VA UPGRADE COOLING TOWER AND CHILLER

PROJECT NUMBER: 626-24-203

VA TENNESSEE VALLEY HEALTHCARE SYSTEM

DEPARTMENT OF VETERANS AFFAIRS
1310 24TH AVENUE SOUTH
NASHVILLE, TN 37212

GENERAL NOTES

A. THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. NOTIFY THE CONTRACTING OFFICER'S REPRESENTATIVE (C.O.R.) OF ANY DISCREPANCIES FOUND DURING BIDDING AND THROUGH CONSTRUCTION.

B. DO NOT SCALE DIMENSIONED DRAWINGS; DIMENSIONS SHALL GOVERN.

C. VERIFY ALL EXISTING DIMENSIONS AND FIELD CONDITIONS PRIOR TO DEMOLITION AND CONSTRUCTION. IF PROVIDED, EXAMINE EXISTING BUILDING DOCUMENTS AND BRING DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE C.O.R.

D. VERIFY SIZES AND DIMENSIONS OF ALL EXISTING UTILITIES APPARATUSES IMPACTING NEW CONSTRUCTION. DETERMINE EXACT SIZE AND LOCATION OF PENETRATION WITHIN NEW CONSTRUCTION, TIGHTLY SEAL AND CAULK.

E. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF EXISTING ITEMS TO REMAIN DURING DEMOLITION AND CONSTRUCTION.

F. MAINTAIN ACCESSIBLE EGRESS FOR THE DURATION OF THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL CONSTRUCTION ROUTES BEYOND THE AREAS OF WORK AND THE ROUTES MUST BE RETURNED TO THEIR ORIGINAL CONDITION AT THE END OF THE PROJECT.

G. PENETRATIONS THROUGH EXISTING FIRE RATED CONSTRUCTION MUST BE PROPERLY CLOSED AND FIRE SAFE `D TO ACHIEVE THE REQUIRED FIRE RATING BY THE END OF CONSTRUCTION OPERATIONS FOR EACH DAY.

H. PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE CODES AND FEDERAL AUTHORITIES, RULES AND REGULATIONS.

I. THESE DOCUMENTS SHOW DESIGN INTENT WITH MINIMUM CONSTRUCTION REQUIREMENTS AND MINIMUM QUALITY OF WORK EXPECTED. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS, METHODS AND TECHNIQUES FOR CONSTRUCTION TO REACH THE EXPECTED QUALITY.

J. ALL MATERIALS USED SHALL BE NEW UNLESS OTHERWISE NOTED TO BE SALVAGED AND REFURBISHED. MATERIAL QUALITY SHALL MEET OR EXCEED APPLICABLE INDUSTRY STANDARDS.

K. COORDINATING EQUIPMENT INSTALLATION AND VERIFY ROUGH-IN DIMENSIONS WITH THE EQUIPMENT MANUFACTURER AND C.O.R. PRIOR TO CONSTRUCTION.

L. PREPARE EXISTING SURFACES THAT WILL SERVE AS SUBSTRATE TO RECEIVE THE NEW MATERIALS FOR A LEVEL AND SMOOTH FINISH.

M. HOST ONLINE CONSTRUCTION MANAGEMENT SOFTWARE FOR THE DURATION OF THE PROJECT.

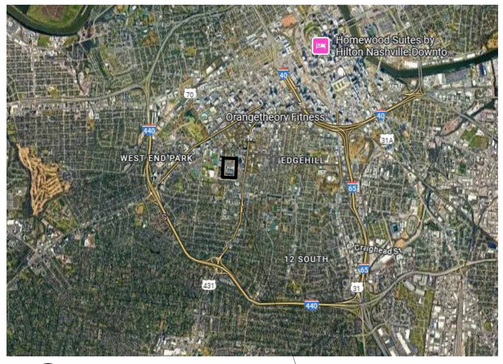
N. REMOVE, CUT, ALTER, REPLACE, PATCH AND REPAIR EXISTING WORK AS NECESSARY TO INSTALL NEW WORK. UPON COMPLETION OF CONTRACT, DELIVER WORK COMPLETE AND UNDAMAGED. EXISTING WORK (WALLS, CEILINGS, PARTITIONS, FLOORS, MECHANICAL AND ELECTRICAL WORK, LAWNS, PAVING, ROADS, WALKS, ETC.) DISTURBED OR REMOVED AS A RESULT OF PERFORMING REQUIRED NEW WORK, SHALL BE PATCHED, REPAIRED, REINSTALLED, OR REPLACED WITH NEW WORK, AND REFINISHED AND LEFT IN AS GOOD CONDITION AS EXISTED BEFORE COMMENCING WORK.

O. WORK DEPICTED AS OUT OF SCOPE ON ONE DRAWING OR FROM ONE DISCIPLINE MAY STILL REQUIRE SCOPE ON A DIFFERENT DRAWING OR FROM A DIFFERENT DISCIPLINE.

P. IF THE CONTRACTOR FINDS ANY PERCEIVED AMBIGUITY, CONFLICT, ERROR, OMISSION, OR DISCREPENCY ON OR BETWEEN ANY OF THE CONTRACT DOCUMENTS, OR BETWEEN ANY OF THE CONTRACT DOCUMENTS AND ANY APPLICABLE LAW, THE CONTRACTOR, BEFORE PROCEEDING WITH THE WORK, SHALL PROMPTLY SUBMIT A REQUEST FOR INTERPRETATION ("RFI") TO THE A/E FOR AN INTERPRETATION OR CLARIFICATION.

Q. IN THE EVENT OF INCONSISTENCY OR CONFLICT WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROVIDE THE BETTER QUALITY OR GREATER QUANTITY OF WORK, AND COMPLY WITH THE STRICTER REQUIREMENTS.

VICINITY MAP



NORTH

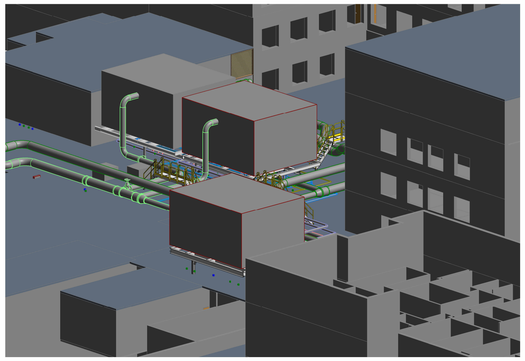
CAMPUS LOCATION

LOCATION MAP

NORTH

PROJECT LOCATION

3D ISO VIEW



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Grand total: 32	

No.	Revisions:	Date:
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	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

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STAMP

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: COVER SHEET

Approved: Owner

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: PQ

Drawn: JV

Project Number: 626-24-203

Building Number: 1

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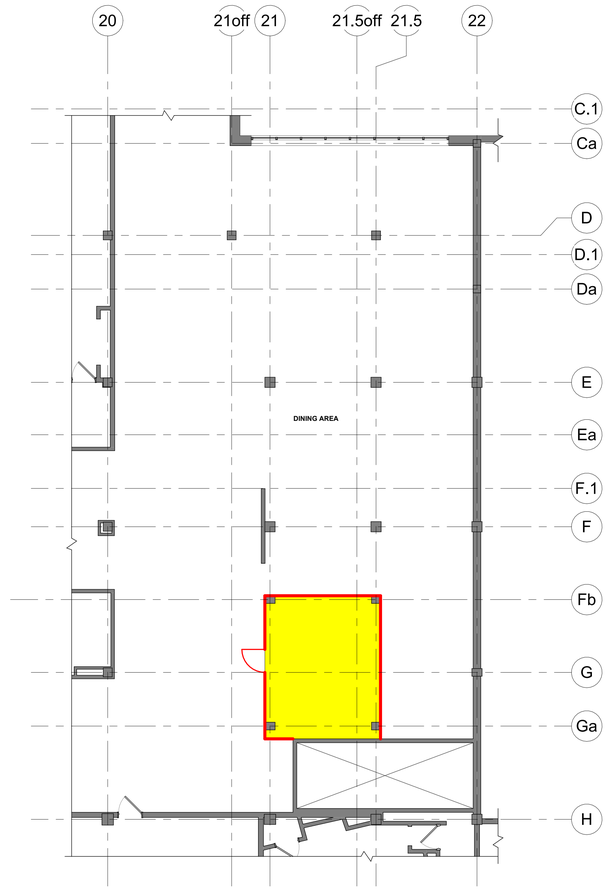


PARTIAL FIRST FLOOR PLAN - ICRA
1/8" = 1'-0"

GENERAL NOTES - CLASS II

A. CLEAN UP CEILING TILE AND FLOORING SURFACES BELOW WITH THE HEPA FILTERED VACUUM OR DAMP MOP.
B. WET MOP AND/OR VACUUM WITH HEPA-FILTERED VACUUM BEFORE LEAVING WORK AREA AND WIPE WORK SURFACES WITH DISINFECTANT.
C. ALL APPLICABLE FORMS SHALL BE COMPLETED AND APPROVED PRIOR TO STARTING WORK.
D. CONTAIN CONSTRUCTION WASTE BEFORE TRANSPORT IN TIGHTLY COVERED CONTAINERS. TAPE MAY BE USED TO ENSURE A TIGHT COVER.
E. REMOVE ISOLATION OF HVAC SYSTEM IN AREAS WHEN WORK AND AREA CLEANUP HAS BEEN COMPLETED
F. EXECUTE WORK BY METHODS TO MINIMIZE RAISING DUST FROM CONSTRUCTION OPERATIONS.
G. THERE SHALL BE NO STANDING, UNCOVERED WATER DURING CONSTRUCTION. THIS INCLUDES WATER IN EQUIPMENT DRIP PANS AND OPEN CONTAINERS WITHIN THE CONSTRUCTION AREAS. ALL ACCIDENTAL SPILLS MUST BE CLEANED UP AND DRIED WITHIN 12 HOURS.
H. CONSTRUCTION CLASS WILL BE DETERMINED BY THE VA SAFETY COMMITTEE.

ICRA CLASS II

PRIOR TO ANY CONSTRUCTION

1. FOR VISUAL INSPECTION ONLY, DAMPEN CEILING TILE WITH WATER SPRAY BEFORE REMOVING. REPLACE CEILING TILE IMMEDIATELY AFTER INSPECTION; DO NOT LEAVE UNATTENDED.
2. PROVIDE ACTIVE MEANS TO PREVENT DUST FROM DISPERSING. DUST LEFT ON FLOORS, CLOTHING AND/ OR BODY IS NOT ALLOWED IN ORDER TO PREVENT SPREADING AND TRACKING. "ACTIVE MEANS" ARE:
   A. VACUUM ATTACHMENTS ON TOOLS WITH HEPA VACUUM WHEN GENERATING DUST, OR HEPA VACUUMING IMMEDIATELY AS THE DUST IS GENERATED.
   B. REMOVE OR ISOLATE HVAC SYSTEM IN AREAS WHERE WORK IS BEING PERFORMED.
   C. WATER MIST WORK SURFACES TO CONTROL DUST WHILE CUTTING.
   D. SEAL UNUSED DOORS WITH DUCT TAPE.
   E. BLOCK OFF AND SEAL ALL HVAC AIR VENTS.
   F. PLACE STICKY MAT AT INSIDE OF ENTRANCE AND EXIT OF WORK AREA. CHANGE FREQUENTLY OR WHEN INEFFECTIVE.
   G. WET MOP AND/OR VACUUM (WITH HEPA-FILTERED VACUUM) THE WORK AREA BEFORE LEAVING THE SITE. BROOMING IS NOT SUFFICIENT.

POST CONSTRUCTION

1. WHENEVER TRANSPORTING OUTSIDE OF CONSTRUCTION SITE: WIPE MATERIALS, EQUIPMENT, AND WORK SURFACES WITH EPA REGISTERED UNSCENTED DISINFECTANT (WHICH HAS MANUFACTURERS LABELING AS A BACTERICIDE, TUBERCULOCIDE, VIRUCIDE, AND FUNGICIDE).

ALTERNATIVE TO OUTDOOR EXHAUST REQUIREMENTS

THIS APPENDIX PROVIDES AN EQUIVALENT ICRA CONTROL MEASURE TO REQUIREMENTS DETAILED IN THIS VHA ICRA TEMPLATE (TABLE 5 LEVEL III, ITEM 5) THAT WOULD ALLOW INTERIOR CONSTRUCTION SPACE EXHAUST.

INTERIOR CONSTRUCTION SPACE EXHAUST:

IF THE FACILITY IS NOT ABLE TO EXHAUST TO THE BUILDING EXTERIOR , THE HEALTHCARE ENVIRONMENT AND FACILITIES PROGRAM OFFICE HAS IDENTIFIED AN ALTERNATE INDUSTRY-RECOGNIZED STANDARD INTERIOR EXHAUST PROCEDURE THAT IS ACCEPTED AS PROVIDING AN EQUIVALENT LEVEL OF INFECTION PREVENTION AND CONTROL (IPC), AND SAFETY. THE ALTERNATE INTERIOR EXHAUST PROCEDURE IS IMPLEMENTED BY COMPLETING THE FOLLOWING:

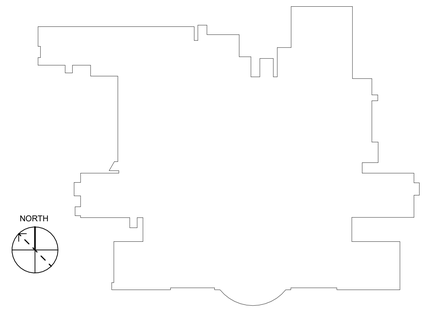
1. IF EXHAUST IS DIRECTED INDOORS, THEN THE SYSTEM MUST BE HEPA FILTERED. PRIOR TO START OF WORK, INCLUDING ASSEMBLY OF THE ICRA BARRIERS, INITIAL BASELINE AIR SAMPLING MEASUREMENTS FOR PARTICULATE LEVELS MUST BE TAKEN IN THE PLANNED AREA OF DISCHARGE. ONCE CONTAINMENT IS ERECTED AND COMPLETED, HEPA FILTRATION MUST THEN BE VERIFIED BY PARTICULATE MEASUREMENT (USING A PARTICLE COUNTER WITH MULTI-CHANNEL CAPABILITIES TO MEASURE DOWN TO 0.3 MICRONS) TO CONFIRM THAT THE DISCHARGE OF THE HEPA UNIT DOES NOT EXCEED THE BASELINE PARTICULATE COUNT OF THE AREA TO WHICH THE EXHAUST IS DIRECTED. VERIFICATION MUST CONTINUE AT LEAST THREE TIMES PER DAY (ONCE EVERY 8 HOURS), 7 DAYS PER WEEK, DURING THE USE OF THE NEGATIVE AIR MACHINE AND HEPA FILTER. ANY EXCEEDANCE MUST TRIGGER A WORK STOPPAGE AND AN IMMEDIATE RESPONSE AND RESOLUTION. ALL PARTICULATE MEASUREMENTS, INCLUDING THE BASELINE MEASUREMENT, MUST BE DOCUMENTED AND RETRIEVABLE.
2. TO ACCOMMODATE THE SAMPLING, THE NEGATIVE AIR PRESSURE MACHINE MUST BE FITTED WITH A 2 FT SECTION OF RIGID DUCTWORK AT THE DISCHARGE. THE SAMPLE PORT FOR MONITORING MUST BE IN THE RIGID DUCTWORK SECTION.
3. VAPOR GENERATING PROCESSES MUST BE ASSESSED AND APPROPRIATE FILTRATION MUST BE INSTALLED TO MITIGATE TRANSMISSION TO THE FACILITY.
4. ENGINEERING MUST DO A COMPLETE FLOW AND PRESSURE ANALYSIS AND DOCUMENT THE AREA TO WHICH THE AIR IS BEING DISCHARGED TO ENSURE THE FLOW AND PRESSURE RELATIONSHIPS IN THAT AREA ARE NOT BEING ADVERSELY IMPACTED BY THE ADDITIONAL FLOW. IDEALLY, THIS IS DONE AS PART OF THE CONSTRUCTION PACKAGE TO ENSURE THE DESIGN IS IMPLEMENTABLE AND NO ADDITIONAL H.V.A.C. CHANGES ARE REQUIRED TO ACCOMMODATE THE EXHAUST FROM THE NEGATIVE AIR EQUIPMENT.
5. INSTALL DEVICE(S) ON EXTERIOR OF WORK CONTAINMENT TO CONTINUALLY MONITOR NEGATIVE PRESSURIZATION. TO ENSURE PROPER PRESSURE IS CONTINUOUSLY MAINTAINED, THE DEVICE(S) SHALL HAVE A VISUAL PRESSURE INDICATOR, DATA COLLECTION, AND ALARM.
6. EXHAUST MUST BE DIRECTED TO LOW RISK AREAS AS DEFINED IN TABLE 3 IN THIS VHA ICRA TEMPLATE. IDEALLY THIS DISCHARGE MUST BE LOCATED SO AS NOT TO INFRINGE ON HIGH TRAFFIC AREAS OR CREATE A NUISANCE WITH NOISE OR EXCESSIVE AIRFLOW. ***NOTE:*** *EXHAUST INTO SHARED OR RECIRCULATING HVAC SYSTEMS, OR OTHER SHARED EXHAUST SYSTEMS (E.G., BATHROOM EXHAUST) IS NOT ACCEPTABLE*

ICRA PLAN LEGEND

INDICATES ICRA WALL

INDICATES ICRA DOOR SYSTEM

ICRA CLASS II ZONE



KEY PLAN

NOT TO SCALE

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: ICRA PLAN

Approved: Owner

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: SPS | Drawn: SPS

Project Number: 626-24-203

Building Number: 1

Drawing Number: GI001

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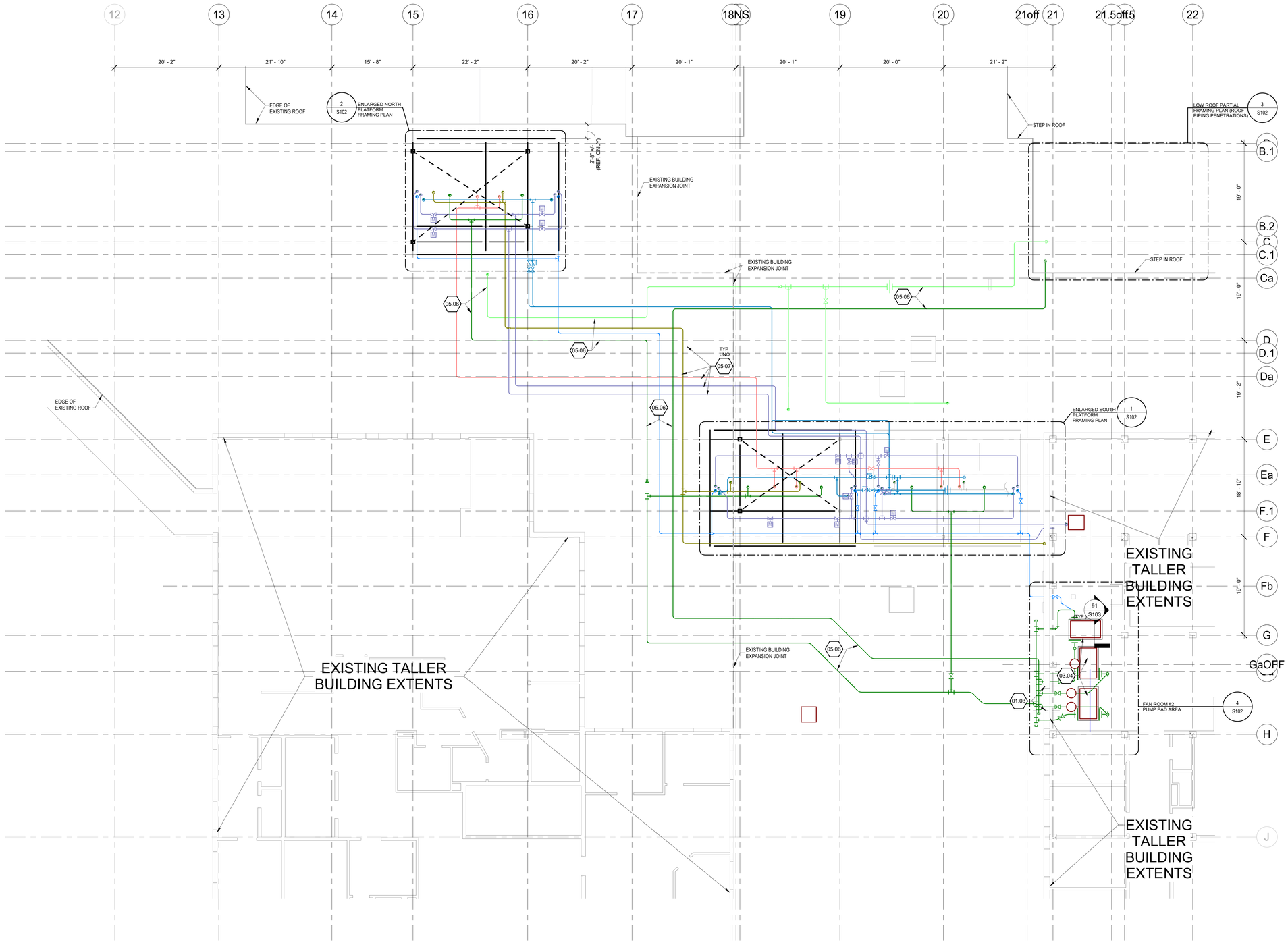

1 PARTIAL THIRD STORY ROOF PLAN
1/8" = 1'-0"

NORTH

STRUCTURAL STEEL:

A. STRUCTURAL AND MISC. STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE MOST RECENT EDITION OF AISC STEEL CONSTRUCTION MANUAL AND CODE OF STANDARD PRACTICE.

B. USE WELDED CONNECTIONS OR BOLTED CONNECTIONS OF SIZE AND QUANTITIY SPECIFIED IN FRAMING DETAILS FOR ALL STRUCTURAL STEEL CONNECTIONS.

C. CONNECTIONS UTILIZING STRUCTURAL BOLTS SHALL BE BEARING TYPE AND TIGHTENED PER AISC TURN-OF NUT OR SNUG-TIGHT SPECIFICATIONS. ALL BOLTED CONNECTIONS SHALL BE STANDARD ROUND HOLES (UNLESS NOTED OTHERWISE).

D. STEEL BOLTS SHALL CONFORM IN ALL RESPECTS TO THE CURRENT SPECIFICATIONS FOR STRUCTURAL JOINTS USING 3/4" DIAMETER ASTM A325-N BOLTS (U.N.O.) AS ENDORSED BY THE AISC.

E. WELDING SHALL BE DONE IN ACCORDANCE WITH "AMERICAN WELDING SOCIETY" (AWS) D1.1, USING E70XX ELECTRODES. WELDING SHALL BE PERFORMED BY AN APPROVED CERTIFIED WELDER.

F. NO CHANGES SHALL BE MADE IN THE STEEL STRUCTURE NOR ANY MATERIAL CUT IN THE FIELD (UNLESS NOTED AS "FIELD CUT OR TRIM" ON DRAWINGS), WITHOUT THE WRITTEN PERMISSION OF THE COR.

G. NO CUTTING, BURNING, OR ADDITION OF HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS WITHOUT THE PRIOR CONSENT OF THE COR. BOLT HOLES SHALL CONFORM WITH THE GOVERNING AISC SPECIFICATION.

H. CONTRACTOR SHALL PROVIDE NECESSARY LABOR, MATERIAL, AND EQUIPMENT TO ERECT ALL MISCELLANEOUS IRON AND STEEL AS DETAILED ON THESE DRAWINGS.

I. FOR PAINTING OF STEEL, SEE SPECIFICATIONS.

J. ALL STEEL ITEMS TO BE HOT DIP GALVANIZED AFTER FABRICATION, BY THE HOT DIP PROCESS IN ACCORDANCE WITH ASTM A123 OR A386, AS APPLICABLE.

K. PAINT ALL STEEL EXPOSED TO EARTH OR IN CONTACT WITH CONCRETE WITH ASPHALT PAINT (TNEMEC 46-465, OR EQUAL).

L. CONNECTIONS:
- CONNECTION CAPACITY: FABRICATOR SHALL DESIGN CONNECTIONS AND, WHEN REQUESTED, SUBMIT CALCULATIONS TO AID THE ENGINEER IN REVIEW.
- DESIGN AND FABRICATE SHEAR CONNECTIONS TO RESIST MAXIMUM UNIFORM LOAD CAPACITY OF THE MEMBER FOR THE SPAN INCREASED BY 25%, BUT NOT MORE THAN THE SHEAR CAPACITY OF THE MEMBER UNLESS NOTED OTHERWISE ON DRAWINGS.
- CONNECTION DEPTH MUST BE A MINIMUM OF 1/2 THE BEAM DEPTH.

STRUCTURAL STEEL:

MATERIAL STANDARDS:

WIDE FLANGE	ASTM A992	Fy = 50,000 PSI
ANGLE, CHANNEL, PLATE	ASTM A36	Fy = 36,000 PSI
RECTANGLE HSS	ASTM A500 Gr. B	Fy = 46,000 PSI
ROUND HSS	ASTM A500 Gr. B	Fy = 42,000 PSI
PIPE	ASTM A53 Gr. B	Fy = 35,000 PSI
BOLTS	ASTM A325N	
GROUT	HIGH STRENGTH, NON-SHRINK, NON-METALLIC	

STRUCTURAL DESIGN INFORMATION:

A. GOVERNING CODE: 2024 INTERNATIONAL BUILDING CODE

B. RISK CATEGORY (OCCUPANCY CATEGORY): IV

C. LOADS:
- a. SNOW LOAD DATA BASED ON ASCE 7-22: GROUND SNOW LOAD, p_g: 24 PSF
- b. LIVE LOAD DATA BASED ON ASCE 7-22: ROOF LIVE LOAD: 20 PSF
- c. WIND LOAD DATA BASED ON ASCE 7-22: BASIC WIND SPEED: 119 MPH WIND EXPOSURE CATEGORY: 'B'
- d. SEISMIC LOAD DATA BASED ON ASCE 7-22: SEISMIC IMPORTANCE FACTOR, Ie: 1.5 SITE CLASS: D SEISMIC DESIGN CATEGORY: D SPECTRAL RESPONSE COEFFICIENTS: Ss = 0.36 Sds = 0.28 S1 = 0.12 Sd1 = 0.17 RESPONSE MODIFICATION COEFFICIENT, R: 3.0 TOWER STRUCTURAL SYSTEM: STEEL CONCENTRICALLY BRACED FRAME

GENERAL STRUCTURAL NOTES:

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE AND TO CROSS-CHECK DETAILS AND DIMENSIONS ON THE STRUCTURAL DRAWINGS WITH THE RELATED REQUIREMENTS ON THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING PLANS. FLOOR AND WALL OPENINGS, SLEEVES AND OTHER ARCH., MECH., ELEC., REQUIREMENTS MUST BE COORDINATED BEFORE THE CONTRACTOR PROCEEDS WITH CONSTRUCTION.

B. ALL ENGINEERING DESIGN, CONSTRUCTION, AND TESTING SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE MOST RECENT EDITION (HEREIN REFERRED TO AS "THE CODE").

C. ALL STRUCTURAL WORK MUST BE TEMPORARILY BRACED AND SUPPORTED UNTIL THE STRUCTURE IS SUFFICIENTLY COMPLETED AND CAN SAFELY CARRY THE DESIGN & CONSTRUCTION LOADS.

D. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE COR BEFORE PROCEEDING WITH ANY WORK THAT IS INVOLVED IN THE CONFLICT.

E. THE MANUFACTURER PRODUCTS IDENTIFIED WITHIN MEET THE SALIENT CHARACTERISTICS OF THIS SPECIFICATION. SUCH INFORMATION IS ONLY PROVIDED TO SHOW AN EXAMPLE OF PRODUCTS WHICH MEET THE SPECIFICATIONS AND DO NOT, IN ANY WAY, LIMIT THE OFFEROR FROM PROVIDING PRODUCTS FROM OTHER MANUFACTURERS WHICH MEET THE SALIENT CHARACTERISTICS AS IDENTIFIED IN THE SPECIFICATION.

DRAWING NOTES

01.03 NONSTRUCTURAL PIPE PENETRATION THRU EXISTING, ABANDONED WALL LOUVER.

03.04 INTERIOR EQUIPMENT PAD AT NEW MECHANICAL PUMPS IN FAN ROOM - SEE RELATING SECTION AND MECHANICAL DRAWINGS FOR MORE INFORMATION.

05.06 ROOFTOP PIPE RACK SUPPORT FOR >18" DIA PIPES - SEE 93/S103 FOR MORE INFORMATION.

05.07 ROOFTOP PIPES SUPPORTED INDIVIDUALLY - SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.

ABBREVIATIONS

ARCH	ARCHITECTURAL
CJ	CONTROL JOINT
CL	CLEARANCE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
DIM	DIMENSION
DWGS	DRAWINGS
EQ	EQUAL
EL	ELEVATION
EX OR (E)	EXISTING
FFE	FINISHED FLOOR ELEVATION
FF	FINISHED FLOOR
FND	FOUNDATION
GALV	GALVANIZED
MECH	MECHANICAL
NTS	NOT TO SCALE
OC	ON CENTER
OPNG	OPENING
PL	PLATE
SIM	SIMILAR
SOG	SLAB ON GRADE
STL	STEEL
T/STL	TOP OF STEEL
VIF	VERIFY IN FIELD
VM	VERIFY WITH MECHANICAL SCOPE

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	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025

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ARCHITECT/ENGINEER OF RECORD

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STAMP

NOT FOR CONSTRUCTION

VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: STRUCTURAL NOTES AND PARTIAL ROOF PLAN

Approved: Owner

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

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Project Number: 626-24-203

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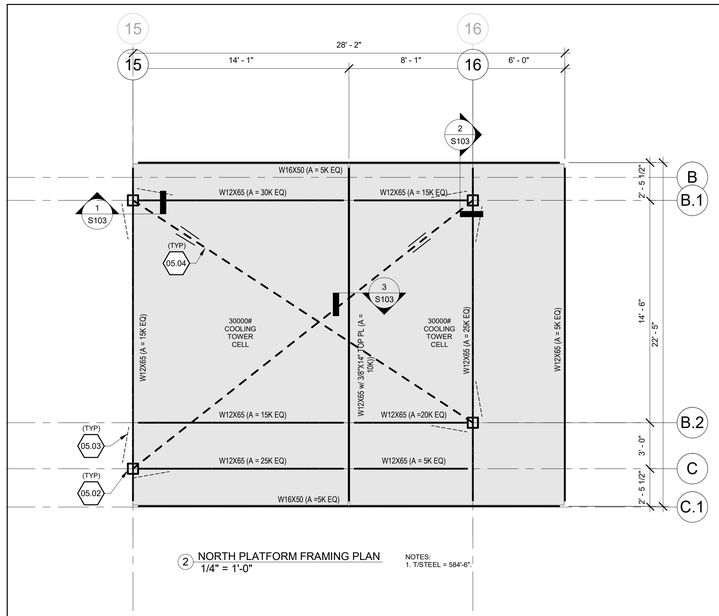
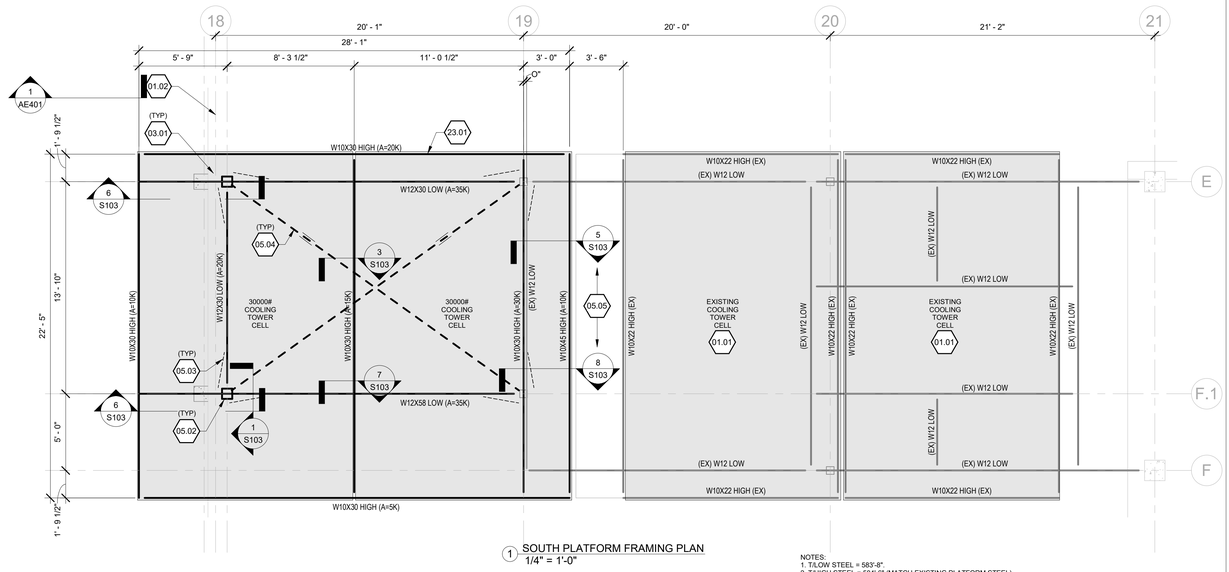


2 NORTH PLATFORM FRAMING PLAN
1/4" = 1'-0"

NOTES:
1. T/STEEL = 584'-6".



1 SOUTH PLATFORM FRAMING PLAN
1/4" = 1'-0"

NOTES:
1. T/LOW STEEL = 583'-8".
2. T/HIGH STEEL = 584'-6" (MATCH EXISTING PLATFORM STEEL).

DRAWING NOTES

01.01 EXISTING COOLING TOWER ON EXISTING STEEL PLATFORM.

01.02 BUILDING EXPANSION JOINT ALONG GRIDLINE 18. NEW COOLING TOWER FRAMING TO CANTILEVER OVER EXPANSION JOINT.

03.01 EXSTING CONCRETE COLUMN BELOW.

03.02 EXISTING 12" THICK TWO-WAY SLAB

03.03 NEW PIPING OPENING IN EXISTING SLAB - SEE MECHANICAL DRAWINGS AND 92/S103 FOR MORE INFORMATION.

03.04 INTERIOR EQUIPMENT PAD AT NEW MECHANICAL PUMPS IN FAN ROOM - SEE RELATING SECTION AND MECHANICAL DRAWINGS FOR MORE INFORMATION.

03.06 REINFORCE UNDERSIDE OF EXIST SLAB IN HATCHED AREA USING CARBON FIBER REINFORCED POLYMER. EXISTING MOMENT CAPACITY OF THE SLAB IS 7.3K*FT. DEMAND CAPACITY OF THE SLAB IS 13.4K*FT. REINFORCE SLAB PRIOR TO EQUIPMENT PAD AND PUMP INSTALLATION.

05.01 ANGLE FRAMING SUPPORTING SLAB AT NEW OPENINGS - SEE 92/S103 FOR MORE INFORMATION.

05.02 HSS8X8X3/8 POST UP FROM EXISTING COL BELOW - SEE RELATING SECTIONS FOR MORE INFORMATION.

05.03 HSS4X4X3/8 VERTICAL BRACING - SEE RELATING SECTIONS FOR MORE INFORMATION.

05.04 1" DIAMETER ROD BRACING - SEE 3/S103 AND 4/S103 FOR MORE INFORMATION. PROVIDE (1) TURNBUCKLE EA ROD. TIGHTEN TURNBUCKLE AFTER UNIT PLACEMENT.

05.05 EXISTING STEEL ACCESS CATWALK TO REMAIN. DO NOT ALTER.

23.01 NEW COOLING TOWER - SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.

3 PARTIAL LOW ROOF FRAMING PLAN
1/4" = 1'-0"

NOTES:
1. EXIST SLAB ELEVATION = 565'-0" +/-.

