIPE

FIRE PROTECTION SHEET INDEX

Engberg Anderson ARCHITECTS

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SUITE 110
MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR PROJECT NO: 23.0319

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CITY OF MADISON PARKS DIVISION
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CHECKED BY JDR

SYMBOLS, ABBREVIATIONS, DETAILS & SCHEDULES - FIRE PROTECTION

F000

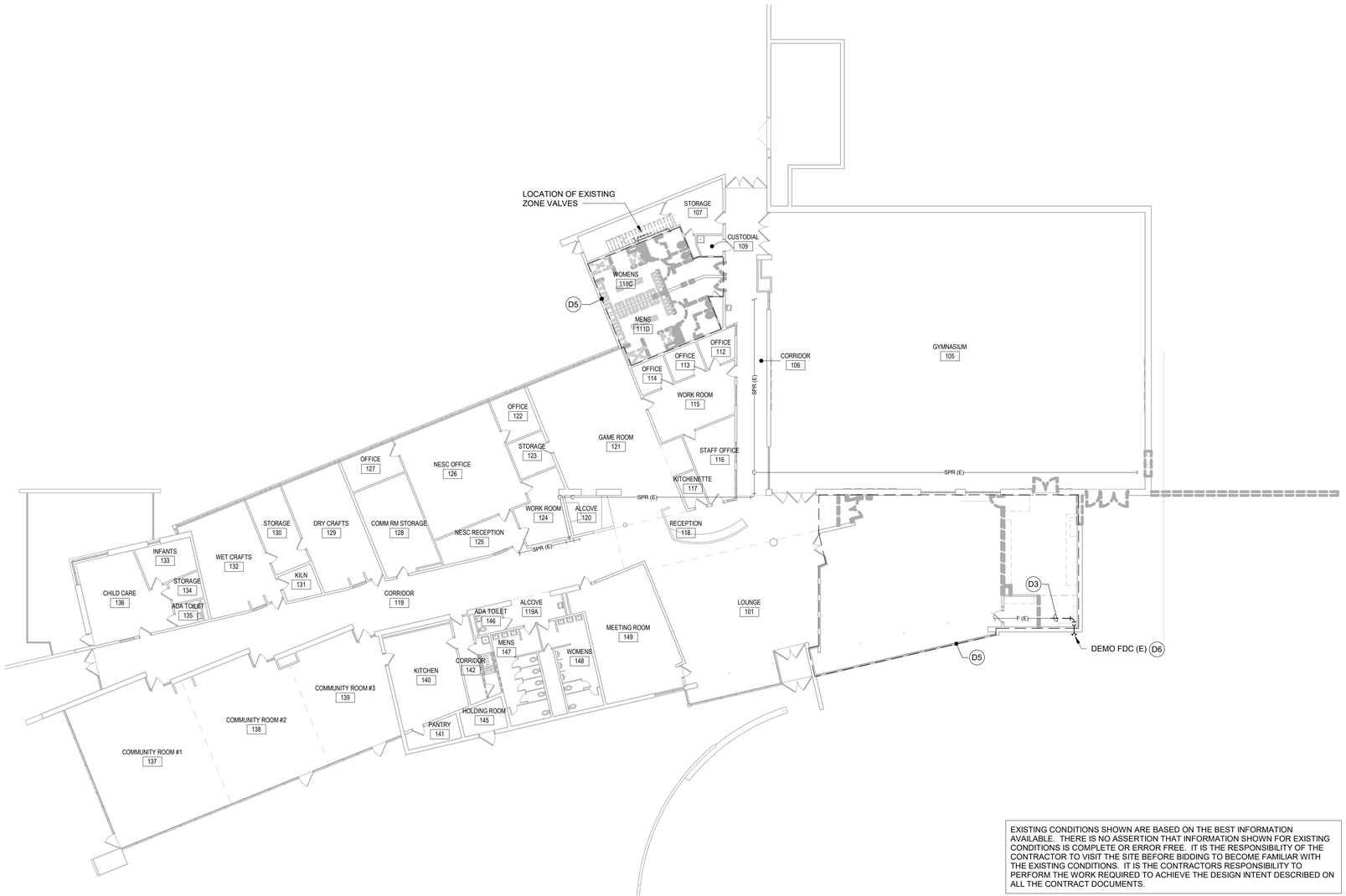
DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D3 DEMOLISH EXISTING PIPING TO THE EXTENT SHOWN AND CAP UNUSED BELOW SLAB. REFER TO 1/P301 FOR NEW WORK.

D5 DEMOLISH SPRINKLER PIPING AND SPRINKLER HEADS AS REQUIRED TO ALLOW FOR RENOVATION TO BE COMPLETED. COORDINATE WITH ALL TRADES.

D6 CAREFULLY DEMOLISH EXISTING FDC (E), CHECK VALVE (E) AND ASSOCIATED PIPING TO THE EXTENT SHOWN. PREP REMAINING PIPING FOR RECONNECTION AND RELOCATION OF NEW FDC. REFER TO 1/F201 FOR NEW LOCATION OF FDC.



EXISTING CONDITIONS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. THERE IS NO ASSERTION THAT INFORMATION SHOWN FOR EXISTING CONDITIONS IS COMPLETE OR ERROR FREE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE BEFORE BIDDING TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO PERFORM THE WORK REQUIRED TO ACHIEVE THE DESIGN INTENT DESCRIBED ON ALL THE CONTRACT DOCUMENTS.

1 / F101 FIRST FLOOR DEMOLITION PLAN – FIRE PROTECTION

SCALE: 1/16" = 1'-0"

PROJECT NORTH

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FIRST FLOOR DEMOLITION PLAN – FIRE PROTECTION

F101

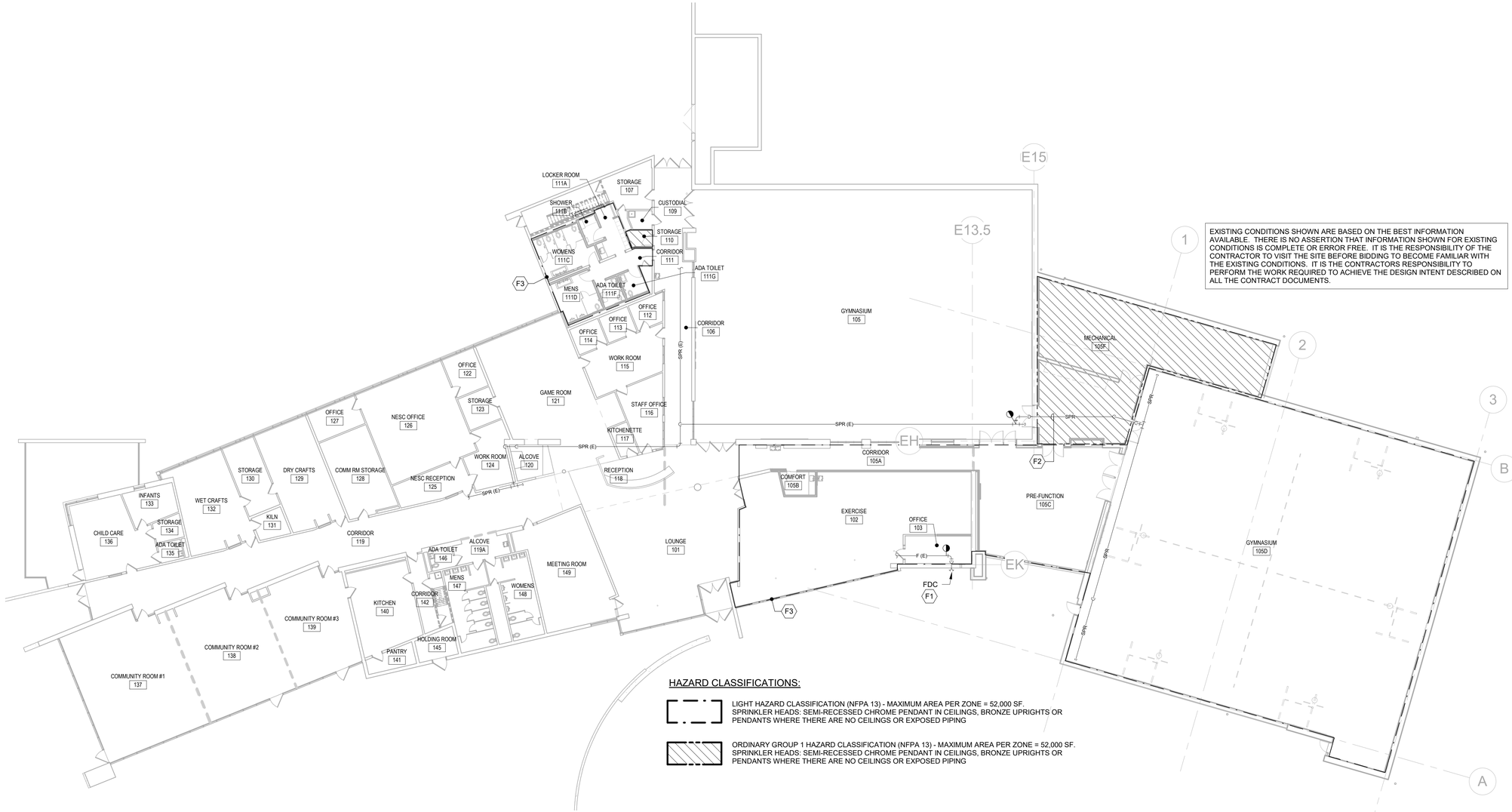
KEYED NOTES

(KEYED NOTES PER PROJECT)

F1 INSTALL NEW FDC, CHECK VALVE, DRAIN VALVE AND RECONNECT TO EXISTING FIRE PROTECTION PIPING. COORDINATE EXACT LOCATION OF NEW FDC WITH OWNER TO ALLOW FOR PROPER CLEARANCE WITH OUT OBSTRUCTION REQUIRED PER LOCAL AHJ.

F2 EXTEND 3" SPRINKLER MAIN LOCATED IN EXISTING GYMNASIUM TO SERVE EXPANSION.

F3 REWORK SPRINKLER PIPING AND SPRINKLER HEADS AS REQUIRED TO PROVIDE PROPER SPRINKLER COVERAGE PER NFPA 13. NO EXISTING SPRINKLER HEADS ARE TO BE REUSED.



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HAZARD CLASSIFICATIONS:

LIGHT HAZARD CLASSIFICATION (NFPA 13) - MAXIMUM AREA PER ZONE = 52,000 SF.
SPRINKLER HEADS: SEMI-RECESSED CHROME PENDANT IN CEILINGS, BRONZE UPRIGHTS OR PENDANTS WHERE THERE ARE NO CEILINGS OR EXPOSED PIPING

ORDINARY GROUP 1 HAZARD CLASSIFICATION (NFPA 13) - MAXIMUM AREA PER ZONE = 52,000 SF.
SPRINKLER HEADS: SEMI-RECESSED CHROME PENDANT IN CEILINGS, BRONZE UPRIGHTS OR PENDANTS WHERE THERE ARE NO CEILINGS OR EXPOSED PIPING

1 F201 FIRST FLOOR PLAN – FIRE PROTECTION
SCALE: 1/16" = 1'-0"

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FIRST FLOOR PLAN – FIRE PROTECTION

F201

WATER CALCULATION WORKSHEET

Water Calculation Worksheet For Warner Park Community and Recreation Center
Name/Address of Project

INFORMATION REQUIRED TO SIZE WATER SERVICE AND WATER DISTRIBUTION:

1-	Demand of building in water supply fixture units (WSFU) = 180 :	(GPM)	87
1.a.	Demand of equipment requiring Gallons Per Minute:	(GPM)	10
1.b.	Total Building Demand Gallons Per Minute:	(GPM)	97
2-	Elevation difference from main or external pressure tank to building control valve;	(feet)	-4
3-	Size of water meter (when required) 5/8" ____ 3/4" ____ 1" ____ other X		
4-	Developed length from main or external pressure tank to building control valve;	(feet)	265
5-	Low pressure at main in street or external pressure tank.	(psi)	90

CALCULATE WATER SERVICE PRESSURE LOSS
(unnecessary for internal pressure tanks)

6- Low pressure at main in street or external pressure tank. (value of # 5 above) 90

7- Determine pressure loss due to friction in 4" inch diameter water service.
Water service piping material is DUCTILE IRON
Pressure loss per 100 ft. = 0.272 X 2.65 **Subtract value of "7"** 0.7208
(decimal equivalent of service length, i.e. 65 ft = 0.65) Subtotal 89.28

8- Determine pressure loss or gain due to elevation, (multiply the value of # 2 above by .434) **Subtract value of "8"** -1.74

9- Available pressure after the building control valve. Subtotal 91.02

CALCULATE THE PRESSURE AVAILABLE FOR UNIFORM LOSS (VALUE OF "A")

B. Available pressure after the building control valve. (from "9" above) Value of "B" 91.02

C. Pressure loss of water meter (when meter is required) **Subtract value of "C"** 3.0
Subtotal 88.02
*Note this building requires a pressure reducing valve. Pressure after PRV 80.00

D. Pressure at controlling fixture*.
(Controlling fixture is: Water Closet). **Subtract value of "D"** 25
("Contolling fixture is the fixture with the most demanding pressure to operate properly which includes the following when determining fixture performance; loss due to instantaneous water heaters, water treatment devices, and backflow preventers which serve the controlling fixture.) Subtotal 55.00

E. Difference in elevation between building control valve and the controlling fixture in feet; 0 X .434 psi/ft. **Subtract value of "E"** 0
Subtotal 55.00

F. Pressure loss due to water treatment devices and backflow preventers which serve the controlling fixture. (Water softeners, filters, etc.)
(Pressure loss due to; N/A). **Subtract value of "F"** 0
Subtotal 55.00

G. Pressure loss through tankless water heaters, combination boiler / hot water heaters, heat exchangers which serve the controlling fixture;
(Pressure loss due to; Water Softener). **Subtract value of "G"** 13
Subtotal 42.00

H. Developed length from building control valve to controlling fixture in feet 240 X 1.5 **Divide by value "H"** 360.00
Water distribution piping is: COPPER Subtotal 0.1167
Multiply by: 100

A. Pressure available for uniform loss **"A" =** 11.67

Formula: $A = \frac{B-(C+D+E+F+G)}{H} \times 100$

GENERAL SYMBOLS:

- TEE (BRANCH TO SIDE)
- TEE (BRANCH DOWN)
- RISER UP
- RISER DOWN
- CLEANOUT (CO)
- OR
- WALL CLEANOUT (WCO)
- FLOOR CLEANOUT (FCO)
- YARD CLEANOUT (YCO)
- DOWNSPOUT NOZZLE (DSN)
- UNION
- FLANGE
- FLOW
- CHECK VALVE
- PRESSURE REGULATING VALVE
- SOLENOID VALVE
- HOSE BIBB (HB) OR WALL HYDRANT (WH)
- EXISTING / NEW
- POINT OF CONNECTION (POC)
- CAP
- BALANCING VALVE
- SHUTOFF VALVE
- PIPE STRAINER
- FIXTURE STOP
- VALVE IN RISER
- THERMOMETER
- PRESSURE GAUGE
- WATER HAMMER ARRESTOR
- RELIEF VALVE
- RPBP - REDUCED PRESSURE ZONE BACKFLOW PREVENTER
- OR
- RPBP
- FLOOR DRAIN (FD)
- HUB DRAIN (HD)
- AREA DRAIN (AD)
- ROOF DRAIN (RD) OR OVERFLOW DRAIN (ORD)
- FLOOR SINK (FS)
- FINISHED FLOOR ELEVATION
- XX FIXTURE UNITS - DRAINAGE OR SUPPLY (DFU OF WSFU)
- # DEMOLITION KEYED NOTE
- # NEW WORK KEYED NOTE
- # REVISION KEYED NOTE
- X / PX TAG FOR CONTINUATION MATCH POINTS

PLUMBING LEGEND:

- CW — COLD WATER
- CS — COLD SOFT WATER
- HW — HOT WATER
- HWR — HOT WATER RECIRCULATION
- NPC — NON-POTABLE COLD WATER
- NPCS — NON-POTABLE COLD SOFT WATER
- TW — TEMPERED WATER
- W — DOMESTIC WATER SERVICE
- SAN — SANITARY DRAIN, WASTE OR SEWER (SAN)
- SD — SUB-SOIL DRAINAGE
- V — VENT (V)
- CWV — CLEAR WATER VENT
- CWW — CLEAR WATER WASTE
- ST — STORM DRAIN CONDUCTOR OR SEWER
- OD — OVERFLOW DRAIN
- (E) XX — EXISTING VENT (SERVICE DESIGNATED)
- (E) XX — EXISTING WATER (SERVICE DESIGNATED)
- XX (E) — EXISTING VENT TO BE REMOVED/DEMOLISHED

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
CO	CLEANOUT
CS	COLD SOFT WATER
CW	COLD WATER
CWV	CLEAR WATER VENT
CWW	CLEAR WATER WASTE
DSN	DOWNSPOUT NOZZLE
(E)	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
ESEW	EMERGENCY SHOWER/EYEWASH
F	FIRE PROTECTION WATER SERVICE
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FPC	FIRE PROTECTION CONTRACTOR
G	NATURAL GAS
GC	GENERAL CONTRACTOR
HB	HOSE BIBB
HC	HVAC CONTRACTOR
HD	HUB DRAIN
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
IE	INVERT ELEVATION
L	LAVATORY
MB	MOP BASIN
MH	MANHOLE
NPC	NON-POTABLE COLD WATER
NPCS	NON-POTABLE COLD SOFT WATER
OD	OVERFLOW DRAIN
ORD	OVERFLOW ROOF DRAIN
PC	PLUMBING CONTRACTOR
PRV	PRESSURE REGULATING VALVE
RPBP	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
S	SINK
SAN	SANITARY
SD	SUB-SOIL DRAINAGE
SH	SHOWER
SP	SUMP PUMP
ST	STORM
T	TEMPERED WATER
TMV	THERMOSTATIC MIXING VALVE
TYP	TYPICAL
UR	URINAL
V	VENT
VB	VACUUM BREAKER
VTR	VENT THRU ROOF
W	DOMESTIC WATER SERVICE
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WHR	WATER HEATER
WS	WATER SOFTENER
YCO	YARD CLEANOUT

PLUMBING SHEET INDEX

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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

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CHECKED BY JDR

SYMBOLS & ABBREVIATIONS - PLUMBING

P000

GENERAL NOTES:

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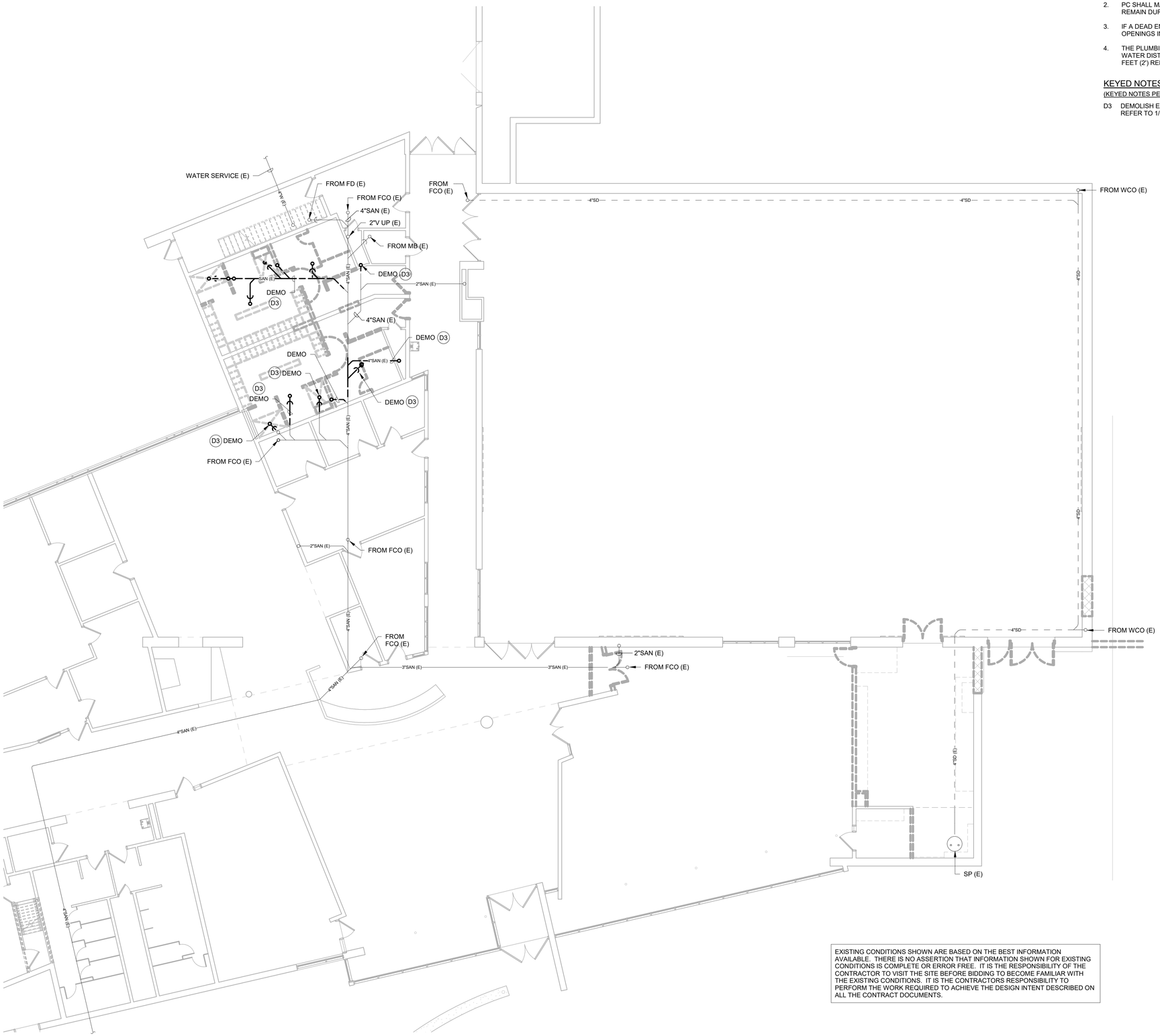
3. IF A DEAD END IS CREATED IN THE REMOVAL OF ANY PART OF A DRAIN SYSTEM, ALL OPENINGS IN THE DRAIN SHALL BE PROPERLY SEALED.
4. THE PLUMBING CONTRACTOR SHALL FIELD VERIFY NO DEAD ENDS IN DRAINAGE OR WATER DISTRIBUTION SYSTEM EXCEEDING A DEVELOPED LENGTH OF MORE THAN TWO FEET (2') REMAIN.

KEYED NOTES

(KEYED NOTES PER PROJECT)

D3 DEMOLISH EXISTING PIPING TO THE EXTENT SHOWN AND CAP UNUSED BELOW SLAB. REFER TO 1/P301 FOR NEW WORK.



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1 P100 UNDERFLOOR DEMOLITION PLAN - PLUMBING

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

PROJECT NORTH

Engberg Anderson ARCHITECTS

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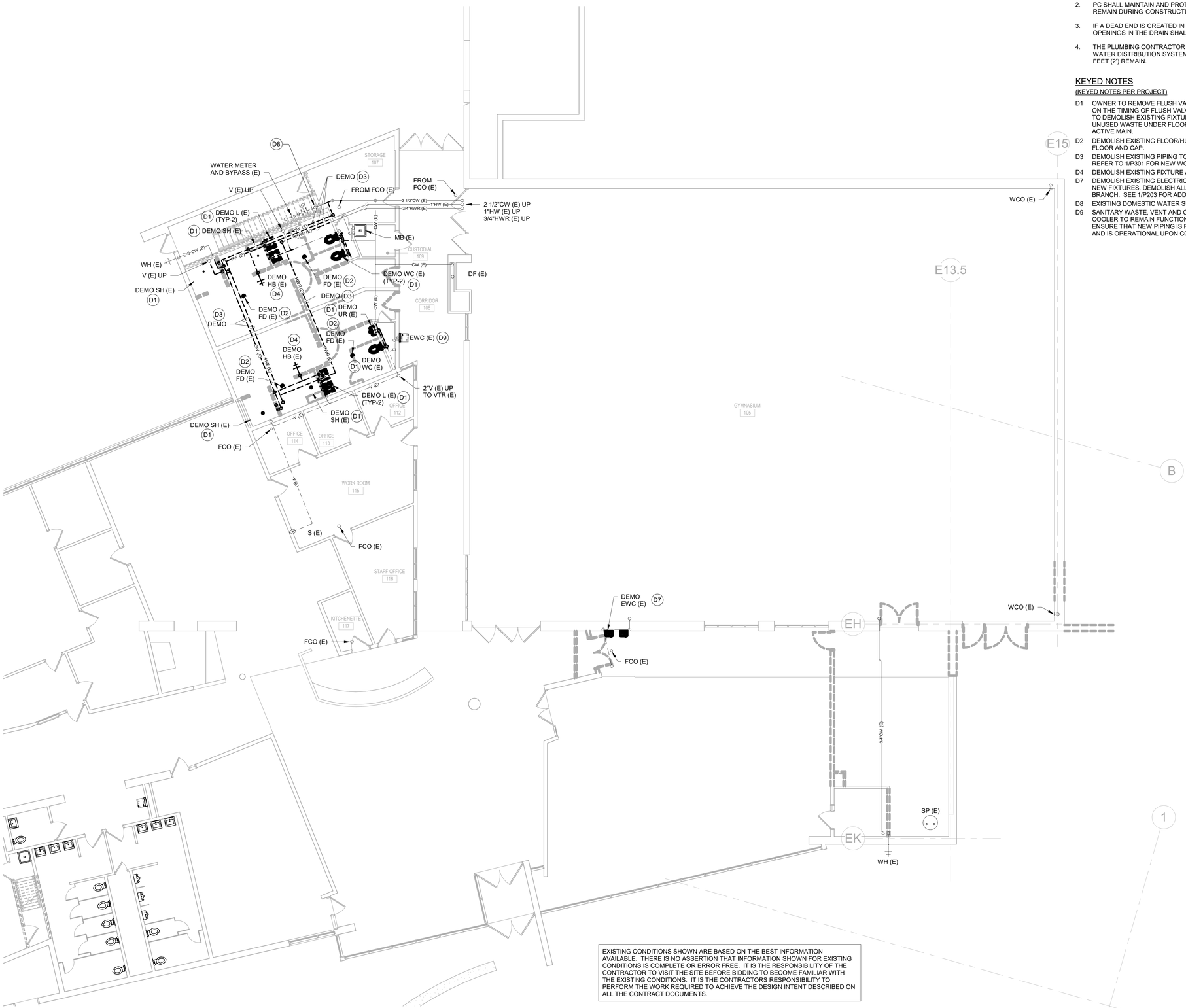
UNDERFLOOR DEMOLITION PLAN – PLUMBING

P100



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1 P101 FIRST FLOOR DEMOLITION PLAN - PLUMBING

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

GENERAL NOTES:

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4. THE PLUMBING CONTRACTOR SHALL FIELD VERIFY NO DEAD ENDS IN DRAINAGE OR WATER DISTRIBUTION SYSTEM EXCEEDING A DEVELOPED LENGTH OF MORE THAN TWO FEET (2') REMAIN.

KEYED NOTES

(KEYED NOTES PER PROJECT)

D1 OWNER TO REMOVE FLUSH VALVES AND FAUCETS. PC TO COORDINATE WITH OWNER ON THE TIMING OF FLUSH VALVE AND FAUCET REMOVAL DURING CONSTRUCTION. PC TO DEMOLISH EXISTING FIXTURE, WASTE, VENT AND SUPPLIES COMPLETE. CAP UNUSED WASTE UNDER FLOOR AND ABANDON. CAP SUPPLY PIPING AT NEAREST ACTIVE MAIN.

D2 DEMOLISH EXISTING FLOOR/HUB DRAIN AND ALL ASSOCIATED PIPING TO BELOW FLOOR AND CAP.

D3 DEMOLISH EXISTING PIPING TO THE EXTENT SHOWN AND CAP UNUSED BELOW SLAB. REFER TO 1/P301 FOR NEW WORK.

D4 DEMOLISH EXISTING FIXTURE AND ASSOCIATED PIPING COMPLETE.

D7 DEMOLISH EXISTING ELECTRIC WATER COOLER COMPLETE. RECONNECT PIPING TO NEW FIXTURES. DEMOLISH ALL UNUSED PIPING AND CAP AT NEAREST ACTIVE MAIN OR BRANCH. SEE 1/P203 FOR ADDITIONAL INFORMATION.

D8 EXISTING DOMESTIC WATER SUPPLY FROM UTILITY METER.

D9 SANITARY WASTE, VENT AND COLD WATER PIPING TO EXISTING ELECTRIC WATER COOLER TO REMAIN FUNCTIONAL. IF PIPING IS REQUIRED TO BE DEMOLISHED ENSURE THAT NEW PIPING IS RECONNECTED TO EXISTING ELECTRIC WATER COOLER AND IS OPERATIONAL UPON COMPLETION.

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FIRST FLOOR DEMOLITION PLAN – PLUMBING

P101

GENERAL NOTES:

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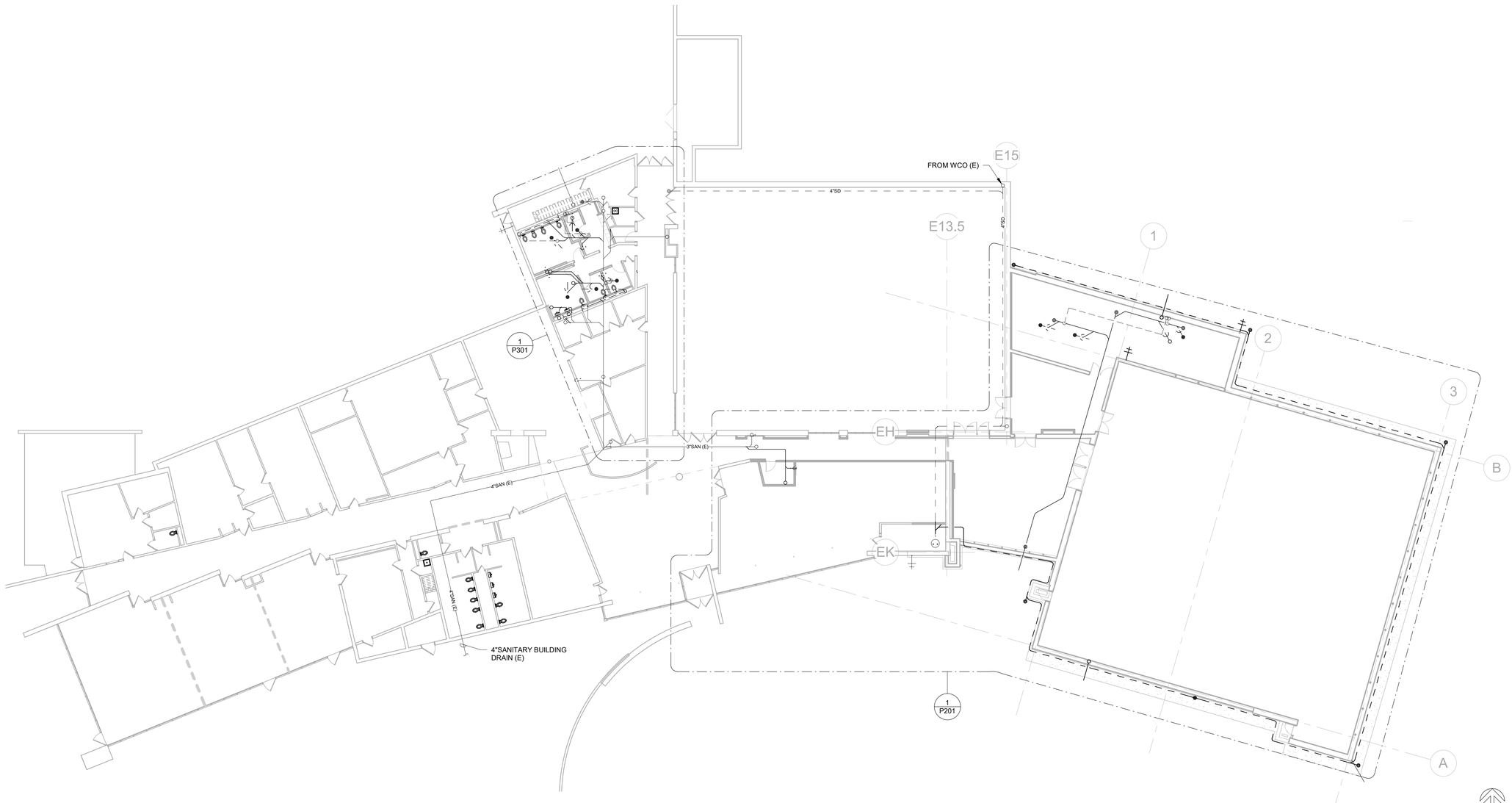

1 P200 OVERALL UNDERFLOOR PLAN – PLUMBING
SCALE: 1/16" = 1'-0"

PROJECT NORTH

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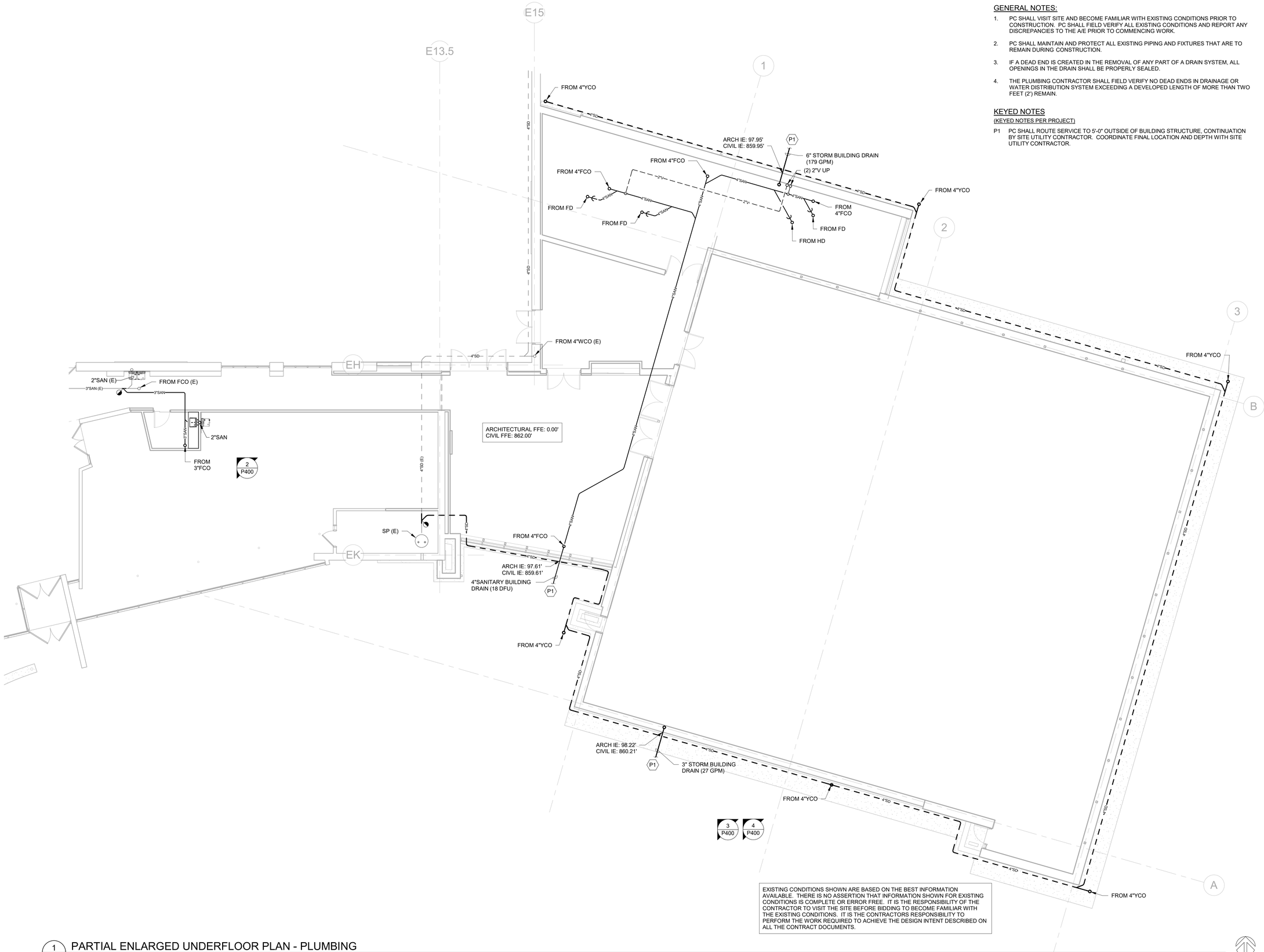
OVERALL UNDERFLOOR PLAN – PLUMBING

P200



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1 P201 PARTIAL ENLARGED UNDERFLOOR PLAN - PLUMBING
SCALE: 1/8" = 1'-0"

PROJECT NORTH

GENERAL NOTES:

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KEYED NOTES

(KEYED NOTES PER PROJECT)

P1 PC SHALL ROUTE SERVICE TO 5'-0" OUTSIDE OF BUILDING STRUCTURE, CONTINUATION BY SITE UTILITY CONTRACTOR. COORDINATE FINAL LOCATION AND DEPTH WITH SITE UTILITY CONTRACTOR.

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PARTIAL ENLARGED UNDERFLOOR PLAN - PLUMBING

P201

GENERAL NOTES:

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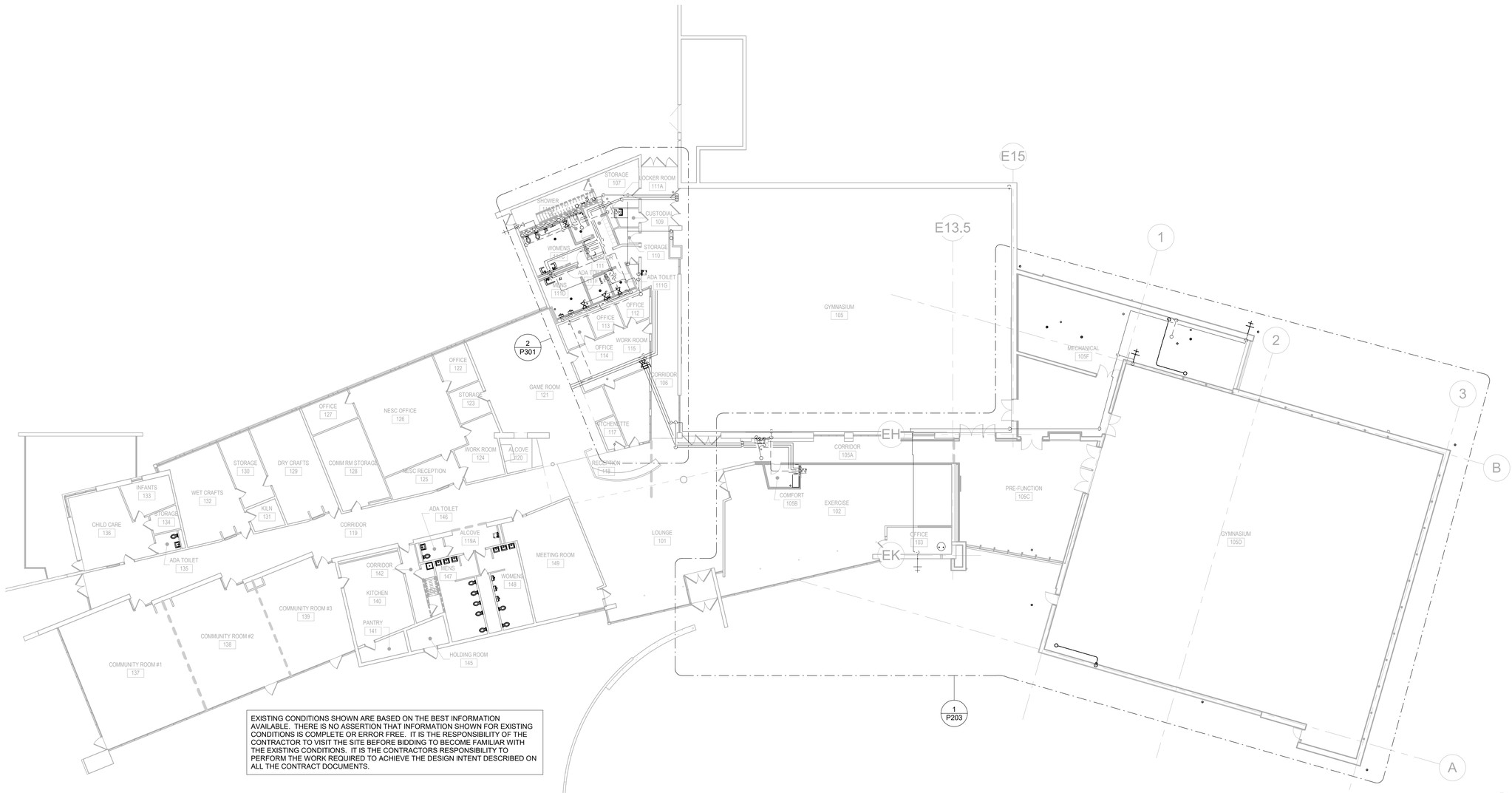

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1 P202 OVERALL FIRSTFLOOR PLAN - PLUMBING
SCALE: 1/16" = 1'-0"

PROJECT NORTH

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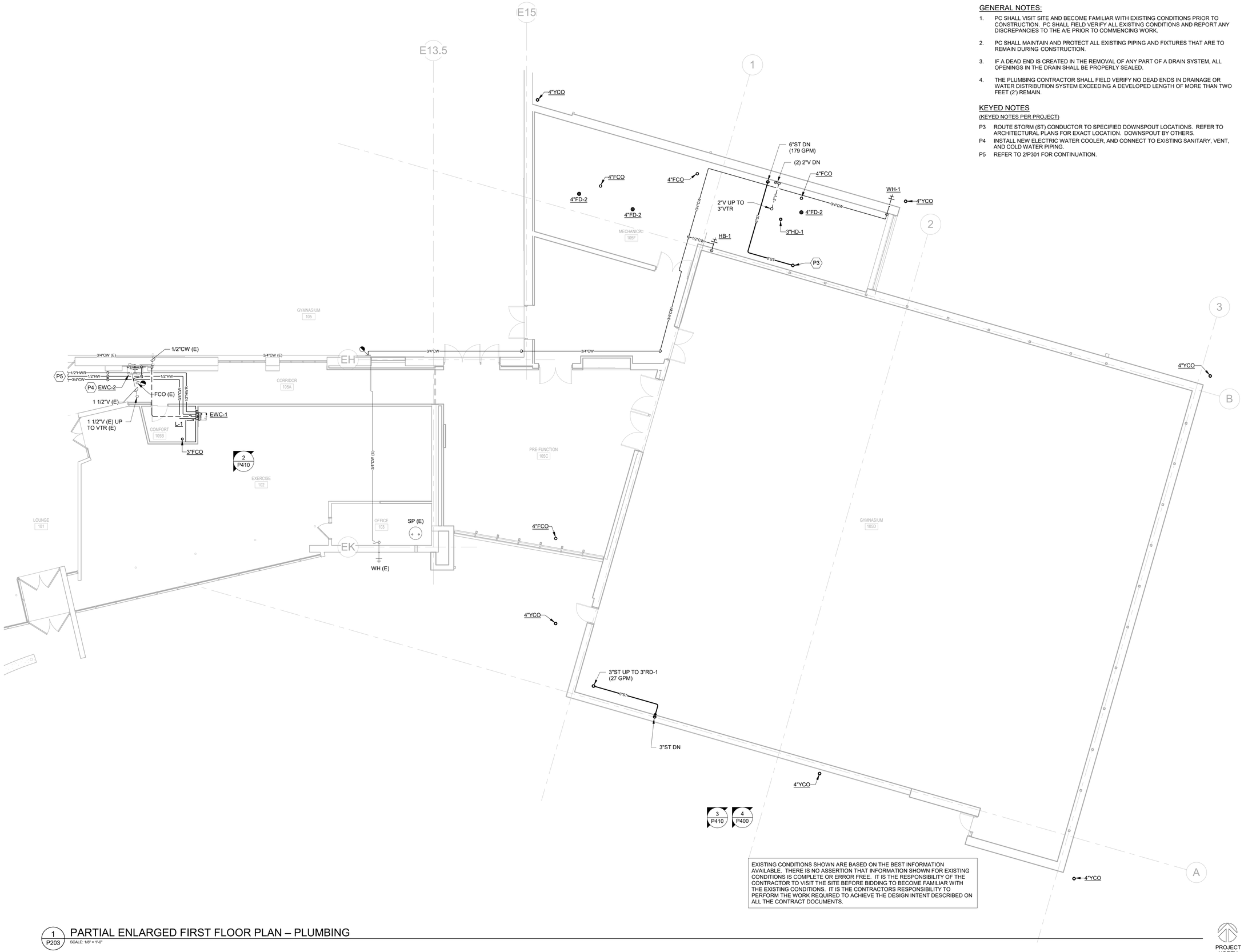
OVERALL FIRST FLOOR PLAN - PLUMBING

P202



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KEYED NOTES

(KEYED NOTES PER PROJECT)

P3 ROUTE STORM (ST) CONDUCTOR TO SPECIFIED DOWNSPOUT LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION. DOWNSPOUT BY OTHERS.

P4 INSTALL NEW ELECTRIC WATER COOLER, AND CONNECT TO EXISTING SANITARY, VENT, AND COLD WATER PIPING.

P5 REFER TO 2/P301 FOR CONTINUATION.

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1 P203 PARTIAL ENLARGED FIRST FLOOR PLAN – PLUMBING

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

PROJECT NORTH

Engberg Anderson ARCHITECTS

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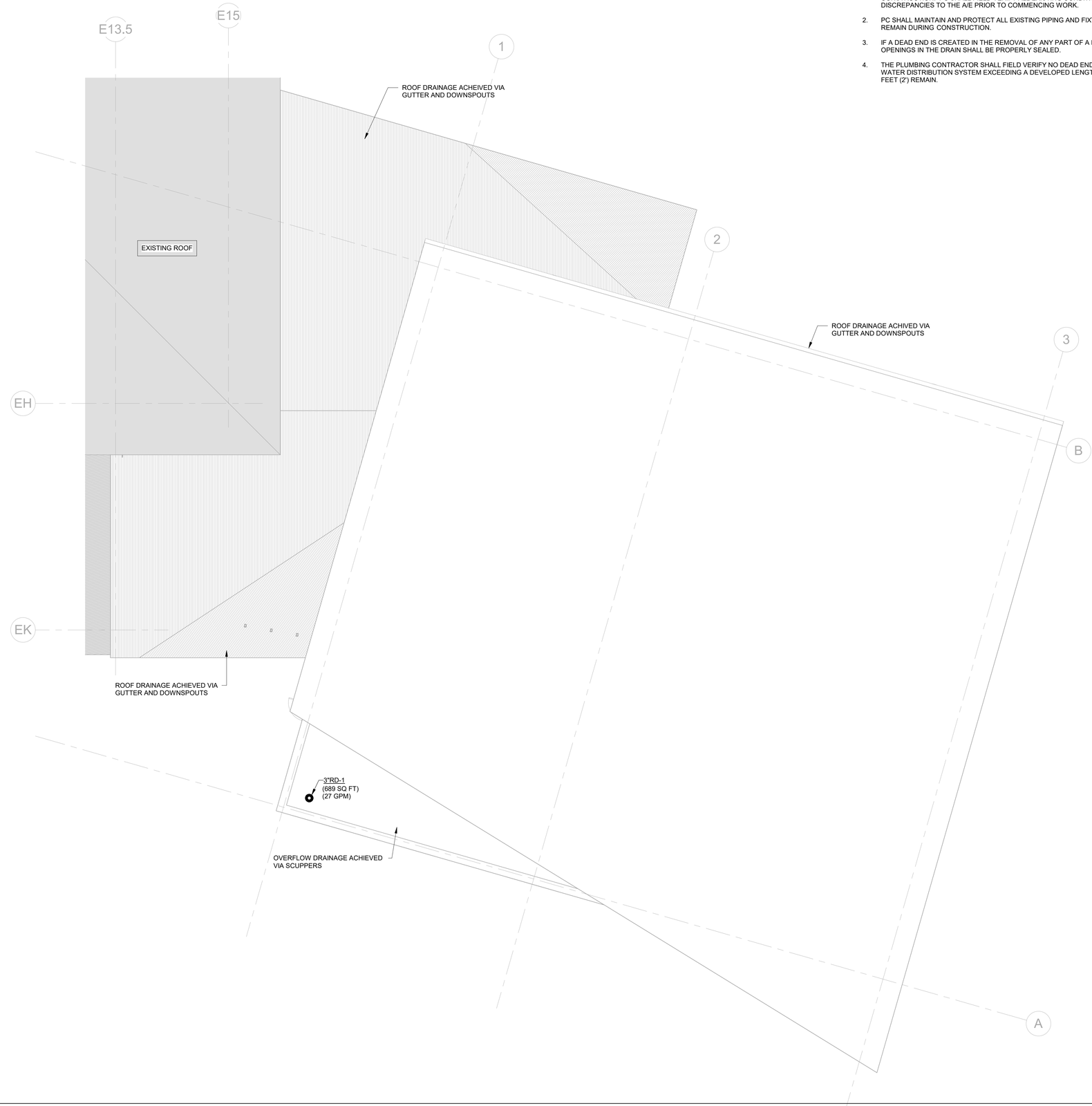
PARTIAL ENLARGED FIRST FLOOR PLAN – PLUMBING

P203



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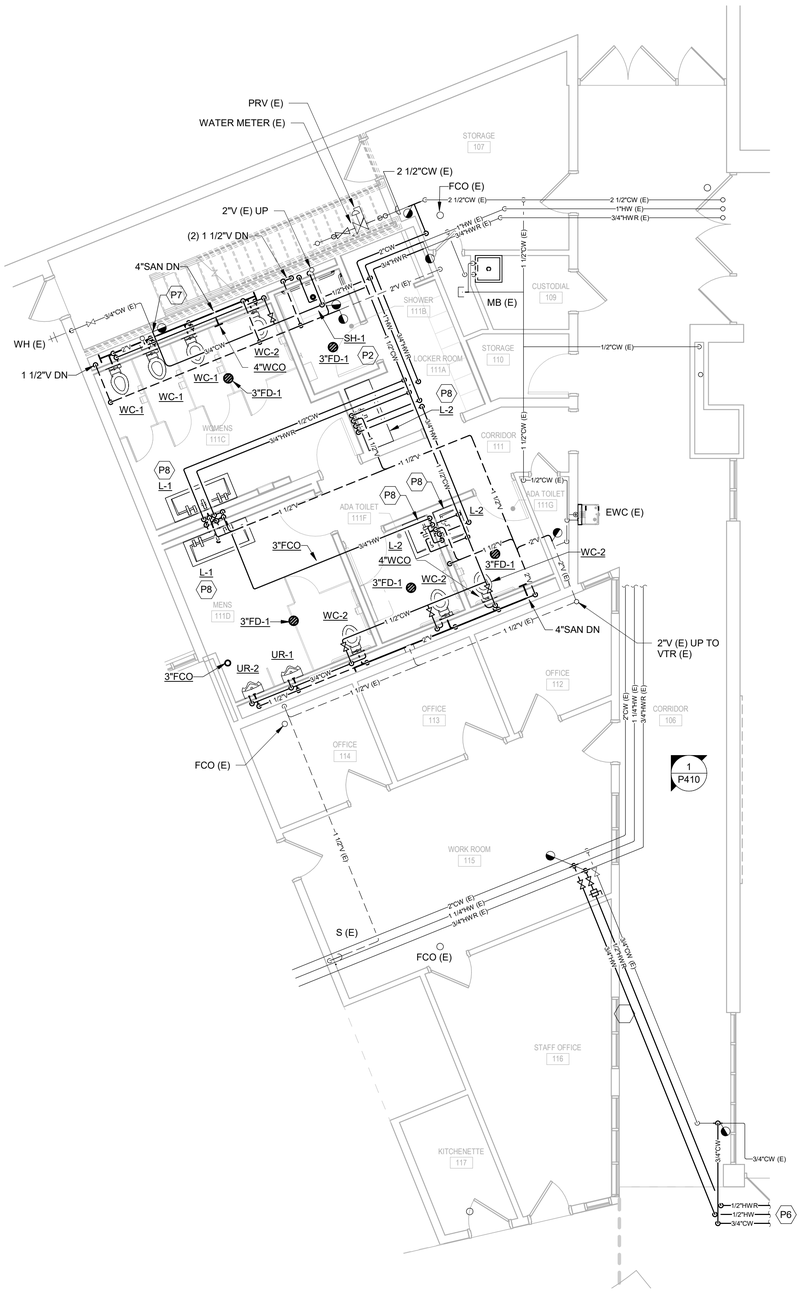
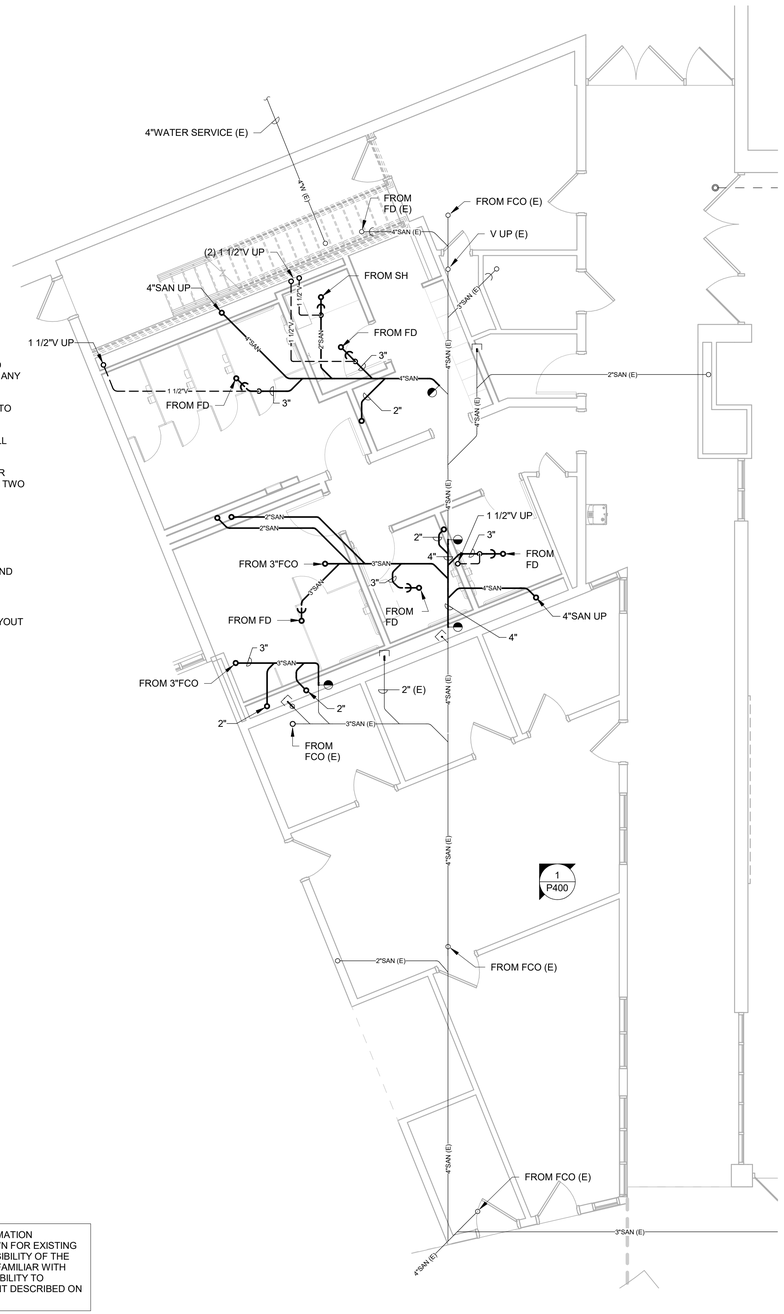
PARTIAL ROOF PLAN – PLUMBING

P204

1 P204 PARTIAL ROOF PLAN - PLUMBING
SCALE: 1/8" = 1'-0"

PROJECT NORTH





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KEYED NOTES

(KEYED NOTES PER PROJECT)

P2 REFER TO SHEET P801 PLUMBING FIXTURE SCHEDULE SH-1 FOR SHOWER VALVE AND SHOWER HEAD PLACEMENT.
P6 REFER TO 1/P203 FOR CONTINUATION.
P7 MAKE NEW CONNECTION TO 3/4"CW SERVING WH (E).
P8 SEE ARCHITECTURAL PLANS FOR FAUCET, HAND DRYER AND SOAP DISPENSER LAYOUT FOR LAVATORIES.

