FRONT END BIDDING REQUIREMENTS PROVIDED BY CONTRACTOR (CM)

Westside Middle School Addition & Renovation –
Final Bid
ADDENDUM NO. 1

Date: 4/10/2024

Item No.1 – Addendum 01 from BVH has been issued. See attached.

Item No. 2 – Milestone schedule has been issued. See attached.

Item No.3 – Sign in Sheets from the Pre-Bid Meeting have been issued. See attached.

End AD-#1

BVH
ARCHITECTURE

ADDENDUM

ADDENDUM NO.: #01
DATE: 04/09/2024

PROJECT: Westside Middle School Cafeteria Addition
PROJECT #: 23073

TO: Prospective Bidders

This Addendum is issued by the Architect to all bidders of record prior to receipt of proposals. Bidders shall acknowledge receipt of this addendum by so indicating on the Proposal Form. Failure to do so may subject Bidder to disqualification. All information and instructions given herein shall become a part of the Contract Documents.

RFI:

1. *Please verify that the chiller is still OFCI for this project and all the startups, warranties, etc. listed in the chiller spec section are covered with the owner's PO*
    a. The mechanical contractor takes responsibility for installing the pre-purchased chiller. Factory start-up support was included by the supplier. The mechanical contractor is responsible for coordinating with the supplier. The mechanical contractor is responsible for providing start-up, check out and labor for warranty. The pre-purchased chiller submittal is attached to this addendum.
2. *On the door and hardware schedules Set 3.0 is listed for Door 146 which is not on the door schedule and set 4.0 goes to door 141. With what I see on the schedules does set 3 actually go to door 141 and set 4 to door 131? Also, set 5 does not seem correct for Door 147.*
    a. The door hardware spec has been revised and added to this addendum.

PROJECT MANUAL

1. Section 071800 - Traffic Coating
    a. Section added
2. Section 087100 - Door Hardware
    a. Door hardware revised/coordinated with drawings
3. Specification 232123 – Section 2.2 A
    a. Add Willo Pumps to the allowed manufacturers list.
4. Specification 236423 – Air cooled Chillers.
    a. See revised specification with corrected formatting.
    b. See attached reviewed submittal for pre-purchased chillers.
5. Specification 238219 – Section 2.1 A
    a. Add International Environmental Corporation to the allowed manufacturers list.

DRAWINGS

Civil:

1. C1.3 - Zoning Compliance Plan
    a. Chiller pad and retaining wall moved
2. C1.5 - Grading Plan
    a. Chiller pad and retaining wall moved, grading updated accordingly
3. C1.6 - Paving Plan
    a. Chiller pad and retaining wall moved, paving updated accordingly
4. C1.7 - Utility Plan
    a. Chiller pad and retaining wall moved

Architectural:

5. A0.2 - Architectural Site Plan
    a. Architectural Site Plan
        i. Chiller Pad Coordination
        ii. Traffic Coating added to boiler roof
6. A0.3 - Site Details
    a. Enlarged Plan - Mechanical Enclosure
        i. Chiller Pad Coordination, gate access moved to south side
    b. Elev - Mech Enclosure West
        i. Chiller Pad Coordination
    c. Elev - Mech Enclosure South
        i. Chiller Pad Coordination
    d. Elev - Mech Enclosure East
        i. Chiller Pad Coordination, retaining wall
    e. Elev - Mech Enclosure North, retaining wall
        i. Chiller Pad Coordination
    f. Stack Cap
        i. Finish to be galvanized alum. Metal screen
7. A9.0 - Interior Finish Legend
    a. Dinoc application to run horizontally to minimize seam pattern.

Structural:

8. S1.1 - Foundation & First Floor Framing Plans
    a. Chiller pad and retaining wall moved and revised
9. S5.1 - Structural Sections
    a. 19/S5.1 - Section added for retaining wall

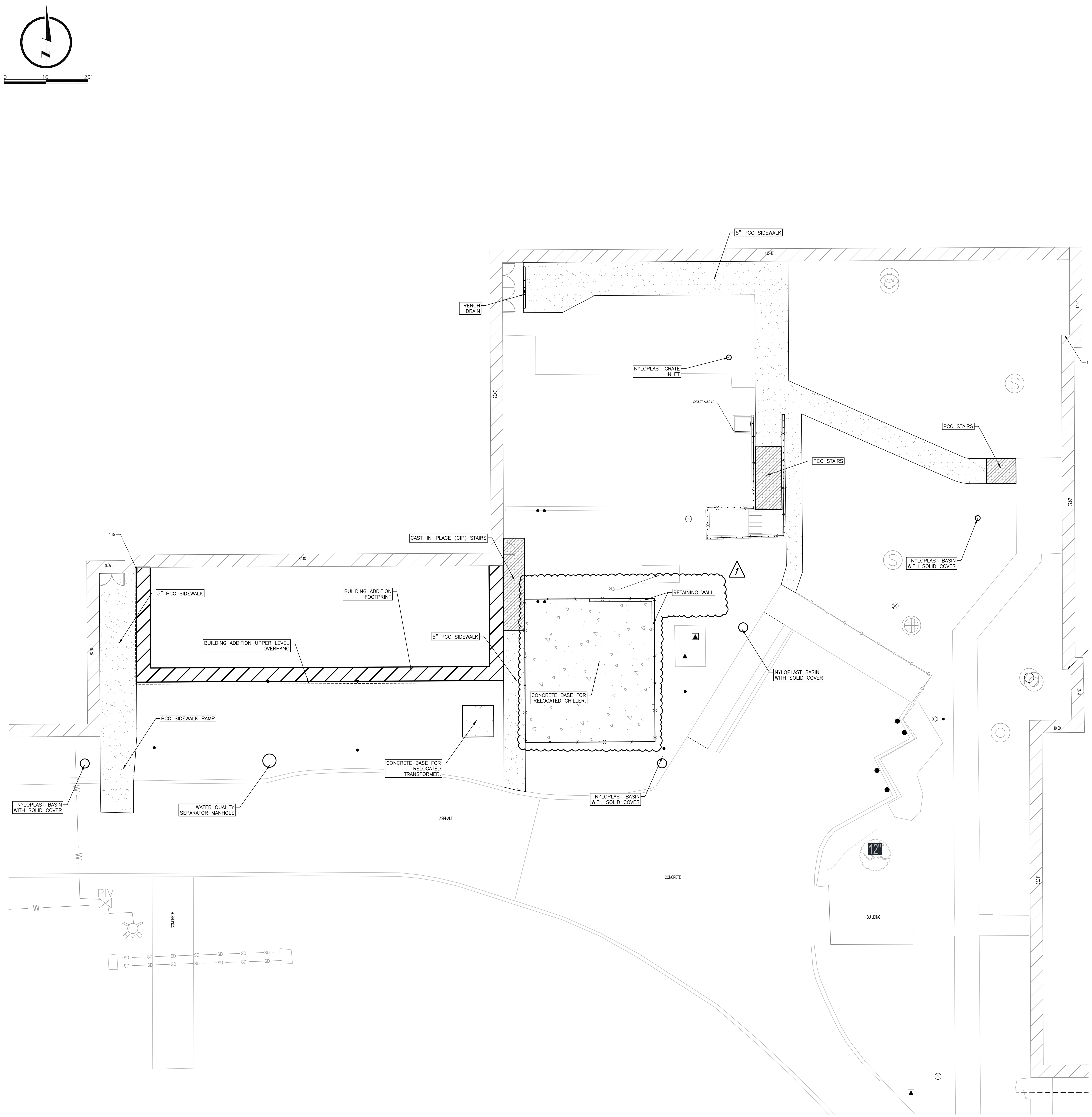
Mechanical:

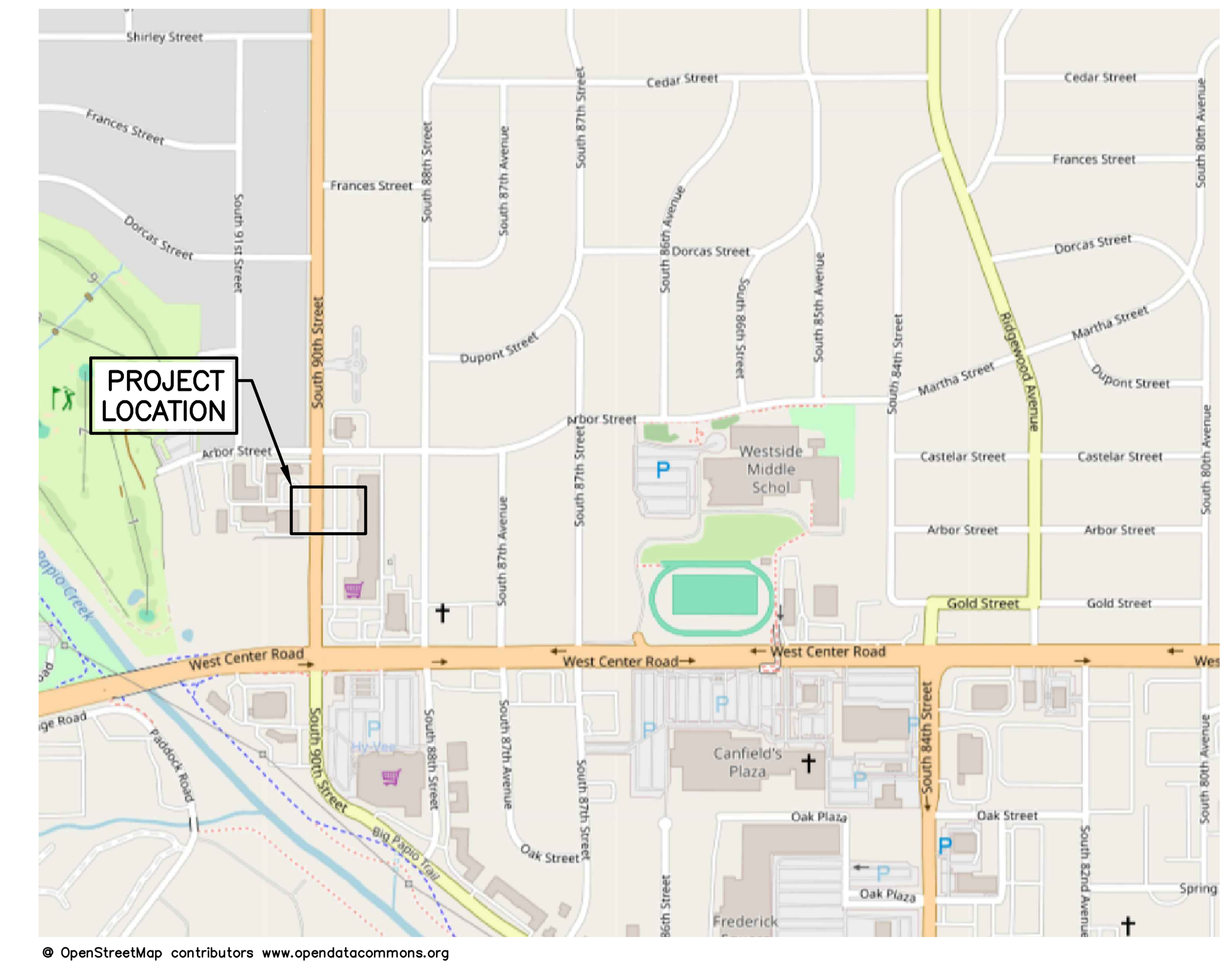
10. Sheet MD0.0 – LOWER LEVEL PLAN – MECHANICAL DEMO
    a. Add note for unexcavated area on plan.
    b. Adjust keynotes M021, M022.
11. Sheet MD1.0 – FIRST FLOOR PLAN – MECHANICAL DEMO
    a. Adjust keynote M013.
12. Sheet M1.0 – LOWER LEVEL PLAN - HVAC
    a. Add AHU-C plan/elev view to this sheet.
    b. Adjust location of chillers on plan.
13. Sheet M2.0 – LOWER LEVEL PLAN – MECHANICAL PIPING
    a. Adjust keynote M216.
    b. Adjust chiller piping supports.
    c. Add note for cold water connection to civil.
    d. Adjust location of chillers on plan.
    e. Add note for chiller orientation.

Electrical:

14. Sheet ED1.1 – FIRST FLOOR PLAN – ELECTRICAL DEMOLITION
    a. Add note to reinstall existing special purpose receptacle in cafeteria in lieu of demolition.
15. Sheet E2.0 – LOWER LEVEL PLAN – POWER
    a. Add access control rough-ins to exterior Storage 147 door.
    b. Add access control rough-ins to exterior Mechanical Room E131 door.
    c. Modify location of chillers and associated field-powered receptacles and disconnects.
    d. Add Unistrut support for chiller disconnect switches.
16. Sheet E2.1 – FIRST FLOOR PLAN – POWER
    a. Add reinstalled special purpose receptacle in cafeteria.
17. Sheet E4.1 – ELECTRICAL DETAILS
    a. Add clarification that existing switchboard ‘MDS1A’ is Siemens SB3 on Partial Power Riser Diagram 7/E4.1.
18. Sheet E5.1 – ELECTRICAL SCHEDULES
    a. Modify Access Control Rough-In Detail 1/E5.1 to also apply to locations mentioned above.

END OF ADDENDUM





LOCATION MAP

GENERAL NOTES

1. ALL SITE WORK SHALL BE IN ACCORDANCE WITH THE CITY OF OMAHA "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", 2024 EDITION AND ANY REVISIONS OR AMENDMENTS THERETO SHALL APPLY TO THIS PROJECT. EXCEPT AS MODIFIED BY THESE SPECIFICATIONS, SPECIAL CONDITIONS, AND/OR THE CONSTRUCTION DRAWINGS.
2. EXISTING UTILITIES ARE SHOWN AS A CONVENIENCE FOR THE CONTRACTOR. THE LOCATIONS OF ALL AERIAL AND UNDERGROUND UTILITIES MAY NOT BE INDICATED IN THESE PLANS. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 48 HOURS BEFORE WORK IS STARTED TO VERIFY UTILITY LOCATIONS (ONE CALL 811).
3. BARRICADES SHALL CONFORM TO OMAHA PUBLIC WORKS "BARRICADING STANDARDS, SPECIFICATIONS, METHODS & MATERIALS", AND/OR THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
4. THE CONTRACTOR SHALL PROVIDE THE ENGINEER/ARCHITECT WITH A CONSTRUCTION RECORD DRAWING INDICATING ALL CHANGES IN GEOMETRY, GRADES, ELEVATIONS OR MATERIAL ON THE PROJECT PRIOR TO FINAL ACCEPTANCE.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED TO COMPLETE THIS PROJECT AND IS RESPONSIBLE FOR THE PAYMENT OF ALL FEES ASSOCIATED WITH THESE PERMITS.
6. THE CONTRACTOR SHALL CONTACT THE SOILS ENGINEER TO OBSERVE THE SUBGRADE PRIOR TO PLACING PAVEMENT TO DELINEATE ANY AREAS WHERE SUBGRADE OVEREXCAVATION MAY BE REQUIRED.
7. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF ALL PROPOSED UTILITY CONNECTIONS WITH THE ARCHITECTURAL CONSTRUCTION DOCUMENTS.
8. THE INSTALLATION OF UTILITIES MAY REQUIRE THE DISTURBANCE OF EXISTING DRAINAGE AND EROSION CONTROL MEASURES. THESE ITEMS MAY INCLUDE SILT BASINS, LEVEL TERRACES, INTERCEPTOR SWALES, SILT FENCE AND ROCK CONSTRUCTION ENTRANCES. THE CONTRACTOR SHALL MAKE THEMSELVES AWARE OF THE EXISTING SITE CONDITIONS PRIOR TO BIDDING THIS WORK. THE FUNCTION OF THESE ITEMS MUST BE MAINTAINED THROUGHOUT CONSTRUCTION WITH EMPHASIS PLACED ON RESTORING THEIR INTEGRITY PRIOR TO ANY RAINFALL EVENT. AS PART OF THIS CONTRACT, ALL DISTURBED DRAINAGE AND EROSION CONTROL STRUCTURES SHALL BE RESTORED TO GOOD CONDITION AFTER COMPLETION OF THE WORK OR AS DIRECTED BY THE ENGINEER/ARCHITECT.
9. SEE PLAN SHEETS FOR ADDITIONAL NOTES.

LEGAL DESCRIPTION: OMAHA, NEBRASKA

PARCEL 0134540001, LANDS SEC–TWN–RGE 27–15–12 IRREG S 544 N 880 FT W 30 AC SE 1/4 SE 1/4

PARCEL 0134520000, LANDS SEC–TWN–RGE 27–15–12 N 110 S 440 W 660 FT SE 1/4 SE 1/4

PARCEL 0134510000, LANDS SEC–TWN–RGE 27–15–12 –EX IRR S 10975.5 SQ FT FOR H/W– N 297 S 330 W 660 FT SE 1/4 SE 1/4

ADDRESS 8601 ARBOR ST, OMAHA, NE 68124

APPLICANT WESTSIDE COMMUNITY SCHOOLS

PHONE NUMBER 402–390–6464

USE TYPE: SINGLE FAMILY RESIDENTIAL DISTRICT **IMPROVEMENT** SITE PLAN

ZONING: R2 (SEE SECTION 55–68)

[ ] PERMITTED USE

[X] CONDITIONAL USE

SITE REGULATORS (SEE SECTION 55–68):

	ALLOWED	PROPOSED	COMMENTS
A. SITE AREA	10,000 SF MIN.	833,041 SF	EXISTING
B. MINIMUM WIDTH	80 FEET	637 FEET	EXISTING
C. GROSS FLOOR AREA	N/A	260,556 SF	EXISTING + PROPOSED
(TOTAL FINISHED)			
D. FAR (C/A)	NO RESTRICTION	0.31	EXISTING + PROPOSED
E. SETBACK			
FRONT YARD	40'	40'	EXISTING
STREET SIDE YARD	20'	603'	EXISTING
INTERIOR SIDE YARD	10–20'	58'	EXISTING
REAR YARD	25'	117'	EXISTING
F. HEIGHT	35' MAX	33'–7"	EXISTING
G. BUILDING COVER (%)	30%	19%	EXISTING + PROPOSED
H. IMPERVIOUS COVER (%)	40% MAX	44%	EXISTING + PROPOSED (WAIVER REQUESTED)

BUFFERYARD (SEE SECTION 55–716):

ADJACENT ZONING:	R2 NORTH, CC & LO SOUTH, R2 & R3 EAST, AND R2 WEST	
K. LANDSCAPED BUFFER YARD	N/A	N/A

PARKING LANDSCAPE REQUIREMENTS (SEE SECTION 55–740):

L. STREET SIDE YARD	N/A	N/A
M. INTERIOR SIDE YARD	N/A	N/A
N. INTERIOR LANDSCAPING (%) (% OF PAVED AREA)	N/A	N/A

1
REVISION #1 – 4/9/2024
CHILLER PAD AND WALL MOVED

LAMP RYNEARSON
OMAHA, NEBRASKA 14710 W. DODGE RD, STE. 100 (402) 496.2498 NE AUTH. NO.: CA0130
FORT COLLINS, COLORADO 4715 INNOVATION DR., STE. 100 (970) 226.0342
KANSAS CITY, MISSOURI 9001 STATE LINE RD., STE. 200 (816) 361.0440 MO AUTH. NO.: E-2013011903 | LS-2019043127

DESIGNER / DRAFTER: GRANT GOODRICH/RICK KELLER
REVIEWER: CALEB DANIEL VAN WEELDEN
PROJECT NUMBER: 0123161.01–020
DATE: 3/22/2024

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BVH

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td2co.com

MEP ENGINEER
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morrisseyengineering.com

CIVIL ENGINEER
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14710 W DODGE RD #100
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OWNER REPRESENTATIVE
PROJECT ADVOCATES
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REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
REV1	04/09/2024	ADD 01

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

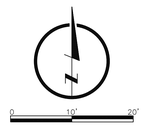
PROJECT: 23073 DATE: 03.22.2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS

CALEB DANIEL VAN WEELDEN
E-18498
04/09/2024
PROFESSIONAL ENGINEER
STATE OF NEBRASKA

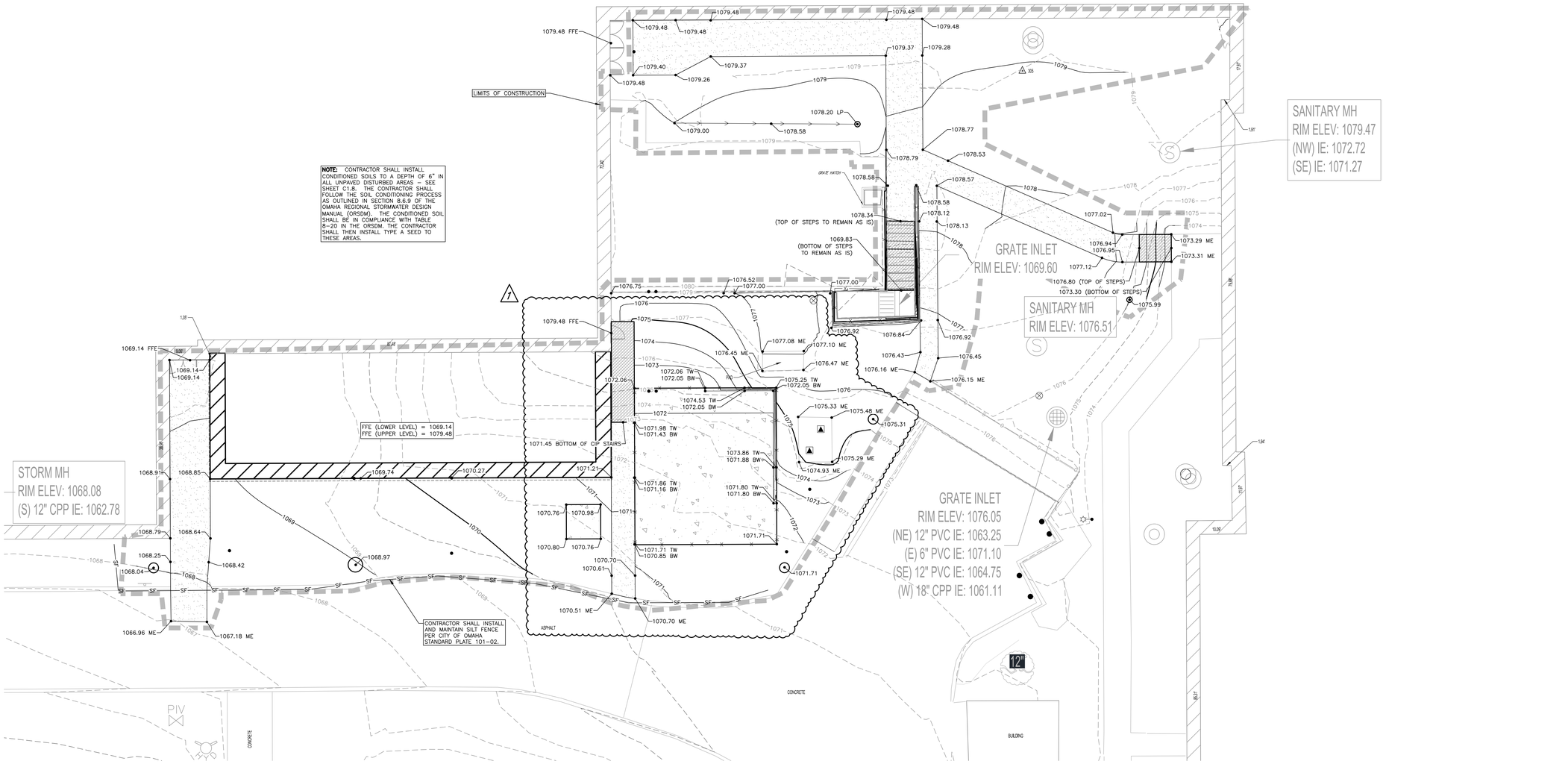
ZONING COMPLIANCE PLAN

NORTH

C1.3



NOTE:
SEE THIS SHEET FOR EROSION CONTROL MEASURES TO BE INSTALLED. THESE ARE PROPOSED LOCATIONS. IF THE CONTRACTOR WISHES TO USE ALTERNATE LOCATIONS IT MUST BE APPROVED BY THE ENGINEER.



COMPACTION REQUIREMENTS TABLE

SEE GEOTECHNICAL ENGINEERING REPORT:	WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION		
PREPARED BY:	THIELE GEOTECH INC		
ENGINEER:	RAEANNA C.D. THIELE		
PROJECT NO:	23564.01		
DATED:	1/4/2024		
MAX. DEPTH OF LIFT FOR FILL (MEASURED LOOSE)	8"		
AREA	TEST	COMPACTION	MOISTURE
UTILITY TRENCH BACKFILL	STANDARD PROCTOR	95%	-3/+4
PCC PAVEMENT SUBGRADE (UPPER 12")	STANDARD PROCTOR	95%	-3/+4
MANHOLE + STRUCTURE BACKFILL (FULL DEPTH)	STANDARD PROCTOR	95%	-3/+4
SIDEWALK SUBGRADE (UPPER 6")	STANDARD PROCTOR	95%	-3/+4
ALL OTHER FILL	STANDARD PROCTOR	95%	-3/+4

NOTES:

1. STANDARD PROCTOR SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D 698.

2. MODIFIED PROCTOR SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D 1557.

EROSION CONTROL SUMMARY TABLE

TOTAL AREA OF SITE	19.12 AC.
DISTURBED AREA	0.35 AC.
EROSION CONTROL MEASURES:	ROCK ACCESS ROAD, INLET PROTECTION, AND SEEDING

CUT/FILL SUMMARY TABLE

CUT	37 CU YDS
ADJUSTED FILL (WITH 1.4 COMPACTION FACTOR)	113 CU YDS
NET	76 CU YDS

NOTE: THE CUT/FILL SUMMARY IS STRICTLY A VOLUME COMPARISON BETWEEN EXISTING AND PROPOSED GRADES. THE FILL NUMBER HAS BEEN ADJUSTED UP WITH A 1.4 COMPACTION FACTOR. QUANTITIES DO NOT TAKE INTO ACCOUNT THICKNESS FOR BUILDING SLABS OR FOOTINGS, PAVEMENT SLABS, OR SIDEWALKS. IT ALSO DOES NOT MAKE ANY CONSIDERATIONS FOR UTILITY TRENCHES OR POTENTIAL SOIL EROSION. THE CONTRACTOR IS RESPONSIBLE FOR DOING THEIR OWN GRADING ANALYSIS TO ACCOUNT FOR THESE ITEMS AND TO PROVIDE FINAL PRICING TO THE OWNER FOR ALL NECESSARY GRADING AND EXCAVATION WORK TO COMPLETE THE PROJECT, INCLUDING RE-SPREADING OF TOPSOIL, AND HAULING IN OR HAULING OFF ANY MATERIAL.