4 FAN ROOM 2 FLOOR PLAN
1/4" = 1'-0"

NORTH

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: ENLARGED FRAMING PLANS

Phase: 95% CONSTRUCTION DOCUMENTS

Project Title: UPGRADE COOLING TOWER AND CHILLER

Project Number: 626-24-203

Building Number: 1

Approved: Owner

FULLY SPRINKLERED

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

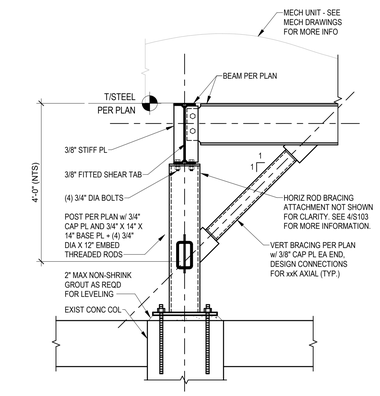
Issue Date: 02/13/2026 | Checked: EMO | Drawn: KES

Drawing Number: S102

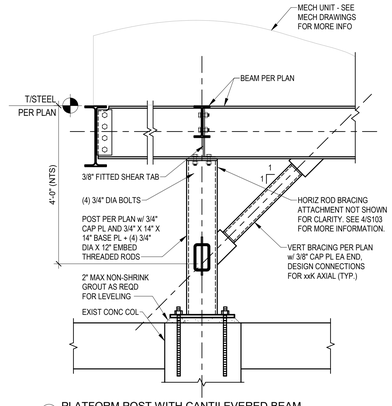
Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/FFE_Nashville - Cooling Tower and Chiller_B1 (2024).rvt

2/12/2026 5:06:40 PM

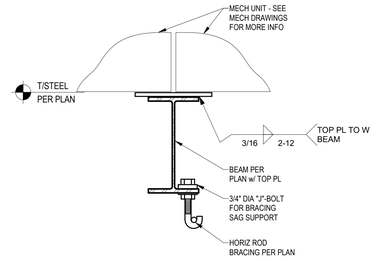
VA FORM 08 - 6231



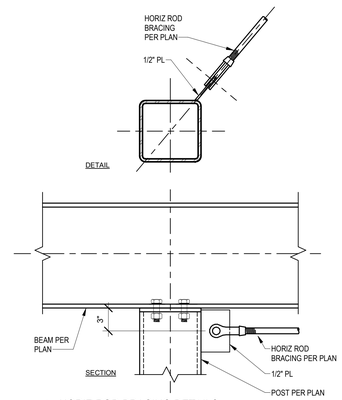
1 PLATFORM POST
3/4" = 1'-0"



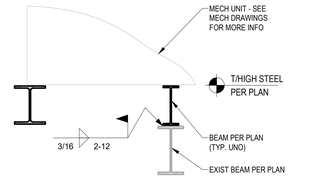
2 PLATFORM POST WITH CANTILEVERED BEAM
3/4" = 1'-0"



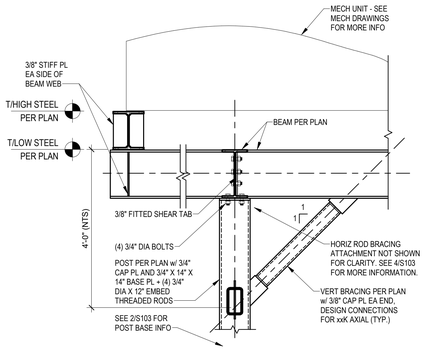
3 SAG SUPPORT AND (2) BRG MECH UNITS DETAIL
1 1/2" = 1'-0"



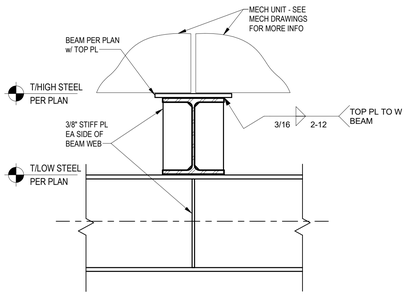
4 HORIZ ROD BRACING DETAILS
1 1/2" = 1'-0"



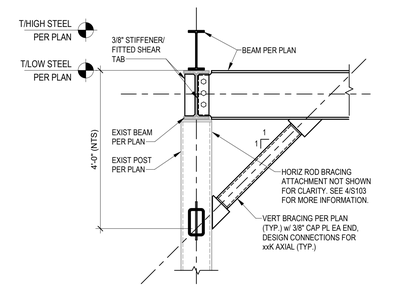
5 SECTION
3/4" = 1'-0"



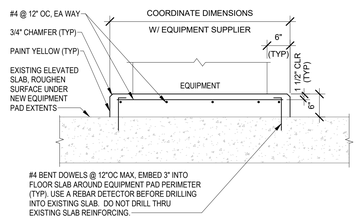
6 PLATFORM BEAM ON EXISTING BEAM
3/4" = 1'-0"



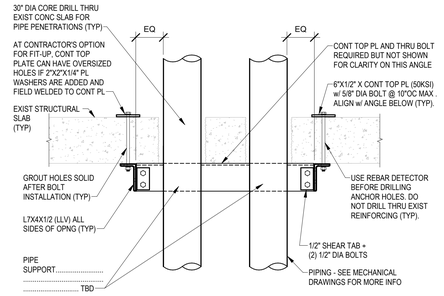
7 STACKED BEAM SECTION
1 1/2" = 1'-0"



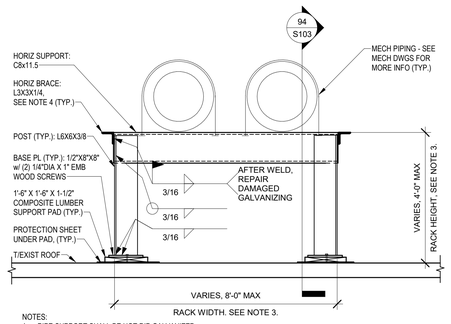
8 PLATFORM POST WITH CANTILEVERED BEAM
3/4" = 1'-0"



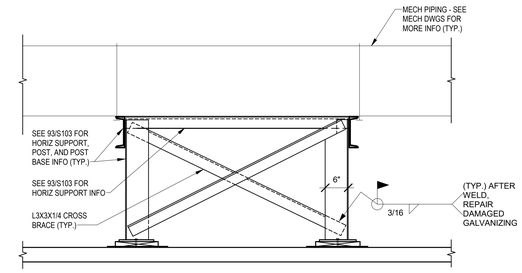
91 INTERIOR EQUIPMENT PAD DETAIL
3/4" = 1'-0"



92 PIPE PENETRATION THRU EXIST ROOF
3/4" = 1'-0"



93 ROOFTOP PIPE SUPPORT
3/4" = 1'-0"



94 ROOFTOP PIPE SUPPORT BRACING
3/4" = 1'-0"

No.	Revisions:	Date:
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	SCHEMATIC DESIGN 35% REVISION	05/28/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: SECTIONS

Phase: 95% CONSTRUCTION DOCUMENTS

Project Title: UPGRADE COOLING TOWER AND CHILLER

Project Number: 626-24-203

Building Number: 1

Approved: Owner

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Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

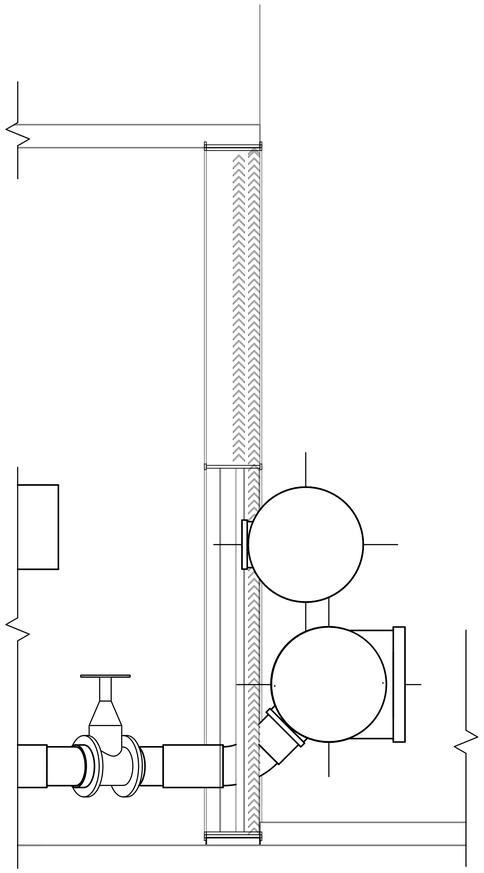
Checked: EMO

Drawn: KES

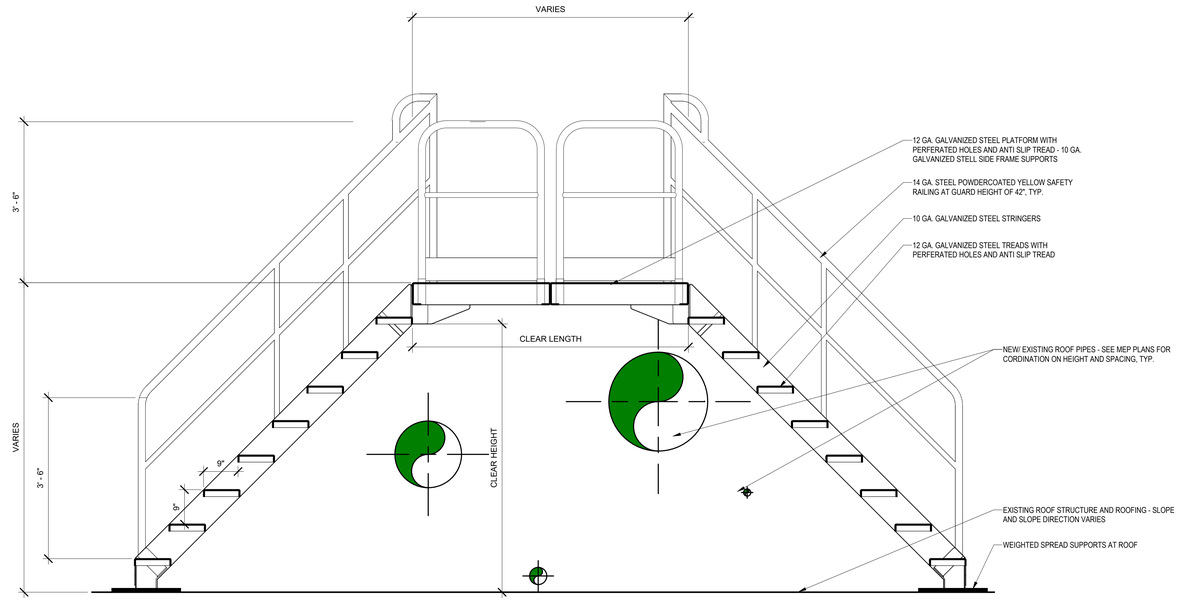
Drawing Number: S103

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/FFE_Nashville - Cooling Tower and Chiller_B1 (2024).rvt 2/12/2026 5:06:43 PM

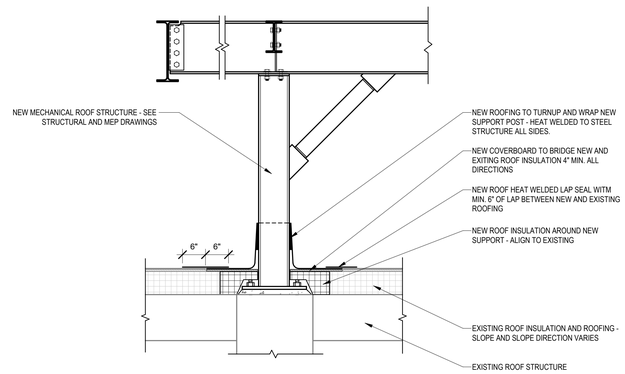
VA FORM 08 - 6231



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



1 TYPICAL STAIR CROSSOVER - SECTION DETAIL
3/4" = 1'-0"



3 PLATFORM POST - ENLARGED DETAIL
3/4" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: ENLARGED DETAILS

Approved: Owner

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: SPS | Drawn: SPS

Project Number: 626-24-203

Building Number: 1

Drawing Number: AE401

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/FFE_Nashville - Cooling Tower and Chiller_B1 (2024).rvt
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PIPING DESIGNATIONS

	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RETURN
140	HOT WATER PIPE (140 DEGS. F.)
140R	HOT WATER RETURN PIPE (140 DEGS. F.)
180	HOT WATER PIPE (180 DEGS. F.)
180R	HOT WATER RETURN PIPE (180 DEGS. F.)
CWS	COMBINATION FIRE SUPPRESSION & DOMESTIC WATER SERVICE
NPW	NON-POTABLE
PW	PURE WATER PIPE
SCW	SOFT COLD WATER
TW	TEMPERED WATER PIPE
WS	WATER SERVICE
AV	ACID VENT PIPE
AW	ACID WASTE PIPE
GD	GARAGE DRAINAGE PIPE
IV	INDIRECT VENT PIPE
IW	INDIRECT WASTE PIPE
K	KITCHEN WASTE PIPE
OD	(OVERFLOW) SECONDARY STORM DRAINAGE PIPE
PD	PUMP DISCHARGE PIPE
TP	TRAP PRIMER DISCHARGE PIPE
SAN	SANITARY DRAINAGE PIPE
STM	STORM DRAINAGE PIPE
V	SANITARY SEWER VENT
DS	SPRINKLER PIPE (DRY)
F	FIRE SUPPRESSION (STANDPIPE / SPRINKLER MAIN)
FS	FIRE SERVICE
PS	PRE-ACTION / DELUGE SPRINKLER PIPE
S	SPRINKLER PIPE (WET)
SD	SPRINKLER DRAIN PIPE
CA	COMPRESSED AIR PIPE
AR	ARGON PIPE
H2	HYDROGEN PIPE
HE	HELIUM PIPE
LA	LABORATORY COMPRESSED AIR PIPE
LV	LABORATORY VACUUM PIPE
LV	LABORATORY VENT PIPE
LW	LABORATORY WASTE PIPE
CO2	MEDICAL CARBON DIOXIDE PIPE
IA	MEDICAL INSTRUMENT AIR PIPE
MA	MEDICAL COMPRESSED AIR PIPE
MA-IN	MEDICAL COMPRESSED AIR-INTAKE PIPE
MV	MEDICAL SURGICAL VACUUM PIPE
MV-EX	MEDICAL SURGICAL VACUUM-EXHAUST PIPE
N2	MEDICAL NITROGEN PIPE
NO	MEDICAL NITROUS OXIDE PIPE
O2	MEDICAL OXYGEN PIPE
WAGD	WASTE ANESTHESIA GAS DISPOSAL PIPE
DF	DIESEL FUEL PIPE
G	NATURAL GAS PIPE
GS	GAS SERVICE
FOF	FUEL OIL FLOW LINE
FOG	FUEL OIL GAUGE LINE
FOR	FUEL OIL RETURN LINE
FOS	FUEL OIL SUPPLY LINE
NG	GASOLINE PIPE (NON-LEAD)
P	PROPANE GAS PIPE
T	FUEL TANK VENT PIPE

VALVES AND FITTINGS

	AUTOMATIC FLOW CONTROLLER WITH P/T PLUG IN AND OUT
	CLEANOUT
CO	CLEANOUT - TO GRADE OR FINISHED FLOOR
	CONCENTRIC PIPE REDUCER
FOT / FOB	ECCENTRIC PIPE REDUCER
	END CAP
P	GAUGE - PRESSURE
T	GAUGE - TEMPERATURE OR THERMOMETER
V	GAUGE - VACUUM WITH STOP
	HOSE BIB
	MIXING FAUCET
	PLUG
	PLUG - PRESSURE AND TEMPERATURE TEST
	STRAINER
	STRAINER - WITH A BLOW DOWN VALVE AND HOSE CONNECTION
TP	TRAP PRIMER
	UNION
	VALVE - CHECK
	VALVE - COMBINATION SHUTOFF AND BALANCING (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
	VALVE - DRAIN WITH HOSE END CONNECTION
	VALVE - PLUG
P/T	VALVE - PRESSURE AND TEMPERATURE SAFETY RELIEF. PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE.
	VALVE - PRESSURE REGULATING
	VALVE - SAFETY RELIEF. PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE.
VB	VALVE - SHUTOFF AND BOX
	VALVE - SHUTOFF: BALL, GATE, BUTTERFLY VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
	VALVE - SHUTOFF ON RISER
S	VALVE - SOLENOID
	WALL HYDRANT

FIRE SUPPRESSION SYMBOLS

	FIRE HYDRANT
FS	FLOW SWITCH
	SPRINKLER - CONCEALED PENDENT
	SPRINKLER - INSTITUTIONAL PENDENT
	SPRINKLER - PENDENT
	SPRINKLER - RECESSED PENDENT
	SPRINKLER - SIDE WALL
	SPRINKLER - UPRIGHT
	VALVE - FIRE DEPARTMENT
	VALVE - GATE OS&Y
PIV	VALVE - POST INDICATOR
S	VALVE - SUPERVISED

GENERAL FLOOR PLAN NOTES

2	RISER OR STACK NUMBER
B / P2	DETAIL: B = DETAIL DESIGNATION P2 = SHEET WHERE DETAIL IS LOCATED
1 / P2	SECTION: 1 = SECTION DESIGNATION P2 = SHEET WHERE DETAIL IS LOCATED
OH / 1	FIRE SUPPRESSION HAZARD CLASSIFICATION AND HAZARD CLASSIFICATION GROUP
P1 OR P1	EQUIPMENT REFERENCE. LETTER DESIGNATION VARIES. REFER TO SCHEDULES.
A1	EQUIPMENT, DEVICE, OR PLUMBING FIXTURE MARK. LETTER DESIGNATIONS REFER TO SCHEDULES.
	CONNECT TO EXISTING
	END OF DEMOLITION
3	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN UNLESS NOTED OTHERWISE.
3	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
A1	"UP TO" SYMBOL (ITEM ON FLOOR ABOVE)

PIPING SYMBOLS

	EXISTING PIPE TO REMAIN
	EXISTING PIPE TO BE REMOVED
	DIRECTION OF PITCH
D	DROP
R	RISE
	FLOW DIRECTION DESIGNATION
	ELBOW DOWN
	ELBOW UP
	PIPE RISER
	BRANCH TEE CONNECTION (**NOTE**: BULLHEAD TEE'S ARE NOT PERMITTED)
BC	BOTTOM CONNECTION (45°)
	BOTTOM CONNECTION (90°)
TC	TOP CONNECTION (45°)
	TOP CONNECTION (90°)
M	WATER METER
	EXPANSION JOINT
	PUMP
	FLEX PIPING

SPECIALTY GAS SYMBOLS

	AIR OUTLET - LAB TYPE
	NATURAL GAS OUTLET - LAB TYPE
	VACUUM OUTLET - LAB TYPE
VC	VACUUM CLEANING STATION - FLOOR
VC	VACUUM CLEANING STATION - WALL
	MEDICAL AIR OUTLET - HOSPITAL TYPE
	MEDICAL VACUUM INLET - HOSPITAL TYPE
	OXYGEN OUTLET - HOSPITAL TYPE
	CARBON DIOXIDE OUTLET - HOSPITAL TYPE
	NITROGEN OUTLET - HOSPITAL TYPE
	NITROUS OXIDE OUTLET - HOSPITAL TYPE
	WAGD INLET - HOSPITAL TYPE

ABBREVIATIONS

AAP - AREA ALARM PANEL (MEDICAL GAS)
AC - AIR COMPRESSOR OR AIR CONDITIONER
ACC - ACCESS
ACCU - AIR COOLED CONDENSING UNIT
AD - ACCESS DOOR OR AREA DRAIN
ADB - ACID DILUTION BASIN
ADJ - ADJUSTABLE
AFF - ABOVE FINISHED FLOOR
AFG - ABOVE FINISHED GRADE
ALT - ALTERNATE
AP - ACCESS PANEL
APPROX - APPROXIMATE
AR - AIR RECEIVER OR ARGON
ARCH - ARCHITECT OR ARCHITECTURAL
ASSY - ASSEMBLY
AV - ACID VENT
AW - ACID WASTE

BDD - BACK DRAFT DAMPER
BFP - BACKFLOW PREVENTER
BLDG - BUILDING
BOB - BOTTOM OF BEAM
BOD - BOTTOM OF DUCT
BOE - BOTTOM OF EQUIPMENT
BOF - BOTTOM OF FOOTING
BOG - BOTTOM OF GRILLE
BOP - BOTTOM OF PIPE
BOT - BOTTOM
BT - BATHTUB
BTU - BRITISH THERMAL UNIT
BTUH - BRITISH THERMAL UNIT PER HOUR
BTWN - BETWEEN

CA - COMPRESSED AIR
CB - CATCH BASIN
CBD - COUNTER BALANCED BACKDRAFT DAMPER
CFM - CUBIC FEET PER MINUTE
CHS - CHILLED WATER SUPPLY
CHR - CHILLED WATER RETURN
CI - CAST IRON
CK - CLINICAL SINK
CLG - CEILING
CMU - CONCRETE MASONRY UNIT
CO - CLEAN OUT
CO2 - MEDICAL CARBON DIOXIDE
CONN - CONNECT OR CONNECTION
CORR - CORRIDOR
CS - CLINICAL SINK OR COLD SOFT WATER
CTR - CENTER
CU - COPPER
CW - COLD WATER
CWS - COMBINATION WATER SERVICE OR CONDENSER WATER SUPPLY
CWR - CONDENSER WATER RETURN

D - DEPTH OR DRAIN LINE
DD - DECK DRAIN
DCW - DOMESTIC COLD WATER
DET - DETAIL
DF - DRINKING FOUNTAIN OR WATER COOLER OR DIESEL FUEL
DFU - DRAINAGE FIXTURE UNIT
DHW - DOMESTIC HOT WATER
DHWR - DOMESTIC HOT WATER RETURN
DI - DEIONIZED WATER
DIA - DIAMETER
DIM - DIMENSION
DN - DOWN
DS - DOWN SPOUT OR SPRINKLER (DRY)
DT - PERFORATED DRAIN TILE
DWG - DRAWING
DWH - DOMESTIC WATER HEATER

EA - EACH
EEW - EMERGENCY EYE WASH
EJ - EXPANSION JOINT
ELEC - ELECTRICAL
ELEV - ELEVATOR
EQ - EQUAL
EQUIP - EQUIPMENT
ET - EXPANSION TANK
ETR - EXISTING TO REMAIN
ES - EMERGENCY SHOWER
EQS - EQUIPMENT SUPPLIER
EWC - ELECTRICAL WATER COOLER
EXH - EXHAUST AIR
EXP - EXPANSION
EXT - EXTERIOR
EX - EXISTING

F - FIRE SUPPRESSION (STANDPIPE/SPRINKLER MAIN)
FCE - FIRE CONTROL EQUIPMENT
FCO - FLOOR CLEANOUT
FD - FLOOR DRAIN
FDC - FIRE DEPARTMENT CONNECTION
FDV - FIRE DEPARTMENT VALVE
FF - FINISHED FLOOR ELEVATION
FHC - FIRE HOSE CABINET
FLR - FLOOR
FM - FORCE MAIN
FOB - FLAT ON BOTTOM

FOF - FUEL OIL FLOW
FOG - FUEL OIL GAUGE
FOR - FUEL OIL RETURN
FOS - FUEL OIL SUPPLY
FOT - FLAT ON TOP
FPM - FEET PER MINUTE
FR - FIRE RISER
FS - FLOOR SINK OR FIRE SERVICE
FT - FEET
FTG - FOOTING

G - GAS OR NATURAL GAS
GA - GAUGE
GAL - GALLON
GALV - GALVANIZED
GC - GENERAL TRADES CONTRACTOR
GD - GARAGE DRAINAGE
GPM - GALLONS PER MINUTE
GS - GAS SERVICE
GW - GREASE WASTE

H2 - HYDROGEN
HB - HOSE BIBB
HD - HUB DRAIN
HE - HELIUM
HG - REFRIGERANT HOT GAS
HP - HORSEPOWER OR HIGH POINT
HPC - HIGH PRESSURE CONDENSATE RETURN
HPS - HIGH PRESSURE STEAM SUPPLY
HPW - HIGH PURITY WATER
HPWR - HIGH PURITY WATER RETURN
HR - HOSE REEL
HT - HEAT TRACE
HTR - HEATER
HVAC - HEATING, VENTILATING, AND AIR CONDITIONING
HW - HOT WATER
HWR - HEATING HOT WATER RETURN
HWS - HEATING HOT WATER SUPPLY

IA - MEDICAL INSTRUMENT AIR
ID - INSIDE DIAMETER
INV - INVERT ELEVATION
IN - INCHES
IV - INDIRECT VENT
IW - INDIRECT WASTE

JS - JANITOR SINK

K - KITCHEN WASTE

L - LENGTH
LA - LABORATORY COMPRESSED AIR
LAV - LAVATORY
LBS - POUNDS
LCW - LABORATORY COLD WATER
LHW - LABORATORY HOT WATER
LHWR - LABORATORY HOT WATER RETURN
LPC - LOW PRESSURE CONDENSATE RETURN
LPS - LOW PRESSURE STEAM SUPPLY
LV - LABORATORY VACUUM OR LABORATORY VENT
LW - LABORATORY WASTE

MA - MEDICAL COMPRESSED AIR
MAP - MASTER ALARM PANEL (MEDICAL GAS)
MAX - MAXIMUM
MB - MOP BASIN
MEZZ - MEZZANINE
MFR - MANUFACTURER
MH - MANHOLE
MIN - MINIMUM OR MINUTE
MISC - MISCELLANEOUS
MTD - MOUNTED
MTG - MOUNTING
MPC - MEDIUM PRESSURE CONDENSATE RETURN
MPS - MEDIUM PRESSURE STEAM SUPPLY
MU - WATER MAKE-UP
MV - MEDICAL SURGICAL VACUUM

N2 - MEDICAL NITROGEN
N/C - NORMALLY CLOSED
NG - GASOLINE (NON-LEAD)
NIC - NOT IN CONTRACT
N/O - NORMALLY OPEN
NO - MEDICAL NITROUS OXIDE
NOM - NOMINAL
NPW - NON-POTABLE WATER
NPT - NATIONAL PIPE THREAD
NTS - NOT TO SCALE

02 - MEDICAL OXYGEN
OA - OUTDOOR AIR
OD - OUTSIDE DIAMETER OR OVERFLOW DRAIN
OFOI - OWNER FURNISHED OWNER INSTALLED

P - PROPANE GAS OR PUMPED CONDENSATE RETURN
PD - PUMP DISCHARGE OR PARAPET DRAIN
PIV - POST INDICATOR VALVE
PLBG - PLUMBING
PS - PRE-ACTION/DELUGE SPRINKLER
PRESS - PRESSURE
PRV - PRESSURE REGULATING VALVE
PSF - POUNDS PER SQUARE FOOT
PSI - POUNDS PER SQUARE INCH
PSV - PRESSURE SUSTAINING VALVE
PSIG - POUNDS PER SQUARE INCH GAUGE
PW - PURE WATER

RA - RETURN AIR
RAD - RADIUS
RCP - REINFORCED CONCRETE PIPE
RD - ROOF DRAIN
REC - RECESSED
REQD - REQUIRED
RI - ROUGH IN
RL - REFRIGERANT LIQUID
ROS - REVERSE OSMOSIS WATER SUPPLY
ROR - REVERSE OSMOSIS WATER RETURN
RPM - REVOLUTIONS PER MINUTE
RS - REFRIGERANT SUCTION
RV - RELIEF VALVE

S - SPRINKLER (WET)
SA - SHOCK ARRESTOR OR SUPPLY AIR
SAN - SANITARY OR SANITARY DRAIN
SCH - SCHEDULE
SCW - SOFT COLD WATER
SD - SPRINKLER DRAIN OR SUBSOIL DRAIN
SH - SHOWER
SHT - SHEET
SK - SINK
SPEC - SPECIFICATIONS
SQ - SQUARE
SR - SUPPLY RISER
SS - SANITARY STACK (SOIL OR WASTE) OR STAINLESS STEEL
STD - STANDARD
STM - STORM OR STORM DRAINAGE
STRUC - STRUCTURAL OR STRUCTURE
SUC - SITE UTILITY CONTRACTOR

T - FUEL TANK VENT
TD - TRENCH DRAIN
TEMP - TEMPERATURE
TOB - TOP OF BEAM
TOD - TOP OF DUCT
TOE - TOP OF EQUIPMENT
TOF - TOP OF FOOTING
TOJ - TOP OF JOIST
TOP - TOP OF PIPE
TOS - TOP OF SLAB OR TOP OF STEEL
TF - TRAP FILLER
TP - TRAP PRIMER OR TRAP PRIMER DISCHARGE
TW - TEMPERED WATER
TYP - TYPICAL

UR - URINAL
UNO - UNLESS NOTED OTHERWISE

V - VENT OR SANITARY SEWER VENT
VAC - VACUUM
VC - VACUUM CLEANING
VCV - VACUUM CLEANING VALVE
VE - VACUUM EXHAUST
VEL - VELOCITY
VIB - VALVE IN BOX
VOL - VOLUME
VP - VACUUM PUMP
VS - VENT STACK
VTR - VENT THROUGH ROOF
VR - VENT RISER

W/ - WITH
W/O - WITHOUT
W - WASTE
WAGD - WASTE ANESTHESIA GAS DISPOSAL
WC - WATER CLOSET
WCO - WALL CLEANOUT
WH - WALL HYDRANT OR WATER HEATER
WIV - WALL INDICATOR VALVE
WS - WATER SERVICE

YCO - YARD CLEANOUT

ZVC - ZONE VALVE CABINET

NOTE:
ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.
ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.

GENERAL NOTES

A. ALL PIPING IS ABOVE THE CEILING (AT THE UNDERSIDE OF STRUCTURE IN EXPOSED STRUCTURE AREAS), UNLESS OTHERWISE NOTED.

B. REFER TO SCHEDULES, DETAILS AND DIAGRAMS FOR PIPING, PIPE SIZES AND PIPELINE DEVICES NOT INDICATED ON THE FLOOR PLAN.

C. ABOVE CEILING UTILITY SPACE IS LIMITED. COORDINATION WITH ALL TRADES IS CRITICAL, PRIOR TO INSTALLATION OF ANY WORK.

D. LOCATIONS AND SIZES OF EXISTING PIPING HAVE BEEN DETERMINED FROM A REVIEW OF EXISTING DRAWINGS AND/ OR SITE INSPECTION, WHERE POSSIBLE. FIELD VERIFICATION OF EXACT LOCATIONS, ELEVATIONS, INVERTS, SIZES, DIRECTION OF FLOW, ETC. SHALL BE REQUIRED PRIOR TO BEGINNING NEW WORK.

E. ALL PIPING NOTED TO BE DEMOLISHED SHALL BE REMOVED BACK TO ACTIVE MAINS AND CAPPED, OR REMOVED BACK TO POINTS OF CONNECTION IN NEW WORK. INACCESSIBLE PIPING, WHERE SO NOTED, TO BE ABANDONED SHALL BE DISCONNECTED FROM ACTIVE SYSTEMS AND CAPPED OR PLUGGED IN CONCEALED LOCATIONS.

F. ALL ABANDONED PIPING SHALL BE CAPPED AT INLET AND OUTLET. DOMESTIC WATER PIPING SHALL BE CAPPED WITHIN TWO (2) PIPE DIAMETERS OF ACTIVE BRANCH/ MAIN. NO DEAD LEGS WILL BE PERMITTED.

G. NEW CONNECTIONS TO EXISTING PIPING SHALL BE WITH THE SAME SIZE AS THE EXISTING PIPING, UNLESS OTHERWISE NOTED.

H. ALL REMOVED MATERIAL AND EQUIPMENT, SO DESIGNATED BY THE OWNER, SHALL BE TURNED OVER AND PLACED WHERE DIRECTED. ALL MATERIAL AND EQUIPMENT, WHICH THE OWNER DOES NOT WISH TO RETAIN, SHALL BECOME THE PROPERTY OF THE CONTRACTOR RESPONSIBLE FOR THE REMOVAL.

I. REFER TO THE HVAC PLANS FOR PROJECT PHASING REQUIREMENTS.

PLUMBING SHEET INDEX

SHEET NUMBER	SHEET NAME
P001	LEGEND & DRAWING INDEX
P101	BASEMENT & FIRST FLOOR PLAN
P102	SECOND FLOOR PLAN

2/13/2026 2:39:06 PM
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No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

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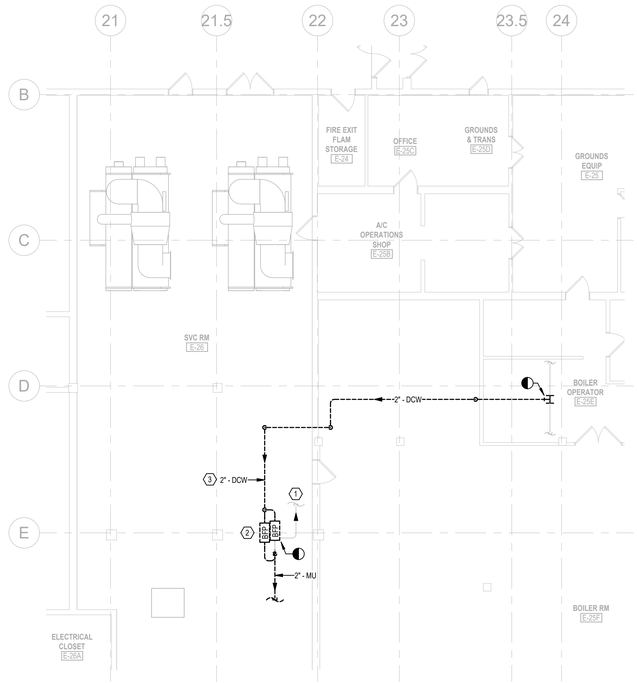
VA TVHS NASHVILLE CAMPUS
VA U.S. Department of Veterans Affairs

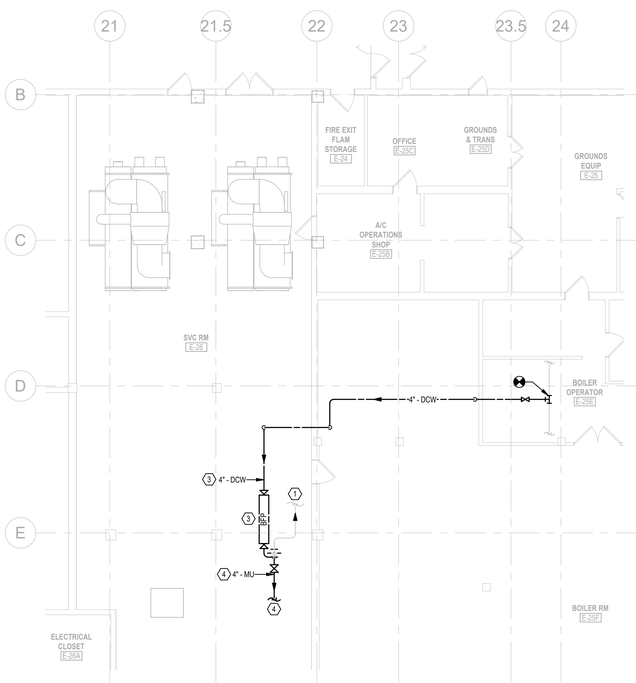
Drawing Title: LEGEND & DRAWING INDEX
Approved: VMAC
Phase: 95% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED
Project Title: UPGRADE COOLING TOWER AND CHILLER
Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN
Issue Date: 02/13/2026 | Checked: WJS | Drawn: CCL
Project Number: 626-24-203
Building Number: 1
Drawing Number: P001



1 PLUMBING BASEMENT PLAN - DEMOLITION

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

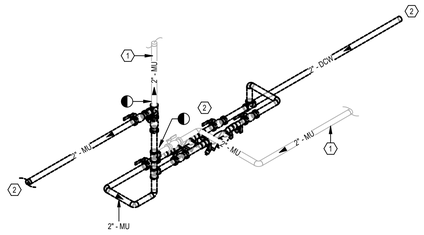
0 4 8 16 24



2 BASEMENT PLAN - NEW WORK

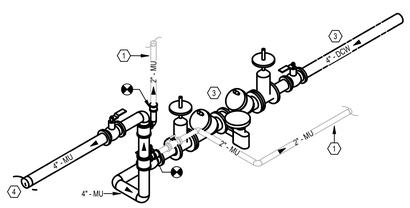
SCALE: 1/8" = 1'-0"

0 4 8 16 24



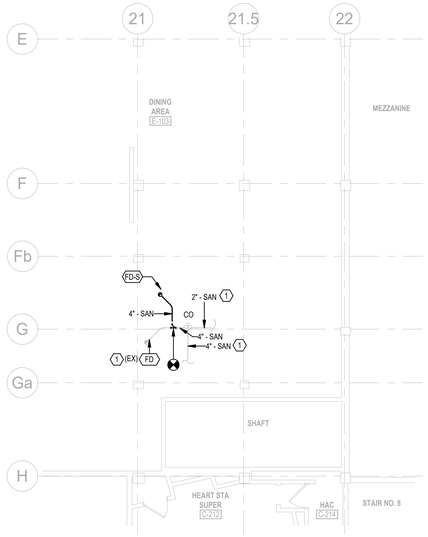
3 BACKFLOW PREVENTER - DEMOLITION

SCALE: NONE



4 BACKFLOW PREVENTER - NEW WORK

SCALE: NONE



5 FIRST FLOOR - PLUMBING NEW WORK

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

0 4 8 16 24

PLAN NOTES

1. EXISTING PIPING OR FIXTURE (TYPE AS INDICATED) TO REMAIN. PIPING SERVING EXISTING EQUIPMENT THAT IS NOT PART OF THE SCOPE SHALL BE EXISTING TO REMAIN. PROVIDE A TEMPORARY CONNECTION, IF NEEDED, TO MAINTAIN NORMAL EQUIPMENT FUNCTION.
2. REMOVE EXISTING BACKFLOW PREVENTER(S) SERVING EXISTING COOLING TOWER AND UPSTREAM PIPING BACK TO ACTIVE MAIN TO BE UPSIZED. DOWNSTREAM OF BACKFLOW PREVENTER(S) SHALL BE MECHANICAL SCOPE FOR DEMOLITION. COORDINATE WITH FACILITIES PRIOR TO ANY WORK COMMENCING.
3. ENTIRE BRANCH SHALL BE UPSIZED TO A 4" PIPE AND BACKFLOW PREVENTER TO ACCOMMODATE NEW COOLING TOWERS. PROVIDE A SHUTOFF VALVE DOWNSTREAM OF NEW BACKFLOW PREVENTER. PROVIDE TEMPORARY CONNECTION TO EXISTING COOLING TOWER. COORDINATE WITH FACILITIES PRIOR TO ANY WORK COMMENCING. REFER TO MECHANICAL DRAWINGS.
4. ALL ASSOCIATED PIPING, VALVES, ETC. DOWNSTREAM OF BACKFLOW PREVENTER SHALL BE MECHANICAL SCOPE FOR NEW WORK. PLUMBING CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR FOR POINT OF NEW CONNECTION AT THE BACKFLOW PREVENTER. REFER TO MECHANICAL DRAWINGS.

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Drawing Title: BASEMENT & FIRST FLOOR PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

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Building Number: 1

Drawing Number: P101

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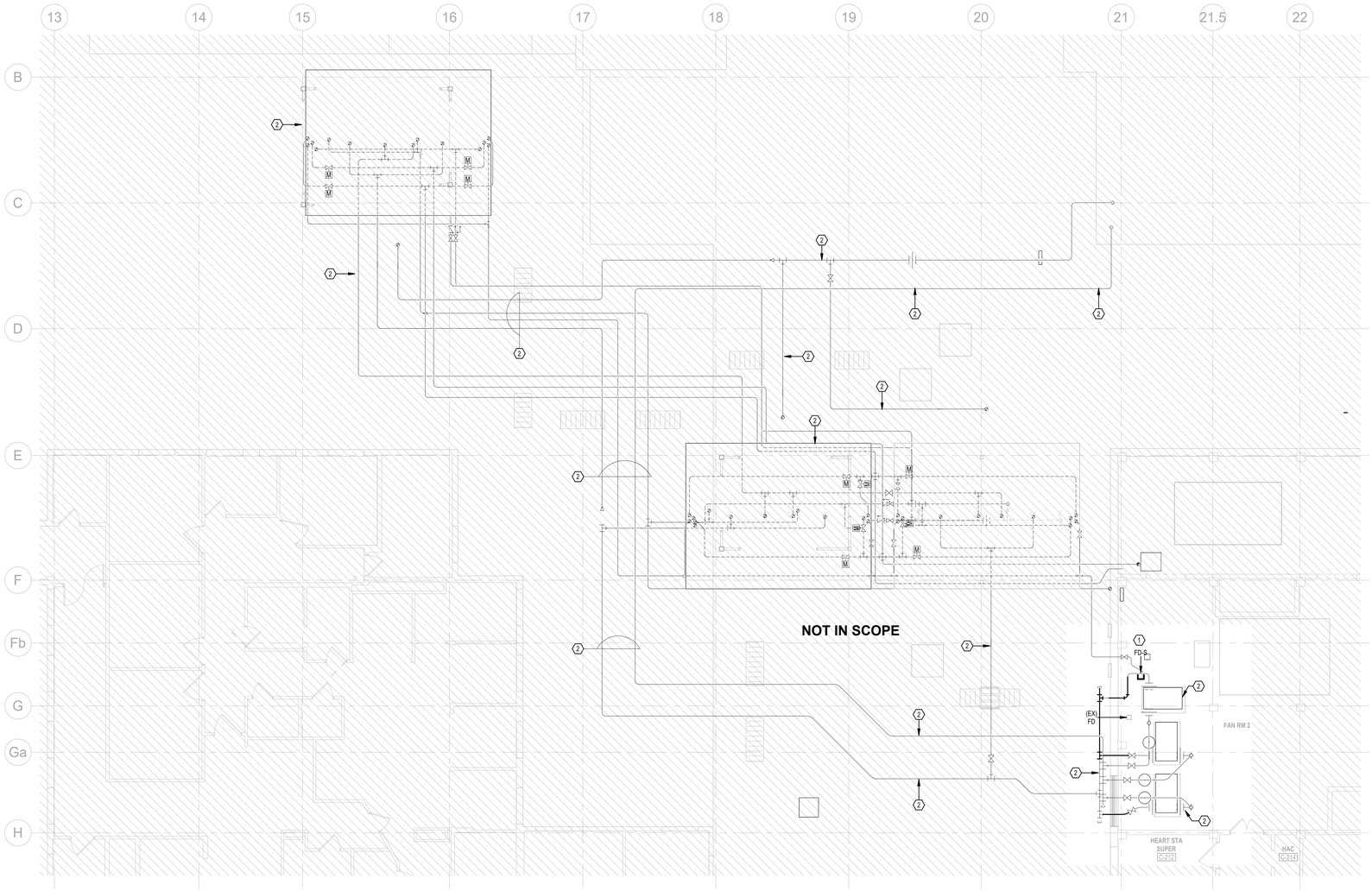
VA FORM 08 - 6231

PLAN NOTES

1. EXTEND NEW COOLING TOWER(S) DRAINS TO FLOOR SINK. REFER TO MECHANICAL PLANS FOR FURTHER COORDINATION.
2. FOR REFERENCE ONLY. REFER TO MECHANICAL PLANS FOR FURTHER COORDINATION.