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2 P301 PARTIAL ENLARGED FLOOR PLAN - PLUMBING
SCALE: 3/16" = 1'-0"

PROJECT NORTH

1 P301 PARTIAL ENLARGED UNDERFLOOR PLAN - PLUMBING
SCALE: 3/16" = 1'-0"

PROJECT NORTH

Engberg Anderson ARCHITECTS
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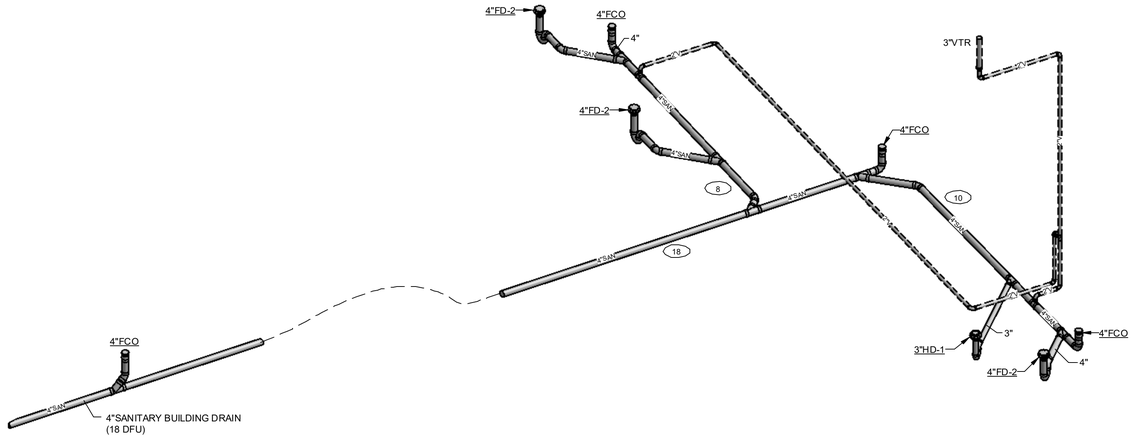
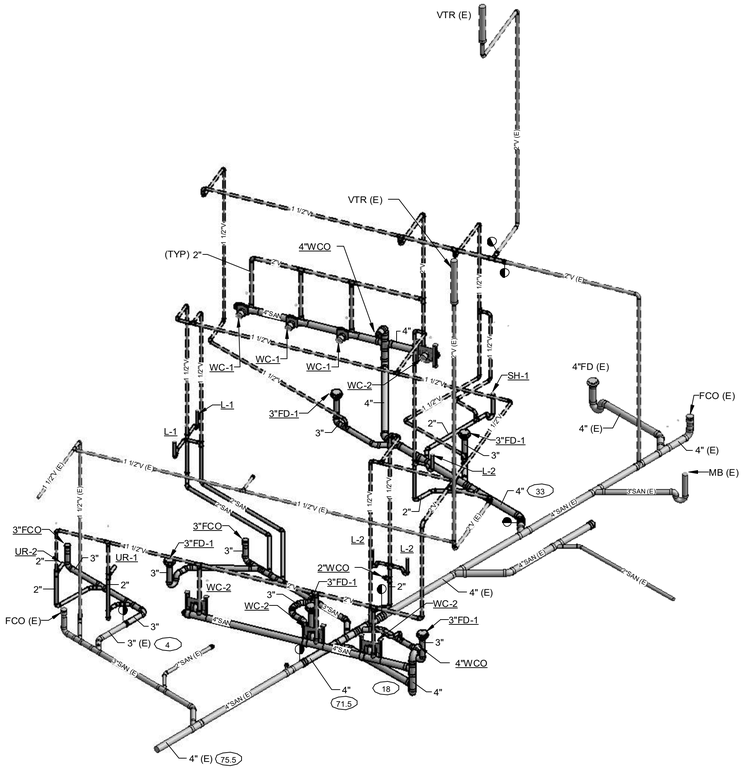
ENLARGED PLANS - PLUMBING

P301



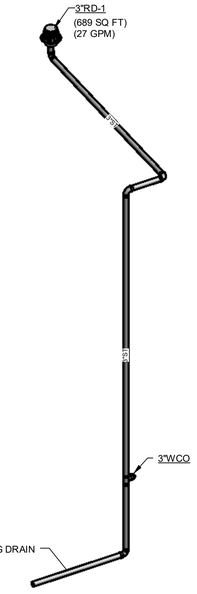
3 P400 WASTE AND VENT ISOMETRIC

SCALE: NONE



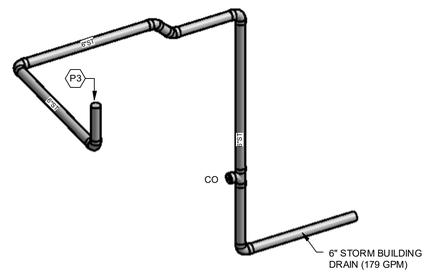
1 P400 WASTE AND VENT ISOMETRIC

SCALE: NONE



4 P400 STORM ISOMETRIC

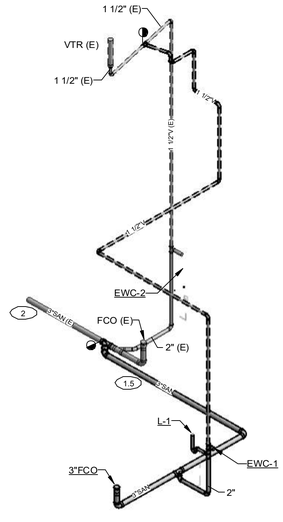
SCALE:



KEYED NOTES

(KEYED NOTES PER PROJECT)

P3 ROUTE STORM (ST) CONDUCTOR TO SPECIFIED DOWNSPOUT LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION. DOWNSPOUT BY OTHERS.



2 P400 WASTE AND VENT ISOMETRIC

SCALE: NONE

Engberg Anderson ARCHITECTS

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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

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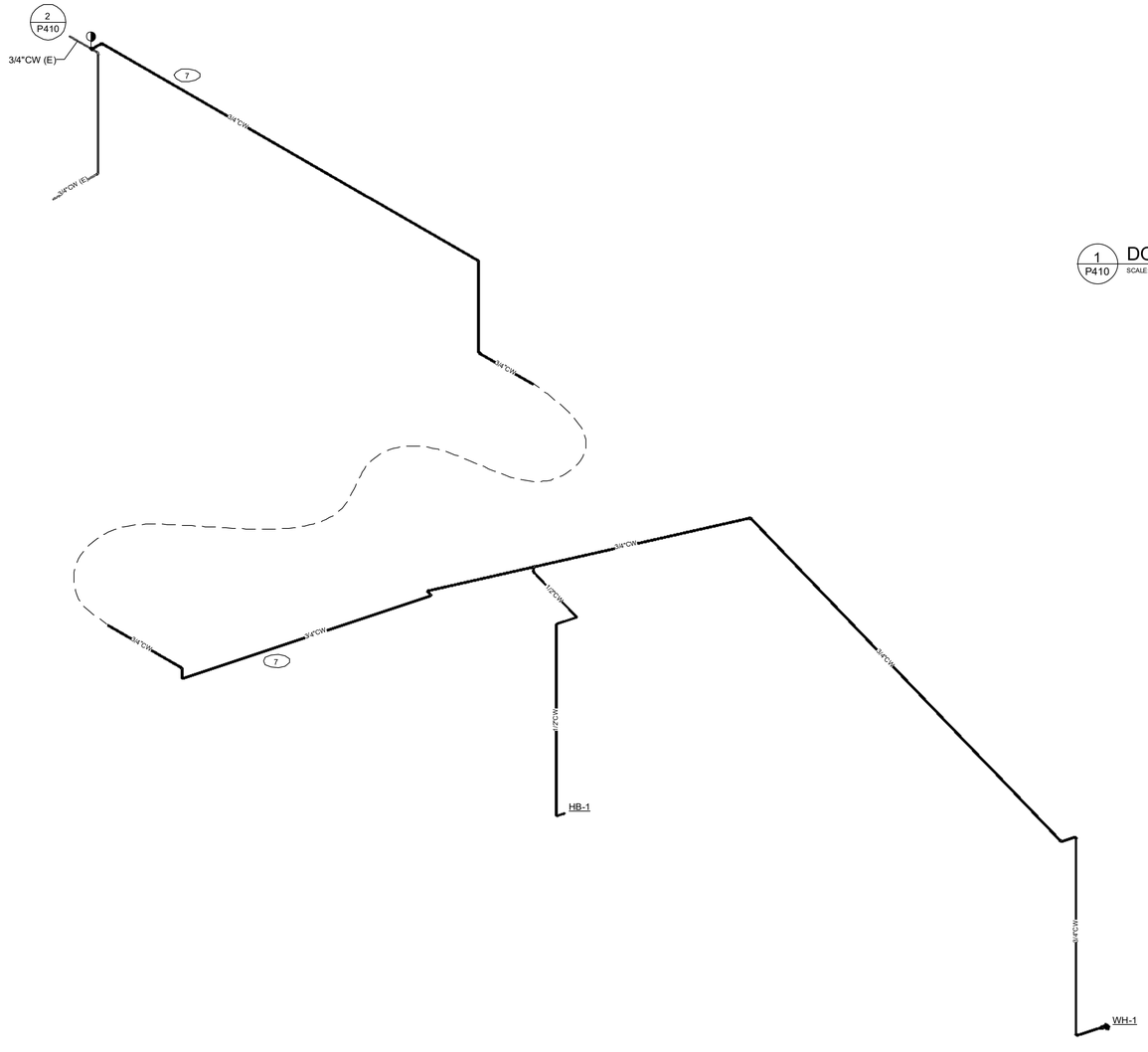
DRAWN BY Author

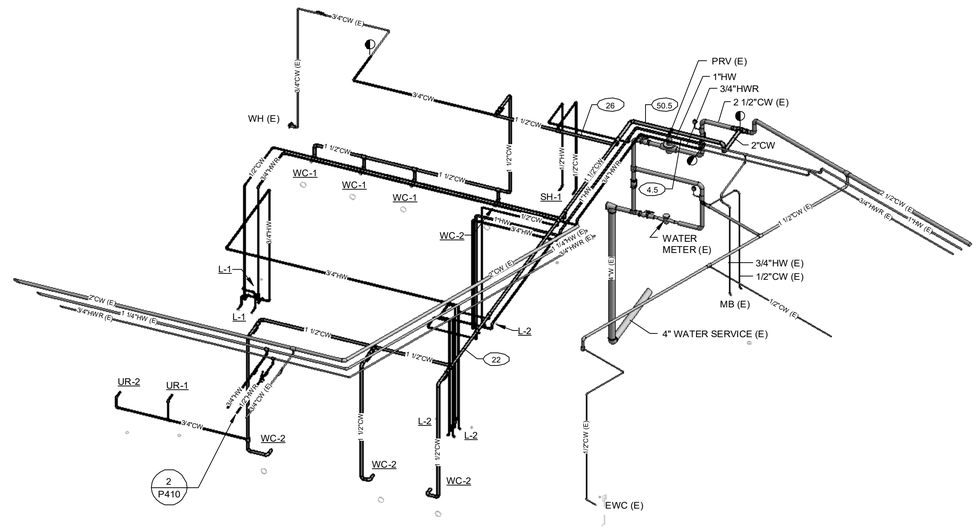
CHECKED BY Checker

SANITARY WASTE, VENT & STORM ISOMETRIC - PLUMBING

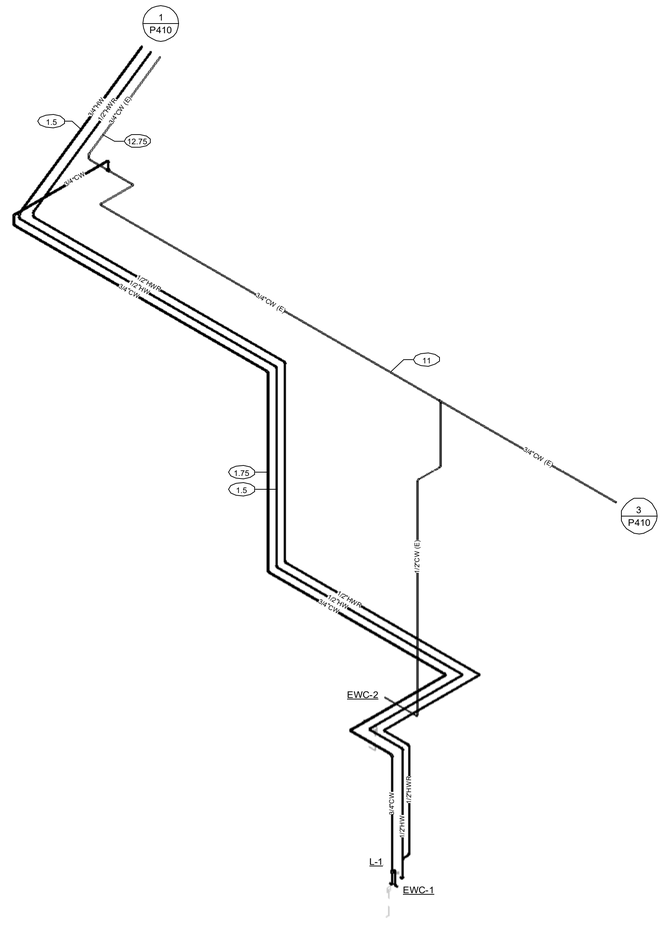
P400



3 P410 DOMESTIC WATER ISOMETRIC
SCALE: NONE



1 P410 DOMESTIC WATER ISOMETRIC
SCALE: NONE



2 P410 DOMESTIC WATER ISOMETRIC
SCALE: NONE

Engberg Anderson ARCHITECTS

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DOMESTIC WATER ISOMETRIC - PLUMBING

P410

PLUMBING FIXTURES SCHEDULE

ID	FIXTURE	WASTE			WATER				DETAIL / SHEET	DESCRIPTION / REMARKS
					COLD		HOT			
		DFU	TRAP	VENT (MIN)	CWFU	SIZE	HWFU	SIZE		
EWC-1	ELECTRIC WATER COOLER WITH BOTTLE FILLER (ADA COMPLIANT)	1	1 1/2"	1 1/2"	0.25	1/2"	---	---	---	FIXTURE: ELKAY LVRCGRN8WSK WALL HUNG, VANDAL RESISTANT ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION AND FILTER, LIGHT GRAY GRANITE FINISH, SELF-CLOSING PUSH BUTTON VALVE CONTROLS, SELF-CONTAINED CHILLER UNDER FIXTURE, ADA COMPLIANT. FIXTURE TO BE MOUNTED AT STANDARD HEIGHT.
										TRAP & DRAIN: CHROME PLATED 17 GAUGE CAST BRASS TRAP.
										STOPS & SUPPLIES: MCGUIRE LFBV2165CC, LOOSE KEY QUARTER TURN ANGLE STOPS WITH CHROME PLATED ESCUTCHEONS & CHROME PLATED COPPER RISER SUPPLIES.
										SUPPORT: MANUFACTURER'S RECOMMENDED WALL BRACKET AND COMPONENTS.
EWC-2	ELECTRIC WATER COOLER WITH BOTTLE FILLER (HI-LO)	1	1 1/2"	1 1/2"	0.25	1/2"	---	---	---	FIXTURE: ELKAY LVRCGRNTL8WSK WALL HUNG VANDAL RESISTANT HI-LO ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION AND FILTER, LIGHT GRAY GRANITE FINISH, SELF-CLOSING PUSH BUTTON VALVE CONTROLS, SELF-CONTAINED CHILLER UNDER FIXTURE, ADA COMPLIANT. FIXTURE TO BE MOUNTED AT ADA HEIGHT.
										TRAP & DRAIN: CHROME PLATED 17 GAUGE CAST BRASS TRAP.
										STOPS & SUPPLIES: MCGUIRE LFBV2165CC, LOOSE KEY QUARTER TURN ANGLE STOPS WITH CHROME PLATED ESCUTCHEONS & CHROME PLATED COPPER RISER SUPPLIES.
										SUPPORT: MANUFACTURER'S RECOMMENDED WALL BRACKET AND COMPONENTS.
HB-1	HOSE BIBB	---	---	---	3	1/2"	---	---	---	FIXTURE: WOODFORD MODEL 24 ANTI-SIPHON HOSE BIBB, EXPOSED COLD WATER, INTEGRAL VACUUM BREAKER, 3/4" HOSE CONNECTION.
L-1	LAVATORY (DOUBLE STATION)	1	1 1/4"	1 1/2"	0.5	1/2"	0.5	1/2"	---	FIXTURE: SLOAN AD-82000 CLARK STREET WALL MOUNTED TWIN STATION LAVATORY SINK, COORDINATE COLOR WITH ARCHITECT, ADA COMPLIANT. PROVIDE SUPPORT AS REQUIRED BY MANUFACTURER.
										FAUCET: (2) SLOAN OPTIMA ETF-410 HARDWIRED ELECTRONIC FAUCET, 0.35 GPM AERATOR, SINGLE HOLE MOUNTING, CHROME FINISH, SENSOR OPERATED, BOX TRANSFORMER POWER SUPPLY. INCLUDE STATE APPROVED BELOW DECK MIXING VALVE. REFER TO ARCHITECTURAL ELEVATIONS FOR LAYOUT OF FAUCETS.
										ACCESSORIES: (2) SLOAN ESD-410-CP HARDWIRED FOAM SOAP DISPENSER, CHROME FINISH. (1) XLERATOR XL-SYNC-C-120V HAND DRYER, CHROME FINISH. REFER TO ARCHITECTURAL ELEVATIONS FOR LAYOUT OF ACCESSORIES.
										TRAP & DRAIN: PROVIDE McGUIRE PROWRAP PRE-WRAPPED OFFSET DRAIN AND P-TRAP, CHROME PLATED 17 GAUGE CAST BRASS TRAP, WITH GRID STRAINER DRAIN.
										STOPS & SUPPLIES: QUARTER TURN ANGLE STOPS WITH CHROME PLATED ESCUTCHEONS & CHROME PLATED COPPER RISER SUPPLIES.
L-2	LAVATORY (SINGLE STATION)	1	1 1/4"	1 1/2"	0.5	1/2"	0.5	1/2"	---	FIXTURE: SLOAN AD-81000 CLARK STREET WALL MOUNTED SINGLE STATION LAVATORY SINK, COORDINATE COLOR WITH ARCHITECT, ADA COMPLIANT. PROVIDE SUPPORT AS REQUIRED BY MANUFACTURER.
										FAUCET: (1) SLOAN OPTIMA ETF-410 HARDWIRED ELECTRONIC FAUCET, 0.35 GPM AERATOR, SINGLE HOLE MOUNTING, CHROME FINISH, SENSOR OPERATED, BOX TRANSFORMER POWER SUPPLY. INCLUDE STATE APPROVED BELOW DECK MIXING VALVE. REFER TO ARCHITECTURAL ELEVATIONS FOR LAYOUT OF FAUCET.
										ACCESSORIES: (1) SLOAN ESD-410-CP HARDWIRED FOAM SOAP DISPENSER, CHROME FINISH. (1) XLERATOR XL-SYNC-C-120V HAND DRYER, CHROME FINISH. REFER TO ARCHITECTURAL ELEVATIONS FOR LAYOUT OF ACCESSORIES.
										TRAP & DRAIN: PROVIDE McGUIRE PROWRAP PRE-WRAPPED OFFSET DRAIN AND P-TRAP, CHROME PLATED 17 GAUGE CAST BRASS TRAP, WITH GRID STRAINER DRAIN.
										STOPS & SUPPLIES: QUARTER TURN ANGLE STOPS WITH CHROME PLATED ESCUTCHEONS & CHROME PLATED COPPER RISER SUPPLIES.
SH-1	SHOWER (ADA COMPLIANT)	2	2"	1 1/2"	2	1/2"	2	1/2"	---	ENCLOSURE: FIELD BUILT BY OTHERS.
										FIXTURE INCLUDING CONTROLS: ACORN 538-CSH-WSB-DIV-FX-QD-RD SHOWER SYSTEM, 1.5 GPM, ONE FIXED CONICAL SHOWER HEAD MOUNTED ON WALL, REFER TO ARCHITECTURAL PLANS FOR FIXED SHOWER HEAD MOUNTING HEIGHT, ANTI-LIGATURE TEMPERATURE / VOLUME CONTROL WITH INTEGRAL STOPS, TEMP-PRESSURE BALANCING VALVE. INCLUDE DIVERTER VALVE WITH HANDHELD SHOWER & 60" STAINLESS STEEL HOSE WITH QUICK DISCONNECT. PC TO PROVIDE 14 GAUGE STAINLESS STEEL PANEL FOR SHOWER CONTROL AND DIVERTER VALVE. COORDINATE SIZE AND LOCATION OF 14 GAUGE STAINLESS STEEL PANEL WITH GC. TEMPERATURE CONTROL AND DIVERTER VALVE MOUNTED ON 14 GAUGE STAINLESS STEEL PANEL, VALVE CONCEALED BEHIND PANEL, ADA COMPLIANT. 14 GAUGE STAINLESS STEEL PANEL AND CONTROL TO BE INSTALLED ON NORTH (LONG SIDE) WALL. SHOWER HEAD AND HAND SHOWER TO BE INSTALLED ON EAST (SHORT SIDE) WALL.
										DRAIN: FLOOR DRAIN FD-1 IN SHOWER FLOOR.
UR-1	URINAL (STANDARD HEIGHT)	2	2"	1 1/2"	2	3/4"	---	---	---	FIXTURE: ZURN OMNI-FLO Z5755-U, WALL HUNG URINAL, 0.5 GPF, FLUSHOMETER TYPE, WASHOUT, 3/4" TOP SPUD, WHITE VITREOUS CHINA, MOUNTED AT STANDARD HEIGHT.
										FLUSH VALVE: ZURN AQUASENSE ZER6003AV-HET-TM-HW, CONCEALED SENSOR OPERATED HARDWIRED URINAL FLUSH VALVE, INFRARED SENSOR, 3/4" TOP SPUD, 0.5 GPF, DIAPHRAGM TYPE, ELECTRICAL OVERRIDE, POLISHED CHROME FINISH, ADA COMPLIANT.
										SUPPORT: COMMERCIAL GRADE, WALL HUNG URINAL SUPPORT, STEEL STANCHIONS, IRON WELDED FEET, STEEL SLEEVES, FASTEN TO FLOOR.
UR-2	URINAL (ADA HEIGHT)	2	2"	1 1/2"	2	3/4"	---	---	---	FIXTURE: ZURN OMNI-FLO Z5755-U, WALL HUNG URINAL, 0.5 GPF, FLUSHOMETER TYPE, WASHOUT, 3/4" TOP SPUD, WHITE VITREOUS CHINA, MOUNTED AT ADA HEIGHT.
										FLUSH VALVE: ZURN AQUASENSE ZER6003AV-HET-TM-HW, CONCEALED SENSOR OPERATED HARDWIRED URINAL FLUSH VALVE, INFRARED SENSOR, 3/4" TOP SPUD, 0.5 GPF, DIAPHRAGM TYPE, ELECTRICAL OVERRIDE, POLISHED CHROME FINISH, ADA COMPLIANT.
										SUPPORT: COMMERCIAL GRADE, WALL HUNG URINAL SUPPORT, STEEL STANCHIONS, IRON WELDED FEET, STEEL SLEEVES, FASTEN TO FLOOR.
WC-1	WATER CLOSET (STANDARD HEIGHT)	6	4"	2"	6.5	1 1/2"	---	---	---	FIXTURE: ZURN ECO VANTAGE HET WALL HUNG TOILET Z5615-BWL-AM, FLUSH VALVE TOILET, WHITE VITREOUS CHINA, ELONGATED BOWL, ZURNSHEILD CERAMIC GLAZE, 1.28 GPF MAX, 2.125" TRAPWAY, 1-1/2" TOP SPUD, MOUNTED AT ADA HEIGHT.
										FLUSH VALVE: ZURN AQUASENSE ZER6000AV-HET-TM-HW, CONCEALED SENSOR OPERATED HARDWIRED FLUSH VALVE, INFRARED SENSOR, 1-1/2" TOP SPUD, 1.28 GPF, DIAPHRAGM TYPE, ELECTRICAL OVERRIDE, POLISHED CHROME FINISH, ADA COMPLIANT.
										SEAT: ZURN Z5955SS-EL-AM, OPEN FRONT TOILET SEAT, WHITE INJECTION MOLDED, SELF SUSTAINING CHECK HINGES, ANTI-MICROBIAL AGENT.
										SUPPORT: COMMERCIAL GRADE WATER CLOSET CARRIER.
WC-2	WATER CLOSET (ADA HEIGHT)	6	4"	2"	6.5	1 1/2"	---	---	---	FIXTURE: ZURN ECO VANTAGE HET WALL HUNG TOILET Z5615-BWL-AM, FLUSH VALVE TOILET, WHITE VITREOUS CHINA, ELONGATED BOWL, ZURNSHEILD CERAMIC GLAZE, 1.28 GPF MAX, 2.125" TRAPWAY, 1-1/2" TOP SPUD, MOUNTED AT ADA HEIGHT.
										FLUSH VALVE: ZURN AQUASENSE ZER6000AV-HET-TM-HW, CONCEALED SENSOR OPERATED HARDWIRED FLUSH VALVE, INFRARED SENSOR, 1-1/2" TOP SPUD, 1.28 GPF, DIAPHRAGM TYPE, ELECTRICAL OVERRIDE, POLISHED CHROME FINISH, ADA COMPLIANT.
										SEAT: ZURN Z5955SS-EL-AM, OPEN FRONT TOILET SEAT, WHITE INJECTION MOLDED, SELF SUSTAINING CHECK HINGES, ANTI-MICROBIAL AGENT.
										SUPPORT: COMMERCIAL GRADE WATER CLOSET CARRIER.
WH-1	WALL HYDRANT	---	---	---	4	3/4"	---	---	---	FIXTURE: WOODFORD MODEL B67, EXTERNAL FREEZELESS WALL HYDRANT BOX TYPE, AUTOMATIC DRAINING, INTEGRAL VACUUM BREAKER, 3/4" HOSE CONNECTION, LOOSE TEE KEY WITH TAMPER RESISTANT BOX.

PLUMBING DRAIN AND CLEANOUT SCHEDULE

ID	FIXTURE	WASTE			DETAIL / SHEET	DESCRIPTION / REMARKS
		DFU	TRAP	VENT		
FD-1	FLOOR DRAIN (ROUND)	2 3 4	2" 3" 4"	1 1/2" 1 1/2" 2"	---	FIXTURE: ZURN ZN415-B, CAST IRON BODY, 6" DIAMETER NICKEL BRONZE STRAINER, COMBINATION INVERTIBLE MEMBRANE CLAMP, AND ADJUSTABLE COLLAR.
FD-2	FLOOR DRAIN (ROUND, HEAVY DUTY)	2 3 4	2" 3" 4"	1 1/2" 1 1/2" 2"	---	FIXTURE: ZURN ZN508, CAST IRON BODY, 9" DIAMETER NICKEL BRONZE TOP, SEEPAGE PAN, COMBINATION MEMBRANE FLASHING CLAMP & FRAME, AND HEAVY DUTY DEEP FLANGE SLOTTED GRATE.
HD-1	HUB DRAIN - AT GRADE	3 4 6	2" 3" 4"	1 1/2" 1 1/2" 2"	---	EXTEND HUB 2" (MIN) ABOVE FLOOR, INSTALL PIPE INCREASER ONE PIPE SIZE LARGER MINIMUM.
RD-1	ROOF DRAIN	---	---	---	---	FIXTURE: ZURN ZC100-C-EA-R ROOF DRAIN, CAST IRON BODY, 15" DIA, COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD, UNDERDECK CLAMP, ADJUSTABLE EXTENSION, ROOF SUMP RECEIVER, AND CAST IRON STRAINER.
FCO	FLOOR CLEANOUT	---	---	---	---	FINISHED AREAS WITH HARD FLOORS: ZURN ZN1400-BP, CAST IRON, ADJUSTABLE FLOOR CLEANOUT WITH NICKEL BRONZE TOP AND BRONZE PLUG.
						FINISHED AREAS WITH CARPETED FLOORS: ZURN ZN1400-BP-CM, CAST IRON, ADJUSTABLE FLOOR CLEANOUT WITH NICKEL BRONZE TOP AND BRONZE PLUG, WITH CARPET MARKER.
						UNFINISHED AREAS: ZURN ZN1400-BP, CAST IRON, ADJUSTABLE FLOOR CLEANOUT WITH NICKEL BRONZE TOP AND BRONZE PLUG.
WCO	WALL CLEANOUT	---	---	---	---	FIXTURE: ZURN ZS1468, POLISHED STAINLESS STEEL, ROUND ACCESS COVER, SECURING SCREW & BRONZE RAISED HEX HEAD PLUG. VERIFY LENGTH OF SCREW REQUIRED WITH WALL CONSTRUCTION.
YCO	YARD CLEANOUT	---	---	---	---	FIXTURE: 4" PIPE RISER WITH PLUMBING CREATION CI-48-6 FROST SLEEVE OR 6" PIPE RISER WITH PLUMBING CREATION CI-48-8 FROST SLEEVE EXTENDING 5 FEET BELOW FINISHED GRADE.

Engberg Anderson ARCHITECTS

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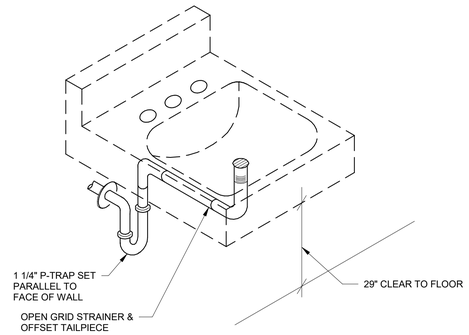
SCHEDULES - PLUMBING

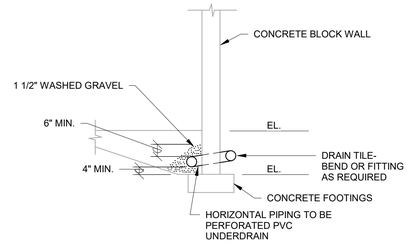
P801



NOTE:
PROVIDE SAME WASTE PIPE TRAP CONFIGURATION FOR LAY-IN COUNTERTOP LAVATORIES WITH OPEN SPACE BELOW COUNTER

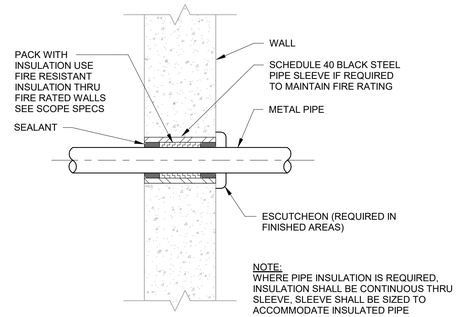
4 P901 WALL HUNG LAVATORY - BARRIER FREE

SCALE: NONE



5 P901 SECTION THRU DRAIN TILE

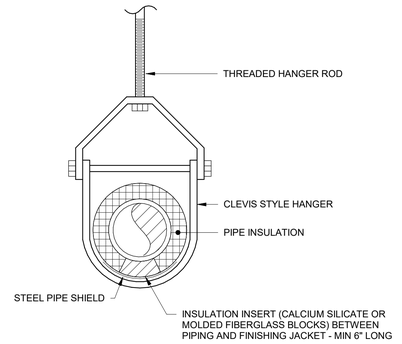
SCALE: NONE



NOTE:
WHERE PIPE INSULATION IS REQUIRED, INSULATION SHALL BE CONTINUOUS THRU SLEEVE, SLEEVE SHALL BE SIZED TO ACCOMMODATE INSULATED PIPE

1 P901 SLEEVE THRU WALL DETAIL

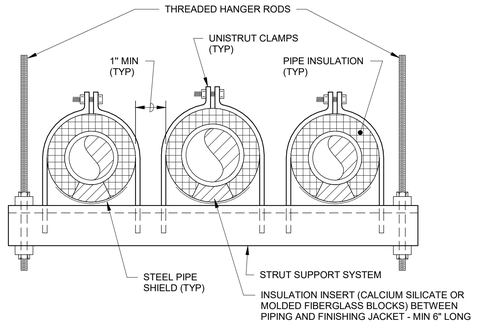
SCALE: NONE



2 P901 PIPE HANGER DETAIL

SCALE: NONE

NOTE:
PIPING AS SHOWN ON PLAN (TYPICAL)



3 P901 TRAPEZE HANGER DETAIL

SCALE: NONE

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DETAILS - PLUMBING

P901

ABBREVIATIONS

A	COMPRESSED AIR
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
ADJ	ADJUSTABLE
A/E	ARCHITECT/ENGINEER
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ASC	ABOVE SUSPENDED CEILING
ATR	AIR TROFFER - RETURN
ATS	AIR TROFFER - SUPPLY
AUTO	AUTOMATIC
B	BOILER
BB	BASEBOARD
BC	BOOSTER COIL
BCU	BLOWER COIL UNIT
BDD	BACK DRAFT DAMPER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BI	BACKWARD INCLINED
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BR	BRINE RETURN
BRG	BEARING
BS	BRINE SUPPLY
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
C	CONVECTOR
CA	COMBUSTION AIR
CAB	CABINET
CCC	COOLING COIL CONDENSATE
CD	CEILING DIFFUSER
CF	CEILING (DESTRATIFICATION) FAN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CI	CAST IRON OR CUBIC INCH
CL	CENTERLINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COMB	COMBINATION OR COMBUSTION
CONC	CONCRETE
COND	CONDENSATE
CONTR	CONTRACTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CRU	COMPUTER ROOM UNIT
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
CT	COOLING TOWER
CU	COPPER
CUH	CABINET UNIT HEATER
CW	COLD WATER
D	DRAIN
DB	DRY BULB
DC	DRY COOLER
DCO	DOOR CUTOFF BY GC
DDC	DIRECT DIGITAL CONTROL
DEPT	DEPARTMENT
DG	DOOR GRILLE BY GC
DIA	DIAMETER
DN	DOWN
DSA	DUCT SOUND ATTENUATOR
DSF	DESTRATIFICATION FAN
DWD	DUAL WALL DUCTWORK
DWDI	DOUBLE WIDTH DOUBLE INLET
DWG	DRAWING

E	EXISTING
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EER	ENERGY EFFICIENCY RATIO
EFBP	EXTERNAL FACE & BYPASS
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ERU	ENERGY RECOVERY UNIT
ERV	ENERGY RECOVERY VENTILATOR
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EWH	ELECTRIC WALL HEATER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXT	EXTERIOR OR EXTERNAL
F	FURNACE
°F	DEGREES FAHRENHEIT
F&B	FACE & BYPASS
F&T	FLOAT & THERMOSTAT TRAP
FA	FREE AREA
FC	FORWARD CURVED
FCU	FAN COIL UNIT
FD	FLOOR DRAIN OR FIRE DAMPER
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FILL	FILL LINE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FM	FLOW METER
FOO	FUEL OIL OVERFLOW
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FS	FLOW SWITCH
FT	FOOT OR FEET
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFU	GLYCOL FILL UNIT
GLYR	GLYCOL RETURN
GLYS	GLYCOL SUPPLY
GRH	GAS FIRED RADIANT HEAT
GSP	GEOFIELD SOURCE PUMP
GPM	GALLONS PER MINUTE
GUH	GAS FIRED UNIT HEATER
GV	GAS VENT
GWS	GEOTHERMAL WATER SUPPLY
GWR	GEOTHERMAL WATER RETURN
H	HUMIDIFIER
HB	HOSE BIBB
HC	HEATING CONTRACTOR
HD	HUB DRAIN
HDT	HORIZONTAL DRAW THRU
HG	MERCURY
HGT	HEIGHT
HP	HORSEPOWER
HPC	HIGH PRESSURE CONDENSATE
HPS	HIGH PRESSURE STEAM
HPU	HEAT PUMP UNIT
HPWR	HEAT PUMP WATER RETURN
HPWS	HEAT PUMP WATER SUPPLY
HR	HOUR
HRU	HEAT RECOVERY UNIT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY

HWY	HIGHWAY
HX	HEAT EXCHANGER
HYD	HYDRANT
HZ	HERTZ
IH	INTAKE HOOD
IFBP	INTERNAL FACE & BYPASS
IN	INCH
INV	INVERT
IPLV	INTEGRATED PART LOAD VALUE
JWR	JACKET WATER RETURN
JWS	JACKET WATER SUPPLY
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	LINEAR DIFFUSER
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LR	LINEAR RETURN
LT	LIGHT TROFFER
LWT	LEAVING WATER TEMPERATURE
M	MOTOR OPERATED DAMPER
MAT	MIXED AIR TEMPERATURE
MA	MIXED AIR
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS/HOUR
MCA	MINIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFS	MAXIMUM FUSE SIZE
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPLV	NOMINAL PART LOAD VALUE
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTDOOR AIR
OAT	OUTDOOR AIR TEMPERATURE
OC	ON CENTER
OED	OPEN ENDED DUCT
OPD	OPPOSED BLADE DAMPER
P	PUMP
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PLBG	PLUMBING
POC	POINT OF CONNECTION
PRE	POWER ROOF EXHAUST FAN
PRELIM	PRELIMINARY
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSD	PUMP SUCTION DIFFUSER
PSI	POUNDS PER SQUARE INCH
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PVC	POLYVINYL CHLORIDE

RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RR	RETURN REGISTER
RTU	ROOF TOP UNIT
S	SUPPLY
SA	SUPPLY AIR
SCR	SILICONE CONTROLLED RECTIFIERS
SD	SLOT DIFFUSER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SEG	SECURITY EXHAUST GRILLE
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SM	SHEET METAL
SQ FT	SQUARE FEET
SR	SUPPLY REGISTER
SRG	SECURITY RETURN GRILLE
SRV	SAFETY RELIEF VALVE
SS	STAINLESS STEEL
SSG	SECURITY SUPPLY GRILLE
STG	SECURITY TRANSFER GRILLE
SWD	SINGLE WALL DUCTWORK
SWSI	SINGLE WIDTH SINGLE INLET
T	THERMOSTAT/TEMPERATURE SENSOR
TA	THROWAWAY
TCAC	TEMPERATURE CONTROL AIR COMPRESSOR
TCC	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TEMP	TEMPORARY
TF	TRANSFER FAN
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TG	TRANSFER GRILLE
TO	TEST OPENINGS
TS	TIP SPEED
TYP	TYPICAL
UH	UNIT HEATER
UST	UNDERGROUND STORAGE TANK
UV	UNIT VENTILATOR
UNEX	UNEXCAVATED
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER
VDT	VERTICAL DRAW THRU
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VSC	VARIABLE SPEED CONTROL
W TO W	WALL TO WALL
WB	WET BULB
WC	WATER COLUMN
WF	WALL FIN
WP	WEATHER PROOF
WPD	WATER PRESSURE DROP
YH	YARD HYDRANT

PIPING SYSTEMS

- GENERAL SHUTOFF VALVE SEE SPECIFICATIONS FOR TYPE
- BALL VALVE
- GAUGE VALVE
- BUTTERFLY VALVE
- GATE VALVE
- GATE, ANGLE VALVE
- GLOBE VALVE
- GLOBE, ANGLE VALVE
- PLUG VALVE (GAS)
- CALIBRATED BALANCE/SHUTOFF VALVE (FLOW MEASURING)
- OS & Y GATE VALVE
- OS & Y GLOBE VALVE
- 2-WAY TEMPERATURE CONTROL VALVE (PNEUMATIC OR ELECTRIC)
- 3-WAY TEMPERATURE CONTROL VALVE (PNEUMATIC OR ELECTRIC)
- CHECK VALVE
- DRAIN VALVE (W/ HOSE CONNECTION & BRASS CAP)
- LOCK SHIELD VALVE
- NEEDLE VALVE
- PRESSURE REDUCING VALVE
- RELIEF (R) OR SAFETY (S) VALVE
- SOLENOID VALVE
- TRIPLE DUTY VALVE
- BLIND FLANGE
- CAP
- CONNECTION, BOTTOM
- CONNECTION, TOP
- ELBOW, TURNED UP
- ELBOW, TURNED DOWN
- REDUCER, CONCENTRIC
- REDUCER, ECCENTRIC - STRAIGHT INVERT
- REDUCER, ECCENTRIC - STRAIGHT CROWN

- AIR VENT
- VACUUM BREAKER
- AIR SEPARATOR
- PIPE ALIGNMENT GUIDE
- PIPE ANCHOR
- BALL JOINT
- EXPANSION JOINT
- EXPANSION LOOP
- FLEXIBLE CONNECTOR
- STEAM TRAP
- FLOW METER
- FLOW SWITCH
- TEMPERATURE SENSOR
- PITCH OF PIPE
- PRESSURE GAUGE AND COCK
- PRESSURE SWITCH
- PUMP
- PUMP IN VERTICAL
- STRAINER
- STRAINER, W/ BLOW DOWN VALVE
- THERMOMETER
- THERMOMETER WELL, ONLY
- PETES PLUG
- BACKFLOW PREVENTER
- FLOW DIRECTION IN PIPES
- HANGERS
- UNION
- PIPE FLANGE
- WATER METER
- FLOW REGULATOR

HPS	HIGH-PRESSURE STEAM
LPS	LOW-PRESSURE STEAM
HPC	HIGH-PRESSURE CONDENSATE
LPC	LOW-PRESSURE CONDENSATE
BBD	BOILER BLOWDOWN
PD	PUMP DISCHARGE CONDENSATE
COND	CONDENSATE
VAC	VACUUM PUMP CONDENSATE
CW	COLD WATER (DOMESTIC)
MU	MAKEUP WATER
V	ATMOSPHERIC VENT
FOO	FUEL OIL OVERFLOW
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
FOV	FUEL OIL TANK VENT
FOF	FUEL OIL FILL
G	GAS
LP	LIQUID PROPANE
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
A	COMPRESSED AIR
VAC	VACUUM (AIR)
RHG	REFRIGERANT HOT GAS
RS	REFRIGERANT SUCTION
RL	REFRIGERANT LIQUID
BS	BRINE SUPPLY
BR	BRINE RETURN
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
H	HUMIDIFICATION LINE
D	DRAIN

DUCTWORK SYSTEMS

- DUCT SIZE, (FIRST FIGURE IS SIDE SHOWN)
- ROUND DUCT
- OVAL DUCT
- AXIAL FLOW FAN
- CHANGE OF ELEVATION IN DIRECTION OF AIR FLOW
- ACCESS DOOR, VERTICAL OR HORIZONTAL
- ACOUSTICAL DUCT LINER
- DUCT LAGGING
- FLEXIBLE CONNECTION
- DUCT SOUND ATTENUATOR
- DUCT TRANSITION (DOUBLE LINE)
- DUCT TRANSITION (RECT. TO ROUND)
- DUCT TRANSITION (SINGLE LINE)
- HIDDEN DUCTWORK
- BACK DRAFT DAMPER
- DUCT HEATER, ELECTRIC
- MOTOR OPERATED DAMPER
- MANUAL VOLUME DAMPER
- SMOKE DETECTOR

- SMOKE DAMPER
- FIRE DAMPER
- COMBINATION FIRE/SMOKE DAMPER
- STANDARD BRANCH, SUPPLY, RETURN, OR EXHAUST, NO SPLITTER
- ROOF VENTILATOR OR HOOD ON ROOF ABOVE
- ROOF VENTILATOR OR HOOD ON ROOF
- DUCT CAP
- END OF DUCT
- POSITIVE PRESSURE DUCT SECTION
- POSITIVE PRESSURE DUCT (DOWN OR AWAY)
- NEGATIVE PRESSURE DUCT SECTION
- NEGATIVE PRESSURE DUCT (DOWN OR AWAY)
- FLEXIBLE DUCT DIFFUSER CONNECTION
- SIDEWALL AIR DEVICE
- EXHAUST, RETURN, OR TRANSFER AIR DEVICE
- SUPPLY AIR DEVICE
- LINEAR OR SLOT AIR DEVICE
- TRANSFER GRILLE ASSEMBLY

- LOUVER AND BIRD SCREEN
- DOOR GRILLE
- 3/4" DOOR CUTOFF (UNDERCUT) BY GC
- ELBOW WITH TURNING VANES
- TERMINAL UNIT, MIXING
- TERMINAL UNIT, VARIABLE VOLUME WITH REHEAT
- TERMINAL UNIT, VARIABLE VOLUME WITH REHEAT
- TERMINAL UNIT, VARIABLE VOLUME
- BOOSTER COIL
- UNIT HEATER
- CENTRIFUGAL FAN
- PROPELLER FAN
- AIR FLOW
- POINT OF NEW CONNECTION (PIPE OR DUCT)
- SQUARE FEET
- ELEVATION SYMBOL
- MAXIMUM SECURITY BARS
- MEDIUM SECURITY BARS

GENERAL SYMBOLS

- THERMOSTAT OR TEMPERATURE SENSOR
- THERMOSTAT OR TEMPERATURE SENSOR WITH SECURITY COVER
- HUMIDISTAT OR HUMIDITY SENSOR
- HUMIDISTAT OR HUMIDITY SENSOR WITH SECURITY COVER
- MOTOR STARTER
- SPEED CONTROLLER
- START/STOP SWITCH
- CARBON DIOXIDE SENSOR
- DEMOLITION KEYED NOTE
- NEW WORK KEYED NOTE
- REVISION KEYED NOTE
- EXISTING TO REMAIN (DUCTWORK, PIPING, & EQUIPMENT)
- EXISTING TO BE REMOVED (DUCTWORK, PIPING, & EQUIPMENT)
- NEW DUCTWORK/PIPING
- NEW EQUIPMENT

HVAC SHEET INDEX

DESIGN CONDITIONS - HVAC

	SUMMER		WINTER	
	DB	WB	DB	WB
OUTDOOR DESIGN TEMPERATURES	87	75	-15	-16
GENERAL	75	55% RH	70	-
GYMNASIUM	75	55% RH	70	-
MECHANICAL ROOMS	78	55% RH	65	-
ENTRY WAY HEATING	-	-	65	-

NOTE:
KEYED NOTES ARE USED TWO WAYS. PER PROJECT AND PER PLAN.

LEGENDS INDICATED AS "KEYED NOTES PER PROJECT" REFERENCE A COMMON, OVERALL PROJECT KEYED NOTE LIST. THEREFORE, KEYED NOTES MAY NOT APPEAR IN SEQUENTIAL ORDER. DISCIPLINE SPECIFIC DESIGNATIONS HAVE BEEN ADDED FOR CLARITY.

KEYED NOTES LEGENDS INDICATED AS "KEYED NOTES PER SHEET" ARE SPECIFIC PER SHEET AND ARE NUMBERED ACCORDINGLY.

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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

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SYMBOLS & ABBREVIATIONS - HVAC

M000

CHILLER DEMOLITION & REPLACEMENT NOTES:

1. HVAC CONTRACTOR SHALL PHASE THE DEMOLITION OF THE EXISTING CHILLER AND CHILLED WATER PLANT WITH THE INSTALLATION OF THE NEW HEAT RECOVERY CHILLER PLANT. EXISTING CHILLER AND CHILLED WATER PLANT SHALL REMAIN OPERATIONAL TO LIMIT DOWNTIME OF COOLING TO THE FACILITY.

DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D1 REMOVE EXISTING EXHAUST GRILLE AND BRANCH DUCTWORK TO THE EXTENT SHOWN.

D2 REMOVE EXISTING TRANSFER GRILLE AND ASSOCIATED DUCTWORK COMPLETE. COORDINATE WITH GC TO REPLACE CEILING TILE.

D3 REMOVE EXISTING CABINET UNIT HEATER AND HOT WATER PIPING BACK TO ACTIVE MAIN.

D4 REMOVE EXISTING TEMPERATURE SENSOR AND CONTROL WIRING. REMOVE OR MODIFY EXISTING CONTROL WIRING AS REQUIRED TO ACCOMODATE NEW WORK. SALVAGE EXISTING TEMPERATURE SENSOR FOR NEW WORK.

D5 REMOVE SUPPLY DUCTWORK AS REQUIRED TO ACCOMODATE NEW VAV TERMINAL UNITS.

D6 REMOVE EXISTING CHILLER COMPLETE. REMOVE CHILLED WATER SUPPLY AND RETURN PIPING BETWEEN CHILLER AND LOCATION SHOWN ON PLANS. COORDINATE WITH GC TO PATCH EXTERIOR WALL OPENING.

D7 REMOVE EXISTING ROUND CEILING DIFFUSER AND BRANCH DUCTWORK BACK TO ACTIVE MAIN. PROVIDE SHEET METAL CAP.

D8 REMOVE EXISTING EXHAUST FAN AND EXHAUST AIR DUCTWORK COMPLETE INCLUDING MOTOR OPERATED DAMPER AND LOUVER.

D9 REMOVE EXISTING CEILING DIFFUSER AND BRANCH DUCTWORK TO THE EXTENT SHOWN.

D10 EXISTING TEMPERATURE SENSOR TO REMAIN TO SERVE NEW VAV AIR TERMINAL UNIT. MODIFY CONTROL WIRING AS REQUIRED TO HAVE SENSOR TIED INTO THE NEW VAV AIR TERMINAL UNIT CONTROLLER.

D15 EXISTING HOT WATER COIL TO REMAIN. REMOVE OR MODIFY CONTROL WIRING AS REQUIRED TO ALLOW EXISTING CONTROL VALVE TO BE CONTROLLED BY NEW VAV AIR TERMINAL CONTROLLER. REFER TO NEW WORK FOR ADDITIONAL REQUIREMENTS.

D16 REMOVE EXISTING TRANSFER GRILLE AND PROVIDE SHEET METAL CAP. ABANDON SLEEVE AND TRANSFER GRILLE IN GYMNASIUM IN PLACE.

D18 FIELD COORDINATE THE EXTENT OF CEILING DEMOLITION TO ACCOMODATE DEMOLITION AND NEW WORK WITHIN AREA DEFINED.

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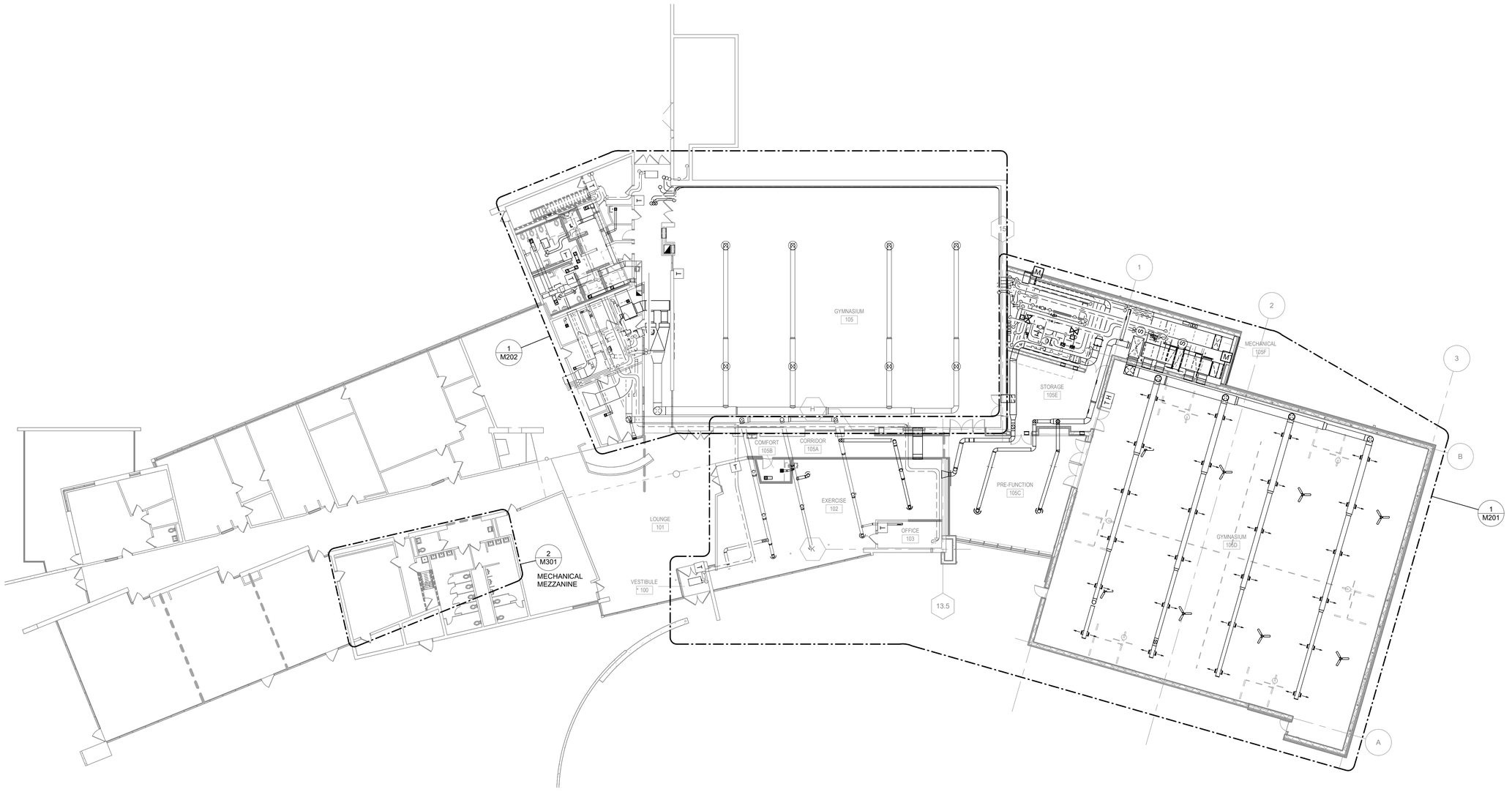
1 FIRST FLOOR PARTIAL DEMOLITION PLAN – HVAC

M101

1 M101 FIRST FLOOR PARTIAL DEMOLITION PLAN – HVAC
SCALE: 1/8" = 1'-0"

PROJECT NORTH



1 M200 OVERALL FIRST FLOOR PLAN - HVAC

SCALE: 1/16" = 1'-0"

PROJECT NORTH

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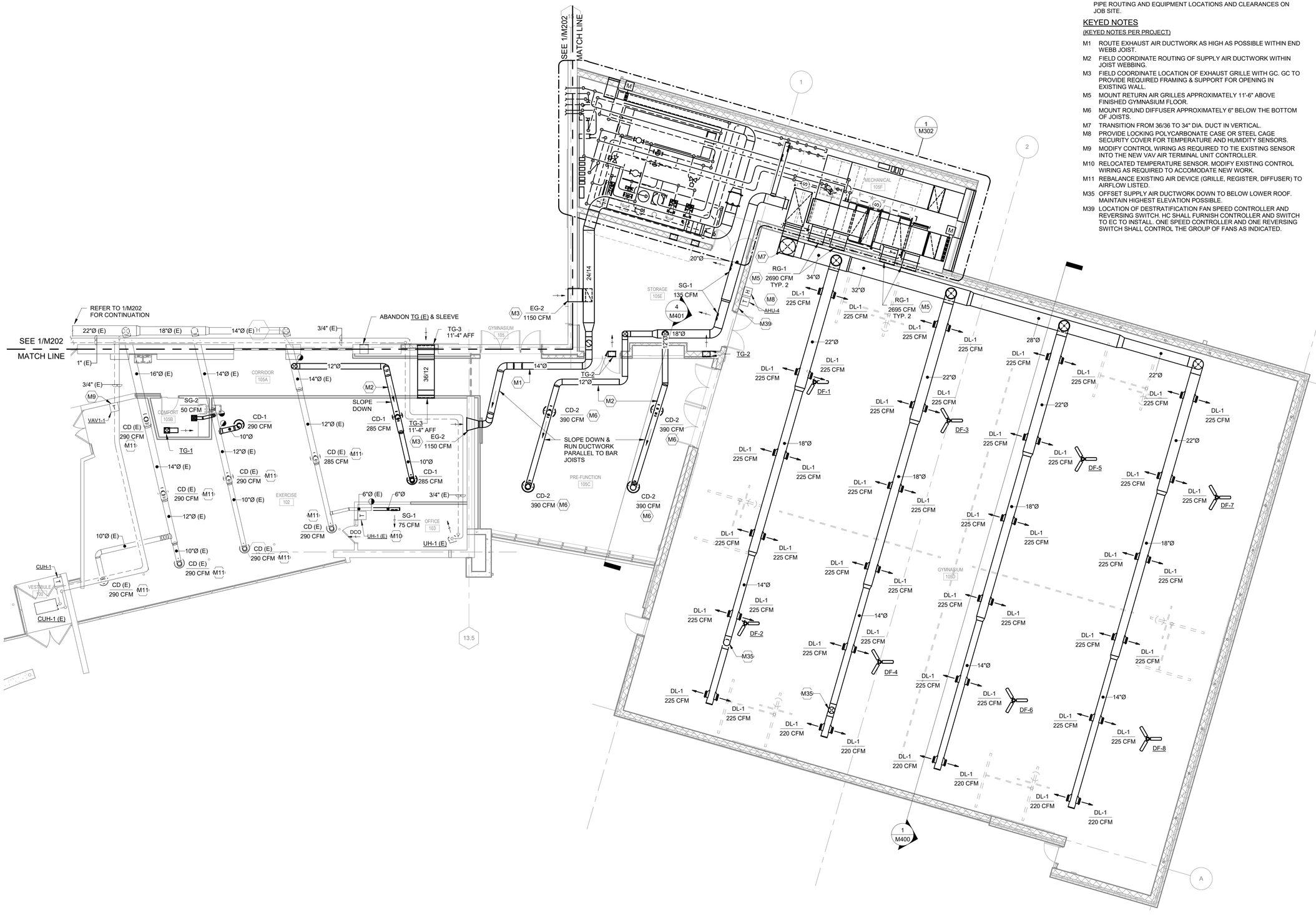
OVERALL FIRST FLOOR PLAN - HVAC

M200



GENERAL NOTES:

1. COORDINATE ALL DUCT, PIPING, AND EQUIPMENT INSTALLATION WITH JOIST LAYOUT WHERE REQUIRED.
2. HVAC CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF DUCT & PIPE ROUTING AND EQUIPMENT LOCATIONS AND CLEARANCES ON JOB SITE.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- M1 ROUTE EXHAUST AIR DUCTWORK AS HIGH AS POSSIBLE WITHIN END WEBB JOIST.
- M2 FIELD COORDINATE ROUTING OF SUPPLY AIR DUCTWORK WITHIN JOIST WEBBING.
- M3 FIELD COORDINATE LOCATION OF EXHAUST GRILLE WITH GC. GC TO PROVIDE REQUIRED FRAMING & SUPPORT FOR OPENING IN EXISTING WALL.
- M5 MOUNT RETURN AIR GRILLES APPROXIMATELY 11'-6" ABOVE FINISHED GYMNASIUM FLOOR.
- M6 MOUNT ROUND DIFFUSER APPROXIMATELY 6" BELOW THE BOTTOM OF JOISTS.
- M7 TRANSITION FROM 36/36 TO 34" DIA. DUCT IN VERTICAL.
- M8 PROVIDE LOCKING POLYCARBONATE CASE OR STEEL CAGE SECURITY COVER FOR TEMPERATURE AND HUMIDITY SENSORS.
- M9 MODIFY CONTROL WIRING AS REQUIRED TO TIE EXISTING SENSOR INTO THE NEW VAV AIR TERMINAL UNIT CONTROLLER.
- M10 RELOCATED TEMPERATURE SENSOR. MODIFY EXISTING CONTROL WIRING AS REQUIRED TO ACCOMODATE NEW WORK.
- M11 REBALANCE EXISTING AIR DEVICE (GRILLE, REGISTER, DIFFUSER) TO AIRFLOW LISTED.
- M35 OFFSET SUPPLY AIR DUCTWORK DOWN TO BELOW LOWER ROOF. MAINTAIN HIGHEST ELEVATION POSSIBLE.
- M39 LOCATION OF DESTRATIFICATION FAN SPEED CONTROLLER AND REVERSING SWITCH. HC SHALL FURNISH CONTROLLER AND SWITCH TO EC TO INSTALL. ONE SPEED CONTROLLER AND ONE REVERSING SWITCH SHALL CONTROL THE GROUP OF FANS AS INDICATED.