ELEVATION NOTES

1. PROPOSED CONTOURS ARE FINISHED GRADE/TOP OF PAVEMENT ELEVATIONS. NOT SUBGRADE ELEVATIONS.
2. ALL SPOT ELEVATIONS IN PAVEMENT ARE TOP OF SLAB UNLESS NOTED OTHERWISE.

1 **REVISION #1 – 4/9/2024**
CHILLER PAD AND WALL MOVED. GRADING UPDATED ACCORDINGLY.

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OMAHA, NEBRASKA
14710 W. DODGE RD., STE. 100 (402) 496-2498
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FORT COLLINS, COLORADO
KANSAS CITY, MISSOURI

DESIGNER / CHAPTER
GRANT GOODRICH/RICK KELLER
REVIEWER
CALEB DANIEL VAN WEELDEN
PROJECT NUMBER
013281.01-020
DATE
3/22/2024

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
REV1	04/09/2024	ADD 01

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS

CALEB DANIEL VAN WEELDEN
E-18498
04/09/2024
STATE OF NEBRASKA
PROFESSIONAL ENGINEER

GRADING PLAN

NORTH

C1.5

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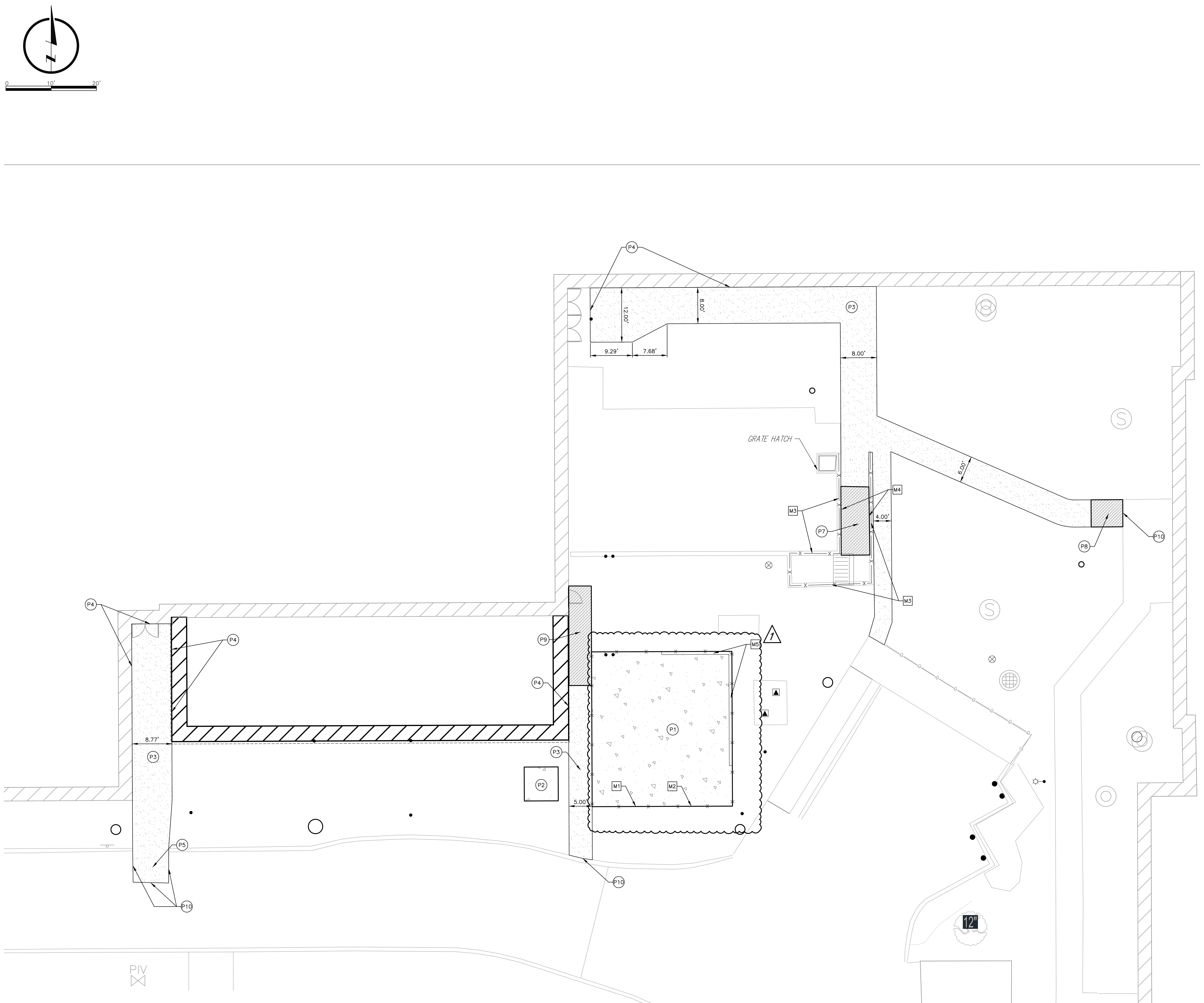

PORTLAND CEMENT CONCRETE (PCC) PAVING NOTES – PRIVATE

1. ALL PAVING ELEVATIONS ARE AT TOP OF SLAB UNLESS NOTED OTHERWISE.
2. CURBS SHALL BE TYPE "A" IN ACCORDANCE WITH CITY OF OMAHA STANDARD PLATE 502–01 UNLESS NOTED OTHERWISE.
3. PAVEMENT SUBGRADE TO A DEPTH OF 12 INCHES AND TO A WIDTH OF 4 FEET OUTSIDE PAVEMENT EDGES SHALL BE COMPACTED AS SPECIFIED IN THE COMPACTION REQUIREMENTS TABLE (SEE SHEET C1.5).
4. BACKFILL BEHIND CURBS SHALL BE COMPACTED TO A MINIMUM IN–PLACE DENSITY OF 90% OF "MAXIMUM DENSITY" AS DETERMINED IN ACCORDANCE WITH ASTM D 1557 (90% MODIFIED PROCTOR).
5. THE CONTRACTOR SHALL CONTACT THE SOILS ENGINEER TO OBSERVE THE SUBGRADE PRIOR TO PLACING PAVEMENT TO DELINEATE ANY AREAS WHERE SUBGRADE OVEREXCAVATION MAY BE REQUIRED.
6. THE CONTRACTOR IS REFERRED TO THE FOLLOWING CITY OF OMAHA STANDARD PLATES:

   501–01 CONCRETE PAVEMENT JOINTS
   504–01 CONCRETE CURB RAMP
7. CONCRETE SHALL BE IN ACCORDANCE WITH CITY OF OMAHA STANDARD SPECIFICATIONS FOR ROW CONSTRUCTION, SECTION 500. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL BE TYPE OPW 4000 AIR–ENTRAINED.
8. CONCRETE PAVEMENT SHALL BE CURED USING A LIQUID–MEMBRANE FORMING COMPOUND AT THE CONCENTRATIONS AND APPLICATION RATES RECOMMENDED BY THE MANUFACTURER.
9. WATER–REDUCING ADMIXTURE SHALL BE ADDED TO ALL HAND–PLACED AND FINISHED CONCRETE.
10. JOINT PATTERNS
    A. THE MAXIMUM PANEL DIMENSION IN FEET IS EQUAL TO THE LESSER OF TWICE THE PAVEMENT THICKNESS IN INCHES OR FIFTEEN FEET.
    B. THE RATIO OF PANEL LENGTH TO WIDTH SHOULD NOT EXCEED 1.25:1.
    C. THE OUTER PARKING LOT JOINT SHALL BE REINFORCED TO FORM A RING
    D. THE CONTRACTOR SHALL SUBMIT JOINT PATTERN SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO PAVING.

SIDEWALK NOTES – PRIVATE

1. SIDEWALK SUBGRADE TO A DEPTH OF 6 INCHES AND TO A WIDTH OF 6 INCHES OUTSIDE OF SIDEWALK EDGES SHALL BE COMPACTED AS SPECIFIED IN THE COMPACTION REQUIREMENTS TABLE. (SEE SHEET C1.5)
2. BACKFILL SHALL BE COMPACTED AS SPECIFIED IN THE COMPACTION REQUIREMENTS TABLE. (SEE SHEET C1.5)
3. THE CONTRACTOR IS REFERRED TO THE FOLLOWING CITY OF OMAHA STANDARD PLATES:

   503–01 SIDEWALK CONSTRUCTION
   504–01 CONCRETE CURB RAMP
   608–01 PCC STAIRS
5. CONCRETE SHALL BE IN ACCORDANCE WITH CITY OF OMAHA STANDARD SPECIFICATIONS FOR ROW CONSTRUCTION, SECTION 500. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL BE TYPE OPW 3500 AIR–ENTRAINED.
6. CONCRETE PAVEMENT SHALL BE CURED USING A LIQUID–MEMBRANE FORMING COMPOUND AT THE CONCENTRATIONS AND APPLICATION RATES RECOMMENDED BY THE MANUFACTURER.
7. WATER–REDUCING ADMIXTURE SHALL BE ADDED TO ALL HAND–PLACED AND FINISHED CONCRETE.
8. JOINT SEALANT SHALL MEET THE REQUIREMENTS OF SECTION 500.02 (H) OF THE PROJECT SPECIFICATIONS EXPECT AS MODIFIED HEREIN. BITUMASTIC JOINT SEALER IS NOT ALLOWED. POLYURETHANE OR SILICONE JOINT SEALER SHALL COLOR–MATCH THE NEW PCC PAVEMENT. SUBMIT COLOR SAMPLES TO THE OWNER FOR HIS APPROVAL PRIOR TO APPLICATION.

SEGMENTAL WALL NOTES

1. THE SEGMENTAL RETAINING WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 605 OF THE CITY OF OMAHA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION CURRENT EDITION AND OMAHA STANDARD PLATE 605–01, AND IN ACCORDANCE WITH THE NCMA DESIGN MANUAL.
2. CONTRACTOR SHALL PROVIDE RETAINING WALL DESIGN BY A PROFESSIONAL ENGINEER REGISTERED IN NEBRASKA PER MANUFACTURER'S RECOMMENDATIONS.
3. THE APPROVED SEGMENTAL BLOCK UNITS ARE: ANCHOR VERTICA PRO, KEYSTONE STANDARD UNIT 21, AND ROCKWOOD LEGEND. BLOCKS MUST BE A MINIMUM UNIT WEIGHT OF 95 LBS. SHORT TAIL BLOCKS WILL NOT BE AN APPROVED SUBSTITUTE.
4. BLOCK FACE AND COLOR SHALL BE COORDINATED WITH PROPERTY OWNER AND ENGINEER.
5. IN ADDITION TO THE PROJECT SPECIFICATIONS, FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
6. IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.
7. SOIL PARAMETERS USED FOR THE DESIGN OF THE WALL SHALL BE AS DETERMINED BY THE GEOTECHNICAL ENGINEER. SEE COMPACTION TABLE ON GRADING PLAN FOR GEOTECHNICAL ENGINEER CONTACT INFORMATION.
8. THE STRUCTURE'S DESIGN HEIGHT SHALL BE MEASURED FROM THE TOP OF THE LEVELING PAD TO THE TOP OF THE WALL.
9. WALL ALIGNMENTS ARE SHOWN FOR A SINGLE ELEVATION OF WALL. WHERE LEVELING PAD ELEVATION RAISES OR LOWERS, THE ALIGNMENT SHALL BE MOVED IN OR OUT DUE TO WALL BATTER.
10. SECTION 1013, GUARDS OF THE 2006 UNIFORM BUILDING CODE REQUIRES THAT "GUARDS SHALL BE REQUIRED ALONG OPEN–SIDED WALKING SURFACES, MEZZANINES, INDUSTRIAL EQUIPMENT PLATFORMS, STAIRWAYS, RAMPS AND LANDINGS THAT ARE LOCATED MORE THAN 30 INCHES ABOVE THE FLOOR OR GRADE BELOW. GUARDS SHALL FORM A PROTECTIVE BARRIER NOT LESS THAN 42 INCHES HIGH, MEASURED VERTICALLY ABOVE THE LEADING EDGE OF THE TREAD, ADJACENT WALKING SURFACE OR ADJACENT SEATBOARD."
11. CONTRACTOR SHALL COORDINATE WITH THE OWNER, ARCHITECT AND ENGINEER TO DETERMINE IF BARRIERS ARE REQUIRED FOR WALL SECTIONS WITH AN EXPOSED HEIGHT GREATER THAN 30 INCHES.
12. LAMP RYNEARSON RECOMMENDS THAT THE OWNER/ARCHITECT HIRE A GEOTECHNICAL ENGINEER TO PERFORM ANY REQUIRED ON–SITE MATERIALS TESTING OR CONSTRUCTION OBSERVATION. LAMP RYNEARSON WILL NOT BE RESPONSIBLE FOR PROVIDING THESE SERVICES.
13. LAMP RYNEARSON WILL NOT REVIEW SHOP DRAWINGS FOR MODULAR BLOCK RETAINING WALLS. IF THE OWNER REQUIRES THIS REVIEW, LAMP RYNEARSON RECOMMENDS THE OWNER/ARCHITECT HIRE A GEOTECHNICAL ENGINEER TO PERFORM THIS SERVICE.

PAVING KEYNOTES

P1. CONSTRUCT PC CONCRETE BASE FOR CHILLER. SEE MECHANICAL PLANS FOR MORE DETAIL.

P2. CONSTRUCT PC CONCRETE BASE FOR TRANSFORMER. SEE ELECTRICAL PLANS FOR MORE DETAIL.

P3. CONSTRUCT 5" THICK PCC SIDEWALK. SEE TYPICAL SIDEWALK SECTION, SHEET C1.8.

P5. CONSTRUCT PC CONCRETE SIDEWALK RAMP.

P4. CONSTRUCT 1/2" EXPANSION JOINT AND COLOR MATCHED SEALANT WHERE SIDEWALK ABUTS BUILDING FACE AND STOOP.

P7. PATCH AND REPAIR PC CONCRETE STAIRS AS NEEDED. SEE DETAIL SHEET C1.8. IF STAIRS ARE ASSOCIATED WITH THE ADJACENT WALL, CONSULT STRUCTURAL ENGINEER FOR CONSTRUCTION PLANS.

P8. CONSTRUCT 7" PC CONCRETE STAIRS PER OMAHA STANDARD PLATE 608–01. COORDINATE HANDRAIL PAINT COLOR WITH ARCHITECT.

P9. CONSTRUCT CIP STAIRS WITH A TOP ELEVATION OF 1079.48 AND A BOTTOM ELEVATION OF 1072.98. SEE STRUCTURAL AND ARCHITECTURAL PLANS FOR FURTHER DETAIL.

P10. CONSTRUCT ½" EXPANSION JOINT WITH COLOR MATCHED SEALANT.

MISCELLANEOUS KEYNOTES

M1. SEE ARCHITECTURAL PLANS FOR DETAILS REGARDING FENCE CONSTRUCTION.

M2. SEE ARCHITECTURAL PLANS FOR DETAILS REGARDING GATE CONSTRUCTION.

M3. SAND BLAST AND RE–PAINT STEEL RAILING. PAINT SHALL BE WHITE. SEE ARCHITECTURAL PLANS FOR MORE DETAIL.

M4. SAND BLAST AND RE–PAINT STAIR HAND RAILING. PAINT SHALL BE WHITE. SEE ARCHITECTURAL PLANS FOR MORE DETAIL.

M5. CONSTRUCT STACKED RETAINING WALL. SEE SHEET C1.5 FOR TOP AND BOTTOM OF WALL ELEVATIONS. SEE THIS SHEET FOR WALL NOTES.

1

REVISION #1 – 4/9/2024
CHILLER PAD AND WALL MOVED.
PAVING PLAN UPDATED ACCORDINGLY

LAMP RYNEARSON

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9001 STATE LINE RD., STE. 200 (816) 361.0440
MO AUTH. NO.: E-2013011903 | LS-2019043127

DESIGNER / DRAFTER
GRANT GOODRICH/RICK KELLER

REVIEWER
CALEB DANIEL VAN WEELDEN

PROJECT NUMBER
0123161.01–020

DATE
3/22/2024

L:\Engineering\0123161 WCS MS Cafeteria\DRAWINGS\CONSTRUCTION DRAWINGS\0123161–SITE–CD.dwg, 4/9/2024 8:19:45 AM, GRANT GOODRICH, LAMP RYNEARSON

12/8/2023 2:14:11 PM

BVH

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
REV1	04/09/2024	ADD 01

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS

PROFESSIONAL CIVIL ENGINEER
CALEB DANIEL VAN WEELDEN
E-18498
04/08/2024
STATE OF NEBRASKA

PAVING PLAN

NORTH

C1.6

WATER KEYNOTES

W1 CONNECT TO EXISTING WATER SERVICE AND PROVIDE CONNECTION VALVE AS NECESSARY. POTHOLE AND FIELD VERIFY CONNECTION LOCATION.

W2 CONSTRUCT ± 49 LF 6" WATER LINE COMPLETE WITH ALL BENDS, CONNECTIONS, REDUCERS, AND CONCRETE BACKING BLOCKS AS REQUIRED. PROVIDE 5' MINIMUM COVER. CONTRACTOR TO FIELD VERIFY SIZE OF EXISTING WATER LINE BEFORE BEGINNING CONSTRUCTION.

W3. CONSTRUCT 6" X 6" X 4" WATER TEE.

W4. CONSTRUCT ± 17 LF 4" WATER LINE COMPLETE WITH ALL BENDS, CONNECTIONS, REDUCERS, AND CONCRETE BACKING BLOCKS AS REQUIRED. PROVIDE 5' MINIMUM COVER. CONTRACTOR TO FIELD VERIFY SIZE OF EXISTING WATER LINE BEFORE BEGINNING CONSTRUCTION.

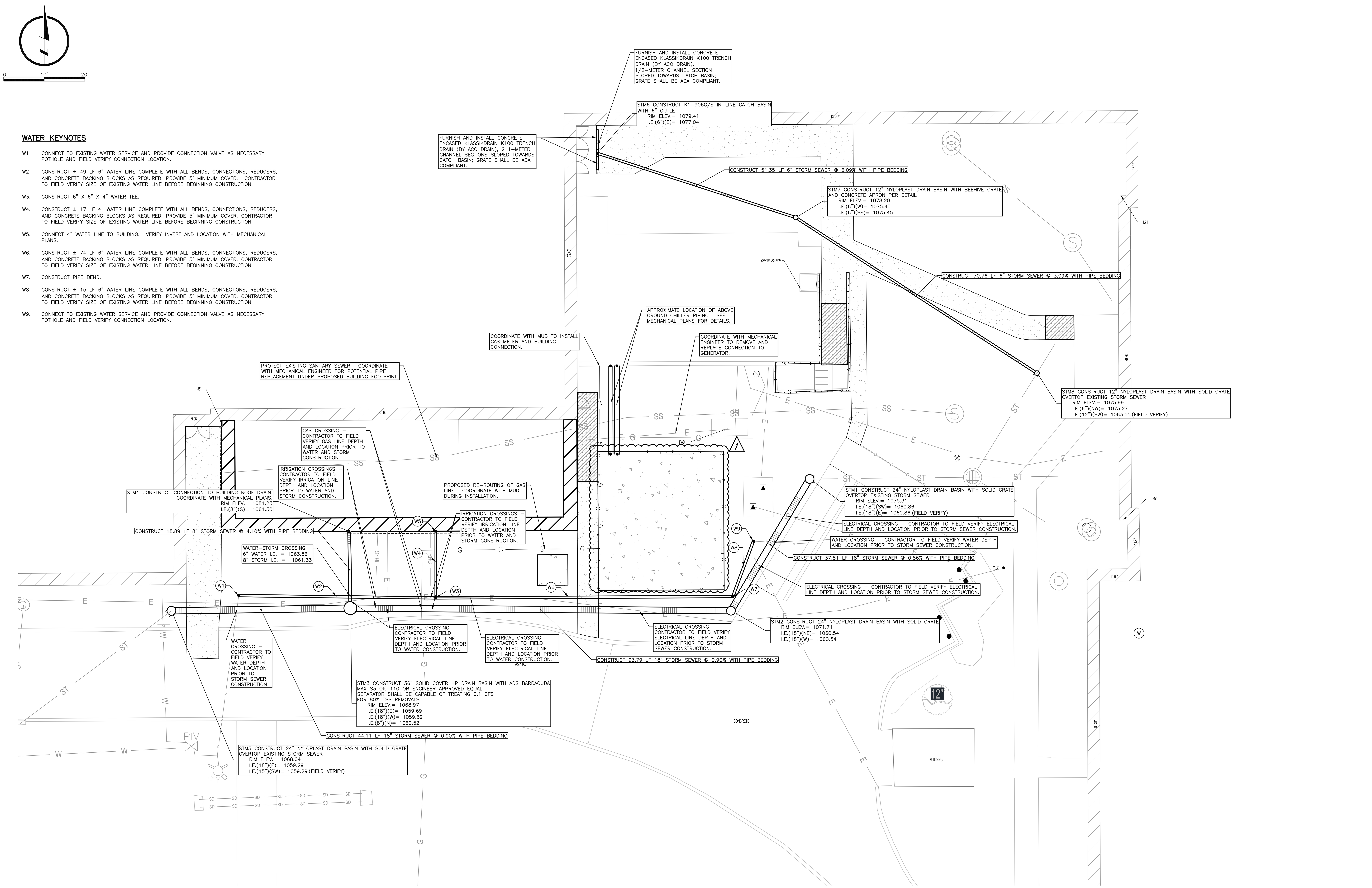
W5. CONNECT 4" WATER LINE TO BUILDING. VERIFY INVERT AND LOCATION WITH MECHANICAL PLANS.

W6. CONSTRUCT ± 74 LF 6" WATER LINE COMPLETE WITH ALL BENDS, CONNECTIONS, REDUCERS, AND CONCRETE BACKING BLOCKS AS REQUIRED. PROVIDE 5' MINIMUM COVER. CONTRACTOR TO FIELD VERIFY SIZE OF EXISTING WATER LINE BEFORE BEGINNING CONSTRUCTION.

W7. CONSTRUCT PIPE BEND.

W8. CONSTRUCT ± 15 LF 6" WATER LINE COMPLETE WITH ALL BENDS, CONNECTIONS, REDUCERS, AND CONCRETE BACKING BLOCKS AS REQUIRED. PROVIDE 5' MINIMUM COVER. CONTRACTOR TO FIELD VERIFY SIZE OF EXISTING WATER LINE BEFORE BEGINNING CONSTRUCTION.

W9. CONNECT TO EXISTING WATER SERVICE AND PROVIDE CONNECTION VALVE AS NECESSARY. POTHOLE AND FIELD VERIFY CONNECTION LOCATION.



STORM SEWER NOTES – PRIVATE

1. INLETS AND MANHOLES SHALL BE LOCATED IN ACCORDANCE WITH THE COORDINATES SHOWN. THE LENGTHS OF PIPES MAY VARY ACCORDINGLY.
2. THE CONTRACTOR IS REFERRED TO THE FOLLOWING CITY OF OMAHA STANDARD PLATES:

   701-01 STORM BEDDING
   700-01 CONCRETE COLLAR
   700-02 SEWER TAP

3. TRENCH BACKFILL SHALL BE COMPACTED AS SHOWN IN THE COMPACTION REQUIREMENTS TABLE, (SEE SHEET C1.5) OR AS SPECIFIED BY THE GEOTECHNICAL ENGINEER.
4. ALL PIPE SHALL BE BEDDED IN ACCORDANCE WITH CITY OF OMAHA STANDARD PLATE 701-01.
5. STORM SEWER MATERIALS: THE FOLLOWING MATERIALS ARE GENERALLY APPROVED FOR STORM SEWER CONSTRUCTION:
   A. REINFORCED CONCRETE PIPE (RCP). RCP SHALL BE CLASS III WALL B OR C AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C76-03 AND SHALL BE INSTALLED AS REQUIRED BY ASTM C1479-01.
      ALL REINFORCED CONCRETE PIPE JOINTS SHALL BE INSTALLED USING RUBBER GASKETS IN ACCORDANCE WITH ASTM C443, STANDARD SPECIFICATIONS FOR JOINTS FOR CONCRETE PIPE AND MANHOLES, USING RUBBER GASKETS.
   B. DUCTILE IRON PIPE (DIP). DIP SHALL CONFORM TO THE REQUIREMENTS OF ASTM A746-09 AND SHALL BE INSTALLED AS REQUIRED BY ASTM C800-08.
   C. POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE. PVC PIPE SHALL BE TYPE 1, GRADE 1 AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM D2665-02AE0 AND SHALL BE INSTALLED AS REQUIRED BY ASTM D2321-00.
   D. HIGH DENSITY POLYETHYLENE (HDPE) PIPE. HDPE PIPE SHALL HAVE A CORRUGATED EXTERIOR AND A SMOOTH INTERIOR AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-294 TYPE S AND SHALL BE INSTALLED AS REQUIRED BY ASTM D2321-00 AND THE MANUFACTURERS INSTALLATION INSTRUCTIONS. HDPE PIPE SHALL BE MANUFACTURED FROM HDPE VIRGIN COMPOUNDS AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-3350 FOR THE CELL CLASSIFICATION 335420C. COUPLING BANDS SHALL MEET THE SOIL TIGHTNESS REQUIREMENTS OF AASHTO SECTION 26.4.2.4.
6. CONCRETE FOR STORM SEWER STRUCTURES SHALL BE L65M USING TYPE II PORTLAND CEMENT. THE CEMENT FOR MANHOLE GROUT SHALL BE THE SAME AS THAT FOR MANHOLE CONCRETE AND SHALL MEET THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
7. THE CONTRACTOR INSTALLING SEWER SHALL HOLD A VALID SEWER LAYER'S LICENSE AND SHALL OBTAIN ALL REQUIRED PERMITS. PERMITTING FEES SHALL BE PAID BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

WATER MAIN NOTES

1. THE CONTRACTOR SHALL CONSTRUCT WATER SERVICE FROM EXISTING MAINS TO THE BUILDING. CONTRACTOR SHALL VERIFY BUILDING CONNECTION LOCATIONS IN ARCHITECTURAL PLANS.
2. THE CONTRACTOR SHALL PROVIDE VALVE BOX AND WATER METER.
3. CALL M.U.D. BUILDER AND CONTRACTOR SERVICES (402) 554-7987 FOR FURTHER DETAILS.
4. ALL WATER LINES SHALL HAVE 5' MINIMUM COVER.
5. CONSTRUCT WATER SERVICE PER M.U.D. SPECIFICATIONS.
6. ALL WATER LINES SHALL MEET THE REQUIREMENTS OF THE OMAHA MUNICIPAL CODE SECTION 49-1518. WATER SERVICE.
7. ALL WATER SERVICE MUST BE INSTALLED BY A LICENSED PLUMBER.
8. CONTRACTOR WILL COORDINATE WITH OWNER PRIOR TO HIS BID TO DETERMINE WHO PAYS TAPPING FEES, COST OF WATER METER, COST OF ASSOCIATED PERMITS, AND CAPITAL FACILITIES CHARGE.
9. ALL WATER SERVICE LINES AND CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE METROPOLITAN UTILITIES DISTRICT (M.U.D.) WATER RULES AND REGULATIONS.