1 **SECOND FLOOR FAN ROOM #2 & ROOF - NEW WORK**
SCALE: 1/8" = 1'-0"

DRAIN SCHEDULE

SYMBOL	COUNT	DESCRIPTION	BODY				STRAINER / GRATE				TOP FINISH			
			C.I.	S.S.	C.R.	BRASS	ADJUST.	FLAT	RECESS	DOME	NICKLE BRONZE	C.I.	C.R.	S.S.
FD-S	1	4" MEDIUM DUTY/ DOUBLE DRAINAGE/ 12" X 12" X 8" FLOOR SINK/ TRAP SEALS		•					•			•		

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

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VA U.S. Department of Veterans Affairs

Drawing Title: SECOND FLOOR PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

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Drawn: CCL

Project Number: 626-24-203

Building Number: 1

Drawing Number: P102

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VA FORM 08 - 6231

DUCTWORK SYMBOLS

RECTANGULAR	ROUND / OVAL	
	CONICAL FITTING	ROUND BRANCH DUCTWORK
ACOUSTIC FITTING	ACOUSTIC FITTING	RECTANGULAR BRANCH DUCTWORK
		SQUARE TEE WITH TURNING VANES NOTE: ALL SQUARE ELBOWS IN RECTANGULAR AND ROUND / OVAL DUCTWORK SHALL BE PROVIDED WITH TURNING VANES. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
		RADIUS'D TEE
		RADIUS'D BRANCH
		UNLESS NOTED OTHERWISE ON DRAWINGS, 15° MAX FOR DIVERGING, 30° MAX FOR CONVERGING TRANSITION
		EXISTING DUCTWORK TO REMAIN
		EXISTING DUCTWORK TO REMOVED
		RETURN AIR, RELIEF AIR, OR TRANSFER AIR DUCTWORK. (UP AND DOWN) RADIUSED OR SQUARE WITH TURNING VANES.
		SUPPLY AIR OR OUTDOOR AIR DUCTWORK. (UP AND DOWN) RADIUSED OR SQUARE WITH TURNING VANES.
		EXHAUST AIR DUCTWORK. (UP AND DOWN) RADIUSED OR SQUARE WITH TURNING VANES.
		RECTANGULAR AND ROUND / OVAL DUCTWORK RISE / DROP WITH 90° RADIUSED OR SQUARE ELBOWS AND TURNING VANES.
		RADIUS ELBOW
		90° SQUARE ELBOW (WITH TURNING VANES) NOTE: ALL SQUARE ELBOWS IN RECTANGULAR AND ROUND DUCTWORK SHALL BE PROVIDED WITH TURNING VANES.
		SQUARE THROAT / RADIUS HEEL FITTINGS NOT ACCEPTABLE
AD	AD	ACCESS DOOR OR PANEL
R	R	DUCTWORK RISE IN DIRECTION OF AIR FLOW
D	D	DUCTWORK DROP IN DIRECTION OF AIR FLOW
		FLEXIBLE DUCTWORK
		DUCTWORK WITH ACOUSTICAL LINER. LISTED DUCT SIZES ARE INSIDE CLEAR DIMENSIONS.
		FLEXIBLE CONNECTION
		DUCTWORK CONSTRUCTED OF SPECIAL MATERIAL AS NOTED
		DIRECTION OF PITCH
26x20		RECTANGULAR DUCTWORK DIMENSIONS (W x H)
26ø		ROUND DUCTWORK DIMENSIONS (DIA)
26x20 OV		OVAL DUCTWORK DIMENSIONS (W x H)

DUCTWORK DEVICE SYMBOLS

A3 10ø 300	AIR DEVICE. A3 = DESIGNATION (REFER TO FLOOR PLANS AND AIR DEVICE SCHEDULE FOR VARIOUS DESIGNATIONS). 10ø = NECK SIZE (IN INCHES). 300 = REQUIRED CFM. ALL AIR DEVICE DISCHARGE 4-WAY UNLESS NOTED WITH FLOW ARROWS. AIR DEVICE SHOWN IS 2-WAY SIDE THROW. METHOD OF IDENTIFICATION ALSO APPLIES TO OTHER CEILING MOUNTED AIR DEVICES.
SG1 20x12 300 BOG: 9'-0"	WALL OR DUCTWORK MOUNTED AIR DEVICE. SG1 = DESIGNATION (REFER TO AIR DEVICE SCHEDULE). 20x12 = DUCT CONNECTION SIZE (IN INCHES). 300 = REQUIRED CFM. 9'-0" = MOUNTING HEIGHT FROM FLOOR TO BOTTOM OF GRILLE.
	MANUAL BALANCING DAMPER WITH LOCKING DEVICE
XXX	BDD = BACK DRAFT DAMPER CBD = COUNTER-BALANCED BACK DRAFT DAMPER
A-D	FIRE DAMPER A = TYPE (REFER TO FLOOR PLANS FOR VARIOUS TYPES) D OR S = DYNAMIC OR STATIC
XX	SD = SMOKE DAMPER FS = COMBINATION FIRE - SMOKE DAMPER MDD = MOTORIZED DAMPER AFMS = AIR FLOW MEASURING STATION
SD	DUCT MOUNTED SMOKE DETECTOR. COORDINATE LOCATION.
H	HUMIDITY SENSOR - DUCT MOUNTED
SP	STATIC PRESSURE SENSOR - DUCT MOUNTED
C	CARBON DIOXIDE SENSOR - DUCT MOUNTED
S	TEMPERATURE SENSOR - DUCT MOUNTED

VALVES AND FITTINGS

	CHECK VALVE
	SHUTOFF VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
	COMBINATION SHUTOFF AND BALANCING VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
	CONCENTRIC PIPE REDUCER
FOT FOB	ECCENTRIC PIPE REDUCER
P	PRESSURE GAUGE
T	TEMPERATURE GAUGE OR THERMOMETER
	UNION
	CLEANOUT
	STRAINER
	STRAINER WITH A BLOW DOWN VALVE AND HOSE CONNECTION
	DRAIN VALVE WITH HOSE END CONNECTION
	AUTOMATIC FLOW CONTROLLER WITH P/T PLUG IN AND OUT
	EXPANSION JOINT
	MANUAL AIR VENT
A	AUTOMATIC AIR VENT
	PRESSURE REDUCING VALVE
M	MODULATING 2 PORT AUTOMATIC CONTROL VALVE
M	2 PORT AUTOMATIC CONTROL VALVE, 2-POSITION UNLESS SPECIFIED OTHERWISE
M	MODULATING 3 PORT AUTOMATIC CONTROL VALVE
M	3 PORT AUTOMATIC CONTROL VALVE, 2-POSITION UNLESS SPECIFIED OTHERWISE
M	AUTOMATIC PRESSURE INDEPENDENT CONTROL VALVE
	QUICK OPENING MANUAL VALVE
	SAFETY RELIEF VALVE. FOR HYDRONIC SYSTEMS PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE. FOR STEAM SYSTEMS PIPE DISCHARGE TO OUTDOORS.
	VACUUM BREAKER
N	NEEDLE VALVE
	PRESSURE AND TEMPERATURE TEST PLUG
V	VACUUM GAUGE WITH STOP
	END CAP
	GLOBE VALVE
VB	SHUTOFF VALVE AND BOX
	SHUTOFF VALVE ON RISER
S	SOLENOID VALVE
M	WATER METER
F	FLOW METER
BM	BI-METALIC STEAM TRAP AND DRIP ASSEMBLY
TD	THERMODYNAMIC STEAM TRAP AND DRIP ASSEMBLY
IB	INVERTED BUCKET STEAM TRAP AND DRIP ASSEMBLY
FT	FLOAT AND THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
TS	THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
	PRESSURE GAUGE WITH COCK AND SIPHON LOOP

MISC SYMBOLS

C	CARBON DIOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
CO	CARBON MONOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
DP	DIFFERENTIAL PRESSURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
H	HUMIDITY SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
S	TEMPERATURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
S	TEMPERATURE SENSOR MOUNTED IN CEILING PLENUM.
SP	STATIC PRESSURE SENSOR.
T	SPACE TEMPERATURE SENSOR / THERMOSTAT. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	EMERGENCY SHUTOFF STATION. 46" MOUNTING HEIGHT UNLESS NOTED OTHERWISE.

GENERAL FLOOR PLAN NOTES

3	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN UNLESS NOTED OTHERWISE.
3	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
A1	EQUIPMENT, DEVICE, OR PLUMBING FIXTURE MARK. LETTER DESIGNATIONS REFER TO SCHEDULES.
H1 OR H1	EQUIPMENT REFERENCE. LETTER DESIGNATION VARIES. REFER TO SCHEDULES.
2	RISER OR STACK NUMBER
B / H2	DETAIL: B = DETAIL DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
1 / H2	SECTION: 1 = SECTION DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
A1	"UP TO" SYMBOL (ITEM ON FLOOR ABOVE)
TOE: 3' - 0" BOE: 0' - 6"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF EQUIPMENT, UNLESS NOTED OTHERWISE
10" ELEV: 8' - 0" / 10" ELEV: 8' - 0"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO CENTERLINE OF PIPE, UNLESS NOTED OTHERWISE
20x20 TOD: 8' - 10" 20x20 BOD: 7' - 2"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF DUCTWORK, UNLESS NOTED OTHERWISE
UC-X	DOOR UNDERCUT. X = HEIGHT OF UNDERCUT IN INCHES; 0.75 INCH UNDERCUT IF NO HEIGHT IS NOTED. COORDINATE WITH GC.
DL-1	DOOR LOUVER. 1 = SQUARE FEET OF LOUVER.
	CONNECT TO EXISTING
	DEMOLISH TO POINT INDICATED

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		BOTTOM CONNECTION (45°)
		BOTTOM CONNECTION (90°)
		BRANCH TEE CONNECTION (NOTE: BULLHEAD TEE'S ARE NOT PERMITTED)
		DIRECTION OF PITCH
D	D	DROP
		ELBOW DOWN
		ELBOW UP
		EXISTING PIPE TO BE REMOVED
		EXISTING PIPE TO REMAIN
		FLOW DIRECTION DESIGNATION
		PIPE RISER
		PUMP
R	R	RISE
		TOP CONNECTION (45°)
		TOP CONNECTION (90°)

HVAC PIPING DESIGNATIONS

CHS	CHILLED WATER SUPPLY PIPE
CHR	CHILLED WATER RETURN PIPE
CWS	CONDENSER WATER SUPPLY PIPE
CWR	CONDENSER WATER RETURN PIPE
CHGS	CHILLED WATER GLYCOL SOLUTION SUPPLY PIPE
CHGR	CHILLED WATER GLYCOL SOLUTION RETURN PIPE
D	DRAIN LINE. PITCH IN DIRECTION INDICATED
HWR	HEATING HOT WATER RETURN PIPE
HWS	HEATING HOT WATER SUPPLY PIPE
MU	WATER MAKE-UP PIPE
V	VENT PIPE
ET	EXPANSION TANK PIPE
HG	REFRIGERANT HOT GAS LINE
RL	REFRIGERANT LIQUID LINE
RS	REFRIGERANT SUCTION LINE
10	STEAM SUPPLY PIPE - NUMBER INDICATES P.S.I.G.
HPC	HIGH PRESSURE CONDENSATE RETURN PIPE
HPS	HIGH PRESSURE STEAM SUPPLY PIPE
LPC	LOW PRESSURE CONDENSATE RETURN PIPE
LPS	LOW PRESSURE STEAM SUPPLY PIPE
MPC	MEDIUM PRESSURE CONDENSATE RETURN PIPE
MPS	MEDIUM PRESSURE STEAM SUPPLY PIPE
PC	PUMPED CONDENSATE RETURN PIPE

ABBREVIATIONS

AC - AIR COMPRESSOR OR AIR CONDITIONER
ACCU - AIR COOLED CONDENSING UNIT
AD - ACCESS DOOR OR AREA DRAIN
ADJ - ADJUSTABLE
AFF - ABOVE FINISHED FLOOR
AFG - ABOVE FINISHED GRADE
AFMS - AIR FLOW MEASURING STATION
ALT - ALTERNATE
AP - ACCESS PANEL
APPROX - APPROXIMATE
ARCH - ARCHITECT OR ARCHITECTURAL
ASSY - ASSEMBLY
ATC - AUTOMATIC TEMPERATURE CONTROL (SYNONYMOUS WITH BAS)

BAS - BUILDING AUTOMATION SYSTEM
BDD - BACK DRAFT DAMPER
BFP - BACKFLOW PREVENTER
BLDG - BUILDING
BOB - BOTTOM OF BEAM
BOD - BOTTOM OF DUCT
BOE - BOTTOM OF EQUIPMENT
BOF - BOTTOM OF FOOTING
BOG - BOTTOM OF GRILLE
BOP - BOTTOM OF PIPE
BOT - BOTTOM
BS - BASIN SWEEPER
BTU - BRITISH THERMAL UNIT
BTUH - BRITISH THERMAL UNIT PER HOUR

CBD - COUNTER BALANCED BACKDRAFT DAMPER
CFCI - CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFM - CUBIC FEET PER MINUTE
CHS - CHILLED WATER SUPPLY
CHR - CHILLED WATER RETURN
CHGR - CHILLED WATER GLYCOL SOLUTION RETURN
CHGS - CHILLED WATER GLYCOL SOLUTION SUPPLY
CLG - CEILING
CMU - CONCRETE MASONRY UNIT
CO - CLEAN OUT
CO2 - CARBON DIOXIDE
CONN - CONNECT OR CONNECTION
CONTR - CONTRACTOR
CTR - CENTER
CU - COPPER
CW - COLD WATER
CWE - CONDENSER WATER EQUALIZER
CWR - CONDENSER WATER RETURN
CWS - CONDENSER WATER SUPPLY

D - DRAIN LINE
DB - DRY BULB
DDC - DIRECT DIGITAL CONTROLS
DI - DEIONIZED WATER
DIA - DIAMETER
DIM - DIMENSION
DN - DOWN
DWG - DRAWING

EA - EACH OR EXHAUST AIR
EAT - ENTERING AIR TEMPERATURE
EC - ELECTRICAL CONTRACTOR (DIVISION 26)
EF - EXHAUST FAN
EJ - EXPANSION JOINT
ELEC - ELECTRICAL
ELEV - ELEVATOR
EQUIP - EQUIPMENT
ET - EXPANSION TANK
ETR - EXISTING TO REMAIN
EQS - EQUIPMENT SUPPLIER
EWT - ENTERING WATER TEMPERATURE
EXH - EXHAUST
EXP - EXPANSION
EXT - EXTERIOR
EX - EXISTING

FD - FLOOR DRAIN
FF - FINISHED FLOOR ELEVATION
FLR - FLOOR
FOB - FLAT ON BOTTOM
FOF - FUEL OIL FLOW
FOG - FUEL OIL GAUGE
FOR - FUEL OIL RETURN
FOS - FUEL OIL SUPPLY
FOT - FLAT ON TOP
FPM - FEET PER MINUTE
FSC - FIRE SUPPRESSION CONTRACTOR (DIVISION 21)
FT - FEET
FTG - FOOTING

G - GAS OR NATURAL GAS
GA - GAUGE
GAL - GALLON
GALV - GALVANIZED
GC - GENERAL TRADES CONTRACTOR
GPM - GALLONS PER MINUTE

HB - HOSE BIBB
HC - HVAC (DIVISION 23)
HD - HUB DRAIN
HG - REFRIGERANT HOT GAS
HP - HORSEPOWER
HPC - HIGH PRESSURE CONDENSATE RETURN
HPS - HIGH PRESSURE STEAM SUPPLY
HR - HOUR
HT - HEAT TRACE
HTR - HEATER
HVAC - HEATING, VENTILATING, AND AIR CONDITIONING
HW - HOT WATER
HWR - HEATING HOT WATER RETURN
HWS - HEATING HOT WATER SUPPLY

ID - INSIDE DIAMETER
INV - INVERT ELEVATION
IN - INCHES

KEC - KITCHEN EQUIPMENT CONTRACTOR

L - LENGTH
LAT - LEAVING AIR TEMPERATURE
LAV - LAVATORY
LBS - POUNDS
LPC - LOW PRESSURE CONDENSATE RETURN
LPS - LOW PRESSURE STEAM SUPPLY
LWT - LEAVING WATER TEMPERATURE

MAX - MAXIMUM
MDD - MOTORIZED DAMPER
MEZZ - MEZZANINE
MFR - MANUFACTURER
MH - MANHOLE
MIN - MINIMUM OR MINUTE
MISC - MISCELLANEOUS
MTD - MOUNTED
MTG - MOUNTING
MPC - MEDIUM PRESSURE CONDENSATE RETURN
MPS - MEDIUM PRESSURE STEAM SUPPLY
MU - WATER MAKE-UP

N/C - NORMALLY CLOSED
NIC - NOT IN CONTRACT
N/O - NORMALLY OPEN
NOM - NOMINAL
NPT - NATIONAL PIPE THREAD
NTS - NOT TO SCALE

OA - OUTDOOR AIR
OBD - OPPOSED BLADE DAMPER
OD - OUTSIDE DIAMETER
OFCI - OWNER FURNISHED CONTRACTOR INSTALLED
OFOI - OWNER FURNISHED OWNER INSTALLED

P - PROPANE GAS
PC - PLUMBING CONTRACTOR (DIVISION 22) OR PUMPED CONDENSATE RETURN
PLBG - PLUMBING
PRESS - PRESSURE
PRV - PRESSURE REGULATING VALVE
PSF - POUNDS PER SQUARE FOOT
PSI - POUNDS PER SQUARE INCH
PSIG - POUNDS PER SQUARE INCH GAUGE

RA - RETURN AIR
RAD - RADIUS
RCP - REFLECTED CEILING PLAN
RD - ROOF DRAIN
REC - RECESSED
REQD - REQUIRED
RI - ROUGH IN
RL - REFRIGERANT LIQUID
ROS - REVERSE OSMOSIS WATER SUPPLY
ROR - REVERSE OSMOSIS WATER RETURN
RPM - REVOLUTIONS PER MINUTE
RS - REFRIGERANT SUCTION

S - SPRINKLER (WET)
SA - SUPPLY AIR
SAN - SANITARY OR SANITARY DRAIN
SCH - SCHEDULE
SCW - SOFT COLD WATER
SHT - SHEET
SPEC - SPECIFICATIONS
SQ - SQUARE
SR - SUPPLY RISER
SRV - SAFETY RELIEF VALVE
SS - STAINLESS STEEL
STD - STANDARD
STM - STORM OR STORM DRAINAGE
STRUC - STRUCTURAL OR STRUCTURE
SUC - SITE UTILITY CONTRACTOR

TA - TRANSFER AIR
TEMP - TEMPERATURE
TOB - TOP OF BEAM
TOD - TOP OF DUCT
TOE - TOP OF EQUIPMENT
TOF - TOP OF FOOTING
TOJ - TOP OF JOIST
TOP - TOP OF PIPE
TOS - TOP OF SLAB OR TOP OF STEEL
TYP - TYPICAL

UH - UNIT HEATER
UNO - UNLESS NOTED OTHERWISE

V - VENT
VAC - VACUUM
VAV - VARIABLE AIR VOLUME
VEL - VELOCITY
VFD - VARIABLE FREQUENCY DRIVE (ADJUSTABLE FREQUENCY MOTOR CONTROLLER)
VIB - VALVE IN BOX
VOL - VOLUME
VTR - VENT THROUGH ROOF
VR - VENT RISER

W/ - WITH
W/O - WITHOUT
WB - WET BULB
WCO - WALL CLEANOUT

NOTE:
ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.
ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.

GENERAL NOTES

1. FIELD VERIFY EXISTING CONDITIONS, INCLUDING DUCT, PIPE AND EQUIPMENT SIZES, SERVICES AND LOCATIONS PRIOR TO PERFORMING WORK.
2. THESE NOTES APPLY EQUALLY TO THE FULL SET OF DOCUMENTS.
3. THE DRAWINGS AND SPECIFICATIONS SHALL BE CAREFULLY STUDIED DURING THE COURSE OF BIDDING. ANY ERRORS, OMISSIONS OR DISCREPANCIES ENCOUNTERED SHALL BE REFERRED IMMEDIATELY TO THE ARCHITECT/ENGINEER FOR INTERPRETATION OR CORRECTION.
4. INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL REQUIREMENTS SECTION 01 00 00.
5. INSULATE DUCTWORK AND PIPING WHERE EXISTING INSULATION HAS BEEN DAMAGED AND/OR REMOVED IN THE PERFORMANCE OF WORK IN THIS PROJECT.
6. PROVIDE ALL ROOFING PENETRATION, REPAIR & REINFORCEMENT IN THE EXISTING BUILDING FOR WORK INDICATED. ENGAGE A ROOFING SUBCONTRACTOR TO PERFORM THE ROOFING WORK. WHERE ROOFING WORK IS REQUIRED, THE EXISTING ROOFING MEMBRANE AND INSULATION SHALL BE CUT, REMOVED AND RESTORED AS REQUIRED TO ATTAIN A WATERTIGHT CONDITION. THE ROOFING SUB-CONTRACTOR SHALL BE A CERTIFIED INSTALLER FOR SUCH INSTALLATION TO MAINTAIN THE EXISTING WARRANTY ON THE ROOF. (INCLUDE ROOFING TYPE/MFG WHERE KNOWN)
7. REFER TO ALL SPECIFICATION SECTIONS AND THESE DRAWINGS FOR DETAILS OF BUILDING CONSTRUCTION TO ENSURE SPACE AND SATISFACTORY ARRANGEMENT FOR WORK. THE VARIOUS DRAWINGS COMPRISING THE SET ARE INTERDEPENDENT AND MUST BE USED JOINTLY AT ALL TIMES. REFER TO THE GENERAL REQUIREMENTS OF THE CONTRACT. THE NOTES AND SYMBOLS INDICATED ON THE DRAWINGS ARE FOR THE GUIDANCE OF ALL TRADES INVOLVED IN THE PROJECT AND MUST BE FOLLOWED TO EXECUTE THE WORK AS INTENDED. IF DISCREPANCIES OCCUR, CONTACT THE CONTRACTING OFFICERS REPRESENTATIVE (COR) THRU THE CONTRACTING OFFICER FOR CLARIFICATION BEFORE PROCEEDING.
8. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. SEE SPECIFICATIONS FOR MORE SPECIFIC DETAILS ON RESPONSIBILITIES.
9. ALL WORK MUST BE COORDINATED WITH THE CONTRACTING OFFICER AND COR TO MAINTAIN OPERATION OF THE EXISTING FACILITY.
10. COORDINATE ALL WORK WITH THE WORK OF OTHERS. KEEP INFORMED OF THE PROGRESS AND DETAIL DEVELOPMENT OF THE WORK OF OTHERS. COORDINATE AND EXPEDITE WORK WITH OTHERS SO THAT THE PROGRESS OF THE TOTAL WORK SHALL BE KEPT ON SCHEDULE.
11. ALL WORK SHALL BE PERFORMED IN COMPLETE COMPLIANCE WITH ALL GOVERNING CODES AND STANDARDS.
12. EXISTING CONDITIONS SHOWN HAVE BEEN BASED UPON VISUAL OBSERVATION AND/OR AVAILABLE DRAWING INFORMATION, AND MAY BE AT VARIANCE WITH ACTUAL WORK IN PLACE. THE CONTRACTOR SHALL TAKE ALL NECESSARY FIELD MEASUREMENTS AND FIELD VERIFY ALL CONDITIONS AFFECTING THE EXECUTION OF THE WORK. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE WORK SHOWN ON THE CONTRACT DOCUMENTS WHICH MAY IMPACT THE PROGRESS OF THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER IN WRITING FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
13. ALL SURFACES COATED WITH PAINT SHALL BE ASSUMED TO CONTAIN LEAD. ANY DISTURBANCE TO PAINT OR PAINT-COATED COMPONENTS AS PART OF THE PROJECT REQUIRES THE CONTRACTOR TO COMPLY WITH OSHA 29 CFR 1926.62 (LEAD IN CONSTRUCTION).
14. REFER TO ARCHITECTURAL FIRE-RATED PARTITION PLAN(S) FOR LOCATIONS AND FIRE-RATINGS OF NEW AND EXISTING WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES SHALL BE PROTECTED AND/OR FIRE-STOPPED AS REQUIRED TO MAINTAIN FIRE-RATINGS INDICATED. COORDINATE WITH ALL TRADES TO ENSURE FIRE-RATED PENETRATION REQUIREMENTS AND DETAILS ARE MET.
15. ANNULAR SPACE OF ALL PIPE, CONDUIT, DUCT & OTHER SIMILAR PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED. IN ADDITION, PENETRATIONS THROUGH 0-HOUR RATED WALLS SHALL BE SEALED WITH ACOUSTICAL CAULK TO RETARD PASSAGE OF SMOKE.
16. FOR TYPICAL WATER AND STEAM PIPING CONNECTIONS TO EQUIPMENT, SEE STANDARD DETAILS AND PIPING SCHEMATICS.
17. ANY REMOVED EQUIPMENT SHALL BE TURNED OVER TO THE VA. ITEMS NOT DESIRED BY THE VA SHALL BE REMOVED FROM THE PREMISES AND DISPOSED OF PROPERLY BY THE CONTRACTOR.
18. THE CONTRACT DRAWINGS ARE NOT INTENDED TO SHOW EVERY VERTICAL OR HORIZONTAL OFFSET WHICH MAY BE NECESSARY TO COMPLETE THE SYSTEMS. COORDINATE WORK IN ADVANCE WITH ALL OTHER TRADES AND REPORT IMMEDIATELY ANY DIFFICULTIES WHICH CAN BE ANTICIPATED.
19. ALL ABANDONED EXTRANEOUS PIPING, DUCTWORK, SUPPORTS, CONTROLS, ETC. SHALL BE REMOVED.
20. WHERE DUCTS OR PIPES ARE REMOVED THRU WALL/FLOOR/ROOF THAT IS TO REMAIN, PATCH WALL/FLOOR/ROOF OPENING TO MATCH EXISTING WHERE OPENING IS NOT RE-USED.
21. ALL CUTTING AND PATCHING REQUIRED FOR THIS PROJECT SHALL BE INCLUDED IN THE CONTRACT. REFINISH ANY SURFACE DISTURBED UNDER THIS WORK TO MATCH EXISTING.
22. IN GENERAL, KEEP DUCT AND PIPING MAINS TIGHT TO UNDERSIDE OF STRUCTURE WHERE POSSIBLE.

SHEET LIST-MECHANICAL

SHEET NUMBER	SHEET NAME
M001	LEGEND, DRAWING INDEX, & GENERAL NOTES
MD100	BASEMENT FLOOR PLAN DEMOLITION PLAN
MD101	FIRST FLOOR PLAN - DEMOLITION PLAN
MD102	SECOND FLOOR PLAN (FAN ROOM #2 & ROOF) - DEMOLITION PLAN
MD105	FIFTH FLOOR PLAN DEMOLITION PLAN
M100	BASEMENT FLOOR PLAN
M101	FIRST FLOOR PLAN
M102	SECOND FLOOR PLAN
M401	MECHANICAL SCHEMATICS
M501	MECHANICAL DETAILS
M502	MECHANICAL DETAILS
M601	MECHANICAL SCHEDULES
M701	MECHANICAL CONTROLS
M702	MECHANICAL CONTROLS
Total Count: 14	

SEQUENCE OF CONSTRUCTION

A. INSTALL NEW MAF-2 ON EXISTING CURB SOUTH OF CT-2.
B. REMOVE EXISTING MAF-2 AND CAP OPENING ON ROOF.
C. INSTALL NEW COOLING TOWERS CT-1 & CT-2 ON NEW STRUCTURE ON ROOF.
D. SHUTDOWN EXISTING AHU-50 (WEEKEND OPERATION. TMES TO BE COORDINATED WITH COR 5PM FRIDAY TO 10PM SUNDAY)
E. REMOVE PORTION OF EXISTING SUPPLY DUCTWORK. EXTEND NEW DUCTWORK UP TO WALL PENETRATION.
F. START UP EXISTING AHU-50.
G. INSTALL NEW CWP'S CONDENSER WATER PUMPS ON ISOLATION PADS.
H. REMOVE PORTION OF LOUVER TO ALLOW ADEQUATE SPACE FOR CWS/R PIPING.
I. INSTALL NEW 1ST & 2ND LEVEL CWS/R & CWE PIPING UP TO MANUAL SHUT OFF VALVES V-1 THRU V-3.
J. MAKE FINAL PIPING CONNECTIONS TO CWP's CONDENSER WATER PUMPS LOCATED IN FAN ROOM #2.
K. SHUTDOWN CHILLERS #1 & #2 AND CLOSE ISOLATION VALVES ON SUPPLY AND RETURN LINES.
L. SHUTDOWN EXISTING COOLING TOWER #1.
M. SHUTDOWN EXISTING CONDENSER WATER PUMPS LOCATED IN FAN ROOM #3 (PUMPS ASSOCIATED WITH COOLING TOWER #1).
N. REMOVE EXISTING CWS/R PIPING CONNECTIONS TO CHILLER #1 & # 2.
O. REMOVE EXISTING CWS/R PIPING CONNECTIONS TO FREE COOLING HEAT EXCHANGER.
P. INSTALL TEMPORARY FLEXIBLE CWS/R PIPING BETWEEN CHILLER #1 TO UNDER SLAB PIPING IN CRAWL SPACE. CONNECTED TO EXISTING CT-5 FOR SUPPLEMENTARY COOLING CAPABILITIES.
Q. START UP CHILLER #1.
R. START UP EXISTING COOLING TOWER #1.
S. START UP EXISTING CONDENSER WATER PUMPS LOCATED IN FAN ROOM #3 (PUMPS ASSOCIATED WITH EXISTING COOLING TOWER #1).
T. REMOVE ANY REMAINING PIPING MAINS AND BRANCH PIPING FORMLY CONNECTED CHILLERS #1 & #2.
U. INSTALL NEW CWS/R PIPING ON BASEMENT LEVEL UP TO MANUAL SHUT OFF VALVES (V-4 THRU V-7) AND TO FREE COOLING HEAT EXCHANGER.
V. MAKE FINAL PIPING CONNECTIONS TO CHILLER #2 & FREE COOLING HEAT EXCHANGER.
W. FLUSH NEW CWS/R MAIN AND BRANCH LINES & CAP ALL VALVED OPENINGS.
X. ISOLATION VALVES TO CHILLERS #1, #2, CT-1 & CT-2 SHALL REMAIN OPEN. ISOLATION VALVES TO EXISTING CT-3 & CHILLER #3 SHALL BE CLOSED.
Y. START UP CHILLER #2, NEW CT-1 & CT-2, AND NEW CWP's LOCATED IN FAN ROOM #2. (TO RUN SIMULTANEOUSLY WITH STEP X, WORK TO OCCUR BETWEEN JAN 1 AND FEB 28 - IF WORK CANNOT BE COMPLETED BY FEB 28, A TEMPORARY AIR COOLED CHILLER WITH GENERATOR SHALL BE ON STANDBY TO PROVIDE 1200 TONS OF COOLING)
Z. SHUT DOWN EXISTING COOLING TOWER #1 & #3.
AA. SHUT DOWN CHILLER #3 AND REMOVE CDS/R PIPING.
AB. SHUTDOWN EXISTING CONDENSER WATER PUMPS LOCATED IN FAN ROOM #3 (PUMPS ASSOCIATED WITH COOLING TOWER #1).
AC. REMOVE TEMPORARY VALVED FLEXIBLE CWS/R PIPING BETWEEN CHILLER #1 & EXISTING COOLING TOWER #1.
AD. REMOVE REMAINDER EXISTING CWS/R PIPING CONNECTED TO CHILLER #3
AE. MAKE FINAL PIPING CONNECTIONS TO CHILLERS #1 & #3 TO NEW CWS/R MAIN LINES. (COMPLETED BY MARCH 31)
AF. MAKE FINAL PIPING CONNECTIONS TO EXISTING CT-3.
AG. FLUSH ENTIRE CWS/R SYSTEM.
AH. OPEN ISOLATION VALVES TO EXISTING CT-3 CHILLER #3.

NOTE: DURING CONSTRUCTION, COORDINATE DEMO AND NEW WORK WITH ALL DISCIPLINES.

DEDUCT ALTERNATES

A. BID ITEM NO. 2 (DEDUCT ALTERNATE 1) - DEDUCT ALL WORK ASSOCIATED WITH THE REMOVALS IN FAN ROOM #3.
B. BID ITEM NO. 3 (DEDUCT ALTERNATE 2) - DEDUCT ALL WORK ASSOCIATED WITH REMOVING THE COOLING TOWER ON THE ROOF OUTSIDE OF FAN ROOM #3.
C. BID ITEM NO. 4 (DEDUCT ALTERNATE 3) - DEDUCT ALL WORK ASSOCIATED WITH REMOVING THE CONDENSER WATER PIPING FROM THE CRAWL SPACE (OR WHATEVER YOU ARE CALLING IT ON THE DRAWINGS) AND UP THRU THE BUILDING TO FAN ROOM #3.

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No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

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STAMP

NOT FOR CONSTRUCTION

VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: LEGEND, DRAWING INDEX, & GENERAL NOTES

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

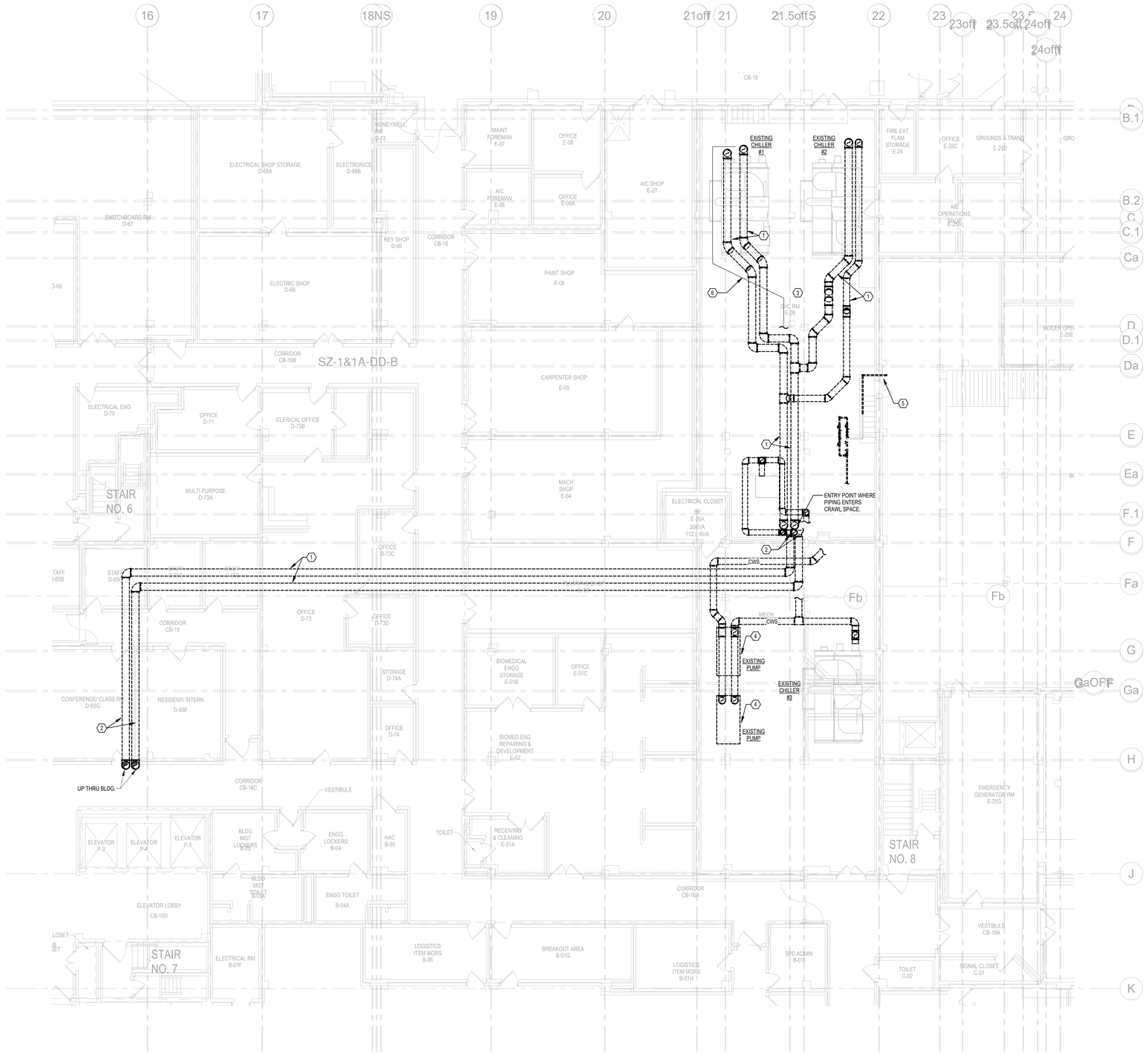
Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: DTR | Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: M001



GENERAL NOTES

A. REFER TO SHEET M001 FOR LEGEND, DRAWING INDEX, AND GENERAL NOTES.

⬡ PLAN NOTES

1. REMOVE EXISTING CONDENSER WATER PIPING.
2. PIPING LOCATED IN CRAWL SPACE BELOW BASEMENT FLOOR LEVEL.
3. SVC RM E-26 HAS A DEPRESSED FLOOR SLAB.
4. REMOVE EXISTING CONDENSER WATER PUMPS AND ASSOCIATED PIPING.
5. REMOVE EXISTING 2" MAKE UP WATER LINE UP TO ROOF AND REPLACED WITH 4" MAKE UP WATER LINE. SEE NEW WORK PLANS.
6. POTENTIAL ROUTE FOR FLEXIBLE PIPING CONNECTED TO EXISTING CT-1 LOCATED IN CRAWL SPACE. SEE STEP "P" IN SEQUENCE OF CONSTRUCTION.