1 M201 FIRST FLOOR PLAN EXPANSION - HVAC
SCALE: 1/8" = 1'-0"

PROJECT NORTH

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FIRST FLOOR EXPANSION PLAN - HVAC

M201

CHILLER DEMOLITION & REPLACEMENT NOTES:

1. HVAC CONTRACTOR SHALL PHASE THE DEMOLITION OF THE EXISTING CHILLER AND CHILLED WATER PLANT WITH THE INSTALLATION OF THE NEW HEAT RECOVERY CHILLER PLANT. EXISTING CHILLER AND CHILLED WATER PLANT SHALL REMAIN OPERATIONAL TO LIMIT DOWNTIME OF COOLING TO THE FACILITY.

GENERAL NOTES:

1. COORDINATE ALL DUCT, PIPING, AND EQUIPMENT INSTALLATION WITH JOIST LAYOUT WHERE REQUIRED.
2. HVAC CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF DUCT & PIPE ROUTING AND EQUIPMENT LOCATIONS AND CLEARANCES ON JOB SITE.
3. HC SHALL COORDINATE ALL WORK WITHIN THE EXISTING GYMNASIUM WITH OWNER AND GC PRIOR TO COMMENCING WORK.

KEYED NOTES

(KEYED NOTES PER PROJECT)

M3 FIELD COORDINATE LOCATION OF EXHAUST GRILLE WITH GC. GC TO PROVIDE REQUIRED FRAMING & SUPPORT FOR OPENING IN EXISTING WALL.

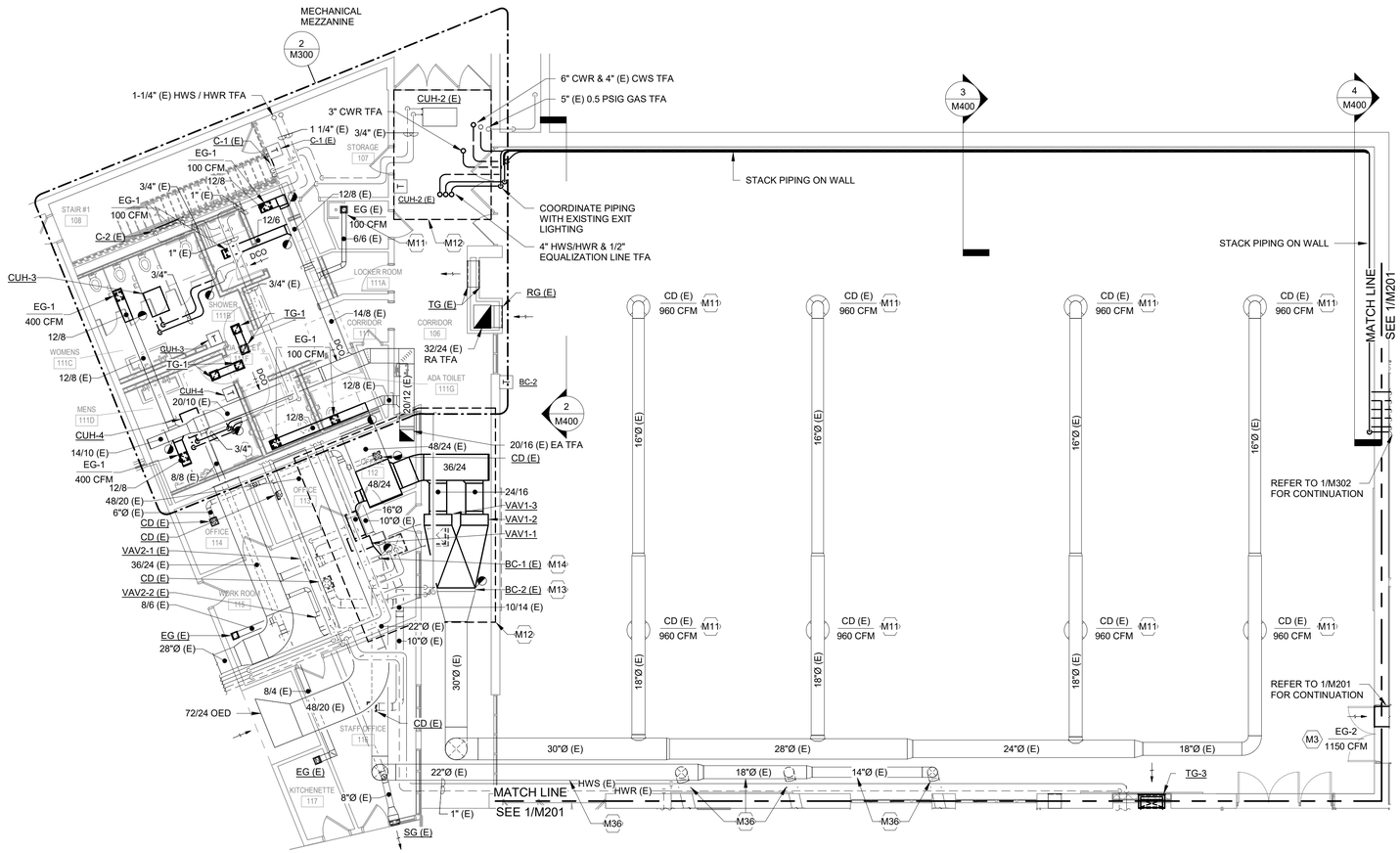
M11 REBALANCE EXISTING AIR DEVICE (GRILLE, REGISTER, DIFFUSER) TO AIRFLOW LISTED.

M12 FIELD COORDINATE THE EXTENT OF CEILING DEMOLITION TO ACCOMODATE DEMOLITION AND NEW WORK WITHIN AREA DEFINED.

M13 REBALANCE HOT WATER COIL TO 21.9 GPM.

M14 REBALANCE HOT WATER COIL TO 8.8 GPM.

M36 HC SHALL INSULATE EXPOSED SUPPLY AIR DUCTWORK SERVING AREAS OUTSIDE OF THE EXISTING GYMNASIUM. COORDINATE WITH GC TO PAINT INSULATION.



1 M202 FIRST FLOOR EXISTING PLAN - HVAC

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

PROJECT NORTH

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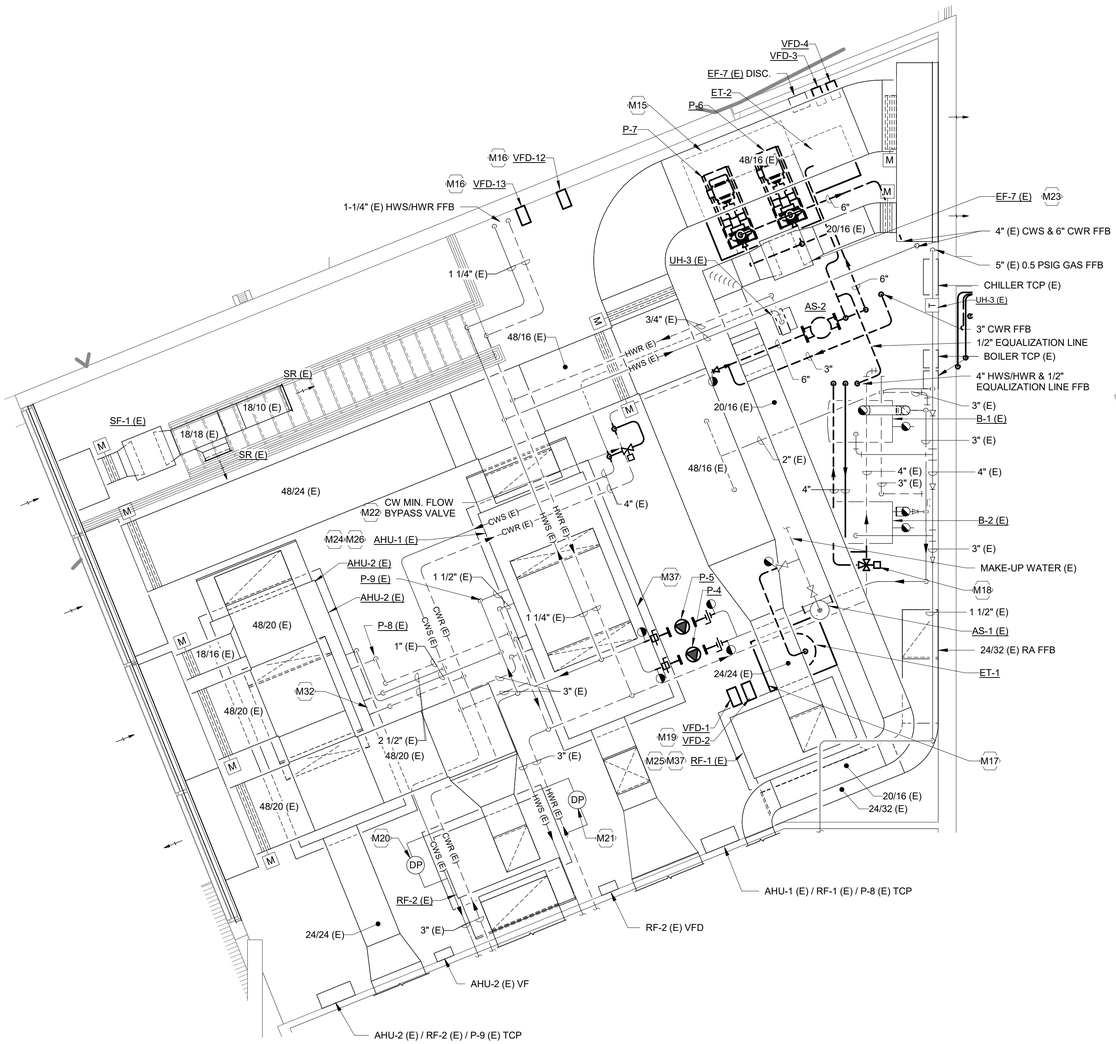
FIRST FLOOR EXISTING PLAN – HVAC

M202



2 M300 NORTH MECH. MEZZANINE PLAN - HVAC

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

PROJECT NORTH

KEYED NOTES

(KEYED NOTES PER PROJECT)

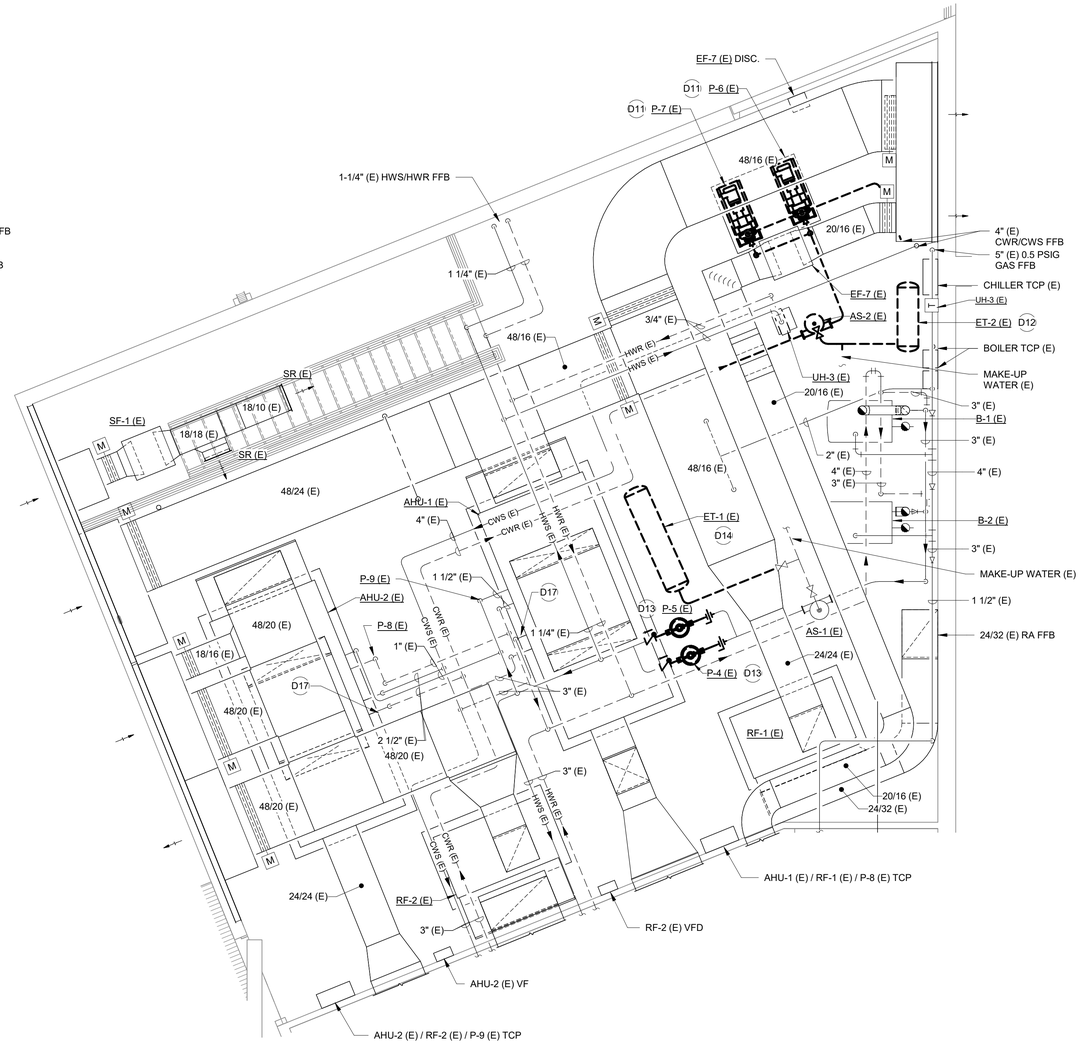
M15 COORDINATE WITH GC TO EXPAND EXISTING CONCRETE EQUIPMENT PAD TO ACCOMMODATE NEW CHILLED WATER PUMPS, INERTIA BASES, AND EXPANSION TANK. PROVIDE PUMPS WITH NEW INERTIA BASES.
M16 FIELD COORDINATE LOCATION OF VFD-12 AND VFD-13 WITH EXISTING ELECTRICAL EQUIPMENT.
M17 COORDINATE WITH GC TO EXPAND EXISTING CONCRETE EQUIPMENT PAD TO ACCOMODATE NEW EXPANSION TANK.
M18 NEW 3-WAY TEMPERATURE CONTROL VALVE (TCV-HWR-2) FOR HX-1 CONTROL. REFER TO 1/M501 & 1/M602 FOR ADDITIONAL REQUIREMENTS.
M19 EC TO FIELD FABRICATE STAND TO MOUNT VFDS (VFD-1 & VFD-2).
M20 APPROXIMATE LOCATION OF CHILLED WATER SYSTEM DIFFERENTIAL PRESSURE SENSOR FOR P-6 & P-7 CONTROL.
M21 APPROXIMATE LOCATION OF HOT WATER SYSTEM DIFFERENTIAL PRESSURE SENSOR FOR P-4 & P-5 CONTROL.
M22 APPROXIMATE LOCATION OF CHILLED WATER MINIMUM FLOW BYPASS VALVE. PROVIDE ISOLATION VALVE UP AND DOWNSTREAM OF 2-WAY CONTROL VALVE.
M23 REBALANCE EXISTING EXHAUST FAN (EF-7) TO 1,300 CFM.
M24 REBALANCE EXISTING AHU-1 TO THE FOLLOWING AIR FLOW RATES: 10,980 CFM SUPPLY, 1,300 CFM MIN. OUTSIDE AIR, 3,600 CFM MAX. OUTSIDE AIR.
M25 REBALANCE EXISTING RF-1 TO 7,380 CFM.
M26 REBALANCE EXISTING AHU-1 CW COIL TO 90.0 GPM.
M32 REBALANCE EXISTING AHU-2 CW COIL TO 55.0 GPM.
M37 PROVIDE NEW SHAFT GROUNDING RINGS FOR EXISTING FAN TO CONVERT TO VARIABLE SPEED FAN.

CHILLER DEMOLITION & REPLACEMENT NOTES:

1. HVAC CONTRACTOR SHALL PHASE THE DEMOLITION OF THE EXISTING CHILLER AND CHILLED WATER PLANT WITH THE INSTALLATION OF THE NEW HEAT RECOVERY CHILLER PLANT. EXISTING CHILLER AND CHILLED WATER PLANT SHALL REMAIN OPERATIONAL TO LIMIT DOWNTIME OF COOLING TO THE FACILITY.

GENERAL NOTES:

1. COORDINATE ALL DUCT, PIPING, AND EQUIPMENT INSTALLATION WITH JOIST LAYOUT WHERE REQUIRED.
2. HVAC CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF DUCT & PIPE ROUTING AND EQUIPMENT LOCATIONS AND CLEARANCES ON JOB SITE.



1 M300 NORTH MECH. MEZZANINE DEMOLITION PLAN - HVAC

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

PROJECT NORTH

DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D11 REMOVE EXISTING CHILLED WATER PUMP (P-6 & P-7), ISOLATION VALVES, SUCTION DIFFUSER, AND TRIPLE DUTY VALVE. COORDINATE WITH EC TO REMOVE POWER AND DISCONNECTS.
D12 REMOVE EXISTING HORIZONTAL CHILLED WATER EXPANSION TANK AND PIPING UP TO ISOLATION VALVE.
D13 REMOVE EXISTING HOT WATER PUMPS (P-4 & P-5), ISOLATION VALVES, AND TRIPLE DUTY VALVES. COORDINATE WITH EC TO REMOVE POWER AND DISCONNECTS.
D14 REMOVE EXISTING HORIZONTAL HOT WATER EXPANSION TANK AND PIPING TO ISOLATION VALVE AT EXPANSION TANK AS SHOWN.
D17 REMOVE EXISTING CHILLED WATER 3-WAY TEMPERATURE CONTROL VALVE AND BYPASS LEG AT AHU-1 (E). 3-WAY TEMPERATURE CONTROL VALVE SHALL BE REPLACED WITH A 2-WAY TEMPERATURE CONTROL VALVE. REFER TO 1/M500 AND 1/M501 FOR ADDITIONAL REQUIREMENTS.

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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

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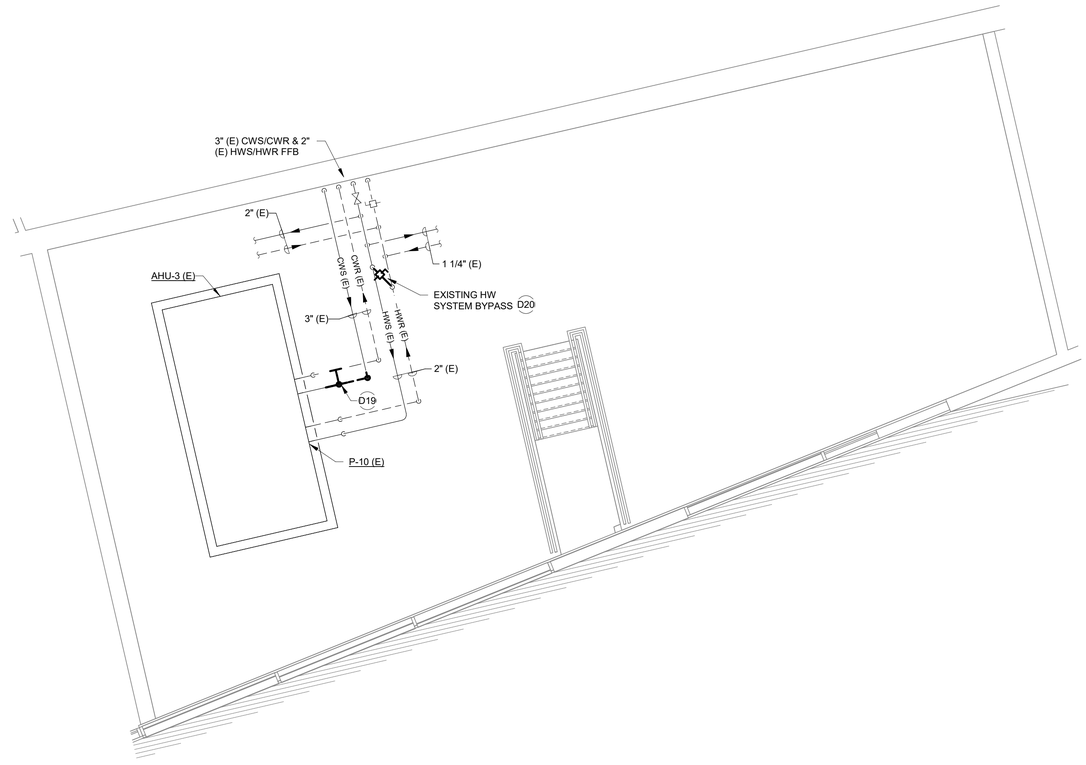
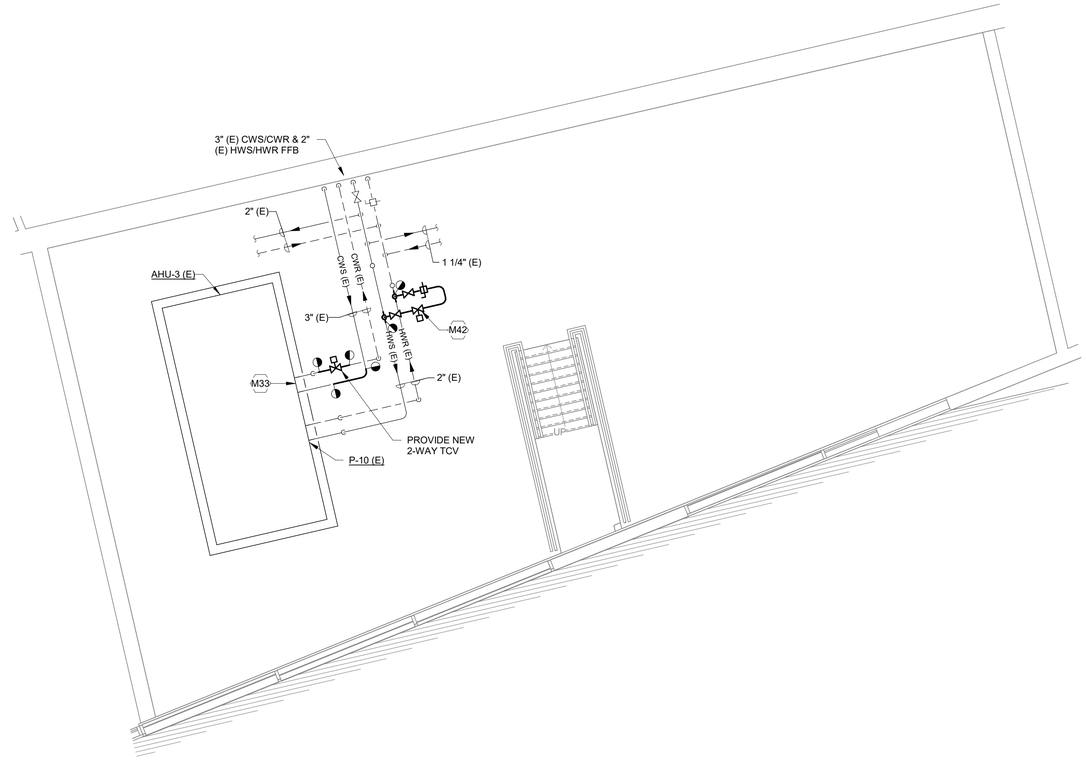
ENLARGED NORTH MECHANICAL MEZZANINE PLANS - HVAC

M300



1 M301 SOUTH MECH. MEZZANINE DEMOLITION PLAN - HVAC

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



2 M301 SOUTH MECH. MEZZANINE NEW WORK PLAN - HVAC

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

PROJECT NORTH

GENERAL NOTES:

1. COORDINATE ALL DUCT, PIPING, AND EQUIPMENT INSTALLATION WITH JOIST LAYOUT WHERE REQUIRED.
2. HVAC CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF DUCT & PIPE ROUTING AND EQUIPMENT LOCATIONS AND CLEARANCES ON JOB SITE.

DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D19 REMOVE EXISTING CHILLED WATER 3-WAY TEMPERATURE CONTROL VALVE AND BYPASS LEG AT AHU-3 (E). 3-WAY TEMPERATURE CONTROL VALVE SHALL BE REPLACED WITH A 2-WAY TEMPERATURE CONTROL VALVE. REFER TO 1/M500 AND 1/M501 FOR ADDITIONAL REQUIREMENTS.

D20 REMOVE EXISTING BALANCE VALVE AND PIPING UP TO ISOLATION VALVES. PROVIDE CAP.

KEYED NOTES

(KEYED NOTES PER PROJECT)

M33 REBALANCE EXISTING AHU-3 CW COIL TO 90.0 GPM.

M42 PROVIDE NEW SHUT-OFF VALVES, BALANCE VALVE, AND 2-WAY CONTROL VALVE. REFER TO 1/M501 FOR ADDITIONAL REQUIREMENTS.

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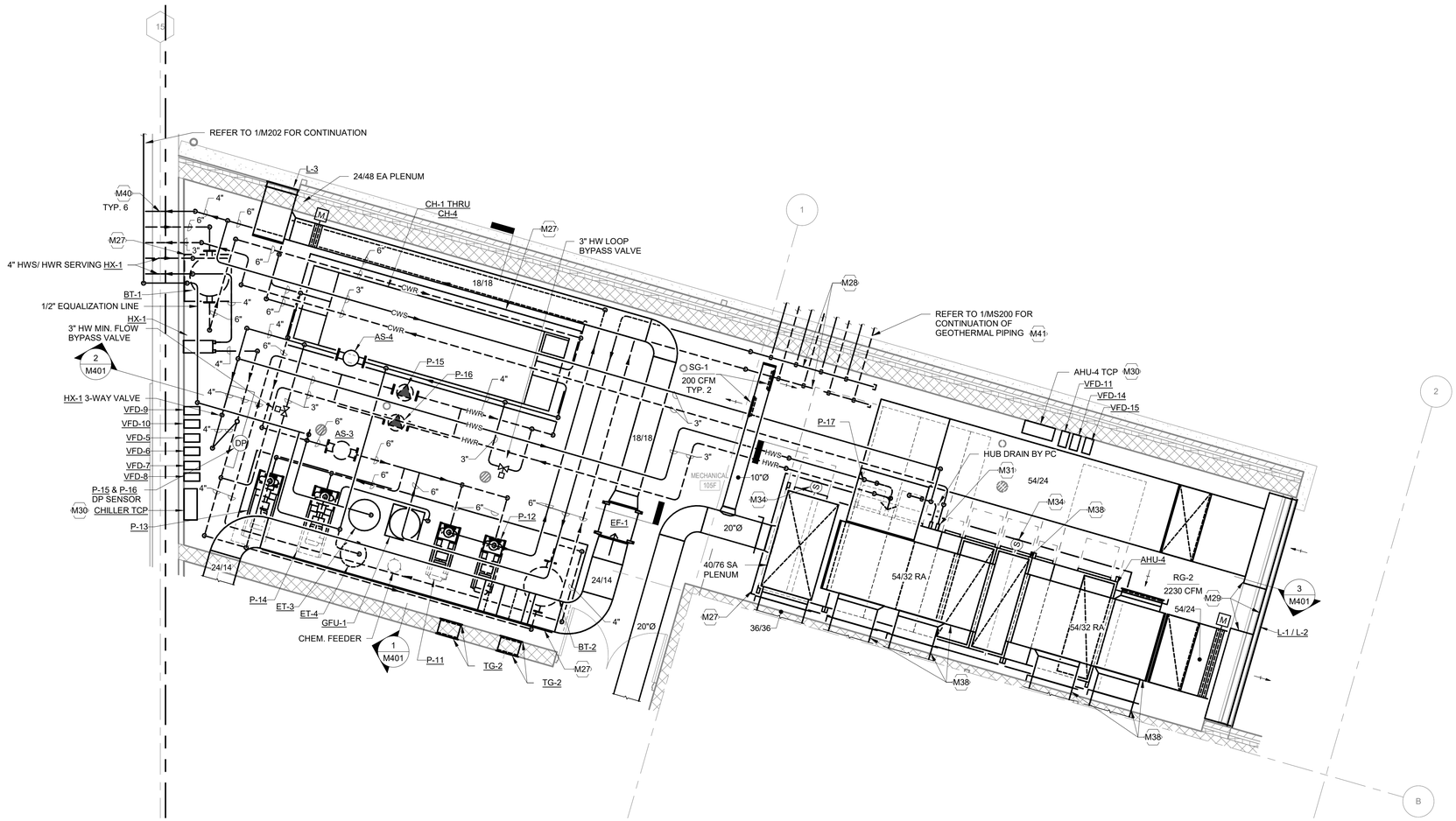
ENLARGED SOUTH MECHANICAL MEZZANINE PLANS - HVAC

M301



1 ENLARGED MECHANICAL ROOM PLAN - HVAC
M302
SCALE: 1/4" = 1'-0"

PROJECT NORTH

CHILLER DEMOLITION & REPLACEMENT NOTES:

1. HVAC CONTRACTOR SHALL PHASE THE DEMOLITION OF THE EXISTING CHILLER AND CHILLED WATER PLANT WITH THE INSTALLATION OF THE NEW HEAT RECOVERY CHILLER PLANT. EXISTING CHILLER AND CHILLED WATER PLANT SHALL REMAIN OPERATIONAL TO LIMIT DOWNTIME OF COOLING TO THE FACILITY.

GENERAL NOTES:

1. COORDINATE ALL DUCT, PIPING, AND EQUIPMENT INSTALLATION WITH JOIST LAYOUT WHERE REQUIRED.
2. HVAC CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF DUCT & PIPE ROUTING AND EQUIPMENT LOCATIONS AND CLEARANCES ON JOB SITE.

KEYED NOTES

(KEYED NOTES PER PROJECT)

M27 4" CONCRETE EQUIPMENT PAD BY GC. HC TO COORDINATE SIZE AND LOCATION.
M28 6" GEOTHERMAL BOREFIELD MANIFOLDS. REFER TO DETAIL 3/M902 FOR ADDITIONAL REQUIREMENTS.
M29 PROVIDE 72/76 INSULATED PLENUM FOR OUTSIDE AIR INTAKE, 72/76 INSULATED PLENUM FOR RELIEF AIR, AND PROVIDE INSULATED BLANK-OFF PANELS FOR UN-USED PORTIONS OF LOUVER.
M30 COORDINATE WITH EC TO PROVIDE 120/1 POWER AND DATA CONNECTION TO TEMPERATURE CONTROL PANEL.
M31 PROVIDE CONDENSATE LOOP SEAL AND ROUTE CONDENSATE TO HUB DRAIN. CONDENSATE PIPE SIZE SHALL NOT BE SMALLER THAN UNIT CONNECTION SIZE. HUB DRAIN BY PC.
M34 DUCT MOUNTED SMOKE DETECTOR BY EC.
M38 LINE ALL RETURN AIR DUCTWORK ASSOCIATED WITH AHU-4. DUCT SIZES SHOWN ARE INSIDE DUCT DIMENSIONS.
M40 PROVIDE PIPE BLOKKER PIPE ATTENUATION. REFER TO DETAIL 5/M902 FOR ADDITIONAL INFORMATION.
M41 FIELD COORINATE GEOTHERMAL FIELD PIPING WITH STORM PIPING. REFER TO CIVIL PLANS FOR ADDITIONAL INFORMATION.

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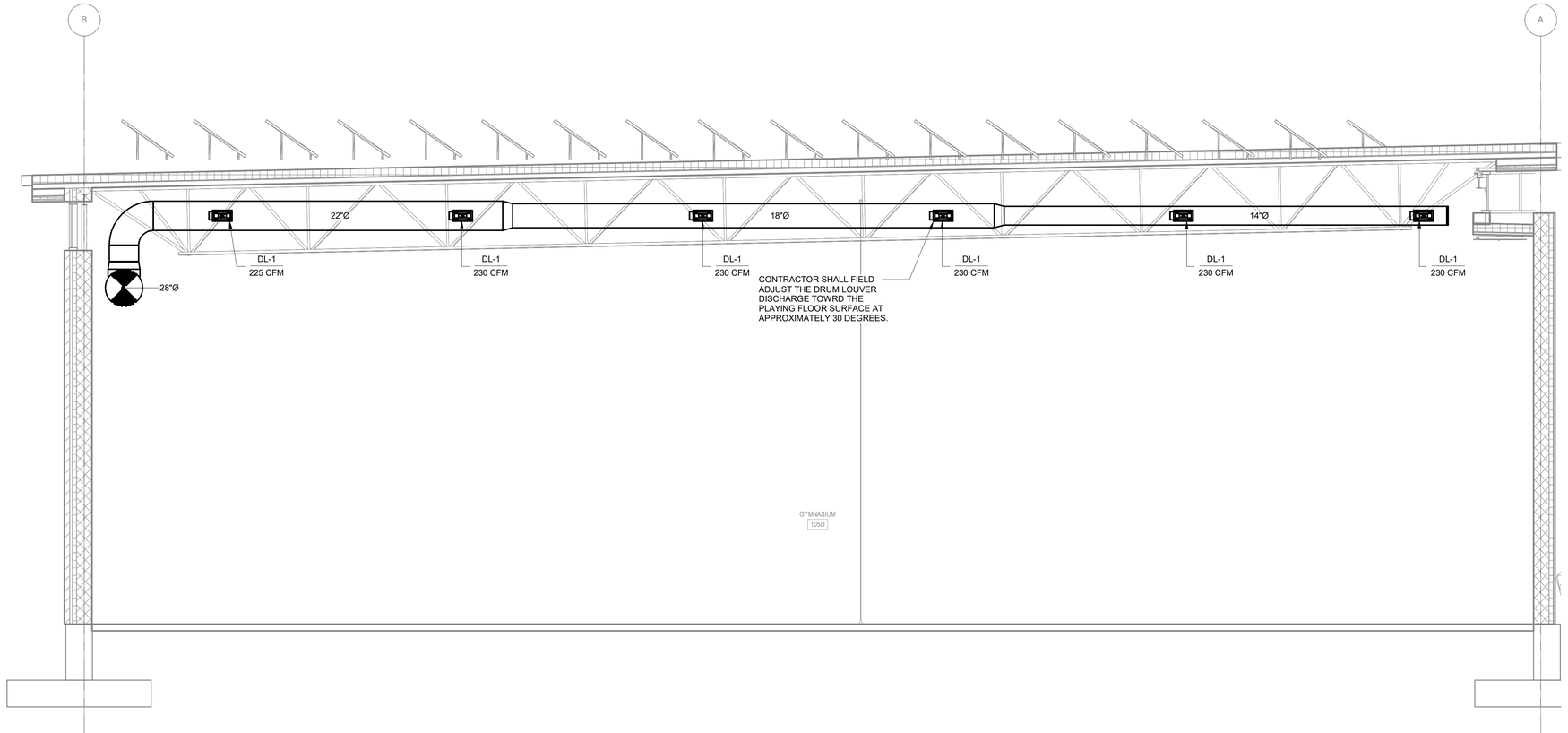
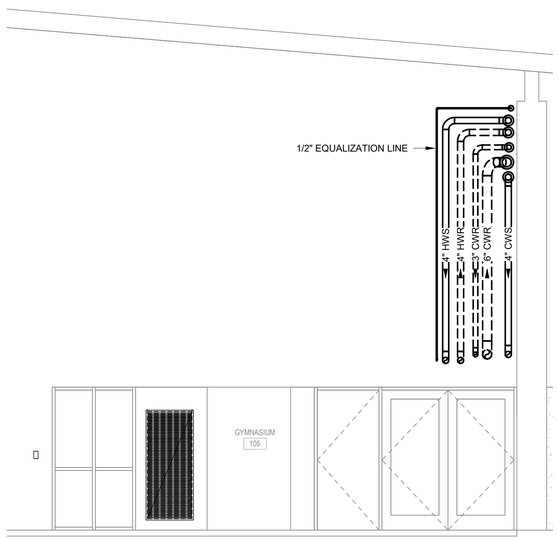
ENLARGED MECHANICAL ROOM PLAN - HVAC

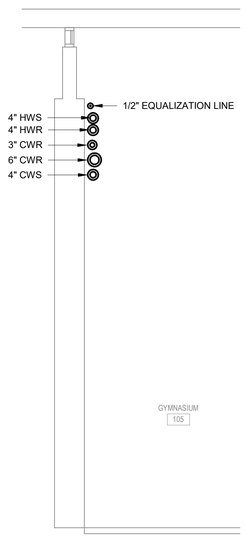
M302



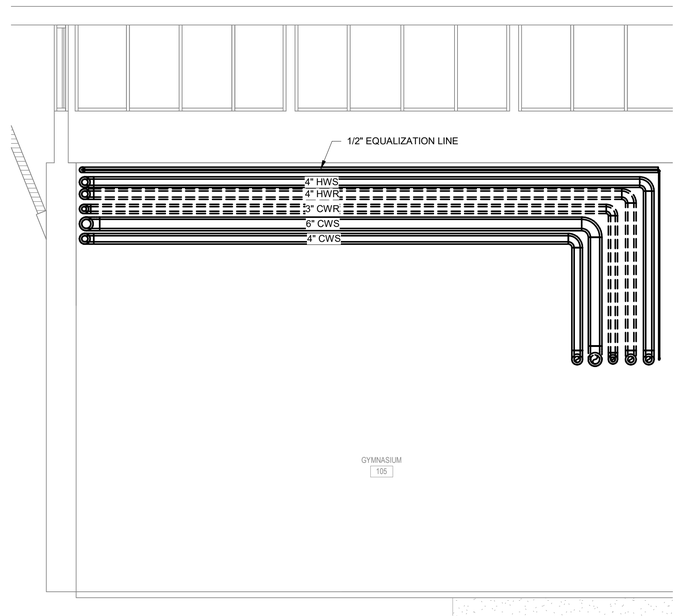
1 M400 105D GYMNASIUM SECTION
SCALE: 1/4" = 1'-0"



2 M400 105 GYMNASIUM SECTION - WEST
SCALE: 1/4" = 1'-0"



3 M400 105 GYMNASIUM SECTION
SCALE: 1/4" = 1'-0"



4 M400 105 GYMNASIUM SECTION - EAST
SCALE: 1/4" = 1'-0"

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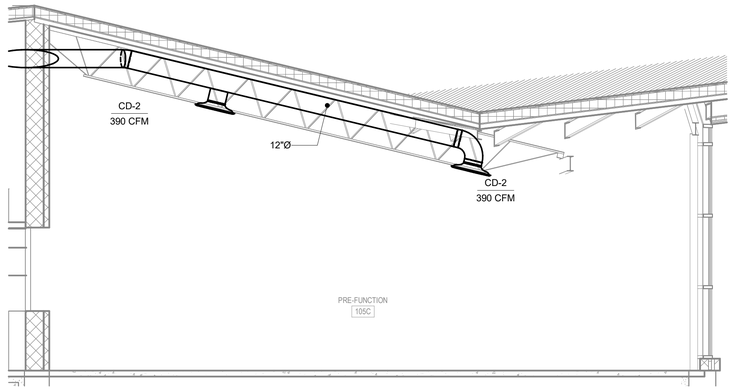
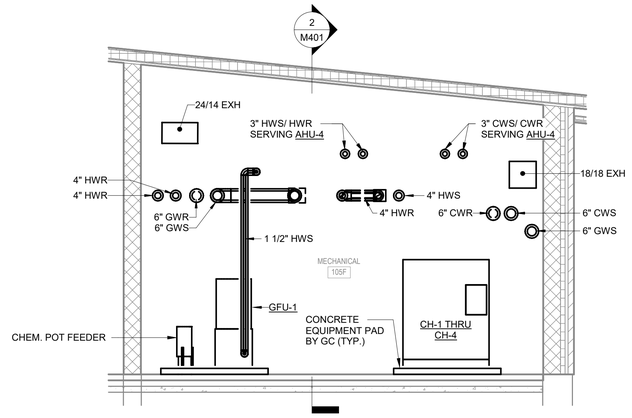
SECTIONS - HVAC

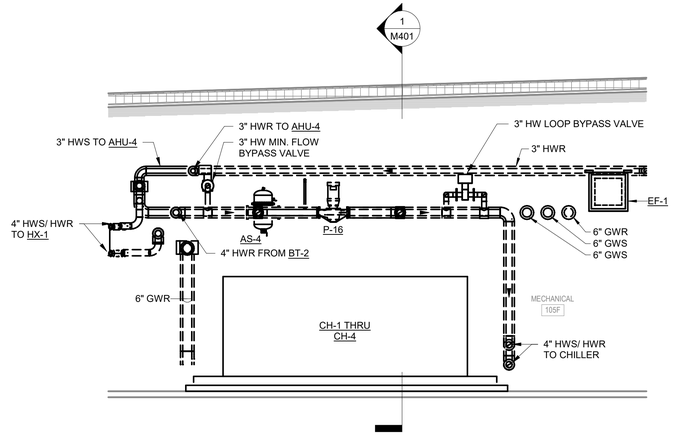
M400



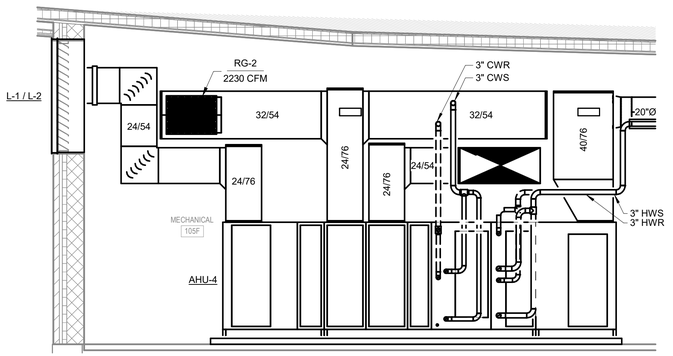
4 M401 105C PRE-FUNCTION SECTION
SCALE: 1/4" = 1'-0"



1 M401 105F MECHANICAL SECTION 1
SCALE: 1/4" = 1'-0"



2 M401 105F MECHCANICAL SECTION 2
SCALE: 1/4" = 1'-0"



3 M401 AHU-4 SECTION
SCALE: 1/4" = 1'-0"

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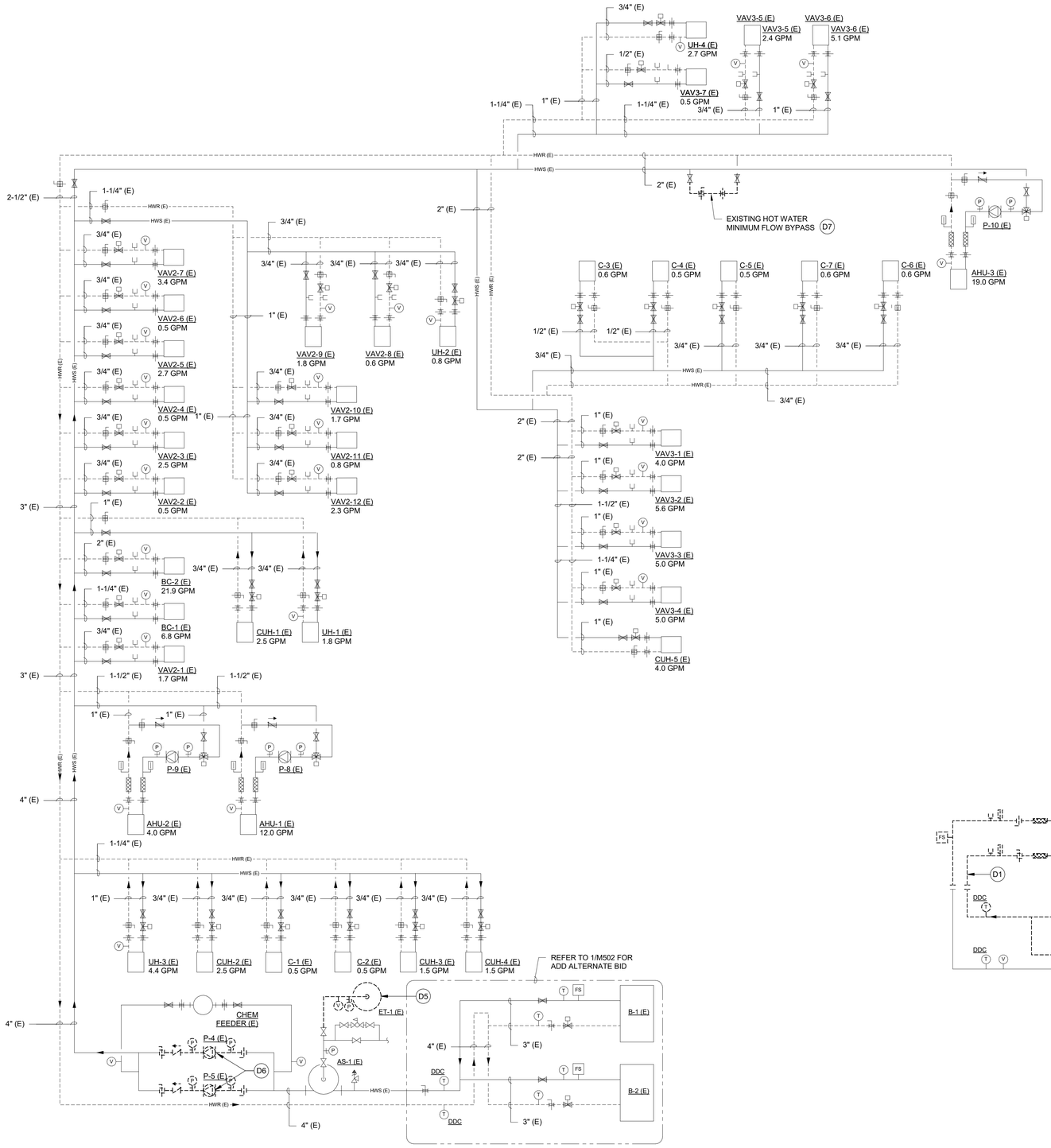
SECTIONS - HVAC

M401



KEYED NOTES

D1 REMOVE EXISTING CHILLER COMPLETE. REMOVE CHILLED WATER SUPPLY AND RETURN PIPING BETWEEN CHILLER AND LOCATION SHOWN ON PLANS.

D2 REMOVE EXISTING CHILLED WATER PUMP (P-6 & P-7), ISOLATION VALVES, SUCTION DIFFUSER, AND TRIPLE DUTY VALVE.

D3 REMOVE EXISTING HORIZONTAL EXPANSION TANK, AIR SEPARATOR, AND ACCESSORIES.

D4 REMOVE EXISTING CHILLED WATER 3-WAY TEMPERATURE CONTROL VALVE AND BYPASS LEG.

D5 REMOVE EXISTING HORIZONTAL EXPANSION TANK.

D6 REMOVE EXISTING HOT WATER PUMPS (P-4 & P-5), ISOLATION VALVES, AND TRIPLE DUTY VALVES.

D7 REMOVE EXISTING BALANCE VALVE AND PIPING UP TO ISOLATION VALVES. PROVIDE CAP.

1 M500 CHILLED & HOT WATER SYSTEM DEMOLITION FLOW DIAGRAM

SCALE: NONE

NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

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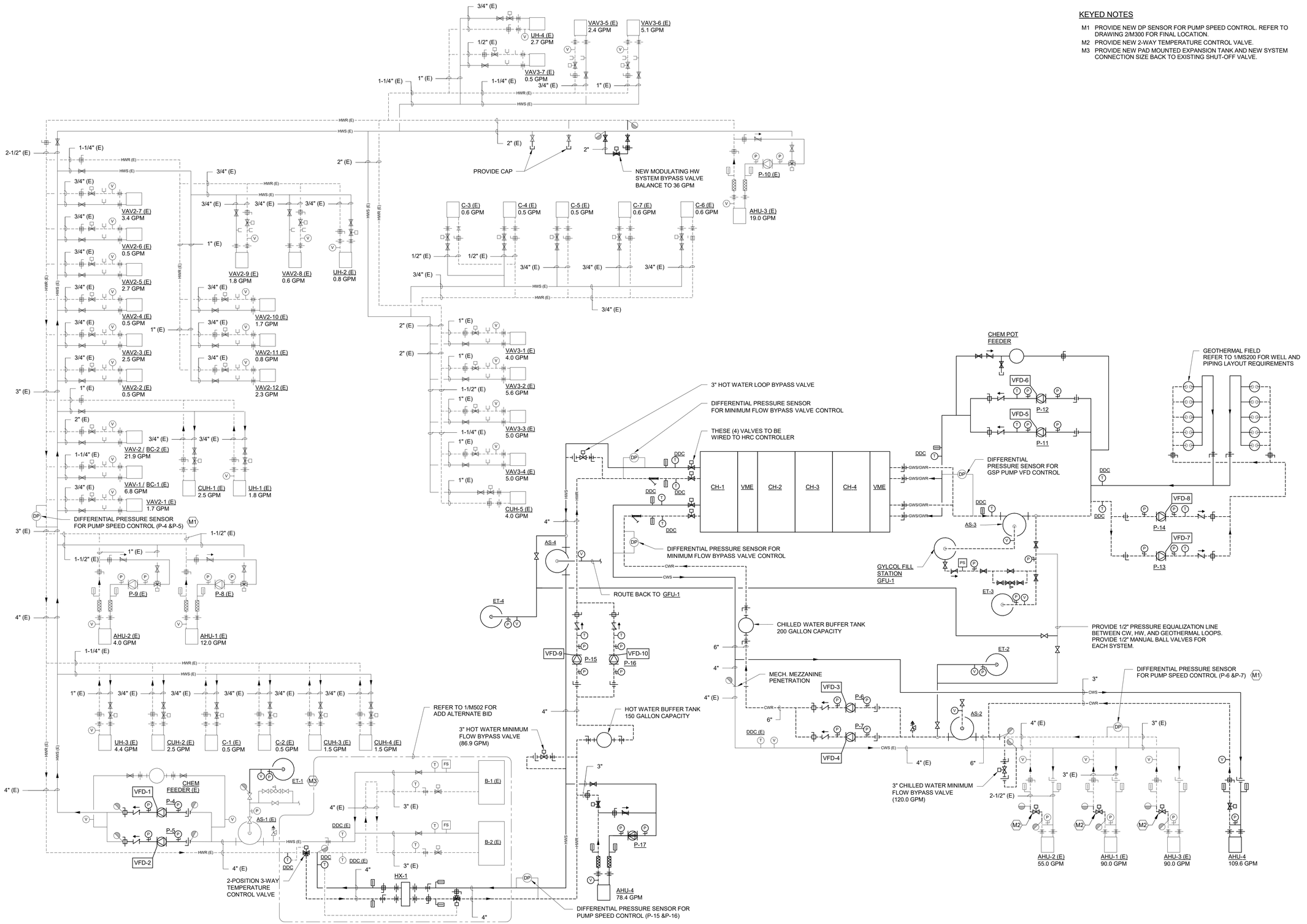
FLOW DIAGRAMS DEMOLITION - HVAC

M500



1 M501 CHILLED & HOT WATER SYSTEM FLOW DIAGRAM

SCALE: NONE

NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES

M1 PROVIDE NEW DP SENSOR FOR PUMP SPEED CONTROL. REFER TO DRAWING 2/M300 FOR FINAL LOCATION.

M2 PROVIDE NEW 2-WAY TEMPERATURE CONTROL VALVE.

M3 PROVIDE NEW PAD MOUNTED EXPANSION TANK AND NEW SYSTEM CONNECTION SIZE BACK TO EXISTING SHUT-OFF VALVE.

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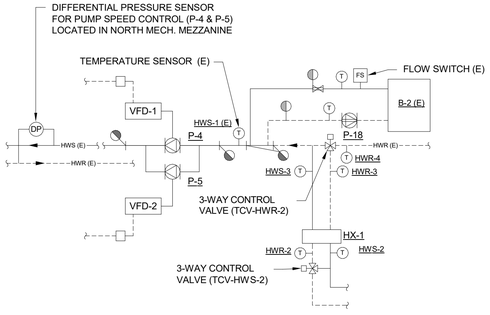
FLOW DIAGRAMS - HVAC

M501



NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

3 M502 ALTERNATE BID #2 - HOT WATER SYSTEM CONTROL SCHEMATIC

SCALE: NONE

GEOTHERMAL HEAT RECOVERY CHILLER SEQUENCE OF OPERATION
THE SEQUENCES OF OPERATION AS SHOWN ON M602 SHALL BE CONSIDERED THE BASE BID.

THE FOLLOWING REPRESENT CHANGES TO THE BASE BID SEQUENCES OF OPERATION TO ACCOMMODATE THE ADD ALTERNATE SCOPE OF WORK.

HRC HOT WATER SUPPLY TEMPERATURE SETPOINT:
THE BAS SHALL RESET THE HRC HOT WATER SUPPLY TEMPERATURE SETPOINT BASED ON AN OFFSET BETWEEN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE RESET SCHEDULE. THE EXISTING HOT WATER SUPPLY TEMPERATURE IS RESET BASED ON OUTSIDE AIR TEMPERATURE. WHEN OUTSIDE AIR TEMPERATURE IS 70°F AND ABOVE, THE HOT WATER SUPPLY TEMPERATURE SHALL BE 90°F (ADJ.). WHEN THE OUTSIDE AIR TEMPERATURE IS 0°F AND BELOW THE HOT WATER SUPPLY TEMPERATURE SHALL BE 155°F.

THE HRC HOT WATER SUPPLY TEMPERATURE (HWS-1) SHALL BE RESET BY MAINTAINING A +3°F (ADJ.) OFFSET BETWEEN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE SETPOINT. THE MAXIMUM HRC HOT WATER SUPPLY TEMPERATURE SHALL BE 155°F. THIS IS DONE TO NOT AVOID NUISANCE TRIPPING OF THE COMPRESSORS AT GEOTHERMAL CONDITIONS.