POWER NOTES

1. THE CONTRACTOR SHALL CONSTRUCT CONCRETE TRANSFORMER PAD AND PRIMARY CONDUIT PER THE OMAHA PUBLIC POWER DISTRICT GENERAL WIRING AND METERING SPECIFICATIONS.

GAS SERVICE NOTES

1. GAS SERVICE WILL BE CONSTRUCTED FROM THE EXISTING SERVICE TO BUILDING BY M.U.D.
2. M.U.D. WILL PROVIDE THE METER.
3. INTERIOR GAS LINE AND APPURTENANCES SHALL BE AIR TESTED IN THE PRESENCE OF AN M.U.D. OFFICIAL. CALL M.U.D. CUSTOMER SERVICE (402) 554-6666 TO SET AN APPOINTMENT.

TELEPHONE SERVICE NOTES

1. COORDINATE WITH OWNER AND QWEST TO PROVIDE COMMUNICATION LINES AS REQUIRED.

CABLE TV

1. COORDINATE WITH OWNER AND COX COMMUNICATIONS TO PROVIDE SERVICE AS REQUIRED.

1
REVISION #1 – 4/9/2024
CHILLER PAD AND WALL MOVED

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MO AUTH. NO.: E-2013011903 | LS-2019043127

DESIGNER / DRAFTER: GRANT GOODRICH/RICK KELLER
REVIEWER: CALEB DANIEL VAN WEELDEN

PROJECT NUMBER: 0123161.01-020
DATE: 3/22/2024

L:\Engineering\0123161 WCS MS Cafeteria\DRAWINGS\CONSTRUCTION DRAWINGS\0123161-SITE-CD.dwg, 4/9/2024 8:19:50 AM, GRANT GOODRICH, LAMP RYNEARSON

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REVISIONS SCHEDULE		
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REV1	04/09/2024	ADD 01

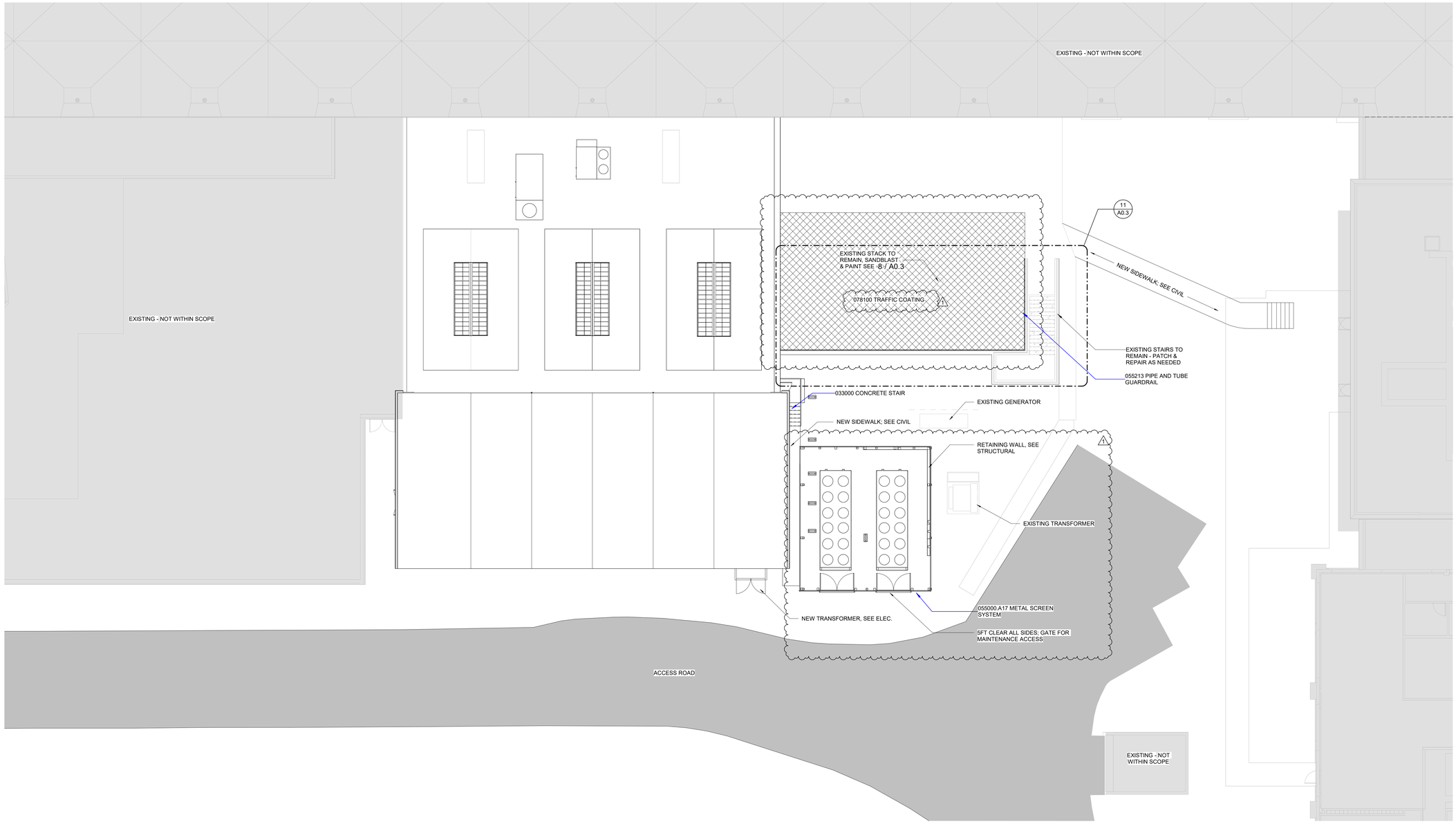
WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS

PROFESSIONAL CIVIL ENGINEER
CALEB DANIEL VAN WEELDEN
E-18498
04/08/2024
STATE OF NEBRASKA

UTILITY PLAN

NORTH



1 ARCHITECTURAL SITE PLAN

1" = 10'-0" REF SHEET: 1 / A5.1

4/5/2024 12:18:04 PM

SCALE 3" = 1'-0" INCH

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

SCALE 3/4" = 1'-0" FEET

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

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

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

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

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

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	04.09.24	ADDENDUM 001

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
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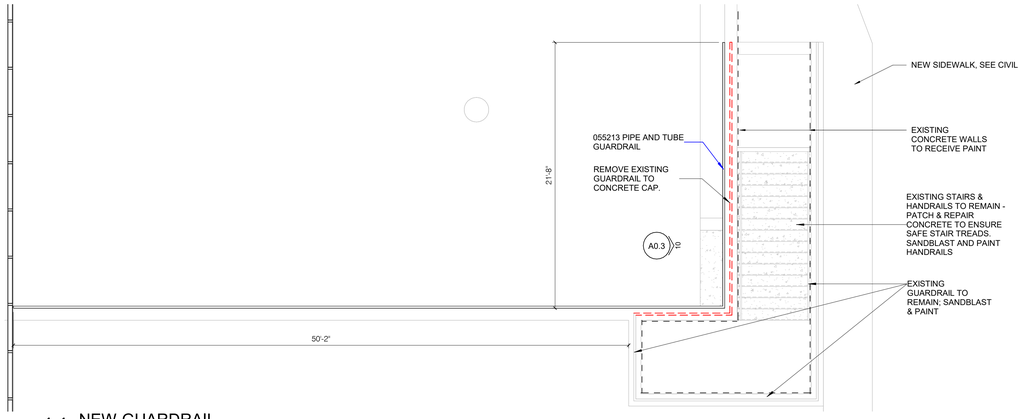
ARCHITECT
AMANDA J. SCHMITZ
A-5000
STATE OF NEBRASKA

03.22.2024

ARCHITECTURAL SITE PLAN

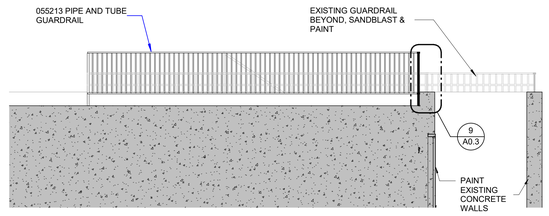
NORTH

A0.2



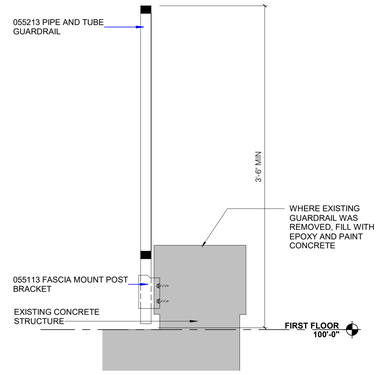
11 NEW GUARDRAIL

1 : 60 REF SHEET: 1 / A0.2



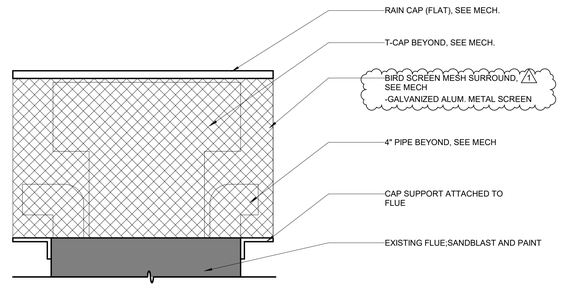
10 NEW GUARDRAIL ELEVATION

1/4" = 1'-0" REF SHEET: 11 / A0.3



9 GUARDRAIL SECTION

1 1/2" = 1'-0" REF SHEET: 10 / A0.3



8 STACK CAP

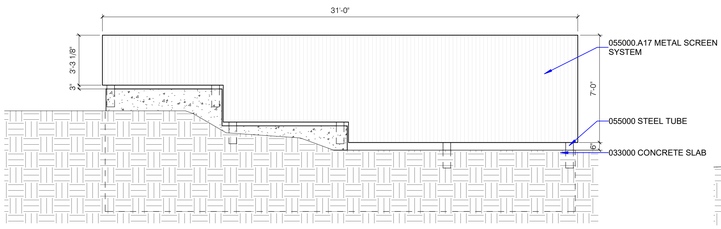
1 1/2" = 1'-0" ?

7 WALL SECTION - MECH ENCLOSURE GATE

1/2" = 1'-0" REF SHEET: 1 / A0.3

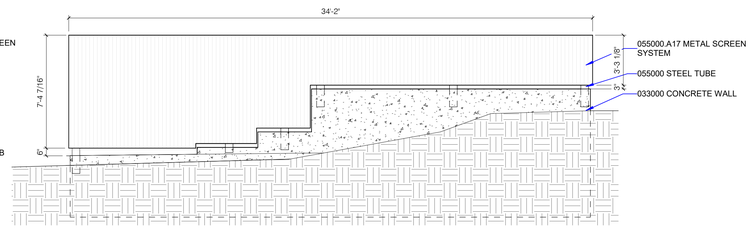
6 DETAIL - MECH ENCLOSURE GATE

1/2" = 1'-0" REF SHEET: 3 / A0.3



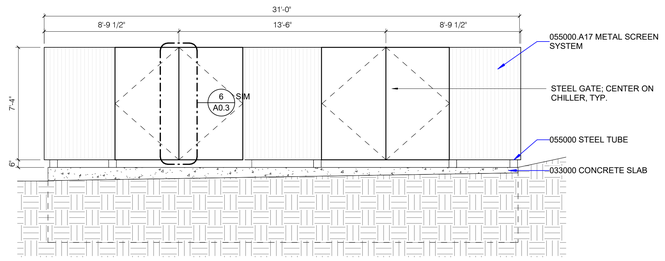
5 ELEV - MECH ENCLOSURE NORTH

1/4" = 1'-0" REF SHEET: 1 / A0.3



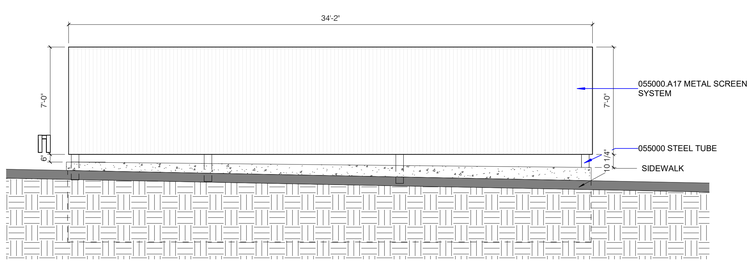
4 ELEV - MECH ENCLOSURE EAST

1/4" = 1'-0" REF SHEET: 1 / A0.3



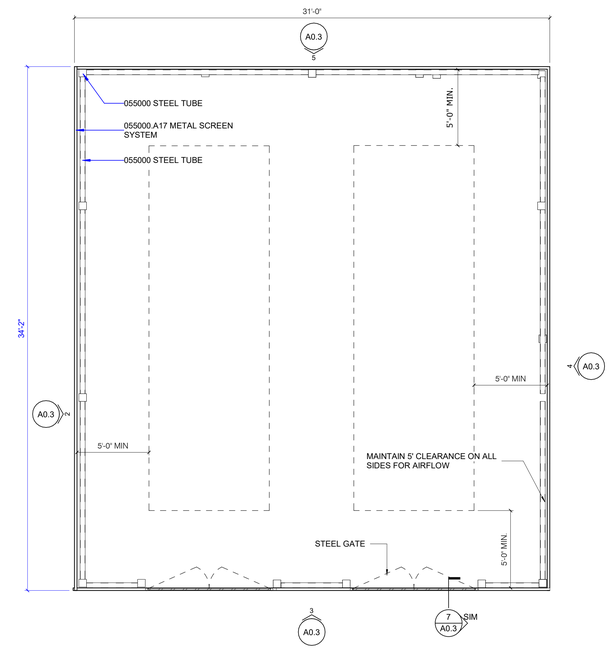
3 ELEV - MECH ENCLOSURE SOUTH

1/4" = 1'-0" REF SHEET: 1 / A0.3



2 ELEV - MECH ENCLOSURE WEST

1/4" = 1'-0" REF SHEET: 1 / A0.3



1 ENLARGED PLAN - MECH ENCLOSURE

1/4" = 1'-0" REF SHEET: 1 / A1.1

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REVISIONS SCHEDULE		
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1	04.09.24	ADDENDUM 001

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
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ARCHITECT
AMANDA J. SCHMITZ
A-5000
STATE OF NEBRASKA

03.22.2024

SITE DETAILS

NORTH

A0.3

4/5/2024 10:53:05 PM

INTERIOR FINISH LEGEND

SECTION	CODE	DESCRIPTION	MANUFACTURER	SERIES	COLOR	SIZE	FINISH	CONTACT INFO	COMMENTS
064116	PL-1	PLASTIC LAMINATE	WILSONART	--	GREY 1500-60	--	18 LINEARITY FINISH	Lori Van Cleave; lvancleave@charco.com	LOCATION: TALL CABINETS. SEE SPEC FOR HARDWARE. PLASTIC LAMINATE PATTERN RUNS VERTICALLY.
093013	FTS-1	FLOOR TRANSITION STRIP	SCHLUTER	VINPRO-U	BRUSHED NICKEL ANODIZED ALUMINUM (ATGB)	VARIES--VERIFY TILE SIZE		Mike Bauer; MBauer@schluter.com	RUBBER TO CONCRETE TRANSITION. PROVIDE LONGEST LENGTHS POSSIBLE W/O SPLICES
093013	FTS-2	FLOOR TRANSITION STRIP	SCHLUTER	TBD - COORDINATE WITH ARCHITECT TO SELECT TRANSITIONS FOR ROLLING TRAFFIC	TBD	TBD	--	TBD	QUARRY TILE TO RUBBER. PROVIDE LONGEST LENGTHS POSSIBLE W/O SPLICES.
093013	FTS-3	FLOOR TRANSITION STRIP	TARKETT	CTA-32-1 1/4" TO 1/8" JOHNSONITE ADAPTOR	PEBBLE 32	1"	--	Mike Bauer; MBauer@schluter.com	VERIFY ALL MATERIAL HEIGHTS. PROVIDE LONGEST LENGTHS POSSIBLE W/O SPLICES
093013	T-1	PORCELAIN WALL TILE	ERGON	TREND / CONCRETE	BLACK	12" X 24" X 9.5-MM	NATURALE	MICHAEL MONTORSI; mmontorsi@m2iltd.com	INSTALLATION: STACKED. USE WITH T-2. 70% T-1, 30% T-2. RANDOM MIX.
093013	T-2	PORCELAIN WALL TILE	ERGON	TREND	BLACK NEEDLE	12" X 12" X 9.5-MM	MATTE	MICHAEL MONTORSI; mmontorsi@m2iltd.com	INSTALLATION: STACKED. USE WITH T-2. 70% T-1, 30% T-2. RANDOM MIX.
093013	T-3	PORCELAIN WALL TILE	VIRGINIA TILE	CROSSVILLE - RETRO ACTIVE 2.0	EMPRESS WHITE	4" X 12"	UPS (UNPOLISHED WITH CROSS SHEEN)	Lana.Schmidt@virginiatile.com	INSTALLATION: HORIZONTAL, 30% OFFSET.
093013	T-4	PORCELAIN WALL TILE	ERGON	TREND	IVORY CONCRETE	12" X 24" X 9.5-MM	MATTE	MICHAEL MONTORSI; mmontorsi@m2iltd.com	INSTALLATION: STACKED.
093013	WTS-1	WALL TRANSITION STRIP	SCHLUTER	JOLLY	BRUSHED STAINLESS STEEL	VARIES--VERIFY TILE SIZE	--	Mike Bauer; MBauer@schluter.com	HORIZONTAL TILE TO GYP TRANSITIONS. PROVIDE LONGEST LENGTHS POSSIBLE W/O SPLICES.
093013	WTS-2	WALL TRANSITION STRIP	SCHLUTER	ECK-E	BRUSHED STAINLESS STEEL	VARIES--VERIFY TILE SIZE	--	Mike Bauer; MBauer@schluter.com	OUTSIDE CORNERS. PROVIDE CORNER ACCESSORIES AND LONGEST LENGTHS POSSIBLE W/O SPLICES.
093013	WTS-3	WALL TRANSITION STRIP	SCHLUTER	DILEX-AHKA	SATIN NICKEL ANODIZED ALUMINUM (AT)	VARIES--VERIFY TILE SIZE	--	Mike Bauer; MBauer@schluter.com	INCLUDE CORNER AND END CAP ACCESSORIES. INSTALL AT ALL WALL TILE TO RUBBER FLOOR LOCATIONS. PROVIDE LONGEST LENGTHS POSSIBLE W/O SPLICES.
095113	ACT-1	ACOUSTICAL CEILING TILE	ARMSTRONG	CALLA 2822 SQUARE TEGULAR EDGE	WHITE	24" x 24"	--	DANIELLE JAMES; dpjames@armstrongceilings.com	15/16" WHITE GRID
095426	LMC-1	INTERIOR LINEAR METAL CEILING	RULON	ENDURE WOODGRAIN 3 BOARD 810	NATIVE OAK 230	3 1/4" W X 1" THICK X 18' LONG		DOUGLAS WRIGHT; dwright@rulonco.com	FOR INTERIOR INSTALLATION, ACOUSTICAL BATT IS ADDED ABOVE THE PLANKS. SEE SPEC.
095426	LMC-2	LINEAR METAL CEILING	RULON	ENDURE WOODGRAIN 3 BOARD 800	NATIVE OAK 230	3 1/4" W X 1" THICK X 18' LONG (SPACERS INCLUDED)		DOUGLAS WRIGHT; dwright@rulonco.com	NOTE THAT EXTERIOR PANELS WILL HAVE #860 SPACERS BETWEEN PLANKS. ON THE INTERIOR INSTALLATION, SPACERS ARE OMITTED AND ACOUSTICAL BATT IS ADDED ABOVE THE PLANKS. SEE SPEC.
096513	RB-1	RUBBER BASE	TARKETT	1/8" COVED	PEBBLE 32	4", 6"	--	ANDY CRABB; andy.crabb@tarkett.com	USE IN LOCATIONS WHERE THERE IS NO WALL TILE, U.N.O. SEE SPEC. SEE ELEV. FOR HEIGHT.
096519	RF-1	RUBBER FLOOR TILE	NORA	NORAMENT KIVO	5361 PUMICE	40" X 40"	--	Maggie.Meis@nora.com	
096519	RF-2	RUBBER FLOOR TILE	NORA	NORAMENT KIVO	5362 FLINT	40" X 40"	-	Maggie.Meis@nora.com	
097000	AFF-1	ARCHITECTURAL FINISH FILM	3M	DI-NOC ARCHITECTURAL FINISHES	FINE WOOD	48" WIDTH	--	MELISSA LINDBERG mlindberg@designtex.com C: 402.616.623	LOCATION: APPLIED TO EXISTING SERVERY EQUIPMENT. GRAIN RUNS VERTICALLY.
097200	VWC-1	CUSTOM WALL COVERING	DESIGNTEX	BESPOKE DIGITAL WALLCOVERING, DW11 DNA NON-VINYL	CUSTOM DIGITAL PRINT	SEE ELEVATION	GUARDIAN	MELISSA LINDBERG mlindberg@designtex.com C: 402.616.623	
097200	WTS-4	WALL TRANSITION STRIP	ACROVYN	ALUMINUM WALL COVERING TRIM WCWT-AF	CLEAR	1"	--	Ciara Benson; cbenson@inprocorp.com	LOCATION: USE TO FINISH EDGE OF VWC-1.
098433	AP-1	ABSORPTIVE ACOUSTICAL WALL PANEL	GS ACOUSTICS	ACOUSTI-PANEL	TBD	CUSTOM. SEE ELEVATIONS	FABRIC - ARCHITECT TO SELECT FROM FULL LINE	gsacoustics.com	SEE ELEV. SEE SPEC FOR ATTACHMENT TYPE.
098433	AP-2	ACCOUSTICAL WALL PANEL	TECTUM	DIRECT-ATTACH WALL PANELS	WHITE	1" THICK. HEIGHT AND WIDTH VARIES, SEE ELEV.	--	DANIELLE JAMES; dpjames@armstrongceilings.com	LOCATION: SEE ELEVATIONS. SEE SPEC FOR FRAMED, STRETCH FABRIC ACCESSORY THAT IS HUNG OVER THE ACOUSTICAL PANEL.
099123	EP-1	EPOXY PAINT	SHERWIN WILLIAMS	--	SW 7005 PURE WHITE	--	EGGSHELL	Greg.A.Franzen@sherwin.com	SEE ELEVATION.
099123	P-1	PAINT	SHERWIN WILLIAMS	--	SW 7005 PURE WHITE	--	VARIES BY MATERIAL. SEE SPEC.	Greg.A.Franzen@sherwin.com	
099123	P-2	PAINT	SHERWIN WILLIAMS	--	SW 9572 WARM PEWTER	--	VARIES BY MATERIAL. SEE SPEC.	Greg.A.Franzen@sherwin.com	LOCATION: SEE ELEVATIONS
099123	P-3	PAINT	SHERWIN WILLIAMS	--	SW 7674 PEPPERCORN	--	VARIES BY MATERIAL. SEE SPEC.	Greg.A.Franzen@sherwin.com	LOCATION: SEE ELEVATIONS AND RCP
101100	MB-1	MARKER BOARD	DEKO	MAGNETIC	OPAL	CUSTOM. SEE ELEVATIONS		JEREMIAH JOHNSTON; jeremiah@dekomarkerboards.com	
122413	WS-1	MOTORIZED WINDOW SHADE	LUTRON	SEE SPEC	LUTRON BASKETWEAVE 90 / CHARCOAL GREY, 1% OPENNESS	VARIES, SEE ELEV.	--	Brenda.golvitzer@convergeiane.com	SEE SPEC FOR HEADER TYPES.
123661.16	SS-1	SOLID SURFACE	FORMICA	FORMICA CLASSICS	LUNA SAND 757	1/2" THICK	--	madison.schwartz@daltile.com	LOCATION: SILLS.
123661.19	QZ-1	QUARTZ SURFACE	DALTILE ONE QUARZ SURFACE	MONOCHROMATIC LOOK	NQ76 SIMPLY WHITE	3 CM	POLISHED	katie.wheeler@daltile.com	

INTERIOR FINISH NOTES

GENERAL NOTES:

1. INTERIOR FINISH LEGEND IS FOR MATERIAL AND FINISH DESCRIPTION AND LOCATION ASSIGNMENT. SEE SPECIFICATIONS FOR ALL MATERIAL QUALITY AND PERFORMANCE REQUIREMENTS.