1 BASEMENT PLAN - DEMOLITION

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

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA U.S. Department of Veterans Affairs

Drawing Title: BASEMENT FLOOR PLAN DEMOLITION PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: DTR | Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: MD100

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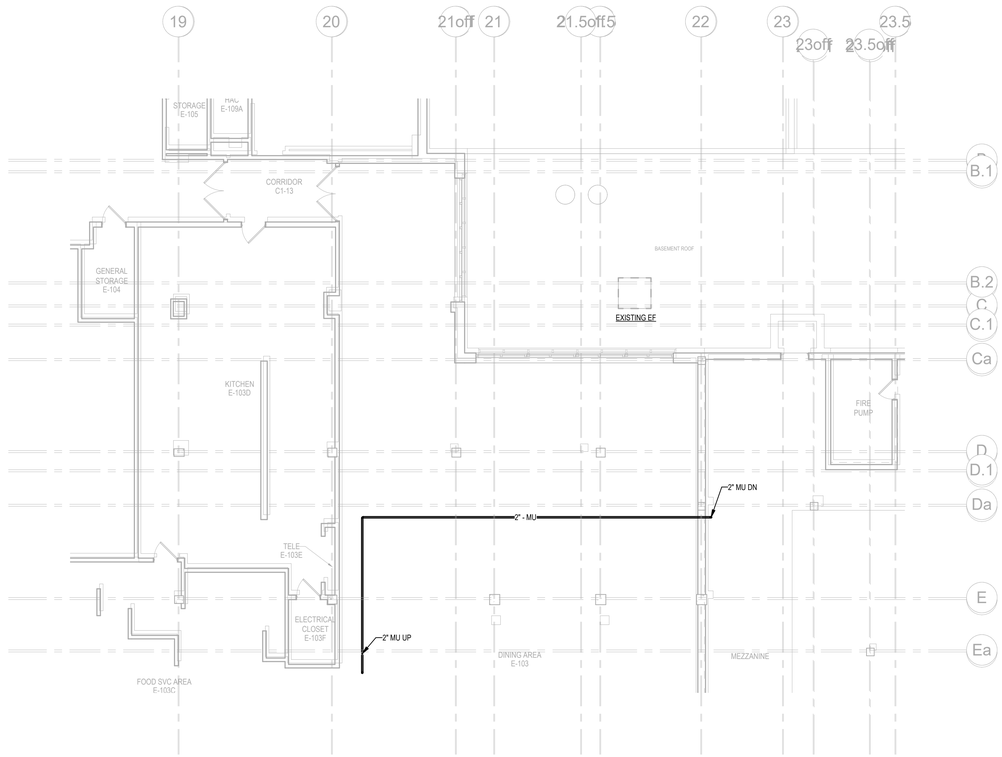

1 **FIRST FLOOR PLAN - DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

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VA U.S. Department of Veterans Affairs

Drawing Title: FIRST FLOOR PLAN - DEMOLITION PLAN	Phase: 95% CONSTRUCTION DOCUMENTS	Project Title: UPGRADE COOLING TOWER AND CHILLER	Project Number: 626-24-203
Approved: VMAC	FULLY SPRINKLERED	Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN	Building Number
		Issue Date: 02/13/2026 / Checked: DTR / Drawn: DAG	Drawing Number: MD101

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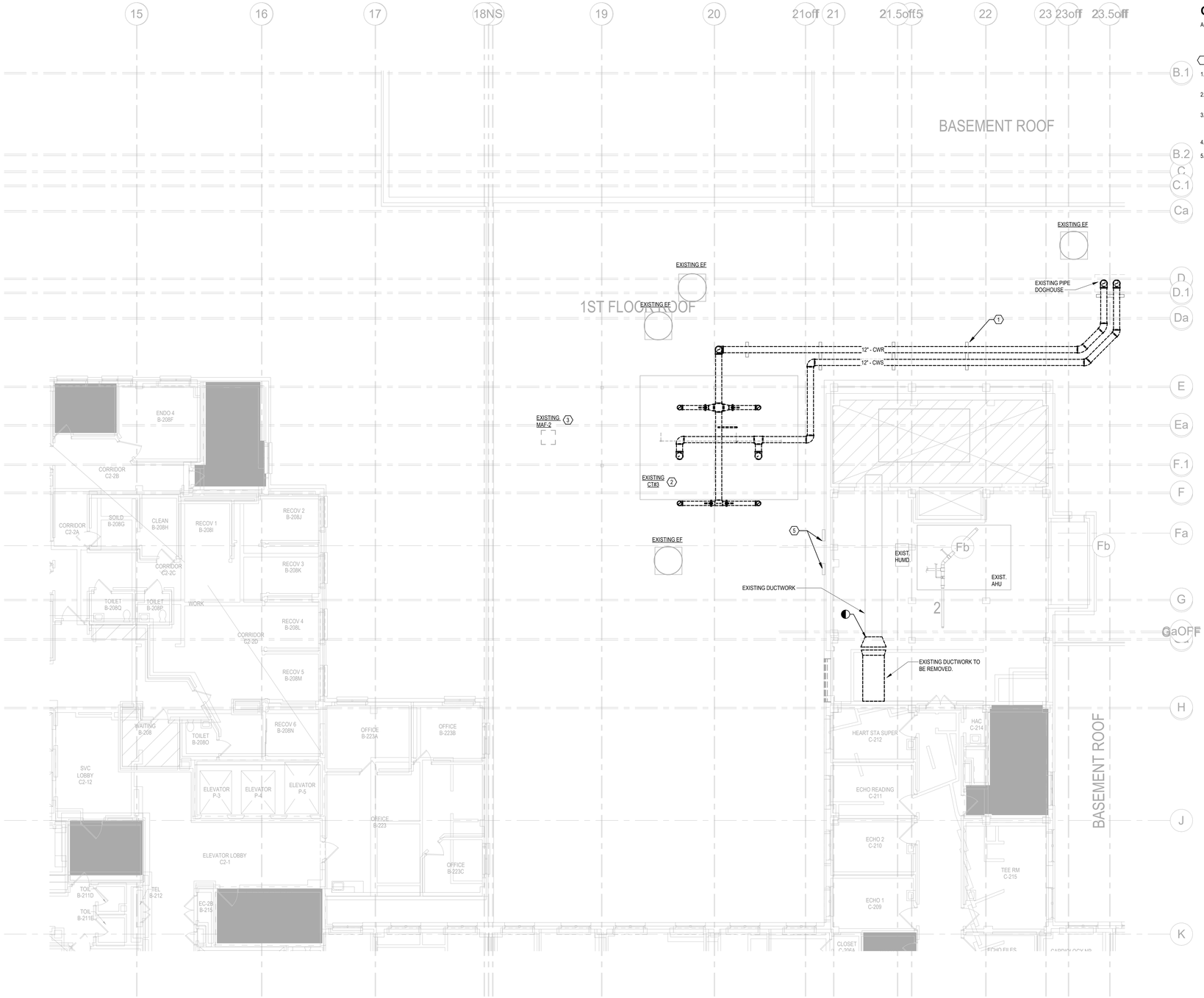

GENERAL NOTES

A. REFER TO SHEET M001 FOR LEGEND, DRAWING INDEX, AND GENERAL NOTES.

PLAN NOTES

1. REMOVE CONDENSER WATER PIPING, ROOF SUPPORTS, AND APPURTENANCES TO BE REMOVED THROUGHTOUT BUILDING.
2. EXISTING COOLING TOWER, STRUCTURE, DRAINAGE LINE, LOW PRESSURE STEAM & CONDENSATE LINES TO REMAIN.
3. REMOVE MAF-2, ASSOCIATED DUCTWORK BELOW SHALL BE EXTENDED AND RECONNECTED TO NEW MAKE UP FAN INLET AT REVISED LOCATION ON NEW WORK PLANS.
4. LOW PRESSURE STEAM MAIN TO REMAIN.
5. EXISTING COOLING TOWER VFD'S TO REMAIN.

1 SECOND FLOOR PLAN (FAN ROOM #2 & ROOF) - DEMOLITION PLAN

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

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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Drawing Title: SECOND FLOOR PLAN (FAN ROOM #2 & ROOF) - DEMOLITION PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: DTR

Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: MD102

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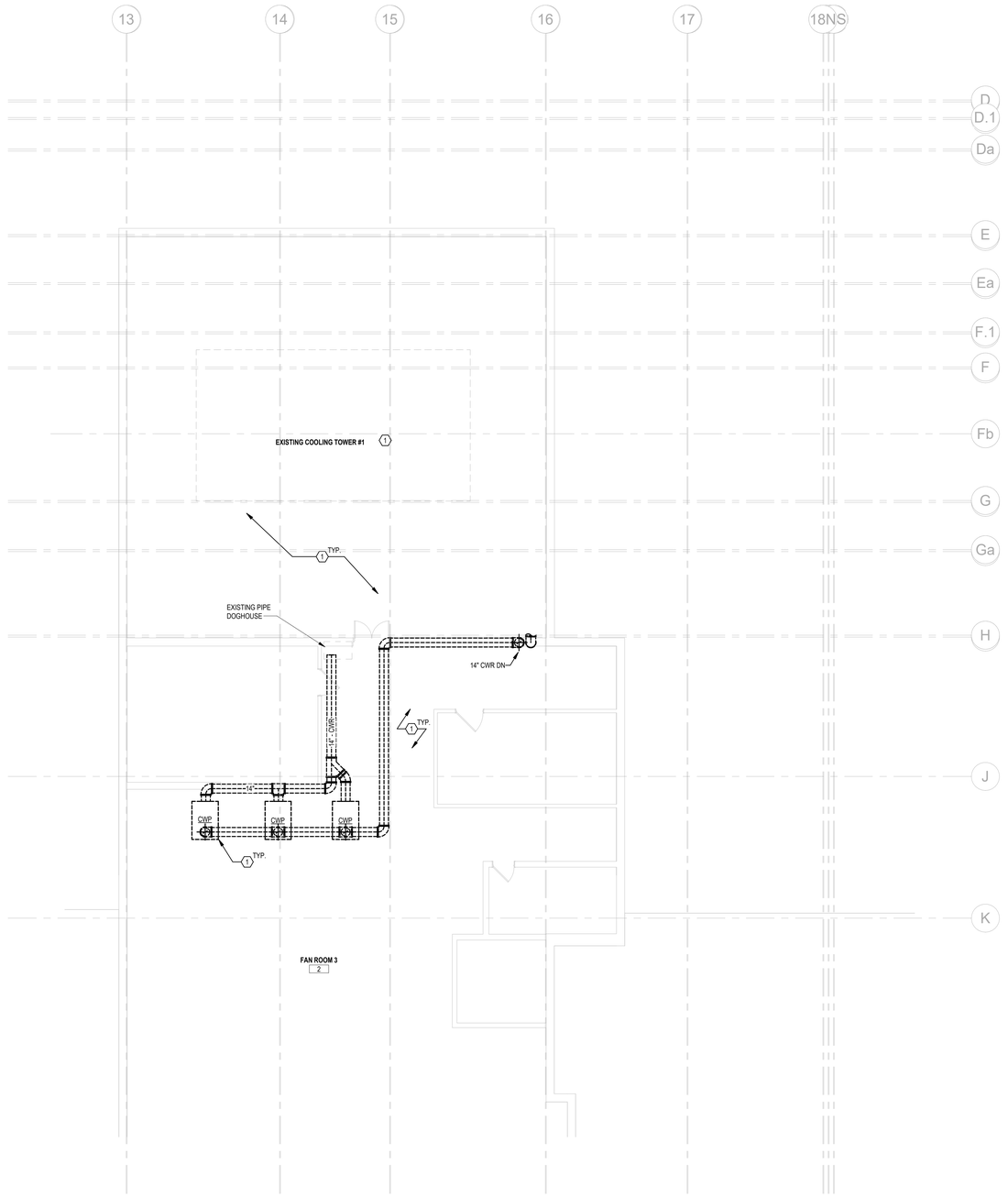
GENERAL NOTES

A. REFER TO SHEET M001 FOR LEGEND, DRAWING INDEX, AND GENERAL NOTES.

⬡ PLAN NOTES

1. REMOVE COOLING TOWER AND ASSOCIATED PIPING, CONTROLS, ACCESS PLATFORMS, STRUCTURAL STEEL, ETC.



1 FIFTH FLOOR PLAN - DEMOLTION

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

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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Drawing Title: FIFTH FLOOR PLAN DEMOLITION PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: DTR

Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: MD105

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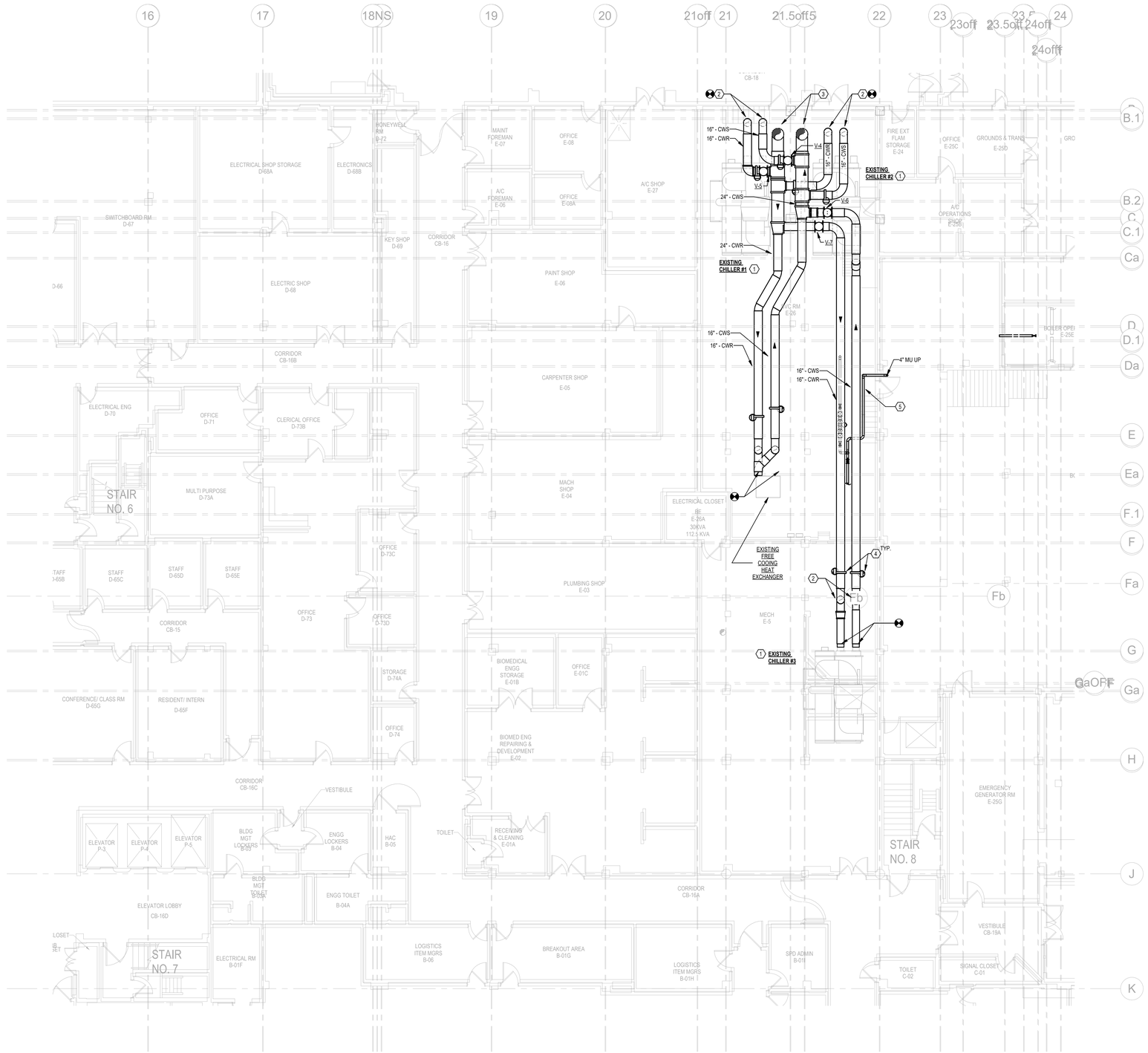

2 BASEMENT FLOOR PLAN - NEW WORK

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

GENERAL NOTES

A. REFER TO SHEET M001 FOR LEGEND, DRAWING INDEX, AND GENERAL NOTES.

PLAN NOTES

1. EXISTING CHILLER TO REMAIN.
2. ROUTE 16" CWS/R PIPING DOWN TO EXISTING CHILLER.
3. ROUTE 24" CWS/R PIPES UP TO 1ST FLOOR ROOF. RERFER TOT M101 FOR CONTINUATION.
4. MODULATING 2 PORT AUTOMATIC CONTROL VALVE.
5. ROUTE 4" MU WATER LINE UP THROUGH EXISTING PATHWAY UP 2ND LEVEL. WIDEN EXISTING OPENINGS IN SLAB AND WALL PENETRATIONS AS REQUIRED.

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: BASEMENT FLOOR PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: DTR

Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: M100

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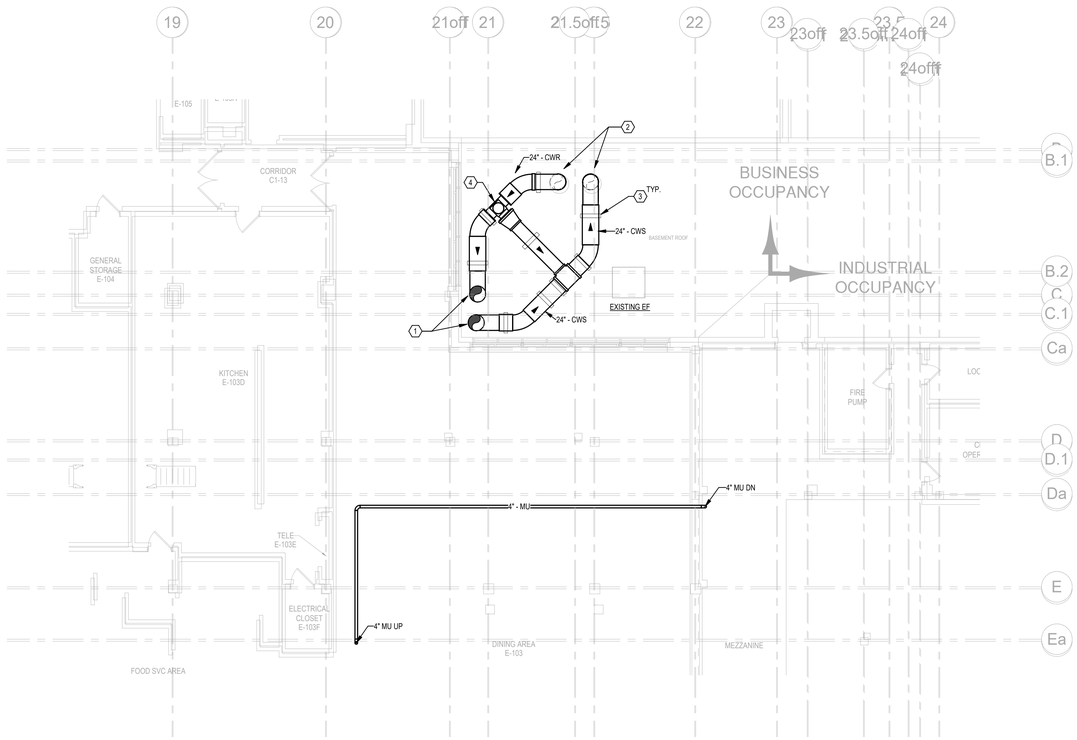
GENERAL NOTES

A. REFER TO SHEET M001 FOR LEGEND, DRAWING INDEX, AND GENERAL NOTES.

B. ALL EXTERIOR PIPING SHALL BE INSULATED AND HEAT TRACED.

⬡ PLAN NOTES

1. NEW 24" CWS/R PIPES UP TO FAN RM#2
2. NEW 24" CWS/R PIPES DN TO BASEMENT.
3. PROVIDE PIPING ROOF SUPPORTS FOR CWS/R. SPACING SHALL BE IN ACCORDANCE TO VA DESIGN GUIDE.
4. 3-WAY BYPASS ISOLATION VALVE.



1 **FIRST FLOOR PLAN - NEW WORK**
SCALE: 1/8" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: FIRST FLOOR PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: DTR

Drawn: DAG

Project Number: 626-24-203

Building Number:

Drawing Number: M101

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GENERAL NOTES

A. REFER TO SHEET M001 FOR LEGEND, DRAWING INDEX, AND GENERAL NOTES.

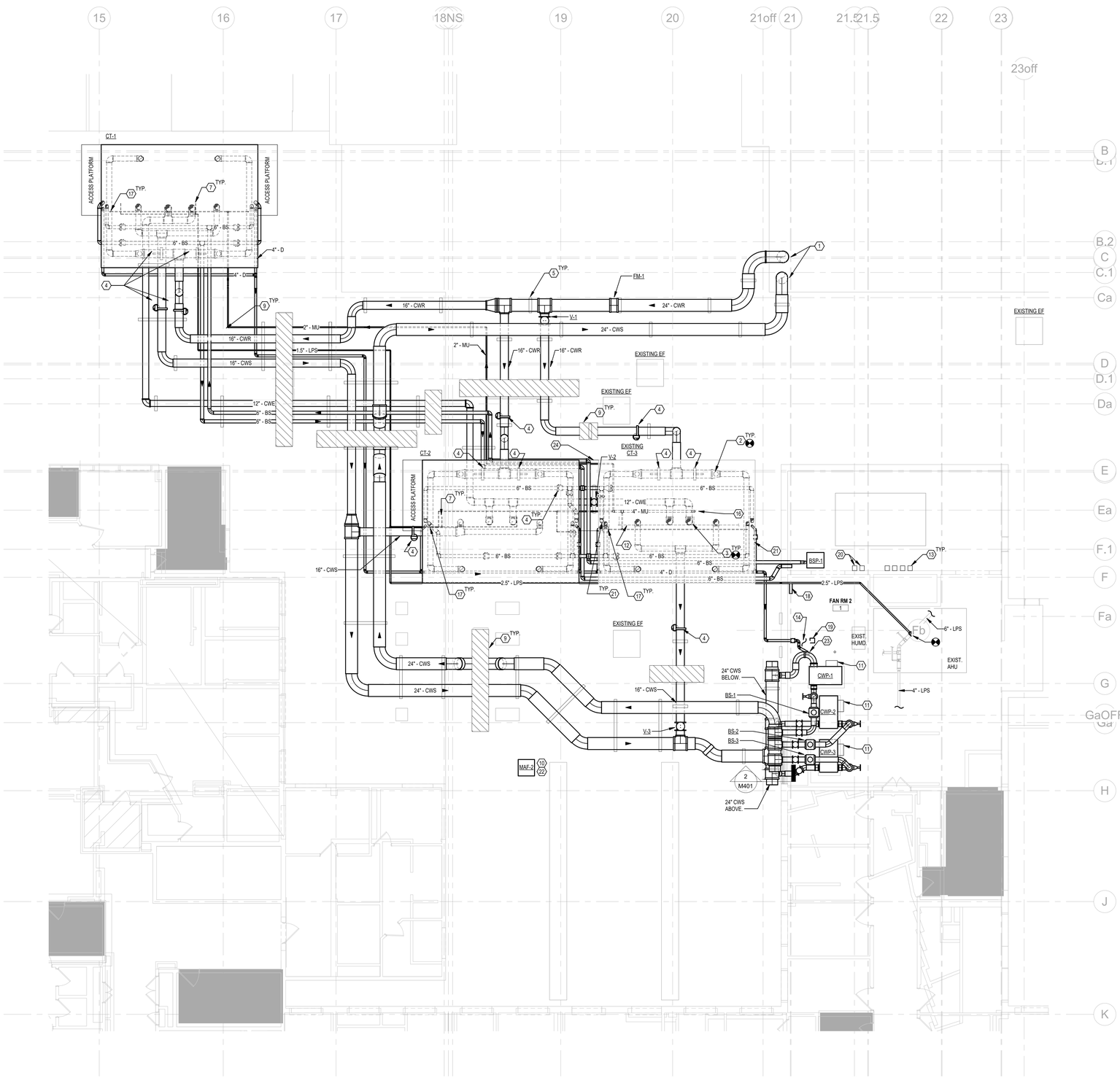
B. ALL EXTERIOR PIPING SHALL BE INSULATED AND HEAT TRACED.

C. ALL CWR PIPING FROM COOLING TOWER SHALL BE SLOPED A MINIMUM OF 1/8" PER 1FT TO PUMP SUCTION INLETS IN FAN RM #2.

D. MAINTAIN ADEQUATE CLEARANCE BETWEEN CT-2 & EXISTING CT-3 ACCESS STAIRWAYS.

PLAN NOTES

1. 24" CWS/R UP FROM FLOOR BELOW. REFER TO STRUCTURAL DRAWINGS FOR PIPE SUPPORT DETAILS.
2. CONNECT NEW CWS/R PIPING TO EXISTING COOLING TOWER. TRANSITION PIPING WITH ECCENTRIC FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
3. PROVIDE NEW CONDENSER WATER EQUALIZER LINE. EQUALIZER LINE TO BE CONNECTED TO BOTH NEW AND EXISTING COOLING TOWERS.
4. MODULATING 2-PORT AUTOMATIC ISOLATION VALVE.
5. PROVIDE PIPING ROOF SUPPORTS FOR CWS/R AT A MAXIMUM SEPERATION DISTANCE OF 12FT. REFER TO STRUCTURAL DRAWINGS FOR PIPE SUPPORT DETAILS.
6. BASE MOUNTED CONDENSER WATER PUMPS. TRANSITION PIPING AS REQUIRED TO MAKE FINAL CONNECTION TO PUMP HEADER.
7. 3/8" LPS CONNECTION TO COOLING TOWER STEAM MUFFLER.
8. PROVIDE NEW SUPPLY DUCT SAME SIZE AS EXISTING. CONNECT NEW DUCTWORK TO EXISTING AT WALL PENETRATION.
9. HATCHED AREA INDICATES LOCATION WHERE STAIRS AND PLATFORM SHALL BE BUILT OVER PIPING SECTIONS. SEE ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
10. NEW MAF-2 REPLACING EXISTING MAF-2 SERVING EXISTING KITCHEN HOOD (H-4) BELOW. NEW MAF-2 TO BE PROVIDED WITH NEW CURB. EXTEND SUPPLY DUCTWORK IN CEILING BELOW TO EXISTING DUCTWORK. COORDINATE ROUTING AND INSTALLATION WITH OTHER TRADES. INTEGRATE EXISTING CONTROLS WITH NEW MAKE UP AIR FAN. MAINTAIN 10FT CLEARANCE FROM ALL EXHAUST OUTLETS & 25FT CLEARANCE FROM NEARBY COOLING TOWERS.
11. UNIT MOUNTED VFD FOR CONDENSER WATER PUMPS. SEE ELECTRICAL PLANS FOR MORE INFORMATION..
12. EXISTING 1-1/4" STEAM LINE SERVING CT-3 TO REMAIN.
13. (4) WALL MOUNTED VFD'S FOR COOLING TOWER FANS LOCATED IN CT-2 & CT-3. SEE ELECTRICAL DRAWINGS FOR MORE INFORMAITON.
14. LOW PRESSURE CONDENSATE RETURN ROUTED TO EXISTING FLOOR DRAIN.
15. PUMP MOUNTED VFD'S. SEE ELECTRICAL DRAWAINGS FOR MORE INFORMATION.
16. 4" MU MAIN UP FROM BASEMENT LEVEL BFP.
17. PROVIDE 1-1/2" MU BRANCH LINES WITH ISOLATION VALVES TO COOLING TOWER MU INLETS.
18. BASIN SWEEPER MULTI-CELL CONTROLLER.
19. CHEMICAL FEEDER POT. PROVIDE VALVED 1" CONNECTIONS BETWEEN CWS/R HEADER AND FEEDER POT INLETS. TRANSITION AS REQUIRED.
20. BASIN LEVEL, HEAT TRACE, STEAM MUFFLER & MAKE UP WATER CONTROLLERS. COORDINATE EXACT LOCATIONS WITH EXISTING INTRASTRUCTURE AND TRADES.
21. CAPPED BASIN SWEEPER PIPING ROUTED TO EXISTING CT-3. BASIN SWEEPER PIPING FOR FUTURE BASIN SWEEPER INSTALLATION.
22. MAINTAIN A MINIMUM 25FT DISTANCE FROM COOLING TOWER.
23. COOLING TOWER DRAING LINE ROUTED INDIRECTLY TO FLOOR SINK, SEE PLUMBING DRAWINGS FOR EXACT LOCATION. PROVIDE BALANCING VALVE SET TO 110 GPM ON 4" COOLING TOWER DRAIN LINE.
24. EXISTING ACCESS PLATFORM WITH LADDER. COORDINATE THE REMOVAL OF THE EXISTING ACCESS PLATFORM GUARD RAIL BOORDERING NEW CT-2 TO ALLOW ADDITIONAL ACCESS POINT INTO COOLING TOWER. EXISTING LADDER CAGE SHALL BE REMOVED ALSO AS REQUIRED TO MAINTAIN REQUIRED CLEARANCES.



2 SECOND FLOOR PLAN (FAN ROOM #2 & ROOF) - NEW WORK

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

1 SECOND FLOOR FAN ROOM #2 & ROOF - DUCT WORK PLAN - NEW WORK

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

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA U.S. Department of Veterans Affairs

Drawing Title: SECOND FLOOR PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: DTR | Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: M102

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/2024-05214-MEP-Central.rvt

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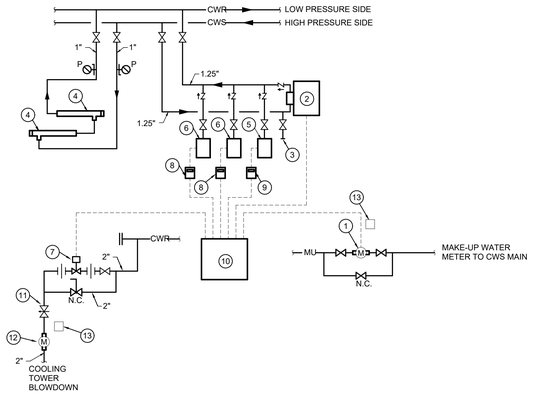
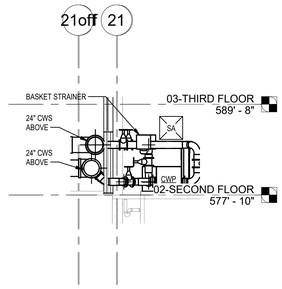
VA FORM 08 - 6231

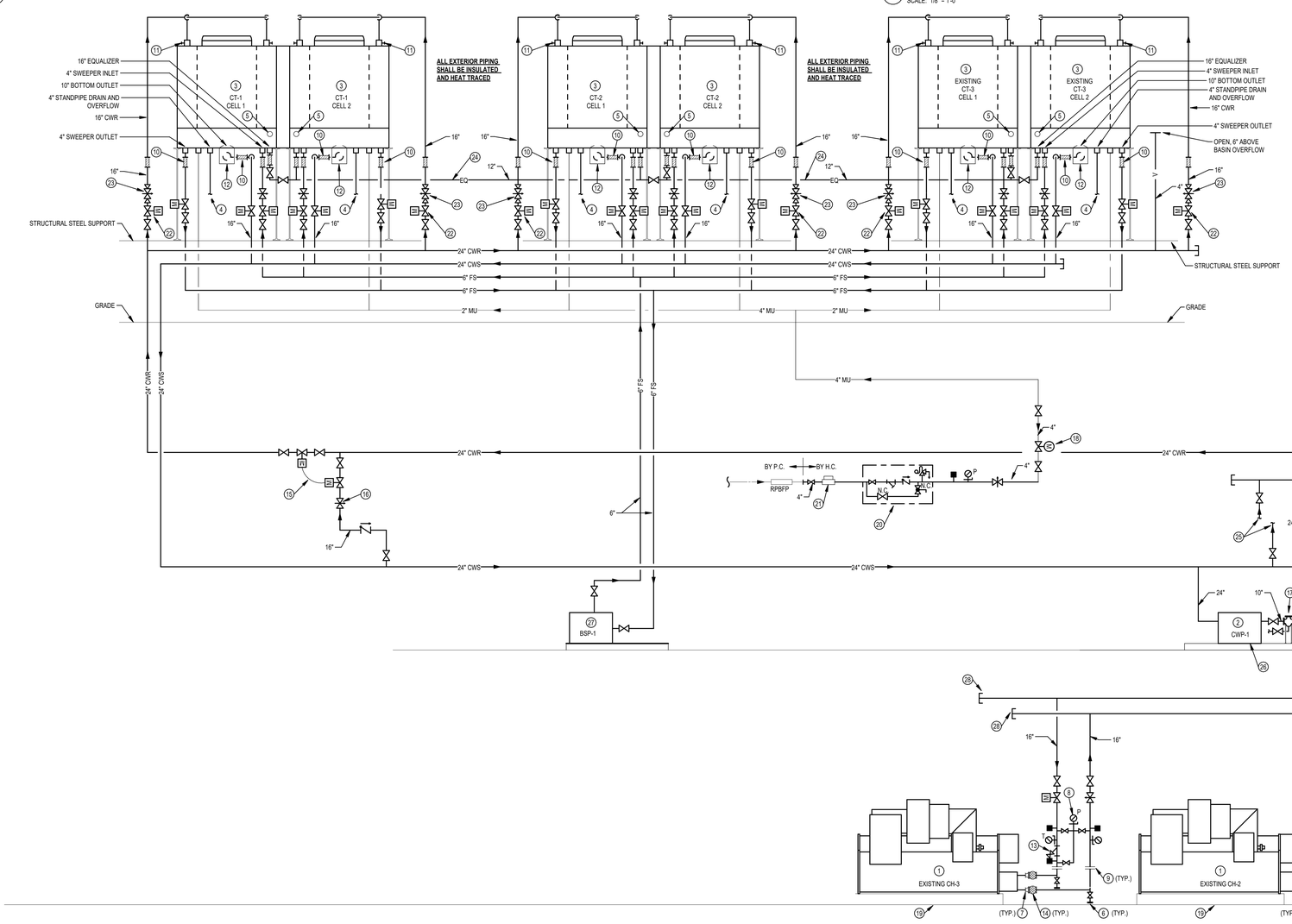
CHEMICAL TREATMENT NOTES

1. MAKE-UP WATER METER WITH TWO OUTPUTS. ONE OUTPUT FOR A WATER COMMUNICATION MODULE, COORDINATE WITH CITY OF COLUMBUS. THE OTHER OUTPUT FOR THE WATER TREATMENT CONTROLLER, COORDINATE WITH THE CHEMICAL TREATMENT SUPPLIER.
2. CONDUCTIVITY SENSOR.
3. SAMPLE VALVE.
4. COUPON RACK.
5. INHIBITOR TANK AND PUMP.
6. BIOCIDE TANK AND PUMP.
7. SLOW CLOSING SOLENOID (ANTI-WATER HAMMER) BLOW DOWN VALVE.
8. BIOCIDE TIMER.
9. INHIBITOR TIMER.
10. CHEMICAL TREATMENT CONTROL PANEL.
11. MANUAL BALANCE VALVE, ADJUST TO DESIRED FLOW.
12. "SEWER CHARGE" DEDUCT METER WITH ONE OUTPUT FOR A WATER COMMUNICATION MODULE, COORDINATE WITH NASHVILLE VA.
13. WATER COMMUNICATION MODULE SHALL BE ITRON 100W, FOR REMOTE METER READINGS BY THE CITY OF COLUMBUS.





4 CHEMICAL TREATMENT DETAIL



2 SECTION AT CWS HEADER AND FAN RM#2

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

1 CONDENSER WATER PIPING SCHEMATIC

NOTES

1. CHILLER. REFER TO EQUIPMENT DATA.
2. CONDENSER WATER PUMP, REFER TO PUMP DETAIL AND EQUIPMENT SCHEDULE.
3. COOLING TOWER. REFER TO EQUIPMENT DATA.
4. FULL SIZE OVERFLOW DRAIN. THE DRAIN OUTLET SHALL BE VALVED AND PIPED WITH THE OVERFLOW DISCHARGING AND RAN TO SPILL INTO A SUMP PIPED TO THE SANITARY OR OVER A FLOOR DRAIN, AS SHOWN ON THE DRAWINGS.
5. MAKE-UP WATER CONTROLLER. REFER TO SPECIFICATIONS FOR TYPE.
6. 0.75" DRAIN VALVE WITH HOSE THREAD FITTING.
7. REDUCER IF CHILLER CONNECTION SIZE DIFFERS FROM PIPE SIZE.
8. PRESSURE GAUGE AND INTERCONNECTING PIPING AND VALVES.
9. FLANGED PIPE CONNECTIONS TO ALLOW PIPING REMOVAL FOR TUBE PULL/CLEANING.
10. STAINLESS STEEL FLEX CONNECTOR, MIN. 18" LONG. (NOTE: IF THE FLEX CONNECTOR IS MOUNTED IN THE VERTICAL DUE TO PROJECT OR FIELD REQUIREMENTS, IN LIEU OF BRAIDED TYPE THE FLEX CONNECTOR SHALL BE A KEVLAR REINFORCED EPDM MOLDED SPHERICAL TYPE EQUAL TO MASON SAFEFLEX).
11. INTEGRAL BALANCING VALVE.
12. SUMP AND STRAINER WITH ANTI-VORTEX.
13. START-UP STRAINER WITH BLOW DOWN VALVE. PERMANENT 20 MESH OR FINER IF EVAPORATOR IS PLATE-AND-FRAME TYPE, ONE PIPE SIZE LARGER THAN LINE SIZE.
14. SPHERICAL FLEX CONNECTOR.
15. LINE SIZE AUTO CONTROL BUTTERFLY VALVES.
16. LEAVE BALANCE VALVE FULL OPEN UNLESS REQUIRED TO ASSIST BALANCING FLOW WHEN BYPASSING THE COOLING TOWERS.
17. BASKET STRAINER. REFER TO EQUIPMENT SCHEDULES.
18. MAKE-UP WATER VALVE.
19. 6" CONCRETE HOUSEKEEPING PAD. REFER TO STRUCTURAL DRAWINGS.
20. AUTOMATIC MAKE-UP WATER ASSEMBLY. REFER TO EQUIPMENT DATA.
21. MAKE-UP WATER METER.
22. LINE SIZE AUTO ISOLATION VALVE.
23. MANUAL BALANCE VALVE. PROVIDE REDUCERS IN AND OUT IF SIZE DIFFERS FROM PIPE SIZE.
24. EQUALIZING PIPE, SIZED BY TOWER MANUFACTURER.
25. CHEMICAL TREATMENT PIPING CONNECTIONS WITH SHUT-OFF VALVES. REFER TO CHEMICAL TREATMENT DETAIL.
26. REFER TO PUMP DETAIL FOR REQUIRED VALVES AND ACCESSORIES.
27. CONDENSER WATER FILTRATION PUMP SKID. REFER TO EQUIPMENT SCHEDULES.
28. FLOW METER. INSTALL WITH MINIMUM STRAIGHT RUN OF PIPING BEFORE AND AFTER THE METER PER THE MANUFACTURER'S INSTALLATION INSTRUCTION; INSTALL FLOW STRAIGHTENER IF REQUIRED.
29. PIPING ROUTED TO FREE COOLING HEAT EXCHANGER. SEE DRAWINGS FOR ROUTING INFORMATION.

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: MECHANICAL SCHEMATICS

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: DTR

Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: M401

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/2024-05214-MEP-Central.rvt
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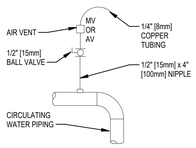


ELEVATION

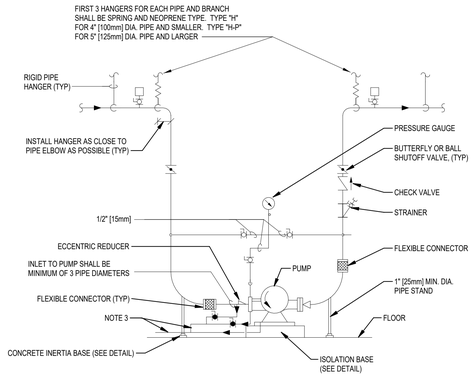
TYPICAL MANUAL AIR VENT

NOTES:

1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

4 DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)

SCALE: 12" = 1'-0"

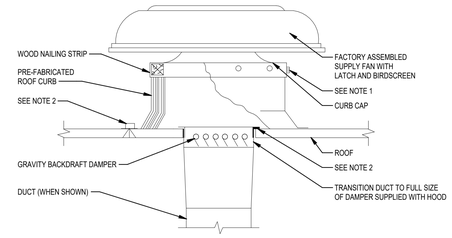


NOTES:

1. PUMP INSTALLATION IS DIAGRAMMATIC AND INTENDED TO SHOW THE MAJOR COMPONENTS REQUIRED FOR INSTALLATION. THE INSTALLED PIPING CONFIGURATION SHALL BE BASED ON THE ACTUAL PUMP PROVIDED. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A COORDINATION DRAWING SHOWING PUMP, PIPING, AND ACCESSORIES AS REQUIRED BY THIS INSTALLATION DETAIL.
2. ALL PAD, PUMP, AND PIPING DRAINS SHALL BE HARD PIPED TO NEAREST FLOOR DRAIN, TYPICAL.

8 HORIZONTAL SPLIT CASE PUMP - FLEXIBLE CONNECTORS

SCALE: 1/2" = 1'-0"

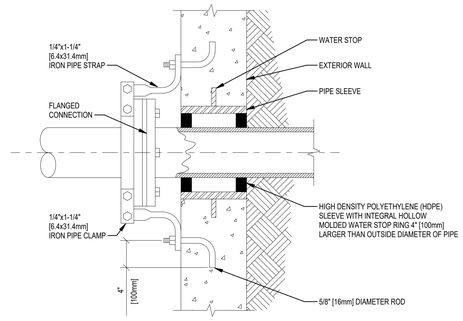


NOTES:

1. SECURE FAN TO WOOD NAILING STRIP WITH 3/8" [10mm] CADIUM PLATED LAG BOLTS NOT OVER 12" [300mm] ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).

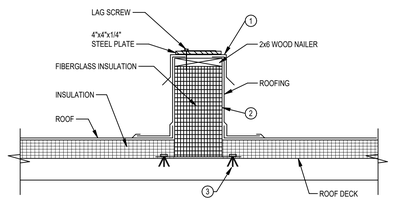
3 SUPPLY MAKE-UP AIR FAN

SCALE: 1/2" = 1'-0"



7 SUPPORT ANCHOR (CONDENSER WATER)

SCALE: NONE

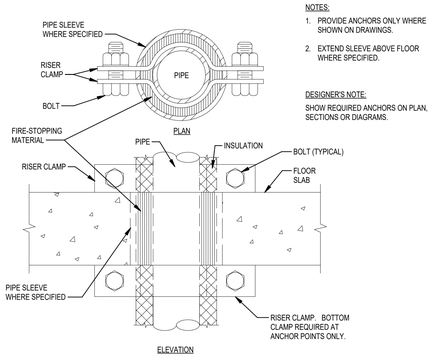


NOTES:

1. 18 GAUGE GALVANIZED STEEL COUNTER-FLASHING.
2. WELDED 14 GAUGE EQUIPMENT SUPPORT CURB, MEETING ASTM A-446, 525, 526 AND 527 REQUIREMENTS, WITH WELDED CORNERS WITH SEAMS JOINED BY CONTINUOUS WELDS. CURB SHALL BE INTERNALLY REINFORCED WITH BULKHEADS AND SPREADERS, 24" ON CENTER TO MEET LOAD RATING OF EQUIPMENT. CURB TO EXTEND 6" BEYOND EQUIPMENT. REFER TO FLOOR PLANS FOR HEIGHT.
3. SECURE CURB TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF), 12" O.C.