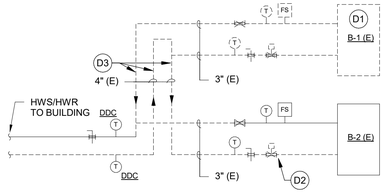
HOT WATER BOILER PLANT SEQUENCE OF OPERATION:
THE EXISTING HOT WATER BOILER PLANT SHALL BE CONSIDERED AS A BACKUP WHEN THE HRC AND HEAT EXCHANGER CANNOT MEET THE BUILDING HEATING DEMAND.

THE BOILER SHALL BE ENABLED WHEN THE HOT WATER SUPPLY TEMPERATURE AS MEASURED AT SENSOR HWS-3 FALLS BELOW 10°F (ADJ.) OF THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE SETPOINT FOR GREATER THAN 30 MINUTES (ADJ.). PROVIDE AN ALARM FOR LOW HOT WATER SUPPLY TEMPERATURE.

ONCE THE BOILER IS ENABLED THROUGH THE BUILDING AUTOMATION SYSTEM, THE BOILER CONTROL PANEL SHALL START BOILER PUMP (P-18). ONCE FLOW IS PROVEN, THE BOILER CONTROL PANEL SHALL ENABLE THE BOILER FIRING SEQUENCE AND MODULATE TO MAINTAIN HOT WATER SUPPLY TEMPERATURE SETPOINT AS MEASURED AT HWS-1 (E). ONCE THE HOT WATER SUPPLY TEMPERATURE SETPOINT IS MET, THE BOILER SHALL BE DISABLED. ONCE DISABLED, THE BOILER SHALL NOT BE ENABLED AGAIN FOR 30 MINUTES (ADJ.).

HOT WATER HEAT EXCHANGER (HX-1) CONTROL:
THE 3-WAY CONTROL VALVE (TCV-HWR-2) ON THE EXISTING BUILDING HOT WATER RETURN MAIN SHALL BE A 2-POSITION VALVE. THE VALVE SHALL BE NORMALLY OPEN TO THE HEAT EXCHANGER (HX-1).

THE 3-WAY CONTROL VALVE (TCV-HWS-2) ON THE HRC HOT WATER RETURN MAIN SHALL MODULATE TO MAINTAIN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE WATER SETPOINT AS MEASURED AT THE EXISTING HOT WATER SUPPLY TEMPERATURE SENSOR (HWS-1 (E)).



1 M502 ALTERNATE BID #2 - HOT WATER SYSTEM DEMOLITION FLOW DIAGRAM

SCALE: NONE

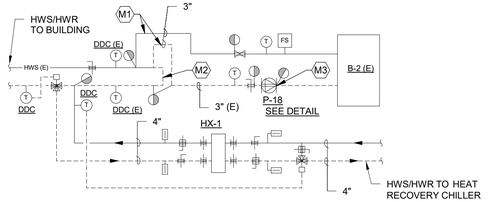
NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

DEMO KEYED NOTES

D1 REMOVE EXISTING BOILER COMPLETE. REMOVE HOT WATER PIPING INCLUDING ALL ACCESSORIES TO THE EXTENT SHOWN. REMOVE BOILER COMBUSTION AIR AND VENT DUCTWORK COMPLETE. COORDINATE WITH EC TO DISCONNECT POWER FROM BOILER.

D2 REMOVE EXISTING BOILER ISOLATION VALVE AND PIPING TO ACCOMMODATE NEW BOILER PUMP.

D3 REMOVE EXISTING BOILER PRIMARY PUMPING TO THE EXTENT SHOWN. BOILER PLANT TO BE CONVERTED TO A PRIMARY / SECONDARY LOOP ARRANGEMENT.



2 M502 ALTERNATE BID #2 - HOT WATER SYSTEM NEW WORK FLOW DIAGRAM

SCALE: NONE

NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

NEW WORK KEYED NOTES

M1 PROVIDE NEW 3" BOILER PRIMARY PIPING AND BRIDGE WITH SECONDARY LOOP. PROVIDE MINIMUM 12" BETWEEN THE HOT WATER SUPPLY AND RETURN PRIMARY CONNECTIONS ON SECONDARY LOOP.

M2 PROVIDE 4" PIPING TO CREATE A SECONDARY HOT WATER LOOP.

M3 PROVIDE NEW BOILER PUMP AND CONTROL WIRING. BOILER PUMP TO BE ENABLED BY EXISTING BOILER.

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CHECKED BY Checker

FLOW DIAGRAMS & CONTROL DIAGRAMS - ALTERNATE BID #2 - HVAC

M502

DDC INPUT / OUTPUT SUMMARY TABLE

PROJECT: Warner Park Community Recreation Center Expansion

LOCATION: Madison, WI

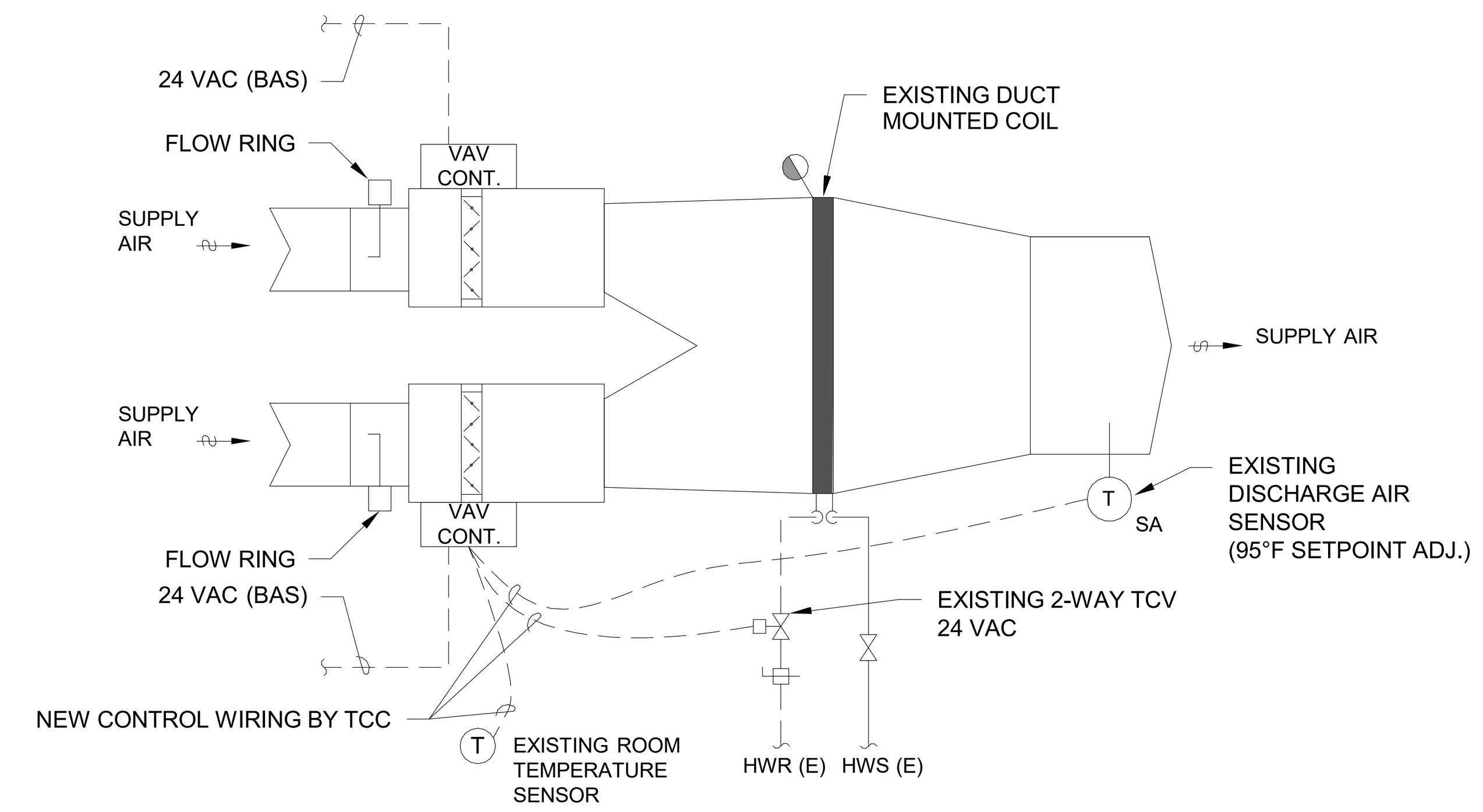
SYSTEM:
Miscellaneous Equipment
(See Plans for Quantity)

HARDWARE

POINT DESCRIPTION	OUTPUT DIGITAL				OUTPUT ANALOG				INPUT DIGITAL						INPUT ANALOG					
	Control Relay	Solenoid	Contactor	2-Pos Actuator	Elect/PneuTransducr	Electric Actuator	4-20 mA	0-10 VDC	Current Sensing Switch	Control Relay Contact	Switch Closure	Auxiliary Contact	Diff Pressure Switch	Flow Switch	Temperature	Relative Humidity	Differential Pressure	Gauge Pressure	Static Pressure	Flow
Outside Air Temperature															X					
Cabinet Unit Heaters																				
Space Temperature															X					
Hot Water Control Valve								X												
Fan Status									X											
Fan Enable	X																			
VAV Air Terminal Units with Reheat																				
Space Temperature															X					
Discharge Air Temperature															X					
HW Reheat Control Valve								X												
Supply Air Damper								X										X		
Supply Air Flow																				X
Exhaust Fan (EF-1)																				
EF-1 Enable		X						X												
EF-1 Status												X								
Damper Enable								X												
Damper Status											X									

SOFTWARE

POINT DESCRIPTION	ALARMS DIGITAL			ALARMS ANALOG				ENERGY MANAGEMENT SYSTEM FUNCTIONS																			Comments
	Equipment Status	Maintenance	Pressure	High Limit	Low Limit			Day/Night Setback	Demand Limiting	Dial-up I/O	Duty Cycling	Optimum Start/Stop	Scheduled Start/Stop	Totalization	Trend	Equipment Integration	Lighting Integration	Fire Alarm Integration	Security/Access Integration	Elect PQM Integration	Chiller Integration	Manual Changeover	HW/OA Reset	OA Lockout	Smoke Control	Fire Alarm Override	
Outside Air Temperature															X									X			Globally shared point
Cabinet Unit Heaters																											
Space Temperature								X							X												
Hot Water Control Valve																								X			
Fan Status	X																										
Fan Enable																											
VAV Air Terminal Units with Reheat																											
Space Temperature								X							X												
Discharge Air Temperature															X												
HW Reheat Control Valve															X												
Supply Air Damper	X																										
Supply Air Flow															X												
Exhaust Fan (EF-1)																											
EF-1 Enable																										X	
EF-1 Status	X																										
Damper Enable																											
Damper Status	X																										



3 VAV CONTROL DIAGRAM
M600 SCALE: NONE VAV1-2, VAV1-3

NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

<u>VAV BOX WITH REHEAT (NO WALL FIN RADIATION) SEQUENCE OF OPERATION</u>
PROVIDE FOR EACH VAV TERMINAL UNIT THE FOLLOWING:

- A DDC VAV UNIT CONTROLLER (PER VAV) FURNISHED & INSTALLED BY TCC
- A DDC VAV DAMPER ACTUATOR PROVIDED BY VAV MANUFACTURER
- EXISTING WALL MOUNTED DDC CONTROL TEMPERATURE SENSOR
- ALL REQUIRED CONTROL INTERLOCK WIRING (FURNISHED & INSTALLED BY TCC)
- EXISTING DISCHARGE AIR TEMPERATURE SENSOR

THE VAV UNIT DAMPERS ON BOTH VAV BOXES SHALL RECEIVE THE SAME SIGNAL. VAV AIR TERMINAL UNITS TO OPERATE IN PARALLEL.

BASED UPON INPUT FROM THE WALL MOUNTED TEMPERATURE SENSOR, THE VAV BOX CONTROLLER SHALL MODULATE THE VAV UNIT DAMPER OPEN/CLOSED AND MODULATE THE HOT WATER REHEAT COIL CONTROL VALVE AS REQUIRED TO MAINTAIN ROOM TEMPERATURE SETPOINT.

OCCUPANCY MODES:
OCCUPIED AND UNOCCUPIED MODES ARE TIME OF DAY SCHEDULED THROUGH THE BUILDING AUTOMATION SYSTEM.

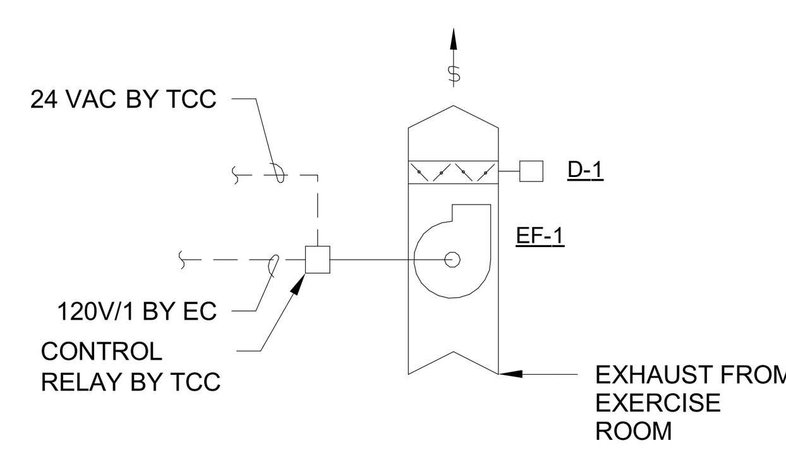
OCCUPIED MODE:
ON A RISE IN SPACE TEMPERATURE ABOVE THE ROOM SETPOINT (ADJUSTABLE) AS SENSED BY THE ROOM TEMPERATURE SENSOR, THE VAV BOX CONTROLLER SHALL MODULATE THE VAV BOX DAMPER FROM ITS MINIMUM POSITION TO ITS MAXIMUM OPEN POSITION AS REQUIRED TO MAINTAIN ROOM SETPOINT. THE VAV TERMINAL HOT WATER REHEAT COIL CONTROL VALVE SHALL BE CLOSED. UPON A DROP IN SPACE TEMPERATURE BELOW SPACE SETPOINT, THE VAV BOX DAMPER SHALL MODULATE FROM MAXIMUM TO MINIMUM AIRFLOW.

SHOULD THE VAV DAMPER BE AT ITS MINIMUM POSITION AND SPACE TEMPERATURE CONTINUES TO DROP BELOW THE ROOM SETPOINT OF 70°F (ADJUSTABLE), THE VAV BOX DAMPER SHALL REMAIN AT ITS MINIMUM POSITION AND THE VAV TERMINAL DDC CONTROLLER SHALL MODULATE OPEN THE HOT WATER REHEAT COIL CONTROL VALVE TO SCHEDULED DISCHARGE HEATING SETPOINT. WHERE APPLICABLE, ON A CONTINUED DROP BELOW SETPOINT, THE VAV BOX DAMPER SHALL MODULATE FROM ITS MINIMUM POSITION TO ITS DESIGNATED HEATING CFM WHILE THE VAV TERMINAL DDC CONTROLLER SHALL MODULATE OPEN THE HOT WATER REHEAT COIL CONTROL VALVE TO SCHEDULED DISCHARGE HEATING SETPOINT.

THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE TOWARD ROOM TEMPERATURE SETPOINT.

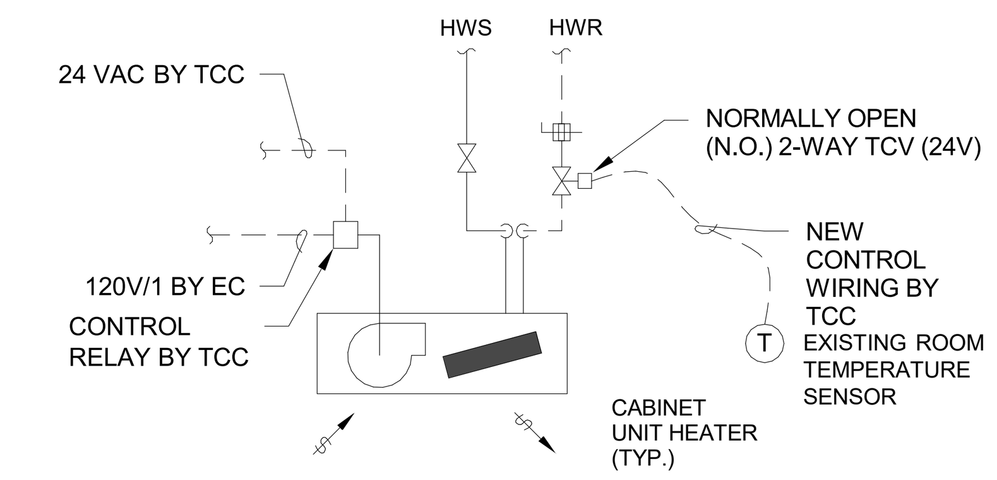
UNOCCUPIED MODE:
THE VAV DAMPER SHALL REMAIN AT ITS MINIMUM POSITION, AND SHOULD THE SPACE TEMPERATURE DROP BELOW THE ROOM THERMOSTAT SETBACK SETPOINT (ADJUSTABLE), THE VAV BOX DAMPER SHALL REMAIN AT ITS MINIMUM POSITION AND THE VAV TERMINAL DDC CONTROLLER SHALL MODULATE OPEN THE HOT WATER REHEAT COIL CONTROL VALVE AS SEQUENCED ABOVE.

THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE TOWARD ROOM TEMPERATURE SETPOINT.



4 EXHAUST FAN CONTROL DIAGRAM
M600 SCALE: NONE

<u>EXHAUST FAN (EF- 1) SEQUENCE OF OPERATION</u>
EXHAUST FAN (EF- 1) SHALL BE INTERLOCKED WITH THE BUILDING OCCUPANCY SCHEDULE. WHEN INDEXED INTO OCCUPIED MODE FROM THE BUILDING AUTOMATION SYSTEM THE EXHAUST FAN (EF-1) SHALL BE ENABLED AND RUN CONTINUOUSLY. THE MOTOR OPERATED DAMPER SHALL BE PROVEN OPEN PRIOR TO ENABLING FAN.



1 CABINET UNIT HEATER CONTROL DIAGRAM
M600 SCALE: NONE

<u>CABINET UNIT HEATERS SEQUENCE OF OPERATION</u>
PROVIDE FOR EACH UNIT HEATER A 2-POSITION, FLOATING POINT DDC HOT WATER CONTROL VALVE AND PROVIDE A DDC TEMPERATURE SENSOR.

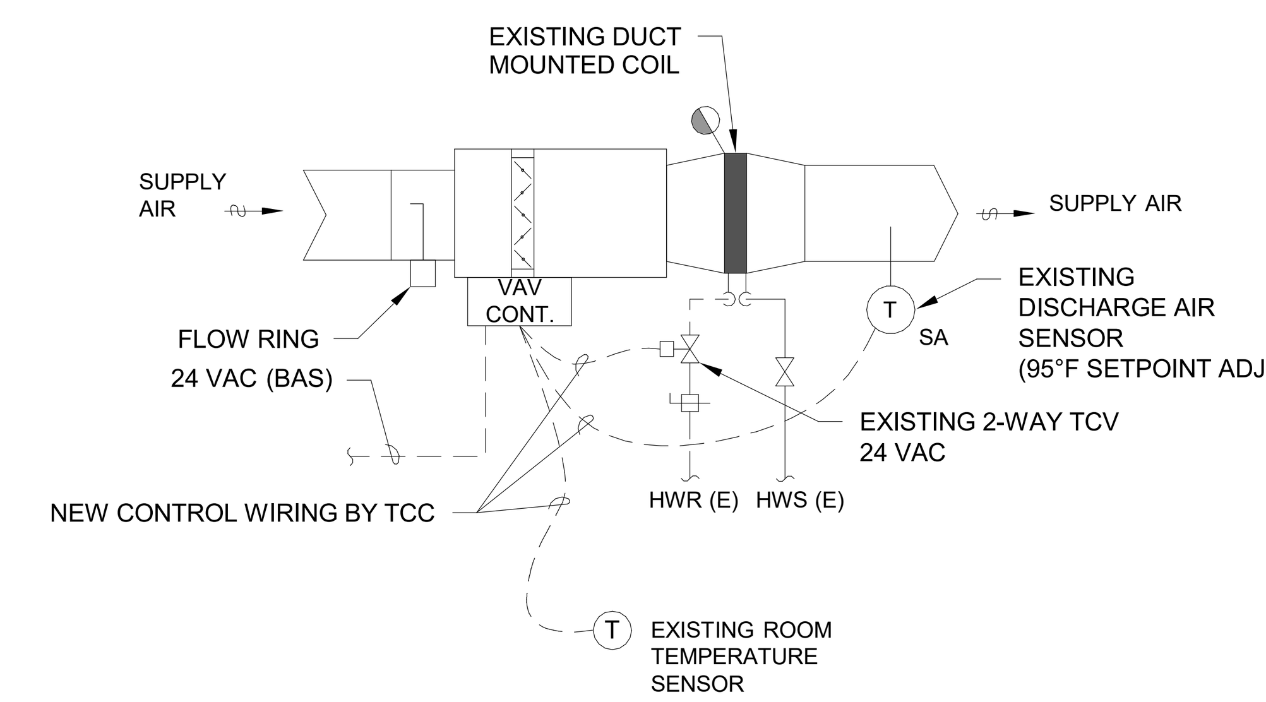
ON A DROP IN SPACE TEMPERATURE BELOW SETPOINT (68°F ADJUSTABLE), THE CONTROL VALVE SHALL OPEN AND THE SUPPLY FAN SHALL BE ENABLED AND RUN CONTINUOUSLY.

THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE ABOVE SETPOINT.

UNIT HEATERS AND CABINET UNIT HEATERS CONTROLLED BY DDC TEMPERATURE SENSORS SHALL BE INDEXED TO/FROM OCCUPIED/UNOCCUPIED MODE THROUGH THE BUILDING AUTOMATION SYSTEM.

WHENEVER THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 70°F (ADJUSTABLE), THE CONTROL VALVES SHALL BE LOCKED FULLY CLOSED.

REFER TO DESIGN CONDITIONS ON M000 FOR OCCUPIED/UNOCCUPIED SETPOINTS.



2 VAV CONTROL DIAGRAM
M600 SCALE: NONE VAV1-1

NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

<u>VAV BOX WITH REHEAT (NO WALL FIN RADIATION) SEQUENCE OF OPERATION</u>
PROVIDE FOR EACH VAV TERMINAL UNIT THE FOLLOWING:

- A DDC VAV UNIT CONTROLLER FURNISHED & INSTALLED BY TCC
- A DDC VAV DAMPER ACTUATOR PROVIDED BY VAV MANUFACTURER
- EXISTING WALL MOUNTED DDC CONTROL TEMPERATURE SENSOR
- ALL REQUIRED CONTROL INTERLOCK WIRING (FURNISHED & INSTALLED BY TCC)
- EXISTING DISCHARGE AIR TEMPERATURE SENSOR

BASED UPON INPUT FROM THE WALL MOUNTED TEMPERATURE SENSOR, THE VAV BOX CONTROLLER SHALL MODULATE THE VAV UNIT DAMPER OPEN/CLOSED AND MODULATE THE HOT WATER REHEAT COIL CONTROL VALVE AS REQUIRED TO MAINTAIN ROOM TEMPERATURE SETPOINT.

OCCUPANCY MODES:
OCCUPIED AND UNOCCUPIED MODES ARE TIME OF DAY SCHEDULED THROUGH THE BUILDING AUTOMATION SYSTEM.

OCCUPIED MODE:
ON A RISE IN SPACE TEMPERATURE ABOVE THE ROOM SETPOINT (ADJUSTABLE) AS SENSED BY THE ROOM TEMPERATURE SENSOR, THE VAV BOX CONTROLLER SHALL MODULATE THE VAV BOX DAMPER FROM ITS MINIMUM POSITION TO ITS MAXIMUM OPEN POSITION AS REQUIRED TO MAINTAIN ROOM SETPOINT. THE VAV TERMINAL HOT WATER REHEAT COIL CONTROL VALVE SHALL BE CLOSED. UPON A DROP IN SPACE TEMPERATURE BELOW SPACE SETPOINT, THE VAV BOX DAMPER SHALL MODULATE FROM MAXIMUM TO MINIMUM AIRFLOW.

SHOULD THE VAV DAMPER BE AT ITS MINIMUM POSITION AND SPACE TEMPERATURE CONTINUES TO DROP BELOW THE ROOM SETPOINT OF 70°F (ADJUSTABLE), THE VAV BOX DAMPER SHALL REMAIN AT ITS MINIMUM POSITION AND THE VAV TERMINAL DDC CONTROLLER SHALL MODULATE OPEN THE HOT WATER REHEAT COIL CONTROL VALVE TO SCHEDULED DISCHARGE HEATING SETPOINT. WHERE APPLICABLE, ON A CONTINUED DROP BELOW SETPOINT, THE VAV BOX DAMPER SHALL MODULATE FROM ITS MINIMUM POSITION TO ITS DESIGNATED HEATING CFM WHILE THE VAV TERMINAL DDC CONTROLLER SHALL MODULATE OPEN THE HOT WATER REHEAT COIL CONTROL VALVE TO SCHEDULED DISCHARGE HEATING SETPOINT.

THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE TOWARD ROOM TEMPERATURE SETPOINT.

UNOCCUPIED MODE:
THE VAV DAMPER SHALL REMAIN AT ITS MINIMUM POSITION, AND SHOULD THE SPACE TEMPERATURE DROP BELOW THE ROOM THERMOSTAT SETBACK SETPOINT (ADJUSTABLE), THE VAV BOX DAMPER SHALL REMAIN AT ITS MINIMUM POSITION AND THE VAV TERMINAL DDC CONTROLLER SHALL MODULATE OPEN THE HOT WATER REHEAT COIL CONTROL VALVE AS SEQUENCED ABOVE.

THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE TOWARD ROOM TEMPERATURE SETPOINT.

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WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

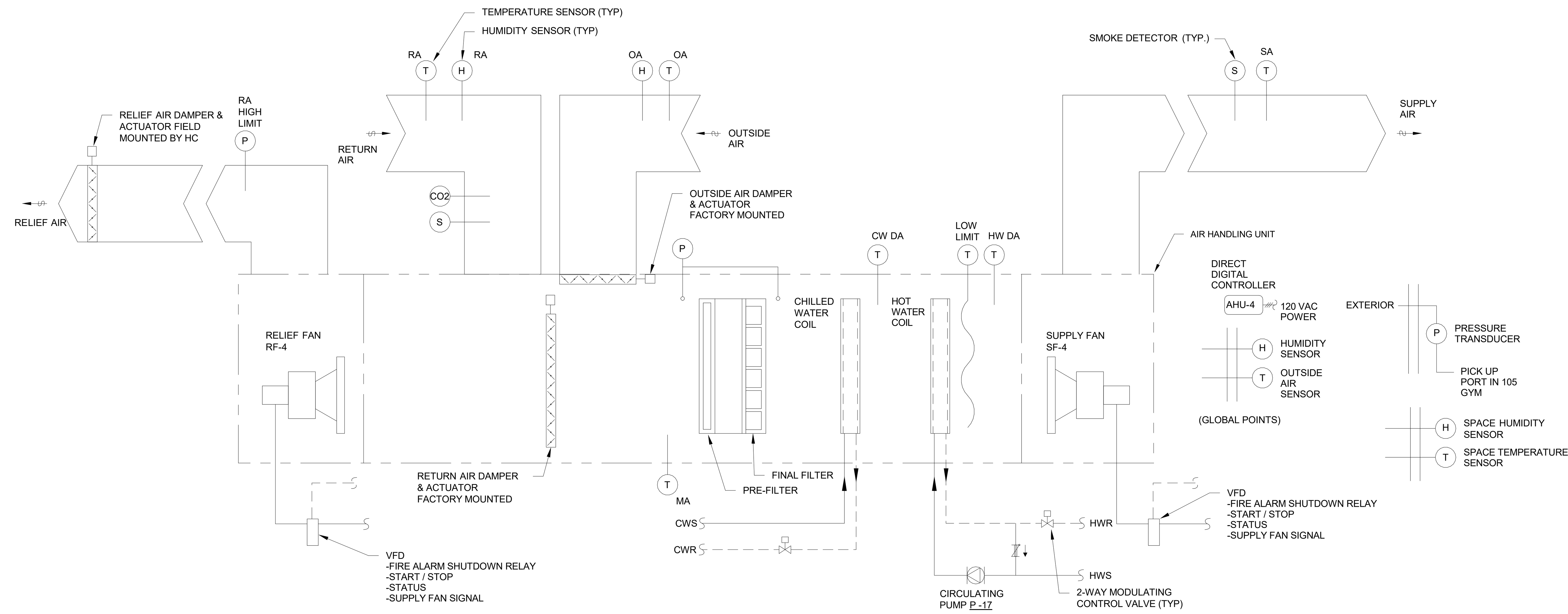
ISSUED FOR:
BID SET 05/16/2024

REVISION FOR:
NO. DESCRIPTION DATE

DRAWN BY NSC
CHECKED BY RCS

CONTROL SCHEMATICS - HVAC

M600



NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

1 / M601 AIR HANDLING UNIT (AHU-4) CONTROL DIAGRAM

SCALE: NONE

DDC INPUT / OUTPUT SUMMARY TABLE

PROJECT: Warner Park Community Recreation Center Expansion	HARDWARE																				SOFTWARE																										
LOCATION: Madison, WI	OUTPUT								INPUT												ALARMS																										
	DIGITAL				ANALOG				DIGITAL						ANALOG						DIGITAL			ANALOG				ENERGY MANAGEMENT SYSTEM FUNCTIONS																			
SYSTEM: AHU-4 POINT DESCRIPTION	Control Relay	24VAC	Contactor	2-Pos Actuator	Tri-State Actuator	Duration Adjust Actuator	4-20 mA	0-10 VDC	Current Sensing Switch	Control Relay Contact	Switch Closure	Auxiliary Contact	Diff Pressure Switch	Flow Switch	Temperature	Relative Humidity	Differential Pressure	Gauge Pressure	Static Pressure	CO2 (PPM)	Equipment Status	Maintenance	Pressure	High Limit	Low Limit	Maintenance		Day/Night Setback	Demand Limiting	Dial-up I/O	Duty Cycling	Optimum Start/Stop	Scheduled Start/Stop	Totalization	Trend		Equipment Integration	Fire Alarm Integration	Security/Access Integration	Elect PQM Integration	Chiller Integration	Dry-bulb Economizer	HW/OA Reset	CHW Reset	Smoke Control	Fire Alarm Override	Comments
Space Temperature															X									X	X			X							X												
Space Relative Humidity																																															
Return Air Temperature															X																				X												
Mixed Air Temperature															X																				X												
Supply Air Temperature															X																				X												
Cooling Coil Leaving Temperature															X										X										X												
Heating Coil Leaving Temperature															X										X										X												
Outside Air Temperature															X																																
Outside Air Humidity																X																															
Return Air Humidity																X																															
Supply Fan Enable		X						X																									X													X	
Supply Fan Status												X																																			From VFD contact
Supply Fan VFD Command								X																																							
Supply Fan VFD Fault												X									X																										
Relief Fan Enable		X						X																									X													X	
Relief Fan Status												X																																			From VFD contact
Relief Fan VFD Command								X																																							
Relief Fan VFD Fault																					X																										
Outside Air Damper								X				X									X																					X					Actuator is factory mounted. Provide with end switch for feedback.
Return Air Damper								X				X									X																					X					Actuator is factory mounted. Provide with end switch for feedback.
Relief Air Damper								X				X									X																					X					Provide with end switch for feedback.
Heating Coil Valve								X																																							
Circulating Pump Enable								X																																							P-17
Circulating Pump Status												X																																			P-17
Chilled Water Coil Valve								X																																							
Return Air CO2 Level																				X																											
Pre Filter Pressure																	X							X		X																					
Filter Pressure																	X							X		X																					
High Pressure Static Shutdown																			X				X																								Return.
Building Static Pressure																			X																												
Building Static Pressure Setpoint																			X																												
Fire Alarm Shutdown										X											X																									X	Provide required programming in the event of a building fire alarm activation to shut down AHU
Smoke Detector			X									X									X																										Supply & Return Air Smoke Detector by EC.
Service Shutdown Switch											X																																				

SINGLE ZONE VARIABLE VOLUME AIR HANDLING UNIT CONTROL (AHU-4):

GENERAL:
THE SYSTEM CONSISTS OF A DRAW-THROUGH AIR HANDLING UNIT WITH VARIABLE VOLUME SUPPLY AND RELIEF FANS WITH VFDS, OUTDOOR AIR, RETURN AIR, AND RELIEF AIR DAMPERS, HOT WATER HEATING COIL, AND CHILLED WATER COOLING COIL.

FURNISH A NORMALLY OPEN SPRING RETURN TWO-WAY MODULATING CONTROL VALVE FOR THE HOT WATER HEATING COIL AND A NORMALLY CLOSED TWO-WAY VALVE FOR THE CHILLED WATER COIL.

PROVIDE DAMPER ACTUATORS FOR RELIEF AIR DAMPER. OUTSIDE AIR AND RETURN AIR DAMPERS AND ACTUATORS ARE FACTORY MOUNTED ON AIR HANDLING UNIT.

THE AIR HANDLING UNIT SHALL OPERATE AS A SINGLE ZONE VARIABLE AIR VOLUME UNIT CONTROLLED BY A DIRECT DIGITAL CONTROLLER (DDC).

OCCUPIED / UNOCCUPIED SCHEDULE:
SYSTEM SHALL BE INDEXED FROM OCCUPIED TO UNOCCUPIED THROUGH THE BUILDING AUTOMATION SYSTEM. IN THE OCCUPIED MODE THE SUPPLY AND RELIEF FANS SHALL RUN CONTINUOUSLY. IN THE UNOCCUPIED MODE, THE SUPPLY AND RELIEF FANS SHALL BE OFF AND SHALL BE CYCLED FROM INDICATED ROOM TEMPERATURE SENSORS CALLING FOR NIGHT SETPOINT HEATING.

UNIT CYCLING TO MAINTAIN SETBACK/SETUP TEMPERATURES:
CYCLE THE AIR HANDLING UNIT ON TO MAINTAIN THE SETBACK AND SETUP TEMPERATURE ZONE SETPOINTS TO MAINTAIN 65 ºF AND 78 ºF RESPECTIVELY.

IN THE UNOCCUPIED MODE, THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL CLOSE, AND THE RETURN AIR DAMPER SHALL OPEN, AND HEATING DISCHARGE TEMPERATURE CONTROL SHALL FUNCTION AS SPECIFIED. IN THE COOLING MODE, THE ECONOMIZER AND CHILLED WATER DISCHARGE TEMPERATURE CONTROL SHALL BE ALLOWED TO FUNCTION AS SPECIFIED. MINIMUM ON RUNTIME TIMER SHALL BE SET FOR 15 MINUTES (ADJ.) AND THE OFF TIMER FOR 30 MINUTES (ADJ.).

FAN CONTROL:
START/STOP:
THE DDC SYSTEM SHALL START THE SUPPLY AND RELIEF FANS VIA THEIR RESPECTIVE VFD'S. PROVIDE SCHEDULING OF THE AHU COORDINATED WITH THE FACILITY OCCUPANCY SCHEDULE.

SUPPLY FAN SPEED CONTROL:
THE PURPOSE OF THE SUPPLY FAN SPEED CONTROL IS TO MAINTAIN TEMPERATURE WITHIN THE SPACE. SEE DISCHARGE AIR TEMPERATURE CONTROL SEQUENCE BELOW.

RELIEF FAN SPEED CONTROL:
THE PURPOSE OF THE RELIEF FAN IS TO MAINTAIN A SLIGHTLY POSITIVE BUILDING PRESSURE. THE RELIEF FAN VFD SHALL MODULATE TO MAINTAIN A BUILDING STATIC PRESSURE OF +0.05 IN. W.C. (ADJ.). H.C. SHALL COORDINATE WITH THE BALANCING CONTRACTOR TO OPTIMIZE THIS SETTING.

VENTILATION AIR CONTROL:
DURING THE OCCUPIED MODE THE OUTSIDE AIR DAMPER SHALL OPEN TO ITS MINIMUM POSITION. CARBON DIOXIDE LEVELS SHALL BE MEASURED BY A RETURN-AIR MOUNTED CARBON DIOXIDE SENSOR. WHEN THE CARBON DIOXIDE LEVELS BEGIN TO RISE ABOVE 1,000 PPM, THE OUTSIDE AIR SHALL MODULATE FROM ITS MINIMUM POSITION TO ITS MAXIMUM POSITION. MINIMUM AND MAXIMUM POSITIONS SHALL BE DETERMINED IN THE FIELD IN CONJUNCTION WITH THE TEST AND BALANCE CONTRACTOR TO MATCH THE SCHEDULED MINIMUM AND MAXIMUM OUTSIDE AIRFLOWS. WHEN CARBON DIOXIDE LEVELS DROP BELOW SETPOINT OF 1,000 PPM, THE OUTSIDE AIR DAMPER SHALL MODULATE TOWARDS ITS MINIMM POSITION.

FILTERS:
INSTALL A DIFFERENTIAL STATIC PRESSURE SENSOR ACROSS EACH FILTER BANK. PROVIDE AN ALARM TO THE OPERATOR INTERFACE WHEN THE DIFFERENTIAL STATIC PRESSURE EXCEEDS 0.75" W.C. (ADJ.).

SPACE TEMPERATURE CONTROL:
SPACE TEMPERATURE CONTROL SHALL BE ACHIEVED THROUGH DISCHARGE AIR CONTROL AND SUPPLY FAN SPEED CONTROLLED BASED UPON THE DIFFERENT COOLING, HEATING, AND ECONOMIZER MODES AS DESCRIBED BELOW.

DISCHARGE AIR TEMPERATURE SETPOINT RESET FROM ZONE TEMPERATURE:
FOR THE HEATING AND ECONOMIZER MODES, RESET THE DISCHARGE AIR TEMPERATURE SETPOINT BASED ON THE ZONE TEMPERATURE BETWEEN 55º F (ADJ.) AND 100º F (ADJ.) TO MAINTAIN A ZONE HEATING AND ECONOMIZER SETPOINT OF 72º F (ADJ.).

FOR THE COOLING MODE, PROVIDE A SEPARATE DISCHARGE AIR TEMPERATURE RESET BASED ON THE ZONE TEMPERATURE BETWEEN 55º F (ADJ.) AND THE COOLING ZONE SETPOINT OF 75º F (ADJ.).

THE HEATING AND ECONOMIZER RESET MINIMUM TEMPERATURE SETPOINT SHALL NOT BE ALLOWED TO BE CLOSER THAN 2º F (ADJ.) BELOW THE MECHANICAL COOLING MINIMUM SETPOINT TO PREVENT MODE CYCLING BETWEEN ECONOMIZER AND CHILLED WATER COOLING.

DISCHARGE AIR TEMPERATURE CONTROL:
THE HOT WATER CONTROL VALVE AND MIXED AIR DAMPERS, SHALL BE CONTROLLED IN SEQUENCE TO MAINTAIN THE HEATING AND ECONOMIZER DISCHARGE AIR SETPOINT TEMPERATURE. AT NO TIME SHALL THE HEATING COIL BE OPERATING WHEN THE MIXED AIR DAMPERS ARE ECONOMIZING, OR IF COOLING IS REQUIRED.

WHENEVER THE DISCHARGE AIR TEMPERATURE IS ABOVE THE HEATING AND ECONOMIZER SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE: THE HOT WATER CONTROL VALVE SHALL MODULATE CLOSED AS SEQUENCED BELOW. WHEN THE HOT WATER CONTROL VALVE IS COMPLETELY CLOSED AND THE ECONOMIZER SEQUENCE IS ENABLED, THE ECONOMIZER OUTSIDE AIR DAMPER AND RETURN AIR DAMPER SHALL MODULATE TOGETHER TO MAINTAIN THE HEATING AND ECONOMIZER DISCHARGE AIR TEMPERATURE SETPOINT. WHEN THE OUTSIDE AIR ECONOMIZER DAMPER IS 100%OPEN AND THE RETURN AIR DAMPER IS 100% CLOSED, OR THE ECONOMIZER SEQUENCE IS NOT ENABLED, THE CHILLED WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN THE COOLING DISCHARGE AIR TEMPERATURE SETPOINT. WHEN THE DISCHARGE AIR SETPOINT IS BELOW SETPOINT THE REVERSE SHALL OCCUR. CHILLED WATER CONTROL SHALL BE LOCKED OUT BELOW 50º F (ADJ.) OUTSIDE AIR TEMPERATURE.

SUPPLY FAN SPEED CONTROL:
THE PURPOSE OF THE SUPPLY FAN SPEED CONTROL IS TO MAINTAIN ZONE TEMPERATURE WITHIN THE SPACE. THE DDC SYSTEM SHALL MODULATE THE SUPPLY FAN VFD TO MAINTAIN ZONE TEMPERATURE AS FOLLOWS:

WHEN IN HEATING MODE, THE SUPPLY FAN SHALL BE AT ITS HEATING MINIMUM SETPOINT. IF THE HOT WATER CONTROL VALVE CANNOT MAINTAIN THE HEATING AND ECONOMIZER DISCHARGE AIR RESET TEMPERATURE SETPOINT OR THE HEATING VALVE IS AT DESIGN HEATING DISCHARGE TEMPERATURE SETPOINT, THE SUPPLY FAN SHALL MODULATE FROM HEATING MINIMUM TO HEATING MAXIMUM FLOW TO MAINTAIN THE ZONE HEATING SETPOINT. THE HOT WATER CONTROL VALVE SHALL CONTINUE TO MODULATE TO MAINTAIN THE MAXIMUM RESET DISCHARGE TEMPERATURE SETPOINT AS FAN SPEED INCREASES. THE REVERSE SHALL OCCUR ON A RISE IN TEMPERATURE ABOVE ZONE SETPOINT.

WHEN IN ECONOMIZER COOLING MODE, AFTER THE OUTSIDE AIR DAMPER IS 100% OPEN, THE SUPPLY FAN SPEED SHALL BE INCREASED FROM THE MINIMUM FLOW TO SUPPLY FAN MAXIMUM FLOW SETPOINT AS DESCRIBED IN THE FOLLOWING SEQUENCE. THE SUPPLY FAN MAXIMUM FLOW SHALL BE DECREASED AS THE OUTSIDE AIR TEMPERATURE INCREASES. RESET THE MAXIMUM FAN SPEED SETPOINT FROM COOLING MAXIMUM FLOW AT 55 DEG F (ADJ.) OUTSIDE AIR TEMPERATURE TO MINIMUM FLOW WHEN OUTSIDE AIR IS AT THE ECONOMIZER SWITCHOVER SETPOINT. LIMITING THE FAN SPEED AS THE OUTSIDE AIR TEMPERATURE INCREASES IS DESIGNED TO PREVENT INCREASING SPACE HUMIDITY BY FORCING THE USE OF CHILLED WATER WHEN THE OUTSIDE AIR USED IN ECONOMIZER IS WARMER AND MAY HAVE HIGHER DEWPOINTS.

WHEN IN THE COOLING MODE, AFTER THE CHILLED WATER VALVE IS MAINTAINING MINIMUM DISCHARGE AIR RESET TEMPERATURE OR IS 100% OPEN, THE SUPPLY FAN SHALL MODULATE FROM MINIMUM TO COOLING MAXIMUM FLOW TO MAINTAIN THE ZONE COOLING SETPOINT. THE FAN SPEED FOR COOLING SHALL INCREASE REGARDLESS OF THE ECONOMIZER SPEED LIMIT AS DESCRIBED ABOVE. THE CHILLED WATER CONTROL VALVE SHALL CONTINUE TO MODULATE TO MAINTAIN THE MINIMUM COOLING DISCHARGE RESET SETPOINT AS FAN SPEED IS INCREASED.

DEHUMIDIFICATION CONTROL:
OVERRIDE THE CHILLED WATER CONTROL VALVE TO MODULATE TO MAINTAIN THE MINIMUM COOLING COIL DISCHARGE AIR TEMPERATURE SETPOINT WHEN THE RETURN AIR HIGH LIMIT HUMIDITY SETPOINT OF 60% RH (ADJ.) IS REACHED. THE COOLING COIL DEHUMIDIFICATION CONTROL SHALL BE RELEASED TO THE COOLING DISCHARGE AIR SETPOINT AS RESET BY ZONE TEMPERATURE CONTROL WHEN THE RETURN AIR HUMIDITY FALLS TO 55% RH (ADJ.). LOCKOUT THIS CONTROL WHEN OUTSIDE AIR IS BELOW 55º F.

REHEAT CONTROL:
THE HOT WATER CONTROL VALVE SHALL BE MODULATE TO MAINTAIN THE DISCHARGE AIR SETPOINT TO MAINTAIN ZONE HEATING. WHEN IN THE DEHUMIDIFICATION MODE, THE HOT WATER CONTROL VALVE SHALL BE MODULATED TO MAINTAIN A ZONE TEMPERATURE OF 2 º F (ADJ.) COOLER THAN THE ZONE COOLING SETPOINT FOR ENERGY SAVINGS AND MAINTAINING COMFORT. IF NOT REQUIRED TO MAINTAIN DISCHARGE SETPOINT IN HEATING OR DEHUMIDIFICATION MODES, THE HOT WATER CONTROL VALVE SHALL BE CLOSED.

RELIEF DAMPER CONTROL:
THE RELIEF AIR DAMPER SHALL FULLY OPEN WHENEVER THE RELIEF FAN IS OPERATING. THE RELIEF FAN SHALL OPERATE AS DESRCIBED ABOVE.

ECONOMIZER CONTROL:
WHEN THE ECONOMIZER SEQUENCE IS ENABLED BY THE SWITCHOVER SEQUENCE BELOW, THE OUTSIDE AIR ECONOMIZER DAMPER AND RETURN DAMPER SHALL MODULATE TO PROVIDE OUTSIDE AIR TO BE USED FOR FREE COOLING AS DESCRIBED IN THE DISCHARGE AIR CONTROL SEQUENCE.

FLOATING DRY BULB ECONOMIZER SWITCHOVER:
THE ECONOMIZER SEQUENCE SHALL BE ENABLED WHENEVER THE OUTSIDE AIR TEMPERATURE IS MORE THAN 4º F (ADJ.) COOLER THAN THE RETURN AIR TEMPERATURE.

HOT WATER COIL CIRCULATING PUMP (P-17) CONTROL:
THE CIRCULATING PUMP SHALL OPERATE WHENEVER EITHER OF THE FOLLOWING CONDITIONS OCCUR. THE OUTSIDE AIR TEMPERATURE IS BELOW 40º F (ADJ.) OR THE HOT WATER CONTROL VALVE IS OPEN.

SAFETIES:
GENERAL:
ALL SAFETIES SHALL BE HARD WIRED TO THE SUPPLY AND RELIEF FAN VFD SAFETY CIRCUITS.

FREEZESTAT:
INSTALL AN ELECTRIC FREEZESTAT TO SHUT DOWN THE UNIT (SEE UNIT SHUTDOWN FOR ADDITIONAL INFORMATION) IF THE TEMPERATURE UPSTREAM OF THE HEATING COIL DROPS BELOW 35º F (ADJ.). THE ELECTRIC FREEZESTAT SHALL ACT INDEPENDENTLY OF THE DDC SYSTEM VIA HARDWIRE INTERLOCK AND SHALL OVERRIDE THE DDC SYSTEM CONTROL SIGNAL TO OPEN THE HEATING COIL CONTROL VALVE(S). A FREEZESTAT TRIP SHALL NOTIFY THE DDC SYSTEM THAT SHALL SEND AN ALARM TO THE OPERATOR INTERFACE.

RELIEF FAN HIGH PRESSURE LIMIT:
INSTALL A STATIC PRESSURE PROBE LOCATED IN THE DISCHARGE DUCT AT LEAST SIX FEET OR AS FAR AS PHYSICALLY POSSIBLE DOWNSTREAM OF THE FAN AND UPSTREAM OF ANY DAMPERS AND PIPE TO A DIFFERENTIAL PRESSURE SWITCH LOCATED IN THE TEMPERATURE CONTROL PANEL. WIRE IN SERIES WITH THE SAFETY CIRCUIT OF THE SUPPLY AND RELIEF FAN. DIFFERENTIAL PRESSURE SWITCH SHALL BE A MANUAL RESET TYPE AND THE DDC SYSTEM SHALL MONITOR THE STATUS OF THE DIFFERENTIAL PRESSURE SWITCH. INITIAL SETPOINT SHALL BE +2.0" W.C. SETPOINT SHALL BE ADJUSTABLE.

FIRE ALARM SHUTDOWN:
UPON A FIRE ALARM SYSTEM ALARM, THE FIRE ALARM CONTROL MODULE PROVIDED BY THE ELECTRICAL CONTRACTOR AT THE TEMPERATURE CONTROL PANEL SHALL CHANGE STATE OF ITS CONTACTS. THIS SHALL CAUSE THE UNIT TO BE SHUT DOWN (SEE UNIT SHUTDOWN FOR ADDITIONAL INFORMATION). AN AUXILIARY CONTACT SHALL BE PROVIDED TO NOTIFY THE DDC SYSTEM OF A FIRE ALARM SHUTDOWN. UPON RESET OF THE FIRE ALARM SYSTEM, THE UNIT SHALL RESTART AUTOMATICALLY WITHOUT USER INTERVENTION SUBJECT TO ANY RESTART DELAYS.

SMOKE DETECTOR ACTIVATION:
UPON AN ACTIVIATION OF A SMOKE DETECTOR, THE AIR HANDLING UNIT TO BE SHUT DOWN (SEE UNIT SHUTDOWN FOR ADDITIONAL INFORMATION). SUPPLY AND RETURN AIR SMOKE DETECTORS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

UNIT SHUTDOWN:
WHENEVER THE AIR HANDLING UNIT IS INDEXED OFF, THE SUPPLY AND RELIEF FANS SHALL STOP AND THE FOLLOWING SEQUENCE SHALL OCCUR:

THE OUTSIDE AIR DAMPERS AND RELIEF AIR DAMPERS SHALL CLOSE, AND THE RETURN DAMPERS SHALL OPEN.

THE CHILLED WATER CONTROL VALVE SHALL BE CLOSED.

THE HOT WATER CONTROL VALVE SHALL FULLY OPEN.

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WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

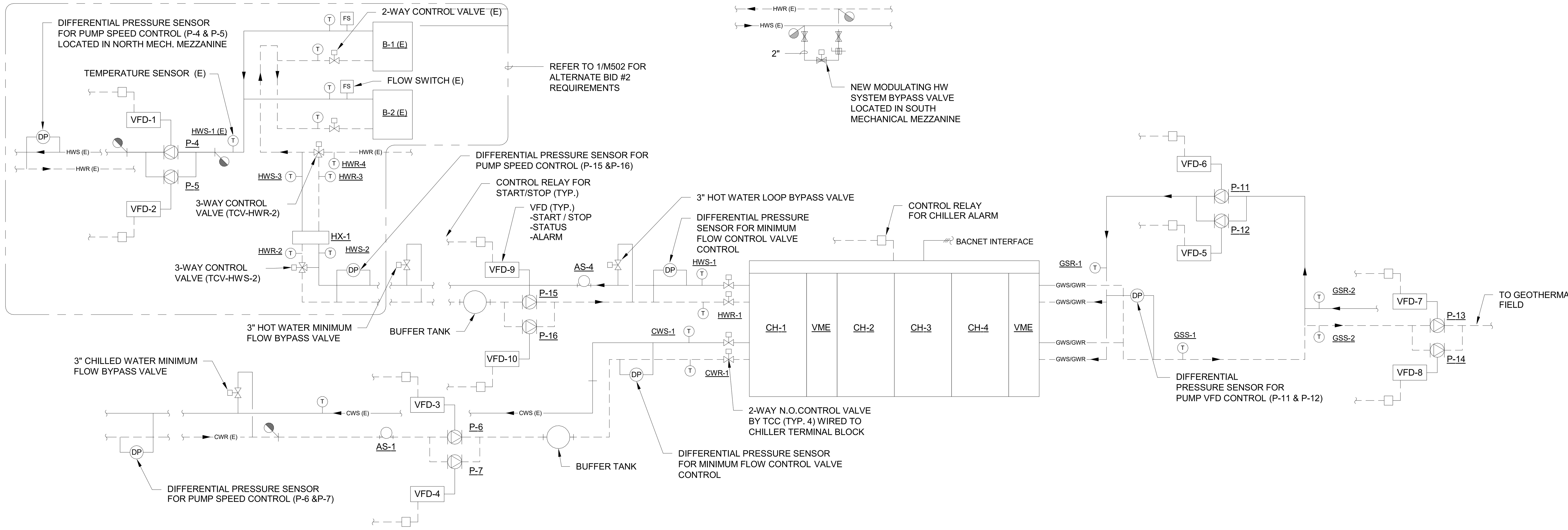
ISSUED FOR:
BID SET 05/16/2024

REVISION FOR:
NO. DESCRIPTION DATE

DRAWN BY NSC
CHECKED BY RCS

CONTROL SCHEMATICS - HVAC

M601



NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

1 (M602) HEAT RECOVERY CHILLER PLANT CONTROL SCHEMATIC

SCALE: NONE

DDC INPUT / OUTPUT SUMMARY TABLE

PROJECT: **Warner Park Community Recreation Center Expansion**

LOCATION: **Madison, WI**

SYSTEM: Heat Recovery Chiller Plant

HARDWARE: OUTPUT / INPUT — SOFTWARE: ALARMS / ENERGY MANAGEMENT SYSTEM FUNCTIONS

	OUTPUT DIGITAL				OUTPUT ANALOG				INPUT DIGITAL						INPUT ANALOG						ALARMS DIGITAL			ALARMS ANALOG				ENERGY MANAGEMENT SYSTEM FUNCTIONS																			
POINT DESCRIPTION	Control Relay	Solenoid	Contactor	2-Pos Actuator	Elect/PneuTransducr	Electric Actuator	4-20 mA	0-10 VDC	Current Sensing Switch	Control Relay Contact	Switch Closure	Auxiliary Contact	Diff Pressure Switch	Flow Switch	Temperature	Relative Humidity	Differential Pressure	Gauge Pressure	Static Pressure	Flow	Equipment Status	Maintenance	Pressure	High Limit	Low Limit			Day/Night Setback	Demand Limiting	Dial-up I/O	Duty Cycling	Optimum Start/Stop	Scheduled Start/Stop	Totalization	Trend	Equipment Integration	Lighting Integration	Fire Alarm Integration	Security/Access Integration	Elect PQM Integration	Chiller Integration	Manual Changeover	HW/OA Reset	OA Lockout	Smoke Control	Fire Alarm Override	Comments
Chiller Enable	X																																														
Chiller Enable (Cool Mode Enable)																																									X						
Chiller Enable (Heat Mode Enable)																																									X						
Chiller Alarm																					X																				X						
Chiller/Heating Cooling/Heating Capacity																					X																				X						
Individual Compressor Status																					X																				X						
Evaporator VME Valve Status																					X																				X						
Condenser VME Valve Status																					X																				X						
Chiller Setpoint Reset																																									X						
CHW Supply Temp															X										X										X						X						CWS-1
CHW Return Temp															X																				X						X						CWR-1
HW Supply Temp															X									X											X						X						HWS-1
HW Return Temp															X																				X						X						HWR-1
Condenser Leaving Temp															X																				X						X						GSS-1
Condenser Entering Temp															X																				X						X						GSR-1
Geofield Leaving Temp															X																				X						X						GSR-2
Geofield Entering Temp															X																				X						X						GSS-2
CHW Differential Press																	X							X	X																						Two Locations. One for CWP pump control and one for CHW Min. Flow Mod. Valve
HW Differential Press																	X							X	X																						Two Locations. One for HWP pump control and one for HW Min. Flow Mod. Valve
Condenser Differential Press																	X							X	X																						
CHW Min. Flow Mod. Valve								X																																							
HW Min. Flow Mod. Valve								X																																							
HW Loop Bypass Valve								X																																							
HX-1 Source Control Valve								X																																							TCV-HWS-2
HX-1 Load Control Valve								X																																							TCV-HWR-2
HX-1 Source Entering Temp															X																																HWR-2
HX-1 Source Leaving Temp															X																																HWS-2
HX-1 Load Entering Temp															X																																HWR-3
HX-1 Load Leaving Temp															X																																HWS-3
Building Hot Water Return Temp															X																																HWR-4
Building Hot Water Supply Temp																																															Existing DDC Point
Building HW Pump S/S	X																																														P-4, P-5
Building HW Pump VFD Speed							X																												X												P-4, P-5
Building Pump VFD Fault																					X																X										P-4, P-5
Building Pump Status									X												X													X													P-4, P-5
Building HW Differential Press																	X							X	X																						
CHW Pump S/S	X																																														P-6, P-7
CHW Pump VFD Speed							X																												X												P-6, P-7
CHW Pump VFD Fault																					X																X										P-6, P-7
CHW Pump Status									X												X													X													P-6, P-7
HW Pump S/S	X																																														P-15, P-16
HW Pump VFD Speed							X																												X												P-15, P-16
HW Pump VFD Fault																					X																X										P-15, P-16
HW Pump Status									X												X													X													P-15, P-16
Condenser Pump S/S	X																																														P-11, P-12
Condenser Pump VFD Speed							X																												X												P-11, P-12
Condenser Pump VFD Fault																					X																X										P-11, P-12
Condenser Pump Status									X												X													X													P-11, P-12
Geofield Pump S/S	X																																														P-13, P-14
Geofield Pump VFD Speed							X																												X												P-13, P-14
Geofeld Pump VFD Fault																					X																X										P-13, P-14
Geofield Pump Status									X												X													X													P-13, P-14
HW System Min. Flow Bypass Valve								X																																							
Boiler (B-2 (E)) Enable																																															Existing DDC Point
Boiler (B-2 (E)) Alarm																																															Existing DDC Point
Boiler Pump Status (P-18)									X																																						ADD Alternate DDC Point
Outside Air Temperature															X																																
Outside Air Humidity																X																															

GEOTHERMAL HEAT RECOVERY CHILLER SEQUENCE OF OPERATION
CHILLER SHALL BE A MODULAR GEOTHERMAL HEAT RECOVERY CHILLER (HRC). CHILLER SHALL BE EQUIPPED WITH INTEGRAL VALVING THAT ALLOWS EACH MODULE TO SERVE THE FOLLOWING FUNCTIONS:

SIMULTANEOUS HEATING AND COOLING MODE CHILLER MUST BE CAPABLE OF VARYING THE FLOW RATE ON BOTH SIDES OF THE MODULES TO MAINTAIN HOT WATER AND CHILLED WATER SETPOINTS SIMULTANEOUSLY. SIMULTANEOUS LOADS MUST BE SATISFIED WITH A SINGLE COMPRESSION CYCLE AND CANNOT USE GEOTHERMAL WATER AS THE ENERGY TRANSFER BUFFER.