2. COORDINATE THE INSTALLATION OF ALL FINISHED MATERIALS WITH OTHER CONSTRUCTION TRADES. ALIGN FINISHED MATERIALS WITH BUILT-IN COMPONENTS, EQUIPMENT, CASEWORK, CORNERS, TRANSITIONS, ETC WHETHER NOTED OR NOT FOR A CLEAN AND ORDERED APPEARANCE. CONSULT WITH ARCHITECT WHERE REQUIRED.

3. SUBSTITUTION REQUESTS OF EQUAL OR BETTER PRODUCTS SHALL BE SUBMITTED PRIOR TO BIDDING IN ACCORDANCE WITH THE SPECIFICATIONS. PRODUCT SUBSTITUTION REQUESTS ARE NOT ALLOWED AFTER PROJECT AWARD.

TYPICAL FINISHES:

1. ALL WALLS TO RECEIVE RUBBER BASE OR TILE, UNLESS NOTED OTHERWISE. RB-1 ON WALLS WITHOUT TILE.

2. RUBBER FLOORING THROUGHOUT PROJECT SCOPE. SEE FLOOR FINISH PLANS..

3. LEVEL 5 FINISH ON PAINTED WALLS.

5. MOTORIZED SHADES AT ALL WINDOWS, U.N.O. SEE ELEC FOR CONTROL LOCATIONS.

7. GYPSUM WALL BOARD WALLS TO BE PAINTED P-1 UNLESS NOTED OTHERWISE.

8. SUSPENDED GYPSUM BOARD CEILINGS TO BE PAINTED P-1 UNLESS NOTED OTHERWISE.

9. HOLLOW METAL FRAMES AND METAL DOORS ARE TOO BE PAINTED P-2, UNLESS NOTED OTHERWISE.

10. ALL EXPOSED STRUCTURE TO BE PAINTED P-3 UNLESS NOTED OTHERWISE

11. GYPSUM WALL BOARD SOFFITS TO MATCH ADJACENT WALLS UNLESS NOTED OTHERWISE.

12. PLASTIC LAMINATE CASEWORK TO BE PL-1 UNLESS NOTED OTHERWISE.
A. ALL CASEWORK TO HAVE MOCKETT DP3 TAB DRAWER PULLS; 6", SATIN NICKEL FINISH (17S).

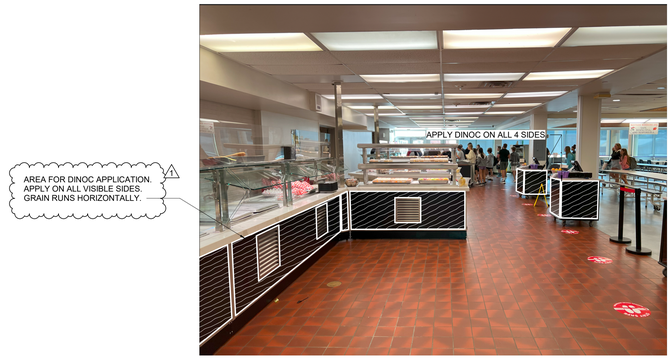
13. QUARTZ SURFACE COUNTERTOPS TO BE QS-1 UNLESS NOTED OTHERWISE.

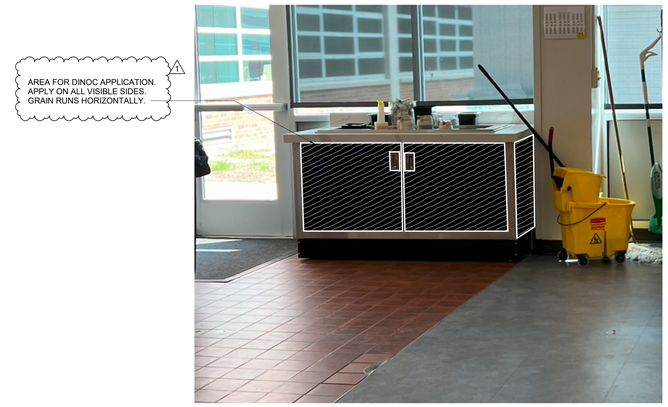
14. SOLID SURFACE (SS-1) SILLS AT ALL WINDOWS.

15. ACOUSTICAL CEILING TILES TO BE ACT-1 UNLESS NOTED OTHERWISE.

16. PROVIDE WALL AND FLOOR TRANSITION STRIPS AT ALL FINISH CHANGES, UNLESS NOTED OTHERWISE. CONTRACTOR TO VERIFY TRANSITION SIZE.

17. GRILLES, DIFFUSERS, ELECTRICAL PANELS, ACCESS PANELS, AND SIMILAR EXPOSED AT FINISHED SPACES SHALL BE PAINTED TO MATCH THE WALL, U.N.O.
A. CONSULT WITH ARCHITECT WHERE PREFINISHED METALS, OR FACTORY PAINTED EQUIPMENT IS SPECIFIED.





1 DETAIL - DINOC SERVERY PLACEMENT
1 1/2" = 1'-0" ?

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morrisseyengineering.com

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CONSTRUCTION MANAGER
HAUSMANN CONSTRUCTION
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V 402-438-3230
hausmannconstruction.com

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	04.09.24	ADDENDUM 001

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

ARCHITECT
AMANDA J. SCHMATZ
A-5000
STATE OF NEBRASKA

03.22.2024

INTERIOR FINISH LEGEND

NORTH

A9.0

SCALE 3/32" = 1'-0" FEET
SCALE 1/16" = 1'-0" FEET
SCALE 1/8" = 1'-0" FEET
SCALE 1/4" = 1'-0" FEET
SCALE 1/2" = 1'-0" FEET
SCALE 3/4" = 1'-0" FEET
SCALE 1-1/2" = 1'-0" INCH
SCALE 3" = 1'-0" INCH

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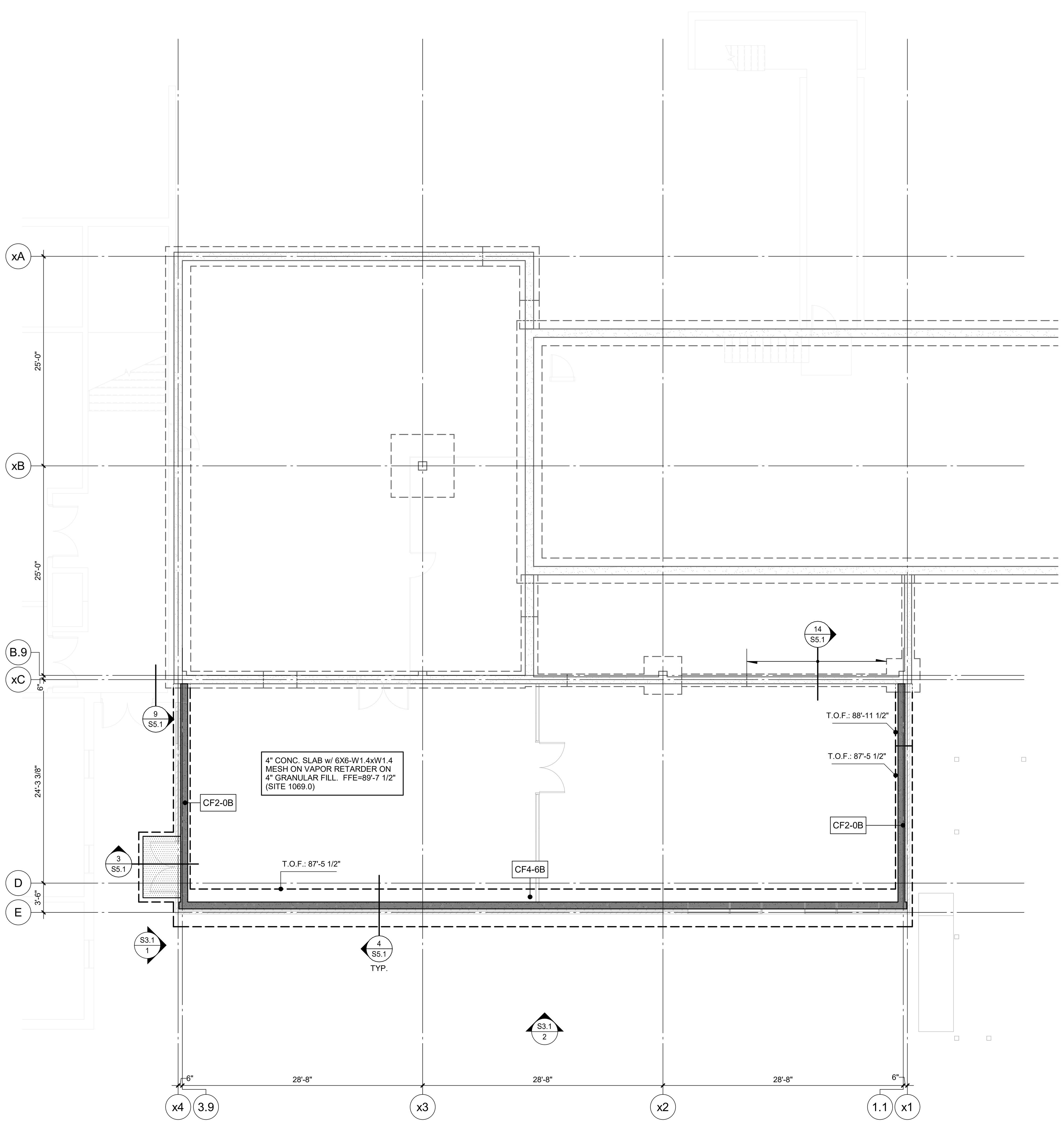


FOUNDATION PLAN

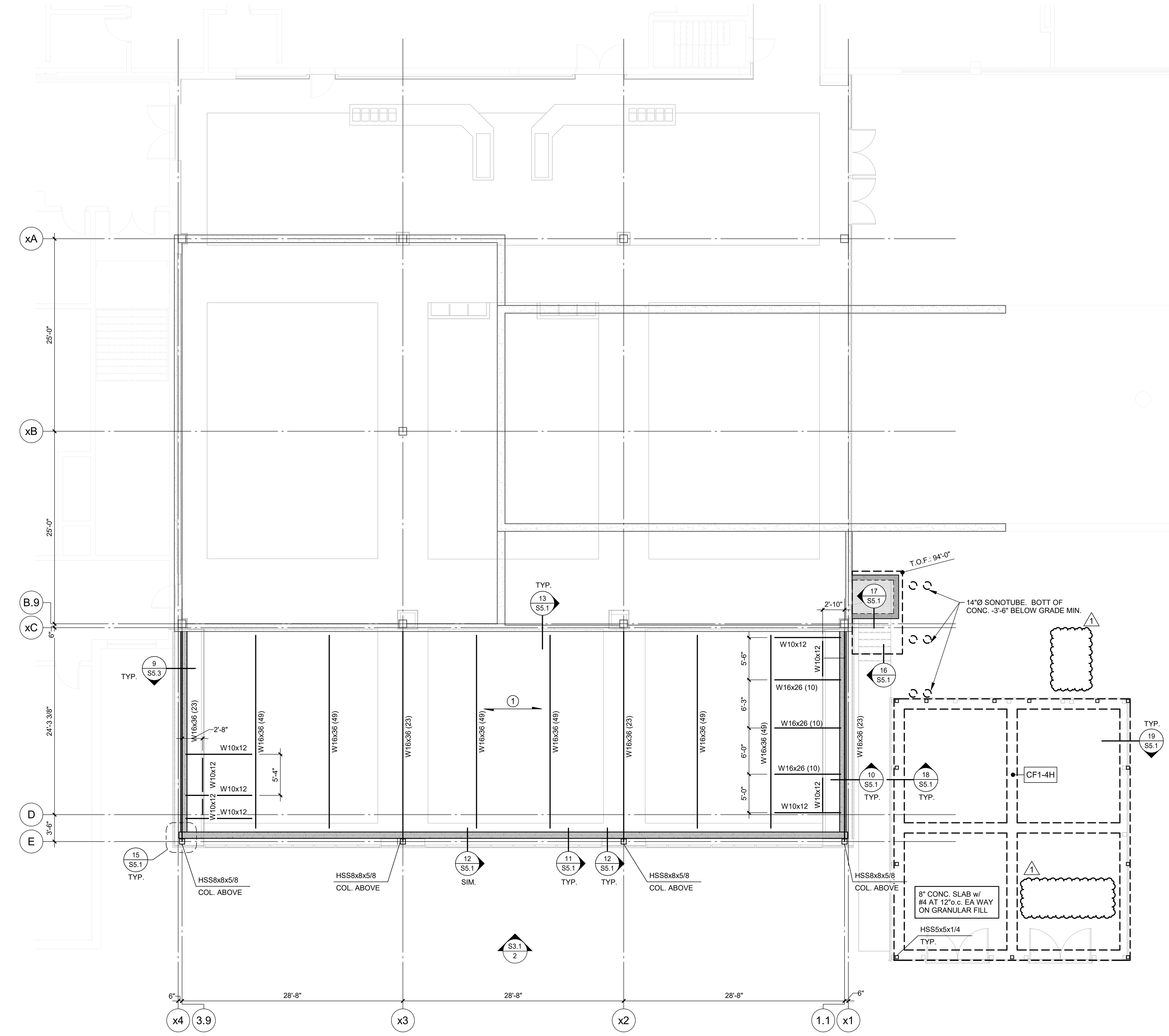
1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. SEE STRUCTURAL NOTES ON SHEET S0.0 & S0.1.
2. COORDINATE AND VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND EXIST. CONDITIONS.
3. TOP OF FOOTING ELEVATION = 88'-11 1/2" UNLESS NOTED OTHERWISE THUS: T.O.F. = xx'-x"
4. -F---- : FOOTING MARK, SEE SCHEDULE ON THIS SHEET.
5. (W--) : WALL MARK, SEE SCHEDULE ON THIS SHEET.
6. COL. SIZE / xx/Sx.xx : COL. MARK WITH CORRESPONDING BASEPLATE DETAIL.
7. C.J. ▬▬ : INDICATES CONTROL JOINT PER 7/S7.01.

FOOTING SCHEDULE

MARK	SIZE W	SIZE L	SIZE D	REINFORCING	REMARKS
CF1-4H	1'-4"	CONT.	3'-2"	(2)-#5s TOP & BOTT. w/ #4 TIES AT 48"o.c.	
CF2-0B	2'-0"	CONT.	1'-4"	(2)-#5s TOP & BOTT. w/ #4 TIES AT 48"o.c.	
CF4-6B	4'-6"	CONT.	1'-4"	(5)-#5s TOP & BOTT. w/ #4 TIES AT 24"o.c.	



FIRST FLOOR FRAMING

1/8" = 1'-0"

FIRST FRAMING PLAN NOTES:

1. SEE STRUCTURAL NOTES ON SHEET S0.0 & S0.1.
2. COORDINATE AND VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND EXIST. CONDITIONS.
3. TOP OF STEEL ELEVATION = 99'-5 1/2" UNLESS NOTED OTHERWISE AS SPECIFIC ELEVATIONS ON INDIVIDUAL MEMBERS. MEMBERS INDICATED AS "WXXxXX [+/- x'-xx"]" DESIGNATES DIFFERENTIAL TOP OF STEEL ELEVATION, OR MEMBERS ARE NOTED THUS: [T.O.S. = xxx'-xx"].
4. (x) : INDICATES SPAN DIRECTION OF METAL DECK NOTED BELOW:
   (1) : 3 1/2" CONC. SLAB ON 3"-22ga. VULCRAFT '1.5VL' GALVANIZED COMPOSITE METAL DECK (6" TOTAL THICKNESS). REINF. SLAB ON METAL DECK WITH 6x6 - W4.0 x W4.0 W.W.F. 1" CLR. TOP OF SLAB. W.W.F. SHALL BE LAPPED 1 1/2 MESH SPACES AND TIED. W.W.F. SHALL BE SECURED IN CORRECT LOCATION PRIOR TO CONCRETE SLAB PLACEMENT.
5. HEADED STUD (H.S.) AND CAMBER REQUIREMENTS:

   -STUD SIZE: 3/4"DIA.x4"
   -BEAMS:
   - W_x_(xx): THE NUMBER IN PARENTHESIS INDICATED THE NUMBER OF HEADED STUDS REQUIRED; SEE 8 AND 9/S7.02.
   - IF THE BEAM DESIGNATION INDICATES W_x_ (C=x") THE NUMBER OF INCHES INDICATES THE REQUIRED CAMBER.
6. CONNECT BEAMS TO COLUMNS PER 2D/S5.2, UNLESS NOTED OTHERWISE.
7. CONNECT BEAM TO BEAMS PER 1B/S5.2 UNLESS NOTED OTHERWISE. WHERE EQUAL DEPTH BEAMS FRAME ACROSS FROM EACH OTHER, CONNECT PER 1E/S5.2. WHERE BEAMS FRAME INTO EACH OTHER AT A SKEW, CONNECT PER 1D/S5.2. CONNECTION 1C/S5.2 IS ONLY PERMITTED WHERE SPECIFICALLY NOTED.

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REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
1	4/9/2024	Addendum #1

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

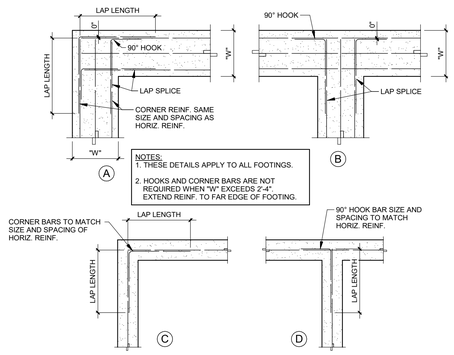
PROFESSIONAL STRUCTURAL ENGINEER
TREVOR A. LARSEN
E-10049
03/22/2024
STATE OF NEBRASKA

TD2 engineering & surveying
Thompson, Dreessen & Dorner, Inc.
10836 Old Mill Rd Omaha, NE 68154
402.330.8860 www.td2co.com
TD2 Project #107-445 NE CA-0199

FOUNDATION & FIRST FLOOR FRAMING PLANS

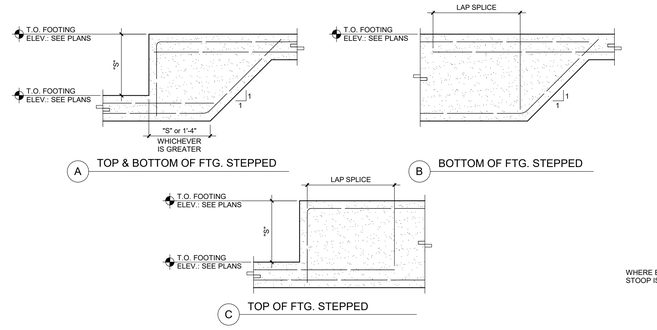
NORTH

S1.1



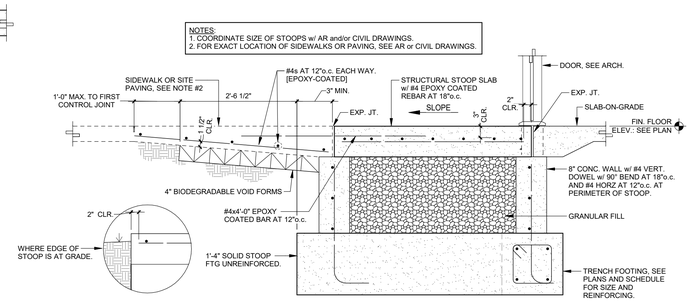
1 FTG. CORNER REINF. DETAILS

1/2" = 1'-0"



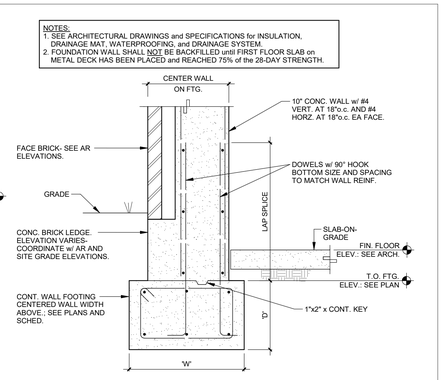
2 FOOTING STEP DETAILS

1/2" = 1'-0"



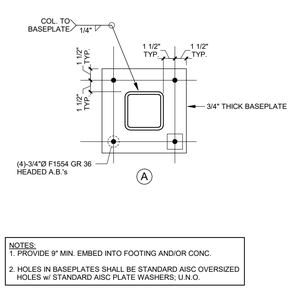
3 STRUCTURAL STOOP

3/4" = 1'-0"



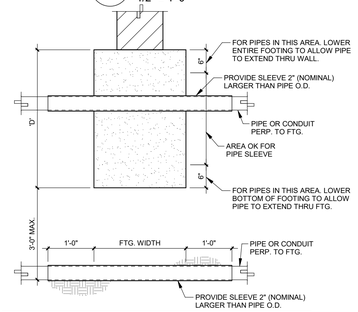
4 SECTION

3/4" = 1'-0"



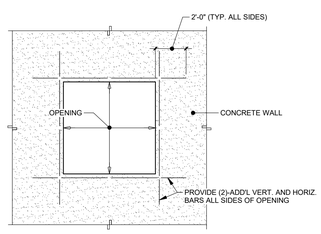
5 BASEPLATE DETAILS

1 1/2" = 1'-0"



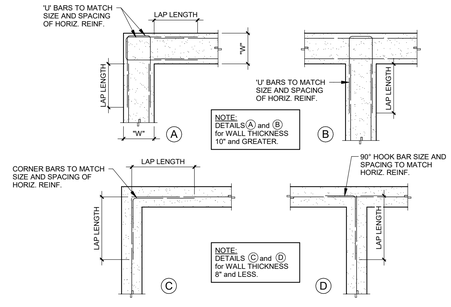
6 TYP. INSTALLATION OF PIPES

3/4" = 1'-0"



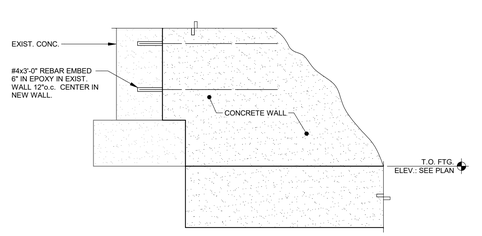
C.I.P. WALL OPENING REINFORCING

7 1/4" = 1'-0"



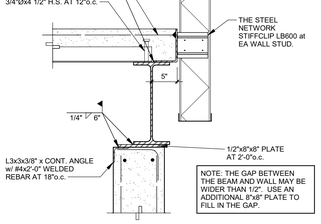
8 WALL CORNER REINF. DETAILS

1/2" = 1'-0"



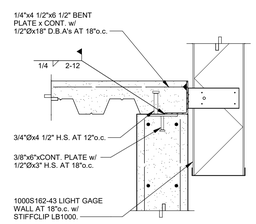
9 SECTION

3/4" = 1'-0"



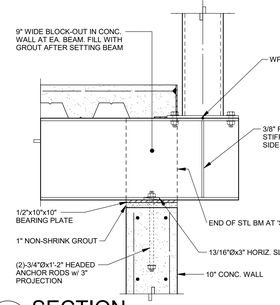
10 SECTION

1" = 1'-0"



11 SECTION

1" = 1'-0"



12 SECTION

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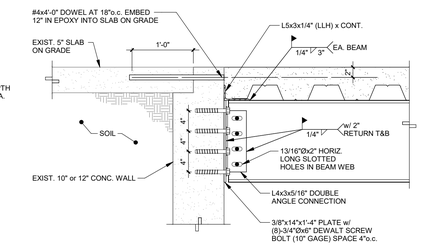

13 SECTION

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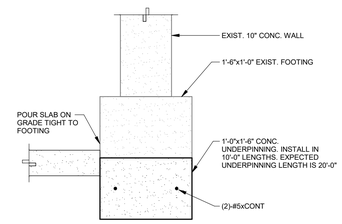
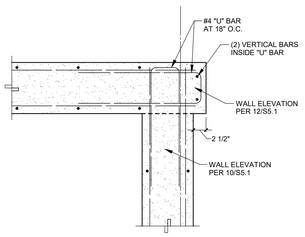


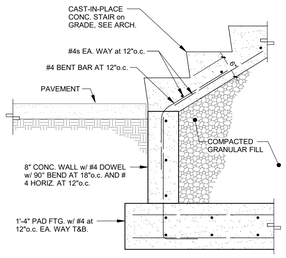
14 SECTION

1" = 1'-0"



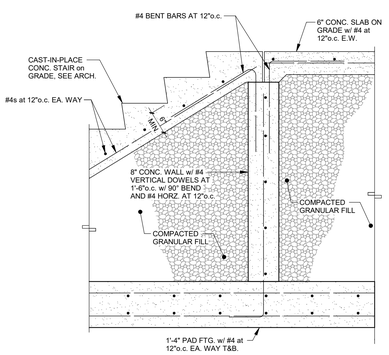
15 PLAN

1" = 1'-0"