2 EQUIPMENT/DUCT SUPPORT ROOF CURB

SCALE: NONE



ELEVATION

NOTES:

1. PROVIDE ANCHORS ONLY WHERE SHOWN ON DRAWINGS.
2. EXTEND SLEEVE ABOVE FLOOR WHERE SPECIFIED.

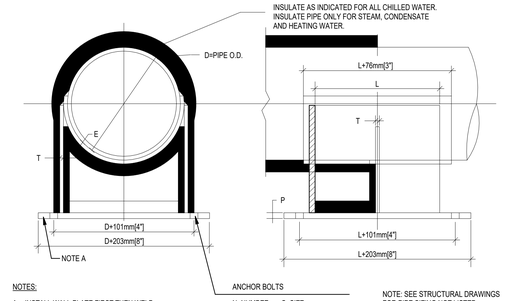
DESIGNER'S NOTE:

SHOW REQUIRED ANCHORS ON PLAN, SECTIONS OR DIAGRAMS.

1 SUPPORT/ANCHOR FOR PIPE RISERS

SCALE: NONE

PIPE ANCHOR SCHEDULE															
D		L		P		Y		E		N		S		BOLT PATTERN
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
203	8	254	10	19	3/4	13	1/2	6	1/4	102	4	22	7/8	
254	10	305	12	19	3/4	13	1/2	6	1/4	102	4	22	7/8	
305	12	356	14	19	3/4	13	1/2	6	1/4	102	4	22	7/8	
356	14	406	16	19	3/4	13	1/2	13	1/2	102	4	22	7/8	
406	16	457	18	19	3/4	13	1/2	13	1/2	102	4	22	7/8	
457	18	508	20	25	1	13	5/8	13	1/2	152	6	25	1	



NOTES:

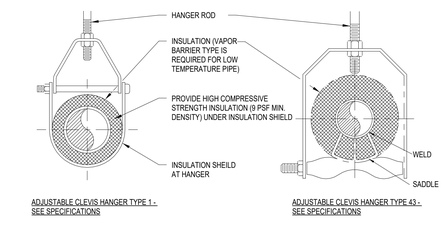
A. INSTALL WALL PLATE FIRST THEN WELD ON REMAINING ASSEMBLY. ONE WALL PLATE FOR BOTH CHILLED WATER S & R IS OPTIONAL.

N=NUMBER S=SIZE
DRILL DIA. = S+3.175mm
DRILL DIA. = S+[1/8"]

NOTE: SEE STRUCTURAL DRAWINGS FOR PIPE SIZING NOT LISTED.

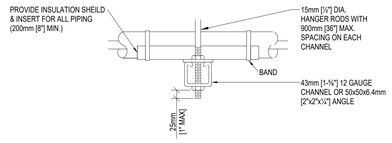
11 LARGE PIPE ANCHOR 152-457MM (6"-18")

SCALE: 1/2" = 1'-0"



ADJUSTABLE CLEVIS HANGER TYPE 1 - SEE SPECIFICATIONS

ADJUSTABLE CLEVIS HANGER TYPE 43 - SEE SPECIFICATIONS



SIDE VIEW TRAPEZE HANGER FOR UP TO 453KG [1000lb.] UNIFORM LOAD

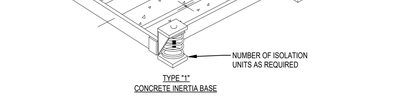
NOTE:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

MAXIMUM PIPE/TUBING SUPPORT SPACING																					
NOM. SIZE	mm [IN]	THRU 20 [THRU ¾]	25 [1]	32 [1¼]	40 [1½]	50 [2]	65 [2½]	75 [3]	100 [4]	125 [5]	150 [6]	200 [10]	250 [10]	300 [12]	350 [14]	400 [16]	450 [18]	500 [20]	60 [24]
PIPE	mm [FT]	2100 [7]	2100 [7]	2100 [7]	2700 [9]	3000 [10]	3400 [11]	3700 [12]	4100 [14]	4900 [16]	5200 [17]	5800 [19]	670 [22]	7000 [23]	7600 [25]	8200 [27]	8500 [28]	9100 [30]	9600 [32]
TUBING	mm [FT]	1500 [5]	1800 [6]	2100 [7]	2400 [8]	2400 [8]	2700 [9]	3000 [10]	3700 [12]	4000 [13]	4100 [14]	4900 [16]	- -	- -	- -	- -	- -	- -	- -

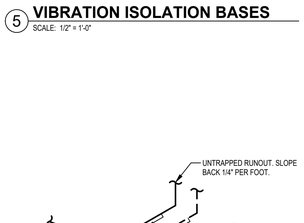
NOTE: REFER TO STRUCTURAL DRAWINGS FOR SPACING REQUIREMENTS.

6 PIPE HANGERS

SCALE: NONE



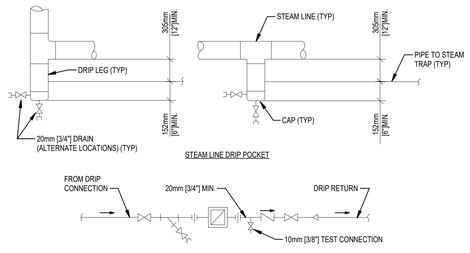
SECTION A-A



TYPE "1"
CONCRETE INERTIA BASE

5 VIBRATION ISOLATION BASES

SCALE: 1/2" = 1'-0"



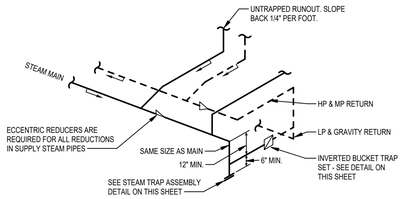
STEAM TRAP ASSEMBLY

NOTE:

DRIP POCKET PIPE SIZE SAME AS STEAM MAIN UNLESS OTHERWISE NOTED.

10 STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY

SCALE: 12" = 1'-0"

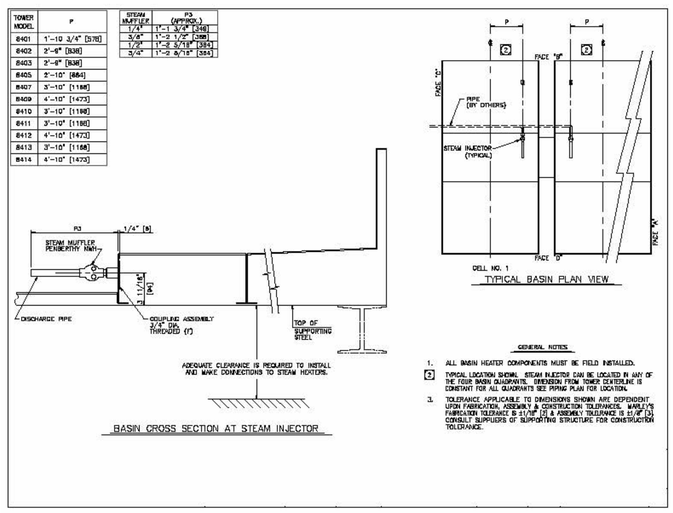


NOTES:

1 SLOPE MAINS AND BRANCHES DOWN 1" PER 40 FEET IN DIRECTION OF FLOW UNLESS SHOWN OTHERWISE.
2 LIMIT UNTRAPPED, COUNTERFLOW, RUNOUTS TO 10 FEET MAXIMUM.
3 END OF MAIN SHOWN, LOW POINT IN STEAM MAIN SIMILAR.

9 TYPICAL STEAM LINE & DRIP PIPING

SCALE: 12" = 1'-0"



12 COOLING TOWER STEAM INJECTOR DETAIL

SCALE: 1 1/2" = 1'-0"

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	CONSTRUCTION DOCUMENTS 95%	02/13/2026
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Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: DTR | Drawn: DAG

Project Number: 626-24-203

Building Number: 1

Drawing Number: M501

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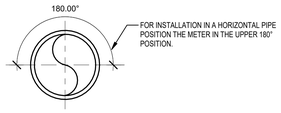
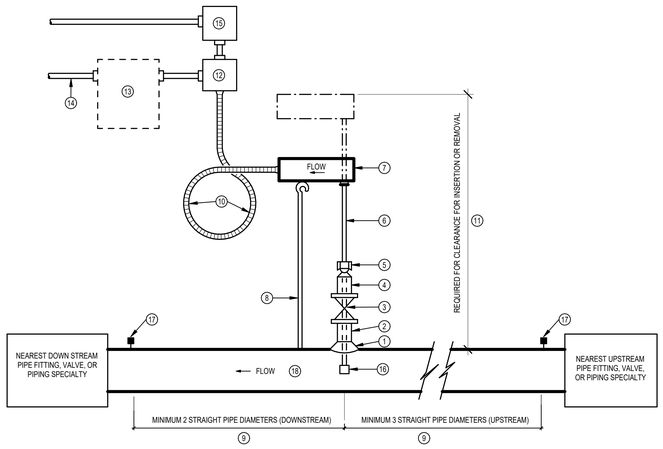
VA FORM 08 - 6231

GENERAL NOTES:

A. THIS DETAIL IS GENERIC IN NATURE. THE COMPLETED INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE METER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ANY ADDITIONAL REQUIREMENTS SHOWN HEREIN.
B. THE FLOW METER MANUFACTURER'S INSTALLATION REQUIREMENTS MUST BE MET. THE REQUIREMENTS SHOWN IN THIS DETAIL SHALL BE CONSIDERED THE MINIMUM ACCEPTABLE INSTALLATION. THIS IS ESPECIALLY MEANT TO APPLY TO UPSTREAM/DOWNSTREAM DISTANCES, PIPE OBSTRUCTIONS, AND ACTUAL INSTALLED PIPING CONFIGURATION REQUIRED BY THE FLOW METER MANUFACTURER IN ORDER TO OBTAIN THE ACCURACIES REQUIRED BY THE SPECIFICATIONS AND METER TYPE. ALL CHANGES TO THE PIPING CONFIGURATION DEPICTED IN THESE PLANS SHALL BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.
C. PROVIDE SERVICE CLEARANCE ALL AROUND METER PER MANUFACTURER'S INSTRUCTIONS, MINIMUM 12".



PIPE CROSS SECTION



NOTES:

1. THREAD-O-LET BRANCH OUTLET FITTING (SIZE AS REQUIRED BY FLOW METER MANUFACTURER, FLOW METER TYPE, AND APPLICATION PER METER MANUFACTURER'S INSTRUCTIONS).
2. CLOSE NIPPLE (SIZE AS REQUIRED BY FLOW METER MANUFACTURER AND APPLICATION).
3. FULL PORT ISOLATION BALL VALVE (SIZE AS REQUIRED BY FLOW METER MANUFACTURER AND APPLICATION).
4. METER RETRACTION WELL OR HOT TAP ADAPTER BASED UPON FLOW METER MANUFACTURER AND APPLICATION REQUIREMENTS.
5. CLAMPING NUT BASED UPON FLOW METER MANUFACTURER AND APPLICATION REQUIREMENTS.
6. STEM.
7. METER HEAD.
8. INSERTION DEPTH GAUGE FURNISHED WITH EACH INSERTION METER BY THE FLOW METER MANUFACTURER.
9. THE FLOW METER LOCATION (AS SHOWN ON THE DRAWINGS), THE UPSTREAM/DOWNSTREAM PIPING ARRANGEMENT, AND THE LOCATIONS OF ANY UPSTREAM/DOWNSTREAM PIPING OBSTRUCTIONS, HAVE BEEN DESIGNED TO ASSURE THE SPECIFIED FLOW METER ACCURACY AND PERFORMANCE ARE ACHIEVED. THE CONTRACTOR SHALL VERIFY THAT THE UPSTREAM/DOWNSTREAM REQUIRED STRAIGHT PIPE DISTANCES ARE PROVIDED IN THE ACTUAL FIELD INSTALLATION. THE CONTRACTOR SHALL REFER TO THE MANUFACTURER'S LITERATURE FOR EXACT REQUIREMENTS AND SHALL INSURE THE MANUFACTURER'S FLOW METER INSTALLATION INSTRUCTIONS AND CLEARANCES ARE MET. ANY DEVIATIONS FROM THE FLOW METER MANUFACTURER'S INSTALLATION REQUIREMENTS SHALL BE BROUGHT TO THE ENGINEER'S AND MANUFACTURER'S ATTENTION FOR ACCEPTANCE PRIOR TO INSTALLING PIPING SYSTEM IN THE METER AREA.
10. PROVIDE ENOUGH SLACK IN THE FLEXIBLE CONDUIT AND CABLES TO PERMIT METER REMOVAL FOR INSPECTION AND SERVICING AS WELL AS ANY PIPE EXPANSION/CONTRACTION MOVEMENT.
11. REFER TO SPECIFIC METER INSTALLATION INSTRUCTIONS FOR REQUIRED CLEARANCES. (NOTE THAT CLEARANCES ARE GENERALLY 30" -36" ABOVE THE TOP OF THE PIPE RANGE, BUT CAN REQUIRE EVEN MORE IN CERTAIN APPLICATIONS).
12. CONNECT FACTORY WIRES TO FIELD WIRES IN AN APPROPRIATE JUNCTION BOX. PROVIDE EXTRA COMPARTMENT FOR TRANSFORMER (WHEN REQUIRED) IN COMPLIANCE WITH NATIONAL ELECTRICAL CODE REQUIREMENTS.
13. LOCAL DISPLAY UNIT OR BTU METER (WHEN SPECIFIED). MOUNT AT 5'6" A.F.F. TO THE CENTERLINE OF THE DISPLAY SCREEN. PANEL MAY BE WALL-MOUNTED AS LONG AS IT IS EASILY READABLE AND ACCESSIBLE. OTHERWISE, IT SHALL BE MOUNTED ON A WELDED ANGLE IRON, OR BOLTED STRUT, RIGID FLOOR STAND. REFER TO SPECIFICATIONS TO DETERMINE IF A LOCAL DISPLAY UNIT IS TO BE FURNISHED. REFER TO SPECIFICATIONS AND/OR FLOW METER SCHEDULE TO DETERMINE IF A BTU METER IS TO BE PROVIDED. A BTU METER REQUIRES THE INSTALLATION OF THE FLOW METER AND TWO THERMOWELLS (ONE IN THE SUPPLY LINE AND ONE IN THE RETURN LINE) FOR INSTALLATION OF THE ADDITIONAL SENSORS REQUIRED TO MEASURE BTU'S.
14. OUTPUT SIGNALS TO THE B.A.S.
15. INCOMING POWER CIRCUIT TERMINATING IN A JUNCTION BOX.
16. FLOW SENSOR.
17. PRESSURE AND TEMPERATURE TEST PLUG INSTALLED BETWEEN THE ISOLATION VALVES BUT OUTSIDE THE REQUIRED MINIMUM STRAIGHT PIPE DIAMETERS ZONE.
18. MAKE SURE THAT ALL LINES ARE FILLED WITH WATER BEFORE INSERTING THE TURBINE ASSEMBLY INTO THE PIPING SYSTEM. IF THE LINES ARE NOT FILLED, AIR MAY INTERRUPT THE FLOWING STREAM AND DAMAGE THE TURBINE ASSEMBLY. AN EVEN GREATER DANGER IS THAT IF THIS IS A HOT WATER SYSTEM, SOME WATER MAY FLASH INTO STEAM AND EXCEED THE HIGH TEMPERATURE LIMIT FOR THE TURBINE AND ITS MECHANICAL ASSEMBLY. THIS FLASH OVER COULD EXCEED THE PRESSURE RATINGS OF THE METER AND THE ASSEMBLY COULD FAIL ALLOWING STEAM AND HOT WATER TO ESCAPE CAUSING SERIOUS INJURY.

1 INSERTION TYPE ELECTROMAGNETIC FLOW METER (HYDRONIC)

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

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: MECHANICAL DETAILS

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: DTR | Drawn: DAG

Project Number: 626-24-203

Building Number:

Drawing Number: M502

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/2024-6624-MEP-Central.rvt
2/13/2026 2:40:29 PM

VA FORM 08 - 6231

DUCT CONSTRUCTION, SEALING, AND INSULATION

GENERAL NOTES:
A. REFER TO SPECIFICATIONS FOR DUCT CONSTRUCTION: SHEET METAL DUCT; INTERIOR LINING; EXTERIOR INSULATION; FIBERGLASS DUCTBOARD; ETC.
B. DUCT CONSTRUCTION AND SEALING SHALL BE PER LATEST S.M.A.C.N.A. STANDARDS.

NOTES:
1.

DUCT SYSTEM	S.M.A.C.N.A. CLASS. S.P. CONSTRUCT.	SEAL CLASS	LEAKAGE CLASS RECT	LEAKAGE CLASS RND	INTERNALLY LINED	EXTERNAL INSULATION	DOUBLE WALL INSULATED	NOT INSULATED	SEE NOTE
SUPPLY & RETURN DUCTWORK FOR AHU-50	+3"	A	8	4	-	•	-	-	-

BASIN SWEEPER FILTRATION SYSTEM

GENERAL NOTES:
A. ELECTRIC SERVICE - SINGLE POINT POWER CONNECTION TO UNIT. FACTORY WIRED TRANSFORMER FOR CONTROLS.
B. PUMPS SHALL BE FACTORY WIRED TO ASSOCIATED STARTER/DISCONNECT.
C. EACH PUMP ASSEMBLY SHALL INCLUDE ISOLATION VALVE ON INLET; GLOBE VALVE, CHECK VALVE, P/T TEST PLUG, AND ISOLATION VALVE ON DISCHARGE.
D. ALL SYSTEMS SHALL BE FITTED WITH 1 1/2" PURGE CONNECTION.
E. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR SEISMIC RESTRAINT; REQUIREMENTS.

NOTES:
1. NOT USED

Mark	DESCRIPTION	LOCATION ROOM NAME	PUMP GPM (EACH)	PUMP DUTY (PSIG)	PUMP MOTOR (HP. EACH)	PUMP VOLTAGE - PHASE	PIPING INLET SIZE	PIPING OUTLET SIZE	OVERALL DIMENSIONS LENGTH	OVERALL DIMENSIONS WIDTH	OVERALL DIMENSIONS HEIGHT	ELECTRICAL SERVICE VOLTAGE - PHASE	ELECTRICAL SERVICE MAX OVER CURRENT PROTECTION (MOOP)	ELECTRICAL SERVICE MINIMUM SCCR (AMPS)	MISC. CONCRETE PAD	MISC. CONTROL PANEL	SEISMIC RESTRAINTS REQUIRED	SEISMIC RESTRAINTS IMPORTANCE FACTOR	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	SEE NOTE
BSP-1	BASIN SWEEPER SYSTEM	CHILLER PLANT	311	50	10	460-3	4"	4"	33.25"	36.938"	61.75"	460-3			•	•	•	1.5	LAKOS	TCI-0280	

AUTOMATIC MAKE-UP WATER ASSEMBLIES

GENERAL NOTES:
A. ASSEMBLIES SHALL INCLUDE SHUT-OFF VALVE, STRAINER, UNION, PRESSURE REDUCING VALVE, UNION, CHECK VALVE, SHUT-OFF VALVE, SAFETY RELIEF VALVE, PRESSURE GAUGE, AND FULL SIZE BYPASS WITH GLOBE VALVE. REFER TO PIPING SCHEMATIC.
B. PIPE SAFETY RELIEF VALVE DISCHARGE TO SPILL OVER FLOOR DRAIN.
C. COORDINATE DOMESTIC WATER SOURCE AND BACKFLOW PREVENTION.

NOTES:
1.

MARK	SYSTEM	ASSEMBLY PIPE SIZE	PRESSURE REDUCING VALVE SIZE	PRESSURE REDUCING VALVE SET PRESSURE (PSIG)	SAFETY RELIEF VALVE SIZE	SAFETY RELIEF VALVE SET PRESSURE (PSIG)	BYPASS GLOBE VALVE SIZE	WATER METER	SEE NOTE
MU-1	CONDENSER WATER	4"	4"	32	4"	100	4	•	

WYE STRAINERS

GENERAL NOTES:
A. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR SEISMIC RESTRAINTS.

NOTES:
1. PROVIDE WITH BOLTED COVER AND FIELD INSTALLED DAVIT FOR LID REMOVAL.

Type Mark	SYSTEM	TYPE FLANGED	TYPE SUPPORT FROM FLOOR	TYPE SUPPORT FROM STRUCTURE	CAPACITY GPM	CAPACITY MAX. WATER PRESS. DROP (FT. HD.)	CAPACITY MINIMUM INLET SIZE	APPROXIMATE DIMENSIONS WIDTH	APPROXIMATE DIMENSIONS HEIGHT	APPROX. OPERATING WEIGHT (LBS.)	SEISMIC RESTRAINTS REQUIRED	SEISMIC RESTRAINTS IMPORTANCE FACTOR	SEE NOTE
BS-1	CONDENSER WATER	•	-	-	3,900.0	1.5	10"	22"	22"	436	•	1.5	1
BS-2	CONDENSER WATER	•	-	-	3,900.0	1.5	10"	22"	22"	436	•	1.5	1
BS-3	CONDENSER WATER	•	-	-	3,900.0	1.5	10"	22"	22"	436	•	1.5	1

CHEMICAL SHOT FEEDERS

GENERAL NOTES:
A. SHOT FEEDERS SHALL BE BYPASS TYPE AS SPECIFIED IN SPECIFICATION SECTION 23 25 00.

NOTES:
1. PROVIDE SHUT OFF VALVE ON INLET, AND SHUT-OFF AND BALANCING VALVES ON THE OUTLET.
2. REFER TO SPEC SECTION 23 25 00 FOR FILTER SIZE.

MARK	SYSTEM	CAPACITY (GALLONS)	INLET SIZE	OUTLET SIZE	DRAIN SIZE	FILTER (NOTE 2)	SEE NOTE
CSF-1	CONDENSER WATER	5	0.75"	0.75"	0.75"	-	1,2

COOLING TOWERS

GENERAL NOTES:
A. CAPACITY RATING BASED ON 78° WB OUTDOORS.
B. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES AND SEISMIC RESTRAINT REQUIREMENTS.
C. EQUIPMENT / VFD'S SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCCR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 26.
D. MAX UNIT HEIGHT DOES NOT INCLUDE SUPPORT STRUCTURE OR PAD.

NOTES:
1. INSULATE, JACKET, AND PROVIDE HEAT TRACING ON ALL EXTERIOR CONDENSER WATER, MAKE-UP WATER, STEAM, OVERFLOW, AND DRAIN PIPING. REFER TO SPECIFICATION SECTION 23 21 13 FOR DETAILED HEAT TRACING REQUIREMENTS.
2. FAN / MOTOR AND VFD SHALL ALLOW FOR REVERSE OPERATION TO ACCOMMODATE FREE-COOLING CYCLE. ALSO, INLET WEIRS SHALL INCLUDE BAFFLING AND OTHER NECESSARY ACCESSORIES TO ACCOMMODATE FREE-COOLING REDUCED-FLOW CONDITIONS.
3. OUTLET SHALL BE BOTTOM-OUTLET TYPE.
4. PROVIDE WITH STEAM MUFFLER FOR BASIN FREEZE PROTECTION. STEAM CAPACITY TO BE 58.8 LBS/HR PER CELL.
5. MAKE-UP WATER SOLENOID VALVES TO BE LOCATED IN ACCESSIBLE HEATED SPACE.
6. PROVIDE WITH SEISMIC RESTRAINED SPRING ISOLATORS EQUIVALENT TO THOSE SHOWN ON EXISTING CT-3.
7. OVERAL COOLING TOWER HEIGHT SHALL BE LEVEL WITH EXISTING TOWER CT-3. COORDINATE WITH STRUCTURAL.
8. PROVIDE WITH MANUFACTURER ACCESS DOOR PLATFORM AND LADDER.
9. MODIFY/REMOVE EXISTING ACCESS PLATFORM RAILING AND LADDER CAGE AS NEEDED TO MAINTAIN PROPER CLEARANCES BETWEEN NEW COOLING TOWER AND EXISTING CT-3.

MARK	SERVICE	TYPE DRY BASIN	TYPE WET BASIN	TYPE CROSS-FLOW	TYPE COUNTER-FLOW	TYPE INDUCED DRAFT	TYPE FORCED DRAFT	TYPE VERTICAL DISCHARGE	TYPE HORIZONTAL DISCHARGE	TYPE SINGLE CELL	TYPE DOUBLE CELL	CAPACITY NOMINAL TONS	CAPACITY GPM	CAPACITY ENTERING WATER TEMP. (°F)	CAPACITY LEAVING WATER TEMP. (°F)	FAN QUANTITY	FAN MOTOR (HP EACH)	FAN VOLTAGE - PHASE	FAN VARIABLE FREQUENCY DRIVE (EACH)	FAN MINIMUM SCCR (AMPS)	FAN SOUND RATING (dBA @ 3 FT.)	BASIN HEATER INTEGRAL CONTACTOR / DISC. SW.	DIMENSIONS MAX UNIT LENGTH	DIMENSIONS MAX UNIT WIDTH	DIMENSIONS MAX UNIT HEIGHT (NOTE D)	APPROX. OPERATING WEIGHT (LBS)	MAKE-UP WATER (GPM)	PIPE RUNOUT & CONNECTION SIZES INLET	PIPE RUNOUT & CONNECTION SIZES OUTLET (NOTE 3)	PIPE RUNOUT & CONNECTION SIZES OVERFLOW	PIPE RUNOUT & CONNECTION SIZES MAKE-UP WATER	PIPE RUNOUT & CONNECTION SIZES DRAIN	MISCELLANEOUS CONCRETE PAD	MISCELLANEOUS STRUCTURAL FRAMING	MISCELLANEOUS LADDER AND RAILING ASSEMBLY	MISCELLANEOUS WATER LEVEL CONTROLS	MISCELLANEOUS HEAT TRACE (NOTE 1)	MISCELLANEOUS FREE-COOLING CONTROLS (NOTE 2)	VIBRATION ISOLATOR TYPE	SEISMIC RESTRAINTS REQUIRED	SEISMIC RESTRAINTS IMPORTANCE FACTOR	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	SEE NOTE
CT-1	CHILLER #1,2,3	-	•	•	-	•	-	•	-	-	•	1300	3900	95	85	2	40	480 - 3	•	65K		-	28'-0"	22'-0"	15'-0"	58,780	31	10"	10"	4"	1"	4"	-	•	•	•	•	•	SS	•	1.5	MARLEY	NC8409TAN2	1,2,3,4,5,6,7,8
CT-2	CHILLER #1,2,3	-	•	•	-	•	-	•	-	-	•	1300	3900	95	85	2	40	480 - 3	•	65K		-	28'-0"	22'-0"	15'-0"	58,780	31	10"	10"	4"	1"	4"	-	•	•	•	•	•	SS	•	1.0	MARLEY	NC8409TAN2	ALL

HYDRONIC PUMPS

GENERAL NOTES:
A. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES AND SEISMIC RESTRAINT REQUIREMENTS.
B. VFD'S SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCCR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 26.
C. IF EC MOTORS ARE INDICATED OR SPECIFIED, EACH MOTOR SHALL BE PROVIDED WITH FACTORY DISCONNECTING MEANS, INTERNAL OVERLOAD PROTECTION, FIELD ADJUSTABLE SPEED CONTROL, AND REMOTE ANALOG SPEED CONTROL INPUT WHEN REMOTE CONTROL IS SPECIFIED, COORDINATED WITH THE BUILDING AUTOMATION SYSTEM.
D. PUMPS REQUIRED TO HAVE A PUMP EFFICIENCY INDEX (PEI) RATING PER DOE MANDATES SHALL BE FACTORY LABELED WITH THEIR RATING. PEIVL RATINGS ARE FOR PUMPS WITH EC MOTORS OR FACTORY-MOUNTED VFD 'S. PEICL RATINGS ARE FOR PUMPS WITHOUT EC MOTORS OR FOR PUMPS WITH REMOTE MOUNTED VFD'S.

NOTES:
1.

Mark	DESCRIPTION	SERVICE	PERFORMANCE GPM	PERFORMANCE MIN. REQUIRED FT. HD.	MOTOR HORSEPOWER (HP)	MOTOR VOLTAGE - PHASE	MOTOR RPM	MOTOR ELECTRONICALLY COMMUTATED	MOTOR ECM MCA (AMPS, TOTAL)	MOTOR ECM MOCP (AMPS, TOTAL)	MOTOR VARIABLE FREQUENCY DRIVE	MOTOR MINIMUM SCCR (AMPS)	MINIMUM PUMP EFFICIENCY (%)	MAXIMUM PEI (CL)	MAXIMUM PEI (VL)	PUMP SUCTION SIZE	PUMP DISCHARGE SIZE	VIBRATION ISOLATOR TYPE	SEISMIC RESTRAINTS REQUIRED	SEISMIC RESTRAINTS IMPORTANCE FACTOR	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	SEE NOTE
CWP-1	CONDENSER WATER PUMP	COOLING TOWERS 1,2,3	3,900.0	95	125	460-3	1780	-			•		83.88	0.96		12"	10"	I	-	-	GRUNDFOS	1012-1/2 KP	
CWP-2	CONDENSER WATER PUMP	COOLING TOWERS 1,2,3	3,900.0	95	125	460-3	1780	-			•		83.88	0.96		12"	10"	I	-	-	GRUNDFOS	1012-1/2 KP	
CWP-3	CONDENSER WATER PUMP	COOLING TOWERS 1,2,3	3,900.0	95	125	460-3	1780	-			•		83.88	0.96		12"	10"	I	-	-	GRUNDFOS	1012-1/2 KP	

FANS

GENERAL NOTES:
A. ALL FANS SHALL BE A.M.C.A. 211 AND 311 PERFORMANCE CERTIFIED AND SHALL BEAR THE A.M.C.A. LABEL.
B. SONES VALUES BASED ON A.M.C.A. 301 MEASURED AT 5 FT.
C. MOTOR HORSEPOWERS LISTED SHALL BE CONSIDERED MINIMUM.
D. ROOF & WALL OPENINGS ARE APPROX. VERIFY SIZE & COORDINATE.
E. COORDINATE STEEL FRAMING AROUND ROOF OPENING WHERE REQUIRED FOR DECK SUPPORT, AND WALL LINTELS FOR WALL OPENINGS.
F. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES AND SEISMIC RESTRAINT REQUIREMENTS.
G. VFD'S SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCCR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 26.
H. IF EC MOTORS ARE INDICATED OR SPECIFIED, EACH MOTOR SHALL BE PROVIDED WITH FACTORY DISCONNECTING MEANS, INTERNAL OVERLOAD PROTECTION, FIELD ADJUSTABLE SPEED CONTROL, AND REMOTE ANALOG SPEED CONTROL INPUT WHEN REMOTE CONTROL IS SPECIFIED, COORDINATED WITH THE BUILDING AUTOMATION SYSTEM.

NOTES:
1. FAN SHALL BE WIRED AND CONNECTED TO EXISTING EXHAUST HOOD CONTROLS AS EXISTING MAF-2.

Mark	TYPE (REFER TO SPECS)	DESCRIPTION	SERVICE	CONNECTED CFM	FAN CFM	STATIC PRESSURE (IN. W.C.)	APPROX. WHEEL DIAMETER	MAXIMUM SONES	MOTOR HORSEPOWER (HP)	MOTOR VOLTAGE - PHASE	MOTOR ELECTRONICALLY COMMUTATED	MOTOR ECM MCA (AMPS, TOTAL)	MOTOR ECM MOCP (AMPS, TOTAL)	MOTOR VARIABLE FREQUENCY DRIVE	MOTOR MINIMUM SCCR (AMPS)	APPROX. ROOF/WALL OPENING	APPROX. WEIGHT (LBS.)	VIBRATION ISOLATOR TYPE	SEISMIC RESTRAINTS REQUIRED	SEISMIC RESTRAINTS IMPORTANCE FACTOR	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	SEE NOTE
MAF-2	POWERED ROOF VENTILATOR	ROOF SUPPLY FAN	EXISTING KITCHEN HOOD	1,400	1400	1.0	-	12.4	1/2	115 -1	-	12.25	25	-		15" x 15"	178	D	-	-	GREENHECK	RSF-90	

FLOW METERS

GENERAL NOTES:
A. METERS SHALL BE PROVIDED WITH 120V-1PH POWER CONNECTION. PROVIDE TRANSFORMER IF REQUIRED.
B. PROVIDE REQUIRED UPSTREAM AND DOWNSTREAM STRAIGHT PIPE LENGTHS PER MANUFACTURER'S INSTRUCTIONS.
C. MEASUREMENTS / READINGS SHALL BE OUTPUT TO THE B.A.S. COORDINATE SIGNAL TYPE AND UNITS WITH THE B.A.S.
D. REFER TO FLOW METER DETAIL FOR ADDITIONAL INFORMATION.

NOTES:
1.

MARK	Mark	SYSTEM	LOCATION ROOM NUMBER	METER TYPE SINGLE TURBINE	METER TYPE DUAL TURBINE	METER TYPE ELECTROMAGNETIC	METER TYPE ULTRASONIC	METER TYPE VORTEX MASS	METER TYPE THERMAL MASS	INSTALLATION TYPE INSERTION (STANDARD)	INSTALLATION TYPE INSERTION (HOT TAP)	INSTALLATION TYPE INLINE	INSTALLATION TYPE CLAMP-ON	DUTY MEDIUM HOT WATER	DUTY MEDIUM CHILLED WATER	DUTY MEDIUM CONDENSER WATER	DUTY MEDIUM SATURATED STEAM	DUTY MEDIUM SUPER-HEATED STEAM	DUTY MEDIUM DOMESTIC COLD WATER	DUTY MEDIUM DOMESTIC HOT WATER	DUTY MEDIUM DOMESTIC HOT WATER RETURN	DUTY MEDIUM STEAM CONDENSATE	DUTY FLOW RATE MIN / MAX	DUTY FLOW RATE UNITS	DUTY BI-DIRECTIONAL	DUTY MIN SYSTEM TEMP (°F)	DUTY MAX SYSTEM TEMP (°F)	DUTY MAX SYSTEM PRESSURE (PSIG)	DUTY MAX PRESSURE DROP (PSI)	PIPE SIZE	METER SIZE	REMOTE BTU METER (NOTE 1)	INTEGRAL BTU METER (NOTE 2)	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	SEE NOTE
FM-1	FM-1	CONDENSER WATER		-	-	•	-	-	-	•	-	-	-	-	-	•	-	-	-	-	-	-	7800	1	-	44	95		0.1	24"	3"	-	-	ONICON	F-3500	-

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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LEGEND-
AUTOMATIC TEMPERATURE CONTROLS

XX-01	CONTROL POINT - SEE POINTS SCHEDULE
AI	ANALOG INPUT
AO	ANALOG OUTPUT
BI	BINARY INPUT
BO	BINARY OUTPUT
PI	PULSED INPUT
OAT	OUTSIDE AIR TEMPERATURE
MAT	MIXED AIR TEMPERATURE
RAT	RETURN AIR TEMPERATURE
SAT	SUPPLY AIR TEMPERATURE
CCAT	COOLING COIL LEAVING AIR TEMPERATURE
HCAT	HEATING COIL LEAVING AIR TEMPERATURE
OAHY	OUTSIDE AIR HUMIDITY
RAH	RETURN AIR HUMIDITY
SAH	SUPPLY AIR HUMIDITY
NC	NORMALLY CLOSED (CLOSES ON LOSS OF POWER)
NO	NORMALLY OPEN (OPENS ON LOSS OF POWER)
L	LOW
H	HIGH
C	COMMON
	2-WAY AUTOMATIC 2-POSITION CONTROL VALVE
	3-WAY AUTOMATIC 2-POSITION CONTROL VALVE
	2-WAY AUTOMATIC MODULATING CONTROL VALVE
	3-WAY AUTOMATIC MODULATING CONTROL VALVE
	AUTOMATIC PRESSURE INDEPENDENT CONTROL VALVE
	DIFFERENTIAL PRESSURE SENSOR
	DIFFERENTIAL PRESSURE SWITCH
C	CARBON DIOXIDE SENSOR
CO	CARBON MONOXIDE SENSOR
CS	CURRENT SENSOR TRANSMITTER
EPT	ELECTRONIC TO PNEUMATIC TRANSDUCER
FM	FLOW METER TRANSMITTER
H	HUMIDITY SENSOR
LC	LEVEL CONTROLLER
LT	LEVEL TRANSMITTER
P	PRESSURE SENSOR
SP	STATIC PRESSURE SENSOR
T	TEMPERATURE SENSOR
WF	WATER FLOW SENSOR
WL	WATER LEVEL SENSOR
CS	CURRENT SWITCH
ES	END SWITCH
FS	FLOW SWITCH
H	HUMIDISTAT
OS	OCCUPANCY SENSOR
P HL	PRESSURE SWITCH, HIGH LIMIT
P LL	PRESSURE SWITCH, LOW LIMIT
T LL	TEMPERATURE LOW LIMIT (FREEZE STAT)
T	ROOM THERMOSTAT
WL	WATER LEVEL SWITCH
	EMERGENCY SHUT-OFF STATION

LEGEND-
AUTOMATIC TEMPERATURE CONTROLS

AFMS	AIR FLOW MEASURING STATION
VFD	VARIABLE FREQUENCY DRIVE (ADJUSTABLE FREQUENCY MOTOR CONTROLLER)
MS	MOTOR STARTER
CON	CONTACTOR
TCP	LOCAL TEMPERATURE CONTROL PANEL
PSH	PRESSURE SAFETY - HIGH
PSL	PRESSURE SAFETY - LOW
SD	SMOKE DETECTOR
M	DAMPER OR VALVE ACTUATOR - MODULATING
M	DAMPER OR VALVE ACTUATOR - 2-POSITION
R	RELAY
UV	UVGI LIGHT
	PUMP
	FAN
	COOLING COIL
	HEATING COIL
	HUMIDIFIER
	FILTER
	ENERGY RECOVERY WHEEL
	OPPOSED BLADE CONTROL DAMPER
	PARALLEL BLADE CONTROL DAMPER
SD	SMOKE DAMPER
ECON M / MIN M	MIN OA / ECON DAMPER
R	DX COIL
X	WALL MOUNTED DEVICE
X	DUCT INSERTION DEVICE
X	PIPE INSERTION OR IMMERSION DEVICE WITH WELL
X	AVERAGING SENSOR OR DEVICE
X	OUTDOOR SENSOR OR DEVICE, SHIELDED
X x Y	FAN ARRAY, "X" FANS VERTICAL x "Y" FANS HORIZONTAL

GENERAL NOTES-
AUTOMATIC TEMPERATURE CONTROLS

A. A COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROLS SHALL BE INSTALLED AS REQUIRED TO ACCOMPLISH THE SEQUENCE OF CONTROL FOR VARIOUS ITEMS OF EQUIPMENT AND SYSTEMS DESCRIBED HEREINAFTER. THE SYSTEM SHALL BE A DIRECT DIGITAL CONTROL SYSTEM UTILIZING ELECTRIC OR PNEUMATIC ACTUATION AS DEFINED IN THE SPECIFICATIONS.

B. THE CONTROL DIAGRAMS AND INFORMATION CONTAINED WITHIN ARE TO SHOW DESIGN INTENT. IT IS THE CONTROL SYSTEM SUPPLIERS RESPONSIBILITY TO DEVELOP DETAILED AND COMPLETE CONTROL DIAGRAMS AND SHOP DRAWINGS TO ACCOMPLISH THE SPECIFIED SEQUENCES.

C. THE POINTS LIST IS SHOWN AS AN AID TO THE CONTRACTOR INDICATING THE MINIMUM POINTS REQUIRED FOR CONTROL, AND MONITORING. ALL INPUT AND OUTPUT POINTS, AND THEIR REQUIRED INTERFACE AND ACCESSORY HARDWARE, SHALL BE PROVIDED FOR A COMPLETE AND FUNCTIONAL CONTROL SYSTEM. IF OR WHEN ADDITIONAL POINTS ARE REQUIRED TO ACCOMPLISH THE SEQUENCES OF CONTROL SPECIFIED, THESE POINTS, ALONG WITH ADDITIONAL DIRECT DIGITAL CONTROL PANE(S) (IF REQUIRED), SHALL ALSO BE PROVIDED.