COOLING DOMINANT MODE - CHILLER/HEATER MUST BE ABLE TO REJECT COOLING DOMINANT LOAD TO THE SOURCE/SINK. COOLING DOMINANT MODULES MUST BE CAPABLE OF RUNNING AT A LOWER HEAD PRESSURE THAN SIMULTANEOUS MODULES TO MINIMIZE POWER CONSUMPTION.

HEATING DOMINANT MODE - CHILLER/HEATER MUST BE ABLE TO SATISFY HEATING DOMINANT LOAD BY EXTRACTING HEAT FROM THE SOURCE/SINK SOLUTION. HEATING DOMINANT MODULES MUST BE CAPABLE OF RUNNING AT OPTIMAL SUCTION PRESSURE TO MINIMIZE POWER CONSUMPTION.

PACKAGED SYSTEM SHALL BE REVERSING VALVE FREE DESIGN - CHILLER/HEATER MUST BE REVERSING VALVE FREE AND OPTIMIZE HEAT TRANSFER IN ALL CONTROL MODES.

CHILLER SHALL BE CONFIGURED TO ALLOW MODULES TO RUN IN SIMULTANEOUS RECOVERY MODE, DOMINANT COOLING MODE, AND DOMINANT HEATING MODE. THE CHILLER MUST BE CAPABLE OF ALLOWING MODULES TO RUN IN MULTIPLE MODES AT THE SAME TIME TO OPTIMIZE EFFICIENCY.

THE CHILLER SHALL BE ENABLED/DISABLED THROUGH THE BUILDING AUTOMATION SYSTEM. THE MASTER CONTROLLER PROVIDED BY THE CHILLER MANUFACTURER SHALL SEQUENCE AND OPERATE THE VARIOUS COMPRESSORS, VME ISOLATING VALVES, AND HEAT EXCHANGER VARIABLE FLOW VALVES TO MAXIMIZE EFFICIENCY AND MINIMIZE SYSTEM ENERGY USAGE.

PROVIDE (4) 2-WAY NORMALLY OPEN CONTROL VALVES AND ACTUATORS ON THE HOT AND CHILLED WATER INLET AND OUTLETS. THEY SHALL BE WIRED TO THE HRC CONTROLLER AND CONTROLLED BY THE CHILLER PACKAGED CONTROLS.

CHILLED AND HOT WATER TEMPERATURE SETPOINTS SHALL BE AS LISTED BELOW:

CHILLED WATER SUPPLY TEMPERATURE SETPOINT 44°F (ADJ.)

HRC HOT WATER SUPPLY TEMPERATURE SETPOINT:
THE BAS SHALL RESET THE HRC HOT WATER SUPPLY TEMPERATURE SETPOINT BASED ON AN OFFSET BETWEEN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE RESET SCHEDULE. THE EXISTING HOT WATER SUPPLY TEMPERATURE IS RESET BASED ON OUTSIDE AIR TEMPERATURE. WHEN OUTSIDE AIR TEMPERATURE IS 70°F AND ABOVE, THE HOT WATER SUPPLY TEMPERATURE SHALL BE 90°F (ADJ.). WHEN THE OUTSIDE AIR TEMPERATURE IS 0°F AND BELOW THE HOT WATER SUPPLY TEMPERATURE SHALL BE 175°F.

THE HRC HOT WATER SUPPLY TEMPERATURE (HWS-1) SHALL BE RESET BY MAINTAINING A +3°F (ADJ.) OFFSET BETWEEN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE SETPOINT. THE MAXIMUM HRC HOT WATER SUPPLY TEMPERATURE SHALL BE 155°F. THIS IS DONE TO NOT AVOID NUISANCE TRIPPING OF THE COMPRESSORS AT GEOTHERMAL CONDITIONS.

GEOTHERMAL CONDENSER WATER LOOP CONTROL:
THE HRC CONDENSER WATER GEOTHERMAL SYSTEM IS A HYBRID SYSTEM. IT IS SIZED FOR THE BUILDING SUMMER COOLING LOAD AND SUMMER HEATING LOAD. THE SYSTEM IS AUGMENTED BY EXISTING HIGH EFFICIENCY CONDENSING GAS BOILERS IN THE WINTER WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 25°F OR THE BUILDING HOT WATER RETURN TEMPERATURE RISES ABOVE 135°F AS MEASURED AT HWR-2.

CHILLER CONDENSER WATER PUMP CONTROL (P-11 & P-12):
THE CONDENSER WATER PUMP SHALL CIRCULATE WATER THROUGH THE CONDENSER SIDE OF THE HEAT RECOVERY CHILLER (HRC) MODULES.

THE BUILDING AUTOMATION SYSTEM SHALL ENABLE/DISABLE THE PUMPS.

THE PUMPS ARE INTENDED TO OPERATE IN LEAD/LAG OPERATION. WHEN ENABLED THROUGH THE BUILDING AUTOMATION SYSTEM THE LEAD PUMP SHALL START AND RUN CONTINUOUSLY. PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS EACH PUMP. THE LAG PUMP SHALL AUTOMATICALLY START IF THE LEAD PUMP FAILS TO PROVE FLOW FOR 30 SECONDS. THE BUILDING AUTOMATION SYSTEM SHALL AUTOMATICALLY ALTERNATE LEAD/LAG PUMP AS SCHEDULED AND GENERATE AN ALARM IN THE BAS.

PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS THE CHILLER CONDENSER WATER INTLET AND OUTLET. THE SENSOR SHALL MODULATE THE LEAD PUMP VFD TO MAINTAIN A CONSTANT DIFFERENTIAL PRESSURE ACROSS THE CONDENSER AS VARIOUS VME VALVES ARE OPENED AND CLOSED.

IF THE HRC IS OPERATING IN A MODE WHERE NO MODULES ARE CALLING FOR GEOTHERMAL CONDENSER WATER FOR EITHER HEATING OR COOLING, AND THE HRC CONDENSER WATER INLET TEMPERATURE IS BETWEEN 40°F (ADJ.) AND 85°F (ADJ.) THE LEAD PUMP MAY BE SHUTDOWN. UPON A CALL FOR GEOTHERMAL CONDENSER WATER FLOW FROM ANY HRC MODULE, THE LEAD PUMP SHALL BE RESTARTED AND PROVE FLOW BEFORE THE HRC MODULE STARTS.

GEOTHERMAL BORE FIELD PUMP CONTROL (P-13 & P-14):
THE GEOTHERMAL BOREFIELD PUMPS SHALL CIRCULATE WATER THROUGH THE GEOTHERMAL BORE FIELD, WHICH IS DECOUPLED FROM THE HRC CONDENSER WATER LOOP.

THE BUILDING AUTOMATION SYSTEM SHALL ENABLE/DISABLE THE PUMPS.

THE PUMPS ARE INTENDED TO OPERATE IN LEAD/LAG OPERATION. WHEN ENABLED THROUGH THE BUILDING AUTOMATION SYSTEM THE LEAD PUMP SHALL START AND RUN CONTINUOUSLY. PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS EACH PUMP. THE LAG PUMP SHALL AUTOMATICALLY START IF THE LEAD PUMP FAILS TO PROVE FLOW FOR 30 SECONDS. THE BUILDING AUTOMATION SYSTEM SHALL AUTOMATICALLY ALTERNATE LEAD/LAG PUMP AS SCHEDULED AND GENERATE AN ALARM IN THE BAS.

PROVIDE A TEMPERATURE SENSOR (GSR-1) LOCATED IN THE HRC CONDENSER WATER INLET PIPE SHALL MODULATE THE SPEED OF THE LEAD PUMPS VFD TO MAINTAIN THE ENTERING WATER TEMPERATURE TO THE HRC BETWEEN 40°F (ADJ.) AND 85°F (ADJ.).

IF THE HRC IS OPERATING IN A MODE WHERE NO MODULES ARE CALLING FOR GEOTHERMAL CONDENSER WATER FOR EITHER HEATING OR COOLING, AND THE HRC CONDENSER WATER INLET TEMPERATURE IS BELOW 85°F (ADJ.) OR ABOVE 40°F (ADJ.), THE LEAD PUMP MAY BE SHUTDOWN. UPON A CALL FOR GEOTHERMAL CONDENSER WATER FLOW FROM ANY HRC MODULE, THE LEAD PUMP SHALL BE RESTARTED AND PROVE FLOW BEFORE THE HRC MODULE STARTS.

CHILLED WATER PRIMARY PUMP CONTROL (P-6 & P-7):
THE BUILDING AUTOMATION SYSTEM SHALL ENABLE/DISABLE THE PUMPS.

THE PUMPS ARE INTENDED TO OPERATE IN LEAD/LAG OPERATION. WHEN ENABLED THROUGH THE BUILDING AUTOMATION SYSTEM THE LEAD PUMP SHALL START AND RUN CONTINUOUSLY. PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS EACH PUMP. THE LAG PUMP SHALL AUTOMATICALLY START IF THE LEAD PUMP FAILS TO PROVE FLOW FOR 30 SECONDS. THE BUILDING AUTOMATION SYSTEM SHALL AUTOMATICALLY ALTERNATE LEAD/LAG PUMP AS SCHEDULED AND GENERATE AN ALARM IN THE BAS.

THE SYSTEM DIFFERENTIAL PRESSURE SHALL BE MAINTAINED BY CONTROLLING THE VFD'S SERVING THE SYSTEM PUMPS. THE DIFFERENTIAL PRESSURE SHALL BE MEASURED ACROSS THE CHILLED WATER SUPPLY AND RETURN MAINS LOCATED AS INDICATED ON THE SYSTEM SCHEMATIC AND DRAWINGS. THE FINAL DIFFERENTIAL PRESSURE SETPOINT CALIBRATION SHALL BE PERFORMED IN THE FIELD.

HOT WATER BOILER PLANT SEQUENCE OF OPERATION:
THE EXISTING HOT WATER BOILER PLANT SHALL BE CONTROLLED AS IT IS CURRENTLY PROGRAMMED.

HOT WATER PRIMARY PUMP (P-4 & P-5) CONTROL:
THE BUILDING AUTOMATION SYSTEM SHALL ENABLE/DISABLE THE PUMPS.

THE PUMPS ARE INTENDED TO OPERATE IN LEAD/LAG OPERATION. WHEN ENABLED THROUGH THE BUILDING AUTOMATION SYSTEM THE LEAD PUMP SHALL START AND RUN CONTINUOUSLY. PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS EACH PUMP. THE LAG PUMP SHALL AUTOMATICALLY START IF THE LEAD PUMP FAILS TO PROVE FLOW FOR 30 SECONDS. THE BUILDING AUTOMATION SYSTEM SHALL AUTOMATICALLY ALTERNATE LEAD/LAG PUMP AS SCHEDULED AND GENERATE AN ALARM IN THE BAS.

THE BAS SHALL START AND OPERATE THE PUMPS CONTINUOUSLY WHENEVER THERE IS A CALL FOR HEATING FROM ANY SPACE TEMPERATURE ZONE SENSOR.

THE SYSTEM DIFFERENTIAL PRESSURE SHALL BE MAINTAINED BY CONTROLLING THE VFD'S SERVING THE SYSTEM PUMPS. THE DIFFERENTIAL PRESSURE SHALL BE MEASURED ACROSS THE HOT WATER SUPPLY AND RETURN MAINS LOCATED AS INDICATED ON THE SYSTEM SCHEMATIC AND DRAWINGS. THE FINAL DIFFERENTIAL PRESSURE SETPOINT CALIBRATION SHALL BE PERFORMED IN THE FIELD.

WHENEVER PUMPS P-4 OR P-5 ARE OPERATING, THE BAS SHALL ENABLE ONE OF THE EXISTING BOILER ISOLATION CONTROL VALVES TO OPEN TO ALLOW FLOW THROUGH THE BOILERS. WHENEVER BUILDING HOT WATER FLOW IS DIVERTED TO THE HEAT EXCHANGER (HX-1) THE BOILERS SHALL BE DISABLED. PROVIDE A SCHEDULE TO ROTATE BETWEEN THE (2) EXISTING BOILER ISOLATION VALVES.

HRC HOT WATER PUMP CONTROL (P-15 & P-16):
THE BUILDING AUTOMATION SYSTEM SHALL ENABLE/DISABLE THE PUMPS.

THE PUMPS ARE INTENDED TO OPERATE IN LEAD/LAG OPERATION. WHEN ENABLED THROUGH THE BUILDING AUTOMATION SYSTEM THE LEAD PUMP SHALL START AND RUN CONTINUOUSLY. PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS EACH PUMP. THE LAG PUMP SHALL AUTOMATICALLY START IF THE LEAD PUMP FAILS TO PROVE FLOW FOR 30 SECONDS. THE BUILDING AUTOMATION SYSTEM SHALL AUTOMATICALLY ALTERNATE LEAD/LAG PUMP AS SCHEDULED AND GENERATE AN ALARM IN THE BAS.

THE SYSTEM DIFFERENTIAL PRESSURE SHALL BE MAINTAINED BY CONTROLLING THE VFD'S SERVING THE SYSTEM PUMPS. THE DIFFERENTIAL PRESSURE SHALL BE MEASURED ACROSS THE HRC HOT WATER SUPPLY AND RETURN MAINS LOCATED AS INDICATED ON THE SYSTEM SCHEMATIC AND DRAWINGS. THE FINAL DIFFERENTIAL PRESSURE SETPOINT CALIBRATION SHALL BE PERFORMED IN THE FIELD.

HOT WATER LOOP BYPASS VALVE CONTROL:
WHEN THE HRC COOLING DEMAND IS AT 100% AND THE COOLING CAPACITY OF THE HRC IS AT 75%, THE BAS SHALL DISABLE THE HEATING DEMAND TO THE HRC AND THE HOT WATER LOOP BYPASS VALVE SHALL OPEN. THIS WILL ALLOW THE HRC TO INCREASE COOLING CAPACITY TO 100%. WHEN THE COOLING DEMAND DROPS BELOW 100% AND THE HRC COOLING CAPACITY DROPS BELOW 75%, THE BAS SHALL ENABLE THE HEATING DEMAND TO THE HRC.

HOT AND CHILLED WATER MINIMUM FLOW BYPASS CONTROL:
PROVIDE A DIFFERENTIAL PRESSURE SENSOR ACROSS THE CHILLED AND HOT WATER INLET & OUTLETS. THE SENSOR SHALL MODULATE THE MINIMUM FLOW BYPASS CONTROL VALVE TO MAINTAIN A CONSTANT DIFFERENTIAL PRESSURE ACROSS THE HRC AS HEATING AND COOLING TEMPERATURE CONTROL VALVES ARE OPENED AND CLOSED.

THE HRC CONTROLS SHALL GIVE THE BUILDING AUTOMATION SYSTEM A DIFFERENTIAL PRESSURE SETPOINT FOR BOTH THE CHILLED WATER AND HOT WATER. THE BUILDING AUTOMATION SYSTEM SHALL MODULATE THE CORRESPONDING MINIMUM FLOW BYPASS CONTROL VALVE TO MAINTAIN THAT DIFFERENTIAL SETPOINT AS MEASURED AT THE DIFFERENTIAL PRESSURE SENSOR AT THE CHILLED AND HOT WATER INLET.

HOT WATER HEAT EXCHANGER (HX-1) CONTROL:
THE 3-WAY CONTROL VALVE ON THE EXISTING BUILDING HOT WATER RETURN MAIN SHALL BE A 2-POSITION VALVE. WHENEVER THE BUILDING HOT WATER RETURN TEMPERATURE IS BELOW 135°F (ADJ.) AS MEASURED AT TEMPERATURE SENSOR (HWR-4) OR THE OUTSIDE AIR TEMPERATURE IS ABOVE 20°F (ADJ.), THE 3-WAY VALVE SHALL DIVERT FLOW TO HEAT EXCHANGER HX-1. WHEN THE BUILDING HOT WATER RETURN TEMPERATURE (HWR-4) IS ABOVE 135°F (ADJ.) AS MEASURED AT TEMPERATURE SENSOR HWR-2 OR THE OUTSIDE AIR TEMPERATURE IS BELOW 20°F (ADJ.), THE 3-WAY VALVE SHALL CLOSE AND DIVERT FLOW TO THE EXISTING BOILERS.

THE 3-WAY CONTROL VALVE ON THE HRC HOT WATER RETURN MAIN SHALL MODULATE TO MAINTAIN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE WATER SETPOINT AS MEASURED AT THE EXISTING HOT WATER SUPPLY TEMPERATURE SENSOR (HWS-1 (E)). WHEN THE EXISTING BUILDING HOT WATER SUPPLY TEMPERATURE WATER SETPOINT RISES ABOVE 155°F, THE 3-WAY CONTROL VALVE SHALL CLOSE AND BYPASS FLOW FROM THE HEAT EXCHANGER HX-1.

BUILDING HOT WATER SYSTEM MINIMUM FLOW BYPASS:
THE VFD'S ASSOCIATED WITH PUMPS P-3 AND P-4 SHALL NOT ALLOW THE TOTAL SYSTEM FLOW TO DECREASE LOWER THAN 20% OF THE DESIGN FLOW RATE FOR AN INDIVIDUAL PUMP. THE DIFFERENTIAL PRESSURE SENSORS SHALL MEASURE THE SYSTEM PRESSURE AT THEIR LOCATIONS AND REPORT IT TO THE BUILDING AUTOMATION SYSTEM. THE BUILDING AUTOMATION SYSTEM SHALL RELATE THE REPORTED DIFFERENTIAL PRESSURE TO THE PUMP CURVE AND DETERMINE SYSTEM FLOW. IF SYSTEM FLOW DECREASES BELOW 20%, THE BYPASS VALVE SHALL MODULATE OPEN AND THE SPEED OF THE VFD'S SHALL INCREASE TILL A MINIMUM OF 20% FLOW IS ACHIEVED. WITH THE BYPASS VALVE OPEN, ON A INCREASE IN SYSTEM FLOW, ABOVE 20% OF THE RATED FLOW, THE REVERSE SHALL OCCUR.

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WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

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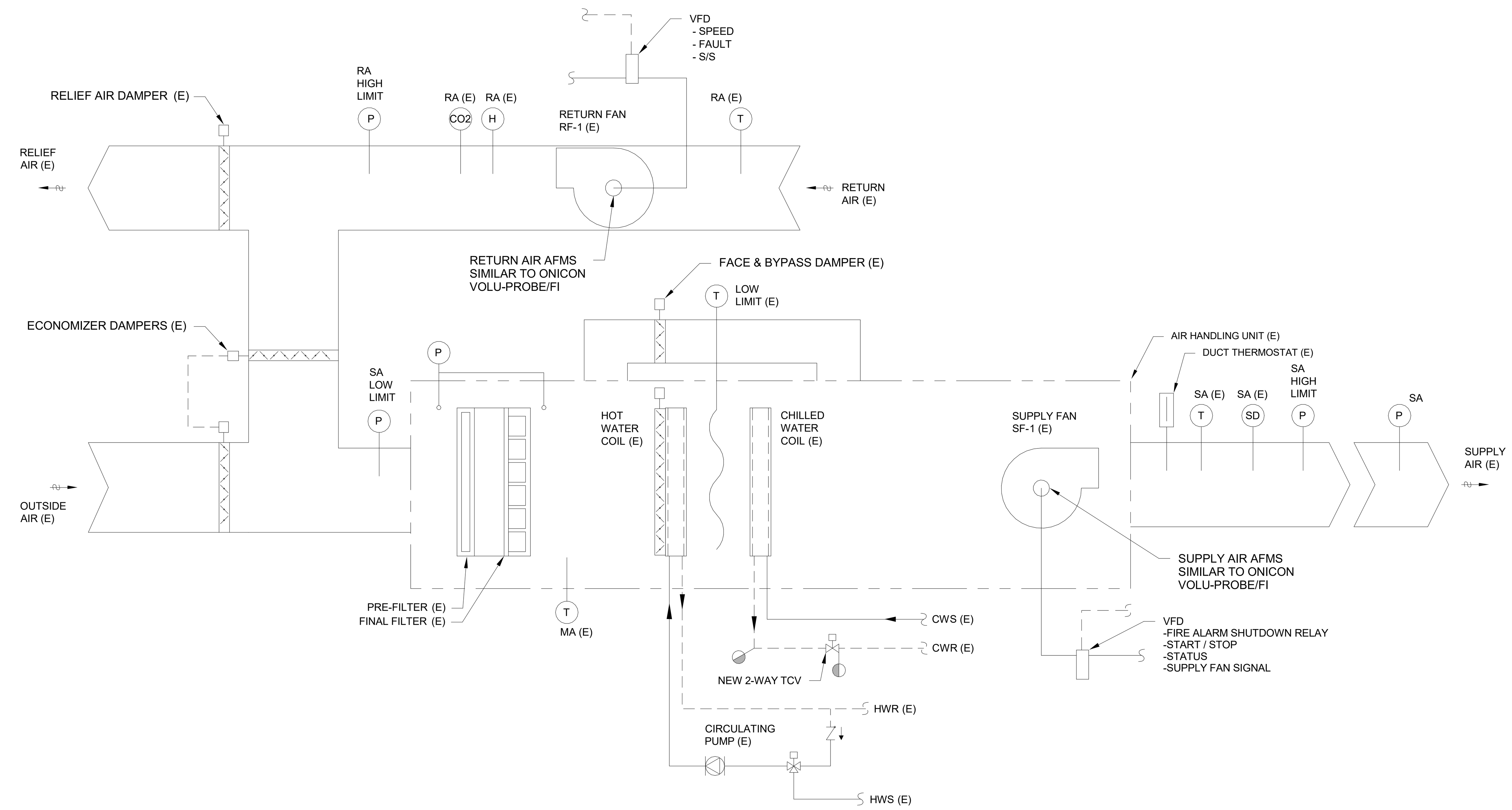
CONTROL SCHEMATICS - HVAC

M602



NOTE 1: REFER TO PLANS, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL REQUIREMENTS.

1 M603 AIR HANDLING UNIT (AHU-1 EXISTING) CONTROL DIAGRAM

SCALE: NONE

DDC INPUT / OUTPUT SUMMARY TABLE

PROJECT: Warner Park Community Recreation Center Expansion	HARDWARE																				SOFTWARE																										
LOCATION: Madison, WI	OUTPUT								INPUT												ALARMS																										
	DIGITAL				ANALOG				DIGITAL						ANALOG						DIGITAL			ANALOG				ENERGY MANAGEMENT SYSTEM FUNCTIONS																			
SYSTEM: AHU-1 These are points to be added to existing building automation system. POINT DESCRIPTION	Control Relay	24VAC	Contactor	2-Pos Actuator	Tri-State Actuator	Duration Adjust Actuator	4-20 mA	0-10 VDC	Current Sensing Switch	Control Relay Contact	Switch Closure	Auxiliary Contact	Diff Pressure Switch	Flow Switch	Temperature	Relative Humidity	Differential Pressure	Flow	Static Pressure	CO2 (PPM)	Equipment Status	Maintenance	Pressure	High Limit	Low Limit	Maintenance		Day/Night Setback	Demand Limiting	Dial-up I/O	Duty Cycling	Optimum Start/Stop	Scheduled Start/Stop	Totalization	Trend		Equipment Integration	Fire Alarm Integration	Security/Access Integration	Elect PQM Integration	Chiller Integration	Dry-bulb Economizer	HW/OA Reset	CHW Reset	Smoke Control	Fire Alarm Override	Comments
Supply Fan Enable		X						X																									X													X	
Supply Fan Status												X																																			From VFD contact
Supply Fan VFD Command								X																																							
Supply Fan VFD Fault												X									X																										
Return Fan Enable		X						X																									X													X	
Return Fan Status												X																																			From VFD contact
Return Fan VFD Command								X																																							
Return Fan VFD Fault																					X																										
Return Airflow																		X																													Provide Onicon Volu-Probe/FI or similar.
Supply Airflow																		X																													Provide Onicon Volu-Probe/FI or similar.
Supply Air Differential Pressure																	X																														
High Pressure Static Shutdown																			X				X	X																							Supply & Return.
Low Pressure Static Shutdown																			X				X		X																						Supply.
Cooling Coil Valve								X																																							Add similar points for existing AHU-2 and AHU-3.

MULTIZONE VARIABLE VOLUME AIR HANDLING UNIT CONTROL (AHU-1 EXISTING):

GENERAL:
THE SYSTEM CONSISTS OF A DRAW-THROUGH AIR HANDLING UNIT WITH VARIABLE VOLUME SUPPLY AND RETURN FANS WITH VFDS, OUTDOOR AIR, RETURN AIR, AND RELIEF AIR DAMPERS, HOT WATER HEATING COIL, CHILLED WATER COIL, AND FACE AND BYPASS.

THE AIR HANDLING UNIT SHALL OPERATE AS A MULTI ZONE VARIABLE AIR VOLUME UNIT CONTROLLED BY THE EXISTING DIRECT DIGITAL CONTROLLER (DDC). TCC MAY NEED TO REPLACE EXISTING PROGRAMMABLE CONTROLLER OR ADD ADDITIONAL I/O BOARDS IF THERE IS NOT SUFFICIENT INPUTS / OUTPUTS TO ACHIEVE NEW SEQUENCE OF OPERATION.

HC OR TCC TO PROVIDE NEW FAN INLET AIRFLOW MEASURING STATIONS FOR EXISTING SUPPLY AND RETURN FANS.

HVAC CONTRACTOR SHALL PROVIDE NEW SHAFT GROUNDING KITS FOR EXISTING SUPPLY AND RETURN FANS.

HVAC CONTRACTOR TO FURNISH NEW VFD'S FOR SUPPLY AND RETURN FANS, ELECTRICAL CONTRACTOR TO INSTALL.

TCC SHALL PROVIDE NEW SUPPLY AIR DUCT STATIC PRESSURE SENSOR, SUPPLY AIR DUCT LOW AND HIGH LIMIT PRESSURE SWITCHES, AND RETURN AIR DUCT HIGH LIMIT SWITCH

HVAC CONTRACTOR SHALL PROVIDE NEW 2-WAY TEMPERATURE CONTROL VALVE FOR CHILLED WATER COOLING COIL.

THE FOLLOWING CONTROLS SEQUENCES ARE EXISTING AND TO REMAIN OPERATIONAL AS-IS.

OCCUPIED / UNOCCUPIED SCHEDULE: SYSTEM OCCUPANCY SCHEDULE IS EXISTING.

VENTILATION AIR CONTROL: MINIMUM OUTSIDE AIR DAMPER CONTROL IS EXISTING.

RELIEF DAMPER CONTROL: RELIEF AIR DAMPER CONTROL IS EXISTING.

ECONOMIZER CONTROL: ECONOMIZER CONTROL IS EXISTING.

DISCHARGE AIR TEMPERATURE CONTROL: DISCHARGE AIR TEMPERATURE CONTROL IS EXISTING.

DEHUMIDIFICATION CONTROL: DEHUMIDIFICATION CONTROL IS EXISTING.

HOT WATER COIL CIRCULATING PUMP (P-8) CONTROL: CIRCULATING PUMP CONTROL IS EXISTING.

CHILLED WATER COIL: TEMPERATURE CONTROL VALVE CONTROL IS EXISTING.

FAN CONTROL:
START/STOP:
THE DDC SYSTEM SHALL START THE SUPPLY AND RETURN FANS VIA THEIR RESPECTIVE VFD'S.

SUPPLY FAN SPEED CONTROL:
THE PURPOSE OF THE SUPPLY FAN SPEED CONTROL IS TO MAINTAIN SUPPLY AIR DUCT STATIC PRESSURE. PROVIDE DUCT MOUNTED STATIC PRESSURE SENSOR AS INDICATED ON DRAWINGS. STATIC PRESSURE SHALL BE MAINTAINED AT 1.5" W.C. (ADJ.).

RETURN FAN SPEED CONTROL:
THE PURPOSE OF THE RETURN FAN CONTROL IS TO MAINTAIN A SLIGHTLY POSITIVE BUILDING PRESSURE. THE RETURN FAN VFD SHALL MODULATE TO MAINTAIN A CONSTANT CFM OFFSET OF -3,500 CFM (ADJ.) FROM THE SUPPLY FAN TO ACCOUNT FOR TOTAL EXHAUST FROM THE AREA IN WHICH IT SERVES WHILE MAINTAINING A SLIGHTLY POSITIVE PRESSURE. H.C. SHALL COORDINATE WITH THE BALANCING CONTRACTOR TO OPTIMIZE THIS SETTING.

SAFETIES:
GENERAL:
TCC SHALL REWIRE ALL SAFETIES SO THAT THEY ARE HARD WIRED TO THE SUPPLY AND RETURN FAN VFD SAFETY CIRCUITS.

THE FOLLOWING SAFETIES ARE EXISTING TO REMAIN:

FIRE ALARM SHUTDOWN
LOW-LIMIT FREEZESTAT
SMOKE DETECTOR ACTIVATION (SUPPLY)

RETURN FAN HIGH PRESSURE LIMIT:
INSTALL A STATIC PRESSURE PROBE LOCATED IN THE DISCHARGE DUCT AT LEAST SIX FEET OR AS FAR AS PHYSICALLY POSSIBLE DOWNSTREAM OF THE FAN AND UPSTREAM OF ANY DAMPERS AND PIPE TO A DIFFERENTIAL PRESSURE SWITCH LOCATED IN THE TEMPERATURE CONTROL PANEL. WIRE IN SERIES WITH THE SAFETY CIRCUIT OF THE SUPPLY AND RETURN FAN. DIFFERENTIAL PRESSURE SWITCH SHALL BE A MANUAL RESET TYPE AND THE DDC SYSTEM SHALL MONITOR THE STATUS OF THE DIFFERENTIAL PRESSURE SWITCH. INITIAL SETPOINT SHALL BE +2.0" W.C. (ADJ.).

SUPPLY FAN LOW PRESSURE LIMIT:
INSTALL A STATIC PRESSURE PROBE LOCATED IN THE AIR HANDLING UNIT IMMEDIATELY UPSTREAM OF THE PREFILTER AND PIPE TO A DIFFERENTIAL PRESSURE SWITCH LOCATED IN THE TEMPERATURE CONTROL PANEL. WIRE IN SERIES WITH THE SAFETY CIRCUIT OF THE SUPPLY AND RETURN FANS. DIFFERENTIAL PRESSURE SWITCH SHALL BE A MANUAL RESET TYPE AND THE DDC SYSTEM SHALL MONITOR THE STATUS OF THE DIFFERENTIAL PRESSURE SWITCH. INITIAL SETPOINT SHALL BE -2.0" W.C. (ADJ.).

SUPPLY FAN HIGH PRESSURE LIMIT:
INSTALL A STATIC PRESSURE PROBE LOCATED IN THE AIR HANDLING UNIT DISCHARGE AND PIPE TO A DIFFERENTIAL PRESSURE SWITCH LOCATED IN THE TEMPERATURE CONTROL PANEL. WIRE IN SERIES WITH THE SAFETY CIRCUIT OF THE SUPPLY AND RETURN FANS. DIFFERENTIAL PRESSURE SWITCH SHALL BE A MANUAL RESET TYPE AND THE DDC SYSTEM SHALL MONITOR THE STATUS OF THE DIFFERENTIAL PRESSURE SWITCH. INITIAL SETPOINT SHALL BE +3.0" W.C. (ADJ.).

UNIT SHUTDOWN:
THE UNIT SHUTDOWN SEQUENCE SHALL REMAIN.

Engberg Anderson ARCHITECTS
MILWAUKEE | MADISON | CHICAGO

JDR ENGINEERING, INC.
5525 NOBEL DRIVE
SUITE 110
MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:
BID SET 05/16/2024

REVISION FOR:
NO. DESCRIPTION DATE

DRAWN BY NSC
CHECKED BY RCS

CONTROL SCHEMATICS - HVAC

M603

VARIABLE FREQUENCY DRIVE SCHEDULE

UNIT NO.	VFD-1	VFD-2	VFD-3	VFD-4	VFD-5	VFD-6	VFD-7	VFD-8	VFD-9	VFD-10	VFD-11	VFD-12	VFD-13	VFD-14	VFD-15
SERVICE	P-4	P-5	P-6	P-7	P-11	P-12	P-13	P-14	P-15	P-16	P-17	AHU-1 SF	RF-1	AHU-4 SF	AHU-4 RF
LOCATION	EX. MECH	EX. MECH	EX. MECH	EX. MECH	105F MECH	105F MECH	105F MECH	105F MECH	105F MECH	105F MECH	105F MECH	EX. MECH	EX. MECH	208 MECH	208 MECH
MANUFACTURER	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS	DANFOSS
MODEL NO.	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT	VLT
BYPASS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
HP	5.0	5.0	15.0	15.0	10.0	10.0	25.0	25.0	5.0	5.0	0.75	15.0	10.0	15.0	5.0
VOLTS	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208
PHASE	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
REMARKS	1	1	1	1	1	1	1	1	1	1	1	1, 2, 3	1, 2, 3	1, 2	1, 2

GENERAL NOTES:

1. ALL DRIVES SHALL BE PROVIDED WITH THE NECESSARY FUSING AND DISCONNECT TO PROVIDE DRIVE WITH 100 kA SCCR RATING.
2. KEEP ALL AHU TAGS VISIBLE WHEN MOUNTING VFD AT AHU.

KEY NOTES:

1. PROVIDED BY HC. FIELD INSTALLED BY EC. HC SHALL COORDINATE INSTALLATION AND WIRING.
2. PROVIDE VFD WITH BYPASS. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE NEW SHAFT GROUNDING RINGS FOR EXISTING FAN MOTOR.

PUMP SCHEDULE

UNIT NO.	P-4	P-5	P-6	P-7	P-11	P-12	P-13	P-14	P-15	P-16	P-17	P-18
SERVICE	HW PRIMARY	HW PRIMARY	CW PRIMARY	CW PRIMARY	GEO PRIMARY	GEO PRIMARY	GEO FIELD	GEO FIELD	HW GLYCOL LOOP	HW GLYCOL LOOP	AHU-4 COIL	B-2 (E)
LOCATION	EX. MECH	EX. MECH	EX. MECH	EX. MECH	105F MECH	105F MECH	105F MECH	105F MECH	105F MECH	105F MECH	105F MECH	EX. MECH
MANUFACTURER	TACO	TACO	TACO	TACO	TACO	TACO	TACO	TACO	TACO	TACO	TACO	TACO
MODEL NO.	KV2009D	KV2009D	FI2510C	FI2510C	FI3009D	FI3009D	FI3013D	FI3013D	KV4007D	KV4007D	IL133	IL138
TYPE	INLINE	INLINE	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	END SUCTION	INLINE	INLINE	INLINE	INLINE
WATER TYPE	100% WATER	100% WATER	25% P.G.	25% P.G.	25% P.G.	25% P.G.	25% P.G.	25% P.G.	25% P.G.	25% P.G.	25% P.G.	100% WATER
CAPACITY (GPM)	180	180	320	320	460	460	460	460	300	300	78.4	90
PRESSURE HEAD (FT)	65	65	90	90	50	50	110	110	40	40	20	25
SHUT-OFF PRESSURE HEAD (FT)	-	-	-	-	-	-	-	-	-	-	-	-
MIN. NPSH REQUIRED (FT)	10	10	12	12	7	7	7	7	4.2	4.2	-	-
INLET / OUTLET (IN)	2 X 2	2 X 2	3 X 2-1/2	3 X 2-1/2	4 X 3	4 X 3	4 X 3	4 X 3	4 X 4	4 X 4	3 X 3	3 X 3
IMPELLER DIAMETER	8.8	8.8	9.7	9.7	8.0	8.0	11.3	11.3	6.7	6.7	-	-
MIN. EFF. %	65	65	75	75	70	70	70	70	75	75	-	-
RPM	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,725
BHP	4.9	4.9	9.7	9.7	8.1	8.1	17.9	17.9	4.2	4.2	-	-
HP	5	5	15	15	10.0	10.0	25.0	25.0	5	5	3/4	1
VOLTAGE / PHASE	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	120 / 1
VFD	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO
UNIT WEIGHT (LBS)	245	245	625	625	460	460	1,092	1,092	285	285	113	120
REMARKS	2	2	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	2	2	3	4

KEYED NOTES:

1. PROVIDE WITH MANUFACTURER SUPPLIED SUCTION DIFFUSER.
2. PUMPS SELECTED TO OPERATE CURRENTLY AS LEAD / LAG.
3. PROVIDE PUMP WITH INERTIA BASE.
4. PUMP PROVIDED AS PART OF ALTERNATE BID #2.

VAV TERMINAL UNIT WITH REHEAT SCHEDULE

UNIT NO.		VAV-1-1	VAV-1-2	VAV-1-3		
LOCATION		SEE PLANS	SEE PLANS	SEE PLANS		
INLET SIZE		16	24X16	24X16		
OUTLET SIZE		20X15	38X18	38X18		
MAX AIR PD (WC)		0.5	0.5	0.5		
MIN. INLET SP (IN WG)		1	1	1		
AIR FLOW (CFM)	OCCUPIED MAXIMUM	3,300	3,840	3,840		
	OCCUPIED MINIMUM	1,200	1,200	1,200		
	HEATING CFM	3,300	3,840	3,840		
	UNOCCUPIED MAXIMUM	3,300	3,840	3,840		
	UNOCCUPIED MINIMUM	0	0	0		
REMARKS			1	1		

GENERAL NOTES

1. NIETHER RADIATED NOR DISCHARGE SOUND LEVELS SHALL EXCEED 35 NC AT 1.5" STATIC PRESSURE WHEN TESTED PER ARI STANDARD 885-98.
2. REFER TO DETAILS FOR VAV AIR TERMINAL CONNECTIONS.
3. HC SHALL BE RESPONSIBLE FOR COORDINATING LEFT/RIGHT HAND CONNECTIONS AND LEFT/RIGHT HAND CONTROL ENCLOSURE LOCATIONS. MAINTAIN 3'-0" CLEARANCE IN FRONT OF ALL CONTROL ENCLOSURES.

KEYED NOTES

1. TCC TO FIELD MOUNT CONTROLS ENCLOSURE ON BOTTOM OF VAV. DO NOT BLOCK ACCESS DOOR.

HOT WATER CABINET UNIT HEATER SCHEDULE

UNIT NO.	CUH-3	CUH-4	
LOCATION	111B WOMENS	111D MENS	
MANUFACTURER	MODINE	MODINE	
MODEL NO.	CW00258	CW00258	
CAPACITY (MBH)	15.9	15.9	
NO. OF ROWS	2	2	
AIR FLOW (CFM)	250	250	
GPM	1.7	1.7	
EWT / LWT (°F)	175.0 / 155.0	175.0 / 155.0	
WPD (FT)	1.3	1.3	
EAT (°F)	65	65	
MOTOR HP	1/30	1/30	
VOLTAGE / PHASE	120/1	120/1	
FAN SPEED	HIGH	HIGH	
INVERTED FLOW	YES	YES	
MOUNTING	CEILING	CEILING	
RECESS (IN)	9-1/4"	9-1/4"	
REMARKS	1, 2	1, 2	

KEYED NOTES:

1. PROVIDE WITH CEILING MOUNT KIT. COORDINATE COLOR WITH ARCHITECT.

EXPANSION TANK SCHEDULE

UNIT NO.	ET-1	ET-2	ET-3	ET-4
SERVICE	BLDG HW	CW LOOP	GEO LOOP	HRC HW LOOP
LOCATION	105F MECH	105F MECH	105F MECH	105F MECH
MANUFACTURER	TACO	TACO	TACO	TACO
MODEL NO.	CA300	CA140	CA600	CA140
ACCEPTANCE VOLUME (GAL)	79	37	158	37
DIAMETER (IN)	24	20	30	20
HEIGHT (IN)	58	41	80	41
DESIGN CODE	ASME	ASME	ASME	ASME
SUPPORT	FLOOR	FLOOR	FLOOR	FLOOR
REMARKS	1	1	1	1

KEYED NOTES:

1. PROVIDE WITH SIGHT GLASS AND REMOVABLE BLADDER.

WATER COOLED CHILLER SCHEDULE

UNIT NO.		CH-1 THRU CH-4			
LOCATION		105F MECH			
MANUFACTURER		MULTI-STACK			
MODEL NO.		MSH050ENAC			
TYPE		HEAT RECOVERY WATER COOLED			
REFRIGERANT TYPE		R-513A			
COOLING CAPACITY (TONS)		50			
WATER TYPE		25% PG			
EER / COP (COOLING)		14.1 / 4.13			
EER / COP (HEATING)		4.14 / 2.21			
EER / COP (SIMULTANEOUS)		4.9 / 3.9			
EVAPORATOR CHILLED WATER	EWT (°F)	54			
	LWT (°F)	44			
	GPM	320			
	WPD (FT)	7.6			
	FOULING FACTOR	0.0001			
EVAPORATOR HOT WATER	EWT (°F)	140			
	LWT (°F)	155			
	GPM	208			
	WPD (FT)	6			
	FOULING FACTOR	0.0001			
CONDENSER HOT WATER	EWT (°F)	45			
	LWT (°F)	40			
	GPM	345			
	WPD (FT)	10.5			
	FOULING FACTOR	0.0001			
CONDENSER CHILLED WATER	EWT (°F)	85			
	LWT (°F)	94.3			
	GPM	424			
	WPD (FT)	10.5			
	FOULING FACTOR	0.0001			
UNIT ELECTRICAL DATA	VOLTS	208			
	PHASE	3			
	MCA	506			
	MOCP	700			
APPROX WEIGHT (PER MODULE)		2,750			
REMARKS		1, 2, 3, 4			

GENERAL NOTES

1. SCHEDULE REFLECTS OVERALL PERFORMANCE OF (4) MODULES OPERATING AS A SINGLE UNIT.

KEYED NOTES

1. PROVIDE WITH GROOVED CONNECTIONS BACNET INTERFACE, AND (3) CAST IRON BASKET STRAINERS.
2. PROVIDE WITH (2) VME II MODULES. REFER TO DRAWINGS M501 FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE CHILLER GROUP WITH MINIMUM 22 Ka SCCR RATING.
4. PROVIE MODULES WITH ACOUSTIC SOUND PANELS.

WATER TO WATER HEAT EXCHANGER SCHEDULE

UNIT NO.		HX-1	
SERVICE		SEE PLANS	
MANUFACTURER		TACO	
MODEL NO.		TB120TX240	
MBH		1,600	
SIDE 1 DATA	LIQUID	WATER	
	EWT (°F)	134.9	
	LWT (°F)	153	
	GPM	180	
	WATER PD (FT WC)	1.5	
	FOULING FACTOR	0.001	
SIDE 2 DATA	LIQUID	25% P.G.	
	EWT (°F)	155	
	LWT (°F)	140	
	GPM	221.3	
	WATER PD (FT WC)	2.3	
	FOULING FACTOR	0.001	
UNIT WEIGHT		965	
REMARKS		1, 2	

KEYED NOTES:

1. PROVIDE WITH S.S. CHANNEL PLATE AND COPPER BRAZING.
2. HX-1 SIZED FOR FUTURE CAPACITY.

AIR DEVICE SCHEDULE

EG - 1 (3) — THROW (IF OTHER THAN NORMAL)
300 — UNIT NUMBER
CFM

UNIT NO.	CD-1	CD-2	DL-1	RG-1	RG-2	TG-1	TG-2	TG-3	EG-1	EG-2	SG-1	SG-2
SERVICE	SUPPLY	SUPPLY	SUPPLY	RETURN	RETURN	TRANSFER	TRANSFER	TRANSFER	EXHAUST	EXHAUST	SUPPLY	SUPPLY
MANUFACTURER	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL NO.	RCDE	RCDE	DL	93L	530	630	530	530	630	630	SDGE	520
FACE STYLE	3 CONE	3 CONE	DRUM LOUVER	HEAVY DUTY LOUVERED	LOUVERED	LOUVERED	LOUVERED	LOUVERED	LOUVERED	LOUVERED	LOUVERED	LOUVERED
PATTERN	-	-	-	SINGLE DFL	SINGLE DFL	SINGLE DFL	SINGLE DFL	SINGLE DFL	SINGLE DFL	SINGLE DFL	SINGLE DFL	DOUBLE DFL
FINISH	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
MATERIAL	STEEL	STEEL	ALUMINUM	STEEL	STEEL	ALUMINUM	STEEL	STEEL	ALUMINUM	ALUMINUM	STEEL	STEEL
SIZE (FACE/NECK)	10"	12"	12X6	34x34/32x32	32X26/32X24	14x14/12x12	18X18/16X16	38X20/36X18	12x12/10x10	30x16/28x14	14X4	12X12/10X10
CFM RANGE	0-380	385-600	200-250	2,750 - 3,500	1,750-2,000	0-500	0-800	1,800-2,000	0-300	1,000-1,200	0-210	0-400
MOUNTING	DUCT	DUCT	DUCT	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	DUCT	SURFACE
DAMPER	YES	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	YES
REMARKS											1	1

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY MOUNTING SURFACE / FRAME REQUIREMENTS.
2. BRANCH DUCT SIZE TO DIFFUSER SHALL BE THE NECK SIZE OF THE DIFFUSER UNLESS NOTED OTHERWISE.
3. SEE SPECIFICATION FOR GRILLE, REGISTER, AND DIFFUSER FINISHES.
4. MAXIMUM STATIC PRESSURE DROP THROUGH GRILLE, REGISTER OR DIFFUSER SHALL NOT EXCEED 0.1".
5. MAXIMUM NC LEVELS FOR GRILLES, REGISTERS OR DIFFUSERS SHALL NOT EXCEED 25.
6. UNLESS THROW IS NOTED OTHERWISE, ALL DIFFUSERS SHALL BE 4-WAY THROW.

KEYED NOTES:

1. MOUNT SUPPLY AIR GRILLE TO EXPOSED DUCT.

FAN SCHEDULE

EF = EXHAUST FAN
RF = RETURN FAN
CEF = CEILING EXHAUST FAN
TF = TRANSFER FAN

UNIT NO.		EF-1	EF-7 (E)	DF-1 THRU DF-8
LOCATION		ROOF	MEZZANINE	SEE PLANS
MANUFACTURER		GREENHECK	-	ENVIRO FAN
MODEL NO.		SQ-160	-	160C-7
SERVICE		SEE PLANS	-	SEE PLANS
FAN TYPE		CENTRIFUGAL	-	DESTRAT
ARRANGEMENT		DOWNBLAST	-	-
DESIGN CFM		2,300	1,200	7,200
EXT. SP (IN WC)		0.5	-	-
FAN WHEEL TYPE		BI	-	-
FAN DIAMETER (IN)		-	-	-
APPROXIMATE FAN RPM		1,023	-	56"
BHP		0.39	-	352
MOTOR HP		1/2	-	83 W
VOLTS/PHASE		120/1	-	-
DRIVE		DIRECT	BELT	115/1
TWO SPEED		-	-	-
VFD		-	-	-
MAX. SONES		-	-	-
MAX FAN INLET AIR SOUND DATA SOUND POWER BY OCTAVE BAND (dB)	1	-	-	-
	2	-	-	-
	3	-	-	-
	4	-	-	-
	5	-	-	-
	6	-	-	-
	7	-	-	-
	8	-	-	-
REMARKS		1	2	3, 4

KEYED NOTES

1. PROVIDE WITH FACTORY MOUNTED AND WIRED DISCONNECT, SPEED CONTROLLER (FIELD INSTALLED BY EC), AND SPRING ISOLATORS.
2. REBALANCE EXISTING FAN TO AIRFLOW SCHEDULED.
3. PROVIDE FAN WITH 10" DOWN ROD AND 60" FAN GUARD. EC TO PROVIDE DISCONNECT.
4. PROVIDE DF-1 THRU DF-8 WITH SOLID STATE SPEED CONTROLLER AND REVERSING SWITCH. SINGLE SPEED CONTROLLER AND REVERSING SWITCH SHALL CONTROL (8) FANS.

GLYCOL FILL UNIT SCHEDULE

UNIT NO.	GFU-1		
LOCATION	105F MECH		
MANUFACTURER	BELL & GOSSETT		
MODEL NO.	GMU-60		
GPM @ PSI	10 @ 30		
TANK SIZE (GALLONS)	55		
GLYCOL TYPE	30% P.G.		
VOLTAGE/PHASE	120/1		
UNIT WEIGHT	160		
REMARKS	1, 2		

KEY NOTES

1. PROVIDE WITH Y-STRAINER, ISOLATION VALVE, PUMP, CHECK VALVE, EXPANSION TANK, LOW LEVEL CUTOUT, INDICATOR LIGHT, AND A CONTACT FOR ALARM CONNECTION.
2. PROVIDE WITH SINGLE POINT POWER CONNECTION.

BUFFER TANK SCHEDULE

UNIT NO.	BT-1	BT-2	
SERVICE	CW PLANT	HW PLANT	
LOCATION	105F MECH	105F MECH	
MANUFACTURER	TACO	TACO	
MODEL	BTH0200F	BTH0150F	
TANK ORIENTATION	VERTICAL	VERTICAL	
SIZE (GAL)	200	150	
DIAMETER (IN)	36	30	
HEIGHT (IN)	86	68	
INLET SIZE (IN)	4	4	
DESIGN CODE	ASME	ASME	
SUPPORT	FLOOR	FLOOR	
WEIGHT	2,296	1,760	
REMARKS	-	-	

LOUVER SCHEDULE

UNIT NO.	L-1 / L-2	L-3	
MAUFACTURER	GREENHECK	GREENHECK	
MODEL NO.	ESD-635	ESD-625	
SERVICE	SEE PLANS	EXHAUST	
AIRFLOW (CFM)	26,000	2,300	
SIZE (W x H)	182X76	24X48	
FREE AREA (FT²)	58.8	4.1	
FREE AREA VELOCITY (FPM)	442	558	
STATIC PRESSURE (IN WC)	0.03	0.05	
REMARKS	1, 2	1	

KEYED NOTES

1. CUSTOM COLOR TO BE SELECTED BY ARCHITECT.
2. PROVIDE (2) SHIPPING SPLITS, 91"X76" WITH CENTER MULLION.

AIR HANDLING UNIT SCHEDULE

UNIT NO.		AHU-4		
LOCATION		105F MECH		
MANUFACTURER		DAIKIN		
MODEL NO.		CAH030GDGM		
SERVICE		SEE PLANS		
SUPPLY AIR FLOW (CFM)		13,000		
RELIEF AIR FLOW (CFM)		12,000		
HEATING AIR FLOW (CFM)		8,700		
MIN. OA (CFM)		1,300		
MAX. OA (CFM)		3,500		
% OUTSIDE AIR		10% / 27%		
SUPPLY FAN	WHEEL TYPE	CENTRIFUGAL PLENUM		
	WHEEL DIA. (IN)	27.0		
	TSP (IN WG)	4.1		
	ESP (IN WG)	1.5		
	RPM	1,604		
	BHP	12.6		
	HP / QTY	15.0 / 1		
	PH	3		
	VOLT	208		
	VFD / QTY	YES		
RELIEF FAN	WHEEL TYPE	CENTRIFUGAL PLENUM		
	WHEEL DIA. (IN)	24.5		
	TSP (IN WG)	0.65		
	ESP (IN WG)	0.5		
	RPM	1,530		
	BHP	4.5		
	HP / QTY	5.0 / 1		
	PH	3		
	VOLT	208		
	VFD / QTY	YES / 1		
CHILLED WATER COOLING COIL				
GPM		109.6		
WATER TYPE		25% P.G.		
EAT (°F) DB / WB		78.2 / 65.9		
LAT (°F) DB / WB		52.5 / 52.3		
EWT (°F) / LWT (°F)		44.0 / 54.0		
NUMBER OF COILS		2		
ROWS / FIN/INCH		5 / 11		
TOTAL CAPACITY (MBH)		530.4		
SENSIBLE CAPACITY (MBH)		364.7		
MAX. FACE VELOCITY (FPM)		466		
AIR PD (IN WC)		0.96		
MAX. WATER PD (FT)		26.1		
HOT WATER HEATING COIL				
GPM		78.4		
WATER TYPE		25% P.G.		
EAT (°F)		35.8		
LAT (°F)		102.3		
EWT (°F) / LWT (°F)		155.0 / 129.9		
MAX. WATER PD (FT)		9.2		
NUMBER OF COILS		2		
ROWS / FIN / INCH		3 / 9		
CAPACITY (MBH)		945.4		
FACE VELOCITY (FPM)		466		
AIR PD (IN WC)		0.23		
FILTER				
PRE-FILTER	SIZE	2"		
	TYPE	PLEATED		
	MERV RATING	8		
AFTER-FILTER	SIZE	4"		
	TYPE	PLEATED		
	MERV RATING	13		
WEIGHT (LBS)		5,625		
REMARKS		1, 2, 3, 4, 5, 6, 7		

KEYED NOTES

1. PROVIDE UNIT WITH MAGNEHELIC PRE FILTER AND FINAL FILTER GAUGES.
2. PROVIDE EXTRA SET OF FILTERS FOR EACH UNIT.
3. PROVIDE UNIT WITH 6" BASE RAILS.
4. PROVIDE UNIT WITH 2" DOUBLE WALL CONSTRUCTION.
5. VFD'S PROVIDED BY HC AND FIELD MOUNTED BY EC. HC SHALL COORDINATE VFD DELIVERY AND INSTALLATION.
6. KEEP ALL AHU TAGS VISIBLE WHEN MOUNTING VFD AT AHU.
7. MANUFACTURER SHALL PROVIDE ON EXTERIOR OF UNIT A CERTIFIED AHU PERFORMANCE TAG.

AIR SEPARATOR

UNIT NO.	AS-2	AS-3	AS-4
SERVICE	CW LOOP	GEO LOOP	HW LOOP
LOCATION	MECH. MEZZ.	105F MECH	105F MECH
MANUFACTURER	TACO	TACO	TACO
MODEL NO.	4906ADR	4906ADR	4904ARD
SYSTEM GPM	320	424	208
WPD (FT, HD)	1.5	2.6	3.3
PIPE CONNECTION TYPE	FLANGED	FLANGED	FLANGED
PIPE DIAMETER (IN.)	6	6	4
WEIGHT (LBS)	440	440	140
REMARKS	1	1	1

REMARKS
1. PROVIDE WITH REMOVABLE COVER AND AIR VENT.