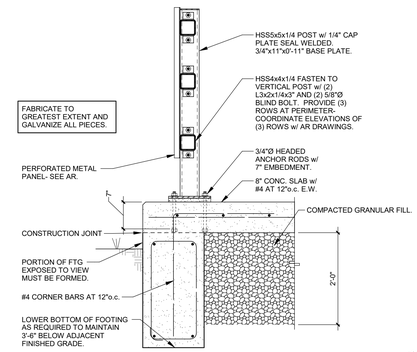
16 STAIR SECTION

3/4" = 1'-0"



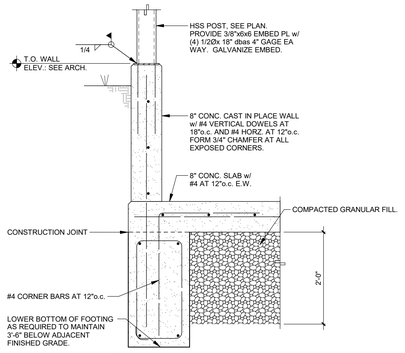
17 STAIR SECTION

3/4" = 1'-0"



18 SECTION

3/4" = 1'-0"



19 SECTION

3/4" = 1'-0"

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	4/9/2024	Addendum #1

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

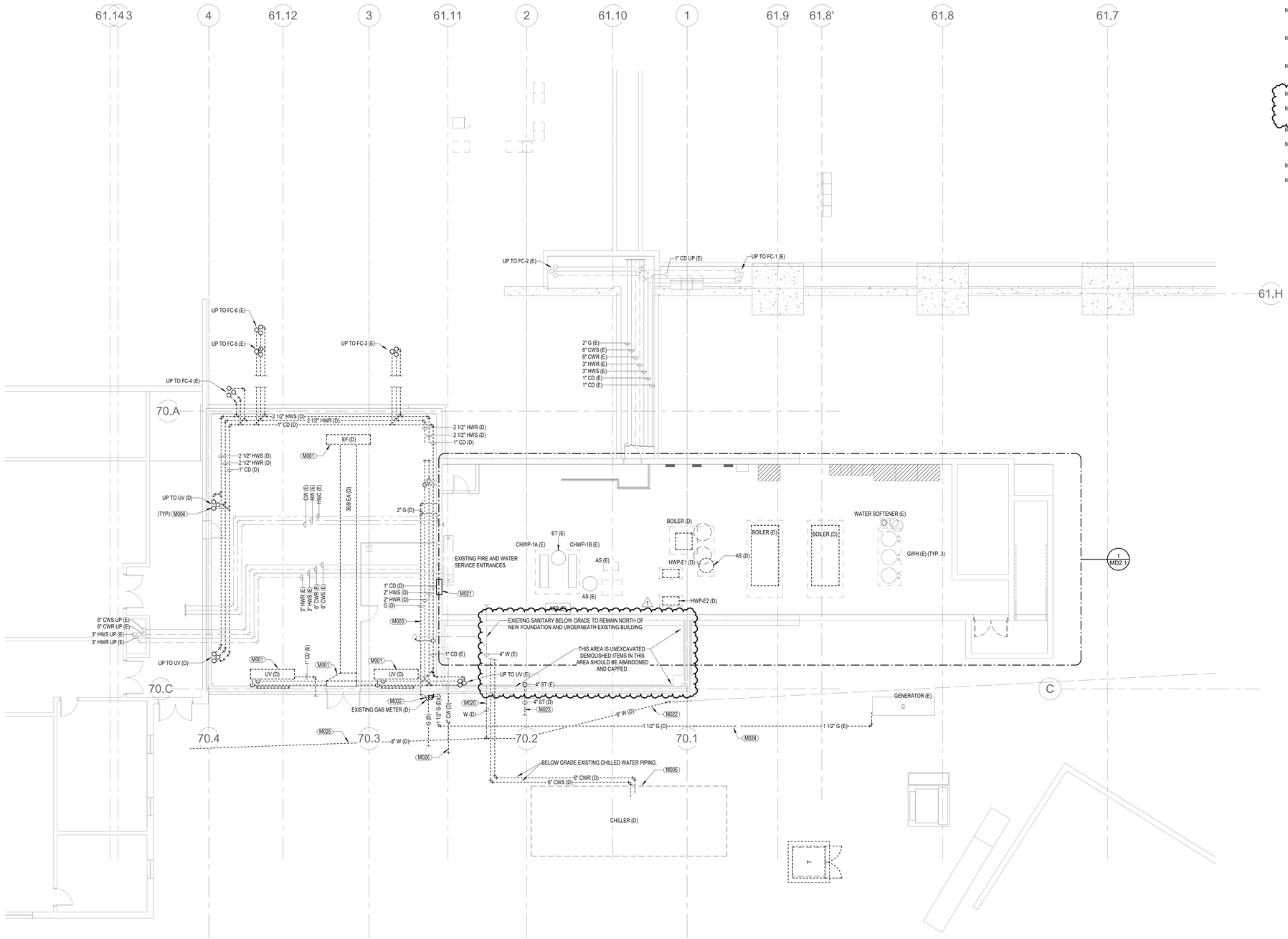
PROFESSIONAL STRUCTURAL ENGINEER TREVOR A. LARSEN E-10049 03/22/2024 REGISTERED STATE OF NEBRASKA

STRUCTURAL SECTIONS

NORTH

S5.1

4/9/2024 11:41:24 AM



KEYNOTES

M001 REMOVE EXISTING VENTILATION FAN, DUCT AND LOUVER.

M002 COOORDINATE RELOCATION OF GAS SERVICE WITH METROPOLITAN UTILITIES DISTRICT.

M003 REMOVE EXISTING OVERSIZED GAS PIPING. COORDINATE WITH INSTALLATION OF NEW GAS PIPING.

M004 REMOVE ALL PIPING ASSOCIATED WITH EXISTING/REMOVED FAN COILS/UNIT VENTILATORS ON THE ABOVE FLOOR COMPLETE. CAP EXISTING HWS/R BACK AT THEIR RESPECTIVE MAINS. COORDINATE WITH ARCHITECT AND GENERAL CONTRACOR TO SEAL FLOOR PENETRATIONS.

M005 DEMOLISH CHILLER AND ASSOCIATED PIPING BACK TO MAIN LOOP. REMOVE ALL BELOW GRADE CHILLED WATER PIPING. DO NOT ABANDON PIPING. ENSURE EXISTING UNDERGROUND UTILITIES ARE NOT DAMAGED DURING DEMOLITION. COORDINATE WITH GENERAL CONTRACTOR.

M020 DEMOLISH WASTELINE UNDERNEATH NEW CONSTRUCTION. FIELD VERIFY AND SCOPE EXISTING PIPING TO DETERMINE EXACT SIZE, ROUTING AND LOCATION PRIOR TO DEMOLITION. COORDINATE WITH GENERAL CONTRACTOR.

M021 EXISTING SQUARE OPENING IN WALL CONNECTING BOILER ROOM AND WRESTLING ROOM. SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.

M022 DEMOLISH EXISTING SANITARY MAIN UNDERNEATH NEW CONSTRUCTION. REPLACE ALL SANITARY PIPING WITH NEW CAST IRON PIPING OF EQUIVALENT SIZE TO EXISTING. COORDINATE WITH GENERAL CONTRACTOR.

M023 DEMOLISH BELOW GRADE STORM IN CONFLICT WITH NEW FOOTINGS AND CONSTRUCTION. ABANDON STORM RISER PIPING IN UNEXCAVATED SPACE.

M024 REMOVE BELOW GRADE GAS PIPING TO GENERATOR BACK TO POINT OF CONNECTION TO NEW GAS PIPING. COORDINATE EXTENTS OF REMOVAL WITH NEW PLANS, GENERAL CONTRACTOR, AND CIVIL UTILITIES.

M025 REPLACE EXISTING SITE SANITARY WITH NEW BELOW GRADE SANITARY. COORDINATE WITH NEW FOOTINGS AND NEW SANITARY CONNECTIONS.

M026 REMOVE BELOW GRADE COLD WATER PIPING IMPEDING CONSTRUCTION OF NEW FOUNDATION. COORDINATE EXTENTS OF DEMOLITION WITH NEW WORK AND NEW CIVIL SITE UTILITY PLAN.

1 LOWER LEVEL PLAN - MECHANICAL DEMO

1/8" = 1'-0"

4/9/2024 3:00:38 AM

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REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
1	4/9/2024	Addendum #1

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

PROFESSIONAL MECHANICAL ENGINEER
NICHOLAS J. LIMPACH
E-9256
STATE OF NEBRASKA
3-22-2024

LOWER LEVEL PLAN - MECHANICAL DEMO

NORTH

MD0.0

MEI PROJECT NO: 23331

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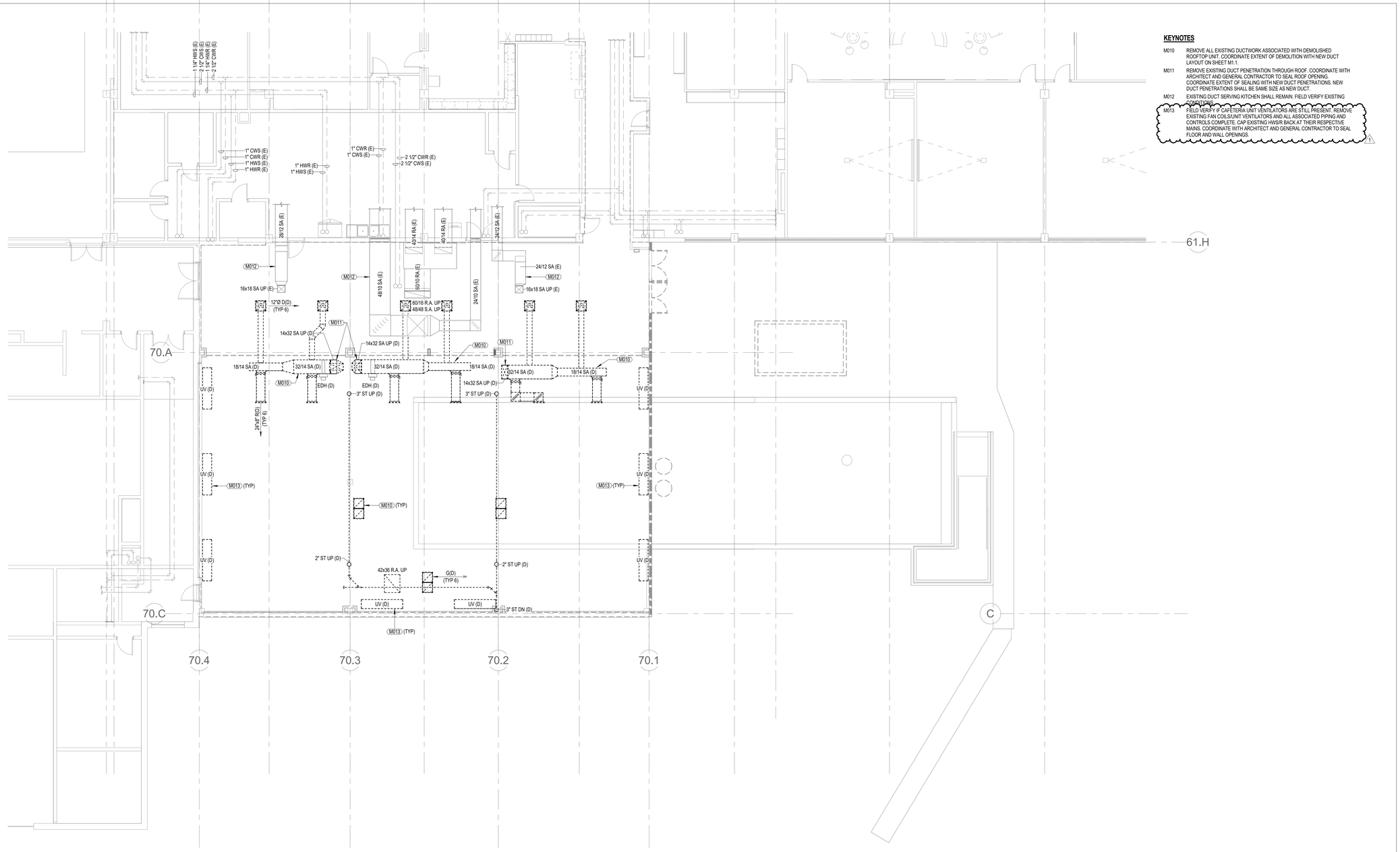

KEYNOTES

M010	REMOVE ALL EXISTING DUCTWORK ASSOCIATED WITH DEMOLISHED ROOFTOP UNIT. COORDINATE EXTENT OF DEMOLITION WITH NEW DUCT LAYOUT ON SHEET M1.1.
M011	REMOVE EXISTING DUCT PENETRATION THROUGH ROOF. COORDINATE WITH ARCHITECT AND GENERAL CONTRACTOR TO SEAL ROOF OPENING. COORDINATE EXTENT OF SEALING WITH NEW DUCT PENETRATIONS. NEW DUCT PENETRATIONS SHALL BE SAME SIZE AS NEW DUCT.
M012	EXISTING DUCT SERVING KITCHEN SHALL REMAIN. FIELD VERIFY EXISTING CONDITIONS.
M013	FIELD VERIFY IF CAFETERIA UNIT VENTILATORS ARE STILL PRESENT. REMOVE EXISTING FAN COILS/UNIT VENTILATORS AND ALL ASSOCIATED PIPING AND CONTROLS COMPLETE. CAP EXISTING HWS/R BACK AT THEIR RESPECTIVE MAINS. COORDINATE WITH ARCHITECT AND GENERAL CONTRACTOR TO SEAL FLOOR AND WALL OPENINGS.

1

1 FIRST FLOOR PLAN - MECHANICAL DEMO

1/8" = 1'-0"

SCALE 3" = 1'-0" INCH
SCALE 1-1/2" = 1'-0" INCH
SCALE 3/4" = 1'-0" FEET
SCALE 1/2" = 1'-0" FEET
SCALE 1/4" = 1'-0" FEET
SCALE 1/8" = 1'-0" FEET
SCALE 1/16" = 1'-0" FEET
SCALE 3/32" = 1'-0" FEET

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STATE OF NEBRASKA
3-22-2024

FIRST FLOOR PLAN - MECHANICAL DEMO

NORTH

MD1.0

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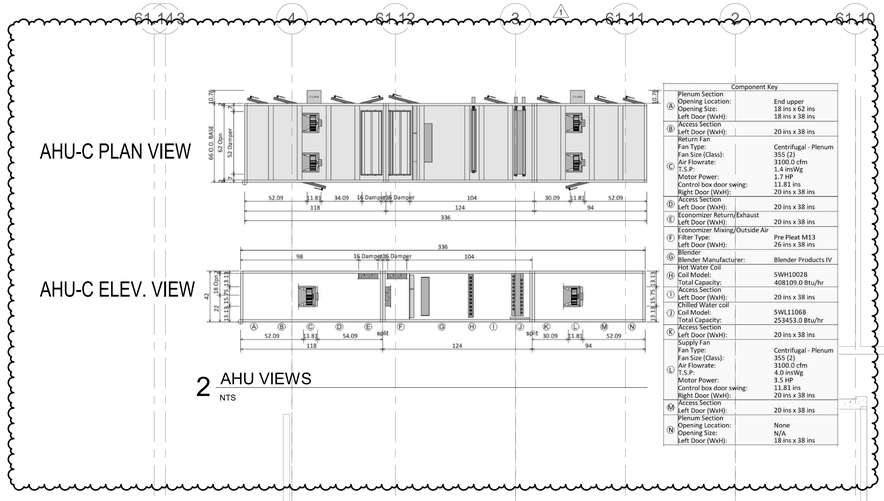

2 AHU VIEWS
NTS

Component Key		
	Plenum Section	
A	Opening Location:	End upper
	Opening Size:	18 ins x 62 ins
	Left Door (WxH):	18 ins x 38 ins
	Access Section	
B	Left Door (WxH):	20 ins x 38 ins
	Return Fan	
	Fan Type:	Centrifugal - Plenum
	Fan Size (Class):	355 (2)
C	Air Flowrate:	3100.0 cfm
	T.S.P:	1.4 insWg
	Motor Power:	1.7 HP
	Control box door swing:	11.81 ins
	Right Door (WxH):	20 ins x 38 ins
	Access Section	
D	Left Door (WxH):	20 ins x 38 ins
	Economizer Return/Exhaust	
E	Left Door (WxH):	20 ins x 38 ins
	Economizer Mixing/Outside Air	
F	Filter Type:	Pre Pleat M13
	Left Door (WxH):	26 ins x 38 ins
	Blender	
G	Blender Manufacturer:	Blender Products IV
	Hot Water Coil	
H	Coil Model:	5WH10028
	Total Capacity:	408109.0 Btu/hr
	Access Section	
I	Left Door (WxH):	20 ins x 38 ins
	Chilled Water coil	
J	Coil Model:	5WL11068
	Total Capacity:	253453.0 Btu/hr
	Access Section	
K	Left Door (WxH):	20 ins x 38 ins
	Supply Fan	
	Fan Type:	Centrifugal - Plenum
	Fan Size (Class):	355 (2)
	Air Flowrate:	3100.0 cfm
L	T.S.P:	4.0 insWg
	Motor Power:	3.5 HP
	Control box door swing:	11.81 ins
	Right Door (WxH):	20 ins x 38 ins
M	Access Section	
	Left Door (WxH):	20 ins x 38 ins
	Plenum Section	
N	Opening Location:	None
	Opening Size:	N/A
	Left Door (WxH):	18 ins x 38 ins

1 LOWER LEVEL PLAN - HVAC
1/8" = 1'-0"

KEYNOTES

M101 DO NOT ROUTE DUCTWORK OVER ELECTRICAL PANELS. MAINTAIN ALL CODE REQUIRED CLEARANCES.

M105 MAINTAIN 7'-0" TO BOTTOM OF DUCT ABOVE AISLE IN MECHANICAL ROOM. COORDINATE ROUTING WITH STRUCTURE AND GENERAL CONTRACTOR.

M109 INSTALL NEW RA/EA GRILLES AT LOCATION OF REMOVED LOUVERS. COORDINATE WITH ARCHITECT AND GENERAL CONTRACTOR TO SEAL WALL AS NECESSARY.

M122 TOTAL OF (5) SECTIONS ON EXTERIOR WALL. PROVIDE (2) BLANKED OFF LOUVER SECTIONS. COORDINATE SIZE AND LOCATON WITH NEARBY (3) ACTIVE LOUVERS. FIELD VERIFY AND COORDINATE WITH GENERAL CONTRACTOR THAT A 3'-9" WIDTH AND 60" HEIGHT BLANKED SECTION IS ADEQUATE.

M123 PROVIDE PARALLEL BLADE LOW LEAK DAMPERS ARRANGED TO PROMOTE MIXING WITHIN DUCTWORK. 24X12 RA + 24X12 OA. SEE SPECIFICATIONS FOR CONTROLS.

M127 MECHANICAL SENSOR ROUGH-IN BY ELECTRICAL CONTRACTOR.

M129 COORDINATE EXACT HEIGHT AND ROUTING OF DUCTWORK WITH STRUCTURE AND DOORS. MAINTAIN A MINIMUM 7' -0" ABOVE FINISHED FLOOR OVER WALKABLE AREA.

M130 ROUTE NEW SA AS HIGH AS POSSIBLE WITHIN WRESTLING ROOM. COORDINATE WITH STRUCTURE, GENERAL CONTRACTOR AND ALL TRADES.

M131 PROVIDE MECHANICAL TEMPERATURE CONTROLS PANEL.

M132 PROVIDE DAMPER FOR EA DUCTWORK NEAR LOUVER. SEE SPECIFICATIONS.

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PROFESSIONAL MECHANICAL ENGINEER
NICHOLAS J. LIMPACH
E-9256
STATE OF NEBRASKA
3-22-2024

LOWER LEVEL PLAN - HVAC

NORTH

M1.0

MEI PROJECT NO: 23331

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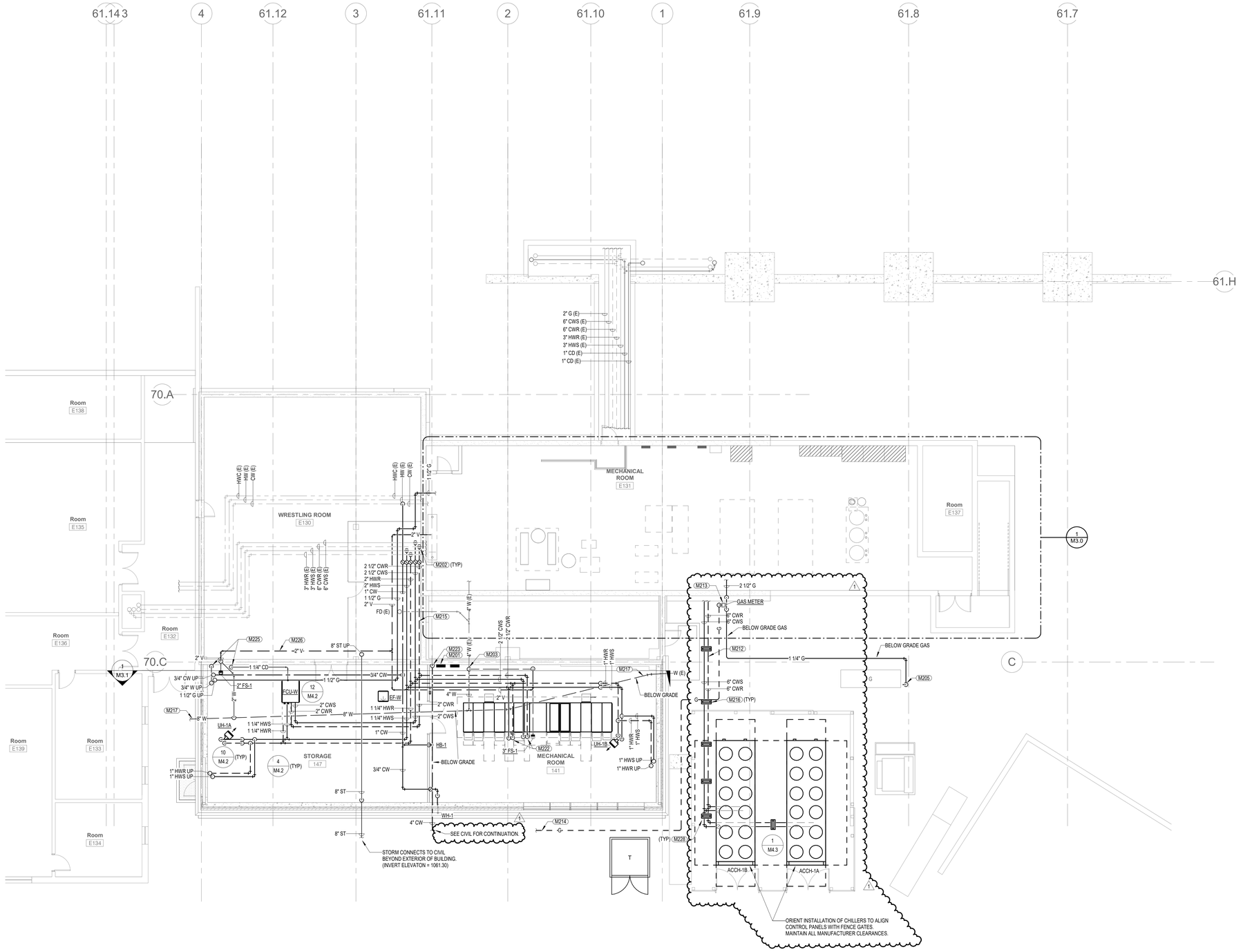

KEYNOTES

M201	DO NOT ROUTE PIPING OVER ELECTRICAL PANELS. MAINTAIN ALL CODE REQUIRED CLEARANCES.
M202	CONNECT NEW PIPING TO EXISTING PIPING AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE, LOCATION AND ELEVATION OF EXISTING PIPING PRIOR TO CONNECTION. TRANSITION, EXTEND AND OFFSET NEW PIPING AS REQUIRED TO MAKE CONNECTION AND AVOID CONFLICTS.
M203	CONNECT NEW SANITARY TO EXISTING SANITARY MAIN. FIELD VERIFY EXACT LOCATION OF EXISTING SANITARY BEFORE ROUTING NEW PIPING.
M205	CONNECT NEW GAS TO EXISTING GAS ABOVE GRADE. EXISTING GAS VALVES, PRESSURE REGULATOR AND FLEXIBLE CONNECTION TO REMAIN. PROVIDE TRANSITION TO EXPOSED STEEL PIPING ABOVE GRADE.
M212	EXTERIOR CHILLED WATER PIPING SHALL HAVE FULL ALUMINUN JACKETS. SEE SECHEDULE/SPECIFICATIONS.
M213	NEW GAS METER BY M.U.D. 2 PSIG GAS. EXISTING CONNECTED LOAD IS APPROXIMATELY 11500 MBH. NEW CONNECTED LOAD IS APPROXIMATELY 12560 MBH. NEW USAGE WILL BE APPROXIMATELY EQUAL OR LOWER TO EXISTING LOAD DUE TO EFFICIENCY OF NEW BOILERS. SEE NEW NATURAL GAS USAGE SCHEDULE ON SHEET M5.1 FOR MORE INFORMATION.
M214	GAS SERVICE RELOCATION BY METROPOLITAN UTILITIES DISTRICT. COORDINATE ROUTING WITH ALL TRADES, EXISTING UTILITIES, AND GENERAL CONTRACTOR.
M215	ROUTE NEW PIPING AS HIGH AS POSSIBLE. ROUTE AS CLOSE AS POSSIBLE TO EXISTING FACE WALL.
M216	PROVIDE FROST FOOTINGS FOR PIPE SUPPORTS. SEE STRUCTURAL FOR MORE INFORMATION. SPACE NEW PIPING SUPPORTS 8 to 10' APART.
M217	PROVIDE NEW SANITARY PIPING INSTALLED AS CLOSE TO REPLACED EXISTING SANITARY PIPING AS POSSIBLE. COORDINATE FINAL LOCATION, DEPTH, ROUTING AND SIZE WITH CIVIL DRAWINGS AND GENERAL CONTRACTOR.
M222	CONNECT 2-1/2" CHWS/R & 2" HWS/R TO NEW AHU COILS.
M223	FIELD VERIFY EXACT HEIGHT OF EXISTING COLD WATER MAIN INSIDE OF BUILDING. ROUTE NEW PIPING AT LEAST 4' BELOW FINISHED FLOOR AND ROUTE TO EXTERIOR AS SHOWN ON PLAN. COORDINATE ALL FINAL HEIGHTS WITH GENERAL CONTRACTOR AND CIVIL PLAN.
M225	INDIRECTLY DRAIN PIPE TO FLOOR SINK. MAINTAIN CODE REQUIRED AIR GAP AND CLEARANCES.
M226	ROUTE NEW VENT PIPING ALONG WALL AND COORDINATE WITH NEW DUCTWORK IN WRESTLING ROOM.
M228	SUPPORT PIPING FROM CHILLER PAD.