D. BULB WELLS FOR TEMPERATURE SENSING AS INDICATED SHALL BE PROVIDED BY THE HVAC CONTRACT. PIPING WORK SHALL INCLUDE PROPERLY SIZED WELDOLET OR THREADOLET FITTINGS PLACED AS DIRECTED BY THE CONTROL SYSTEM SUPPLIER.

E. ELECTRICAL WORK INCLUDES A POWER SOURCE TO THE MOTOR STARTERS. PROVIDE ALL HVAC POWER SOURCES REQUIRED BEYOND THESE STARTERS OR BEYOND SOURCES EXPLICITLY SHOWN ON THE ELECTRICAL DRAWINGS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO WIRING, CONDUIT, TRANSFORMERS, RELAYS AND FUSES.

F. THE FOLLOWING CONTROL SEQUENCES HAVE BEEN WRITTEN TO COMMUNICATE THE DESIGN INTENT REGARDING EQUIPMENT CONTROL. DESIGN INTENT FOCUSES ON THE SEQUENCE OF DEVICES (FOR EXAMPLE, TO UTILIZE ECONOMIZER BEFORE MECHANICAL COOLING), CONTROLLING INPUTS (FOR EXAMPLE, TO CONTROL THE COOLING COIL TO THE SUPPLY AIR TEMPERATURE), AND DESIRED RESULT (FOR EXAMPLE, TO MAINTAIN SUPPLY AIR TEMPERATURE AT THE EFFECTIVE SETPOINT).

G. CONTROL SEQUENCES SHOULD BE REGARDED AS PERFORMANCE BASED, WITH STRICT ADHERENCE TO THE SPECIFIED LANGUAGE NOT ALWAYS REQUIRED. MANY COMBINATIONS OF LOGIC CAN RESULT IN THE DESIRED CONTROL. ALTERNATE LOGIC THAT RESULTS IN THE SAME PERFORMANCE AND ENERGY USAGE AS SPECIFIED IS CONSIDERED ACCEPTABLE. ALTERNATE LOGIC CREATING SIMULTANEOUS HEATING/COOLING OR UNSTABLE CONTROL IS NOT ACCEPTABLE.
   1. "MODES" WHERE SPECIFIED ARE USED TO SIGNAL MAJOR CHANGES TO EQUIPMENT OPERATED (I.E. OCCUPIED/UNOCCUPIED/OPTIMAL START, HEATING/COOLING, ETC.).
   2. "RESETS" WHERE SPECIFIED ARE USED TO CHANGE A SETPOINT VALUE DYNAMICALLY. RESETS SHOULD BE BOUND BY THE MINIMUM AND MAXIMUM VALUES AT ALL TIMES. SIMPLE LINEAR/PROPORTIONAL BASED RESETS ARE ONLY ALLOWED WHERE SPECIFIED. OTHERWISE A FEEDBACK-BASED ALGORITHM IS REQUIRED (I.E. PID OR TRIM AND RESPOND).
   3. "LOOPS" WHERE SPECIFIED ARE USED TO INDICATE USE OF PID ALGORITHMS TO HOLD AN INPUT SIGNAL AT A SPECIFIED SETPOINT WITHOUT SIGNIFICANT LONG-TERM DEVIATION FROM SETPOINT. SIMPLE ERROR-BASED PROPORTIONAL CONTROL IS NOT ACCEPTABLE.
   4. "SEQUENCING" WHERE SPECIFIED IS USED TO CONTROL THE ORDER OF COMPONENTS ENGAGED TO SATISFY A CERTAIN CONDITION. FOR INSTANCE, A HEATING COIL, ECONOMIZER, AND COOLING COIL ALL AFFECT THE SUPPLY AIR TEMPERATURE. SO THEY MUST BE SEQUENCED TO MAXIMIZE ENERGY AND ELIMINATE SIMULTANEOUS HEATING AND COOLING. GRAPHICAL REPRESENTATION OF LOOPS AND SEQUENCING HAS BEEN INCLUDED FOR CLARITY FOR MANY ITEMS.

H. ANALOG OUTPUTS SHOULD BE CONTROLLED BASED UPON THE LOOPS AND SEQUENCING AS SPECIFIED. REQUIRED LOGIC TO ENSURE OUTPUTS ACT UPON SAFETIES, MODES, OR OTHER INTERLOCKING LOGIC IS THE RESPONSIBILITY OF THE CONTROL CONTRACTOR. EFFORTS TO STATE INTERLOCKING CONDITIONS HAVE BEEN MADE, BUT IT IS THE ULTIMATE RESPONSIBILITY OF THE CONTROL CONTRACTOR TO ENSURE OUTPUTS ARE COMMANDED APPROPRIATELY DURING ALL CONDITIONS.

I. IT IS NOT THE INTENT OF THE DESIGN SEQUENCES TO SPECIFY EVERY CONTROL ELEMENT REQUIRED FOR STABLE CONTROL. TRANSITION BETWEEN MODES OR SEQUENCING OF OUTPUTS OFTEN REQUIRES DELAYS, RAMPS, RESETS, OR OTHER LOGIC ELEMENTS TO ENSURE STABLE AND SMOOTH CONTROL. IT IS THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR TO TEST EQUIPMENT THOUGH ALL TRANSITIONS, ADDING LOGICAL CONTROL ELEMENTS AS REQUIRED TO ENSURE STABLE PERFORMANCE.

J. IT IS ALSO THE RESPONSIBILITY OF THE CONTROL CONTRACTOR TO TUNE ALL LOOPS INITIALLY DURING START UP AND SUBSEQUENTLY THOUGH OPERATION OF THE BUILDING AND VARIOUS WEATHER CONDITIONS. AT MINIMUM, PID TUNING SHOULD BE EVALUATED DURING START-UP AND OCCUPIED SUMMER, WINTER, AND SHOULDER SEASONS.

K. UNDERSTANDING THE ABOVE INFORMATION, CONTROL CONTRACTORS ARE REQUIRED TO SUBMIT SEQUENCES OF OPERATION AS THEY INTEND TO PROGRAM THEIR CONTROLLERS. SIMPLY COPYING-AND-PASTING OF THE DESIGN SEQUENCES WILL BE FLAGGED IN SUBMITTAL REVIEW AS NOT CONFORMING TO THE INTENT OF THE SUBMITTAL. THE SEQUENCE OF OPERATION INCLUDED IN THE CONTROL SUBMITTAL SHOULD DOCUMENT THE CONTROL SEQUENCE "AS PROGRAMMED" IN A WRITTEN FORMAT FOR ENGINEER REVIEW AND FINALIZED POST CONSTRUCTION IN AS-BUILTS FOR OWNER REFERENCE.

L. SUBMIT POINTS LIST TO OWNER FOR EQUIPMENT THAT IS PROVIDED WITH LON/BACNET/MODBUS INTEGRATION CARDS. INTEGRATION SHALL BE PERFORMED AT STARTUP BETWEEN MANUFACTURER'S EQUIPMENT REPRESENTATIVE AND CONTROLS CONTRACTOR.

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

FFE | HEAPY

STAMP

NOT FOR CONSTRUCTION

VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: MECHANICAL CONTROLS

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: DTR | Drawn: DAG

Project Number: 626-24-203

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Drawing Number: M701

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/2024-6624-MEP-Central.rvt
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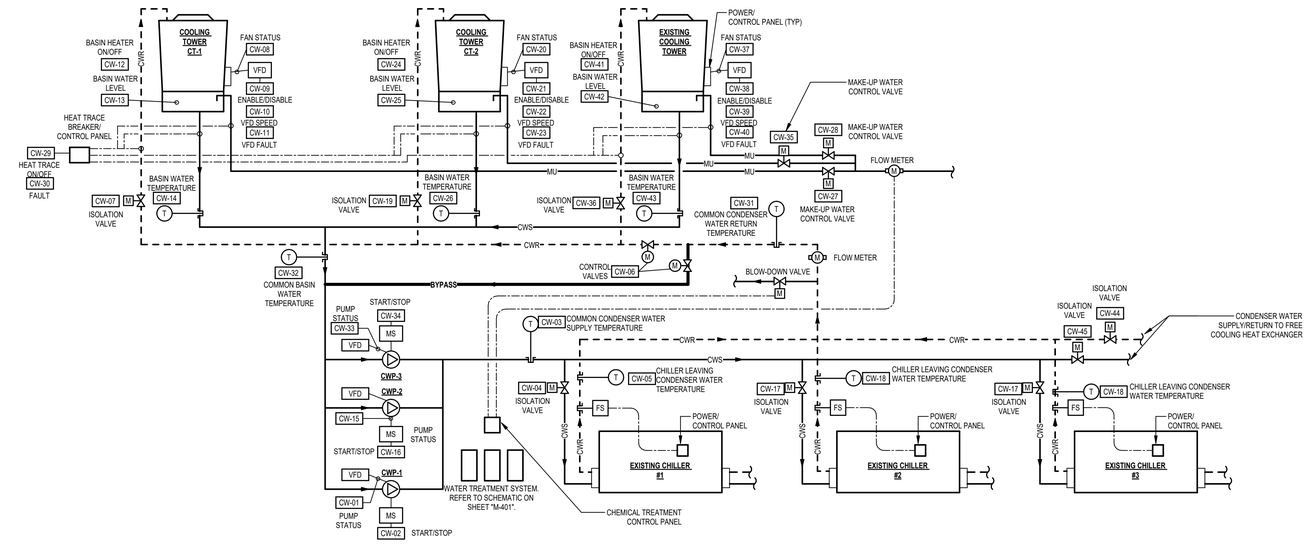


CONDENSER WATER SYSTEM POINTS LIST SCHEDULE

GENERAL NOTES:
A. THE FOLLOWING LIST SHALL BE THE MINIMUM POINTS REQUIRED OF THE DIRECT DIGITAL CONTROL SYSTEM (BUILDING AUTOMATION SYSTEM). IT IS NOT THE INTENT TO SHOW ALL REQUIRED POINTS. IF OR WHEN ADDITIONAL POINTS ARE REQUIRED TO ACCOMPLISH THE SEQUENCES OF CONTROL SPECIFIED, THOSE POINTS SHALL ALSO BE PROVIDED.

NOTES:
1. CURRENT SENSOR.
2. COORDINATE WITH HEAT TRACE SUPPLIER.
3. COORDINATE WITH TOWER AND VFD MFRS.

POINT NO.	CW-01	CW-02	CW-03	CW-04	CW-05	CW-06	CW-07	CW-08	CW-09	CW-10	CW-11	CW-12	CW-13	CW-14	CW-15	CW-16	CW-17	CW-18	CW-19	CW-20	CW-21	CW-22	CW-23	CW-24	CW-25	CW-26	CW-27	CW-28	CW-29	CW-30	CW-31	CW-32	CW-33	CW-34	CW-35	CW-36	CW-37	CW-38	CW-39	CW-40	CW-41	CW-42	CW-43	CW-44	CW-45
POINT NAME	CONDENSER WATER PUMP (CWP-1) STATUS	CONDENSER WATER PUMP (CWP-1) START/STOP	COMMON CONDENSER WATER SUPPLY TEMPERATURE	CHILLER (WC-1) CONDENSER WATER ISOLATION AUTO VALVE	CHILLER (WC-1) LEAVING CONDENSER WATER TEMPERATURE	CONDENSER WATER SYSTEM TOWER BYPASS CONTROL VALVE(S)	COOLING TOWER (CT-1) ISOLATION AUTO VALVE	COOLING TOWER (CT-1) FAN STATUS	COOLING TOWER (CT-1) ENABLE/DISABLE	COOLING TOWER (CT-1) VFD SPEED	COOLING TOWER (CT-1) VFD FAULT	COOLING TOWER (CT-1) BASIN STEAM HEATER ON/OFF	COOLING TOWER (CT-1) BASIN WATER LEVEL	COOLING TOWER (CT-1) BASIN LEAVING WATER TEMPERATURE	CONDENSER WATER PUMP (CWP-2) STATUS	CONDENSER WATER PUMP (CWP-2) START/STOP	CHILLER (WC-2) CONDENSER WATER ISOLATION AUTO VALVE	CHILLER (WC-2) LEAVING CONDENSER WATER TEMPERATURE	COOLING TOWER (CT-2) ISOLATION AUTO VALVE	COOLING TOWER (CT-2) FAN STATUS	COOLING TOWER (CT-2) ENABLE/DISABLE	COOLING TOWER (CT-2) VFD SPEED	COOLING TOWER (CT-2) VFD FAULT	COOLING TOWER (CT-2) BASIN HEATER ON/OFF	COOLING TOWER (CT-2) BASIN WATER LEVEL	COOLING TOWER (CT-2) BASIN LEAVING WATER TEMPERATURE	COOLING TOWER (CT-1) MAKE-UP WATER CONTROL VALVE	COOLING TOWER (CT-2) MAKE-UP WATER CONTROL VALVE	OUTDOOR CONDENSER WATER SYSTEM HEAT TRACE-ON/OFF	OUTDOOR CONDENSER WATER SYSTEM HEAT TRACE-FAULT	COMMON CONDENSER WATER RETURN TEMPERATURE	COMMON BASIN WATER TEMPERATURE	CONDENSER WATER PUMP (CWP-2) START/STOP	CONDENSER WATER PUMP (CWP-2) STATUS	COOLING TOWER (CT-3) MAKE-UP WATER CONTROL VALVE	COOLING TOWER (CT-3) ISOLATION AUTO VALVE	COOLING TOWER (CT-2) FAN STATUS	COOLING TOWER (CT-2) ENABLE/DISABLE	COOLING TOWER (CT-2) VFD SPEED	COOLING TOWER (CT-2) VFD FAULT	COOLING TOWER (CT-2) BASIN HEATER ON/OFF	COOLING TOWER (CT-2) BASIN WATER LEVEL	COOLING TOWER (CT-2) BASIN LEAVING WATER TEMPERATURE	COOLING TOWER (CT-3) MAKE-UP WATER CONTROL VALVE	COOLING TOWER (CT-3) MAKE-UP WATER CONTROL VALVE
TYPE	BI	BO	AI	BO	AI	AO	BO	BI	BO	AO	BI	BO	AI	AI	BI	BO	BO	AI	BO	BI	BO	AO	BI	BO	AI	AI	BI	BO	BO	BO	BI	AI	AI	BI	BO	BO	BO	BI	BO	AO	BI	BO	AI	AI	BO	BO
ALARM	ON FAILURE		HIGH/LOW		HIGH/LOW			ON FAILURE			ON TRIP		HIGH/LOW	HIGH/LOW	ON FAILURE			HIGH/LOW		ON FAILURE			ON TRIP		HIGH/LOW	HIGH/LOW					ON TRIP	HIGH/LOW	HIGH/LOW	ON FAILURE				ON FAILURE			ON TRIP		HIGH/LOW	HIGH/LOW		
NOTES	1							1,3	3	3	3				1					1,3	3	3	3								2			1				1,3	3	3	3						

CONDENSER WATER SYSTEM ATC DIAGRAM

SCALE: NONE

CONDENSER SYSTEM CONTROL SEQUENCE

1. PREAMBLE:

IT IS THE INTENT THAT THE EXISTING BMS CONTROLS BE MODIFIED AND/OR EXPANDED TO ACCOMPLISH THE SEQUENCES OF CONTROL. EXISTING SENSORS MAY BE RE-USED IF IN GOOD WORKING ORDER, AT THE DISCRETION OF CONTROLS CONTRACTOR. EXISTING CONTROL VALVES SHALL REMAIN UNLESS FOUND IN DISREPAIR OR INDICATED TO BE REPLACED. THE CONTROLS SHALL PROVIDE COMPLETE AND FUNCTIONAL SYSTEMS, WITH ANY REQUIRED SCHEDULING COORDINATED WITH THE HOSPITAL. COMPLETE SCOPE OF WORK SHALL BE MADE DURING THE BIDDING PERIOD.

2. SYSTEM DESCRIPTION:

THE COOLING TOWER SYSTEM CONSISTS OF THREE (3) OPEN CELL SINGLE-FAN COOLING TOWERS WITH WET BASINS WITH STEAM HEATERS, VARIABLE SPEED FANS. CONDENSER WATER PUMPS, HEAT TRACING AND MAKE-UP WATER CONTROLS. REFER TO THE DRAWINGS FOR DETAILS.

3. SYSTEM ENABLE AND INTERLOCK CONDITIONS:

THE COOLING TOWER SYSTEM SHALL BE ENABLED WHENEVER A CHILLER IS ENABLED. THE LEAD TOWER AUTO ISOLATION VALVES SHALL REMAIN OPEN AT ALL TIMES. WHEN THE LEAD CHILLER AND/OR 1ST LAG CHILLER ARE ENABLED, THE 1ST LAG TOWER ISOLATION VALVES SHALL BE OPENED. WHEN THE 2ND LAG CHILLER IS ENABLED, THE 2ND LAG TOWER ISOLATION VALVES SHALL BE OPENED. THE LINE-SIZE 2-POSITION AUTO ISOLATION VALVE AT EACH TOWER SHALL BE FURNISHED BY THE ATC. EXCEPT WHEN IN COLD-WEATHER OPERATION, IT IS THE INTENT TO OPERATE 2 TOWERS EVEN IF ONLY ONE CHILLER IS OPERATING, PER ASHRAE 90.1 ENERGY CONSERVATION GUIDELINES, AND 3 TOWERS WHEN 2 CHILLERS ARE OPERATING.

4. TOWER SYSTEM SEQUENCING CONTROL:

WHEN THE LEAD CHILLER IS ENABLED, THE LEAD TOWER AUTO ISOLATION VALVES SHALL REMAIN OPEN AND THE 1ST LAG TOWER ISOLATION VALVES SHALL BE OPENED UNLESS DIRECTED OTHERWISE BELOW. IF THE COMMON CONDENSER WATER SUPPLY TEMPERATURE FROM THE TOWERS (CWFT) IS 3 DEGREES BELOW SETPOINT, TOWER FANS SHALL BE "OFF". WHEN THE CWFT RISES TO SET POINT, START AND RAMP LEAD TOWER FAN TO MINIMUM SPEED (12 HZ, VERIFY WITH TOWER SUPPLIER). THEN MODULATE FAN SPEEDS BETWEEN MINIMUM SPEED AND 60 HZ TO MAINTAIN THE CWFT SETPOINT. IF LEAD FAN REACHES 50 HZ OR GREATER FOR 10 MINUTES, RAMP LAG FAN UP AND RUN BOTH FANS IN PARALLEL TO MAINTAIN CWFT SET POINT. STAGE OFF 1ST LAG TOWER FAN WHEN FAN SPEEDS DROP BELOW 15 HZ FOR 10 MINUTES.
WHEN THE 1ST LAG CHILLER IS ENABLED, THE 2ND LAG TOWER ISOLATION VALVES SHALL OPEN. IF LEAD AND 1ST LAG TOWER FANS REACH 50 HZ OR GREATER FOR 10 MINUTES, RAMP 2ND LAG TOWER FAN UP AND RUN ALL THREE FANS IN PARALLEL TO MAINTAIN CWFT SET POINT. STAGE OFF 2ND LAG TOWER FAN WHEN FAN SPEEDS DROP BELOW 15 HZ FOR 10 MINUTES. AFTER 10 MINUTES STAGE OFF 1ST LAG TOWER FAN WHEN FAN SPEEDS DROP BELOW 15 HZ FOR 10 MINUTES.
WHEN THE 2ND LAG CHILLER IS ENABLED, ALL 3 TOWER FANS SHALL BE STAGED IN SERIES AS DESCRIBED ABOVE TO MAINTAIN THE CWFT SETPOINT.
(NOTE THAT ASHRAE 90.1 REQUIRES AS MANY TOWERS TO OPERATE AS POSSIBLE AS LONG AS WITHIN THE PERFORMANCE CHARACTERISTIC OF THE TOWERS. EACH TOWER IS DESIGNED TO PERFORM DOWN TO AS LITTLE AS 50% WATER FLOW, THUS MORE TOWERS ARE TO OPERATE EVEN WITH LESSER QUANTITY OF CHILLERS OPERATING. THIS DOES NOT APPLY DURING COLD WEATHER OPERATION AS DESCRIBED BELOW).
REVERSE SEQUENCES AS CHILLERS ARE STAGED OFF. HOWEVER, WHEN CLOSING TOWER ISOLATION VALVES, CLOSE THE VALVE SERVING THE HOT BASIN FIRST, AND CLOSE THE COLD WATER BASIN VALVE 30 SECONDS LATER (TO ALLOW THE WATER IN THE FILL TO DRAIN AND NOT OVERFLOW THE TOWER)
PROVIDE LEAD-LAG SELECTOR PROGRAM TO ALTERNATE LEAD TOWERS MONTHLY. START "NEW LEAD" TOWER BEFORE TURNING OFF "CURRENT LEAD" TOWER. ALSO, START A LAG TOWER ON FAILURE OF A RUNNING TOWER.

5. CONDENSER WATER SETPOINT CONTROL:

THE CWFT SETPOINT SHALL BE RESET BASED ON THE FOLLOWING SCHEDULE:
78 DEG F WB AND ABOVE OUTDOORS --CWFT SETPOINT SHALL BE 85 DEG F OUTDOOR WB 'S BELOW 78 --CWFT SETPOINT SHALL BE OUTDOOR WB PLUS 7 DEGREES, BUT NO COOLER THAN 70 DEG F

6. SYSTEM BYPASS VALVES (COLD WEATHER OPERATION):

THERE ARE TWO SETS OF EXISTING BYPASS VALVES. ONE SET FOR CHILLERS #1 AND #2, AND ONE SET FOR CHILLER #4. BOTH SETS ARE TO BE CONTROLLED SIMILARLY AS FOLLOWS:
THE COOLING TOWER BYPASS VALVES ARE ARRANGED TO BYPASS (DIVERT WATER) FROM THE COOLING TOWER(S) WHEN THE CWFT FALLS BELOW 60 DEGREES F. REFER TO DRAWINGS FOR VALVE ARRANGEMENT. THE CONTROL SHALL BE TWO-POSITION SUCH THAT THE SETS OF VALVES SHALL STAY IN BYPASS UNTIL AN ASSOCIATED CHILLER'S LEAVING CONDENSER WATER TEMPERATURE RISES ABOVE 75 DEGF AT WHICH TIME THE ASSOCIATED BYPASS VALVES SHALL BE REPOSITIONED TO FLOW FULLY FLOW TO THE COOLING TOWERS. ONLY THE LEAD TOWER SHALL OPERATE DURINGTHIS COLD WEATHER OPERATION. THE LEAD COOLING TOWER FAN SHALL NOT RUN WHEN FLOW BYPASSES THE TOWER(S), HOWEVER THE ISOLATION VALVE(S) SHALL REMAIN OPEN.

7. MAKE-UP WATER AND METER:

MONITOR THE TOWER BASINS WATER LEVELS AND OPEN THE ASSOCIATED TOWER 'S MAKE-UP WATER VALVE 50% WHEN THE WATER LINE DROPS TO THE "LOW-FILL" WATER LEVEL POINT DURING PLANT OPERATION, 75% OPEN WHEN AT "LOW" POINT AND 100% WHEN THE WATER LINE DROPS TO THE "LOW-LOW" WATER LEVEL POINT. CLOSE THE VALVE 100% WHEN THE WATER LINE REACHES THE HIGH-FILL WATER LEVELPOINT.
THE BAS SHALL MONITOR AND RECORD THE WATER METER DATA, AND ALARM EXCESS USE.

8. BASIN HEATERS:

BASIN HEATERS ARE BEING FURNISHED WITH THE COOLING TOWERS. PROVIDE ON/OFF CONTROL BASED ON AMBIENT AIR TEMPERATURE ("ON"WHEN OA TEMPERATURE IS BELOW 38 DEGF). ALSO MONITOR THE ELECTRICAL CIRCUIT AND PROVIDESTATUS TO THE BAS. ALARM IF NOT "ON" WHEN BELOW OA TEMPERATURE SETPOINT.
IF A TOWER'S BASIN HEATER IS IN FAULT, ALARM THE BAS AND THAT TOWER SHALL BECOME THE LEAD TOWER. (SO WATER IS NOT SITTING STAGNANT FOR LONG PERIODS OF TIME).

9. HEAT TRACING:

FOUR (4) ZONES OF HEAT TRACING ARE BEING INSTALLED, EACH WITH A MONITORING CONTROLLER AND SYSTEM STATUS INTERFACE FOR THE BAS. INTERFACE WITH EACH ZONE TO TURN ON WHEN THE OA TEMP IS BELOW 38 DEGF. AND TO RECEIVE STATUS / FAULT INFORMATION FROM EACH CONTROLLER. IN ADDITION, MONITOR THE ELECTRICAL CIRCUITS AND PROVIDE INDEPENDENT STATUS'S TO THE BAS. ALARM IF NOT "ON" WHEN BELOW OA TEMPERATURE SETPOINT.
IF A TOWER'S HEAT TRACING IS IN FAULT, ALARM THE BAS AND THAT TOWER SHALL BECOME THE LEAD TOWER (SO WATER IS NOT SITTING STAGNANT FOR LONGPERIODS OF TIME).

10. TOWER BASIN DRAINS:

EACH TOWER BASIN IS PIPED WITH AN AUTOMATIC DRAIN DOWN VALVE. PROVIDE A MANUAL CONTROL SOFTWARE "BUTTON" FOR EACH VALVE TO GIVE THE PLANT OPERATOR THE OPTION TO OPEN OR CLOSE THE VALVE. AUTO VALVES SHALL BE NORMALLY CLOSED (SPRING CLOSED ON LOSS OF POWER).

11. TOWER EQUALIZING LINE VALVES AND DRAIN.

EACH TOWER BASIN IS PIPED WITH AN AUTOMATIC VALVE TIED TO THE EQUALIZATION PIPE MAIN. PROVIDE A MANUAL CONTROL SOFTWARE "BUTTON"FOR EACH VALVE TO GIVE THE PLANT OPERATOR THE OPTION TO OPEN OR CLOSE THE VALVE. AUTO VALVES SHALL BE FLOATING TYPE.
THERE IS AN AUTO DRAIN VLAVE BEING PROVIDED IN THE BOTTOM OF THE EQUALIZING PIPE MAIN. TO PREVENT STAGNATION OF CONDENSER WATER IN THE COOLING TOWER BASIN, PIPING AND CHILLER BARRELS. THE TIME SINCE EACH CELL WAS LAST OPENED SHALL BE DISPLAYED ON THE BAS GRAPHIC AND ALARM IF IT REACHES 96 HOURS OF NO FLOW. IN COMPLIANCE WITH OSHA RECOMMENDATIONS, EVERY MONDAY, WEDNESDAY AND FRIDAY AT 3AM, A PROGRAM SHALL TRIGGER A SEQUENCE TO CIRCULATE CONDENSER WATER THROUGH EACH CHILLER, THEN ROTATE TO THE NEXT CHILLER AND NEXT TOWER. PER THE RECOMMENDATIONS OF JEFF SCHNEIDER AT CHEMSEARCH, THIS ROTATION CYCLE SHALL LAST 2.5 HOURS FOR EACH CHILLER WHEN THE PLANT IS OFFLINE. WHEN ONLINE, EACH CYCLE SHALL LAST ONLY 15 MINUTES AS THE TREATMENT SYSTEM IS ALREADY PROPERLY DOSING CHEMICALS TO THE WATER STREAM.
EQUIPMENT IN LOCKOUT (LKO POINT ON) SHALL BE IGNORED. IF THE PLANT IS CALLED TO RUN, THE CYCLE WILL BE CANCELED, AND THE PLANT WILL START NORMALLY. IF THE PLANT IS ALREADY RUNNING, THE CONDENSER WATER PUMP FOR ONE OFFLINE CHILLER AT A TIME SHALL TURN ON TO RUN A MINIMAL AMOUNT OF WATER. THIS SHOULD NOT IMPACT OPERATING CHILLERS.

12. FREE COOLING HEAT EXCHANGER (EXISTING)

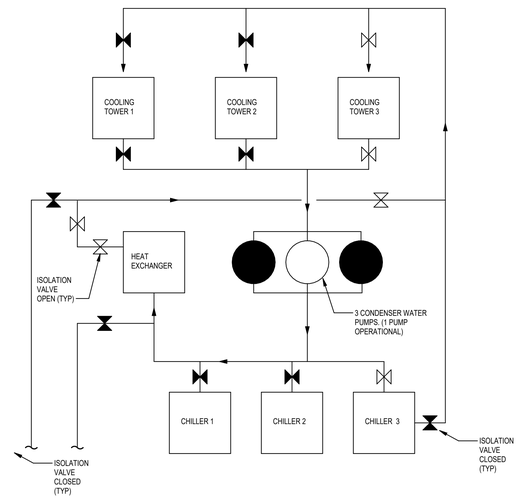
-SWITCH TO FREE COOLING-
WHEN THE OUTSIDE AIR WETBULB FALLS BELOW 38 DEGREES, AND THE TOTAL LOAD FOR THE CHILLER PLANT IS EQUAL TO OR LESS THAN 400 TON (ADJ), THEN THE BMS SWITCHING TO FREE COOLING MODE AND FOLLOW THE SEQUENCE BELOW. IF THE OUTSIDE AIR WETBULB RISES ABOVE 42 DEG (ADJ) AND THE CHILLER PLANT LOAD INCREASED ABOVE 400 TON FOR 30 MINUTES (ADJ) THE BAS SHALL SWITCH TO THE MECHANICAL MODE AND FOLLOW THE SEQUENCE ABOVE.
WHEN THE BMS SELECTS FREE COOLING MODE, THE CHILLED WATER PLANT WILL TRANSITION TO FREE COOLING MODE ACCORDING TO THE FOLLOWING STEPS:

1. IF CHILLER # 3 IS IN THE LEAD POSITION ROTATE THE LEAD CHILLER TO THE NEXT CHILLER IN LINE FOR LEAD. ALLOW CHILLER # 3 TO SHUT DOWN AND THE NEW LEAD TO START. REFER TO CHILLER STAGE UP/DOWN SEQUENCE OF OPERATION.
2. CLOSE THE CONDENSER WATER AND EVAPORATOR WATER ISOLATION VALVES ON CHILLER # 3
3. OPEN THE CONDENSER WATER ISOLATION VALVE ON THE PLATE HEAT EXCHANGER VALVE 3
4. ENABLE THE LEAD CONDENSER PUMP FOR CHILLER # 3 RAMP PUMP SPEED TO 95%
5. ENABLE COOLING TOWER # 3 FANS AND RAMP SPEED TO 100
6. WHEN THE CONDENSER WATER SUPPLY TEMPERATURE TO THE PFHX FALLS BELOW THE SUPPLY TEMPERATURE SET POINT (ADJ) FOR TWO MINUTES.
7. DISABLE THE LEAD CHILLER 1 OR CHILLER TWO AND CLOSE THE CHILLER 'S CHILLED WATER INSOLATION VALVE.
8. OPEN THE CHILLED WATER ISOLATION VALVE FOR THE (PFHX) CP-19.
9. THE CONDENSER WATER SUPPLY SETPOINT WILL BE COMMANDED TO 42 DEG (SEE COOLING TOWER SEQUENCE OF OPERATIONS).
10. AN ADDITIONAL CW PUMP WILL BE STARTED. ITS SPEED WILL MATCH THAT OF THE RUNNING PUMPS.
11. WHEN THE ADDITIONAL CW PUMP IS PROVEN ON AND ITS SPEED MATCHES THAT OF THE EXISTING PUMPS, THE AUTOMATIC CONDENSER WATER ISOLATION VALVE ON THE FREE COOLING HEAT EXCHANGER WILL BE COMMANDED OPEN.
12. THE SEQUENCE WILL PAUSE AT THIS STEP TO PRE-COOL THE HEAT EXCHANGER UNTIL THE CONDENSER WATER SUPPLY TEMPERATURE HAS REACHED 46 DEG OR LOWER.
13. WHEN THE CONDENSER WATER TEMPERATURE HAS FALLEN BELOW 46 DEG, THE AUTOMATIC CHILLED WATER ISOLATION VALVE ON THE FREE COOLING HEAT EXCHANGER WILL BE COMMANDED OPEN.
14. WHEN THE AUTOMATIC CHILLED WATER ISOLATION VALVE ON THE FREE COOLING HEAT EXCHANGER IS PROVEN OPEN, THE RUNNING CHILLER(S) WILL SHUT DOWN ACCORDING TO THE CHILLER SHUTDOWN SEQUENCE ABOVE.

-FREE COOLING OPERATION-
WHEN THE PLANT IS IN FREE COOLING MODE, THE PRIMARY CHILLED WATER PUMPS WILL MODULATE SPEED TO MAINTAIN THE CHW FLOW THROUGH THE HEAT EXCHANGER AT SETPOINT. THE HX CHW FLOW SETPOINT WILL BE CONTINUOUSLY RESET BETWEEN A PREDETERMINED MINIMUM FLOW AND THE HX DESIGN RATED FLOW TO MAINTAIN THE END OF LINE DIFFERENTIAL PRESSURE AT SETPOINT. THE END OF LINE DIFFERENTIAL PRESSURE SETPOINT WILL BE RESET AS DESCRIBED IN THE SEQUENCE ABOVE.
THE CONDENSER WATER PUMPS WILL MODULATE SPEED TO MAINTAIN THE CW FLOW THROUGH THE HEAT EXCHANGER AT SETPOINT. THE HX CW FLOW SETPOINT WILL BE CONTINUOUSLY RESET BETWEEN A PREDETERMINED MINIMUM FLOW AND THE HX DESIGN RATED FLOW TO MAINTAIN THE HX LEAVING CHW TEMPERATURE AT SETPOINT.
THE CHW TEMPERATURE SETPOINT WILL BE RESET AS THE CONDENSER WATER TEMPERATURE SETPOINT IS RESET (SEE COOLING TOWER SEQUENCE OF OPERATIONS). THE CHW SETPOINT WILL EQUAL CONDENSER WATER TEMPERATURE SETPOINT + 2 DEG.

-SWITCH OUT OF FREE COOLING:
WHEN THE CONDENSER WATER TEMPERATURE SETPOINT HAS RESET TO ITS MAXIMUM VALUE (SEE COOLING TOWER SEQUENCE OF OPERATIONS) AND THE CHW SUPPLY TEMPERATURE CAN NO LONGER BE MAINTAINED AT SETPOINT, THE BMS WILL TRANSITION TO MECHANICAL COOLING MODE ACCORDING TO THE FOLLOWING STEPS:

1. A CHILLER WILL BE SELECTED TO RUN ACCORDING TO THE SELECTION AND STARTUP SEQUENCE DESCRIBED ABOVE.
2. THE CONDENSER WATER TEMPERATURE SETPOINT WILL BE COMMANDED TO 55 DEG AS DESCRIBED IN THE COOLING TOWER SEQUENCE OF OPERATIONS.
3. THE CHILLED WATER TEMPERATURE SETPOINT WILL BE COMMANDED TO 46 DEG F.
4. WHEN THE CHILLER(S) IS PROVEN ON AND ITS LEAVING CHW TEMPERATURE IS WITHIN 4 DEG OF SETPOINT, THE AUTOMATIC HX CHW ISOLATION VALVE WILL BE COMMANDED CLOSED.
5. WHEN THE AUTOMATIC HX CHW ISOLATION VALVE IS PROVEN CLOSED, ONE CHW PUMP WILL BE COMMANDED OFF.
6. WHEN THE AUTOMATIC HX CHW ISOLATION VALVE IS PROVEN CLOSED, THE HX CW ISOLATION VALVE WILL BE COMMANDED CLOSED.
7. WHEN THE AUTOMATIC HX CW ISOLATION VALVE IS PROVEN CLOSED, ONE CW PUMP WILL BE COMMANDED OFF.
8. THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT WILL BE GRADUALLY LOWERED TO THE NORMAL OPERATING SETPOINT OVER 15 MINUTES.



FREE COOLING SCHEMATIC

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL CONTROLS
Phase	95% CONSTRUCTION DOCUMENTS
Project Title	UPGRADE COOLING TOWER AND CHILLER
Project Number	626-24-203
Building Number	1
Approved: VMAC	
	FULLY SPRINKLERED
Location	1310 24TH AVENUE SOUTH NASHVILLE, TN
Issue Date	02/13/2026
Checked	DTR
Drawn	DAG
Drawing Number	M702

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/2024-05214-MEP-Central.rvt
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GENRERAL NOTES

A. THESE NOTES APPLY EQUALLY TO THE FULL SET OF DOCUMENTS.

B. THE CONTRACTOR SHALL REFER TO ALL SPECIFICATION SECTIONS AND THE DRAWINGS FOR DETAILS OF BUILDING CONSTRUCTION TO ENSURE SPACE AND SATISFACTORY ARRANGEMENT FOR THEIR WORK. THE VARIOUS DRAWINGS COMPRISING THIS SET ARE INTERDEPENDENT AND MUST BE USED JOINTLY AT ALL TIMES. CONTRACTOR SHALL REFER TO THE GENERAL REQUIREMENTS OF THE CONTRACT. THE NOTES AND SYMBOLS INDICATED ON THE DRAWINGS ARE FOR THE GUIDANCE OF ALL TRADES INVOLVED IN THE PROJECT AND MUST BE FOLLOWED TO EXECUTE THE WORK AS INTENDED. IF DISCREPANCIES OCCUR, CONTACT THE COR THROUGH THE CONTRACTING OFFICER FOR CLARIFICATION BEFORE PROCEEDING.

C. ALL WORK MUST BE COORDINATED WITH THE CONTRACTING OFFICER AND (FOR ALL OTHERS) TO MAINTAIN OPERATION OF THE EXISTING FACILITY.

D. ALL WORK SHALL BE PERFORMED IN COMPLETE COMPLIANCE WITH ALL CURRENT GOVERNING CODES AND STANDARDS.

E. REFER TO ARCHITECTURAL FIRE-RATED PARTITION PLAN(S) FOR LOCATIONS AND FIRE-RATING OF NEW AND EXISTING WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES SHALL BE PROJECTED AND/OR FIRE-STOPPED AS REQUIRED TO MAINTAIN FIRE-RATINGS INDICATED. COORDINATE WITH ALL TRADES TO ENSURE FIRE-RATED PENETRATION REQUIREMENTS AND DETAILS ARE MET.

F. ANNULAR SPACE OF ALL PIPE, CONDUIT, DUCT AND OTHER SIMILAR PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED. IN ADDITION, PENETRATIONS THROUGH 0-HOUR RATED WALLS AND FLOORS SHALL BE FIRESTOPPED TO RETARD PASSAGE OF FIRE AND SMOKE.

G. ALL CONDUITS IN FINISHED ROOMS AND CORRIDORS SHALL BE CONCEALED IN A WALL OR ABOVE CEILING.

H. ACCESS PANELS IN NON ACCESSIBLE CEILINGS SHALL BE PROVIDED FOR ALL ELECTRICAL ITEMS REQUIRING ACCESS. ACCESS PANELS SHALL BE A MINIMUM OF 12" IN SIZE AND LARGE ENOUGH TO ALLOW MAINTENANCE PERSONNEL SAFE AND EFFECTIVE ACCESS.

I. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHTS, SPEAKERS, NURSE CALL DEVICES, ETC.

J. ALL CUTTING AND PATCHING REQUIRED FOR THIS PROJECT SHALL BE INCLUDED IN THE CONTRACT. REFINISH ANY SURFACE DISTURBED UNDER THIS WORK TO MATCH EXISTING.

K. ANY REMOVED EQUIPMENT SHALL BE TURNED OVER TO THE VA. ITEMS NOT DESIRED BY THE VA SHALL BE REMOVED FROM THE PREMISES AND DISPOSED OF PROPERLY BY THE CONTRACTOR.

L. THE CONTRACT DRAWINGS ARE NOT INTENDED TO SHOW EVERY VERTICAL OR HORIZONTAL OFFSET WHICH MAY BE NECESSARY TO COMPLETE THE SYSTEMS. COORDINATE WORK IN ADVANCE WITH ALL OTHER TRADES.

M. ALL ABANDONED EXTRANEOUS CONDUITS, WIRING, DEVICES, ETC. SHALL BE REMOVED.

N. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION CONCERNING MECHANICAL EQUIPMENT THAT REQUIRES ELECTRICAL CONNECTIONS.