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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

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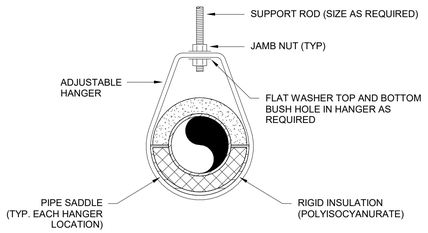
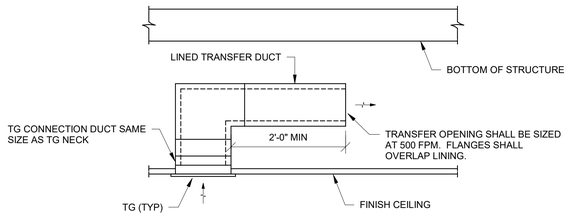
SCHEDULES - HVAC

M800



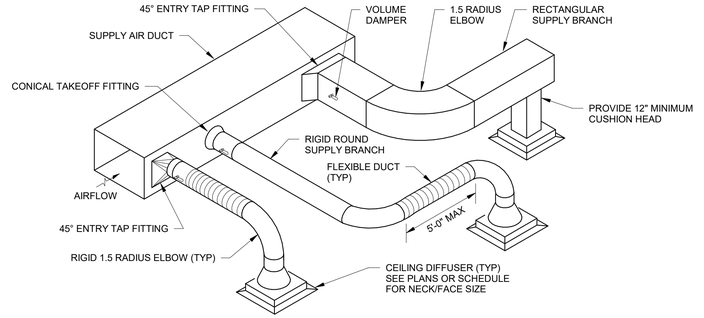
NOTE: LINE SIZE HANGERS ARE ACCEPTABLE FOR HOT WATER PIPING ONLY.

9 M900 TYPICAL PIPE SUPPORT
SCALE: NONE

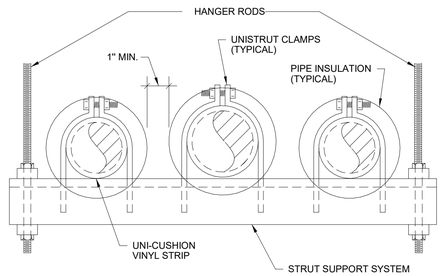


NOTE:
THIS DETAIL IS TYPICAL FOR ALL LOCATIONS WHERE A TRANSFER GRILLE IS INDICATED AND DUCTWORK IS NOT SHOWN ON PLANS

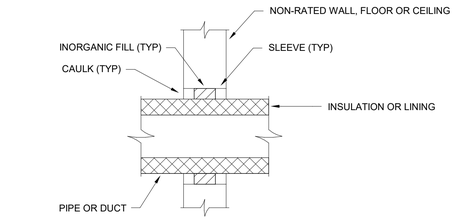
5 M900 TRANSFER DUCT (GRILLE TO PLENUM - NO WALL)
SCALE: NONE



1 M900 BRANCH DUCT AND DIFFUSER CONNECTION DETAIL
SCALE: NONE

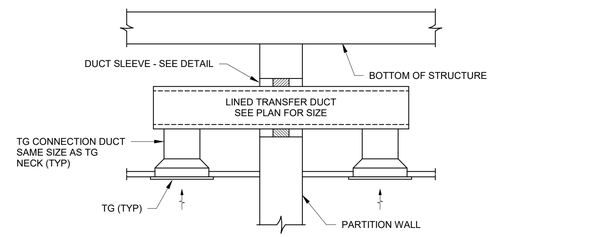


10 M900 TRAPEZE HANGER - HOT WATER PIPING
SCALE: NONE

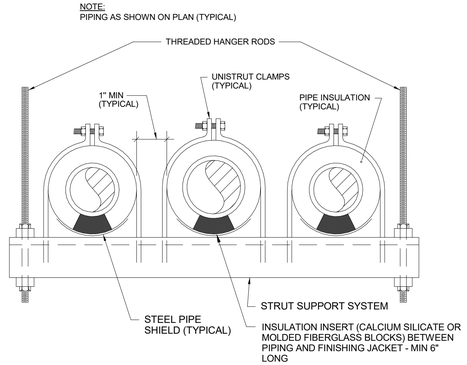


NOTES:
1. CAULKING SHALL BE 1/2" DEEP BUTYL RUBBER IN CONCEALED AREAS.
2. REFER TO SPECIFICATIONS FOR PENETRATIONS IN EXPOSED AREAS. GC TO PATCH FINISHES AROUND DUCTWORK PENETRATIONS. HC TO PROVIDE CAULK AROUND PIPE INSULATION AT NON RATED WALL PENETRATIONS.

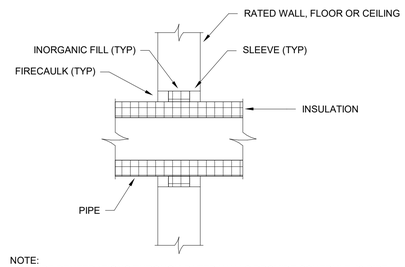
6 M900 PIPE OR DUCT SLEEVE - NON-RATED WALL
SCALE: NONE



2 M900 TRANSFER DUCT (DOUBLE GRILLE)
SCALE: NONE

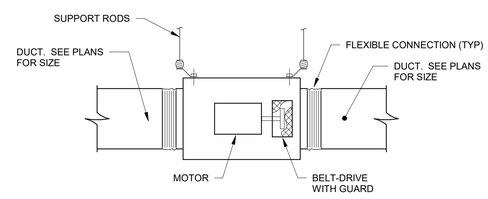


11 M900 TRAPEZE HANGER - CHILLED WATER PIPING
SCALE: NONE

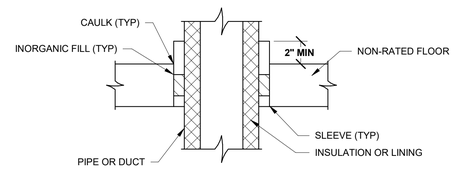


NOTE:
FOR PIPE PENETRATIONS THROUGH RATED WALLS PROVIDE SCHEDULE 40 PIPE SLEEVE, 1/2" FIRE CAULK, AND FILL ANNULAR SPACE WITH FIRE RESISTANT INORGANIC FILL. FIRE CAULK USED SHALL BE APPROVED BY MANUFACTURER FOR PROPOSED INSTALLATION METHOD.

7 M900 PIPE SLEEVE - RATED WALL
SCALE: NONE

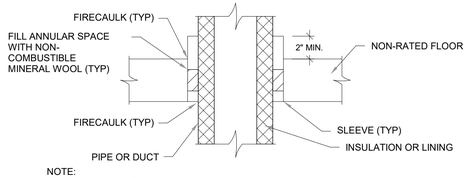


3 M900 INLINE EXHAUST FAN
SCALE: 12" = 1'-0"



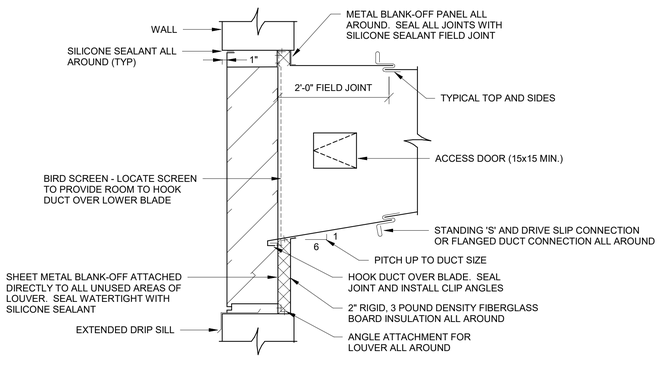
NOTE: CAULKING SHALL BE 1/2" DEEP BUTYL RUBBER.

12 M900 VERTICAL DUCT OR PIPE SLEEVE DETAIL
SCALE: NONE



NOTE:
CAULKING SHALL BE 1/2" DEEP FIRE CAULK
2" LIP ABOVE FLOOR NOT REQUIRED FOR NON-RATED FLOOR PENETRATIONS THAT ARE NOT SUBJECT TO WATER INTRUSION

8 M900 PIPE OR DUCT SLEEVE - RATED FLOOR
SCALE: NONE



NOTE: ALL DUCT JOINTS, CORNERS AND SEAMS SHALL BE SEALED WITH SILICONE SEALANT OR SOLDERED LEAK TIGHT.

4 M900 LOUVER INSTALLATION
SCALE: NONE

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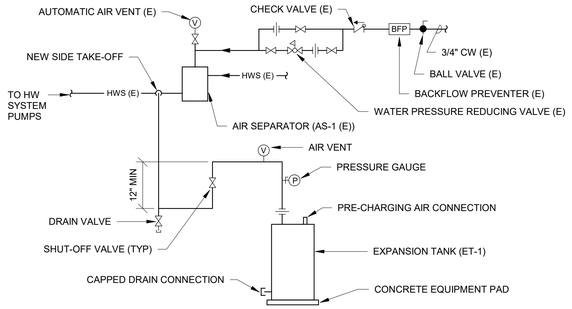
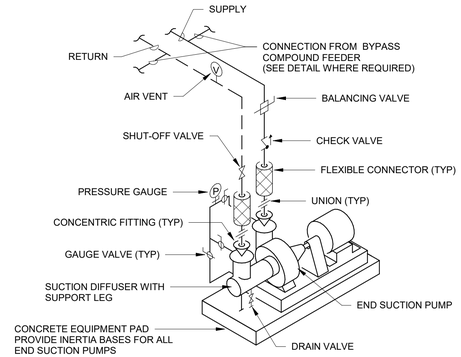
DETAILS - HVAC

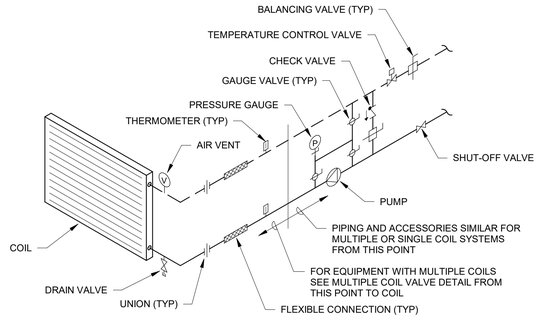
M900



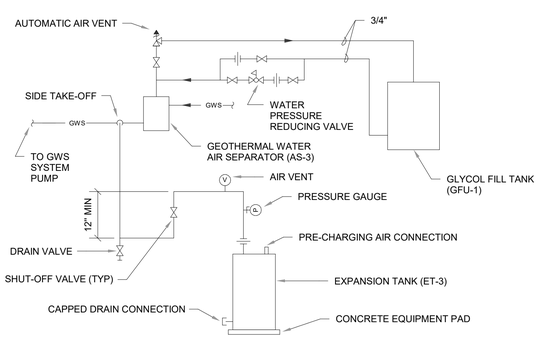
9 M901 BLADDER EXPANSION TANK (BUILDING HOT WATER)
SCALE: NONE



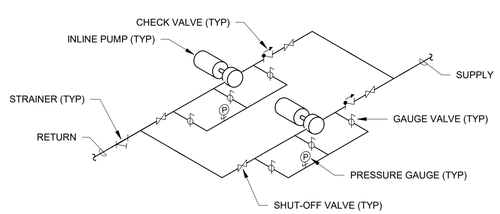
5 M901 END SUCTION BASE MOUNTED PUMP
SCALE: NONE



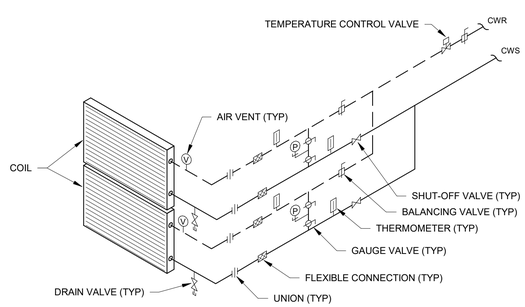
1 M901 AHU PUMPED HOT WATER COIL PIPING - 2-WAY TCV
SCALE: NONE



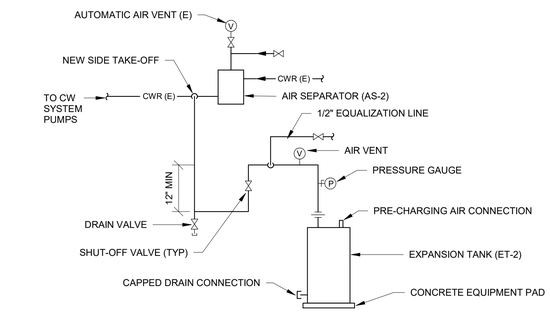
10 M901 BLADDER EXPANSION TANK (GEOTHERMAL)
SCALE: NONE



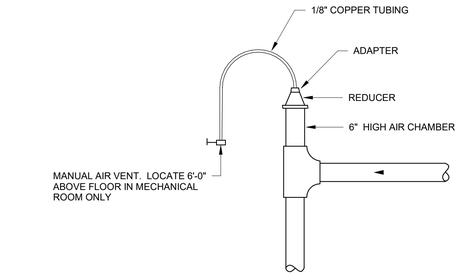
6 M901 INLINE PUMP (DOUBLE) DETAIL
SCALE: NONE



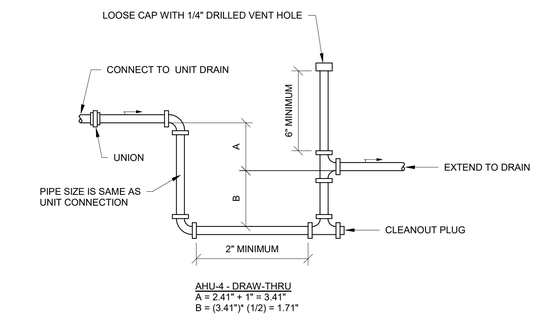
2 M901 MULTIPLE CHILLED WATER COIL PIPING 2-WAY TCV
SCALE: NONE



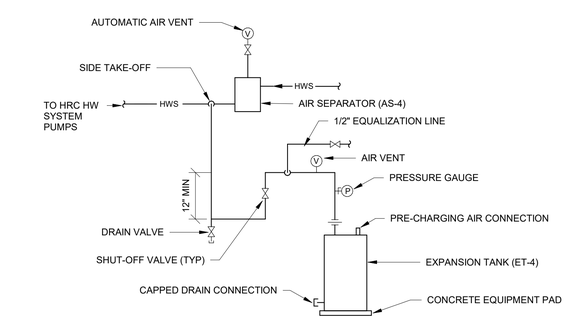
11 M901 BLADDER EXPANSION TANK (CHILLED WATER)
SCALE: NONE



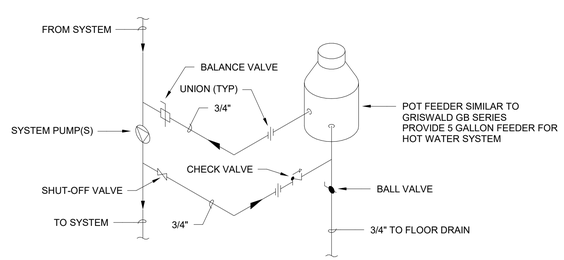
7 M901 MANUAL AIR VENT
SCALE: NONE



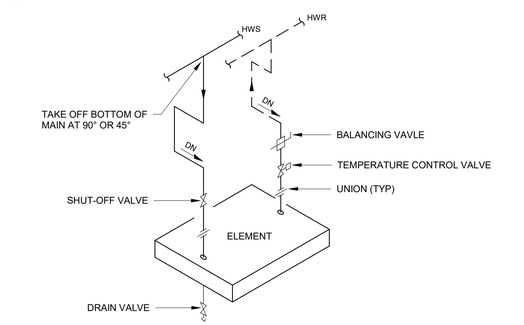
3 M901 LOOP SEAL FOR COOLING COIL CONDENSATE DRAIN
SCALE: NONE



12 M901 BLADDER EXPANSION TANK (HRC HOT WATER)
SCALE: NONE



8 M901 CHEMICAL POT FEEDER / FILTER
SCALE: NONE



4 M901 DOWNFEED HOT WATER CABINET HEATER PIPING
SCALE: NONE

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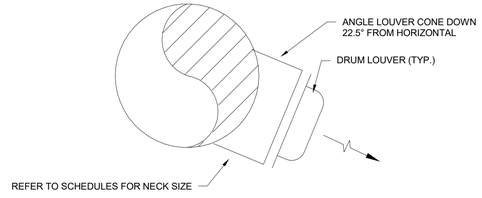
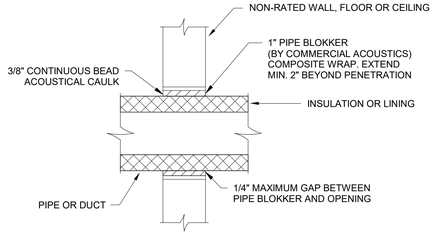
M901



NOTE: PAINT ALL VISIBLE INTERIOR SURFACES OF DUCTWORK FLAT BLACK.

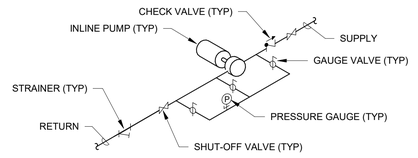
4 M902 DRUM LOUVER DETAIL

SCALE: NONE



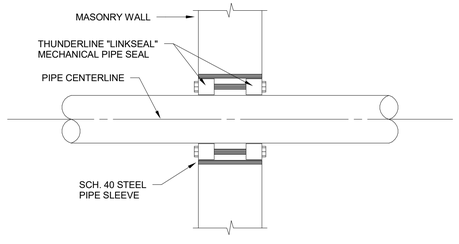
5 M902 SOUND ATTENUATION PIPE OR DUCT SLEEVE

SCALE: NONE



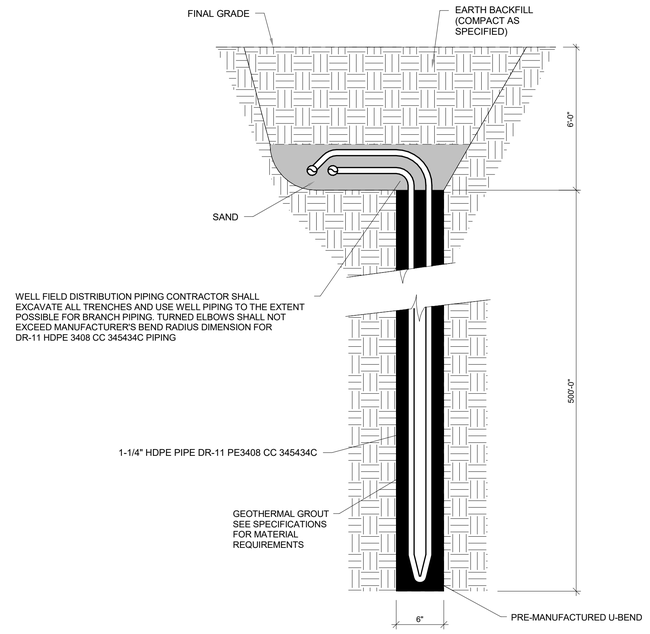
6 M902 INLINE PUMP (SINGLE) DETAIL

SCALE: 12" = 1'-0"



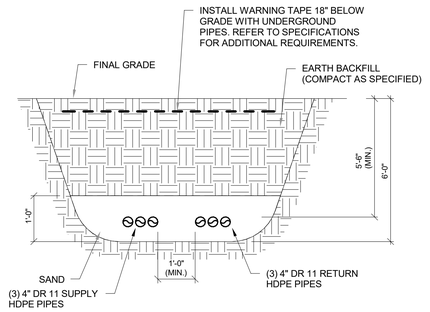
7 M902 EXTERIOR WALL PIPE PENETRATION DETAIL

SCALE: 12" = 1'-0"



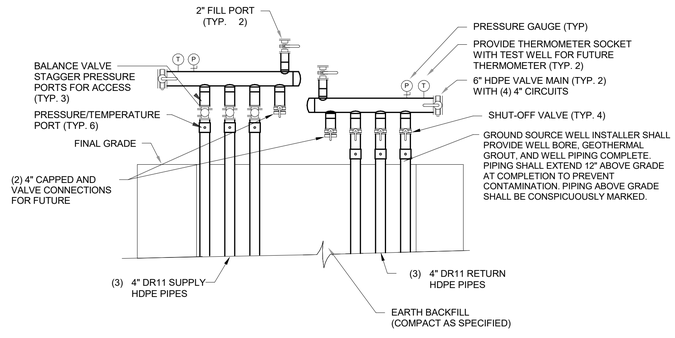
1 M902 GEOTHERMAL VERTICAL HEAT EXCHANGER DETAIL

SCALE: NONE



2 M902 GEOTHERMAL TRENCH DETAIL

SCALE: NONE



3 M902 GEOTHERMAL MANIFOLD DETAIL

SCALE: NONE

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DETAILS - HVAC

M902

1 MS200 GEOTHERMAL SITE PLAN - HVAC
SCALE: 1/16" = 1'-0"

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GEOTHERMAL SITE PLAN - HVAC

MS200

ELECTRICAL SYMBOLS AND ANNOTATIONS:

(ALL SYMBOLS, DESIGNATIONS, ANNOTATIONS & ABBREVIATIONS SHOWN MAY NOT APPEAR ON DRAWINGS)

FIRE ALARM

FIRE ALARM DEVICE NOTATIONS

NOTIFICATION DEVICE
(RECESSED UNLESS NOTED OTHERWISE)

INDICATES CANDELA INTENSITY

(E) BY SYMBOL INDICATES EXISTING DEVICE

NOTIFICATION DEVICES

- HORN - WALL MOUNTED
- HORN WITH STROBE - WALL MOUNTED
- MINI HORN - WALL MOUNTED
- MINI HORN WITH STROBE - WALL MOUNTED
- SPEAKER - WALL MOUNTED
- SPEAKER WITH STROBE - WALL MOUNTED
- STROBE - WALL MOUNTED
- BELL - WALL MOUNTED
- BELL WITH STROBE - WALL MOUNTED
- BUZZER - WALL MOUNTED
- BUZZER WITH STROBE - WALL MOUNTED
- CEILING MOUNTED HORN/STROBE
- CEILING MOUNTED HORN
- CEILING MOUNTED STROBE
- CEILING MOUNTED SPEAKER/STROBE
- CEILING MOUNTED SPEAKER
- SUPERVISED HORN LOUDSPEAKER

DETECTORS AND SENSORS

- GAS DETECTOR - WALL MOUNTED
- SMOKE DETECTOR
- SMOKE DETECTOR FOR ELEVATOR RECALL
- CARBON MONOXIDE DETECTOR
- HEAT DETECTOR
- FIXED TEMP HEAT DETECTOR. (#) INDICATES TEMP RATING
- DUCT SMOKE DETECTOR
- FLAME DETECTOR
- LINEAR HEAT DETECTOR
- GAS DETECTOR
- COMBINATION SMOKE & CO2 DETECTOR
- HYDROGEN DETECTOR

ACTIVATION DEVICES

- PULL STATION

MONITORED DEVICES

- MASTER KEY BOX
- KEY REPOSITORY
- PRESSURE SWITCH
- SMOKE DAMPER
- SPRINKLER FLOW SWITCH
- SPRINKLER TAMPER SWITCH
- CONTROL MODULE
- DOOR HOLDER
- DOOR CLOSER
- FAN SHUTDOWN RELAY
- MONITOR MODULE
- REMOTE STATION FOR DUCT MOUNTED SMOKE DETECTOR

PANELS AND INTERFACES

- FACP — FIRE ALARM CONTROL PANEL
- FAAP — FIRE ALARM ANNUNCIATOR PANEL
- NAC — FIRE ALARM NOTIFICATION APPLIANCE CIRCUIT
- FSS — FIRE SUPPRESSION SYSTEM
- RTSI — REMOTE TEST SWITCH WITH INDICATOR
- VESDA — VESDA PANEL
- FIREFIGHTER PHONE HANDSET
- FIREFIGHTER TELEPHONE JACK

SYSTEMS

SYSTEMS NOTATIONS

DATA (4)
INDICATES NUMBER OF DATA PORTS AND CABLES (IF NONE SHOWN, BOX, CONDUIT, PULL STRING TO BE ROUGHED-IN)

VOICE (2)
INDICATES NUMBER OF VOICE PORTS AND CABLES (IF NONE SHOWN, BOX, CONDUIT, PULL STRING TO BE ROUGHED-IN)

DATA AND VOICE (3,1)
INDICATES NUMBER OF VOICE PORTS AND CABLES
INDICATES NUMBER OF DATA PORTS AND CABLES

RAISED DATA - MOUNTED AT A SPECIFIC ELEVATION AFF TO CENTER OF DEVICE. ELEVATION NOTED ON PLAN ADJACENT TO SYMBOL.

WAP — OWNER PROVIDED/CONTRACTOR INSTALLED WIRELESS ACCESS POINT - (1) CAT 6 CABLE TERMINATED AS SPECIFIED

DATA AND VOICE DEVICES (ROUGH-IN ONLY)

ALL DEVICES WALL MOUNTED AT 18" AFF TO CENTER OF DEVICE UNLESS NOTED OTHERWISE

- WAP — WIRELESS ACCESS POINT - WALL MOUNTED
- TV — TV OUTLET BOX - WALL MOUNTED
- TD — DICTATION COMMUNICATION OUTLET

DATA EQUIPMENT

- DATA RACK - WALL MOUNTED/FREE STANDING
- DATA CABINET - FLOOR MOUNTED
- CLOCK - WALL MOUNTED
- CLOCK - CEILING MOUNTED

SECURITY AND ACCESS CONTROLS (ROUGH-IN UNLESS OTHERWISE SPECIFIED)

- OWNER PROVIDED/CONTRACTOR INSTALLED WALL MOUNT CAMERA - (1) CAT 6 CABLE TERMINATED AS SPECIFIED
- OWNER PROVIDED/CONTRACTOR INSTALLED CEILING MOUNT CAMERA - (1) CAT 6 CABLE TERMINATED AS SPECIFIED
- OWNER PROVIDED/CONTRACTOR INSTALLED PAN TILT CAMERA - (1) CAT 6 CABLE TERMINATED AS SPECIFIED
- SECURITY VIDEO DISPLAY/MONITOR
- SECURITY VIDEO DISPLAY/MONITOR
- CARD READER
- KEYPAD
- VIDEO PHONE DEVICE
- REMOTE DOOR RELEASE BUTTON
- ELECTRIC DOOR STRIKE
- DOOR CONTACT
- ELECTRIC LOCK
- MAGNETIC LOCK
- MOTION DETECTOR - WALL MOUNTED
- MOTION DETECTOR - CEILING MOUNTED
- REQUEST TO EXIT - WALL MOUNTED
- REQUEST TO EXIT - PUSHBUTTON
- REQUEST TO EXIT - CEILING MOUNTED
- ACP — ACCESS CONTROL PANEL

PAGING AND PUBLIC ADDRESS

- VOLUME CONTROL
- MICROPHONE - WALL MOUNTED
- MICROPHONE - CEILING MOUNTED
- PAGING SPEAKER - WALL MOUNTED
- SPEAKER - CEILING MOUNTED - PROVIDE SPEAKER BACK BOX AND APPROPRIATE SOUND CABLE
- SPEAKER - WALL MOUNTED
- DIGITAL COMMUNICATION STATION
- PA — PAGING AMPLIFIER

RADIO AND CELLULAR PHONE

- ANTENNA - WALL MOUNTED
- ANTENNA - CEILING MOUNTED
- MRS — MOBILE/CELLULAR NETWORK REPEATER
- RR — RADIO REPEATER

NURSE CALL DEVICES

- NURSE CALL DEVICE
- NURSE STATION
- HELP CALL SWITCH - PULL SWITCH/STRING
- NURSE CALL LIGHT - WALL MOUNTED
- NURSE CALL LIGHT - CEILING MOUNTED

CABLE TRAY

- WIRE BASKET TRAY
- LADDER TRAY

LIGHTING FIXTURES

FIXTURE NOTATIONS

LIGHT FIXTURE

A, L-1A-13, c

- SWITCH SYSTEM DESIGNATION. BLANK INDICATES PORTION SWITCHED FROM LOCAL SWITCH OR OCCUPANCY SENSOR
- CIRCUIT DESIGNATION (SEE SCHEDULE)
- PANEL DESIGNATION (SEE SCHEDULE)
- FIXTURE DESIGNATION (SEE SCHEDULE)

SHADING INDICATES FIXTURE IS WIRED TO EMERGENCY LIGHTING CIRCUIT

HATCHING INDICATES FIXTURE IS WIRED TO CRITICAL LIGHTING CIRCUIT

HORIZONTAL LINE INDICATES LENS ORIENTATION

SOLID FILLED CIRCLE INDICATES PENDANT FIXTURE

EXIT SIGN NOTATION - PROVIDE NUMBER OF FACES AND ARROWS AS INDICATED ON PLAN AND SCHEDULE
- INDICATES DIRECTIONAL ARROWS
- SHADING INDICATES FACE
  - ONE SIDE SHADED INDICATES SINGLE FACE SIGN
  - TWO SIDES SHADED INDICATES DOUBLE FACE SIGN
- INDICATES EGRESS LIGHT HEADS

FIXTURE TYPES

- 2x2 LIGHT FIXTURE - RECESSED
- 2x4 LIGHT FIXTURE - RECESSED
- LINEAR LIGHT FIXTURE - RECESSED
- 2x2 LIGHT FIXTURE - SURFACE
- 2x4 LIGHT FIXTURE - SURFACE
- LINEAR LIGHT FIXTURE - SURFACE
- LINEAR LIGHT FIXTURE - PENDANT
- LINEAR LIGHT FIXTURE - WALL MOUNTED
- SCONCE FIXTURE - WALL MOUNTED
- CYLINDRICAL PENDANT FIXTURE
- DOWNLIGHT FIXTURE - RECESSED
- DOWNLIGHT FIXTURE - SURFACE
- DIRECTIONAL DOWNLIGHT FIXTURE - RECESSED DIRECTIONAL ARROW SHOWN ON PLAN
- FLOODLIGHT FIXTURE
- REMOTE HEAD FIXTURE
- EMERGENCY LIGHT FIXTURE - WALL MOUNTED
- EMERGENCY LIGHT FIXTURE - CEILING MOUNTED
- POLE MOUNTED LIGHT FIXTURE - NUMBER OF HEADS AND ORIENTATION SHOWN ON PLAN
- BOLLARD LIGHT FIXTURE
- EXIT SIGN - CEILING MOUNTED
- EXIT SIGN - WALL MOUNTED
- EXIT SIGN - PENDANT

LIGHTING CONTROLS

CONTROLS NOTATIONS

SWITCH

3 b

- SWITCH SYSTEM DESIGNATION
- SWITCH TYPE
  - 3 - 3-WAY
  - 4 - 4-WAY
  - P - WITH PILOT LIGHT
  - K - KEYED
  - T - TIMER
  - - SINGLE POLE (NO DESIGNATION)

GENERIC LIGHTING CONTROL DEVICE

WC1 — DESIGNATION - REFER TO SCHEDULE

CONTROL TYPES

- SWITCH
- DIMMER SWITCH
- LIGHTING CONTROL DEVICE
- OCCUPANCY SENSOR - WALL MOUNTED
- DAYLIGHT SENSOR - WALL MOUNTED
- PHOTO CELL SENSOR - WALL MOUNTED
- DIGITAL TOUCHPAD LIGHTING CONTROL
- TIME CLOCK
- OCCUPANCY SENSOR - CEILING MOUNTED
- DAYLIGHT SENSOR - CEILING MOUNTED
- PHOTO CELL SENSOR - CEILING MOUNTED
- LCP — LIGHTING CONTROL PANEL
- LIGHTING CONTROL RELAY

POWER

RECEPTACLE NOTATIONS

RECEPTACLE
H-2A-9
GFI

- CIRCUIT DESIGNATION
- PANEL DESIGNATION (IF NONE SHOWN, REFER TO PLAN FOR PANEL BOUNDARIES)
- RECEPTACLE TYPE OR EQUIPMENT SERVED
  - A - ARC FAULT INTERRUPTING, TAMPER RESISTANT
  - AG - ARC FAULT INTERRUPTING, GFCI, TAMPER RESISTANT
  - AP - TAMPER RESISTANT, ARC FAULT PROTECTION @ BREAKER
  - CP - COPIER
  - DISP - SINK DISPOSAL UNIT
  - EWC - ELECTRIC WATER COOLER, GFCI @ AT CIRCUIT BREAKER
  - GFB - PROTECTED BY GROUND FAULT BREAKER
  - GFI - GROUND FAULT INTERRUPTOR
  - GT - GFCI TAMPER RESISTANT
  - GW - GFCI, WEATHER RESISTANT, IN-USE COVER
  - GWT - GFCI, WEATHER RESISTANT, TAMPER RESISTANT, IN-USE COVER
  - MCRV - MICROWAVE
  - RFG - REFRIGERATOR, GFCI PROTECTION @ CIRCUIT BREAKER
  - RTU - FACTORY MOUNTED IN ROOFTOP AC UNIT
  - SS - SURGE SUPPRESSION
  - T - TAMPER RESISTANT
  - UC - UNDER CABINET
  - UT - RECEPTACLE WITH USB CHARGING PORTS
  - USB - TAMPER RESISTANT, USB CHARGING PORTS
  - WR - WEATHER RESISTANT
  - WRC - WEATHER RESISTANT, IN-USE COVER
  - WT - WEATHER RESISTANT, TAMPER RESISTANT, IN-USE COVER

HORIZONTAL LINE INDICATES COUNTERTOP RECEPTACLE - WALL MOUNTED AT 6" ABOVE COUNTERTOP OR COUNTER BACKSPLASH TO CENTER OF DEVICE. SEE PLANS FOR OUTLET TYPE

DIAGONAL LINE INDICATES RAISED RECEPTACLE - WALL MOUNTED AT ELEVATION NOTED ON PLAN AFF TO CENTER OF DEVICE. SEE PLANS FOR OUTLET TYPE

POWER CONNECTION TYPES

ALL RECEPTACLES WALL MOUNTED AT 18" AFF TO CENTER OF DEVICE UNLESS NOTED OTHERWISE

- DUPLEX RECEPTACLE
- OCCUPANCY CONTROLLED DUPLEX RECEPTACLE
- ISOLATED GROUND DUPLEX RECEPTACLE
- SPLIT WIRED DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE
- OCCUPANCY CONTROLLED DOUBLE DUPLEX RECEPTACLE
- ISOLATED GROUND DOUBLE DUPLEX RECEPTACLE
- SPLIT WIRED DOUBLE DUPLEX RECEPTACLE
- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE - CEILING MOUNTED
- DOUBLE DUPLEX RECEPTACLE - CEILING MOUNTED
- SIMPLEX RECEPTACLE - CEILING MOUNTED
- CORD REEL/DROP
- PROJECTOR OUTLET - INCLUDES DATA AND POWER WIRE(S)/CABLE(S)
- SURFACE RACEWAY
- F — FLOOR BOX
  - F-1 — DESIGNATION - SEE SCHEDULE
- P — POKE THRU
  - PT-1 — DESIGNATION - SEE SCHEDULE
- CEILING FAN
- P — POWER POLE
  - PP-1 — DESIGNATION - SEE SCHEDULE
- J — JUNCTION BOX - CEILING MOUNTED
- J — JUNCTION BOX - WALL MOUNTED
  - 44" — MOUNTING HEIGHT AFF TO CENTER OF DEVICE
- EMERGENCY STOP PUSHBUTTON
- PUSHBUTTON SWITCH - START/STOP
- PUSHBUTTON DOOR OPENER

EQUIPMENT

POWER DISTRIBUTION

- PANEL - SURFACE MOUNTED
  - CLEARANCE - TYPICAL
- PANEL - RECESSED
- SWITCHBOARD
- SWITCHGEAR
- TRANSFORMER
- M — METER
- CT — UTILITY CT METER CABINET - WALL MOUNTED
- CT — UTILITY CT METER CABINET - PAD MOUNTED
- UTILITY TRANSFORMER - PAD MOUNTED
- UTILITY SERVICE POWER POLE

OTHER EQUIPMENT

- G — GENERATOR
- GSCP — GENERATOR SET CONTROL PANEL
- TRANSFER SWITCH
  - ATS1 — DESIGNATION - REFER TO SCHEDULE
- UNINTERRUPTIBLE POWER SUPPLY
  - UPS1 — DESIGNATION - REFER TO SCHEDULE
- BUS DUCT - LENGTH NOTED ON PLAN
- WIREWAY / GUTTER - REFER TO PLAN
- VFD — VARIABLE FREQUENCY DRIVE
- EQUIPMENT/MOTOR STARTER
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- EQUIPMENT CONNECTION
  - FR-32 — DESIGNATION - REFER TO SCHEDULE
- M — MOTOR CONNECTION
  - RF-2 — DESIGNATION - REFER TO SCHEDULE
- GROUND BAR - STAND-OFF INSULATORS

GENERIC SYMBOLS AND ANNOTATIONS

- 1 — KEYED NOTE - DEMOLITION
- 1 — KEYED NOTE - NEW WORK
- BREAK LINE

ABBREVIATION LIST

(E)	DENOTES EXISTING EQUIPMENT TO REMAIN	GND	GROUND	PRI	PRIMARY
1P	1 POLE (2P, 3P, 4P, ETC.)	GYP BD	GYPSUM BOARD	PT	POTENTIAL
A	AMPERE	HOA	HANDS-OFF-AUTOMATIC SWITCH	PVC	TRANSFORMER
AF	AMP FRAME	HP	HORSEPOWER		POLYVINYL CHLORIDE (CONDUIT)
AFF	ABOVE FINISHED FLOOR	HT	HEIGHT	PWR	POWER
AFG	ABOVE FINISHED GRADE	HTG	HEATING	QTY	QUANTITY
AFI	ARC FAULT CIRCUIT INTERRUPTER	HV	HIGH VOLTAGE	REQD	REQUIRED
AL	ALUMINUM	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	RM	ROOM
ALT	ALTERNATE	IC	INTERRUPTING CAPACITY	SEC	SECONDARY
AMP	AMPERE	IG	ISOLATED GROUND	SHT	SHEET
APPROX	APPROXIMATELY	J-BOX	JUNCTION BOX	SIM	SIMILAR
ARCH	ARCHITECT, ARCHITECTURAL	KV	KILOVOLT	SPEC	SPECIFICATION
ATS	AUTOMATIC TRANSFER SWITCH	KVA	KILOVOLT-AMPERE	SP	SPARE
AUTO	AUTOMATIC	KVAR	KILOVOLT-AMPERE REACTIVE	SS	STAINLESS STEEL
AUX	AUXILIARY	KW	KILOWATT	STA	STATION
AV	AUDIO VISUAL	KWH	KILOWATT HOUR	STD	STANDARD
AWG	AMERICAN WIRE GAUGE	LCP	LIGHTING CONTROL PANEL	SURF	SURFACE MOUNTED
BLDG	BUILDING	LTG	LIGHTING	SWBD	SWITCHBOARD
BAS	BUILDING AUTOMATION SYSTEM	LV	LOW VOLTAGE	SYM	SYMMETRICAL
C	CONDUIT	MAX	MAXIMUM	SYS	SYSTEM
CAB	CABINET	MC	MECHANICAL CONTRACTOR	TELE	TELEPHONE
CATV	CABLE TELEVISION	MCB	MAIN CIRCUIT BREAKER	TEMP	TEMPERATURE
CB	CIRCUIT BREAKER	MCC	MOTOR CONTROL CENTER	TL	TWIST LOCK
CCTV	CLOSED CIRCUIT TELEVISION	MDP	MAIN DISTRIBUTION PANEL	TR	TAMPER RESISTANT
CKT	CIRCUIT	MFR	MANUFACTURER	T-STAT	THERMOSTAT
CLG	CEILING	MFS	MAIN FUSED DISCONNECT SWITCH	TV	TELEVISION
COMB	COMBINATION	MIN	MINIMUM	TYP	TYPICAL
CONT	CONTINUATION/CONTINUOUS	MISC	MISCELLANEOUS	UC	UNDER COUNTER
CP	CIRCULATING PUMP	MLO	MAIN LUGS ONLY	UE	UNDERGROUND ELECTRICAL
CRI	COLOR RENDERING INDEX	MSBD	MAIN SWITCHBOARD	UG	UNDERGROUND
CT	CURRENT TRANSFORMER	MTS	MANUAL TRANSFER SWITCH	V	VOLT
CU	COPPER	MV	MEDIUM VOLTAGE	VA	VOLT-AMPERES
DIA	DIAMETER	N.C.	NORMALLY CLOSED	VERT	VERTICAL
DISC	DISCONNECT	NEC	NATIONAL ELECTRICAL CODE	VFD	VARIABLE FREQUENCY DRIVE
DIST	DISTRIBUTION	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION	W	WATT
DT	DOUBLE THROW	NIC	NOT IN CONTRACT	W/	WITH
EC	ELECTRICAL CONTRACTOR	NL	NIGHT LIGHT	WG	WIRE GUARD
ELEC	ELECTRIC, ELECTRICAL	N.O.	NORMALLY OPEN	W/O	WITHOUT
ELEV	ELEVATOR	NTS	NOT TO SCALE	WP	WEATHERPROOF
EM	EMERGENCY	OH	OVERHEAD	WR	WEATHER RESISTANT
EMS	ENERGY MANAGEMENT SYSTEM	OWN	OWNER	XFMR	TRANSFORMER
EQUIP	EQUIPMENT	PF	POWER FACTOR	XFR	TRANSFER
EWC	ELECTRIC WATER COOLER	PH	PHASE	∠	ANGLE
EXIST	EXISTING	PNL	PANEL	@	AT
FACP	FIRE ALARM CONTROL PANEL	PP	POWER POLE	'	FEET
GA	GAUGE	PR	PAIR	"	INCHES
GC	GENERAL CONTRACTOR			#	NUMBER
GEN	GENERATOR			Ø	PHASE OR DIAMETER
GFI	GROUND FAULT CIRCUIT INTERRUPTER			C	CENTER LINE

ELECTRICAL SHEET INDEX

NOTE:
KEYED NOTES LOCATED ON FLOOR PLANS, SECTIONS AND ELEVATION VIEWS ARE REFERENCING A PROJECT NUMBERING SYSTEM. FLOOR PLAN KEYED NOTES MAY NOT APPEAR IN SEQUENTIAL ORDER. DISCIPLINE DESIGNATORS HAVE BEEN ADDED FOR CLARITY. KEYED NOTES LOCATED ON CONTROL DIAGRAMS AND/OR DETAILS ARE SEQUENTIALLY NUMBERED ACCORDING TO THE INDIVIDUAL SHEET.

GENERAL NOTES

1. THESE PLANS ARE SCHEMATIC AND DO NOT SHOW THE EXACT LOCATIONS OF EQUIPMENT OR FIXTURES, CONDUIT ROUTING, ETC. THE CONTRACTOR MUST REFER TO ARCHITECTURAL AND MECHANICAL PLANS, DETAILS, AND SPECS TO OBTAIN COMPLETE INFORMATION.
2. PROVIDE LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED FOR COMPLETE AND FUNCTIONING SYSTEMS, FULLY TESTED AND READY FOR USE.
3. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY, STATE, AND WITH REGULATIONS AND REQUIREMENTS OF ALL LOCAL AND NATIONAL CODES AS THEY MAY APPLY TO THE PROJECT AND PUBLIC SAFETY.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NEC CLEARANCES AROUND AND ABOVE ELECTRICAL EQUIPMENT ARE MAINTAINED. REFER TO NEC 110-26 FOR SPECIFIC INFORMATION.
5. VERIFY ANY AND ALL CONFIGURATIONS, DIMENSIONS AND ELEVATIONS BY FIELD MEASUREMENTS AND COORDINATE WITH ARCHITECTURAL DRAWINGS AND STRUCTURAL CONDITIONS.
6. ALL CONDUCTORS OPERATING AT 50 VOLTS OR GREATER SHALL BE IN ELECTRICAL METAL TUBING (EMT) AT A MINIMUM. ALL RACEWAY WITHIN THE STRUCTURE ABOVE THE FLOOR SLAB SHALL BE METAL. RACEWAY BELOW THE FLOOR SLAB AND UNDERGROUND RACEWAY OUTSIDE THE STRUCTURE SHALL BE PVC AT A MINIMUM. CONDUIT LEAVING THE SLAB SHALL TRANSITION TO RIGID METAL CONDUIT (RMC) PRIOR TO EXITING THE SLAB.
7. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
8. CONDUCTORS WITHIN UNINSULATED CEILING SPACES AND OUTDOORS MUST BE DERATED BASED UPON THE AMBIENT TEMPERATURE. THE CONTRACTOR IS RESPONSIBLE FOR REVISING CONDUCTOR SIZE IF ACTUAL CONDUIT ROUTING DIFFERS FROM THE CONSTRUCTION DOCUMENTS.
9. EXACT TYPE OF MECHANICAL DEVICES AND EQUIPMENT LOCATIONS SHALL BE COORDINATED WITH MECHANICAL CONTRACTOR(S).
10. ALL MATERIALS, EQUIPMENT, AND APPARATUS INSTALLED ON THE PROJECT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS AND THE MANUFACTURER. IN THE CASE OF EXCEPTIONS, THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL CERTIFY IN WRITING TO THE OWNER'S REPRESENTATIVE, THAT THE INSTALLATION HAS BEEN MADE IN ACCORDANCE WITH SUCH PRINTED INSTRUCTIONS AND REQUIREMENTS.
11. MODEL NUMBERS INDICATED ON THE DRAWINGS ARE ONLY FOR REFERENCE AND CONVENIENCE. CONFIRM THE ACCURACY OF ALL MODEL NUMBERS SO AS TO MEET THE SPECIFIC PROJECT REQUIREMENTS AND MINIMUM INDICATED PERFORMANCE DATA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT EQUIPMENT FITS WITHIN THE SPACE ALLOTTED.
12. COORDINATE AND VERIFY LOCATIONS, ROUGH-IN REQUIREMENTS AND INSTALLATION REQUIREMENTS OF EQUIPMENT FURNISHED BY THE OWNER.

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JDR ENGINEERING, INC.
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PH: 608.277.1728 FAX: 608.271.7046
JDR PROJECT NO: 23.0319

WARNER PARK
COMMUNITY RECREATION
CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:
BID SET 5/16/2024

REVISION FOR:
NO. DESCRIPTION DATE

DRAWN BY JDR
CHECKED BY JDR

SYMBOLS, ABBREVIATIONS & DETAILS - ELECTRICAL

E000

DEMOLITION GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. REFER TO TEMPORARY ELECTRICAL WORK SECTION IN DIVISION 1 GENERAL REQUIREMENTS OF PROJECT MANUAL FOR ALL TEMPORARY ELECTRICAL REQUIREMENTS.
3. ALL DARK DASHED LINES APPROXIMATELY INDICATE EXISTING DEVICES TO BE DISCONNECTED AND REMOVED, UNLESS INDICATED OTHERWISE. REMOVE ANY/ALL UNUSED BOXES, WIRING AND CONDUIT BACK TO SOURCE. ALL PROPERLY SIZED AND PROPERLY SUPPORTED CONDUIT ONLY MAY BE REUSED.
4. ALL LIGHT, THIN LINES APPROXIMATELY INDICATE EXISTING DEVICES TO REMAIN, UNLESS INDICATED OTHERWISE.
5. ALL ELECTRICAL CONDUCTORS AND CONDUITS SERVING REMOVED EQUIPMENT AND DEVICES SHALL BE COMPLETELY REMOVED. CONDUIT AND CONDUCTORS SHALL NOT BE ABANDONED IN PLACE. EXISTING CONDUITS AND PATHWAYS MAY BE REUSED. FOR NEW WORK, EXISTING CONDUCTORS MAY NOT BE REUSED, UNLESS SPECIFICALLY NOTED.
6. MAINTAIN FIRE ALARM SYSTEM THROUGHOUT CONSTRUCTION AND PROVIDE FIRE WATCH, ETC., AS REQUIRED BY LOCAL AHJ. ANY/ALL CEILING MOUNTED DEVICES SHALL BE TEMPORARY SUPPORTED AND PROTECTED, INCLUDING BAGGING SMOKE DETECTORS (AS NECESSARY AND AS PERMITTED), DURING CONSTRUCTION. SYSTEM SHALL BE ACTIVE AND MONITORED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
7. NOTE THAT THIS PROJECT CONSISTS OF A COMPLETE REPLACEMENT OF THE FIRE ALARM SYSTEM AS SHOWN ON THE PLANS. ANY/ALL EXISTING FIRE ALARM DEVICES, CONTROL PANELS, ANNUNCIATOR PANELS, CABLING, ETC. SHALL BE DISCONNECTED AND REMOVED COMPLETE. REUSE OF EXISTING INFRASTRUCTURE (BOXES AND CONDUITS ONLY) IS ACCEPTABLE WHERE SIZED AND SUPPORTED PROPERLY. THE NEW VOICE FIRE ALARM SYSTEM THROUGHOUT THE BUILDING SHALL BE INSTALLED, PROGRAMMED, TESTED, COMMISSIONED, AND APPROVED BY THE LOCAL AHJ PRIOR TO DECOMMISSIONING AND REMOVING THE EXISTING FIRE ALARM SYSTEM. ANY AND ALL FIRE ALARM CABLING SHALL BE ROUTED IN EMT CONDUIT AT A MINIMUM. NO FREE AIR CABLING IS ALLOWED.

DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D1 EXISTING BUILDING MDF TO REMAIN. FEED NEW IDF FROM EXISTING MDF WITH TWELVE STRAND SINGLE MODE FIBER AS INDICATED IN NEW WORK PLAN.

D2 EXISTING SIEMENS/CERBERUS #MXL-IQ FIRE ALARM CONTROL PANEL TO BE DISCONNECTED, REMOVED, AND REPLACED.

D5 EXISTING FIRE ALARM INITIATION DEVICE TO BE DISCONNECTED, REMOVED, AND REPLACED. CONNECT TO NEW FIRE ALARM CONTROL PANEL IN SAME LOCATION.

D6 EXISTING KITCHEN HOOD MONITOR MODULE TO BE DISCONNECTED, REMOVED, AND REPLACED. CONNECT TO NEW FIRE ALARM CONTROL PANEL IN SAME LOCATION.

D8 EXISTING FIRE ALARM ANNUNCIATOR PANEL TO BE DISCONNECTED, REMOVED, AND REPLACED. CONNECT TO NEW FIRE ALARM CONTROL PANEL IN SAME LOCATION.

D9 EXISTING FLOOR ELECTRICAL DEVICE TO BE DISCONNECTED AND REMOVED COMPLETE.

D10 EXISTING CUTLER HAMMER PRL1A 100A 120/208V 3PH PANEL 'F' TO REMAIN.

D11 EXISTING CUTLER HAMMER PRL1A 200A 120/208V 3PH PANEL 'E' TO REMAIN.

D15 EXISTING CHILLER TO BE DISCONNECTED AND REMOVED BY OTHERS. REMOVE FEEDER BACK TO SOURCE. DISCONNECT AND REMOVE EXISTING BREAKER AND REPLACE WITH NEW BREAKER SIZE SHOWN ON E800.

1 / E100 OVERALL FIRST FLOOR DEMOLITION PLAN – POWER AND SYSTEMS

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

PROJECT NORTH

Engberg Anderson ARCHITECTS

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WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
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CITY OF MADISON PARKS DIVISION
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OVERALL FIRST FLOOR DEMOLITION PLAN – POWER AND SYSTEMS

E100

1 E101 FIRST FLOOR PARTIAL DEMOLITION PLAN - LIGHTING

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

PROJECT NORTH

DEMOLITION GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. REFER TO TEMPORARY ELECTRICAL WORK SECTION IN DIVISION 1 GENERAL REQUIREMENTS OF PROJECT MANUAL FOR ALL TEMPORARY ELECTRICAL REQUIREMENTS.
3. ALL DARK DASHED LINES APPROXIMATELY INDICATE EXISTING DEVICES TO BE DISCONNECTED AND REMOVED, UNLESS INDICATED OTHERWISE. REMOVE ANY/ALL UNUSED BOXES, WIRING AND CONDUIT BACK TO SOURCE. ALL PROPERLY SIZED AND PROPERLY SUPPORTED CONDUIT ONLY MAY BE REUSED.
4. ALL LIGHT, THIN LINES APPROXIMATELY INDICATE EXISTING DEVICES TO REMAIN, UNLESS INDICATED OTHERWISE.
5. ALL ELECTRICAL CONDUCTORS AND CONDUITS SERVING REMOVED EQUIPMENT AND DEVICES SHALL BE COMPLETELY REMOVED. CONDUIT AND CONDUCTORS SHALL NOT BE ABANDONED IN PLACE. EXISTING CONDUITS AND PATHWAYS MAY BE REUSED. FOR NEW WORK, EXISTING CONDUCTORS MAY NOT BE REUSED, UNLESS SPECIFICALLY NOTED.
6. MAINTAIN FIRE ALARM SYSTEM THROUGHOUT CONSTRUCTION AND PROVIDE FIRE WATCH, ETC., AS REQUIRED BY LOCAL AHJ. ANY/ALL CEILING MOUNTED DEVICES SHALL BE TEMPORARY SUPPORTED AND PROTECTED, INCLUDING BAGGING SMOKE DETECTORS (AS NECESSARY AND AS PERMITTED), DURING CONSTRUCTION. SYSTEM SHALL BE ACTIVE AND MONITORED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
7. NOTE THAT THIS PROJECT CONSISTS OF A COMPLETE REPLACEMENT OF THE FIRE ALARM SYSTEM AS SHOWN ON THE PLANS. ANY/ALL EXISTING FIRE ALARM DEVICES, CONTROL PANELS, ANNUNCIATOR PANELS, CABLING, ETC. SHALL BE DISCONNECTED AND REMOVED COMPLETE. REUSE OF EXISTING INFRASTRUCTURE (BOXES AND CONDUITS ONLY) IS ACCEPTABLE WHERE SIZED AND SUPPORTED PROPERLY. THE NEW VOICE FIRE ALARM SYSTEM THROUGHOUT THE BUILDING SHALL BE INSTALLED, PROGRAMMED, TESTED, COMMISSIONED, AND APPROVED BY THE LOCAL AHJ PRIOR TO DECOMMISSIONING AND REMOVING THE EXISTING FIRE ALARM SYSTEM. ANY AND ALL FIRE ALARM CABLING SHALL BE ROUTED IN EMT CONDUIT AT A MINIMUM. NO FREE AIR CABLING IS ALLOWED.

DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D3 DISCONNECT AND REMOVE EXISTING LIGHTING CONTROL, AND RELOCATE TO NEARBY AVAILABLE WALL. RECONNECT TO EXISTING LIGHTING CIRCUITS.

D4 DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE. LIGHT FIXTURE TO BE STORED IN A SAFE LOCATION AND BE REINSTALLED AS SHOWN ON NEW WORK PLANS.

D10 EXISTING CUTLER HAMMER PRL1A 100A 120/208V 3PH PANEL 'F' TO REMAIN.

D11 EXISTING CUTLER HAMMER PRL1A 200A 120/208V 3PH PANEL 'E' TO REMAIN.