1 LOWER LEVEL PLAN - MECHANICAL PIPING
1/8" = 1'-0"

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REVISIONS SCHEDULE		
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WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

PROFESSIONAL MECHANICAL ENGINEER
NICHOLAS J LIMPACH
E-9256
STATE OF NEBRASKA
3-22-2024

LOWER LEVEL PLAN - MECHANICAL PIPING

NORTH

M2.0

MEI PROJECT NO: 23331

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4/9/2024 9:00:51 AM

GENERAL NOTES

1. SEE ELECTRICAL COVER SHEET E0.0 FOR ELECTRICAL GENERAL NOTES.

KEYNOTES

E001 PROTECT EXISTING SERVICE / PANELBOARDS DURING CONSTRUCTION. DOCUMENT EXISTING CIRCUITS THAT BECOME SPARE IN DEMOLITION FOR REUSE IN REMODEL.

E003 EXISTING SECURITY PANEL TO REMAIN.

E011 REMOVE EXISTING DEVICE INDICATED WITH DASHED LINES. MAINTAIN CONTINUITY OF EXISTING CIRCUIT IF DEVICE IS PART OF A CIRCUIT TO REMAIN.

E012 WHERE FIXTURES AND DEVICES ARE INDICATED TO BE REMOVED FROM MASONRY OR CONCRETE WALLS, PROVIDE BLANK COVER PLATES ON JUNCTION BOXES. PAINT COVERS TO MATCH ADJACENT SURFACES. WHERE FIXTURES AND DEVICES ARE INDICATED TO BE REMOVED FROM GYPSUM BOARD WALLS, REMOVE JUNCTION BOX COMPLETE AND PATCH WALL AS REQUIRED. REWORK BRANCH CIRCUIT CONDUIT AS REQUIRED IF JUNCTION BOXES BECOME NON-ACCESSIBLE.

E013 DISCONNECT ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT TO ALLOW FOR REMOVAL BY MECHANICAL CONTRACTOR. MAINTAIN CONTINUITY OF EXISTING BRANCH CIRCUIT SERVING OTHER MECHANICAL EQUIPMENT.

E015 REMOVE EXISTING DEVICE FOR CEILING REMOVAL. REINSTALL DEVICE IN NEW CEILING AT EXISTING LOCATION. EXISTING CABLING SHALL REMAIN FOR RECONNECTION.

E016 REMOVE EXISTING FIRE ALARM ANNUNCIATOR PANEL FOR WALL REFINISHING. REINSTALL PANEL IN EXISTING LOCATION AT NEWLY FINISHED WALL. EXISTING WIRING SHALL REMAIN FOR RECONNECTION.

E017 REMOVE EXISTING ACCESS CONTROL DEVICES IN DOOR TO BE REMOVED. EXISTING WIRING SHALL REMAIN FOR RECONNECTION TO NEW DEVICES.

E018 REMOVE EXISTING SPECIAL PURPOSE RECEPTACLE FOR REINSTALLATION IN NEW WALL FURRING. SEE NEW WORK PLAN.

1 FIRST FLOOR PLAN - ELECTRICAL DEMOLITION
1/8" = 1'-0"

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PROJECT: 23073 **DATE:** 03.22.24
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PROFESSIONAL ENGINEER
BRIAN M. KELLY
E-18879
STATE OF NEBRASKA
3-22-2024

FIRST FLOOR PLAN - ELECTRICAL DEMOLITION

NORTH

ED1.1

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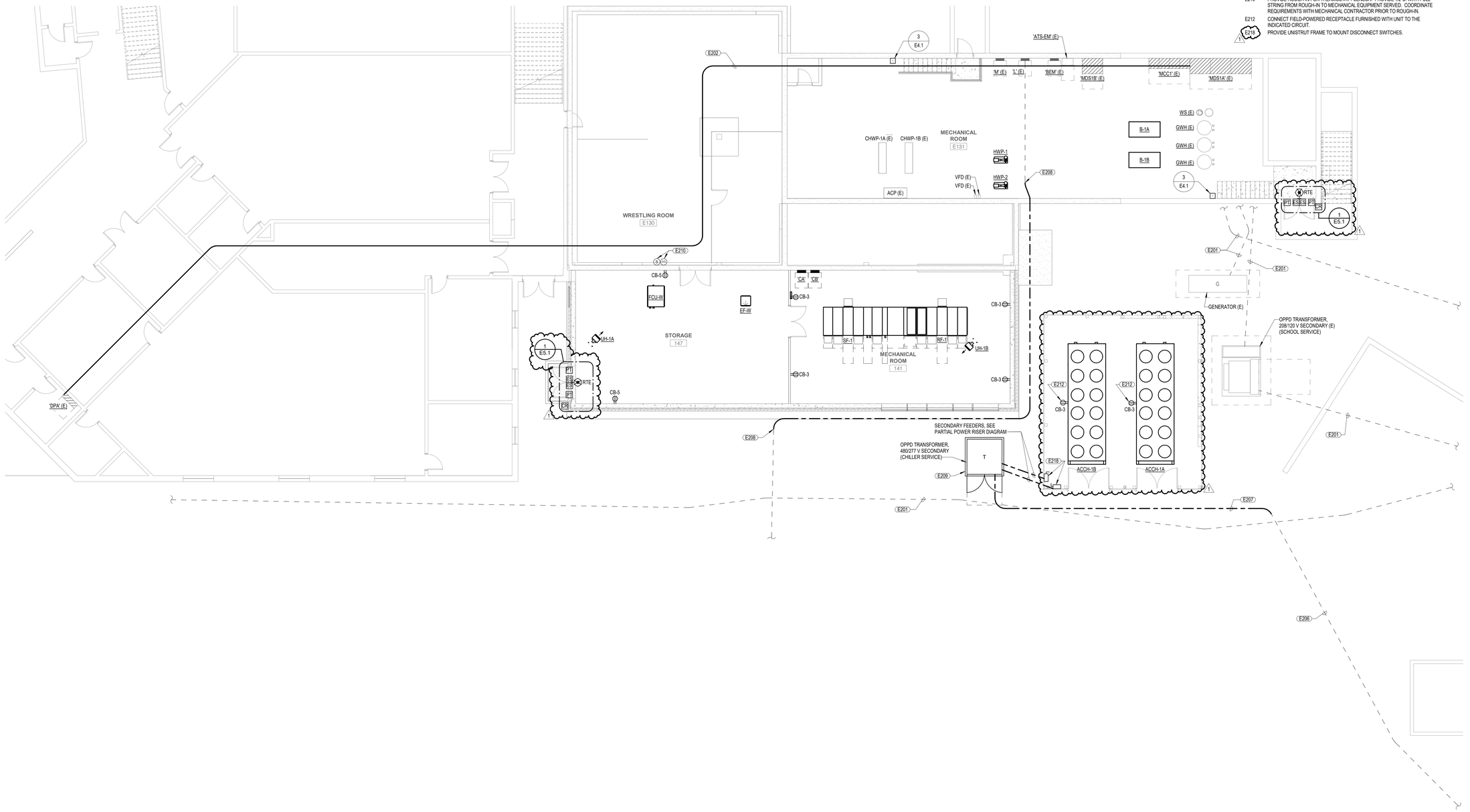
4/9/2024 11:39:09 AM

GENERAL NOTES

1. SEE ELECTRICAL COVER SHEET E0.0 FOR ELECTRICAL GENERAL NOTES.

KEYNOTES

E201	EXISTING UNDERGROUND FEEDER OR BRANCH CIRCUIT TO REMAIN. PROTECT DURING CONSTRUCTION.
E202	PROVIDE NEW FEEDERS FROM EXISTING SWITCHBOARD 'MDS1A' TO EXISTING DISTRIBUTION PANEL 'DPA'. PROVIDE 4-#00 KCMIL, #3/0 G IN EACH OF (4) 3-1/2"C. ROUTE CONDUIT AS HIGH AS POSSIBLE IN EXPOSED CEILING SPACE OF MECHANICAL ROOM E131 AND WRESTLING ROOM E130. ROUTE CONCEALED ABOVE EXISTING CEILINGS IN OTHER AREAS. FIELD-VERIFY EXACT ROUTE. WHERE EXISTING GYPSUM BOARD CEILINGS ARE DISTURBED TO ACCOMMODATE INSTALLATION, PATCH AND PAINT TO MATCH ORIGINAL CONDITION.
E206	EXISTING PORTION OF PRIMARY CONDUIT TO REMAIN. PROTECT DURING CONSTRUCTION.
E207	EXTEND NEW PRIMARY CONDUIT TO NEW TRANSFORMER PAD. COORDINATE ROUTING AND REQUIREMENTS IN ADVANCE WITH OPPD. SEE PARTIAL POWER RISER DIAGRAM.
E208	INTERCEPT EXISTING UNDERGROUND BRANCH CIRCUIT SERVING FIELDHOUSE AND REROUTE TO AVOID ADDITION FOOTPRINT. RECONNECT TO EXISTING BRANCH CIRCUIT INSIDE MECHANICAL ROOM E131. PROVIDE 3-#10, #10G - 1-1/4"C. FOR NEW PORTION OF BRANCH CIRCUIT.
E209	PROVIDE TRANSFORMER PAD PER OPPD REQUIREMENTS. SEE CIVIL DRAWINGS FOR EXACT LOCATION. TRANSFORMER LOCATION SHALL BE WITHIN 15 FEET OF DRIVE.
E210	PROVIDE ROUGH-IN FOR THERMOSTAT / SENSOR. PROVIDE 1/2"C. WITH PULL STRING FROM ROUGH-IN TO MECHANICAL EQUIPMENT SERVED. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
E212	CONNECT FIELD-POWERED RECEPTACLE FURNISHED WITH UNIT TO THE INDICATED CIRCUIT.
E218	PROVIDE UNISTRUT FRAME TO MOUNT DISCONNECT SWITCHES.



1 LOWER LEVEL PLAN - POWER
1/8" = 1'-0"

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PROFESSIONAL ENGINEER — BRIAN M. KELLY E-18879 — STATE OF NEBRASKA
3-22-2024

LOWER LEVEL PLAN - POWER

NORTH

E2.0

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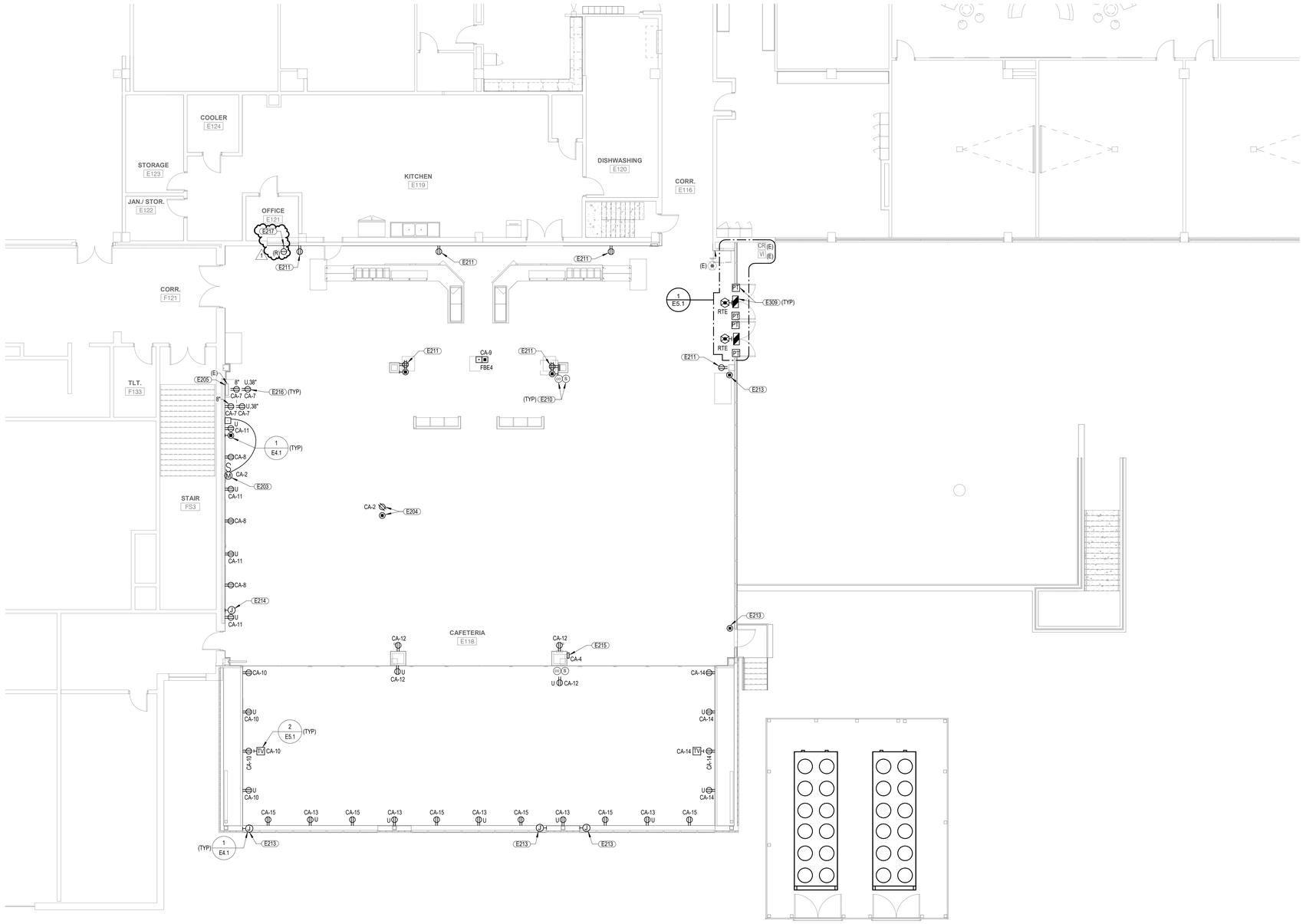

1 FIRST FLOOR PLAN - POWER

1/8" = 1'-0"

GENERAL NOTES

1. SEE ELECTRICAL COVER SHEET E0.0 FOR ELECTRICAL GENERAL NOTES.

KEYNOTES

E203	PROVIDE CONNECTION TO MOTORIZED PROJECTION SCREEN AND ASSOCIATED CONTROLS. VERIFY ROUGH-IN LOCATION AND CONNECTION REQUIREMENTS WITH APPROVED PROJECTION SCREEN SHOP DRAWINGS.
E204	POWER RECEPTACLE AND DATA OUTLET SERVING PROJECTOR. VERIFY LOCATION WITH AV SYSTEM SUPPLIER PRIOR TO ROUGH-IN.
E205	EXISTING SECURITY PANEL TO REMAIN.
E210	PROVIDE ROUGH-IN FOR THERMOSTAT / SENSOR. PROVIDE 1/2"C. WITH PULL STRING FROM ROUGH-IN TO MECHANICAL EQUIPMENT SERVED. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
E211	CONNECT TO EXISTING 120V CIRCUIT PREVIOUSLY SERVING RECEPTACLES IN THIS LOCATION.
E213	PROVIDE LOW VOLTAGE CONNECTIONS TO MOTORIZED SHADES. INSTALL JUNCTION BOX AS CLOSE AS POSSIBLE TO SHADE MOTOR. PROVIDE BLANK PLATE WITH GROMMETTED OPENING FOR WIRING TO MOTOR. KEEP EXPOSED PORTION OF WIRING TO MOTOR AS SHORT AND INCONSPICUOUS AS POSSIBLE. REFER TO APPROVED MOTORIZED SHADE SHOP DRAWINGS FOR FURTHER REQUIREMENTS.
E214	PROVIDE ROUGH-IN FOR MOTORIZED SHADE CONTROLLER. REFER TO APPROVED SHADE SHOP DRAWINGS FOR FURTHER REQUIREMENTS. VERIFY FINAL LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
E215	PROVIDE 120V CONNECTION TO SHADE SYSTEM POWER PANEL. INSTALL CONCEALED ABOVE ACCESSIBLE CEILING.
E216	INSTALL RECEPTACLES FLUSH WITH INSIDE OF CABINET.
E217	INSTALL RELOCATED SPECIAL PURPOSE RECEPTACLE FLUSH IN SURFACE OF NEW WALL FURRING. EXTEND BRANCH CIRCUIT AS REQUIRED.
E309	CONNECT NEW DEVICES TO EXISTING WIRING. EXTEND WIRING IF REQUIRED TO ACCOMMODATE NEW DOOR.

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	4/9/2024	Addendum #1

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

BRIAN M. KELLY E-18879 — PROFESSIONAL ENGINEER — STATE OF NEBRASKA

3-22-2024

FIRST FLOOR PLAN - POWER

NORTH

E2.1

MEI PROJECT NO: 23331

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note:
do not scale drawings. verify all dimensions and clearances from architectural, structural, shop and other appropriate drawings or at site. lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. do not fabricate prior to verification of clearance for all trades.

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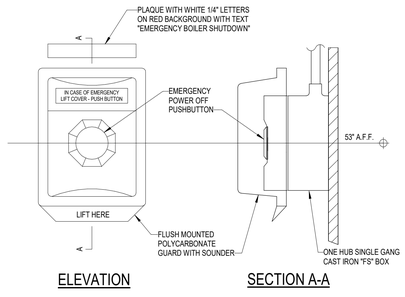
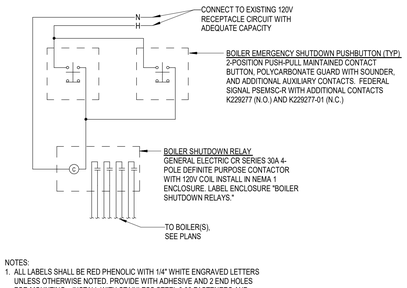
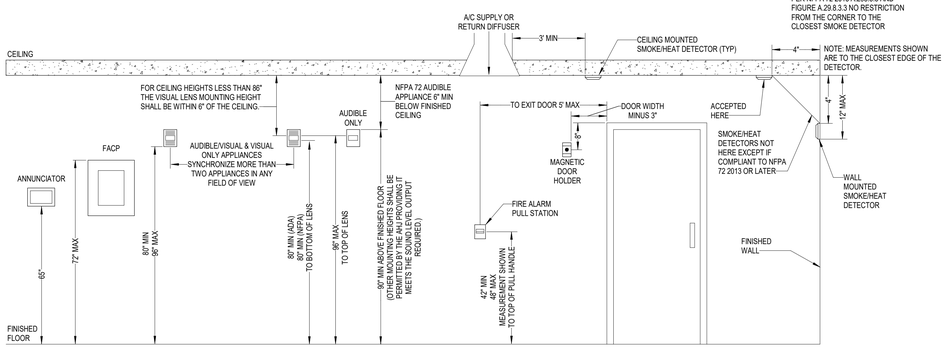


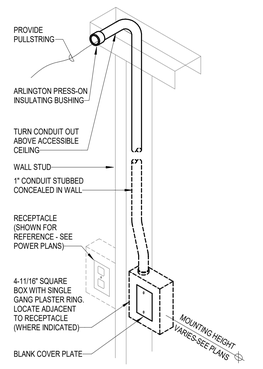


NOTES:
1. ALL LABELS SHALL BE RED PHENOLIC WITH 1/4" WHITE ENGRAVED LETTERS UNLESS OTHERWISE NOTED. PROVIDE WITH ADHESIVE AND 2 END HOLES FOR MOUNTING. INSTALL WITH STAINLESS STEEL 8-32 FASTENERS AND STAINLESS STEEL NYLON LOCKING NUTS.

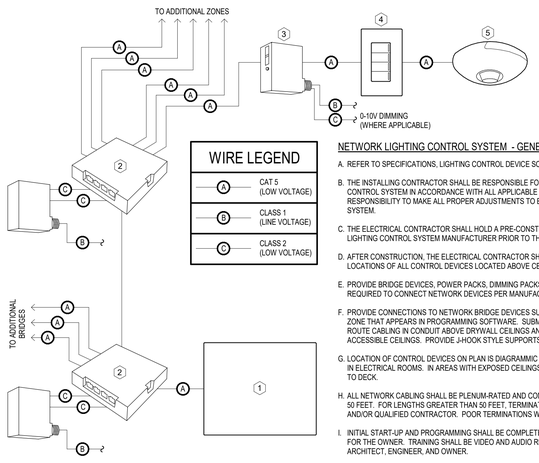
3 BOILER EMERGENCY POWER OFF
NOT TO SCALE



2 FIRE ALARM MOUNTING DETAIL
NOT TO SCALE



1 DATA/COMM ROUGH-IN DETAIL
NOT TO SCALE



WIRE LEGEND	
A	CAT 5 (LOW VOLTAGE)
B	CLASS 1 (LINE VOLTAGE)
C	CLASS 2 (LOW VOLTAGE)

NETWORK LIGHTING CONTROL SYSTEM - GENERAL NOTES

A. REFER TO SPECIFICATIONS, LIGHTING CONTROL DEVICE SCHEDULE, AND GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

B. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE AND OPERABLE DIGITAL LIGHTING CONTROL SYSTEM IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL PROPER ADJUSTMENTS TO ENSURE OWNER SATISFACTION WITH THE LIGHTING CONTROL SYSTEM.

C. THE ELECTRICAL CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE LOCAL REPRESENTATIVE FROM THE LIGHTING CONTROL SYSTEM MANUFACTURER PRIOR TO THE START OF CONSTRUCTION. SEE SPECIFICATIONS.

D. AFTER CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER A RECORD DRAWING SET DETAILING THE LOCATIONS OF ALL CONTROL DEVICES LOCATED ABOVE CEILINGS AND THE LUMINAIRES BEING CONTROLLED BY EACH DEVICE.

E. PROVIDE BRIDGE DEVICES, POWER PACKS, DIMMING PACKS, ENTRY STATIONS, SENSORS, AND ALL LOW VOLTAGE CABLING REQUIRED TO CONNECT NETWORK DEVICES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

F. PROVIDE CONNECTIONS TO NETWORK BRIDGE DEVICES SUCH THAT EACH ROOM/SPACE IS A SEPARATE LIGHTING CONTROL ZONE THAT APPEARS IN PROGRAMMING SOFTWARE. SUBMIT SHOP DRAWINGS INDICATING PROPOSED CONNECTIONS/ZONES. ROUTE CABLING IN CONDUIT ABOVE DRYWALL CEILINGS AND WHERE CEILING IS EXPOSED. CONDUIT NOT REQUIRED ABOVE ACCESSIBLE CEILINGS. PROVIDE J-HOOK STYLE SUPPORTS FOR CABLING (MAXIMUM 60" SPACING).

G. LOCATION OF CONTROL DEVICES ON PLAN IS DIAGRAMMIC FOR CLARITY. LOCATE DEVICES ABOVE ACCESSIBLE CEILINGS OR IN ELECTRICAL ROOMS. IN AREAS WITH EXPOSED CEILINGS, POWER PACKS CAN BE CONCEALED WITHIN JUNCTION BOX TIGHT TO DECK.

H. ALL NETWORK CABLING SHALL BE PLENUM-RATED AND CONSIST OF PRE-TERMINATED CABLES FOR LENGTHS SHORTER THAN 50 FEET. FOR LENGTHS GREATER THAN 50 FEET, TERMINATIONS SHALL BE MADE BY A LOW VOLTAGE LICENSED TECHNICIAN AND/OR QUALIFIED CONTRACTOR. POOR TERMINATIONS WILL RESULT IN A NON-OPERABLE SYSTEM.

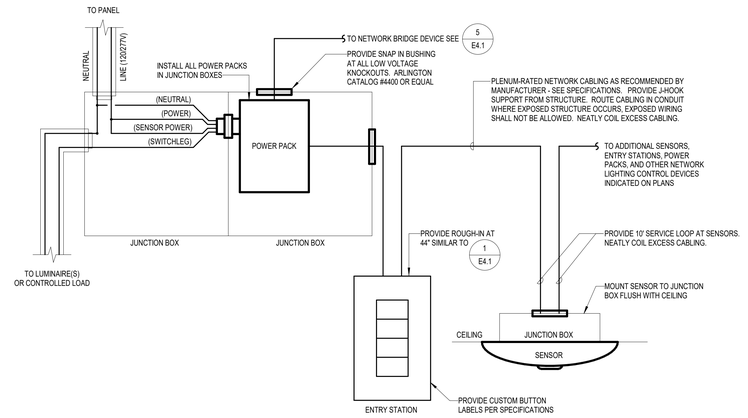
I. INITIAL START-UP AND PROGRAMMING SHALL BE COMPLETED BY A QUALIFIED FACTORY REPRESENTATIVE. PROVIDE TRAINING FOR THE OWNER. TRAINING SHALL BE VIDEO AND AUDIO RECORDED BY CONTRACTOR. COORDINATE SCHEDULE WITH ARCHITECT, ENGINEER, AND OWNER.