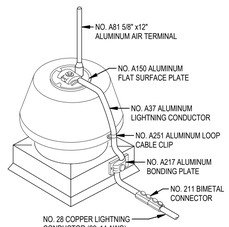
O. ARC FLASH STUDY MUST BE PREFORMED ON ALL ELECTRICAL EQUIPMENT. PROVIDE ARC FLASH LABELS FOR ALL PANELS AND DISCONNECTS. REFER TO SPECIFICATIONS.

P. SCOPE OF WORK REQUIRED REVISION TO EXISTING LIGHTNING PROTECTION SYSTEM. SYSTEM SHALL BE REVISED AND CERITIFIED TO MAINTAIN UL MASTER LABEL.

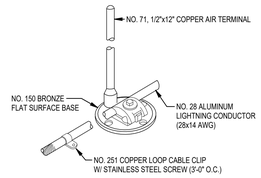
Q. ALL ELECTRICAL SHUTDOWN WORK REQUIRING BUILDING ELECTRICAL SYSTEM OUTAGES AND/OR EMERGENCY SYSTEM DOWNTIME SHALL BE DONE OUTSIDE OF NORMAL WORKING HOURS (7AM-7PM MONDAY - FRIDAY). OUTAGES OF ALL TYPES SHALL BE AS MINIMAL AS POSSIBLE. COORDINATE ALL ELECTRICAL SHUTDOWN WITH COR.

R. COORDINATE SEQUENCE OF CONSTRUCTION WITH DIV 23. REFER TO MECHANICAL PLANS FOR PHASING OF MECHANICAL WORK. ELECTRICAL WORK SHALL FOLLOW PHASING OF MECHANICAL DEMOLITION AND INSTALLATION OF NEW WORK.

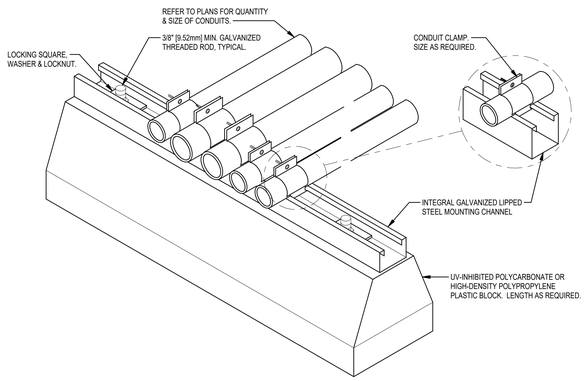
S. BRANCH CIRCUIT WIRE SIZING CHART TO BE UTILIZED AS A GUIDELINE FOR VOLTAGE DROP COMPENSATION, INCREASE CONDUIT SIZING PER WIRE SIZE.
   - A) 20A – 120 VOLT CIRCUITS:
     #12 WIRE 75FT. LENGTH MAX.
     #10 WIRE 125FT. LENGTH MAX.
     #8 WIRE 190FT. LENGTH MAX.
   - B) 20A – 277 VOLT CIRCUITS:
     #12 WIRE 173FT. LENGTH MAX.
     #10 WIRE 288FT. LENGTH MAX.
     #8 WIRE 443FT. LENGTH MAX.



3 LIGHTNING PROTECTION DETAIL
SCALE: NONE



4 LIGHTNING PROTECTION AIT TERMINAL
SCALE: NONE



6 CONDUIT ROOF SUPPORT DETAIL
SCALE: NONE

ELECTRICAL SINGLE-LINE LEGEND

	CONDUIT & WIRE
	CONDUIT & WIRE TO BE REMOVED
	EXISTING CONDUIT & WIRE TO REMAIN
	INTEGRATED EQUIPMENT ENCLOSURE
	SWITCHBOARD ENCLOSURE
	BUSSING
#	FAULT CURRENT REFERENCE POINT
- W- PH-	FEEDER WIRE SIZE SYMBOL SPECIAL CONFIGURATION: 2P=TWO POLE NO NEUTRAL, S=SECONDARY, SE=SERVICE ENTRANCE, V=VOLTAGE DROP # OF PHASES # OF CONDUCTORS FEEDER AMPERAGE MATERIAL, A=ALUMINUM, C=COPPER
N E	AUTOMATIC TRANSFER SWITCH
E N	AUTOMATIC TRANSFER SWITCH - BYPASS
	CIRCUIT BREAKER - MEDIUM VOLTAGE DRAWOUT
	DELTA SYMBOL
	DISCONNECT
	DRAWOUT CONNECTION
	ELECTRIC METER
A	EQUIPMENT AMMETER
	EQUIPMENT CAPACITOR
	EQUIPMENT CONTACTOR
	EQUIPMENT CURRENT TRANSFORMER
	EQUIPMENT GROUND
	EQUIPMENT LIGHTNING ARRESTOR
M	EQUIPMENT MULTIMETER
	EQUIPMENT POTENTIAL TRANSFORMER
SWBD METERING	EQUIPMENT SWITCHBOARD METER
V	EQUIPMENT VOLTMETER
	EQUIPMENT WYE SIDE OF TRANSFORMER WITH GROUND
	FUSED CUTOUT
	FUSED SWITCH - PRIMARY
	FUSED SWITCH - SECONDARY
G	GENERATOR
GFP	GROUND FAULT PROTECTOR
K	KEYED INTERLOCK
	MOTOR
	MOTOR STARTER
	MOTOR STARTER AND DISCONNECT
	PANELBOARD - MAIN LUG ONLY
	PANELBOARD - DOUBLE SET OF LUGS
	PANELBOARD - MAIN BREAKER
	PANELBOARD BREAKER
	SHORT CIRCUIT FAULT LOCATION
	SINGLE POLE SWITCH
	SURGE PROTECTIVE DEVICE
	TAP SWITCH WITH GROUND POSITION
	TRANSFORMER
VFD	VARIABLE FREQUENCY DRIVE
	VOLTAGE TERMINATION - PRIMARY
● OR •	VOLTAGE TERMINATION - SECONDARY

ELECTRICAL SYMBOLS

	DASH SYMBOL INDICATES PARTICULAR OUTLET OR DEVICE TO BE REMOVED AND CIRCUITRY MADE CONTINUOUS WHERE REQUIRED.
	EXISTING OUTLET OR DEVICE TO REMAIN. MAINTAIN EXISTING CIRCUITING.
	SQUARE DEVICE INDICATES A CONNECTION TO CRITICAL POWER. SPECIFICATION IS SAME AS RESPECTIVE ROUND DEVICE.
	ELECTRICAL CONNECTION.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R (18" MH UNLESS NOTED OTHERWISE). WHEN ⏻SHOWN, RECEPTACLE TO HAVE "CONTROLLED" MARKINGS.
	20A-125V SINGLE RECEPTACLE, NEMA 5-20R (18" MH UNLESS NOTED OTHERWISE).
	SPECIAL PURPOSE RECEPTACLE. REFER TO NOTE ON PLAN.
	20A-125V DOUBLE DUPLEX RECEPTACLE. NEMA 5-20R, (18" MH UNLESS NOTED OTHERWISE) TWO GANG ASSEMBLY.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R WITH BOTTOM OUTLET CONTROLLED BY WALL SWITCH. (18" MH UNLESS NOTED OTHERWISE).
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R (46" MH UNLESS NOTED OTHERWISE).
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R WITH 2 INTEGRAL USB CHARGERS (18" MH UNLESS NOTED OTHERWISE).
GF	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, WITH GROUND FAULT CIRCUIT INTERRUPTER (18" MH UNLESS NOTED OTHERWISE).
WP	20A-125V WEATHERPROOF DUPLEX RECEPTACLE, NEMA 5-20R (HORIZONTAL 18" MH UNLESS NOTED OTHERWISE) WITH TAYMAC #MM420G EXTRA DUTY GRAY COVER, VERTICAL MOUNT.
WP/GF	20A-125V WEATHERPROOF DUPLEX RECEPTACLE, NEMA 5-20R WITH GROUND FAULT CIRCUIT INTERRUPTER (18" MH UNLESS NOTED OTHERWISE), WITH TAYMAC #MMA20G EXTRA DUTY GRAY COVER, VERTICAL MOUNT.
T	20A-125V POWERLOCK GROUNDING TYPE RECEPTACLE, HOSPITAL USE (66" MH UNLESS NOTED OTHERWISE).
	20A-125V DUPLEX PEDESTAL TYPE FLOOR RECEPTACLE, NEMA 5-20R, IN HUBBELL BA-2527 FLOOR BOX WITH SA-2525 COVERPLATE AND SC-3091 HOUSING. PROVIDE CARPET FLANGE WHERE REQUIRED.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, IN HUBBELL BA-2527 FLUSH FLOOR BOX WITH ROUND SA-3925 COVERPLATE. PROVIDE CARPET FLANGE WHERE REQUIRED.
IG	20-125V DUPLEX RECEPTACLE, NEMA 5-20R, WITH ISOLATED GROUND (18" MH UNLESS NOTED OTHERWISE).
20A	20A-125/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-20R (18" MH UNLESS NOTED OTHERWISE).
30A	30A-125/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-30R (18" MH UNLESS NOTED OTHERWISE).
50A	50A-125/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-50R (18" MH UNLESS NOTED OTHERWISE).
20A	20A-250V-3PH-4W SINGLE RECEPTACLE, NEMA 15-20R (18" MH UNLESS NOTED OTHERWISE).
30A	30A-250V-3PH-4W SINGLE RECEPTACLE, NEMA 15-30R (18" MH UNLESS NOTED OTHERWISE).
50A	50A-250V-3PH-4W SINGLE RECEPTACLE, NEMA 15-50R (18" MH UNLESS NOTED OTHERWISE).
J	JUNCTION BOX. SQUARE DEVICE INDICATES A CONNECTION TO CRITICAL POWER.
	MULTI-OUTLET RECEPTACLES ASSEMBLY, NEMA 5-15R (SINGLE OUTLETS ON 18" CENTERS) (46" MH UNLESS NOTED OTHERWISE).
	WIREMOLD RACEWAY, AS NOTED ON PLANS.
$	SINGLE POLE SWITCH (46" MH UNLESS NOTED OTHERWISE).
2 $	TWO POLE WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
3 $	MULTI-WAY WALL SWITCH, # INDICATES NUMBER OF WAYS (46" MH UNLESS NOTED OTHERWISE).
P $	SWITCH WITH NEON PILOT LIGHT. ONE-GANG ASSEMBLY (46" MH UNLESS NOTED OTHERWISE).
K $	KEY OPERATED WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
L $	LOW-VOLTAGE MOMENTARY WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
DM $	LIGHTING DIMMER SWITCH (46" MH UNLESS NOTED OTHERWISE) 1000 WATTS UNLESS OTHERWISE INDICATED.
H $	HP RATED WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
	ELECTRICAL PANEL OR SWITCHBOARD PER DRAWINGS.
P/B	PULL BOX.
	DISCONNECT SWITCH.
	MOTOR STARTER.
	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH.
	ELECTRIC MOTOR.
	PUSHBUTTON (46" MH UNLESS NOTED OTHERWISE)

TECHNOLOGY SYMBOLS WITH ELEC. REQUIREMENTS

X	DATA OUTLET. BOX WITH CONDUIT(S) TO ABOVE ACCESSIBLE CEILING PER DIV 26. JACKS, FACEPLATE AND CABLING PER DIV 27.

SHEET LIST - ELECTRICAL

SHEET NUMBER	SHEET NAME
E001	LEGEND AND INDEX OF DRAWINGS
ED100	BASEMENT DEMOLITION PLAN
ED102	SECOND FLOOR DEMOLITION PLAN
ED106	SIXTH FLOOR DEMOLITION PLAN
E101	FIRST FLOOR PLAN
E102	SECOND FLOOR PLAN
E500	BASEMENT FEEDER PLAN
E600	EMERGENCY BRANCH SINGLE LINE NEW WORK
E601	NORMAL BRANCH SINGLE LINE DEMO & NEW WORK
Total Count: 9	

ABBREVIATIONS

AAP	- AREA ALARM PANEL - MEDICAL GAS
ACC	- ACCESS
ADJ	- ADJUSTABLE
AF	- ARC FAULT CIRCUIT INTERRUPTER
AFCI	- ARC FAULT CIRCUIT INTERRUPTER
AFF	- ABOVE FINISHED FLOOR TO BOTTOM OF ITEM
AFG	- ABOVE FINISHED GRADE TO BOTTOM OF ITEM
ALT	- ALTERNATE
AP	- ACCESS PANEL
APPROX	- APPROXIMATE
ARCH	- ARCHITECT OR ARCHITECTURAL
ASSY	- ASSEMBLY
ATS	- AUTOMATIC TRANSFER SWITCH
BLDG	- BUILDING
BOE	- BOTTOM OF EQUIPMENT
BOT	- BOTTOM
BTWN	- BETWEEN
CFCI	- CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CKT	- CIRCUIT
CLG	- CEILING
CMU	- CONCRETE MASONRY UNIT
CONN	- CONNECT OR CONNECTION
CONTR	- CONTRACTOR
CORR	- CORRIDOR
CTR	- CENTER
D	- DEPTH
DET	- DETAIL
DIA	- DIAMETER
DIM	- DIMENSION
DIV	- DIVISION
DN	- DOWN
DWG	- DRAWING
EA	- EACH
EC	- ELECTRICAL (DIVISION 26)
EJ	- EXPANSION JOINT
ELEC	- ELECTRICAL
ELEV	- ELEVATION OR ELEVATOR
EM	- EMERGENCY
EQ	- EQUAL
EQS	- EQUIPMENT SUPPLIER
EQUIP	- EQUIPMENT
ER	- EXISTING TO BE RELOCATED
EX	- EXISTING TO REMAIN
EXP	- EXPANSION
EXT	- EXTERIOR
FCE	- FIRE CONTROL EQUIPMENT
FF	- FINISHED FLOOR ELEVATION
FLR	- FLOOR
FSC	- FIRE SUPPRESSION (DIVISION 21)
FT	- FEET
FTG	- FOOTING
GC	- GENERAL TRADES (DIV 01)
GF	- GROUND FAULT CIRCUIT INTERRUPTER
GFCI	- GROUND FAULT CIRCUIT INTERRUPTER OR GOVERNMENT FURNISHED CONTRACTOR INSTALLED
GFFT	- GROUND FAULT FEED THRU
HC	- HVAC (DIVISION 23)
HP	- HORSE POWER OR HIGH POINT
HVAC	- HEATING, VENTILATING, AND AIR CONDITIONING
ID	- INSIDE DIAMETER
IN	- INCHES
KEC	- KITCHEN EQUIPMENT CONTRACTOR
L	- LENGTH
LBS	- POUNDS
MAP	- MASTER ALARM PANEL (MEDICAL GAS)
MAX	- MAXIMUM
MEZZ	- MEZZANINE
MFR	- MANUFACTURER
MH	- MANHOLE OR MOUNTING HEIGHT TO CENTER LINE OF ITEM
MIN	- MINIMUM OR MINUTE
MISC	- MISCELLANEOUS
MTD	- MOUNTED
MTG	- MOUNTING
MTS	- MANUAL TRANSFER SWITCH
NIC	- NOT IN CONTRACT
NOM	- NOMINAL
NTS	- NOT TO SCALE
OD	- OUTSIDE DIAMETER
OFCI	- OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	- OWNER FURNISHED OWNER INSTALLED
PC	- PLUMBING (DIVISION 22)
PLBG	- PLUMBING
RAD	- RADIUS
REC	- RECESSED
REQD	- REQUIRED
RI	- ROUGH-IN
S	- SURFACE MOUNTED
SC	- SECURITY CONTRACTOR
SCH	- SCHEDULE
SHT	- SHEET
SMS	- SECURITY MANAGEMENT SYSTEM
SPEC	- SPECIFICATIONS
SQ	- SQUARE
SS	- STAINLESS STEEL
STD	- STANDARD
STRUC	- STRUCTURAL OR STRUCTURE
SUC	- SITE UTILITY CONTRACTOR
TC	- TECHNOLOGY CONTRACTOR
TEMP	- TEMPERATURE
TOE	- TOP OF EQUIPMENT
TYP	- TYPICAL
UNO	- UNLESS NOTED OTHERWISE
VFD	- VARIABLE FREQUENCY DRIVE
VOL	- VOLUME
W/	- WITH
W/O	- WITHOUT
WP	- WEATHERPROOF
ZVC	- ZONE VALVE CABINET

GENERAL FLOOR PLAN NOTES

B / E2	DETAIL: B = DETAIL DESIGNATION E2 = SHEET WHERE DETAIL IS LOCATED
1 / E2	SECTION: 1 = SECTION DESIGNATION E2 = SHEET WHERE SECTION IS LOCATED
T2 | 1	ELEVATION: 1 = ELEVATION DESIGNATION T2 = SHEET WHERE ELEVATION IS LOCATED
3	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN.
3	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
3	LIGHTING CONTROL DETAIL NOTE. APPLIES TO THE LIGHTING CONTROL SEQUENCE OF OPERATIONS SCHEDULE FOR ROOM CONTROL.
3	DEVICE QUANTITY - POWER NOTE. REFER TO DEVICE QUANTITIES - POWER SCHEDULE.
	LADDER TRAY, 12" x 4" DEEP UNLESS NOTED OTHERWISE.
	CABLE TRAY, 12" x 4" DEEP UNLESS NOTED OTHERWISE.
4	WIRE & CONDUIT IN WALL OR ABOVE CEILING.
4	WIRE & CONDUIT IN OR BELOW SLAB OR GRADE.
4	CONDUIT TO BE REMOVED.
X - 1,2	EACH ARROWHEAD REPRESENTS ONE COMPLETE CIRCUIT; "X" DENOTES PANEL NAME; NUMBER(S) DENOTES CIRCUIT(S).

NOTE:
ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.
ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA U.S. Department of Veterans Affairs

Drawing Title: LEGEND AND INDEX OF DRAWINGS

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: MSG | Drawn: DMB

Project Number: 626-24-203

Building Number: 1

Drawing Number: E001

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/20624-05214-MEP-Central.rvt

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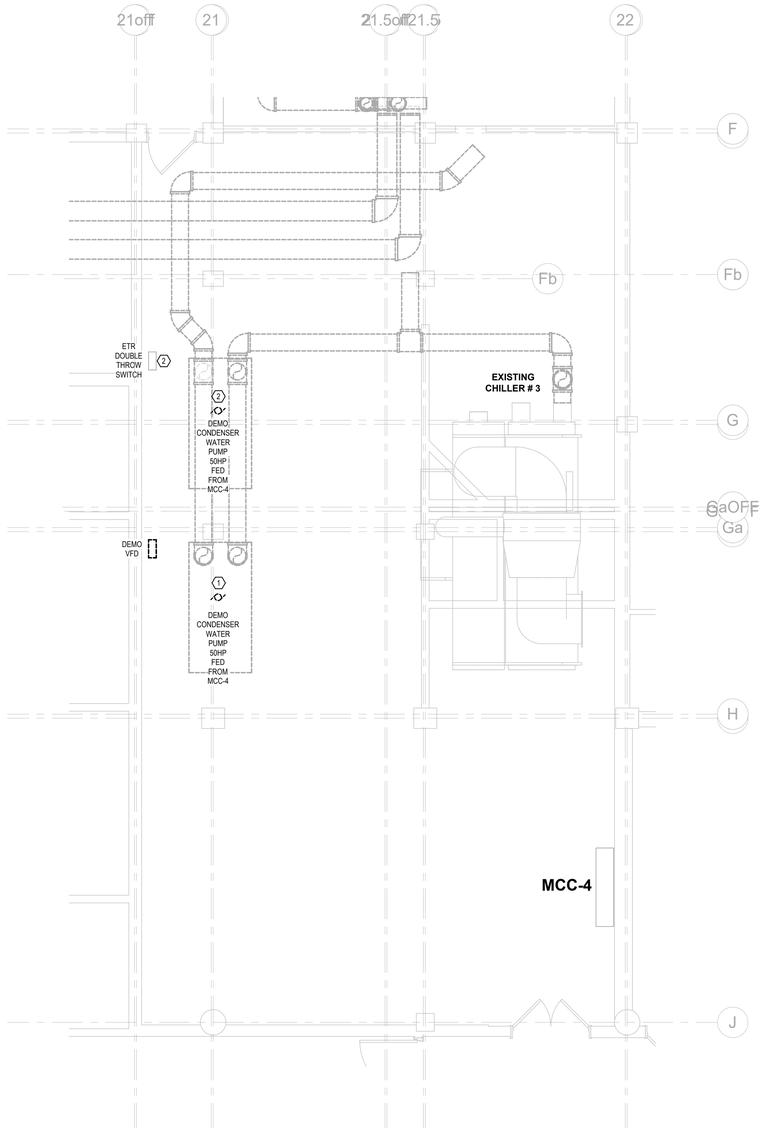
VA FORM 08 - 6231

PLAN NOTES

1. DISCONNECT PUMP AND ASSOCIATED ELECTRICAL EQUIPMENT AND REMOVE CONDUIT/ CIRCUITRY BACK TO SOURCE.
2. DISCONNECT EXISTING PUMP AND REMOVE ASSOCIATED CONDUIT AND CIRCUITRY BACK TO EXISTING DOUBLE-THROW SWITCH TO REMAIN. MAINTAIN DOUBLE-THROW SWITCH IN PLACE FOR FUTURE USE.

GENARAL NOTES

A. REMOVAL PLANS MAY NOT NECESSARILY SHOW ALL ITEMS REQUIRED TO BE REMOVED. MAINTAIN CIRCUIT CONTINUITY OF EXISTING CIRCUITS CUT OFF BY REMOVALS. VERIFY CIRCUITS PRIOR TO REMOVALS.
B. REMOVAL OF ELECTRICAL ITEMS SHALL INCLUDE REMOVALS BACK TO THE EXISTING ELECTRICAL DISTRIBUTION CENTER, PANEL OR LAST ACTIVE OUTLET, FIXTURE OR DEVICE REMAINING.
C. REMOVE ALL ABANDONED EXTRANEOUS CONDUITS, SUPPORTS, CONTROLS, ETC.
D. EREMOVALS OF RECEPTACLES, TELEPHONE, DATA OUTLETS, ETC. INCLUDE REMOVAL OF THE DEVICE, BACKBOX, CONDUIT, WIRING, ETC.
E. ALL EXISTING CONDUIT, EQUIPMENT, CONTROLS, ETC. SHOWN DASHED SHALL BE REMOVED. THE MAJORITY OF ELECTRICAL WORK TO BE REMOVED IS SHOWN. REMOVE ALL INCIDENTAL ITEMS ASSOCIATED WITH THE DEMOLITION WORK.
F. HVAC AND PLUMBING EQUIPMENT, DISCONNECT ELECTRICAL SOURCE TO EQUIPMENT AND REMOVE FEEDER BACK TO SOURCE.
G. REFER TO ARCHITECTURAL PLANS FOR PHASING OF WORK.



1 **BASEMENT DEMOLITION PLAN**
SCALE: 1/4" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025

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VA U.S. Department of Veterans Affairs

Drawing Title: BASEMENT DEMOLITION PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: MSG | Drawn: DMB

Project Number: 626-24-203

Building Number: 1

Drawing Number: ED100

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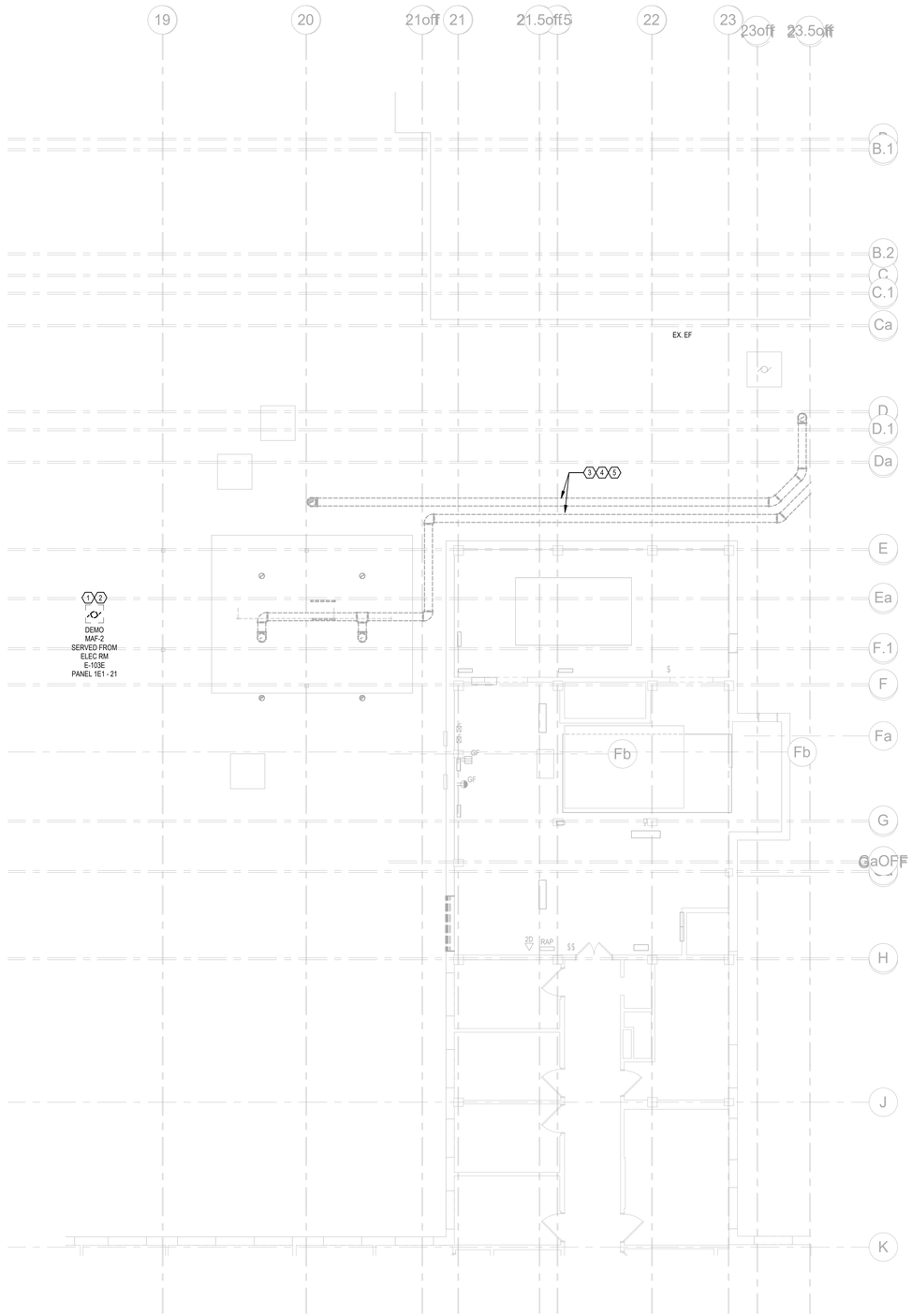

1 2
DEMO
MAF-2
SERVED FROM
ELEC RM
E-103E
PANEL 1E1 - 21

1 **SECOND FLOOR AND ROOF DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

GENARAL NOTES

A. REMOVAL PLANS MAY NOT NECESSARILY SHOW ALL ITEMS REQUIRED TO BE REMOVED. MAINTAIN CIRCUIT CONTINUITY OF EXISTING CIRCUITS CUT OFF BY REMOVALS. VERIFY CIRCUITS PRIOR TO REMOVALS.
B. REMOVAL OF ELECTRICAL ITEMS SHALL INCLUDE REMOVALS BACK TO THE EXISTING ELECTRICAL DISTRIBUTION CENTER, PANEL OR LAST ACTIVE OUTLET, FIXTURE OR DEVICE REMAINING.
C. REMOVE ALL ABANDONED EXTRANEOUS CONDUITS, SUPPORTS, CONTROLS, ETC.
D. EREMOVALS OF RECEPTACLES, TELEPHONE, DATA OUTLETS, ETC. INCLUDE REMOVAL OF THE DEVICE, BACKBOX, CONDUIT, WIRING, ETC.
E. ALL EXISTING CONDUIT, EQUIPMENT, CONTROLS, ETC. SHOWN DASHED SHALL BE REMOVED. THE MAJORITY OF ELECTRICAL WORK TO BE REMOVED IS SHOWN. REMOVE ALL INCIDENTAL ITEMS ASSOCIATED WITH THE DEMOLITION WORK.
F. HVAC AND PLUMBING EQUIPMENT, DISCONNECT ELECTRICAL SOURCE TO EQUIPMENT AND REMOVE FEEDER BACK TO SOURCE.
G. REFER TO ARCHITECTURAL PLANS FOR PHASING OF WORK.

PLAN NOTES

1. DISCONNECT MAKE-UP AIR FAN AND REMOVE WIRE AND CONDUIT BACK TO SOURCE.
2. REMOVE ASSOCIATED LIGHTNING PROTECTION COMPONENTS ON DEMOLISHED EXHAUST FAN. RECONNECT AND RE-TERMINATE LIGHTNING PROTECTION TO MAINTAIN CONTINUITY OF THE SYSTEM.
3. REMOVE ASSOCIATED LIGHTNING PROTECTION COMPONENTS ON DEMOLISHED PIPING. RECONNECT AND RE-TERMINATE LIGHTNING PROTECTION TO MAINTAIN CONTINUITY OF THE SYSTEM. COORDINATE WITH DIV 23 PRIOR TO DEMOLITION.
4. DISCONNECT HEAT TRACE COMPONENTS ON DEMOLISHED PIPING AND REMOVE CONDUIT/ CIRCUITRY BACK TO SOURCE. COORDINATE WITH DIV 23 PRIOR TO DEMOLITION.
5. UPON COMPLETION OF LIGHTNING PROTECTION SYSTEM MODIFICATIONS AND RECONNECTIONS, DIV 26 SHALL COORDINATE WITH A CERTIFIED LIGHTNING PROTECTION INSTALLER TO INSPECT, TEST, AND RECERTIFY THE SYSTEM FOR UL LETTER OF FINDINGS. PROVIDE DOCUMENTATION OF RECERTIFICATION TO THE COR.

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025

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VA TVHS
NASHVILLE
CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: SECOND FLOOR DEMOLITION PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: MSG | Drawn: DMB

Project Number: 626-24-203

Building Number: 1

Drawing Number: ED102

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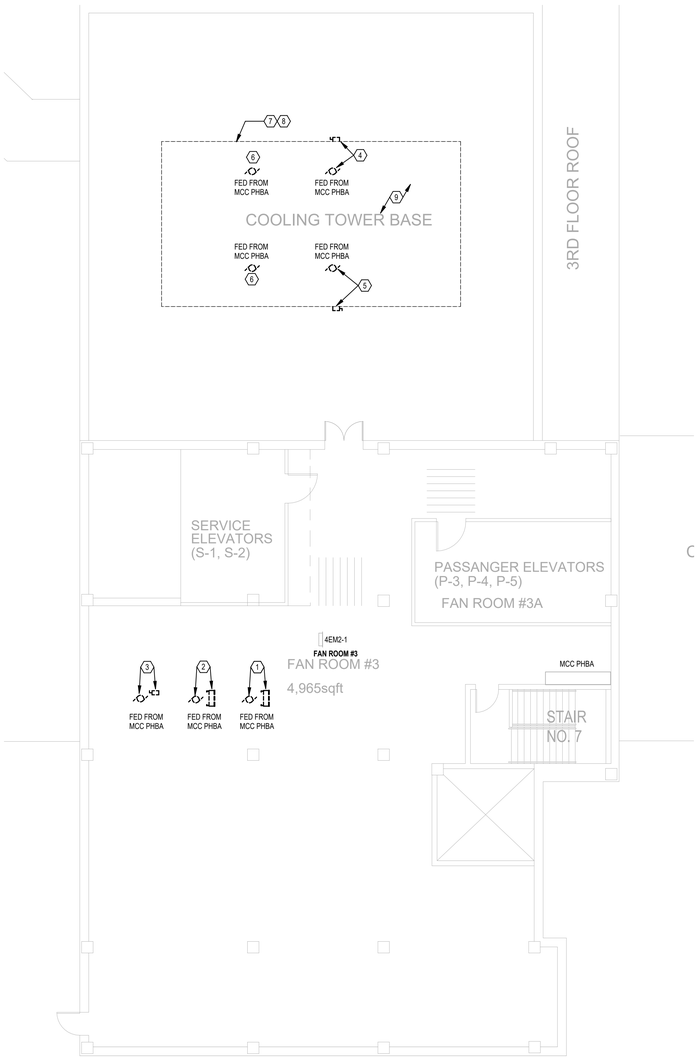
GENARAL NOTES

A. REMOVAL PLANS MAY NOT NECESSARILY SHOW ALL ITEMS REQUIRED TO BE REMOVED. MAINTAIN CIRCUIT CONTINUITY OF EXISTING CIRCUITS CUT OFF BY REMOVALS. VERIFY CIRCUITS PRIOR TO REMOVALS.
B. REMOVAL OF ELECTRICAL ITEMS SHALL INCLUDE REMOVALS BACK TO THE EXISTING ELECTRICAL DISTRIBUTION CENTER, PANEL OR LAST ACTIVE OUTLET, FIXTURE OR DEVICE REMAINING.
C. REMOVE ALL ABANDONED EXTRANEOUS CONDUITS, SUPPORTS, CONTROLS, ETC.
D. EREMOVALS OF RECEPTACLES, TELEPHONE, DATA OUTLETS, ETC. INCLUDE REMOVAL OF THE DEVICE, BACKBOX, CONDUIT, WIRING, ETC.
E. ALL EXISTING CONDUIT, EQUIPMENT, CONTROLS, ETC. SHOWN DASHED SHALL BE REMOVED. THE MAJORITY OF ELECTRICAL WORK TO BE REMOVED IS SHOWN. REMOVE ALL INCIDENTAL ITEMS ASSOCIATED WITH THE DEMOLITION WORK.
F. HVAC AND PLUMBING EQUIPMENT, DISCONNECT ELECTRICAL SOURCE TO EQUIPMENT AND REMOVE FEEDER BACK TO SOURCE.
G. REFER TO ARCHITECTURAL PLANS FOR PHASING OF WORK.

PLAN NOTES

1. DISCONNECT CHILLED WATER PUMP P-19 AND VFD AND REMOVE CIRCUITRY BACK TO SOURCE.
2. DISCONNECT CHILLED WATER PUMP P-20 AND VFD AND REMOVE CIRCUITRY BACK TO SOURCE.
3. DISCONNECT CHILLED WATER PUMP P-21 AND DISCONNECT SWITCH AND REMOVE CIRCUITRY BACK TO SOURCE.
4. DISCONNECT COOLING TOWER CT-1 AND DISCONNECT SWITCH AND REMOVE CIRCUITRY BACK TO SOURCE.
5. DISCONNECT COOLING TOWER CT-2 AND DISCONNECT SWITCH AND REMOVE CIRCUITRY BACK TO SOURCE.
6. DISCONNECT COOLING TOWER BASIN HEATER AND REMOVE CIRCUITRY BACK TO SOURCE.
7. REMOVE ASSOCIATED LIGHTNING PROTECTION COMPONENTS ON DEMOLISHED COOLING TOWER. RECONNECT AND RE-TERMINATE LIGHTNING PROTECTION TO MAINTAIN CONTINUITY OF THE SYSTEM.
8. UPON COMPLETION OF LIGHTNING PROTECTION SYSTEM MODIFICATIONS AND RECONNECTIONS, DIV 26 SHALL COORDINATE WITH A CERTIFIED LIGHTNING PROTECTION INSTALLER TO INSPECT, TEST, AND RECERTIFY THE SYSTEM FOR UL LETTER OF FINDINGS. PROVIDE DOCUMENTATION OF RECERTIFICATION TO THE COR.
9. REMOVE ALL (5) EXISTING 120V ACCESSORY CIRCUITS SERVING THE COOLING TOWER BACK TO SOURCE. COORDINATE WITH OWNER AND MECHANICAL CONTRACTOR PRIOR TO DISCONNECTION TO MAINTAIN REQUIRED OPERATIONS.



1 **SIXTH FLOOR AND ROOF DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: SIXTH FLOOR DEMOLITION PLAN

Phase: 95% CONSTRUCTION DOCUMENTS

Project Title: UPGRADE COOLING TOWER AND CHILLER

Project Number: 626-24-203

Building Number: 1

Approved: VMAC

FULLY SPRINKLERED

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

Checked: MSG

Drawn: DMB

Drawing Number: ED106

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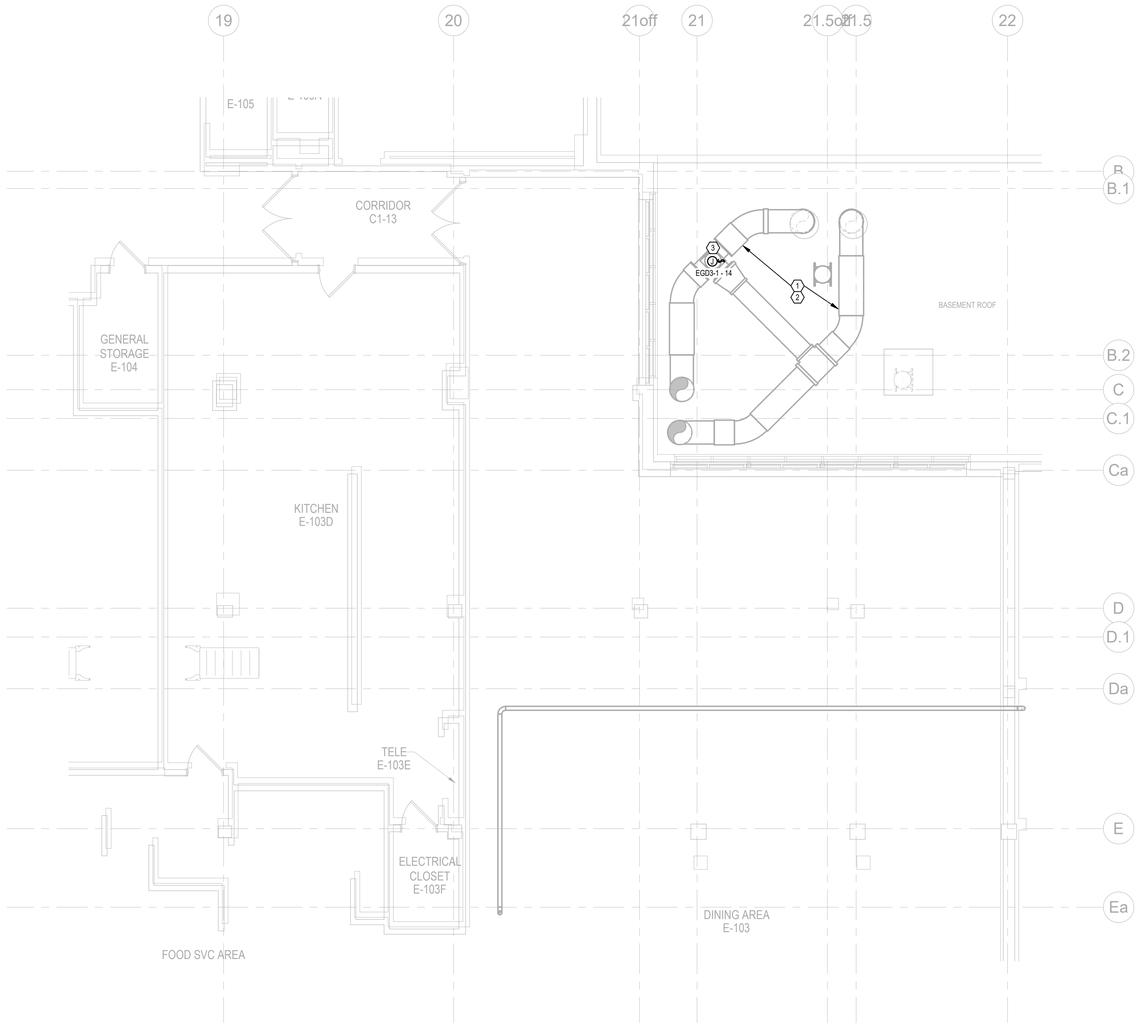
GENERAL NOTES

A. REFER TO DIVISION 23/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL MECHANICAL EQUIPMENT.
B. INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.
C. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL REQUIREMENTS SECTION 01 00 00.
D. REFER TO ARCHITECTURAL DRAWINGS FOR RATED WALL LOCATIONS.