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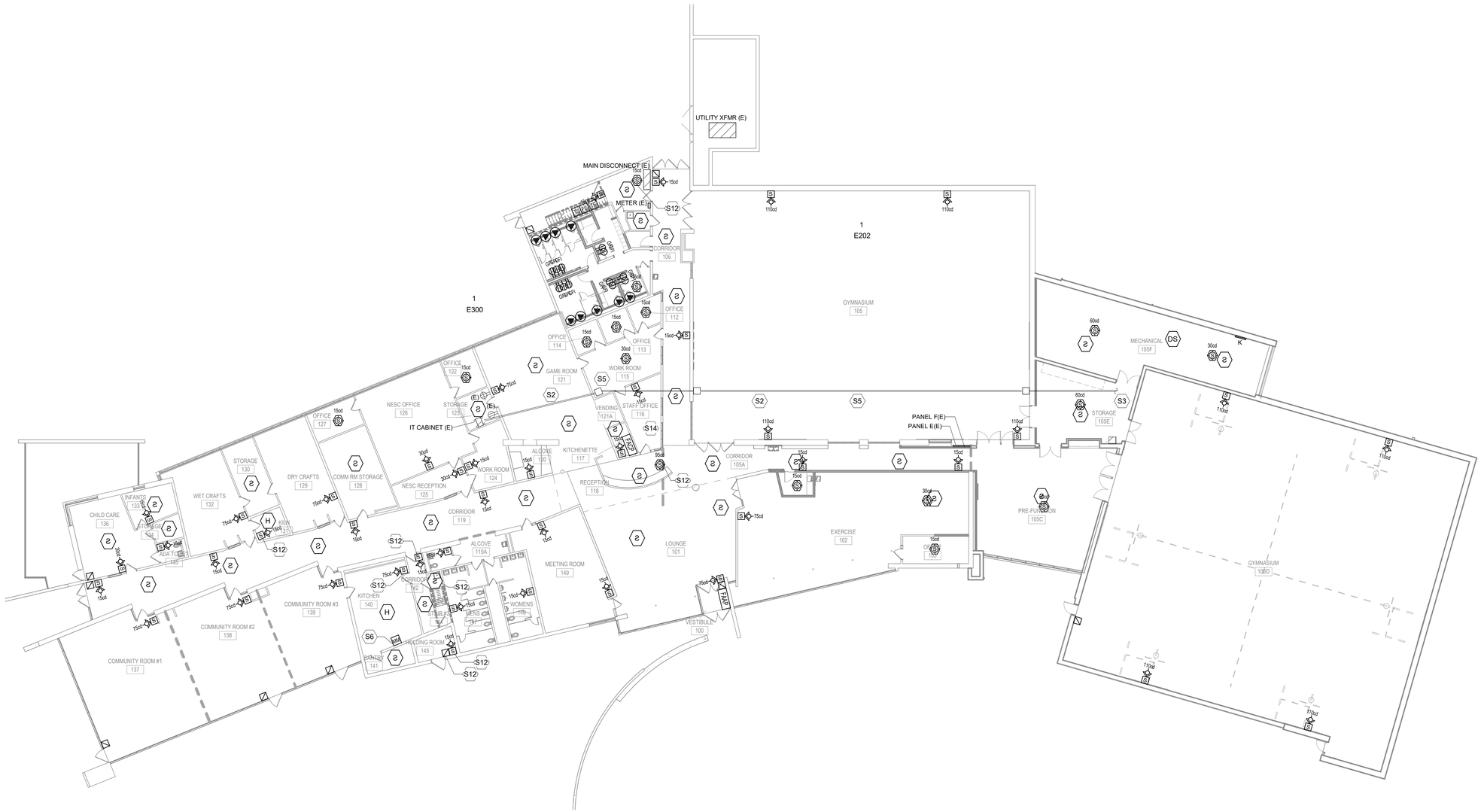
FIRST FLOOR PARTIAL DEMOLITION PLAN – LIGHTING

E101



1 E200 OVERALL FIRST FLOOR PLAN – POWER AND SYSTEMS

SCALE: 1/16" = 1'-0"

PROJECT NORTH

POWER GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
3. VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
4. NOTE THAT THIS PROJECT CONSISTS OF A COMPLETE REPLACEMENT OF THE FIRE ALARM SYSTEM AS SHOWN ON THE PLANS. ANY/ALL EXISTING FIRE ALARM DEVICES, CONTROL PANELS, ANNUNCIATOR PANELS, CABLING, ETC. SHALL BE DISCONNECTED AND REMOVED COMPLETE. REUSE OF EXISTING INFRASTRUCTURE (BOXES AND CONDUITS ONLY) IS ACCEPTABLE WHERE SIZED AND SUPPORTED PROPERLY. THE NEW VOICE FIRE ALARM SYSTEM THROUGHOUT THE BUIILDING SHALL BE INSTALLED, PROGRAMMED, TESTED, COMMISSIONED, AND APPROVED BY THE LOCAL AHJ PRIOR TO DECOMMISSIONING AND REMOVING THE EXISTING FIRE ALARM SYSTEM. ANY/ALL NEW FIRE ALARM DEVICES SHALL BE RECESSED IN EXISTING WALLS/CEILINGS UNLESS INDICATED OTHERWISE. ANY AND ALL FIRE ALARM CABLING SHALL BE EMT CONDUIT AT A MINIMUM. NO FREE AIR CABLING IS ALLOWED.
5. ALL RECEPTACLES WITH PLUGLOAD CONTROL SHALL BE CONTROLLABLE VIA THE LIGHTING CONTROLS SHOWN ON THE LIGHTING PLANS. PROVIDE CONTROL DEVICES, ETC. AS REQUIRED TO ACHIEVE THE CONTROLS SHOWN.

SYSTEMS GENERAL NOTES:

1. ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
2. TV OUTLETS, VOLUME CONTROLS, TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING, SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
3. ANY/ALL LOW VOLTAGE SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: COMMUNICATIONS, PAGING, CLOCK SYSTEM, CLASS BELLS, ETC., SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. FIELD VERIFY ALL LOW VOLTAGE SYSTEM REQUIREMENTS AND EXTEND/MAINTAIN/REUSE AS REQUIRED. EXTEND ANY/ALL NEW COMMUNICATIONS CABLING TO EXISTING MDF/IDF AS REQUIRED. COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
4. CAMERA MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND CAMERA MOUNT TYPE PRIOR TO INSTALL.
5. ALL WAP LOCATIONS SHOWN ARE APPROXIMATE. CONFIRM ALL EXACT/FINAL WAP LOCATIONS WITH CITY I.T. DEPARTMENT PRIOR TO ROUGH IN. WAP MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND WAP MOUNT TYPE PRIOR TO INSTALL.
6. ALL NEW CAT6 CABLING SHALL BE ROUTED TO STORAGE (TR ROOM) #105E.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- S2 FOR CONNECTION OF TELECOM ROOMS, RUN TWELVE STRAND SINGLE MODE FIBER FROM STORAGE (TR ROOM) 123 TO STORAGE (TR ROOM) 105E. TERMINATE WITH LC CONNECTORS ON CABINET MOUNTED PATCH PANEL IN EACH TR. PROVIDE 12 LC TO LC PATCH CABLES.
- S3 PROVIDE AND INSTALL NEW LOCKING IT CABINET EQUAL TO HUBBELL #HSQ4836.
- S5 PROVIDE AND INSTALL (2) 2" CONDUITS ROUTED FROM STORAGE (TR ROOM) 123 TO STORAGE (TR ROOM) 105E. PROVIDE JUNCTION BOXES ABOVE CEILING IN WORK ROOM 115 AND IN GYMNASIUM 105 APPROXIMATELY AS SHOWN. CONDUITS SHALL BE PAINTED TO MATCH EXISTING CEILING/UTILITIES COLOR WHEN ROUTED THROUGH SPACE(S) WITH NO CEILINGS.
- S6 EXISTING KITCHEN HOOD MONITOR MODULE TO BE DISCONNECTED, REMOVED, AND REPLACED. CONNECT TO NEW FIRE ALARM CONTROL PANEL IN SAME LOCATION. FIELD VERIFY ALL REQUIREMENTS WITH EXISTING HOOD/EQUIPMENT AND CONNECT TO NEW FIRE ALARM SYSTEM AS REQUIRED.
- S12 FIRE ALARM DEVICE TO BE SURFACE MOUNTED AT APPROXIMATE LOCATION SHOWN.
- S14 PROVIDE A PAGING SPEAKER CABLING TERMINATION POINT (J-BOX AS REQUIRED) ABOVE THE CEILING IN THIS ROOM. ALL NEW PAGING SPEAKER CABLING FROM PRE-FUNCTION #105C AND GYMNASIUM #105D SHALL BE ROUTED TO THIS POINT. ALL NEW PAGING SPEAKER CABLING FROM OFFICE #103 (CURRENTLY DAMAGED) SHALL BE ROUTED OVERHEAD TO THIS POINT. EXTEND NEW CABLES TO EXISTING AMP FROM THIS LOCATION.

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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

NO. DESCRIPTION DATE

DRAWN BY JDR

CHECKED BY JDR

OVERALL FIRST FLOOR PLAN – POWER AND SYSTEMS

E200

KEYED NOTES

(KEYED NOTES PER PROJECT)

P1 LOCATE INVERTERS FOR ROOF MOUNTED PV ARRAY AT THIS LOCATION.

P2 PROVIDE AND INSTALL NEW 208Y/120V, 600A PANEL 'K'.

P3 PROVIDE AND INSTALL DUAL CONTROLLED RECEPTACLE EQUAL TO LEGRAND #WRC-20-2. PROVIDE CEILING MOUNTED RF TRANSMITTER EQUAL TO LEGRAND #WRC-TX-LM. PROVIDE ROOM CONTROLLERS AS REQUIRED.

P4 COORDINATE HEIGHT OF POWER AND DATA FOR SCREEN WITH ARCHITECT.

P5 LOCATION OF DESTRATIFICATION FAN SPEED CONTROLLER AND REVERSING SWITCH. HC SHALL FURNISH CONTROLLER AND SWITCH TO EC TO INSTALL. REFER TO M201 FOR MORE DETAILS.

S1 MOUNT SMOKE DETECTOR ABOVE PERFERATED CEILING.

S2 FOR CONNECTION OF TELECOM ROOMS, RUN TWELVE STRAND SINGLE MODE FIBER FROM STORAGE (TR ROOM) 123 TO STORAGE (TR ROOM) 105E. TERMINATE WITH LC CONNECTORS ON CABINET MOUNTED PATCH PANEL IN EACH TR. PROVIDE 12 LC TO LC PATCH CABLES.

S3 PROVIDE AND INSTALL NEW LOCKING IT CABINET EQUAL TO HUBBELL #HSQ4836.

S4 EXTEND EXISTING PAGING FEEDS THROUGH OVERHEAD CONDUIT SYSTEM TO THIS LOCATION. CONTRACTOR SHALL CUT EXISTING UNDERGROUND FEED AND SPLICE TO NEW OVERHEAD CONDUIT SYSTEM.

S5 PROVIDE AND INSTALL (2) 2" CONDUITS ROUTED FROM STORAGE (TR ROOM) 123 TO STORAGE (TR ROOM) 105E. PROVIDE JUNCTION BOXES ABOVE CEILING IN WORK ROOM 115 AND IN GYMNASIUM 105 APPROXIMATELY AS SHOWN. CONDUITS SHALL BE PAINTED TO MATCH EXISTING CEILING/UTILITIES COLOR WHEN ROUTED THROUGH SPACE(S) WITH NO CEILINGS.

S7 ADD INPUTS TO SOUND SYSTEM. XLR AND 1/4" LINE LEVEL STEREO INPUTS.

S8 FURNISH AND INSTALL COMPLETE A DAKTRONICS SCOREBOARD SYSTEM IN GYMNASIUM #105D AS APPROXIMATELY SHOWN ON THE PLANS, WITH EQUIPMENT LISTED BELOW AT A MINIMUM. COORDINATE ANY/ALL REQUIREMENTS WITH KYLE SYDOW AT DAKTRONICS AT (312) 339-3944 or kyle.sydow@daktronics.com. ONE(1) #LVN-2010-3.9MN VIDEO DISPLAY WITH TOP IDENTIFIER, ONE(1) #LVN-2010-5.9MN VIDEO DISPLAY WITH TOP IDENTIFIER, ONE(1) #BB-2107 SCORING DISPLAY, ONE(1) RACK WITH SCOREBOARD CONTROL SYSTEM (IN STORAGE #105E), CONTROL SOFTWARE (LAPTOP/PC BY OWNER.), ANY/ALL POWER, CONNECTIONS, FIBER, CAT6, ETC. FOR A COMPLETE AND OPERATIONAL SYSTEM, PROVIDE RACEWAYS BETWEEN EQUIPMENT AND RACKS AS REQUIRED BY DAKTRONICS.

S9 FURNISH AND INSTALL COMPLETE AN OCTASOUND GYMNASIUM SOUND SYSTEM IN GYMNASIUM #105D AS APPROXIMATELY SHOWN ON THE PLANS, WITH EQUIPMENT LISTED BELOW AT A MINIMUM. COORDINATE ANY/ALL REQUIREMENTS WITH KEVIN BULL AT OCTASOUND AT (416) 439-7158 or kevin@octasound.com. ONE(1) #SP820A 15" 360X180 SPEAKERS, ONE(1) #OS2X12 DUAL 12" SUBWOOFERS, TWO(2) #SPH2L-SS-06 ROPES, ONE(1) CROWN 475W DSP AMPLIFIER WITH POWER CONDITIONER AND RACK AS REQUIRED (IN STORAGE #105E), OCTASOUND RAMX2 AND RABX2 INPUTS, OCTASOUND RUSBX2 CHARGING PLATE, VANDAL CASES, VOLUME CONTROLS, ETC., ANY/ALL POWER, CONNECTIONS, FIBER, CAT6, ETC. FOR A COMPLETE AND OPERATIONAL SYSTEM, PROVIDE RACEWAYS BETWEEN EQUIPMENT AND RACKS AS REQUIRED BY OCTASOUND.

S10 PROVIDE AND INSTALL ONE(1) 2" CONDUIT AND ONE(1) 1" CONDUIT FROM AV RACK TO SB-1.

S11 PROVIDE AND INSTALL ONE(1) 2" CONDUIT AND ONE(1) 1" CONDUIT FROM AV RACK TO SB-2.

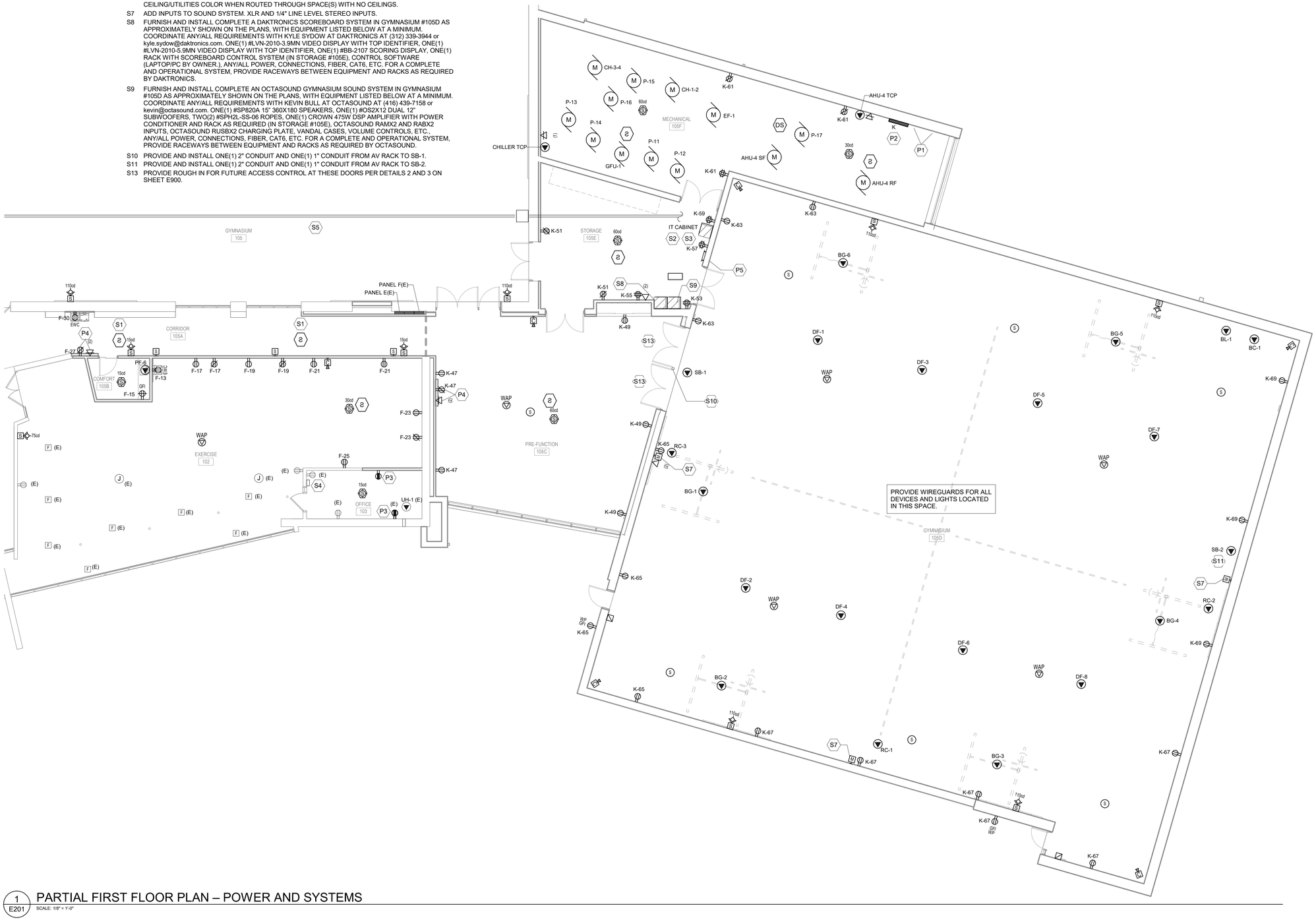
S13 PROVIDE ROUGH IN FOR FUTURE ACCESS CONTROL AT THESE DOORS PER DETAILS 2 AND 3 ON SHEET E900.

SYSTEMS GENERAL NOTES:

1. ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
2. TV OUTLETS, VOLUME CONTROLS, TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING, SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
3. ANY/ALL LOW VOLTAGE SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: COMMUNICATIONS, PAGING, CLOCK SYSTEM, CLASS BELLS, ETC., SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. FIELD VERIFY ALL LOW VOLTAGE SYSTEM REQUIREMENTS AND EXTEND/MAINTAIN/REUSE AS REQUIRED. EXTEND ANY/ALL NEW COMMUNICATIONS CABLING TO EXISTING MDF/IDF AS REQUIRED. COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
4. CAMERA MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND CAMERA MOUNT TYPE PRIOR TO INSTALL.
5. ALL WAP LOCATIONS SHOWN ARE APPROXIMATE. CONFIRM ALL EXACT/FINAL WAP LOCATIONS WITH CITY I.T. DEPARTMENT PRIOR TO ROUGH IN. WAP MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND WAP MOUNT TYPE PRIOR TO INSTALL.
6. ALL NEW CAT6 CABLING SHALL BE ROUTED TO STORAGE (TR ROOM) #105E.

POWER GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
3. VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
4. NOTE THAT THIS PROJECT CONSISTS OF A COMPLETE REPLACEMENT OF THE FIRE ALARM SYSTEM AS SHOWN ON THE PLANS. ANY/ALL EXISTING FIRE ALARM DEVICES, CONTROL PANELS, ANNUNCIATOR PANELS, CABLING, ETC. SHALL BE DISCONNECTED AND REMOVED COMPLETE. REUSE OF EXISTING INFRASTRUCTURE (BOXES AND CONDUITS ONLY) IS ACCEPTABLE WHERE SIZED AND SUPPORTED PROPERLY. THE NEW VOICE FIRE ALARM SYSTEM THROUGHOUT THE BUILDING SHALL BE INSTALLED, PROGRAMMED, TESTED, COMMISSIONED, AND APPROVED BY THE LOCAL AHJ PRIOR TO DECOMMISSIONING AND REMOVING THE EXISTING FIRE ALARM SYSTEM. ANY/ALL NEW FIRE ALARM DEVICES SHALL BE RECESSED IN EXISTING WALLS/CEILINGS UNLESS INDICATED OTHERWISE. ANY AND ALL FIRE ALARM CABLING SHALL BE EMT CONDUIT AT A MINIMUM. NO FREE AIR CABLING IS ALLOWED.
5. ALL RECEPTACLES WITH PLUGLOAD CONTROL SHALL BE CONTROLLABLE VIA THE LIGHTING CONTROLS SHOWN ON THE LIGHTING PLANS. PROVIDE CONTROL DEVICES, ETC. AS REQUIRED TO ACHIEVE THE CONTROLS SHOWN.



1 E201 PARTIAL FIRST FLOOR PLAN – POWER AND SYSTEMS
SCALE: 1/8" = 1'-0"

PROJECT NORTH

Engberg Anderson ARCHITECTS
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JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

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PARTIAL FIRST FLOOR PLAN – POWER AND SYSTEMS

E201

LIGHTING GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. REFER TO ARCHITECTURAL PLANS, SECTIONS, ELEVATIONS, AND REFLECTED CEILING PLANS FOR EXACT LOCATION AND COORDINATION OF ALL LIGHT FIXTURE AND CONTROLLER INSTALLATIONS.
3. VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
4. WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) AND APPLICABLE LOCAL CODES, INCLUDING PROVISION OF EQUIPMENT GROUNDING AS REQUIRED BY THE NEC.
5. POWER CONDUCTORS SHALL BE SIZED PER THE NEC AMPACITY TABLES (ARTICLE 310), INCLUDING ADJUSTMENT FACTOR AND NEUTRAL CONDUCTOR REQUIREMENTS (FEED AND BRANCH NEUTRAL CONDUCTORS MUST BE COUNTED AS CURRENT CARRYING CONDUCTORS). RUN SEPARATE NEUTRAL CONDUCTORS FOR ALL LIGHTING CIRCUITS.
6. EXIT SIGNAGE IS INDICATED ON THE PLANS BASED ON ANTICIPATED EGRESS PATHS THROUGHOUT THE BUILDING. ELECTRICAL CONTRACTOR SHALL CONFIRM ALL EGRESS PATHS WITH ARCHITECT/OWNER/GENERAL CONTRACTOR DURING CONSTRUCTION AND SHALL ADD/MODIFY EXIT SIGNAGE AS REQUIRED TO COMPLY WITH PATHWAYS.
7. ALL LIGHT FIXTURES SHALL BE PROVIDED WITH QUICK-CONNECT DISCONNECTING MEANS AND A 6'0" (MAXIMUM) FIXTURE WHIP FOR FUTURE MAINTENANCE PURPOSES.
8. LIGHT FIXTURES AND OTHER APPARATUS SUPPORTED BY THE ACOUSTICAL CEILING GRID MUST MEET THE REQUIREMENTS OF NEC SECTION 410.16, MEANS OF SUPPORT.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- L2 EXISTING LIGHTING FIXTURE RELOCATED TO THIS LOCATION. CONNECT TO NEARBY LIGHTING CONTROLS AND CIRCUIT.
- L3 MOUNT LIGHTING FIXTURE TO BOTTOM OF STRUCTURAL TRUSS.
- L6 ELECTRICAL CONTRACTOR TO PROVIDE INLINE LIGHTING IN PERFORATED ARCHITECTURAL CEILING PANELS. COORDINATE FINAL LAYOUT OF INLINE LIGHTS WITH ARCHITECT.
- P2 PROVIDE AND INSTALL NEW 208Y/120V, 600A PANEL 'K'.

1 E202 PARTIAL FIRST FLOOR PLAN – LIGHTING
SCALE: 1/8" = 1'-0"

PROJECT NORTH

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WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

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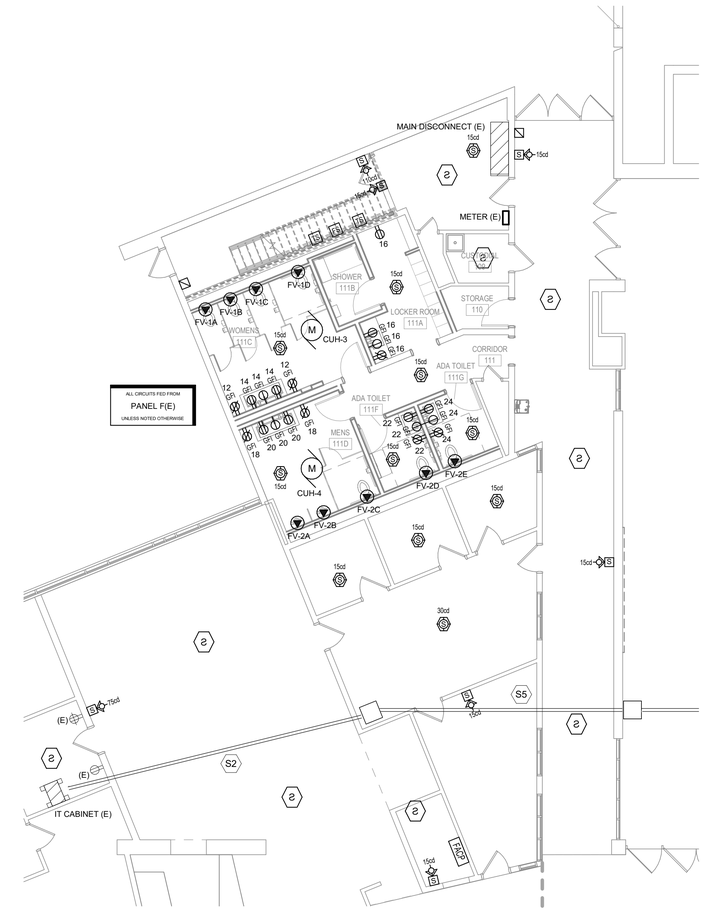
PARTIAL FIRST FLOOR PLAN – LIGHTING

E202

2 E300 FIRST FLOOR PLAN – LIGHTING

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



1 E300 FIRST FLOOR PLAN – POWER AND SYSTEMS

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

LIGHTING CONTROLS GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. OCCUPANCY SENSOR LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY. ACTUAL LOCATION TO BE DETERMINED IN FIELD PER MANUFACTURER'S RECOMMENDATIONS AND LAYOUT. PROVIDE A MINIMUM 4'-0" OF FLEX CONDUIT/WIRING SO THAT THE SENSOR CAN BE FIELD ADJUSTED FOR PROPER COVERAGE DURING FINAL COMMISSIONING. THE TRAINED FACTORY PERSONNEL SHALL PERFORM THE FINAL COMMISSIONING.

POWER GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
3. VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
4. NOTE THAT THIS PROJECT CONSISTS OF A COMPLETE REPLACEMENT OF THE FIRE ALARM SYSTEM AS SHOWN ON THE PLANS. ANY/ALL EXISTING FIRE ALARM DEVICES, CONTROL PANELS, ANNUNCIATOR PANELS, CABLING, ETC. SHALL BE DISCONNECTED AND REMOVED COMPLETE. REUSE OF EXISTING INFRASTRUCTURE (BOXES AND CONDUITS ONLY) IS ACCEPTABLE WHERE SIZED AND SUPPORTED PROPERLY. THE NEW VOICE FIRE ALARM SYSTEM THROUGHOUT THE BUILDING SHALL BE INSTALLED, PROGRAMMED, TESTED, COMMISSIONED, AND APPROVED BY THE LOCAL AHJ PRIOR TO DECOMMISSIONING AND REMOVING THE EXISTING FIRE ALARM SYSTEM. ANY/ALL NEW FIRE ALARM DEVICES SHALL BE RECESSED IN EXISTING WALLS/CEILINGS UNLESS INDICATED OTHERWISE. ANY AND ALL FIRE ALARM CABLING SHALL BE EMT CONDUIT AT A MINIMUM. NO FREE AIR CABLING IS ALLOWED.
5. ALL RECEPTACLES WITH PLUGLOAD CONTROL SHALL BE CONTROLLABLE VIA THE LIGHTING CONTROLS SHOWN ON THE LIGHTING PLANS. PROVIDE CONTROL DEVICES, ETC. AS REQUIRED TO ACHIEVE THE CONTROLS SHOWN.

SYSTEMS GENERAL NOTES:

1. ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
2. TV OUTLETS, VOLUME CONTROLS, TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING, SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
3. ANY/ALL LOW VOLTAGE SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: COMMUNICATIONS, PAGING, CLOCK SYSTEM, CLASS BELLS, ETC., SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. FIELD VERIFY ALL LOW VOLTAGE SYSTEM REQUIREMENTS AND EXTEND/MAINTAIN/REUSE AS REQUIRED. EXTEND ANY/ALL NEW COMMUNICATIONS CABLING TO EXISTING MDF/IDF AS REQUIRED. COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
4. CAMERA MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND CAMERA MOUNT TYPE PRIOR TO INSTALL.
5. ALL WAP LOCATIONS SHOWN ARE APPROXIMATE. CONFIRM ALL EXACT/FINAL WAP LOCATIONS WITH CITY I.T. DEPARTMENT PRIOR TO ROUGH IN. WAP MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND WAP MOUNT TYPE PRIOR TO INSTALL.
6. ALL NEW CAT6 CABLING SHALL BE ROUTED TO STORAGE (TR ROOM) #105E.

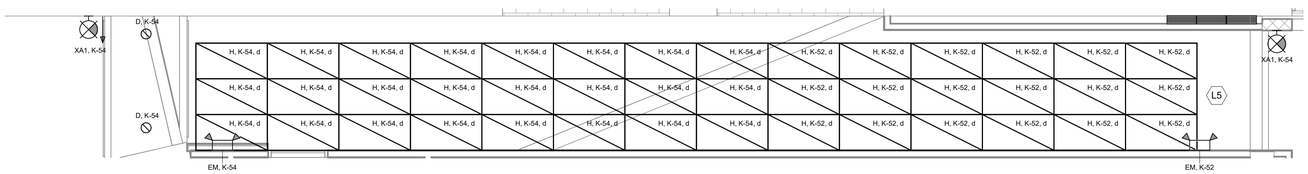
KEYED NOTES

(KEYED NOTES PER PROJECT)

L5 ELECTRICAL CONTRACTOR TO PROVIDE INTEGRAL BACKLIGHTING BEHIND PERFORATED ARCHITECTURAL CEILING PANELS THROUGHOUT CORRIDOR 105A. FIELD CUT BACKLIGHTING SECTIONS THAT DO NOT FIT IN 2'X4' LIGHT TRAYS.

S2 FOR CONNECTION OF TELECOM ROOMS, RUN TWELVE STRAND SINGLE MODE FIBER FROM STORAGE (TR ROOM) 123 TO STORAGE (TR ROOM) 105E. TERMINATE WITH LC CONNECTORS ON CABINET MOUNTED PATCH PANEL IN EACH TR. PROVIDE 12 LC TO LC PATCH CABLES.

S5 PROVIDE AND INSTALL (2) 2" CONDUITS ROUTED FROM STORAGE (TR ROOM) 123 TO STORAGE (TR ROOM) 105E. PROVIDE JUNCTION BOXES ABOVE CEILING IN WORK ROOM 115 AND IN GYMNASIUM 105 APPROXIMATELY AS SHOWN. CONDUITS SHALL BE PAINTED TO MATCH EXISTING CEILING/UTILITIES COLOR WHEN ROUTED THROUGH SPACE(S) WITH NO CEILINGS.



3 E300 CORRIDOR 105A - LIGHTING

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

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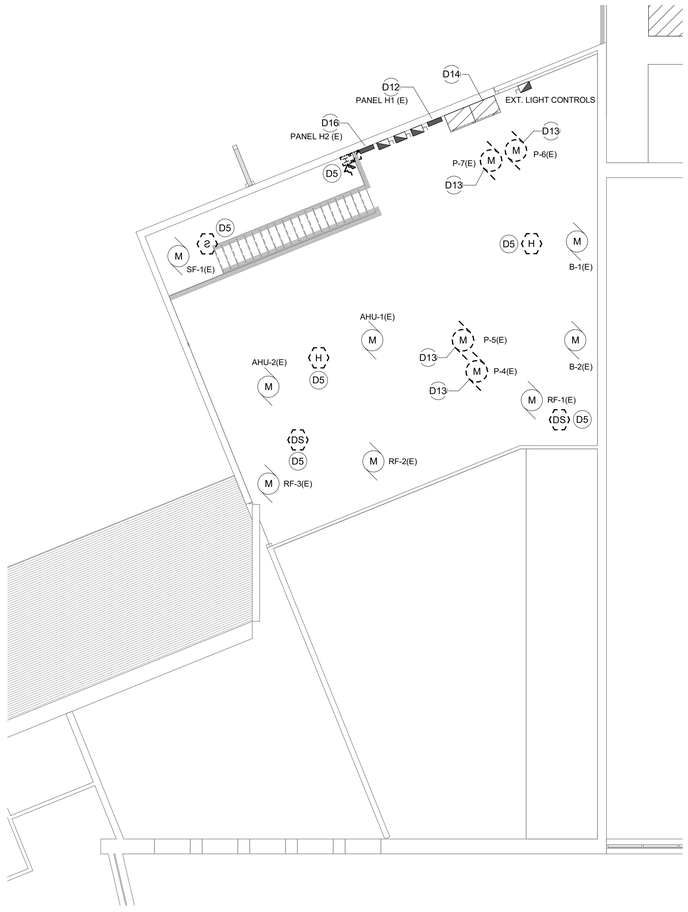
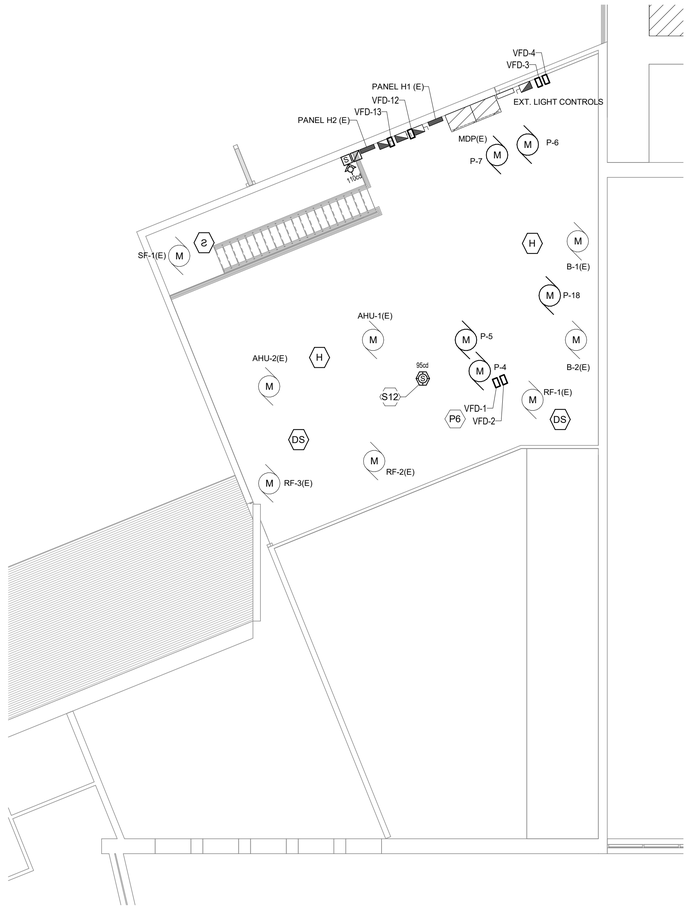
LARGE SCALE PLANS - ELECTRICAL

E300



2 E301 NORTH MEZZANINE DEMOLITION PLAN – POWER AND SYSTEMS

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



1 E301 NORTH MEZZANINE PLAN – POWER AND SYSTEMS

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

SYSTEMS GENERAL NOTES:

1. ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
2. TV OUTLETS, VOLUME CONTROLS, TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING, SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
3. ANY/ALL LOW VOLTAGE SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: COMMUNICATIONS, PAGING, CLOCK SYSTEM, CLASS BELLS, ETC., SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. FIELD VERIFY ALL LOW VOLTAGE SYSTEM REQUIREMENTS AND EXTEND/MAINTAIN/REUSE AS REQUIRED. EXTEND ANY/ALL NEW COMMUNICATIONS CABLING TO EXISTING MDF/IDF AS REQUIRED. COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
4. CAMERA MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND CAMERA MOUNT TYPE PRIOR TO INSTALL.
5. ALL WAP LOCATIONS SHOWN ARE APPROXIMATE. CONFIRM ALL EXACT/FINAL WAP LOCATIONS WITH CITY I.T. DEPARTMENT PRIOR TO ROUGH IN. WAP MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND WAP MOUNT TYPE PRIOR TO INSTALL.
6. ALL NEW CAT6 CABLING SHALL BE ROUTED TO STORAGE (TR ROOM) #105E.

POWER GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
3. VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
4. NOTE THAT THIS PROJECT CONSISTS OF A COMPLETE REPLACEMENT OF THE FIRE ALARM SYSTEM AS SHOWN ON THE PLANS. ANY/ALL EXISTING FIRE ALARM DEVICES, CONTROL PANELS, ANNUNCIATOR PANELS, CABLING, ETC. SHALL BE DISCONNECTED AND REMOVED COMPLETE. REUSE OF EXISTING INFRASTRUCTURE (BOXES AND CONDUITS ONLY) IS ACCEPTABLE WHERE SIZED AND SUPPORTED PROPERLY. THE NEW VOICE FIRE ALARM SYSTEM THROUGHOUT THE BUILDING SHALL BE INSTALLED, PROGRAMMED, TESTED, COMMISSIONED, AND APPROVED BY THE LOCAL AHJ PRIOR TO DECOMMISSIONING AND REMOVING THE EXISTING FIRE ALARM SYSTEM. ANY/ALL NEW FIRE ALARM DEVICES SHALL BE RECESSED IN EXISTING WALLS/CEILINGS UNLESS INDICATED OTHERWISE. ANY AND ALL FIRE ALARM CABLING SHALL BE EMT CONDUIT AT A MINIMUM. NO FREE AIR CABLING IS ALLOWED.
5. ALL RECEPTACLES WITH PLUGLOAD CONTROL SHALL BE CONTROLLABLE VIA THE LIGHTING CONTROLS SHOWN ON THE LIGHTING PLANS. PROVIDE CONTROL DEVICES, ETC. AS REQUIRED TO ACHIEVE THE CONTROLS SHOWN.

DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

- D5 EXISTING FIRE ALARM INITIATION DEVICE TO BE DISCONNECTED, REMOVED, AND REPLACED. CONNECT TO NEW FIRE ALARM CONTROL PANEL IN SAME LOCATION.
- D12 EXISTING CUTLER HAMMER PRL1A 225A 120/208V 3PH PANEL 'H1' TO REMAIN.
- D13 EXISTING PUMP TO BE DISCONNECTED AND REMOVED BY OTHERS. REMOVE FEEDER BACK TO SOURCE. DISCONNECT AND REMOVE EXISTING BREAKER AND REPLACE WITH NEW BREAKER SIZE SHOWN ON E800.
- D14 CHALLENGER 1600A 208Y/120V SWITCHBOARD EXISTING TO REMAIN. REFER TO E600 FOR DETAILS.
- D16 EXISTING CUTLER HAMMER PRL1A 225A 120/208V 3PH PANEL 'H2' TO REMAIN.

Engberg Anderson ARCHITECTS
MILWAUKEE | MADISON | CHICAGO

JDR ENGINEERING, INC.
5525 NOBEL DRIVE
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MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

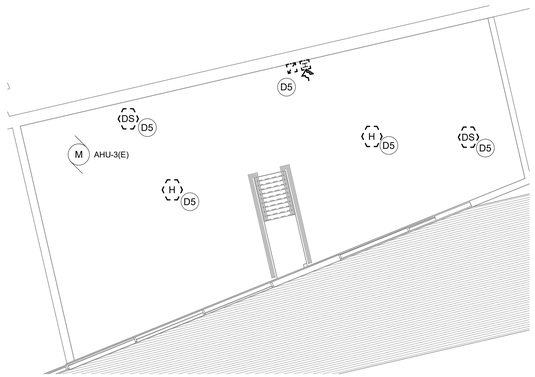
NO. DESCRIPTION DATE

DRAWN BY JDR

CHECKED BY JDR

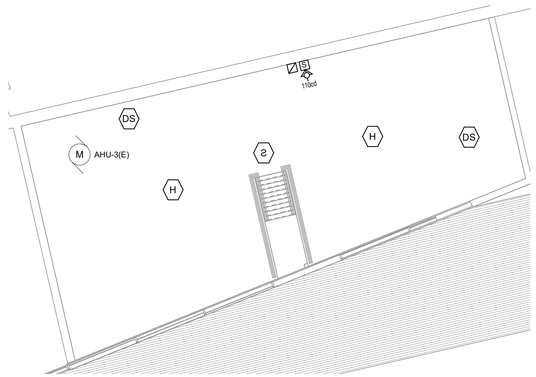
LARGE SCALE PLANS - NORTH MEZZANINE

E301



2 E302 SOUTH MEZZANINE DEMO PLAN – POWER AND SYSTEMS

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



1 E302 SOUTH MEZZANINE PLAN – POWER AND SYSTEMS

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

SYSTEMS GENERAL NOTES:

1. ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
2. TV OUTLETS, VOLUME CONTROLS, TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING. SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
3. ANY/ALL LOW VOLTAGE SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: COMMUNICATIONS, PAGING, CLOCK SYSTEM, CLASS BELLS, ETC., SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. FIELD VERIFY ALL LOW VOLTAGE SYSTEM REQUIREMENTS AND EXTEND/MAINTAIN/REUSE AS REQUIRED. EXTEND ANY/ALL NEW COMMUNICATIONS CABLING TO EXISTING MDF/IDF AS REQUIRED. COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
4. CAMERA MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND CAMERA MOUNT TYPE PRIOR TO INSTALL.
5. ALL WAP LOCATIONS SHOWN ARE APPROXIMATE. CONFIRM ALL EXACT/FINAL WAP LOCATIONS WITH CITY I.T. DEPARTMENT PRIOR TO ROUGH IN. WAP MOUNTING SHALL BE COORDINATED WITH OWNER. VERIFY DESIRED MOUNTING HEIGHT AND WAP MOUNT TYPE PRIOR TO INSTALL.
6. ALL NEW CAT6 CABLING SHALL BE ROUTED TO STORAGE (TR ROOM) #105E.

POWER GENERAL NOTES:

1. REFER TO SHEET E000 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
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DEMOLITION KEYED NOTES

(KEYED NOTES PER PROJECT)

D5 EXISTING FIRE ALARM INITIATION DEVICE TO BE DISCONNECTED, REMOVED, AND REPLACED. CONNECT TO NEW FIRE ALARM CONTROL PANEL IN SAME LOCATION.

Engberg Anderson ARCHITECTS

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JDR PROJECT NO: 23.0319

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330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

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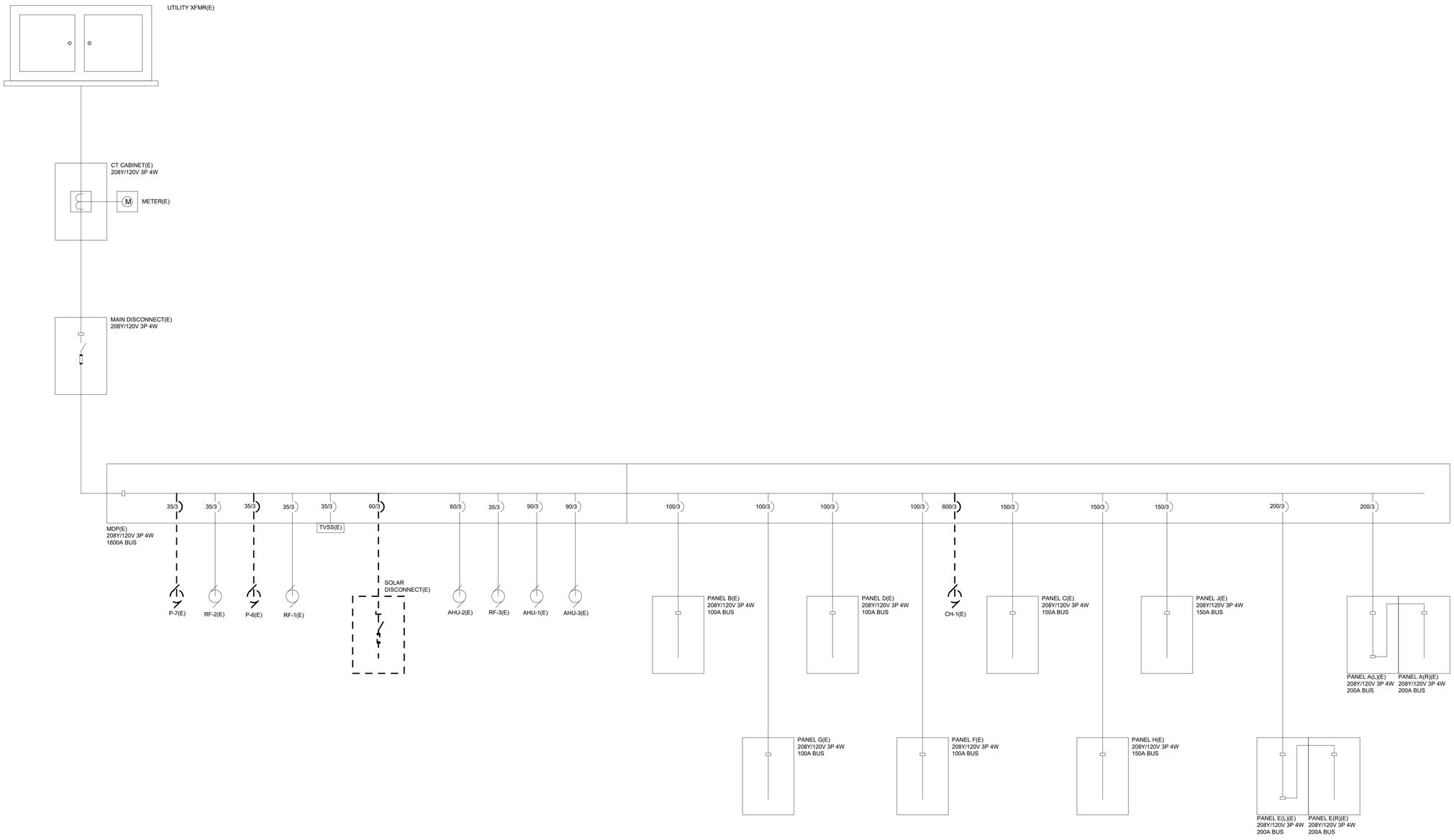
LARGE SCALE PLANS - SOUTH MEZZANINE

E302



1 E600 ONE-LINE DIAGRAM - EXISTING/DEMOLITION
SCALE: NONE

Engberg Anderson ARCHITECTS

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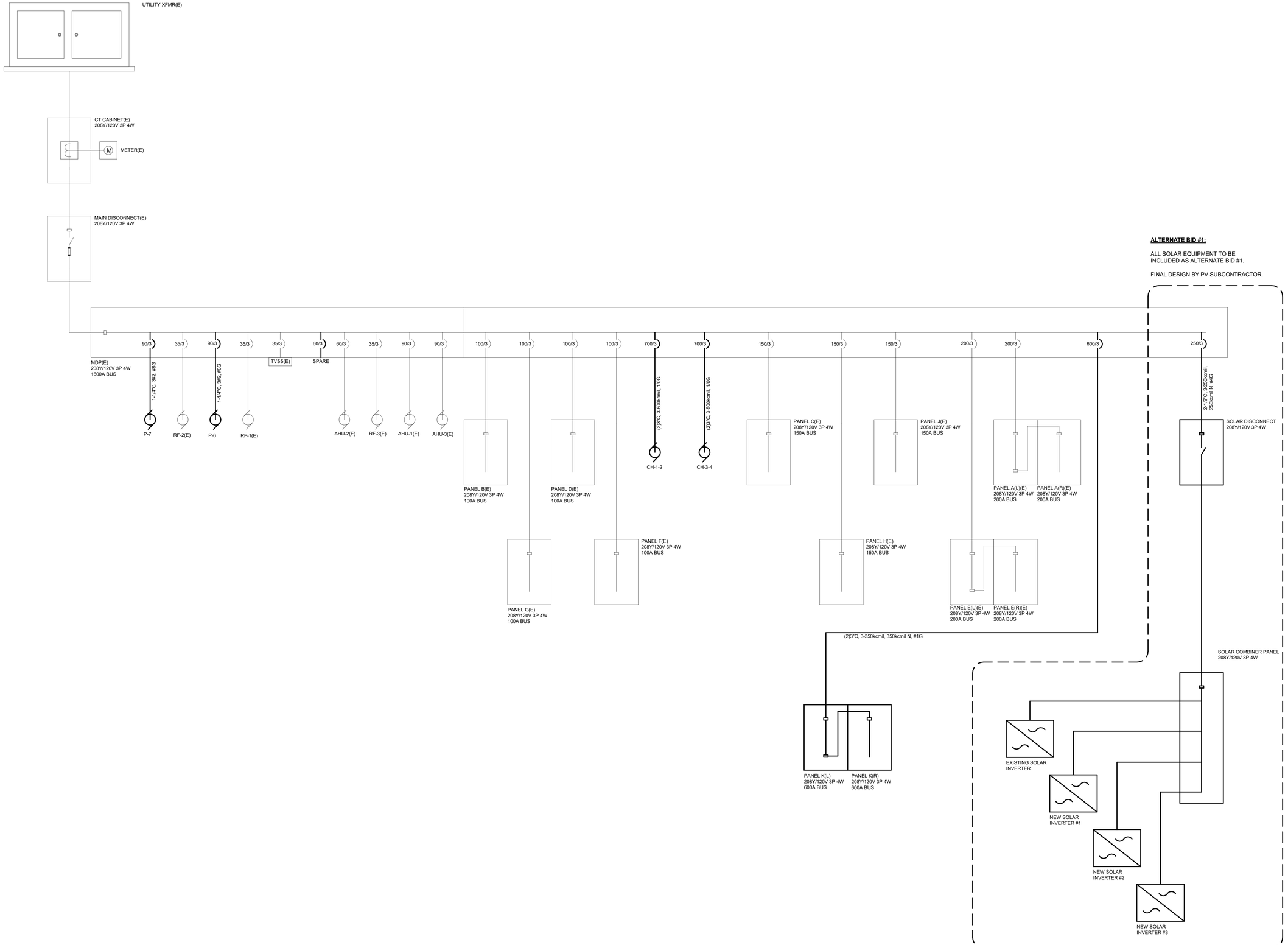
ONE-LINE DIAGRAM - EXISTING/DEMOLITION

E600



ALTERNATE BID #1:

ALL SOLAR EQUIPMENT TO BE INCLUDED AS ALTERNATE BID #1.

FINAL DESIGN BY PV SUBCONTRACTOR.

1 E601 ONE-LINE DIAGRAM - EXISTING/NEW WORK
SCALE: NONE

Engberg Anderson ARCHITECTS

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JDR ENGINEERING, INC.
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WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

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ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

NO.	DESCRIPTION	DATE

DRAWN BY JDR

CHECKED BY JDR

ONE-LINE DIAGRAM - EXISTING/NEW WORK

E601

ELECTRICAL CONNECTION SCHEDULE

TAG	DESCRIPTION	LOCATION NO	LOCATION NAME	LOAD kVA	LOAD F.L.A.	LOAD M.C.A.	LOAD VOLT	LOAD PH	CIRCUITING INFORMATION OCP (Amps)	CIRCUITING INFORMATION WIRE SIZE & CONDUIT	CIRCUITING INFORMATION PANEL	CIRCUITING INFORMATION CIRCUIT #	STARTER TYPE	STARTER FURNISHED / INSTALLED	CONTROLLER TYPE	CONTROLLER FURNISHED / INSTALLED	DISCONNECT TYPE	DISCONNECT FURNISHED / INSTALLED	ACCESSORIES	NEMA TYPE/CONFIGURATION	POWER SOURCE TYPE NORMAL	POWER SOURCE TYPE LIFE SAFETY	POWER SOURCE TYPE LEGALLY REQUIRED	POWER SOURCE TYPE OPTIONAL STAND-BY	FOOT NOTES
120																									
AHU-4 TCP	TEMPATURE CONTROL PANEL	105F	MECHANICAL	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	71	-	-	-	-	NFS	EC/EC	-	-	●				
BC-1	BATTING CAGE	105D	GYMNASIUM	1	5	6	120	1	20	3/4"C, 2-#12, #12G	K	79	-	-	-	-	NFS	EC/EC	-	-	●				
BG-1	BASKETBALL GOAL	105D	GYMNASIUM	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	73	-	-	-	-	NFS	EC/EC	-	-	●				
BG-2	BASKETBALL GOAL	105D	GYMNASIUM	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	73	-	-	-	-	NFS	EC/EC	-	-	●				
BG-3	BASKETBALL GOAL	105D	GYMNASIUM	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	73	-	-	-	-	NFS	EC/EC	-	-	●				
BG-4	BASKETBALL GOAL	105D	GYMNASIUM	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	75	-	-	-	-	NFS	EC/EC	-	-	●				
BG-5	BASKETBALL GOAL	105D	GYMNASIUM	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	75	-	-	-	-	NFS	EC/EC	-	-	●				
BG-6	BASKETBALL GOAL	105D	GYMNASIUM	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	75	-	-	-	-	NFS	EC/EC	-	-	●				
BL-1	BLEACHERS	105D	GYMNASIUM	1	5	6	120	1	20	3/4"C, 2-#12, #12G	K	77	-	-	-	-	NFS	EC/EC	-	-	●				
CHILLER TCP	TEMPATURE CONTROL PANEL	105F	MECHANICAL	0	2	2	120	1	20	3/4"C, 2-#12, #12G	K	71	-	-	-	-	NFS	EC/EC	-	-	●				
DF-1	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	72	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-2	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	72	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-3	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	72	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-4	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	72	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-5	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	74	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-6	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	74	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-7	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	74	-	-	-	-	NFS	EC/EC	-	-	●				(1)
DF-8	DESTRATIFICATION FAN	105D	GYMNASIUM	0	1	1	120	1	20	3/4"C, 2-#12, #12G	K	74	-	-	-	-	NFS	EC/EC	-	-	●				(1)
FV-1A	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	26	-	-	-	-	NFS	EC/EC	-	-	●				
FV-1B	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	26	-	-	-	-	NFS	EC/EC	-	-	●				
FV-1C	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	26	-	-	-	-	NFS	EC/EC	-	-	●				
FV-1D	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	26	-	-	-	-	NFS	EC/EC	-	-	●				
FV-2A	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	28	-	-	-	-	NFS	EC/EC	-	-	●				
FV-2B	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	28	-	-	-	-	NFS	EC/EC	-	-	●				
FV-2C	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	28	-	-	-	-	NFS	EC/EC	-	-	●				
FV-2D	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	28	-	-	-	-	NFS	EC/EC	-	-	●				
FV-2E	FLUSH VALVE	-	BATHROOMS	0	2	2	120	1	20	3/4"C, 2-#12, #12G	F	28	-	-	-	-	NFS	EC/EC	-	-	●				
PF-6	FLUSH VALVE	105B	COMFORT	0	0	0	120	1	20	3/4"C, 2-#12, #12G	F	15	-	-	-	-	NFS	EC/EC	-	-	●				
RC-1	RETRACTABLE CURTAIN	105D	GYMNASIUM	1	5	6	120	1	20	3/4"C, 2-#12, #12G	K	81	-	-	-	-	NFS	EC/EC	-	-	●				
RC-2	RETRACTABLE CURTAIN	105D	GYMNASIUM	1	5	6	120	1	20	3/4"C, 2-#12, #12G	K	83	-	-	-	-	NFS	EC/EC	-	-	●				
RC-3	RETRACTABLE CURTAIN	105D	GYMNASIUM	1	5	6	120	1	20	3/4"C, 2-#12, #12G	K	83	-	-	-	-	NFS	EC/EC	-	-	●				
SB-1	SCOREBOARD	105D	GYMNASIUM	1	10	13	120	1	20	3/4"C, 2-#12, #12G	K	56	-	-	-	-	NFS	EC/EC	-	-	●				
SB-2	SCOREBOARD	105D	GYMNASIUM	1	10	13	120	1	20	3/4"C, 2-#12, #12G	K	64	-	-	-	-	NFS	EC/EC	-	-	●				

STARTER TYPES:

2-SPD	TWO SPEED
CS	COMBINATION STARTER
ECM	ECM CONTROLLER
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
MAN	MANUAL SWITCH
RVS	REDUCED VOLTAGE
SS	SOFT STARTER
VFD	VARIABLE FREQUENCY DRIVE

CONTROL DEVICES:

0/0	ON-OFF SELECTOR SWITCH
BAS	BUILDING AUTOMATION SYSTEM
CT	CONTACTOR / RELAY
ECP	EQUIPMENT CONTROL PANEL
HOA	HAND-OFF-AUTO SWITCH
S/S	STOP-START PUSHBUTTONS
TC	TEMPERATURE CONTROLS
TS	THERMOSTAT / TEMPERATURE SENSOR

DISCONNECT TYPES:

CB	CIRCUIT BREAKER
CF	COMBINATION FUSED
CN	COMBINATION NON-FUSED
FS	FUSED SWITCH
IU	INTEGRAL WITH UNIT
MCP	MOTOR CIRCUIT PROTECTOR
NFS	NON-FUSED SWITCH
RP	RECEPTACLE / PLUG CONNECTION

ACCESSORIES:

AC	AUXILLIARY CONTACTS
GP	GREEN (POWER) PILOT LIGHT
RAG	RED, AMBER & GREEN PILOT LIGHTS
RG	RED & GREEN PILOT LIGHTS

ABBREVIATIONS:

EC	ELECTRICAL CONTRACTOR
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
MF	MANUFACTURER
TC	TEMPERATURE CONTROL
OT	OTHER CONTRACTOR
OWN	OWNER

GENERAL NOTES:

- ALL CONDUCTORS ARE COPPER. ALUMINIUM CONDUCTORS WILL HAVE A NOTATION OF (AL) NEXT TO WIRE SIZE.

FOOT NOTES:

(1) FIELD INSTALL SPEED CONTROLLER AND REVERSING SWITCH.