J. PROVIDE CUSTOM ENGRAVINGS FOR ALL ENTRY STATIONS - SEE SPECIFICATIONS FOR MORE INFORMATOIN.

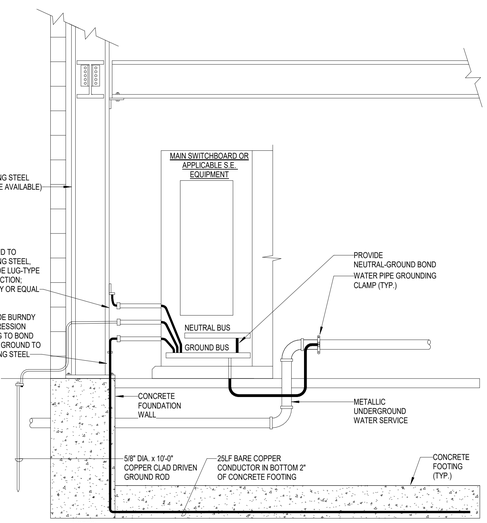
NETWORK LIGHTING CONTROL SYSTEM - KEYNOTES

1. EXISTING LIGHTING CONTROL NETWORK SYSTEM BACKBONE.
2. PROVIDE NETWORK BRIDGE DEVICES AS REQUIRED TO ROUTE COMMUNICATION AND DISTRIBUTE POWER TO ALL CONNECTED SYSTEM DEVICES. QUANTITY OF BRIDGE DEVICES TO BE DETERMINED BY MANUFACTURER. LOCATE BRIDGE DEVICES ABOVE ACCESSIBLE CEILING NEAR AREAS BEING SERVED OR IN ELECTRICAL ROOMS. CONNECT POWER SUPPLIES TO NEARBY UNSWITCHED CIRCUITS. SUBMIT SHOP DRAWINGS INDICATING QUANTITY AND PROPOSED LOCATIONS FOR REVIEW.
3. LIGHTING CONTROL NETWORK POWER PACK OR DIMMING PACK. REFER TO LIGHTING CONTROL DEVICE SCHEDULE FOR TYPES.
4. LIGHTING CONTROL NETWORK ENTRY STATION. REFER TO LIGHTING CONTROL DEVICE SCHEDULE FOR TYPES.
5. LIGHTING CONTROL NETWORK CEILING MOUNTED SENSOR. REFER TO LIGHTING CONTROL DEVICE SCHEDULE FOR TYPES.

5 TYPICAL LIGHTING CONTROL DIAGRAM
NOT TO SCALE



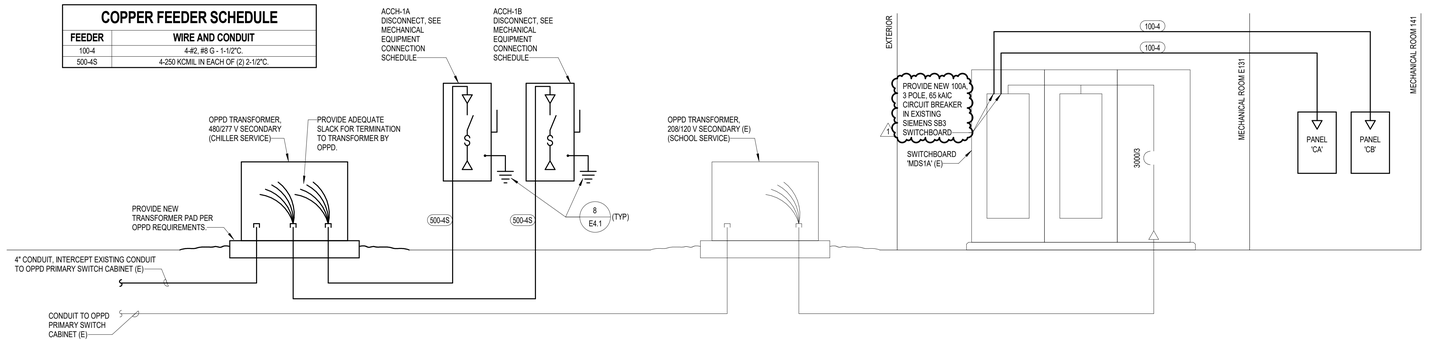
4 TYPICAL LIGHTING CONTROL (NETWORK TYPE) ROOM CONNECTION DETAIL
NOT TO SCALE



NOTES:
1. PHYSICAL LAYOUT SHOULD BE DETERMINED FROM FLOOR PLAN DRAWINGS AND FIELD DIMENSIONS.
2. ALL GROUNDING CONDUCTORS SIZED IN ACCORDANCE WITH NEC TABLE 250.66.
3. ALL CLAMPS AND FITTINGS SHALL BE UL LISTED FOR THE APPLICATION.

8 MAIN SERVICE GROUNDING DETAIL
NOT TO SCALE

COPPER FEEDER SCHEDULE	
FEEDER	WIRE AND CONDUIT
100-4	4-#2, #8 G - 1-1/2"C.
500-4S	4-250 KCMIL IN EACH OF (2) 2-1/2"C.



PARTIAL POWER RISER DIAGRAM
NO SCALE

7 E3.1

MEI PROJECT NO: 23331

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	4/9/2024	Addendum #1

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

PROFESSIONAL ENGINEER
BRIAN M. KELLY E-16879
STATE OF NEBRASKA
3-22-2024

ELECTRICAL DETAILS

E4.1

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FLOORBOX SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	COVER				RECEPTACLE	LOW VOLTAGE CONDUIT	ACCEPTABLE MANUFACTURERS	REMARKS
				STYLE	TOP	FLANGE	FINISH				
FBE4	4-GANG MULTI-SERVICE ON GRADE FLOORBOX	WIREMOLD	EFB4SS-OG	EFB45	SOLID LID	SURFACE STYLE	SATIN NICKEL	(2) 5-20	2"	NOTE 1	NOTE 2,3

GENERAL REQUIREMENTS:

A. CONTRACTOR SHALL VERIFY CATALOG NUMBERS AND INSTALLATION REQUIREMENTS PRIOR TO ORDERING. NOTIFY ENGINEER OF ANY CONFLICTS WITH PROPOSED INSTALLATION.

B. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

C. CONFIRM FINAL LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.

D. VERIFY FINISH AND FLOORING TYPE PRIOR TO ORDERING.

FLOORBOX SCHEDULE NOTES:

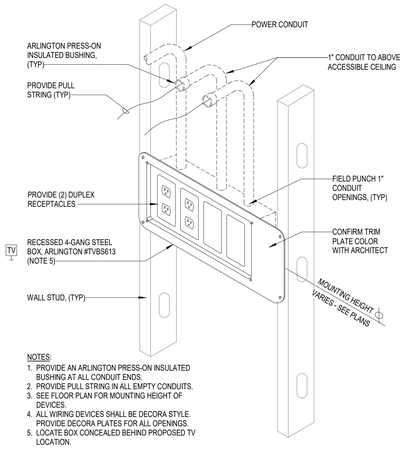
1. FLOORBOX SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY: WIREMOLD, HUBBELL.
2. PROVIDE WITH INTERNAL RJ DEVICE BRACKETS AND ALL OTHER MOUNTING HARDWARE AS REQUIRED.
3. PROVIDE CONDUIT FROM CONNECTOR ROUTED UNDERFLOOR, UP CONCEALED IN WALL, AND STUBBED TO ABOVE ACCESSIBLE CEILING SPACE. TERMINATE WITH INSULATING BUSHING.
4. SAWCUT FLOOR AS REQUIRED AND PATCH TO ORIGINAL CONDITION.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

PLAN TAG	VOLTAGE	PHASE	DISCONNECT	CIRCUIT	WIRE AND CONDUIT	REMARKS
ACCH-1A	480 V	3	600A/3P, FUSED @ 500A, NSR		3-250 KCMIL,#2G IN EACH OF (2) 2-1/2"C.	NOTE 3
ACCH-1B	480 V	3	600A/3P, FUSED @ 500A, NSR		3-250 KCMIL,#2G IN EACH OF (2) 2-1/2"C.	NOTE 3
B-1A	208 V	3	INTEGRAL		4#10,#10G - 3/4"C	NOTE 5
B-1B	208 V	3	INTEGRAL		4#10,#10G - 3/4"C	NOTE 5
EF-W	120 V	1	INTEGRAL	CB-7	2#12,#10G - 1/2"C	
FCU-W	208 V	3	INTEGRAL	CB-9,11,13	3#12,#12G - 1/2"C	
HWP-1	208 V	3	VFD (E)		3#1,#4G - 1-1/2"C	NOTE 4
HWP-2	208 V	3	VFD (E)		3#1,#4G - 1-1/2"C	NOTE 4
MAU 2	120 V	1				
RF-1	208 V	3	INTEGRAL	CB-12,14,16	3#12,#12G - 1/2"C	
RTU-C	208 V	3	INTEGRAL		3#2/0,#6G - 2"C	NOTE 1
RTU-K	208 V	3	INTEGRAL		3#4,#6G - 1-1/4"C	NOTE 2
SF-1	208 V	3	INTEGRAL	CB-6,8,10	3#10,#10G - 3/4"C	
UH-1A	120 V	1	1P TOGGLE SWITCH	CB-2	2#12,#12G - 1/2"C	
UH-1B	120 V	1	1P TOGGLE SWITCH	CB-4	1#12,#12G - 1/2"C	

MECHANICAL EQUIPMENT CONNECTION SCHEDULE NOTES:

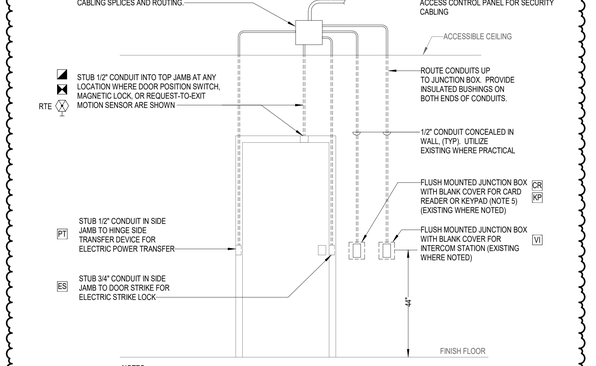
1. PROVIDE NEW 175/3 CIRCUIT BREAKER IN EXISTING GE SPECTRA SERIES SWITCHBOARD 'MDSZ'. MATCH EXISTING CIRCUIT BREAKERS.
2. PROVIDE NEW 70/3 CIRCUIT BREAKER IN EXISTING SIEMENS SB3 SWITCHBOARD 'MDS1B'. MATCH EXISTING CIRCUIT BREAKERS.
3. SEE PARTIAL POWER RISER DIAGRAM FOR CIRCUITING INFORMATION.
4. CONNECT TO EXISTING VFD SERVING REMOVED PUMP. PROVIDE NEW 125A FUSES IN EXISTING SWITCH IN MOTOR CONTROL CENTER 'MCC1'.
5. PROVIDE NEW 30A FUSES IN EXISTING SWITCH SERVING REMOVED BOILER IN MOTOR CONTROL CENTER 'MCC1'.



NOTES:
1. PROVIDE AN ARLINGTON PRESS-ON INSULATED BUSHING AT ALL CONDUIT ENDS.
2. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
3. SEE FLOOR PLAN FOR MOUNTING HEIGHT OF DEVICES.
4. ALL WIRING DEVICES SHALL BE DECORA STYLE. PROVIDE DECORA PLATES FOR ALL OPENINGS.
5. LOCATE BOX CONCEALED BEHIND PROPOSED TV LOCATION.

2 DISPLAY ROUGH IN DETAIL - RECESSED

NOT TO SCALE



NOTES:
1. ROUGH-IN REQUIREMENTS AND LOCATIONS SIMILAR FOR DOUBLE DOORS.
2. NOT ALL DEVICES ROUGHED IN AT ALL DOORS, SEE PLANS FOR SPECIFIC DOOR ROUGH-IN REQUIREMENTS.
3. COORDINATE ACCESS CONTROL ROUGH-IN REQUIREMENTS WITH ARCHITECTURAL DOOR SCHEDULES AND SECURITY CONTRACTOR.
4. 'M' DENOTES MULLION MOUNTED DEVICE. PROVIDE CONDUIT PATHWAY DOWN TO DOOR FRAME MULLION IN LIEU OF WALL.
5. MAINTAIN A MINIMUM OF 12" PHYSICAL SEPARATION WHERE CARD READERS ARE SHOWN ON BACK-TO-BACK WALLS.

1 ACCESS CONTROL ROUGH-IN DETAIL

NOT TO SCALE

LUMINAIRE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LIGHT SOURCE			ELECTRICAL		FINISH	MOUNTING	ACCEPTABLE MANUFACTURERS	REMARKS
				SPEC.	CCT	TYPE	LOAD	VOLTS				
1	2' X 2' LED FLAT PANEL	LITHONIA	EPANL-2X2-3400LM-80CRI-40K-MINT-EZT-MVOLT	3400 LM	4000 K	LED	30 W	120 V	WHITE	RECESSED, GRID	NOTE 1	
2A	4' SQUARE DOWNLIGHT	GOTHAM	ICO4SQ-40/40-AR-LSS-60D-120-EZ1-TRBL	4000 LM	4000 K	LED	40 W	120 V	BLACK	RECESSED, WOOD	NOTE 2	NOTE 6
2B	4" SQUARE DOWNLIGHT	GOTHAM	ICO4SQ-40/15-AR-LSS-60D-120-EZ1-TRW	1500 LM	4000 K	LED	15 W	120 V	WHITE	RECESSED, GRID	NOTE 2	
3A	4" WIDE LINEAR SLOT - 4' LENGTH	FOCAL POINT	FSM4LS-FL-875LF-40K-1C-UNV-L11-SM-BK-4'	875 LM/FT	4000 K	LED	32 W	120 V	WHITE	NOTE 8	NOTE 3	NOTE 6
3B	4" WIDE LINEAR SLOT - 9' LENGTH	FOCAL POINT	FSM4LS-FL-875LF-40K-1C-UNV-L11-SM-BK-9'	875 LM/FT	4000 K	LED	72 W	120 V	WHITE	NOTE 8	NOTE 3	NOTE 6
4	4' LED STRIPLIGHT	LITHONIA	ZL1D-L48-5000LM-FST-MVOLT-40K-90CRI-WH-HC35 M12	5000 LM	4000 K	LED	41 W	120 V	WHITE	SUSPENDED	NOTE 1	W/ HANGER CHAIN
5	EXTERIOR WALL PACK	LITHONIA	WST LED-P2-40K-VF-MVOLT-DMG-DSSTXD	3000 LM	4000 K	LED	25 W	120 V	TEXTURED SANDSTONE	WALL	NOTE 1	
6A	4" WIDE PERIMETER LINEAR SLOT - 33'-3" LENGTH	FOCAL POINT	FSM4PR-ALH-FL0-275LF-40K-2C2Z-UNV-L11-G-WH-33FT3IN	275 LM/FT	4000 K	LED	100 W	120 V	WHITE	PERIMETER, GRID	NOTE 3	NOTES 5, 7
6B	4" WIDE PERIMETER LINEAR SLOT - 33'-3" LENGTH	FOCAL POINT	FSM4PR-ALH-FL0-375LF-40K-2C2Z-UNV-L11-G-WH-33FT3IN	375 LM/FT	4000 K	LED	125 W	120 V	WHITE	PERIMETER, GRID	NOTE 3	NOTES 5, 7
X	SINGLE-FACE EDGE-LIT EXIT LIGHT	LITHONIA	EDGR-1-RMR	FURN. W/ LUMINAIRE	RED	LED	4 W	120 V	ALUMINUM	NOTE 4	NOTE 1	

GENERAL REQUIREMENTS:

A. CONTRACTOR SHALL VERIFY CATALOG NUMBERS AND INSTALLATION REQUIREMENTS PRIOR TO ORDERING. NOTIFY ENGINEER OF ANY CONFLICTS WITH PROPOSED INSTALLATION.

B. CONTRACTOR SHALL COORDINATE CEILING TRIM OPTIONS FOR LUMINAIRES INSTALLED IN GRID-TYPE SUSPENDED CEILINGS. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

C. UNLESS NOTED OTHERWISE REFER TO PLANS FOR SUSPENSION LENGTHS REQUIRED FOR ALL SUSPENDED LUMINAIRES.

D. PROVIDE EQUAL SECTION LENGTHS FOR LUMINAIRES COMPRISED OF MULTIPLE SECTIONS. SUBMIT SHOP DRAWINGS OF PROPOSED CONFIGURATIONS FOR REVIEW.

E. PROVIDE (2) SPARE EXIT SIGNS FOR PROJECT. EXIT SIGN LOCATIONS AND MOUNTING REQUIREMENTS TO BE FIELD COORDINATED AS DIRECTED BY AHJ.

LUMINAIRE SCHEDULE NOTES:

1. LUMINAIRE SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY: ACUITY BRANDS, COOPER, CURRENT, SIGNIFY, CREE LIGHTING.
2. LUMINAIRE SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY: GOTHAM, PORTFOLIO, PRESCOLITE, USAI, CSL LIGHTING.
3. LUMINAIRE SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY: FOCAL POINT, LUMENWERX, AXIS, STARFIRE.
4. REFER TO PLANS FOR MOUNTING REQUIREMENTS SUCH AS WALL MOUNT, END MOUNT, CEILING MOUNT AND PROVIDE LUMINAIRES ACCORDINGLY. PROVIDE DIRECTIONAL CHEVRON ARROWS AS INDICATED ON PLANS.
5. REFER TO PLANS FOR RUN LENGTHS AND CONFIGURATIONS REQUIRED. LUMINAIRE SHALL BE CONTINUOUS FOR ENTIRE LENGTHS OF WALLS WITH ILLUMINATED SLIDING SLEEVES. PRIOR TO ORDERING CONTRACTOR SHALL VERIFY WALL DIMENSIONS. REFER TO TYPICAL PERIMETER LUMINAIRE DETAIL FOR ADDITIONAL REQUIREMENTS.
6. SPECIFIED LUMINAIRE IS PART OF AN INTEGRATED CEILING SYSTEM - SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR MORE INFORMATION. COORDINATE SUBMITTALS AND INSTALLATION WITH OTHER TRADES.
7. 4' LENGTH OF LUMINAIRE SHALL BE CIRCUITED AND CONTROLLED SEPARATELY FOR EMERGENCY OPERATION.
8. SURFACE-MOUNT LUMINAIRE TO UNISTRUT CHANNEL SUPPORTED FROM STRUCTURE. INSTALL SUCH THAT BOTTOM OF LUMINAIRE IS FLUSH WITH BOTTOM OF FINISHED CEILING SYSTEM. CENTER LUMINAIRE BETWEEN SLATS OF CEILING SYSTEM.

LIGHTING CONTROL DEVICE SCHEDULE

SYMBOL	TAG	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
	1P	ACUITY CONTROLS NLIGHT	nPODMA	LIGHTING CONTROL NETWORK ENTRY STATION WITH ON AND OFF PUSH BUTTONS
	4SD	ACUITY CONTROLS NLIGHT	nPODMA 4S DX	LIGHTING CONTROL NETWORK ENTRY STATION WITH FOUR BUTTON SCENE CONTROL, ON AND OFF PUSH BUTTONS, AND RAISE/LOWER DIMMING CONTROL
	nE	ACUITY CONTROLS NLIGHT	nCM PDT 10	LIGHTING CONTROL NETWORK EXTENDED RANGE CEILING OCCUPANCY SENSOR
	nE,P	ACUITY CONTROLS NLIGHT	nCM PDT 10 ADCX	LIGHTING CONTROL NETWORK EXTENDED RANGE CEILING OCCUPANCY SENSOR WITH AUTO DIMMING PHOTOCELL
	n,W	ACUITY CONTROLS NLIGHT	nWV PDT 16	LIGHTING CONTROL NETWORK WIDE VIEW CORNER/WALL SENSOR
P	n	ACUITY CONTROLS NLIGHT	nCM ADCX	LIGHTING CONTROL NETWORK PHOTOCELL WITH AUTO DIMMING CONTROL
PP	n	ACUITY CONTROLS NLIGHT	nPP16	LIGHTING CONTROL NETWORK 16A POWER PACK
PP	n,D	ACUITY CONTROLS NLIGHT	nPP16 D	LIGHTING CONTROL NETWORK 16A POWER PACK WITH 0-10V DIMMING
PP	em,D	ACUITY CONTROLS NLIGHT	nPP16 D ER	LIGHTING CONTROL NETWORK 16A UL924 EMERGENCY POWER PACK WITH 0-10V DIMMING

LIGHTING PANEL SCHEDULE

Panel: CA — **Voltage:** 120/208
Rating: 100 A — **Phase:** 3
Mounting: SURFACE — **Wire:** 4
Type: MLO W/GND. BAR — **A.I.C. Rating:** 10000
Integral SPD: YES

Circuit Description	OPT	R	P	CKT	A	B	C	CKT	P	R	OPT	Circuit Description
LTG - CAFETERIA NORTH		20	1	1				2	1	20		PROJECTOR REC & SCREEN
LTG - CAFETERIA CENTRAL		20	1	3				4	1	20		PWR - MOTORIZED SHADES
LTG - CAFETERIA SOUTH		20	1	5				6	1	20		REC - ROOFTOP MAINT
REC - CAFETERIA AV		20	1	7				8	1	20		REC - CAFETERIA WEST WALL
REC - CAFETERIA FLOORBOX		20	1	9				10	1	20		REC - CAFETERIA WEST WALL
REC - CAFETERIA WEST WALL		20	1	11				12	1	20		REC - CAFETERIA COLUMNS
REC - CAFETERIA S WALL		20	1	13				14	1	20		REC - CAFETERIA EAST WALL
REC - CAFETERIA S WALL		20	1	15				16	1	20	--	SPARE
SPARE	--	20	1	17				18	1	20	--	SPARE
SPARE	--	20	1	19				20	1	20	--	SPARE
SPARE	--	20	1	21				22	1	20	--	SPARE
SPARE	--	20	1	23				24	1	20	--	SPARE
SPARE	--	20	1	25				26	1	20	--	SPARE
SPARE	--	20	1	27				28	1	20	--	SPARE
SPARE	--	20	1	29				30	1	20	--	SPARE
SPACE	--	--	1	31				32	1	--	--	SPACE
SPACE	--	--	1	33				34	1	--	--	SPACE
SPACE	--	--	1	35				36	1	--	--	SPACE
SPACE	--	--	1	37				38	1	--	--	SPACE
SPACE	--	--	1	39				40	1	--	--	SPACE
SPACE	--	--	1	41				42	1	--	--	SPACE

Options:
G – GFCI type circuit breaker. S – Shunt trip type circuit breaker.
L – Locking handle type circuit breaker.
Notes:

LIGHTING PANEL SCHEDULE

Panel: CB — **Voltage:** 120/208
Rating: 100 A — **Phase:** 3
Mounting: SURFACE — **Wire:** 4
Type: MLO W/GND. BAR — **A.I.C. Rating:** 10000
Integral SPD: YES

Circuit Description	OPT	R	P	CKT	A	B	C	CKT	P	R	OPT	Circuit Description
LTG - LOWER LEVEL		20	1	1				2	1	15		UH-1A
REC - MECH RM 141		20	1	3				4	1	15		UH-1B
REC - STORAGE 147		20	1	5				6				
EF-W		35	1	7				8	3	25		SF-1
FCU-W		15	3	9				10				
				11				12				
				13				14	3	15		RF-1
SPARE	--	20	1	15				16				
SPARE	--	20	1	17				18	1	20	--	SPARE
SPARE	--	20	1	19				20	1	20	--	SPARE
SPARE	--	20	1	21				22	1	20	--	SPARE
SPARE	--	20	1	23				24	1	20	--	SPARE
SPARE	--	20	1	25				26	1	20	--	SPARE
SPARE	--	20	1	27				28	1	20	--	SPARE
SPARE	--	20	1	29				30	1	20	--	SPARE
SPACE	--	--	1	31				32	1	--	--	SPACE
SPACE	--	--	1	33				34	1	--	--	SPACE
SPACE	--	--	1	35				36	1	--	--	SPACE
SPACE	--	--	1	37				38	1	--	--	SPACE
SPACE	--	--	1	39				40	1	--	--	SPACE
SPACE	--	--	1	41				42	1	--	--	SPACE

Options:
G – GFCI type circuit breaker. S – Shunt trip type circuit breaker.
L – Locking handle type circuit breaker.
Notes:

MEI PROJECT NO: 23331

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	4/9/2024	Addendum #1

WESTSIDE MIDDLE SCHOOL CAFETERIA ADDITION

PROJECT: 23073 **DATE:** 03.22.24
PROJECT STATUS: CONSTRUCTION DOCUMENTS

ELECTRICAL SCHEDULES

E5.1

SCALE 3/32" = 1'-0" 1/16" = 1'-0" 1/8" = 1'-0" 1/4" = 1'-0" 1/2" = 1'-0" 3/4" = 1'-0" 1" = 1'-0" 1-1/2" = 1'-0" 3" = 1'-0"

4/9/2024 11:39:55 AM

SECTION 071800 – TRAFFIC COATING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Fluid applied urethane elastomeric waterproofing.
B. Related Requirements:
   1. Section 017419 Construction Waste Management and Disposal.

1.3 PREINSTALLATION MEETINGS

1. Pre-Application Conference and Mock-up: Prior to beginning work, convene a conference to review conditions, installation procedures, schedules, and coordination with other work. Install a 100-200 square foot mock-up for of purposed system. The mock-up should be reviewed and approved for aesthetic value, slip resistance and functionality by the owner and architect before proceeding to apply the system to the floor or deck.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
   2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.
B. Shop Drawings: Show locations and extent of coatings and details of substrate joints and cracks, expansion joints, sheet flashings, penetrations, inside and outside corners, and other termination conditions.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.
B. Field quality-control reports.
C. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. All materials used in this section shall be of the highest quality as manufactured by nationally recognized manufacturer and of the specified.
B. Applicator Qualifications: Applicator shall be experienced in successfully installing or similar area deck coating systems over a minimum period of five (5) years prior to award of this Contract. Submit written evidence of experience and manufacturer's written statement of approval to consultant when requested.
C. Regulatory Requirements: Comply with applicable codes, regulations, ordinances and laws regarding use and application of coating systems that contain volatile organic compounds (VOC).
D. Provide for a technical representative from traffic deck coating manufacturer to be on job site to assure compliance with manufacturer's directions. The technical representative shall be present during start of coating application and shall conduct periodic inspections during application. The technical representative shall confirm such inspections have been made by submitting written reports to consultant on the coating application and percentage completion.
E. On completion of coating application, the manufacture's technical representative shall certify in writing to Consultant that the coating system has been installed in accordance with manufacturer's requirements.