PLAN NOTES

1. PROVIDE HEAT TRACE ON ALL HOT AND COLD WATER PIPING EXPOSED TO FREEZING TEMPERATURES. COORDINATE EXACT REQUIREMENTS WITH DIVISION 23.
2. BOND PIPING TO EXISTING LIGHTNING PROTECTION SYSTEM.
3. PROVIDE 120V, SINGLE-PHASE, 1A POWER CONNECTION TO NEW MOTORIZED VALVE. PROVIDE 120V HORSEPOWER RATED TOGGLE SWITCH TO SERVE AS DISCONNECT MEANS MOUNTING IN ACCESSIBLE LOCATION. COORDINATE FINAL TERMINATION LOCATION, CIRCUIT ROUTING, AND POWER REQUIREMENTS WITH HC PRIOR TO ROUGH-IN.



1 **FIRST FLOOR AND ROOF NEW WORK PLAN**
SCALE: 3/16" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025

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VA U.S. Department of Veterans Affairs

Drawing Title: FIRST FLOOR PLAN

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date	Checked	Drawn
02/13/2026	MSG	DMB

Project Number: 626-24-203

Building Number: 1

Drawing Number: E101

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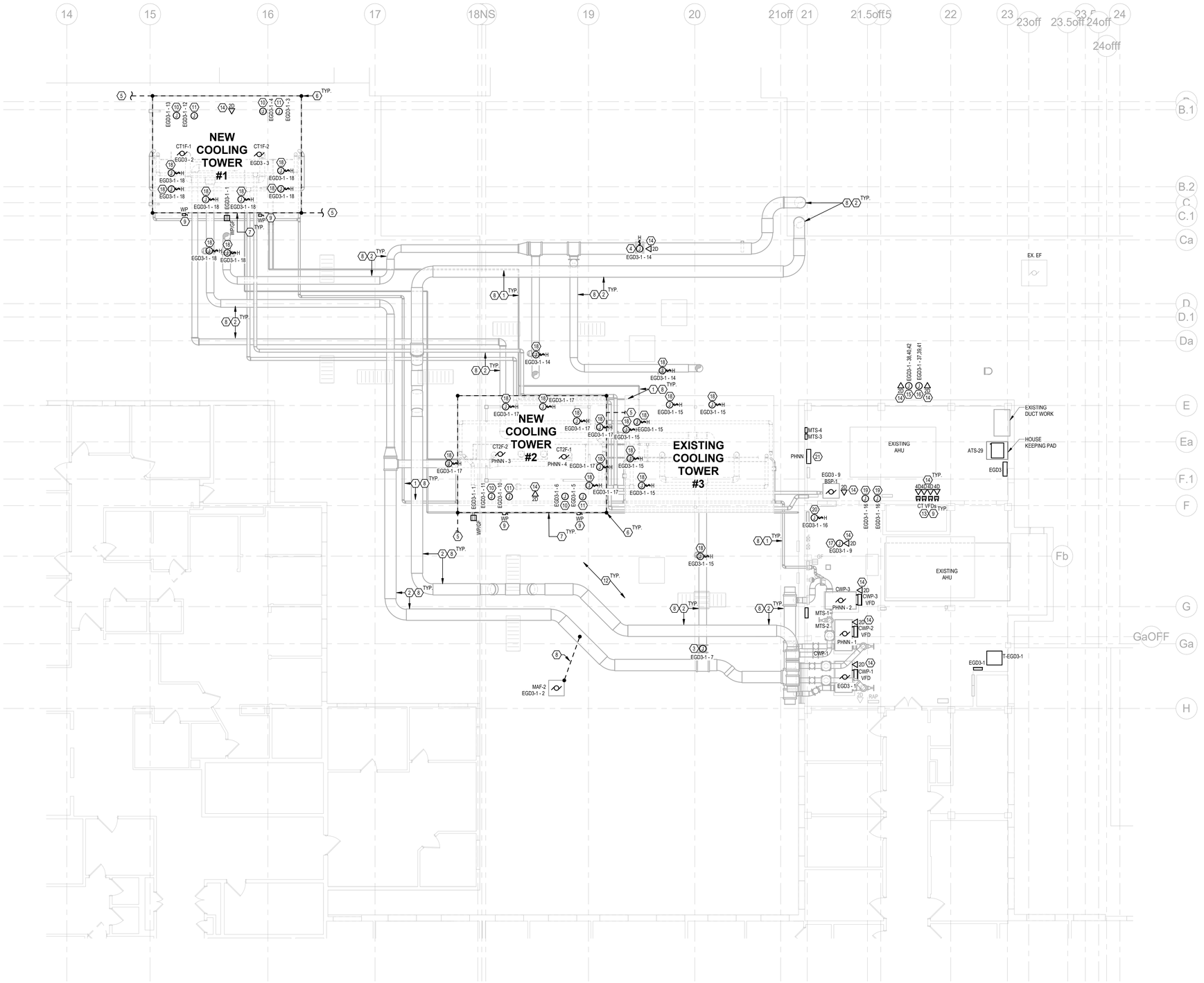
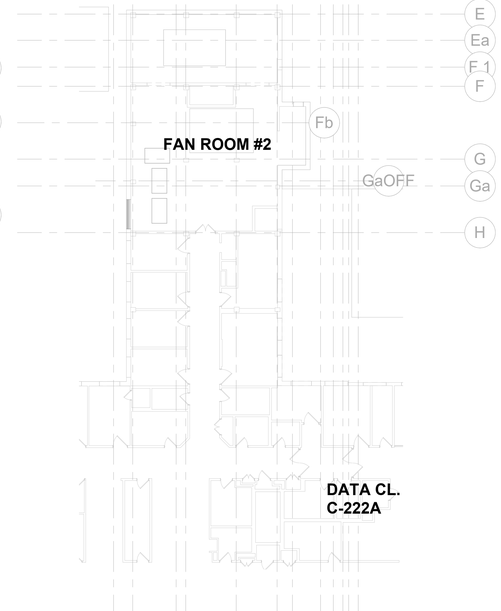
GENERAL NOTES

A. PROVIDE DEDICATED NEUTRAL FOR ALL 120V-20A CIRCUITS.
B. PROVIDE ETCHED LABEL ON ALL RECEPTACLE COVERPLATES AND SWITCH COVERPLATES INDICATING PANEL AND CIRCUIT NUMBER. LABEL ALL EXISTING DEVICES AS WELL.
C. REFER TO DIVISION 23/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL MECHANICAL EQUIPMENT.
D. CONTRACTOR SHALL INSTALL ELECTRICAL CONDUIT/FEEDERS TIGHT TO STRUCTURE TO ALLOW FOR REQUIRED CLEARANCES AROUND OTHER TRADES.
E. (1) EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BRANCH CIRCUIT SHALL HAVE A SEPARATE NEUTRAL AND GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.
F. INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.
G. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL REQUIREMENTS SECTION 01 00 00.
H. REFER TO ARCHITECTURAL DRAWINGS FOR RATED WALL LOCATIONS.
I. ARC FLASH STUDY MUST BE PREFORMED ON ALL ELECTRICAL EQUIPMENT. ARC FLASH LABELS WILL BE PROVIDED FOR ALL PANELS AND DISCONNECTS. REFER TO SPECIFICATIONS.

PLAN NOTES

1. PROVIDE HEAT TRACE ON ALL MAKE UP WATER PIPING EXPOSED TO FREEZING TEMPERATURES. REFER TO SPECIFICATION 23 05 23 FOR HEAT TRACE INFORMATION. COORDINATE EXACT REQUIREMENTS WITH DIVISION 23.
2. PROVIDE HEAT TRACE ON ALL HOT AND COLD WATER PIPING EXPOSED TO FREEZING TEMPERATURES. COORDINATE EXACT REQUIREMENTS WITH DIVISION 23.
3. PROVIDE 120V-1PH CONNECTION TO AUTMATIC VALVE. PROVIDE ALL COMPONETS AND ACCESSORIES REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION. COORDINATE EXACT REQUIREMENTS WITH DIV 23.
4. PROVIDE 120V, SINGLE-PHASE POWER CONNECTION TO NEW FLOW METER. PROVIDE 120V HORSEPOWER RATED TOGGLE SWITCH TO SERVE AS DISCONNECT MEANS MOUNTED AT UNIT IN ACCESSIBLE LOCATION. COORDINATE FINAL TERMINATION LOCATION, CIRCUIT ROUTING, AND POWER REQUIREMENTS WITH DIV 23 PRIOR TO ROUGH-IN.
5. CONNECT TO EXISTING LIGHTNING PROTECTION SYSTEM.
6. PROVIDE LIGHTNING PROTECTION SYSTEM AIR TERMINAL.
7. PROVIDE LIGHTNING PROTECTION SYSTEM CONDUCTOR.
8. BOND EQUIPMENT/PIPING TO LIGHTNING PROTECTION SYSTEM.
9. PROVIDE REMOTE TURN OFF, AUX CONTACT, AND ALL ASSOCIATED WIRING FROM VFD TO RESPECTIVE COOLING TOWER FAN DISCONNECT. COORDINATE EXACT REQUIREMENTS WITH DIVISION 23.
10. PROVIDE 120V-1PH CONNECTION TO LLC WATER CONTROL PANEL ON COOLING TOWER CELL. PROVIDE INTERCONNECTION WIRE BETWEEN CONTROL PANEL AND SOLENOID VALVE AS REQUIRED. COORDINATE EXACT REQUIREMENTS WITH DIV 23.
11. PROVIDE 120V-1PH CONNECTION TO CONTROL PANEL ON COOLING TOWER CELL. PROVIDE INTERCONNECTION WIRE BETWEEN CONTROL PANEL AND SOLENOID VALVE AS REQUIRED. COORDINATE EXACT REQUIREMENTS WITH DIV 23.
12. RACK CONDUIT WITH HYDRONIC PIPING ON ROOF.
13. PROVIDE DV/DT FILTERS FOR COOLING TOWER FAN VFDS. PROVIDE VFD-RATED SHIELDED MOTOR CABLE FROM VFD TO MOTOR. INSTALL AND TERMINATE IN ACCORDANCE WITH VFD AND MOTOR MANUFACTURER REQUIREMENTS.
14. THIS DATA JACK IS TO BE ROUTED TO THE DATA CLOSET C-222A FOR TERMINATION AT THE BMS FIBER DEMARCATION AND MEDIA CONVERTOR. FIELD COORDINATE DATA JACK MOUNTING HEIGHT AND LOCATION. COORDINATE CAT6A CABLE JACKET COLOR AND JACK (TO BE THE SAME COLOR) FOR CONNECTION TO THE EQUIPMENT. COORDINATE CONNECTION REQUIREMENTS WITH DIV 23.
15. PROVIDE 225A, 208V, 3PH, ELECTRICAL CONNECTION TO HEAT TRACE CONTROLLER. PROVIDE (4) #4/0 CU AND (1) #4 G IN 2 1/2" CONDUIT. COORDINATE EXACT REQUIREMENTS WITH DIV 23.
16. PROVIDE 125A, 208V, 3PH, ELECTRICAL CONNECTION TO HEAT TRACE CONTROLLER. PROVIDE (4) #1 CU AND (1) #6 G IN 1 1/2" CONDUIT. COORDINATE EXACT REQUIREMENTS WITH DIV 23.
17. PROVIDE 120V-1PH CONNECTION TO CHEMICAL TREATMENT CONTROLLER. COORDINATE EXACT CONNECTION, MOUTNING, AND LOCATION REQUIREMENTS WITH DIV 23.
18. PROVIDE 120V, SINGLE-PHASE, 1 A POWER CONNECTION TO NEW MOTORIZED VALVE. PROVIDE 120V HORSEPOWER RATED TOGGLE SWITCH TO SERVE AS DISCONNECT MEANS MOUNTING IN ACCESSIBLE LOCATION. COORDINATE FINAL TERMINATION LOCATION, CIRCUIT ROUTING, AND POWER REQUIREMENTS WITH DIV 23 PRIOR TO ROUGH-IN.
19. PROVIDE 120V-1PH CONNECTION TO STEAM MUFFLER CONTROLLER. COORDINATE EXACT CONNECTION, MOUTNING, AND LOCATION REQUIREMENTS WITH DIV 23.
20. PROVIDE 120V-1PH CONNECTION TO BASIN SWEEPER MULTICELL CONTROLLER. COORDINATE EXACT CONNECTION, MOUTNING, AND LOCATION REQUIREMENTS WITH DIV 23.
21. PROVIDE UNISTRUT MOUNTING AS REQUIRED.





1 **SECOND FLOOR AND ROOF NEW WORK PLAN**
SCALE: 1/8" = 1'-0"

2 **DATA ROOM PLAN**
SCALE: 1/16" = 1'-0"

No.	Revisions:	Date:
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	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: SECOND FLOOR PLAN
Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER
Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN
Issue Date: 02/13/2026
Checked: MSG
Drawn: DMB

Project Number: 626-24-203
Building Number: 1
Drawing Number: E102

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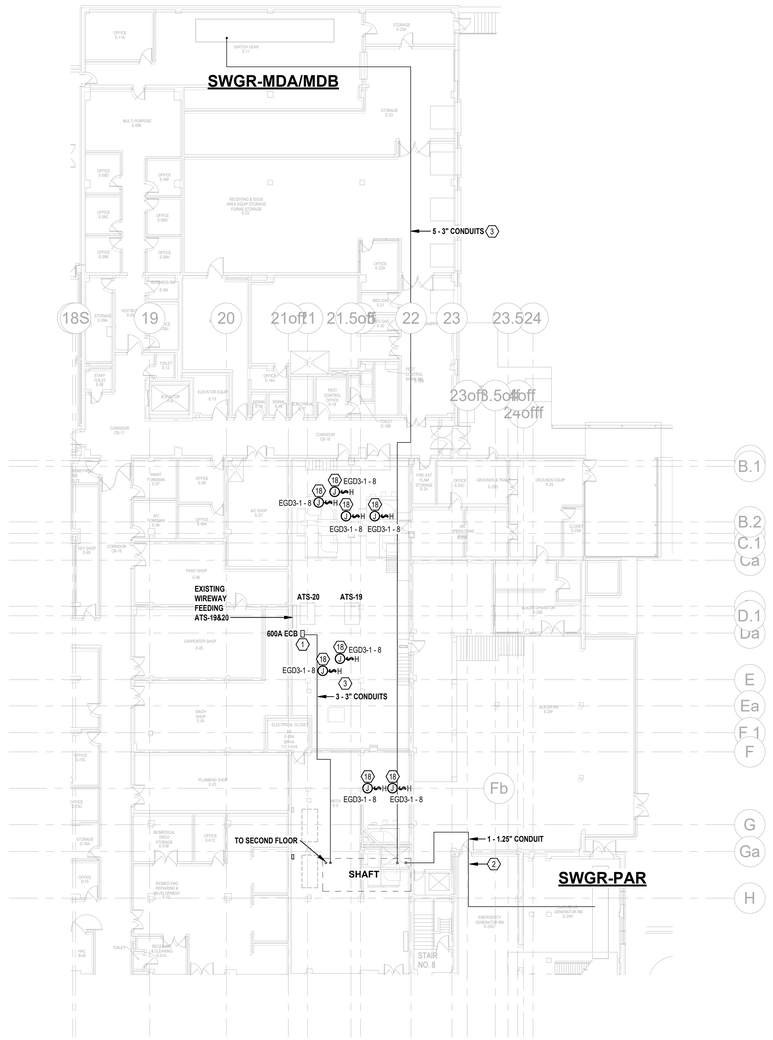
PLAN NOTES

1. MOUNT 600 A ENCLOSED CIRCUIT BREAKER ON UNISTRUT RACK AS REQUIRED FOR A COMPLETE AND OPERATION INSTALL OF THE ENCLOSED CIRCUIT BREAKER WITHIN 10 FEET OF THE FEEDER TAPPING BOX.
2. PROVIDE CONDUIT RUN FROM NEW ATS-29 TO EXISTING GENERATOR PARALLELING GEAR FOR ATS CONTROL AND MONITORING INTEGRATION. COORDINATE CONDUIT ROUTING AND CONNECTION REQUIREMENTS WITH ATS MANUFACTURER.
3. PROVIDE (1) EMPTY SPARE CONDUIT ALONG THE SAME ROUTE AS PRIMARY CONDUITS FOR FUTURE USE. MATCH SPARE CONDUIT SIZE AND TYPE TO THE LARGEST PRIMARY CONDUIT UNLESS NOTED OTHERWISE. TERMINATE SPARE CONDUIT WITHIN ACCESSIBLE AREAS AT BOTH ENDS AND CAP. INSTALL NYLON PULL STRING AND LABEL "SPARE FOR FUTURE USE."
4. PROVIDE 120V, 1PH, 1 A POWER CONNECTION TO NEW MOTORIZED VALVE. PROVIDE 120V, HORSEPOWER-RATED TOGGLE SWITCH TO SERVE AS DISCONNECTING MEANS, MOUNTED IN A READILY ACCESSIBLE LOCATION. COORDINATE FINAL TERMINATION LOCATION, CIRCUIT ROUTING, AND POWER REQUIREMENTS WITH DIV 23 PRIOR TO ROUGH-IN.



1 **BASEMENT POWER AND FEEDER PLAN**
SCALE: 1/16" = 1'-0"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: BASEMENT FEEDER PLAN

Phase: 95% CONSTRUCTION DOCUMENTS

Project Title: UPGRADE COOLING TOWER AND CHILLER

Project Number: 626-24-203

Building Number: 1

Approved: VMAC

FULLY SPRINKLERED

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026

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Drawing Number: E500

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MOTORS, STARTERS, DISCONNECTS & CONTROLS

NOTES:
1. ELECTRICALLY COMMUTATED MOTOR WITH INTERNAL CONTROL/DISCONNECT.
2. REFER TO SINGLE LINE FOR WIRE SIZING.
3. VFD TO BE LOCATED IN FAN ROOM 2. PROVIDE LOCAL DISCONNECTING MEANS AND PROVIDE CONTROL WIRING TO DISABLE VFD IN EVENT THE DISCONNECT IS IN THE OFF POSITION.

		MOTOR CHARACTERISTICS									LOCATION	STARTER TYPE								STARTER LOCATION				DISCONNECT MEANS TYPE								DISCONNECT MEANS LOCATION				CONTROL			FEEDER				
MARK	NAMEPLATE	HORSEPOWER (HP)	LOAD (kVA)	120V-1PH	208V-1PH	208V-3PH	240V-1PH	240V-3PH	277V-1PH	480V-1PH	480V-3PH	ROOM NUMBER	ROOM NAME	NEMA SIZE	MANUAL	MAGNETIC	ECM	2-SPEED	VFD	SEE NOTE	NEAR MOTOR	MOTOR CONT CENTER	EQUIP CONT PANEL	ROOM NUMBER	SEE NOTE	FURNISHED BY	DISC SWITCH	MANUAL STARTER	RECEPTACLE	FEEDER SW OR BREAKER	NEMA TYPE	DISC SIZE	FUSE SIZE	NEAR MOTOR	MOTOR CONT CENTER	EQUIP CONT PANEL	PANELBOARD	SEE NOTE	FURNISHED BY	INTERLOCK WITH MOTOR NO. BY E.C.	MANUAL AT STARTER	INTEGRAL WITH EQUIPMENT	FURNISHED BY	SEE NOTE	NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE	SEE NOTE
BSP-1	BASIN SWEEPER PUMP	10	11.64								•						•			•						DIV 23	•			4X	30		•					DIV 23			•	DIV 23							2
CWP-1	CONDENSER PUMP 1	125	129.7								•								•	•						DIV 26	•						•				3	DIV 26			•	DIV 23							2
CWP-2	CONDENSER PUMP 2	125	129.7								•								•	•						DIV 26	•						•				3	DIV 26			•	DIV 23							2
CWP-3	CONDENSER PUMP 3	125	129.7								•								•	•						DIV 26	•						•				3	DIV 26			•	DIV 23							2
CT1F-1	COOLING TOWER 1 FAN 1	40	43.23								•								•	•						DIV 26	•			3R	60		•				3	DIV 26			•	DIV 23							2
CT1F-2	COOLING TOWER 1 FAN 2	40	43.23								•								•	•						DIV 26	•			3R	60		•				3	DIV 26			•	DIV 23							2
CT2F-1	COOLING TOWER 2 FAN 1	40	43.23								•								•	•						DIV 26	•			3R	60		•				3	DIV 26			•	DIV 23							2
CT2F-2	COOLING TOWER 2 FAN 2	40	43.23								•								•	•						DIV 26	•			3R	60		•				3	DIV 26			•	DIV 23							2
MAF-2	MAKE-UP AIR FAN	1/2	1.18	•													•				•		1			DIV 23	•										1	DIV 23			•	DIV 23	2	10	10	0.75"	

Panel: EGD3-1

Location: FAN RM 2 1 **Mounting:** Surface **A.I.C. Rating:** 10KAIC
Supply From: T-EGD3-1 **Enclosure:** Type 1 **Mains Type:** MCB
Voltage: 208Y/120V-3PH-4W **Mains Rating:** 300 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	REC	20 A	1	360 VA	1176...					1	25 A	MAF-2	2
3	CT CONTROL PANEL	20 A	1			240 VA	240 VA			1	20 A	CT CONTROL PANEL	4
5	CT CONTROL PANEL	20 A	1					240 VA	240 VA	1	20 A	CT CONTROL PANEL	6
7	VAVLE	20 A	1	180 VA	1440...					1	20 A	Power	8
9	CHEM TREAT CNTR	20 A	1			180 VA	240 VA			1	20 A	CT CONTROL PANEL	10
11	CT CONTROL PANEL	20 A	1					240 VA	240 VA	1	20 A	CT CONTROL PANEL	12
13	CT CONTROL PANEL	20 A	1	240 VA	390 VA					1	20 A	MOTORIZED VALVES	14
15	MOTORIZED VALVES	20 A	1			900 VA	540 VA			1	20 A	CONTROLLER	16
17	MOTORIZED VALVES	20 A	1					840 VA	960 VA	1	20 A	MOTORIZED VALVES	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
31	Spare	20 A	1	0 VA	0 VA					1	20 A	Spare	32
33	Spare	20 A	1			0 VA	0 VA			1	20 A	Spare	34
35	Spare	20 A	1					0 VA	0 VA	1	20 A	Spare	36
37	HEAT TRACE CNTR	125 A	3	5250...	9750...					3	225 A	HEAT TRACE CNTR	38
39	--	--	--			5250...	9750...			--	--	--	40
41	--	--	--					5250...	9750...	--	--	--	42
	Total Load:			18.79 kVA		17.34 kVA		17.76 kVA					

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
Motor	1176 VA	125.00%	1470 VA		
Power	7350 VA	100.00%	7350 VA	**Total Conn. Load:**	53.89 kVA
Receptacle	360 VA	100.00%	360 VA	**Total Est. Demand:**	54.18 kVA
Resistive Heat	45000 VA	100.00%	45000 VA	**Total Conn.:**	150 A
				Total Est. Demand:	150 A

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
53.89 kVA		54.18 kVA (150 A)

DISTRIBUTION PANEL: EGD3

Location: FAN ROOM #2 **Mounting:** SURFACE **A.I.C. Rating:** 22KAIC
Supply From: ATS-29 **Enclosure:** TYPE 1 **Mains Type:** MLO
Voltage: 480V-3PH-3W **Mains Rating:** 600 A
Feeder Size: REFER TO SINGLE LINE **Spec. Ref. #:**

CKT	CIRCUIT DESCRIPTION	APPROX. CONNECTED LOAD	FRAME SIZE	POLES	TRIP SETTING	BREAKER TYPE	NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE	SEE NOTE
1	CWP-1	129.70 kVA	250 A	3	250 A	LSI	-	-	-	-	1
2	CT #1 -1	43.23 kVA	100 A	3	90 A	LSI	-	-	-	-	1
3	CT #1 -2	43.23 kVA	100 A	3	90 A	LSI	-	-	-	-	1
4	MTS-1	0.00 kVA	250 A	3	250 A	LSI	--	--	--	--	1,2
5	MTS-2	0.00 kVA	250 A	3	250 A	LSI	--	--	--	--	1,2
6	MTS-3	0.00 kVA	100 A	3	90 A	LSI	--	--	--	--	1,2
7	MTS-4	0.00 kVA	100 A	3	90 A	LSI	--	--	--	--	1,2
8	T-EGD3-1	53.89 kVA	125 A	3	175 A	TM					1
9	BSP-1	11.64 kVA	25 A	3	25 A	TM					1
10	SPD	0.00 kVA	60 A	1	60 A	--	--	--	--	--	1
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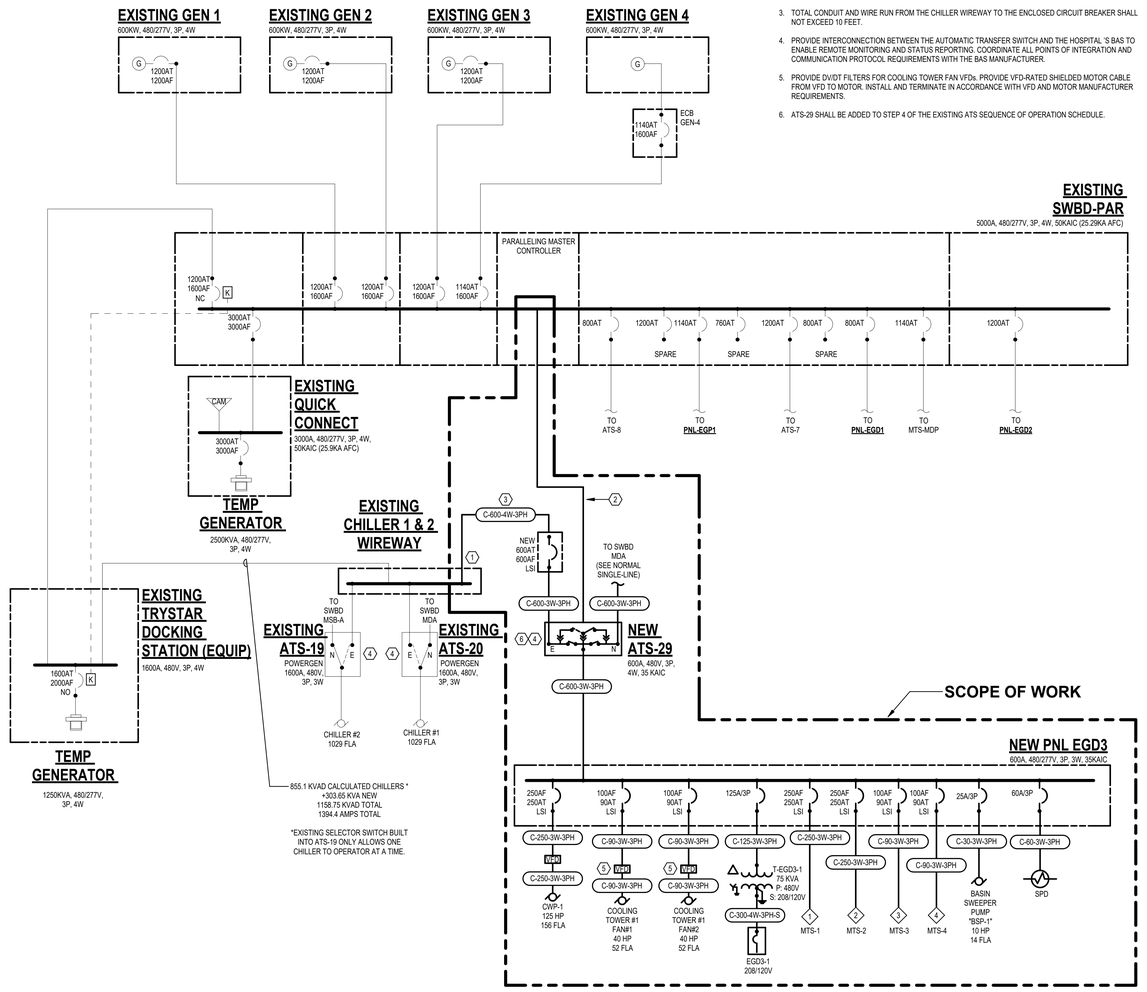
Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
Motor	228975 VA	114.16%	261399 VA		
Power	7350 VA	100.00%	7350 VA	**Total Conn. Load:**	281.69 kVA
Receptacle	360 VA	100.00%	360 VA	**Total Est. Demand:**	314.11 kVA
Resistive Heat	45000 VA	100.00%	45000 VA	**Total Conn.:**	339 A
				Total Est. Demand:	378 A

NOTES:
1. REFER TO SINGLE LINE FOR WIRE SIZING INFORMATION.
2. NON-TYPICAL LOADS SHALL ONLY BE ENERGIZED DURING MAINTENANCE CONDITIONS WHEN CWP-1 OR CT-1 IS OUT OF SERVICE AND THE ASSOCIATED BREAKER IS LOCKED OUT/TAGGED OUT IN ACCORDANCE WITH FACILITY PROCEDURES.

TOTAL CONNECTED		ESTIMATED DEMAND
281.69 kVA		314.11 kVA (378 A)

PLAN NOTES

1. PROVIDE A NEW FEEDER TAP IN THE EXISTING CHILLER WIREWAY AS SHOWN.
2. PROVIDE MONITORING CABLES IN 1.25" CONDUIT TO GENERATOR PARALLELING GEAR CONTROLLER.
3. TOTAL CONDUIT AND WIRE RUN FROM THE CHILLER WIREWAY TO THE ENCLOSED CIRCUIT BREAKER SHALL NOT EXCEED 10 FEET.
4. PROVIDE INTERCONNECTION BETWEEN THE AUTOMATIC TRANSFER SWITCH AND THE HOSPITAL 'S BAS TO ENABLE REMOTE MONITORING AND STATUS REPORTING. COORDINATE ALL POINTS OF INTEGRATION AND COMMUNICATION PROTOCOL REQUIREMENTS WITH THE BAS MANUFACTURER.
5. PROVIDE DV/DT FILTERS FOR COOLING TOWER FAN VFDs. PROVIDE VFD-RATED SHIELDED MOTOR CABLE FROM VFD TO MOTOR. INSTALL AND TERMINATE IN ACCORDANCE WITH VFD AND MOTOR MANUFACTURER REQUIREMENTS.
6. ATS-29 SHALL BE ADDED TO STEP 4 OF THE EXISTING ATS SEQUENCE OF OPERATION SCHEDULE.



1 EMERGENCY SINGLE LINE

SCALE: NONE

FEEDER WIRE SIZES

FEEDER TAG	# OF SETS	# OF CONDUCTORS	CONDUCTOR SIZE	GROUND SIZE	CONDUIT SIZE
C 30 3W 3PH	1	3	10	10	0.75"
C 60 3W 3PH	1	3	4	10	1.25"
C 90 3W 3PH	1	3	2	8	1.5"
C 125 3W 3PH	1	3	1	6	1.5"
C 250 3W 3PH	1	3	250	4	2.5"
C 300 4W 3PH S	1	4	350	2	3"
C 600 3W 3PH	2	3	350	1	3"
C 600 4W 3PH	2	4	350	1	3"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

FFE | HEAPY

STAMP

NOT FOR CONSTRUCTION

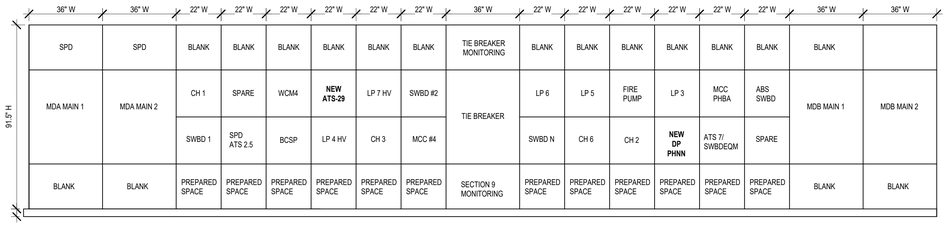
VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: EMERGENCY BRANCH SINGLE LINE NEW WORK
Approved: VMAC
Phase: 95% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED
Project Title: UPGRADE COOLING TOWER AND CHILLER
Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN
Issue Date: 02/13/2026
Checked: MSG
Drawn: DMB
Project Number: 626-24-203
Building Number: 1
Drawing Number: E600

2/13/2026 2:37:22 PM
Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/2024-05214-MEP-Central.rvt

VA FORM 08 - 6231



2 SWGR-MDA/MDB ELEVATION

PLAN NOTES

1. PROVIDE A 250A, 600VAC, 3-POLE, 3-WIRE, FUSIBLE DOUBLE-THROW MANUAL TRANSFER SAFETY SWITCH. SWITCH SHALL BE NEMA 1 RATED, HEAVY-DUTY, AND HORSEPOWER-RATED WITH AN INTERRUPTING RATING NOT LESS THAN THE AVAILABLE FAULT CURRENT. PROVIDE FUSES AS REQUIRED FOR THE APPLICATION. MANUFACTURER SHALL BE EATON OR APPROVED EQUAL.
2. PROVIDE A 100A, 600VAC, 3-POLE, 3-WIRE, FUSIBLE DOUBLE-THROW MANUAL TRANSFER SAFETY SWITCH. SWITCH SHALL BE NEMA 1 RATED, HEAVY-DUTY, AND HORSEPOWER-RATED WITH AN INTERRUPTING RATING NOT LESS THAN THE AVAILABLE FAULT CURRENT. PROVIDE FUSES AS REQUIRED FOR THE APPLICATION. MANUFACTURER SHALL BE EATON OR APPROVED EQUAL.

DISTRIBUTION PANEL: PHNN

Location: FAN ROOM #2 **Mounting:** SURFACE **A.I.C. Rating:** 35KAIC
Supply From: SWGR MDA/MDB **Enclosure:** TYPE 1 **Mains Type:** MLO
Voltage: 480Y/277V-3PH-4W **Mains Rating:** 600 A
Feeder Size: REFER TO SINGLE-LINE **Spec. Ref. #:**

CKT	CIRCUIT DESCRIPTION	APPROX. CONNECTED LOAD	FRAME SIZE	POLES	TRIP SETTING	BREAKER TYPE	NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE	SEE NOTE
1	MTS-1 (CWP-2)	129.70 kVA	250 A	3	250 A	LSI	-	-	-	-	1
2	MTS-2 (CWP-2)	129.70 kVA	250 A	3	250 A	LSI	-	-	-	-	1
3	MTS-3 (CT4 -1)	43.23 kVA	100 A	3	90 A	LSI	-	-	-	-	1
4	MTS-2 (CT4-2)	43.23 kVA	100 A	3	90 A	LSI	-	-	-	-	1
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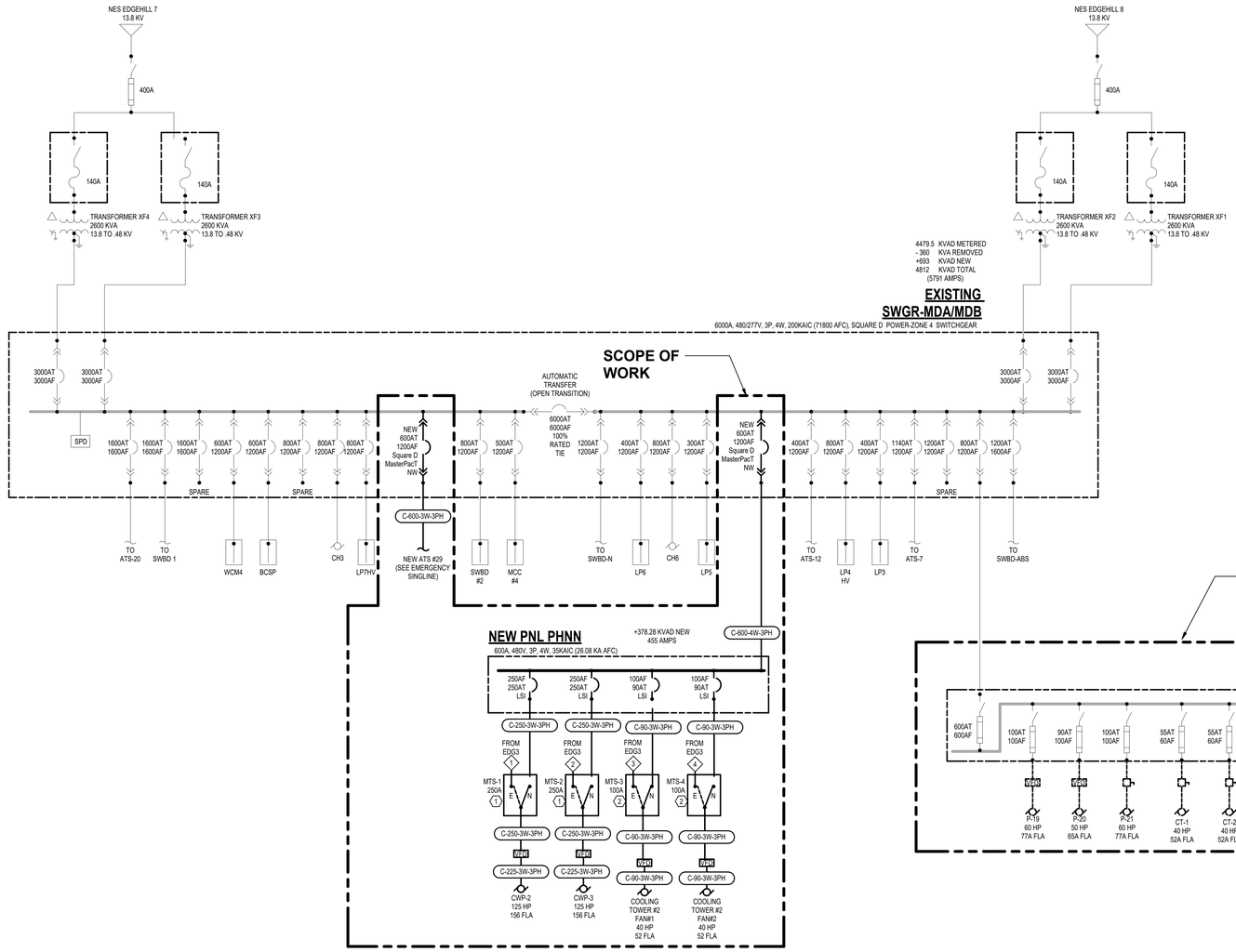
Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
Motor	345856 VA	109.38%	378280 VA		
				Total Conn. Load:	345.86 kVA
				Total Est. Demand:	378.28 kVA
				Total Conn.:	416 A
				Total Est. Demand:	455 A

NOTES: 1. REFER TO SINGLE LINE FOR WIRE SIZING INFORMATION.

TOTAL CONNECTED		ESTIMATED DEMAND
345.86 kVA		378.28 kVA (455 A)



1 NORMAL SINGLE LINE

SCALE: NONE

FEEDER WIRE SIZES

FEEDER TAG	# OF SETS	# OF CONDUCTORS	CONDUCTOR SIZE	GROUND SIZE	CONDUIT SIZE
C 90 3W 3PH	1	3	2	8	1.5"
C 225 3W 3PH	1	3	4/0	4	2.5"
C 250 3W 3PH	1	3	250	4	2.5"
C 600 3W 3PH	2	3	350	1	3"
C 600 4W 3PH	2	4	350	1	3"

No.	Revisions:	Date:
	CONSTRUCTION DOCUMENTS 95%	02/13/2026
	DESIGN DEVELOPMENT	10/20/2025
	SCHEMATIC DESIGN 35% REVISION	05/28/2025
	SCHEMATIC DESIGN 35% SUBMITTAL	01/13/2025

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

FFE | HEAPY

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VA TVHS NASHVILLE CAMPUS

VA U.S. Department of Veterans Affairs

Drawing Title: NORMAL BRANCH SINGLE LINE DEMO & NEW WORK

Approved: VMAC

Phase: 95% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Project Title: UPGRADE COOLING TOWER AND CHILLER

Location: 1310 24TH AVENUE SOUTH NASHVILLE, TN

Issue Date: 02/13/2026 | Checked: MSG | Drawn: DMB

Project Number: 626-24-203

Building Number: 1

Drawing Number: E601

Autodesk Docs://Nashville VA - Upgrade Cooling Tower and Chiller/20224-05214-MEP-Central.rvt
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