MOTOR CONNECTION SCHEDULE

TAG	DESCRIPTION	LOCATION NO	LOCATION NAME	LOAD HP	LOAD kVA	LOAD F.L.A.	LOAD M.C.A.	LOAD VOLT	LOAD PH	CIRCUITING INFORMATION OCP (Amps)	CIRCUITING INFORMATION WIRE SIZE & CONDUIT	CIRCUITING INFORMATION PANEL	CIRCUITING INFORMATION CIRCUIT #	STARTER TYPE	STARTER FURNISHED / INSTALLED	CONTROLLER TYPE	CONTROLLER FURNISHED / INSTALLED	DISCONNECT TYPE	DISCONNECT FURNISHED / INSTALLED	ACCESSORIES	NEMA TYPE/CONFIGURATION	POWER SOURCE TYPE NORMAL	POWER SOURCE TYPE LIFE SAFETY	POWER SOURCE TYPE LEGALLY REQUIRED	POWER SOURCE TYPE OPTIONAL STAND-BY	FOOT NOTES
208																										
AHU-4 RF	AIR HANDLING UNIT - RELIEF FAN	105F	MECHANICAL	5	6	17	21	208	3	35	3/4"C, 3-#8, #10G	K	13,15,17	VFD	MC/EC	-	-	-	-	-	-	●				
AHU-4 SF	AIR HANDLING UNIT - SUPPLY FAN	105F	MECHANICAL	15	17	46	58	208	3	90	1-1/4"C, 3-#2, #8G	K	7,9,11	VFD	MC/EC	-	-	-	-	-	-	●				
CH-1-2	CHILLER MODULES	105F	MECHANICAL	0	146	405	506	208	3	700	(2) 3"C, 3-500kcmil, 1/0G	MDP(E)	5	-	-	ECP	MF/MF	-	-	-	-	●				
CH-3-4	CHILLER MODULES	105F	MECHANICAL	0	146	405	506	208	3	700	(2) 3"C, 3-500kcmil, 1/0G	MDP(E)	7	-	-	ECP	MF/MF	-	-	-	-	●				
P-4	HW PRIMARY PUMP	-	MEZZANINE	5	6	17	21	208	3	35	3/4"C, 3-#8, #10G	PANEL H1 (E)	1,3,5	VFD	MC/EC	-	-	-	-	-	-	●				
P-5	HW PRIMARY PUMP	-	MEZZANINE	5	6	17	21	208	3	35	3/4"C, 3-#8, #10G	PANEL H1 (E)	2,4,6	VFD	MC/EC	-	-	-	-	-	-	●				
P-6	CW PRIMARY PUMP	-	MEZZANINE	15	17	46	58	208	3	90	1-1/4"C, 3-#2, #8G	MDP(E)	3	VFD	MC/EC	-	-	-	-	-	-	●				
P-7	CW PRIMARY PUMP	-	MEZZANINE	15	17	46	58	208	3	90	1-1/4"C, 3-#2, #8G	MDP(E)	1	VFD	MC/EC	-	-	-	-	-	-	●				
P-11	GEO PRIMARY PUMP	105F	MECHANICAL	10	11	31	39	208	3	60	3/4"C, 3-#6, #10G	K	19,21,23	VFD	MC/EC	-	-	-	-	-	-	●				
P-12	GEO PRIMARY PUMP	105F	MECHANICAL	10	11	31	39	208	3	60	3/4"C, 3-#6, #10G	K	14,16,18	VFD	MC/EC	-	-	-	-	-	-	●				
P-13	GEO FIELD PUMP	105F	MECHANICAL	25	27	75	94	208	3	110	1-1/4"C, 3-#1, #8G	K	1,3,5	VFD	MC/EC	-	-	-	-	-	-	●				
P-14	GEO FIELD PUMP	105F	MECHANICAL	25	27	75	94	208	3	110	1-1/4"C, 3-#1, #8G	K	2,4,6	VFD	MC/EC	-	-	-	-	-	-	●				
P-15	HW GLYCOL PUMP	105F	MECHANICAL	5	6	17	21	208	3	35	3/4"C, 3-#8, #10G	K	25,27,29	VFD	MC/EC	-	-	-	-	-	-	●				
P-16	HW GLYCOL PUMP	105F	MECHANICAL	5	6	17	21	208	3	35	3/4"C, 3-#8, #10G	K	20,22,24	VFD	MC/EC	-	-	-	-	-	-	●				
P-17	AHU-4 COIL PUMP	105F	MECHANICAL	0.75	1	4	4	208	3	15	3/4"C, 3-#12, #12G	K	8,10,12	VFD	MC/EC	-	-	-	-	-	-	●				
120																										
CUH-3	CABINET UNIT HEATER	111C	WOMENS	0	0	1	1	120	1	15	3/4"C, 2-#12, #12G	F	6	-	-	-	-	NFS	EC/EC	-	-	●				
CUH-4	CABINET UNIT HEATER	111D	MENS	0	0	1	1	120	1	15	3/4"C, 2-#12, #12G	F	29	-	-	-	-	NFS	EC/EC	-	-	●				
EF-1	EXHAUST FAN	105F	MECHANICAL	0.5	1	10	12	120	1	20	3/4"C, 2-#12, #12G	K	43	-	-	-	-	NFS	MF/MF	-	-	●				(1)
GFU-1	GLYCOL FILL UNIT	105F	MECHANICAL	0	1	5	6	120	1	20	3/4"C, 2-#12, #12G	K	45	-	-	-	-	NFS	EC/EC	-	-	●				
P-18	B-2(E) INLINE PUMP	-	MEZZANINE	1	2	16	20	120	1	30	3/4"C, 2-#10, #10G	PANEL H1 (E)	24	-	-	-	-	NFS	EC/EC	-	-	●				(2)

STARTER TYPES:

2-SPD	TWO SPEED
CS	COMBINATION STARTER
ECM	ECM CONTROLLER
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
MAN	MANUAL SWITCH
RVS	REDUCED VOLTAGE
SS	SOFT STARTER
VFD	VARIABLE FREQUENCY DRIVE

CONTROL DEVICES:

0/0	ON-OFF SELECTOR SWITCH
BAS	BUILDING AUTOMATION SYSTEM
CT	CONTACTOR / RELAY
ECP	EQUIPMENT CONTROL PANEL
HOA	HAND-OFF-AUTO SWITCH
S/S	STOP-START PUSHBUTTONS
TC	TEMPERATURE CONTROLS
TS	THERMOSTAT / TEMPERATURE SENSOR

DISCONNECT TYPES:

CB	CIRCUIT BREAKER
CF	COMBINATION FUSED
CN	COMBINATION NON-FUSED
FS	FUSED SWITCH
IU	INTEGRAL WITH UNIT
MCP	MOTOR CIRCUIT PROTECTOR
NFS	NON-FUSED SWITCH
RP	RECEPTACLE / PLUG CONNECTION

ACCESSORIES:

AC	AUXILLIARY CONTACTS
GP	GREEN (POWER) PILOT LIGHT
RAG	RED, AMBER & GREEN PILOT LIGHTS
RG	RED & GREEN PILOT LIGHTS

ABBREVIATIONS:

EC	ELECTRICAL CONTRACTOR
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
MF	MANUFACTURER
TC	TEMPERATURE CONTROL
OT	OTHER CONTRACTOR
OWN	OWNER

GENERAL NOTES:

- ALL CONDUCTORS ARE COPPER. ALUMINIUM CONDUCTORS WILL HAVE A NOTATION OF (AL) NEXT TO WIRE SIZE.

FOOT NOTES:

(1) FIELD INSTALL SPEED CONTROLLER.
(2) PUMP PROVIDED AS PART OF ALTERNATE BID #2.

Engberg Anderson ARCHITECTS
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JDR ENGINEERING, INC.
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JDR PROJECT NO: 23.0319

WARNER PARK
COMMUNITY RECREATION
CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

NO. DESCRIPTION DATE

DRAWN BY JDR

CHECKED BY JDR

SCHEDULES - CONNECTIONS

E800

LUMINAIRE SCHEDULE

TAG	DESCRIPTION	MOUNTING	NORMAL OPERATION		EMERGENCY OPERATION			VOLTAGE	COLOR TEMP. (K)	C.R.I. (Min)	DIMMING	INTEGRATED OPTIONS		REFLECTOR	FINISH	MANUFACTURER	MODEL SERIES	EQUALS	FOOT NOTES
			LUMENS	WATTS	LUMENS	WATTS	TYPE					CONTROL	SENSOR						
A	LED HIGH BAY FIXTURE	CABLE SUSPENDED	24,748	177	0	0	-	120-277	3500	80	0-10V 10%	-	-	-	WHITE	DAY BRITE	FBY	LITHONIA COLUMBIA METALUX	1,2,3
B	LED 4' STRIP LIGHT FIXTURE	CABLE SUSPENDED	4,732	36	0	0	-	120-277	3500	80	0-10V 10%	-	-	-	WHITE	LITHONIA	CSS	DAY BRITE COLUMBIA METALUX	2
C	LED 8' STRIP LIGHT FIXTURE	SURFACE	11,089	90	0	0	-	120-277	3500	80	0-10V 10%	-	-	-	WHITE	LITHONIA	CSS	DAY BRITE COLUMBIA METALUX	
D	LED 6" DOWNLIGHT	RECESSED	2,006	23	0	0	-	120-277	3500	80	0-10V 10%	-	-	-	WHITE	LITHONIA	LDN6	LIGHTOLIER FOCAL POINT INTEGER	
EM	LED EMERGENCY BATTERY UNIT	SURFACE	0	22	640	22	(8)	120-277		0	-	-	-	-	WHITE	LITHONIA	ELM4L	EMERGI-LITE DUAL LITE SURE LITES	
F	LED 1' x 4' VANDAL RESISTANT FIXTURE	RECESSED	2,906	27	0	0	-	120-277	3500	80	0-10V 10%	-	-	-	WHITE	LITHONIA	VRTL	NEW STAR KENALL LA LIGHTING	
H	2' x 4' BACKLIGHT PANEL	RECESSED	1,318	65	0	0	-	120-277	3500	90	0-10V 10%	-	-	-	-	ARKTURA	-	-	
J	LED EXTERIOR CYLINDER FIXTURE	SURFACE	8,520	92	0	0	-	120-277	3500	80	0-10V 10%	-	-	-	WHITE	LITHONIA	LDN8CYL	LIGHTOLIER FOCAL POINT INTEGER	
JE	LED EXTERIOR WALL PACK	WALL	635	20	635	20	(8)	120-277	4000	70	-	-	-	-	DARK BRONZE	LITHONIA	AFF	EMERGI-LITE DUAL LITE SURE LITES	
K	4' LED INLINE LIGHTING	RECESSED	4,084	40	0	0	-	120-277	3500	90	0-10V 10%	-	-	-	-	ARKTURA	-	-	
L	LED 2" DOWNLIGHT	RECESSED	560	7	0	0	-	120-277	3500	80	0-10V 1%	-	-	-	WHITE	LUMENWERX	AE2RRA	LIGHTOLIER FOCAL POINT INTEGER	
XA1	LED EXIT SIGN - SIDE MOUNT	WALL	0	0	0	1	(8)	120-277		0	-	-	-	-	WHITE & GREEN	LITHONIA	LQM	EMERGI-LITE DUAL LITE SURE LITES	4
XB1	LED EXIT SIGN - WALL MOUNT	WALL	0	9	0	9	(8)	120-277		0	-	-	-	-	WHITE & GREEN	LITHONIA	LQM	EMERGI-LITE DUAL LITE SURE LITES	4

EMERGENCY OPERATION TYPES

(1) INTEGRAL BATTERY 7W
(2) INTEGRAL BATTERY (2) 7W
(3) INTEGRAL BATTERY 10W
(4) INTEGRAL BATTERY (2) 10W
(5) INTEGRAL BATTERY 15W
(6) INTEGRAL BATTERY 700 LUMEN
(7) INTEGRAL BATTERY 1400 LUMEN
(8) BATTERY WITH SELF-DIAGNOSTICS
(9) UL924 TRANSFER DEVICE (EXTERNAL OR INTERNAL)
(10) INTEGRAL GENERATOR TRANSFER DEVICE

INTEGRATED CONTROL TYPES

(1) WIRED - CAT 5e
(2) WIRED - CAT 6
(3) WIRELESS

INTEGRATED SENSOR TYPES

(1) PASSIVE INFRARED
(2) ULTRASONIC
(3) DUAL TECHNOLOGY (PIR+ULTRASONIC)
(4) DIMMING PHOTOCELL

FOOT NOTES:

(1) PROVIDE WIRED 6' 18/5 CORD FOR LINE VOLTAGE PLUS 0-10V DIMMING.
(2) PROVIDE 10' CABLE AND HOOKS/HANGER.
(3) PROVIDE WIRE GUARD.
(4) REFER TO FLOORPLANS FOR ARROW DESIGNATION.

LIGHTING CONTROLS SCHEDULE

TAG	DESCRIPTION	MOUNTING	DEVICE FUNCTION	MANUAL CONTROLS		SENSOR		CONNECTION INTERFACE	VOLTAGE	MANUFACTURER	MODEL SERIES	FOOT NOTES
				TYPE	CONFIG.	TYPE	COVERAGE					
DS1	DIMMER SWITCH	WALL	MANUAL CONTROLS	DIMMING	PADDLE, RAISE/LOWER	-	-	WIRED	LOW VOLTAGE	LEGRAND	LMDM-101	
OS1	OCCUPANCY SENSOR	WALL	MANUAL CONTROLS / SENSOR	DIMMING	3 BUTTON, ON/OFF & RAISE/LOWER	DUAL TECHNOLOGY	SMALL MOTION	WIRED	LOW VOLTAGE	LEGRAND	DSW-301-W	
OS2	OCCUPANCY SENSOR	CEILING	SENSOR	-	-	PIR	LARGE MOTION	WIRED	LOW VOLTAGE	LEGRAND	DT-305	
OS3	OCCUPANCY SENSOR	CEILING	SENSOR	-	-	PIR	LARGE MOTION	WIRED	LOW VOLTAGE	LEGRAND	UT-300-3	
PC	PHOTO CELL	WALL	SENSOR	-	-	PHOTOELECTRIC	-	WIRED	LOW VOLTAGE	LEGRAND	LMPO-200	

FOOT NOTES:

(1)

EXISTING LUMINAIRE SCHEDULE

TAG	DESCRIPTION
B (E)	1' x 4' FIXTURE
C (E)	LINEAR FIXTURE
D (E)	LINEAR FIXTURE
F (E)	DOWNLIGHT FIXTURE
G (E)	2' x 2' FIXTURE
KK (E)	DOWNLIGHT FIXTURE
L (E)	LINEAR FIXTURE

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SCHEDULES - EQUIPMENT AND LIGHTING

E801

Switchboard: MDP(E)

Location: Space 32 | **Volts:** 208 | **A.I.C. Rating:** FIELD VERIFY
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Bus Rating:** 1600 A
Enclosure: NEMA 1

CKT	Circuit Description	Poles	Trip Rating (A)	Load (kVA)	Notes
1	~~(E) P-7 -CW PRIMARY PUMP-~~	~~3~~	~~35~~	~~0~~	
2	(E) RF-2 - RETURN FAN	3	35	0	
3	~~(E) P-6 -CW PRIMARY PUMP-~~	~~3~~	~~35~~	~~0~~	
4	(E) RF-1 - RETURN FAN	3	35	0	
5	(E) TVSS	3	35	0	
6	~~(E) SOLAR DISCONNECT-~~	~~3~~	~~60~~	~~0~~	
7	(E) AHU-2 - AIR HANDLING UNIT	3	60	0	
8	(E) RF-3 - RETURN FAN	3	35	0	
9	(E) AHU-1 - AIR HANDLING UNIT	3	90	0	
10	(E) AHU-3 - AIR HANDLING UNIT	3	90	0	
			Total Load...	0	
			Total Amps:	0	

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Switchboard: MDP(E)

Location: Space 32 | **Volts:** 208 | **A.I.C. Rating:** FIELD VERIFY
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Bus Rating:** 1600 A
Enclosure: NEMA 1

CKT	Circuit Description	Poles	Trip Rating (A)	Load (kVA)	Notes
1	**P-7 - CW PRIMARY PUMP**	**3**	**90**	**16.6**	
2	(E) RF-2 - RETURN FAN	3	35	0	
3	**P-6 - CW PRIMARY PUMP**	**3**	**90**	**16.6**	
4	(E) RF-1 - RETURN FAN	3	35	0	
5	(E) TVSS	3	35	0	
6	**SPARE**	**3**	**60**	**0**	
7	(E) AHU-2 - AIR HANDLING UNIT	3	60	0	
8	(E) RF-3 - RETURN FAN	3	35	0	
9	(E) AHU-1 - AIR HANDLING UNIT	3	90	0	
10	(E) AHU-3 - AIR HANDLING UNIT	3	90	0	
			Total Load...	483	
			Total Amps:	1,340	

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	386251 VA	109.44%	422710 VA		
Receptacle	11520 VA	93.40%	10760 VA	**Total Conn. Load:**	483 kVA
Power	9220 VA	100.00%	9220 VA	**Total Est. Demand:**	452 kVA
Lighting	8982 VA	100.00%	8982 VA	**Total Conn.:**	1,340 A
Redundant	66721 VA	0.01%	7 VA	**Total Est. Demand:**	1,254 A

Switchboard: MDP(E)

Location: Space 32 | **Volts:** 208 | **A.I.C. Rating:** FIELD VERIFY
Supply From: MDP(E) | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Bus Rating:** 1600 A
Enclosure: NEMA 1

CKT	Circuit Description	Poles	Trip Rating (A)	Load (kVA)	Notes
1	(E) PANEL B	3	100	0	
2	(E) PANEL G	3	100	0	
3	(E) PANEL D	3	100	0	
4	(E) PANEL F	3	100	0	
5	~~(E) CH-1- CHILLER MODULES~~	~~3~~	~~600~~	~~0~~	
6	(E) PANEL C	3	150	0	
7	(E) [SPACE]	3	--	--	
8	(E) PANEL H	3	150	0	
9	(E) PANEL J	3	150	0	
10	(E) PANEL E	3	200	0	
11	(E) PANEL A	3	200	0	
12	[SPACE]	3	--	--	
			Total Load...	0	
			Total Amps:	0	

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Switchboard: MDP(E)

Location: Space 32 | **Volts:** 208 | **A.I.C. Rating:** FIELD VERIFY
Supply From: MDP(E) | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Bus Rating:** 1600 A
Enclosure: NEMA 1

CKT	Circuit Description	Poles	Trip Rating (A)	Load	Notes
1	(E) PANEL B	3	100	0	
2	(E) PANEL G	3	100	0	
3	(E) PANEL D	3	100	0	
4	(E) PANEL F	3	100	8.1	
5	**CH-1-2 - CHILLER MODULES**	**3**	**700**	**145.8**	
6	(E) PANEL C	3	150	0	
7	**CH-3-4 - CHILLER MODULES**	**3**	**700**	**145.8**	
8	PANEL H1 (E)	3	150	14	
9	(E) PANEL J	3	150	0	
10	(E) PANEL E	3	200	0	
11	(E) PANEL A	3	200	0	
12	**PANEL K**	**3**	**600**	**135.6**	
13	**SOLAR DISCONNECT**	**3**	**250**	**0**	
			Total Load...	449	
			Total Amps:	1,247	

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	369607 VA	109.86%	406066 VA		
Receptacle	11520 VA	93.40%	10760 VA	**Total Conn. Load:**	449 kVA
Power	9220 VA	100.00%	9220 VA	**Total Est. Demand:**	435 kVA
Lighting	8982 VA	100.00%	8982 VA	**Total Conn.:**	1,247 A
Redundant	50077 VA	0.01%	5 VA	**Total Est. Demand:**	1,208 A

Panelboard: PANEL F(E)

Location: CORRIDOR 105A | **Voltage:** 208Y/120V | **A.I.C. Rating:** FIELD VERIFY
Supply From: MDP(E) | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	(E) REC 116		20 A	1	0	0					1	20 A		SPARE	2
3	(E) REC 112, 115		20 A	1			0	0			1	20 A		(E) REC W GYM	4
5	(E) REC 113, 114		20 A	1					0	--	1	--		[SPACE]	6
7	(E) FLOOR BOX RM 101		20 A	1	0	0					1	20 A		(E) REC UNDER COUNTER RM 118	8
9	(E) REC RM 101, 102 CEILING FANS		20 A	1			0	--			~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~10~~
11	(E) REC 118		20 A	1					0	--	~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~12~~
~~13~~	~~[SPACE]~~		~~--~~	~~1~~	~~--~~	~~--~~					~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~14~~
~~15~~	~~[SPACE]~~		~~--~~	~~1~~			~~--~~	~~--~~			~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~16~~
~~17~~	~~[SPACE]~~		~~--~~	~~1~~					~~--~~	~~--~~	~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~18~~
~~19~~	~~[SPACE]~~		~~--~~	~~1~~	~~--~~	~~--~~					~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~20~~
~~21~~	~~[SPACE]~~		~~--~~	~~1~~			~~--~~	~~--~~			~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~22~~
~~23~~	~~[SPACE]~~		~~--~~	~~1~~					~~--~~	~~--~~	~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~24~~
~~25~~	~~[SPACE]~~		~~--~~	~~1~~	~~--~~	~~--~~					~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~26~~
~~27~~	~~[SPACE]~~		~~--~~	~~1~~			~~--~~	~~--~~			~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~28~~
29	[SPACE]		--	1					--	--	~~1~~	~~--~~	~~--~~	~~[SPACE]~~	~~30~~
			Total Load:		0 kVA		0 kVA		0 kVA						
			Total Amps:		0 A		0 A		0 A						

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION
(AF) ARC FAULT PROTECTION
(G/AF) COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Notes:

Panelboard: F

Location: CORRIDOR 105A | **Voltage:** 208Y/120V | **A.I.C. Rating:** FIELD VERIFY
Supply From: MDP(E) | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	(E) REC 116		20 A	1	0	0					1	20 A		(E) NOT LABELED	2
3	(E) REC 112, 115		20 A	1			0	0			1	20 A		(E) REC W GYM	4
5	(E) REC 113, 114		20 A	1					0	0.12	1	20 A		**CUH-3 - CAB UNIT HEATER**	6
7	(E) FLOOR BOX RM 101		20 A	1	0	0					1	20 A		(E) REC UNDER COUNTER RM 118	8
9	(E) REC RM 101, 102 CEILING FANS		20 A	1			0	0.35			**1**	**20 A**		**LTG 111, 111A-F**	10
11	(E) REC 118		20 A	1					0	0.36	1	20 A		**REC WOMENS 111C**	12
13	**REC EXERCISE 102**		20 A	1	0.18	0.54					1	20 A		**REC WOMENS 111C**	14
15	**REC COMFORT 105B**		20 A	1			0.18	0.72			1	20 A		**REC LOCKER ROOM 111A**	16
17	**REC EXERCISE 102**		20 A	1					0.36	0.36	1	20 A		**REC MENS 111D**	18
19	**REC EXERCISE 102**		20 A	1	0.36	0.54					1	20 A		**REC MENS 111D**	20
21	**REC EXERCISE 102**		20 A	1			0.36	0.54			1	20 A		**REC ADA TOILET 111F**	22
23	**REC EXERCISE 102**		20 A	1					0.36	0.54	1	20 A		**REC ADA TOILET 111G**	24
25	**REC EXERCISE 102**		20 A	1	0.18	0.72					1	20 A		**FLUSH VALVES - FV-1A - FV-1D**	26
27	**REC CORRIDOR 105A**		20 A	1			0.18	0.9			1	20 A		**FLUSH VALVES - FV-2A - FV-2E**	28
29	**CUH-4 - CAB UNIT HEATER**		20 A	1					0.12	0.18	1	20 A		**EWC CORRIDOR 105A**	30
			Total Load:		2.5 kVA		3.2 kVA		2.4 kVA						
			Total Amps:		21 A		27 A		20 A						

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
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(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION
(AF) ARC FAULT PROTECTION
(G/AF) COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	240 VA	112.50%	270 VA		
Receptacle	5940 VA	100.00%	5940 VA	**Total Conn. Load:**	8 kVA
Power	1620 VA	100.00%	1620 VA	**Total Est. Demand:**	8 kVA
Lighting	348 VA	100.00%	348 VA	**Total Conn.:**	23 A
				Total Est. Demand:	23 A

Notes:

Engberg Anderson ARCHITECTS
MILWAUKEE | MADISON | CHICAGO

JDR ENGINEERING, INC.
5525 NOBEL DRIVE
SUITE 110
MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR PROJECT NO: 23.0319

WARNER PARK COMMUNITY RECREATION CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

NO. DESCRIPTION DATE

DRAWN BY JDR

CHECKED BY JDR

SCHEDULES - PANELS

E802

Panelboard: PANEL E1(E)

Location: CORRIDOR 105A
Supply From: MDP(E)
Mounting: SURFACE
Enclosure: Type 1

Voltage: 208Y/120V
Phases: 3
Wires: 4

A.I.C. Rating: FIELD VERIFY
Mains Type: MLO
Bus Rating: 225 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	(E) LIGHTS - GYM		20 A	1	0	0					1	20 A		(E) LIGHTS - GYM	2
3	(E) LIGHTS - GYM		20 A	1			0	0			1	20 A		(E) LIGHTS - GYM	4
5	(E) LIGHTS - GYM		20 A	1					0	0	1	20 A		(E) LIGHTS - GYM	6
7	(E) LIGHTS - GYM		20 A	1	0	0					1	20 A		(E) LIGHTS - GYM	8
9	(E) FLUORESCENT LIGHTS - GYM		20 A	1			0	0			1	20 A		(E) REC VENDING 121A	10
11	(E) REC 113, 114, 115		20 A	1					0	0	1	20 A		(E) REC VENDING 121A	12
13	(E) REC 114, 115		20 A	1	0	0					1	20 A		(E) REC VENDING 121A	14
15	(E) REC MICROWAVE, 115 TIMECLOCK		20 A	1			0	0			1	20 A		(E) REC RMS 116, 117	16
17	(E) REC 112, 115		20 A	1					0	0	1	20 A		(E) REC RMS 117, 118, CONT....	18
19	(E) GYM EXITS, LIGHTS 106		20 A	1	0	0					1	20 A		(E) REC REF 121A	20
21	(E) REC 115, 116		20 A	1			0	0			1	20 A		(E) REC CORR 106	22
23	(E) GYM LIGHTS		20 A	1					0	0	1	20 A		(E) REC EWC CORRIDOR	24
25	(E) FIRE ALARM		20 A	1	0	0					1	20 A		(E) FLUSHER	26
27	(E) REC ROOM 102, N WALL		20 A	1			0	0			1	20 A		(E) REC UNDER COUNTER RM 118	28
29	(E) AIR COMP., DOOR OPERATOR		20 A	1					0	0					30
31	(E) FLOOR BOXES RM 102		20 A	1	0	0					3	20 A		(E) EXHAUST FAN #1	32
33	(E) FLOOR BOXES RM 102, REC VEST.		20 A	1			0	0							34
35	(E) UNIT HEATER VEST.		20 A	1					0	--	1	--		[SPACE]	36
37	[SPACE]		--	1	--	--					1	--		[SPACE]	38
39	[SPACE]		--	1			--	0			1	20 A		(E) GYM LIGHTS	40
41	[SPACE]		--	1					--	--	1	--		[SPACE]	42
				Total Load:	0 kVA		0 kVA		0 kVA						
				Total Amps:	0 A		0 A		0 A						

FEEDER BREAKER NOTES:

(G)	GROUND FAULT PROTECTION	(LN)	BREAKER LOCK IN ON POSITION
(M)	INTEGRAL METER	(LF)	BREAKER LOCK IN OFF POSITION
(S)	SURGE PROTECTION	(AF)	ARC FAULT PROTECTION
(ST)	SHUNT TRIP BREAKER	(G/AF)	COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:

(IT)	INSTANTANEOUS SETTING
(LT)	LONG TERM SETTING
(ST)	SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Notes:

Panelboard: E1

Location: CORRIDOR 105A
Supply From: MDP(E)
Mounting: SURFACE
Enclosure: Type 1

Voltage: 208Y/120V
Phases: 3
Wires: 4

A.I.C. Rating: FIELD VERIFY
Mains Type: MLO
Bus Rating: 225 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	(E) LIGHTS - GYM		20 A	1	0	0					1	20 A		(E) LIGHTS - GYM	2
3	(E) LIGHTS - GYM		20 A	1			0	0			1	20 A		(E) LIGHTS - GYM	4
5	(E) LIGHTS - GYM		20 A	1					0	0	1	20 A		(E) LIGHTS - GYM	6
7	(E) LIGHTS - GYM		20 A	1	0	0					1	20 A		(E) LIGHTS - GYM	8
9	(E) FLUORESCENT LIGHTS - GYM		20 A	1			0	0			1	20 A		(E) REC VENDING 121A	10
11	(E) REC 113, 114, 115		20 A	1					0	0	1	20 A		(E) REC VENDING 121A	12
13	(E) REC 114, 115		20 A	1	0	0					1	20 A		(E) REC VENDING 121A	14
15	(E) REC MICROWAVE, 115 TIMECLOCK		20 A	1			0	0			1	20 A		(E) REC RMS 116, 117	16
17	(E) REC 112, 115		20 A	1					0	0	1	20 A		(E) REC RMS 117, 118, CONT....	18
19	(E) GYM EXITS, LIGHTS 106		20 A	1	0	0					1	20 A		(E) REC REF 121A	20
21	(E) REC 115, 116		20 A	1			0	0			1	20 A		(E) REC CORR 106	22
23	(E) GYM LIGHTS		20 A	1					0	0	1	20 A		(E) REC EWC CORRIDOR	24
25	(E) FIRE ALARM		20 A	1	0	0					1	20 A		(E) FLUSHER	26
27	(E) REC ROOM 102, N WALL		20 A	1			0	0			1	20 A		(E) REC UNDER COUNTER RM 118	28
29	(E) AIR COMP., DOOR OPERATOR		20 A	1					0	0					30
31	(E) FLOOR BOXES RM 102		20 A	1	0	0					3	20 A		(E) EXHAUST FAN #1	32
33	(E) FLOOR BOXES RM 102, REC VEST.		20 A	1			0	0							34
35	(E) UNIT HEATER VEST.		20 A	1					0	--	1	--		[SPACE]	36
37	[SPACE]		--	1	--	--					1	--		[SPACE]	38
39	[SPACE]		--	1			--	0			1	20 A		(E) GYM LIGHTS	40
41	[SPACE]		--	1					--	--	1	--		[SPACE]	42
				Total Load:	0 kVA		0 kVA		0 kVA						
				Total Amps:	0 A		0 A		0 A						

FEEDER BREAKER NOTES:

(G)	GROUND FAULT PROTECTION	(LN)	BREAKER LOCK IN ON POSITION
(M)	INTEGRAL METER	(LF)	BREAKER LOCK IN OFF POSITION
(S)	SURGE PROTECTION	(AF)	ARC FAULT PROTECTION
(ST)	SHUNT TRIP BREAKER	(G/AF)	COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:

(IT)	INSTANTANEOUS SETTING
(LT)	LONG TERM SETTING
(ST)	SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Notes:

Panelboard: E2(E)

Location: CORRIDOR 105A
Supply From: PANEL E(E)
Mounting: SURFACE
Enclosure: Type 1

Voltage: 208Y/120V
Phases: 3
Wires: 4

A.I.C. Rating: FIELD VERIFY
Mains Type: MLO
Bus Rating: 225 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	(E) CAB UNIT HEATER - 2		20 A	1	0	0					1	20 A		(E) LIGHTS 115, 116, 117, 121A	2
3	(E) REC W GYM		20 A	1			0	0			1	20 A		(E) LIGHTS 111A, 111B, 112, 113, 114	4
5	(E) REC W GYM CAMERA		20 A	1					0	0	1	20 A		(E) REC RM 111A	6
7	(E) REC NE GYM		20 A	1	0	0					1	20 A		(E) UNIT HEATERS 110B, 111B	8
9	(E) REC N GYM		20 A	1			0	0			1	20 A		(E) LIGHTS 107A, 109, 110B	10
11	(E) AMPLIFIER GYM		20 A	1					0	0	1	20 A		(E) REC 110A, 110B,	12
13	(E) REC GFI SE GYM ENTRANCE		20 A	1	0	0					1	20 A		(E) NW BACKBOARD	14
15	(E) REC SE GYM		20 A	1			0	0			1	20 A		(E) W BACKBOARD	16
17	(E) REC CLOCK, SE GYM		20 A	1					0	0	1	20 A		(E) SW BACKBOARD	18
19	(E) REC S GYM		20 A	1	0	0					1	20 A		(E) NE BACKBOARD	20
21	(E) REC RM 107, GFI OUTSIDE HVAC		20 A	1			0	0			1	20 A		(E) E BACKBOARD	22
23	(E) REC SW GYM		20 A	1					0	0	1	20 A		(E) SE BACKBOARD	24
25	[SPACE]		--	1	--	0					2	20 A		(E) HEAT TAPE 103	26
27	(E) FLOOR BOX RM 102		20 A	1			0	0							28
29	(E) SUMP PUMP, HEATER, 104		20 A	1					0	0	1	20 A		(E) GYM CURTAIN	30
31	(E) LIGHTS RM 102		20 A	1	0	0					1	20 A		(E) LIGHTS 104, STORAGE	32
33	(E) LIGHTS RM 102		20 A	1			0	0			1	20 A		(E) REC 103, FLOOR BOX 102	34
35	(E) LIGHTS RM 102		20 A	1					0	0	1	20 A		(E) REC 103, TV 102	36
37	(E) LIGHTS RM 102		20 A	1	0	0					1	20 A		(E) OUTSIDE GFI OUTSIDE EX RM...	38
39	[SPACE]		--	1			--	0			2	20 A		SPARE	40
41	[SPACE]		--	1					--	0					42
				Total Load:	0 kVA		0 kVA		0 kVA						
				Total Amps:	0 A		0 A		0 A						

FEEDER BREAKER NOTES:

(G)	GROUND FAULT PROTECTION	(LN)	BREAKER LOCK IN ON POSITION
(M)	INTEGRAL METER	(LF)	BREAKER LOCK IN OFF POSITION
(S)	SURGE PROTECTION	(AF)	ARC FAULT PROTECTION
(ST)	SHUNT TRIP BREAKER	(G/AF)	COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:

(IT)	INSTANTANEOUS SETTING
(LT)	LONG TERM SETTING
(ST)	SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Notes:

Panelboard: E2

Location: CORRIDOR 105A
Supply From: E1
Mounting: SURFACE
Enclosure: Type 1

Voltage: 208Y/120V
Phases: 3
Wires: 4

A.I.C. Rating: FIELD VERIFY
Mains Type: MLO
Bus Rating: 225 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	(E) CAB UNIT HEATER - 2		20 A	1	0	0					1	20 A		(E) LIGHTS 115, 116, 117, 121A	2
3	(E) REC W GYM		20 A	1			0	0			1	20 A		(E) LIGHTS 111A, 111B, 112, 113, 114	4
5	(E) REC W GYM CAMERA		20 A	1					0	0	1	20 A		(E) REC RM 111A	6
7	(E) REC NE GYM		20 A	1	0	0					1	20 A		(E) UNIT HEATERS 110B, 111B	8
9	(E) REC N GYM		20 A	1			0	0			1	20 A		(E) LIGHTS 107A, 109, 110B	10
11	(E) AMPLIFIER GYM		20 A	1					0	0	1	20 A		(E) REC 110A, 110B,	12
13	(E) REC GFI SE GYM ENTRANCE		20 A	1	0	0					1	20 A		(E) NW BACKBOARD	14
15	(E) REC SE GYM		20 A	1			0	0			1	20 A		(E) W BACKBOARD	16
17	(E) REC CLOCK, SE GYM		20 A	1					0	0	1	20 A		(E) SW BACKBOARD	18
19	(E) REC S GYM		20 A	1	0	0					1	20 A		(E) NE BACKBOARD	20
21	(E) REC RM 107, GFI OUTSIDE HVAC		20 A	1			0	0			1	20 A		(E) E BACKBOARD	22
23	(E) REC SW GYM		20 A	1					0	0	1	20 A		(E) SE BACKBOARD	24
25	[SPACE]		--	1	--	0					2	20 A		(E) HEAT TAPE 103	26
27	(E) FLOOR BOX RM 102		20 A	1			0	0							28
29	(E) SUMP PUMP, HEATER, 104		20 A	1					0	0	1	20 A		(E) GYM CURTAIN	30
31	(E) LIGHTS RM 102		20 A	1	0	0					1	20 A		(E) LIGHTS 104, STORAGE	32
33	(E) LIGHTS RM 102		20 A	1			0	0			1	20 A		(E) REC 103, FLOOR BOX 102	34
35	(E) LIGHTS RM 102		20 A	1					0	0	1	20 A		(E) REC 103, TV 102	36
37	(E) LIGHTS RM 102		20 A	1	0	0					1	20 A		(E) OUTSIDE GFI OUTSIDE EX RM...	38
39	[SPACE]		--	1			--	0			2	20 A		SPARE	40
41	[SPACE]		--	1					--	0					42
				Total Load:	0 kVA		0 kVA		0 kVA						
				Total Amps:	0 A		0 A		0 A						

FEEDER BREAKER NOTES:

(G)	GROUND FAULT PROTECTION	(LN)	BREAKER LOCK IN ON POSITION
(M)	INTEGRAL METER	(LF)	BREAKER LOCK IN OFF POSITION
(S)	SURGE PROTECTION	(AF)	ARC FAULT PROTECTION
(ST)	SHUNT TRIP BREAKER	(G/AF)	COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:

(IT)	INSTANTANEOUS SETTING
(LT)	LONG TERM SETTING
(ST)	SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Notes:

Engberg Anderson ARCHITECTS
MILWAUKEE | MADISON | CHICAGO

JDR ENGINEERING, INC.
5525 NOBEL DRIVE
SUITE 110
MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR PROJECT NO: 23.0319

WARNER PARK
COMMUNITY RECREATION
CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

NO.	DESCRIPTION	DATE

DRAWN BY JDR

CHECKED BY JDR

SCHEDULES - PANELS

E803

Panelboard: PANEL H1 (E)

Location: Space 32 | **Supply From:** MDP(E) | **Mounting:** SURFACE | **Enclosure:** Type 1
Voltage: 208Y/120V | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: FIELD VERIFY | **Mains Type:** MLO | **Bus Rating:** 225 A

CKT	Circuit Description	Note	Trip	Poles	A		B		C		Poles	Trip	Note	Circuit Description	CKT
1					0	0									2
~~3~~	~~(E) PUMP 4~~		~~20 A~~	~~3~~			0	0			~~3~~	~~20 A~~		~~(E) PUMP 5~~	~~4~~
5									0	0					6
7	(E) CIRC PUMP 8 - AH1		20 A	1	0	0					1	20 A		(E) HEATER	8
9	(E) SPARE		20 A	1			0	0			1	20 A		(E) BATTERY LIGHT - MEZZANINE	10
11	(E) SPARE		20 A	1					0	0	1	20 A		(E) CHILLER CONTROL PANEL	12
13	(E) BOILER 1		20 A	1	0	0					1	20 A		(E) EX LT, BATT LT, RM 108	14
15	(E) BOILER 2		20 A	1			0	0			1	20 A		(E) LIGHTS - MEZZANINE	16
17	(E) HVAC CONTROL BOARD		20 A	1					0	0	1	20 A		(E) EXIT - MEZZANINE	18
19	(E) RECEPTACLE MEZZANINE		20 A	1	0	0					1	20 A		(E) WATER HEATERS	20
21	(E) CIRC PUMP 1		20 A	1			0	0			1	20 A		(E) SCORE BOARD	22
23	(E) SPARE		20 A	1					0	--	1	--		[SPACE]	24
25	(E) CIRC PUMP 9 - AH2		20 A	1	0	--					1	--		[SPACE]	26
27							0	0							28
29	(E) HOIST		15 A	3					0	0	3	15 A		(E) EXHAUST FAN 7	30
31					0	0									32
33	(E) SPARE		30 A	2			0	0							34
35									0	0	3	15 A		(E) SF-1	36
37	(E) DRYER		30 A	2	0	0									38
39							0	--			1	--		[SPACE]	40
41	[SPACE]		--	1					--	--	1	--		[SPACE]	42
43					0	--					1	--		[SPACE]	44
45	(E) E GAUGE		15 A	3			0	--			1	--		[SPACE]	46
47									0	--	1	--		[SPACE]	48
49	[SPACE]		--	1	--	--					1	--		[SPACE]	50
51	[SPACE]		--	1			--	--			1	--		[SPACE]	52
53	[SPACE]		--	1					--	--	1	--		[SPACE]	54
			Total Load:		4 kVA		4 kVA		4 kVA						
			Total Amps:		33 A		33 A		33 A						

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION
(AF) ARC FAULT PROTECTION
(G/AF) COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 kVA
				Total Est. Demand:	0 kVA
				Total Conn.:	0 A
				Total Est. Demand:	0 A

Notes:

Panelboard: PANEL H1 (E)

Location: Space 32 | **Supply From:** MDP(E) | **Mounting:** SURFACE | **Enclosure:** Type 1
Voltage: 208Y/120V | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: FIELD VERIFY | **Mains Type:** MLO | **Bus Rating:** 225 A

CKT	Circuit Description	Note	Trip	Poles	A		B		C		Poles	Trip	Note	Circuit Description	CKT
1					2.01	2.01									2
3	**P-4 - HW PRIMARY PUMP**		**35 A**	3			2.01	2.01			3	**35 A**		**P-5 - HW PRIMARY PUMP**	4
5									2.01	2.01					6
7	(E) CIRC PUMP 8 - AH1		20 A	1	0	0					1	20 A		(E) HEATER	8
9	(E) SPARE		20 A	1			0	0			1	20 A		(E) BATTERY LIGHT - MEZZANINE	10
11	(E) SPARE		20 A	1					0	0	1	20 A		(E) CHILLER CONTROL PANEL	12
13	(E) BOILER 1		20 A	1	0	0					1	20 A		(E) EX LT, BATT LT, RM 108	14
15	(E) BOILER 2		20 A	1			0	0			1	20 A		(E) LIGHTS - MEZZANINE	16
17	(E) HVAC CONTROL BOARD		20 A	1					0	0	1	20 A		(E) EXIT - MEZZANINE	18
19	(E) RECEPTACLE MEZZANINE		20 A	1	0	0					1	20 A		(E) WATER HEATERS	20
21	(E) CIRC PUMP 1		20 A	1			0	0			1	20 A		(E) SCORE BOARD	22
23	(E) SPARE		20 A	1					0	1.92	1	**30 A**		**P-18 - PUMP**	24
25	(E) CIRC PUMP 9 - AH2		20 A	1	0	--					1	--		[SPACE]	26
27							0	0							28
29	(E) HOIST		15 A	3					0	0	3	15 A		(E) EXHAUST FAN 7	30
31					0	0									32
33	(E) SPARE		30 A	2			0	0							34
35									0	0	3	15 A		(E) SF-1	36
37	(E) DRYER		30 A	2	0	0									38
39							0	--			1	--		[SPACE]	40
41	[SPACE]		--	1					--	--	1	--		[SPACE]	42
43					0	--					1	--		[SPACE]	44
45	(E) E GAUGE		15 A	3			0	--			1	--		[SPACE]	46
47									0	--	1	--		[SPACE]	48
49	[SPACE]		--	1	--	--					1	--		[SPACE]	50
51	[SPACE]		--	1			--	--			1	--		[SPACE]	52
53	[SPACE]		--	1					--	--	1	--		[SPACE]	54
			Total Load:		4 kVA		4 kVA		5.9 kVA						
			Total Amps:		33 A		33 A		49 A						

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION
(AF) ARC FAULT PROTECTION
(G/AF) COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	7936 VA	118.95%	9441 VA		
Redundant	6016 VA	0.01%	1 VA	**Total Conn. Load:**	14 kVA
				Total Est. Demand:	9 kVA
				Total Conn.:	39 A
				Total Est. Demand:	26 A

Notes:

Panelboard: K

Location: MECHANICAL 105F | **Supply From:** MDP(E) | **Mounting:** SURFACE | **Enclosure:** Type 1
Voltage: 208Y/120V | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: FIELD VERIFY | **Mains Type:** MLO | **Bus Rating:** 600 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1					8.98	8.98									2
3	P-13 - GEO FIELD PUMP		110 A	3			8.98	8.98			3	110 A		P-14 - GEO FIELD PUMP	4
5									8.98	8.98					6
7					5.55	0.42									8
9	AHU-4 SF - AIR HANDLER SUPPLY FAN		90 A	3			5.55	0.42			3	15 A		P-17 - AHU-4 COIL PUMP	10
11									5.55	0.42					12
13					2.01	3.7									14
15	AHU-4 RF - AIR HANDLER SUPPLY FAN		35 A	3			2.01	3.7			3	60 A		P-12 - GEO PRIMARY PUMP	16
17									2.01	3.7					18
19					3.7	2.01									20
21	P-11 - GEO PRIMARY PUMP		60 A	3			3.7	2.01			3	35 A		P-16 - HW GLYCOL PUMP	22
23									3.7	2.01					24
25					2.01	0									26
27	P-15 - HW GLYCOL PUMP		35 A	3			2.01	0			3	20 A		SPARE	28
29									2.01	0					30
31					0	0									32
33	SPARE		20 A	3			0	0			3	20 A		SPARE	34
35									0	0					36
37					0	0									38
39	SPARE		20 A	3			0	0			3	20 A		SPARE	40
41									0	0					42
			Total Load:		46.6 kVA		44.8 kVA		44.2 kVA						
			Total Amps:		389 A		374 A		368 A						

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION
(AF) ARC FAULT PROTECTION
(G/AF) COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	69758 VA	109.66%	76495 VA		
Receptacle	5580 VA	100.00%	5580 VA	**Total Conn. Load:**	136 kVA
Power	7600 VA	100.00%	7600 VA	**Total Est. Demand:**	98 kVA
Lighting	8634 VA	100.00%	8634 VA	**Total Conn.:**	376 A
Redundant	44061 VA	0.01%	4 VA	**Total Est. Demand:**	273 A

Notes:

Panelboard: K

Location: MECHANICAL 105F | **Supply From:** K | **Mounting:** SURFACE | **Enclosure:** Type 1
Voltage: 208Y/120V | **Phases:** 3 | **Wires:** 4
A.I.C. Rating: FIELD VERIFY | **Mains Type:** MLO | **Bus Rating:** 600 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
43	EF-1 - EXHAUST FAN		20 A	1	1.18	1.47					1	20 A		LTG GYMNASIUM 105D	44
45	GFU-1 - GLYCOL FILL UNIT		20 A	1			0.6	1.59			1	20 A		LTG GYMNASIUM 105D	46
47	REC PRE-FUNCTION 105C		20 A	1					0.54	0.96	1	20 A		LTG EXTERIOR	48
49	REC PRE-FUNCTION 105C		20 A	1	0.54	1.57					1	20 A		LTG RMS 105E, 105F	50
51	REC STORAGE 105E		20 A	1			0.36	1.27			1	20 A		LTG PRE-FUNCTION 105C	52
53	REC STORAGE 105E		20 A	1					0.18	1.81	1	20 A		LTG CORRIDOR 105A	54
55	REC STORAGE 105E		20 A	1	0.18	1.2					1	20 A		SB-1 - SCOREBOARD	56
57	REC STORAGE 105E		20 A	1			0.18	0			1	20 A		SB-1 - SCOREBOARD	58
59	REC STORAGE 105E		20 A	1					0.18	0	1	20 A		SB-1 - SCOREBOARD	60
61	REC MECHANICAL 105F		20 A	1	0.54	0					1	20 A		SB-1 - SCOREBOARD	62
63	REC GYMNASIUM 105D		20 A	1			0.54	1.2			1	20 A		SB-2 - SCOREBOARD	64
65	REC GYMNASIUM 105D		20 A	1					0.72	0	1	20 A		SB-2 - SCOREBOARD	66
67	REC GYMNASIUM 105D		20 A	1	1.08	0					1	20 A		SB-2 - SCOREBOARD	68
69	REC GYMNASIUM 105D		20 A	1			0.54	0			1	20 A		SB-2 - SCOREBOARD	70
71	TCP - TEMP CONTROL PANELS		20 A	1					0.38	0.33	1	20 A		GYMNASIUM 105D DF 1-4	72
73	BG-1-3 - BASKETBALL GOALS		20 A	1	0.58	0.33					1	20 A		GYMNASIUM 105D DF 5-8	74
75	BG-4-6 - BASKETBALL GOALS		20 A	1			0.58	0			1	20 A		SPARE	76
77	BL-1 - BLEACHERS		20 A	1					0.6	0	1	20 A		SPARE	78
79	BC-1 - BATTING CAGE		20 A	1	0.6	0					1	20 A		SPARE	80
81	RC-1 - RETRACTABLE CURTAIN		20 A	1			0.6	0			1	20 A		SPARE	82
83	RC-2-3 - RETRACTABLE CURTAIN		20 A	1					1.2	0	1	20 A		SPARE	84
			Total Load:		9.3 kVA		7.5 kVA		6.9 kVA						
			Total Amps:		78 A		63 A		57 A						

FEEDER BREAKER NOTES:
(G) GROUND FAULT PROTECTION
(M) INTEGRAL METER
(S) SURGE PROTECTION
(ST) SHUNT TRIP BREAKER
(LN) BREAKER LOCK IN ON POSITION
(LF) BREAKER LOCK IN OFF POSITION
(AF) ARC FAULT PROTECTION
(G/AF) COMBINATION GFCI/AFCI

ADJUSTABLE TRIP SETTINGS:
(IT) INSTANTANEOUS SETTING
(LT) LONG TERM SETTING
(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	1776 VA	116.55%	2070 VA		
Receptacle	5580 VA	100.00%	5580 VA	**Total Conn. Load:**	24 kVA
Power	7600 VA	100.00%	7600 VA	**Total Est. Demand:**	24 kVA
Lighting	8634 VA	100.00%	8634 VA	**Total Conn.:**	65 A
				Total Est. Demand:	66 A

Notes:

Engberg Anderson ARCHITECTS
MILWAUKEE | MADISON | CHICAGO

JDR ENGINEERING, INC.
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JDR PROJECT NO: 23.0319

WARNER PARK
COMMUNITY RECREATION
CENTER EXPANSION

1625 NORTHPORT DRIVE
MADISON, WI 53704

CITY OF MADISON PARKS DIVISION
330 EAST LAKESIDE STREET
MADISON, WI 53715

PROJECT NUMBER 223471.00

ISSUED FOR:

BID SET 5/16/2024

REVISION FOR:

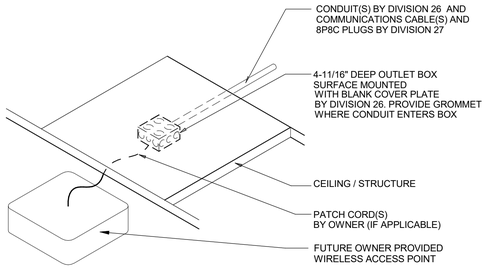
NO.	DESCRIPTION	DATE

DRAWN BY JDR

CHECKED BY JDR

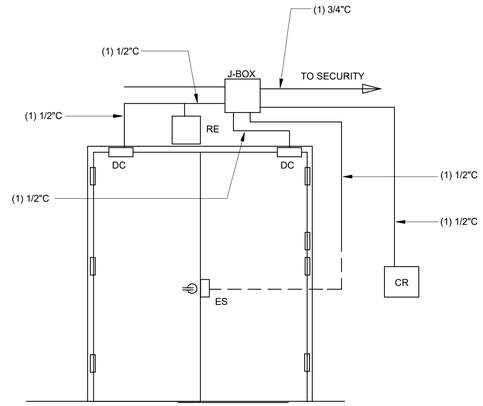
SCHEDULES - PANELS

E804



7 E900 TYPICAL EQUIPMENT OUTLET FOR WIRELESS ACCESS - SURFACE

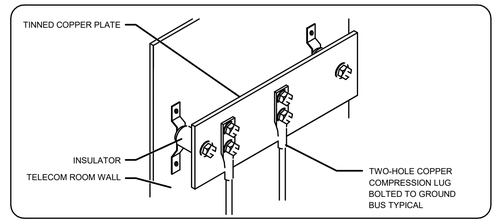
SCALE: NONE



- CARD READER CONTROL WITH ELECTRIC STRIKE.
- ENTRY BY CARD READER. EXIT IS MANUAL AND ALWAYS AVAILABLE.
- REQUEST TO EXIT SHOWN ON PLANS.
- NOT ALL DEVICES ON DETAIL ARE AT EACH DOOR. REFER TO PLAN.

4 E900 TYPICAL ACCESS CONTROLS DOUBLE DOORS

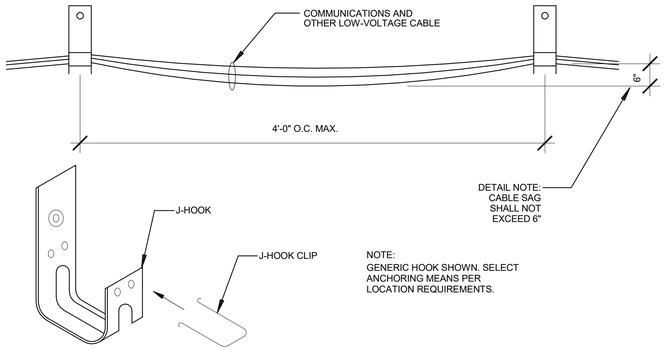
SCALE: NONE



AXONOMETRIC VIEW

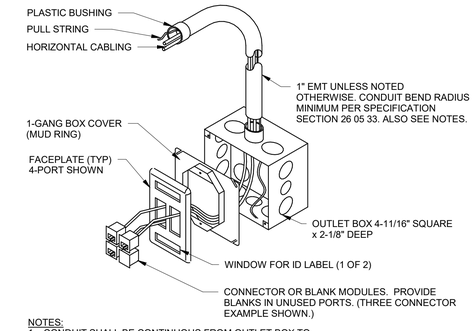
1 E900 TYPICAL GROUNDING BAR

SCALE: NONE



8 E900 TYPICAL CABLE SUPPORT HOOK INSTALLATION

SCALE: NONE

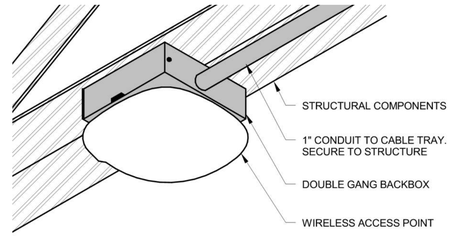


NOTES:

1. CONDUIT SHALL BE CONTINUOUS FROM OUTLET BOX TO ACCESSIBLE CEILING SPACE OR AS INDICATED ON DRAWINGS.
2. PROVIDE PULL STRING IN ALL CONDUITS.
3. REFER TO SPECIFICATION SECTION 27 00 05 FOR CONNECTOR TYPES.

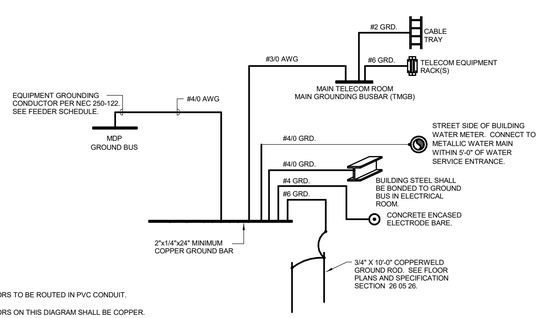
5 E900 TYPICAL COMMUNICATION EQUIPMENT OUTLET

SCALE: NONE



2 E900 TYPICAL WIRELESS ACCESS POINT PENDANT MOUNT

SCALE: NONE

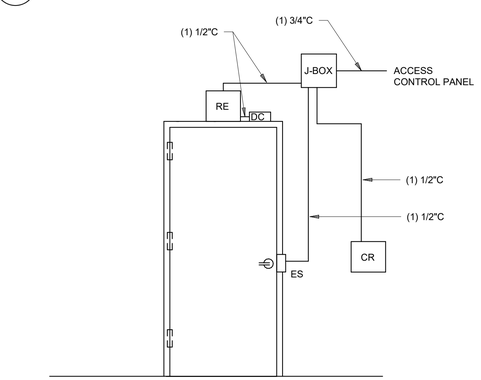


NOTES:

1. ALL GROUND CONDUCTORS TO BE ROUTED IN PVC CONDUIT.
2. ALL GROUND CONDUCTORS ON THIS DIAGRAM SHALL BE COPPER.

9 E900 TYPICAL GROUNDING SYSTEM

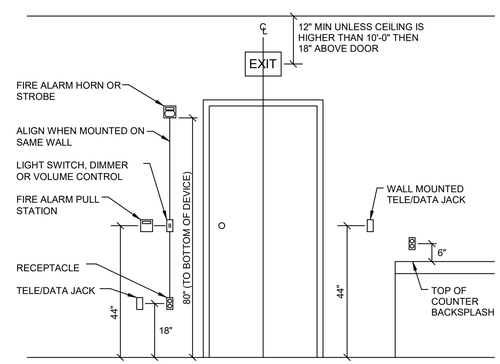
SCALE: NONE



- CARD READER CONTROL WITH ELECTRIC STRIKE.
- ENTRY BY CARD READER. EXIT IS MANUAL AND ALWAYS AVAILABLE.
- REQUEST TO EXIT SHOWN ON PLANS.
- NOT ALL DEVICES ON DETAIL ARE AT EACH DOOR. REFER TO PLAN.

6 E900 TYPICAL ACCESS CONTROLS SINGLE DOOR

SCALE: NONE



3 E900 TYPICAL MOUNTING HEIGHTS

SCALE: NONE

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DETAILS - ELECTRICAL

E900