1.7 PERFORMANCE CRITERIA

A. Waterproof traffic deck coating shall meet or exceed following requirements:
   1. Traffic deck coating materials shall conform to ASTM C-957 Parking Structure with membrane system to pass ASTM C957 crack - bridging test.
   2. The system shall be chemical resistant to oil spillage, anti-freeze liquid, battery acid alkalis, salt water, and de-icing salts.
   3. Any areas of deck coating exposed to sunlight shall have a U.V. resistant wear layer.
   4. The system shall hide joints and cracks in the deck and not allow moisture penetration at construction joints, cracks termination points, drains, upturns or splices.
   5. The system shall be totally waterproof, flexible, and thermally compatible with the substrate under applicable service conditions.
   6. The system shall remain skid resistant and non-slip under its intended use during wet, snow, or dry conditions.
   7. The system shall withstand active cyclical crack movements to a maximum of 1.6 mm and remain waterproof.
   8. The coating adhesion to the concrete shall meet or exceed 3.0 MPa.
   9. Adhesion of all layers of the system to each other shall meet or exceed 3.0 MPa.
   10. System shall not debond, crack or wear excessively. Loose aggregate in any area will constitute failure.
   11. System shall not support combustion.
   12. The traffic deck coating system shall satisfy the above requirements for the duration of the specified warranty.

1.8 ENVIRONMENTAL CONDITIONS

A. Install coating materials under the following conditions and to manufacturer's requirements:
   1. Rain is not anticipated within 8 hours of application on surfaces exposed to the exterior
   2. Substrate surface temperatures and the ambient temperature shall be in compliance with the manufacturer's requirements and acceptable to the installer.
   3. Open fires and spark producing equipment are not and will not be in application area until vapours have dissipated.

B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.9 WARRANTY

A. Manufacturer's Warranty:
   1. Manufacturers Labor and Material Warranty: Manufacturer agrees to furnish and install replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
      a. Warranty Period: Twenty years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Waterproofing System: Obtain waterproofing materials and molded-sheet drainage panels from single source from single manufacturer.

B. Acceptable Materials/Products: Hybrid Polyurea/Polyurethane Trafficable waterproofing membrane system.
   1. The Barrett Company – Hyppocoat 100 Seamless Deck Coating System.
   2. Substitutions: See Section 002600 Procurement Substitution Procedures.

2.2 MEMBRANE COMPOUND

A. Two (2) component chemically cured polyurea/polyurethane system designed for use on vehicular traffic and pedestrian decks and conforming to ASTM C-957 the full system shall be at or exceed performance criteria specified in Part 1 to provide a complete waterproof membrane and which will prevent corrosive effects of de-icing salts.

2.3 ACCESSORIES

A. Furnish all auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with traffic coating.
B. Primer: Hyppocoat MMP.
C. Membrane sealants: As recommended for substrate by sheet waterproofing material manufacturer.
D. Wearing course aggregate: Aluminum Oxide as recommended for substrate by sheet waterproofing material manufacturer.
E. Surface Patching: Products use to patch rough surfaces shall be Hyppocoat 100 and Hyppocoat Primer shall contain no additives or fillers in resin. Coating material may be used to fill rough areas if approved by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before any waterproofing work is started the waterproofing applicator shall thoroughly examine all surfaces for any deficiencies. Should any deficiencies exist, the Consultant shall be notified in writing.
B. Verify proper dry condition and moisture content of substrate using method recommended by coating system manufacturer; perform adhesion checks prior to general application of coating system using field adhesion test method recommended by manufacturer.
C. Concrete surface shall be visibly dry and pass a four (4) hour Rubber Mat Test with no condensate.
    1. Rubber Mat Test:
        a. Place a 600 x 600 mm non-breathing rubber or vinyl mat onto concrete substrate.
        b. Tape mat edges to concrete substrate on all sides.

3.2 PREPARATION

A. Prepare all surfaces to receive deck coating, including substrate joints, cracks, coves, vents, pipes, etc. in accordance with manufacturer's printed instructions.
B. Ensure all substrate surfaces are smooth, dry, and firm. Remove any frost, ice, loose particles, ridges, fins, rough projections, cracks, grease, oil, existing coatings, and other foreign material which could prevent adhesion of deck coating to substrate.
C. Before application of coating ensure moisture content of slabs does not exceed coating manufacturer's instructions.
D. Ensure concrete surfaces are free from surface pitting and honeycombing. Remove irregularities. Fill voids, surface pitting, and honeycombing. Repair pour joints and provide satisfactory surface for deck coating application in accordance with manufacturer's instructions.
E. Prepare concrete deck surfaces to receive deck coating by method approved by manufacturer. Clean all exposed metal surfaces (pipes, sleeves, drains, vents, etc). Remove paint, rust, scale, and all foreign matter.
F. Ensure drainage slopes by others are complete prior to placing of deck coating.

3.3 PROTECTION

A. Advise Construction Manager and other trades of fixtures, fittings, and finishing not to be installed until deck coating is complete.
B. Protect any personnel or Consultants who may be in area during application of coating by providing mechanical ventilation and respirators and posting warning signs to WorkSafe regulations and requirements.
C. Protect adjacent surfaces from drainage resulting from work of this trade. Mask and/or cover adjacent surfaces, fixtures, equipment by suitable means.
D. Traffic on coated surface:
    1. Provide traffic control during application and until surface has cured restricting access by other trades.

2. The completed coating system shall not be subject to any traffic during the first 4 hours (at 75 degrees F) after application is complete or to any vehicular traffic during the first 8 hours (at 75 degrees F) after application of the final coat.
3. Cool temperatures will significantly increase the required cure time.
4. If the work of the applicator has not been approved by the Consultant during the first 72 hours after application is complete, then there shall be no traffic of any type allowed until such acceptance and approval is given.

E. After cure, provide protection against damage by others working over the deck coating.
F. Provide temporary protection on completed deck coating as required.

3.4 APPLICATION

A. Complete work to manufacturer's directions.
B. Carry out all applications to comply with BC Building Code, WorkSafe BC, and WHMIS regulations, including mechanical ventilation and respirators.
C. Fill all cracks horizonal cracks and joints deep all movement cracks and joints and caulk with The Barrett Company- Liquid Flash 100 sealant.
D. Apply Primer per manufacturers instructions. Thickness as required for warranty specified.
E. Traffic coating system shall be lapped up walls, columns, cast-in-place curbs at a minimum dry thickness 40 mils, or as required for warranty specified.
F. Apply wear course surfacing and manufacturer approved Aluminum Oxide aggregate loading (i.e. sized, washed, dried, and bagged, having minimum hardness of six (6) on the Moh Scale). Aggregate loading: as recommended by manufacturer.
G. Apply wear surfacing and aggregate loadings as total system as follows: Apply wear course surfacing to total dry film thickness not less than 60 mils, or as required for warranty specified.
H. Install pipe seals and flashing protrusions in membrane in accordance with manufacturer's details and instructions. Ensure coating terminations are completed in accordance with manufacturer's details and instructions.
I. Finished work shall match approved samples and approved mock-ups, be uniform in thickness, sheen, colour, and texture and be free from defects detrimental to appearance or performance with no variations in light reflection, surface roughness, or ridging in sloped areas. Profiles shall be such that flow to drain is not impeded.
J. Material quantities and placement procedures are to be strictly monitored. Clearly mark perimeters of areas to receive a typical material batch or container volume prior to application to ensure uniform thickness of materials.
K. Ensure environmental and site conditions as recommended by coating manufacturer are suitable for installation of this section.
L. Wear course aggregate type, size and distribution shall be in strict conformance with manufacturer's requirements.

3.5 FIELD QUALITY CONTROL

A. Carry out cut tests to applied deck coating in the presence of consultant to ensure specified dry film thickness of deck coating membrane and wear surface have been met.
B. Repair to approval of consultant all cuts and replace all patches for inspection and testing purposes.
C. Perform adhesion tests to confirm wear course thickness and to evaluate bonding of coating to substrate, and/or coating to wear course. Number of tests shall be based on one (1) test per 180 m2 of coating application. Adhesion of coating layers to each other and to concrete substrate shall be 1.0 MPa. The average of all tests must exceed 1.0 MPa with not test less than 0.90 MPa.
D. Additional tests may be performed by testing agency at the discretion of Consultant to confirm installed material thickness and bond.
E. Repair deck coating system at test locations at no extra cost to the project.

3.6 ADJUST AND CLEAN

A. Repair, remove and clean any drips or smears on adjacent surfaces using manufacturer's recommended methods. Clean off immediately as directed by and to satisfaction of consultant.
B. Protect all adjacent surfaces from damage due to deck coating operations

C. As work proceeds and on completion deposit all recyclable packing materials and containers in appropriate recycling containers.

END OF SECTION 071800

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.
   2. Electromechanical door hardware.
   3. Cylinders specified for doors in other sections.

C. Related Sections:
   1. Division 08 Section “Hollow Metal Doors and Frames”.
   2. Division 08 Section “Aluminum-Framed Entrances and Storefronts”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC/IBC - International Building Code.
   3. NFPA 70 - National Electrical Code.
   4. NFPA 80 - Fire Doors and Windows.
   5. NFPA 101 - Life Safety Code.
   6. NFPA 105 - Installation of Smoke Door Assemblies.
   7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA Certified Product Standards - A156 Series.
   2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
   3. ANSI/UL 294 - Access Control System Units.
   4. UL 305 - Panic Hardware.
   5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
    a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    b. Complete (risers, point-to-point) access control system block wiring diagrams.
    c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
   2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
   3. Review sequence of operation narratives for each unique access controlled opening.
   4. Review and finalize construction schedule and verify availability of materials.
   5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking, or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
   1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:
   a. Two Hinges: For doors with heights up to 60 inches.
   b. Three Hinges: For doors with heights 61 to 90 inches.
   c. Four Hinges: For doors with heights 91 to 120 inches.
   d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
   a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
   b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:
   a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:
   a. Hager Companies (HA) - BB Series, 5-knuckle.
   b. McKinney (MK) - TA/T4A Series, 5-knuckle.
   c. dormakaba Best (ST) - F/FBB Series, 5-knuckle.

2.3 CONTINUOUS HINGES

A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:.
   a. Pemko (PE).
   b. ABH (AH).
   c. Roton (RT).

2.4 POWER TRANSFER DEVICES

A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug

directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:
    a. Pemko (PE) - EL-CEPT Series.
    b. Von Duprin (VD) - EPT-10 Series.

2.5 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
    1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
    2. Furnish dust proof strikes for bottom bolts.
    3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
    4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
    5. Manufacturers:
        a. Rockwood (RO).
        b. Trimco (TC).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
    1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
    2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
    3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
    4. Pulls, where applicable, shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
    5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
    6. Manufacturers:
        a. Rockwood (RO).
        b. Trimco (TC).

2.6 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
    1. Manufacturers:
        a. dormakaba Best (BE).
        b. No Substitution.

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
    1. Threaded mortise cylinders with rings and cams to suit hardware application.
    2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
    3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
    4. Tubular deadlocks and other auxiliary locks.
    5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
    6. Keyway: Match Facility Standard.

C. Small Format Interchangeable Cores: Provide small format interchangeable cores (SFIC) as specified, core insert, removable by use of a special key; usable with other manufacturers' cylinders.

D. Keying System: Each type of lock and cylinders to be factory keyed.
   1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
   2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
   3. Existing System: Field verify and key cylinders to match Owner's existing system.

E. Key Quantity: Provide the following minimum number of keys:
   1. Change Keys per Cylinder: Two (2)
   2. Master Keys (per Master Key Level/Group): Five (5).
   3. Construction Keys (where required): Ten (10).
   4. Construction Control Keys (where required): Two (2).
   5. Permanent Control Keys (where required): Two (2).

F. Construction Keying: Provide temporary keyed construction cores.

G. Key Registration List (Bitting List):
   1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
   2. Provide transcript list in writing or electronic file as directed by the Owner.

2.7 CYLINDRICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.
   1. Manufacturers:
      a. dormakaba Best (BE) - 9K Series.
      b. No Substitution.

2.8 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
   2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
   3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
   4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
   1. Strikes for Mortise Locks and Latches: BHMA A156.13.
   2. Strikes for Bored Locks and Latches: BHMA A156.2.
   3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
   4. Dustproof Strikes: BHMA A156.16.

2.9 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.
    1. Electromechanical exit devices shall have the following functions and features:
        a. Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
        b. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
        c. Options to be available for request-to-exit or enter signaling, latchbolt and touchbar monitoring.
        d. Field configurable electrified trim to fail-safe or fail-secure that operates from 12-24VDC.
        e. Five-year limited warranty for electromechanical features.
    2. Manufacturers:
        a. Von Duprin (VD) - 99 Series.
        b. Other Acceptable Manufacturers:
            1) Precision.

2.10 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
    1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
1. Large body cast iron surface mounted door closers shall have a 30-year warranty.
2. Manufacturers:
   a. LCN Closers (LC) - 4111 Series.
   b. Other acceptable Manufacturers:
      1) Stanley.

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim
1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
   a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
   a. Rockwood (RO).
   b. Trimco (TC).

2.12 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will

impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
   a. Rockwood (RO).
   b. Trimco (TC).

2.13 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
   1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
   1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

   1. Pemko (PE).
   2. Reese Enterprises, Inc. (RE).

2.14 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
   1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
   3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
   1. Quantities listed are for each pair of doors, or for each single door.
   2. The supplier is responsible for handing and sizing all products.
   3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
   4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:
   1. MK - McKinney
   2. PE - Pemko
   3. SU - Securitron
   4. RO - Rockwood
   5. VD - Von Duprin
   6. BE - BEST Locks & Closers
   7. LC - LCN Closers
   8. OT - Other

Hardware Sets

Set: 1.0

Doors: 298, 299

2 Continuous Hinge	KCFMxx-HD1 PT		PE
2 Electric Power Transfer	CEPT-10	630	SU
1 Mullion	KR4954	689	VD
1 Rim Exit Only	QEL 99-EO	626	VD
1 Rim Exit Nightlatch	QEL 99-NL-OP 110MD-NL	626	VD
2 Cylinder	x Type Required	626	BE
2 Door Pull	BF157 Mtg-Type 1XHD	US32D	RO
2 Drop Plate	4111-18PA	689	LC
2 Shoe	4111-30	689	LC
2 Spacer	4111-61	689	LC
2 Surface Closer	4111 SCUSH	689	LC
1 Weatherproofing	By Door Supplier		OT
1 Threshold	By Door Supplier		OT
1 Motion Sensor	By Access Control		OT
2 Door Position Switch	By Access Control		OT
1 Card Reader	By Access Control		OT
1 Power Supply	By Access Control		OT

Notes: Doors normally closed, latched and secured.
Entry by pulls when doors electrically unlocked as programmed by access control system, valid card read or key override.
Free egress at all times.

Set: 2.0

Doors: 300

1 Continuous Hinge	KCFMxx-HD1		PE
1 Rim Exit Only	99-EO	626	VD
1 Drop Plate	4111-18PA	689	LC
1 Shoe	4111-30	689	LC
1 Spacer	4111-61	689	LC
1 Surface Closer	4111 SCUSH	689	LC
1 Weatherproofing	By Door Supplier		OT
1 Threshold	By Door Supplier		OT
1 Door Position Switch	By Access Control		OT

Notes: Door normally closed, latched and secured.
No entry - exit only door.
Free egress at all times.

Set: 3.0

Doors: 147

6 Hinge, Full Mortise, Hvy Wt	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
2 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom Lock	9K37D 15D	626	BE
2 Surface Closer	4111 SCUSH	689	LC
2 Kick Plate	K1050 10" x 1" LDW CSK BEV	US32D	RO
1 Perimeter Seal	By Section 081113		OT
1 Threshold	2005AT		PE
2 Door Position Switch	By Access Control		OT
1 Motion Sensor	By Access Control		OT
1 Card Reader	By Access Control		OT
1 Power Supply	By Access Control		OT

Notes: Doors normally closed, latched and secured.
Entry by key override.
Free egress at all times.

Set: 4.0

Doors: 141

6 Hinge, Full Mortise, Hvy Wt	T4A3786 4-1/2" x 4-1/2"	US26D	MK
2 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom Lock	9K37D 15D	626	BE
2 Wall Stop	406 / 409	US32D	RO

Set: 5.0

Doors: 131

2 Continuous Hinge	KCFMxx-HD1 PT		PE
2 Electric Power Transfer	CEPT-10	630	SU
1 Mullion	KR4954	689	VD
2 Rim Exit Device, Electrified Trim	99-L E 996L(Std)	626	VD
3 Cylinder	x Type Required	626	BE
2 Surface Closer	4111 SCUSH	689	LC
1 Perimeter Seal	By Section 081113		OT
2 Sweep	315CN TKSP		PE
1 Threshold	2005AT		PE
1 Motion Sensor	By Access Control		OT

2 Door Position Switch	By Access Control	OT
1 Card Reader	Re-Use Existing	OT
1 Power Supply	By Access Control	OT

Notes: Doors normally closed, latched and secured.
Entry by valid card read or key override.
Free egress at all times.

END OF SECTION 087100

SECTION 236423 - AIR-COOLED, SCROLL WATER CHILLERS

PART 1 - GENERAL

1.1 GENERAL

A. General provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Chillers specified in this section have been pre-purchased by Westside School District.

C. Chillers shall be delivered freight on board to Westside Middle School, 8601 Arbor Street, Omaha, NE. Deliveries shall be arranged with Owner's representative 14 days in advance of shipment.

D. Installation of the chillers shall be included in this Contract.

E. Installation contractor shall be responsible to coordinate all work with Chiller supplier.

F. The chiller installation will be commissioned under this contract.

1. The district will contract directly with the Commissioning Authority (CxA).
2. The supplier shall provide installation support to the installation contractor.
3. The supplier shall include start-up and commissioning support.
4. This contractor shall participate in commissioning of chillers.

G.

1.2 SUMMARY

A. Section includes installation of pre-purchased packaged, air-cooled, electric-motor-driven, scroll water chillers.

B. Chillers have been pre-purchased by Westside School District. This contractor shall coordinate delivery, offloading and installation with Chiller supplier, Owner, and all other contractors.

C. **Items shown half-tone below were included in pre-purchase contract and are responsibility of Chiller Supplier**.

1.3 DEFINITIONS

A. BAS: Building automation system.

B. COP: Coefficient of performance. The ratio of the rate of heat removal to the rate of energy input using consistent units for any given set of rating conditions.

C. DDC: Direct digital control.

D. EER: Energy-efficiency ratio. The ratio of the cooling capacity given in Btu/h to the total power input given in watts at any given set of rating conditions.

E. GFI: Ground fault interrupt.

F. IPLV: Integrated part-load value. A single-number part-load efficiency figure of merit for a single chiller calculated per the method defined by AHRI 550/590 and referenced to AHRI standard rating conditions.

G. I/O: Input/output.

H. kW/Ton: The ratio of total power input of the chiller in kilowatts to the net refrigerating capacity in tons at any given set of rating conditions.

I. NPLV: Nonstandard part-load value. A single number part-load efficiency figure of merit for a single chiller calculated per the method defined by AHRI 550/590 and intended for operating conditions other than the AHRI standard rating conditions.

J. SCCR: Short-circuit current rating.

1.4 SUBMITTALS

A. Product Data: For each type of product.

1. Include refrigerant, rated capacities, operating characteristics, and furnished specialties and accessories.
2. Performance at AHRI standard conditions and at conditions indicated.
3. Performance at AHRI standard unloading conditions.
4. Minimum evaporator flow rate.

5. Refrigerant capacity of water chiller.
6. Oil capacity of water chiller.
7. Fluid capacity of evaporator.
8. Characteristics of safety relief valves.

B. Shop Drawings: Complete set of manufacturer's prints of water chiller assemblies, control panels, sections and elevations, and unit isolation. Include the following:
1. Assembled unit dimensions.
2. Weight and load distribution.
3. Required clearances for maintenance and operation.
a. Unit shall be installed approximately 25” from building on one side. Clearance on one side may be reduced, which will affect overall capacity.
4. Size and location of piping and wiring connections.
5. Diagrams for power, signal, and control wiring.

C. Coordination Drawings:
1. Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
a. Structural supports.
b. Piping roughing-in requirements.
c. Wiring roughing-in requirements, including spaces reserved for electrical equipment.
d. Access requirements, including working clearances for mechanical controls and electrical equipment, and tube pull and service clearances.

D. Installation instructions.
E. Source quality-control reports.
F. Startup service reports: Shall be provided by this contractor.
G. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS
A. Operation and Maintenance Data: For each water chiller to include in emergency, operation, and maintenance manuals.
B. Spare Parts List: Recommended spare parts list with quantity for each.
C. Touchup Paint Description: Detailed description of paint used in application of finish coat to allow for procurement of a matching paint.

1.6 QUALITY ASSURANCE
A. AHRI Certification: Certify chiller according to AHRI 590 certification program.
B. ARI Rating: Rate water chiller performance according to requirements in ARI 506/110, "Water Chilling Packages Using the Vapor Compression Cycle."
C. ASHRAE Compliance: ASHRAE 15 for safety code for mechanical refrigeration.
D. ASHRAE/IESNA 90.1 Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."
E. ASME Compliance: Fabricate and stamp water chiller heat exchangers to comply with ASME Boiler and Pressure Vessel Code.
F. Comply with NFPA 70.

1.7 DELIVERY, STORAGE, AND HANDLING
A. Ship water chillers from the factory fully charged with refrigerant and filled with oil.
B. Package water chiller for export shipping.

1.8 WARRANTY
A. Provide a full parts, warranty for one year from start-up or 18 months from shipment, whichever occurs first.
B. Provide a 5 year compressor parts warranty from start-up
C. Provide a 2 year labor and refrigerant warranty

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Performance Tolerance: Comply with the following in lieu of AHRI 550/590:
   1. Capacity shall meet or exceed scheduled performance requirements.
B. AHRI Rating: Rate water chiller performance according to requirements in AHRI 550/590.
C. ASHRAE Compliance: ASHRAE 15 for safety code for mechanical refrigeration.
D. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."
E. ASME Compliance: Fabricate and stamp water chiller heat exchangers to comply with ASME Boiler and Pressure Vessel Code.
F. Comply with NFPA 70.
G. Comply with requirements of UL 1995, "Heating and Cooling Equipment," and include label by a qualified testing agency showing compliance.
H. Operation Following Loss of Normal Power:
   1. Equipment, associated factory- and field-installed controls, and associated electrical equipment and power supply connected to backup power system shall automatically return equipment and associated controls to the operating state occurring immediately before loss of normal power without need for manual intervention by an operator when power is restored either through a backup power source, or through normal power if restored before backup power is brought on-line.
I. Outdoor Installations:
   1. Chiller shall be suitable for outdoor installation indicated. Provide adequate weather protection to ensure reliable service life over a 25-year period with minimal degradation due to exposure to outdoor ambient conditions.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Carrier Global Corporation.
   2. Daikin Applied.
   3. Trane.
   4. YORK; brand of Johnson Controls International plc, Building Solutions North America.

2.3 MANUFACTURED UNITS

A. Description: Factory-assembled and run-tested water chiller complete with compressor(s), compressor motors and motor controllers, evaporator, condenser with fans, electrical power, controls, and indicated accessories.
B. Sound-reduction package shall have the following:
   1. Acoustic enclosure around compressors.
   2. Reduced-speed fans with acoustic treatment.
   3. Designed to reduce sound level without affecting performance.
C. Security Package: Security grilles with fasteners for additional protection of compressors, evaporator, and condenser coils. Grilles shall be coated for corrosion resistance and shall be removable for service access.

2.4 CABINET

A. Base: Galvanized-steel base extending the perimeter of water chiller. Secure frame, compressors, and evaporator to base to provide a single-piece unit.
B. Frame: Rigid galvanized-steel frame secured to base and designed to support cabinet, condenser, control panel, and other chiller components not directly supported from base.
C. Casing: Galvanized steel.
D. Finish: Coat base, frame, and casing with a corrosion-resistant coating capable of withstanding a 500-hour salt-spray test according to ASTM B117.

2.5 COMPRESSOR-DRIVE ASSEMBLIES

A. Compressors:
   1. Description: Positive-displacement direct drive with hermetically sealed casing.
   2. Each compressor provided with suction and discharge service valves, crankcase oil heater, and suction strainer.
      a. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in lieu of each compressor.
   3. Operating Speed: Nominal 3600 rpm for 60-Hz applications.
   4. Capacity Control: On-off compressor cycling.
      a. Digital compressor unloading is an acceptable alternative to achieve capacity control.
   5. Oil Lubrication System: Automatic pump with strainer, sight glass, filling connection, filter with magnetic plug or removable magnet in sump, and initial oil charge.
      a. Manufacturer's other standard methods of providing positive lubrication are acceptable in lieu of an automatic pump.
   6. Vibration Isolation: Mount individual compressors on vibration isolators.
      a. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in lieu of each compressor.

B. Compressor Motors:
   1. Hermetically sealed and cooled by refrigerant suction gas.
   2. High-torque, two-pole induction type with inherent thermal-overload protection on each phase.

C. Compressor Motor Controllers:
   1. Across the Line: NEMA ICS 2, Class A, full voltage, nonreversing.

2.6 REFRIGERATION

A. Refrigerant: R-410A or R-454B. Classified as Safety Group A1 according to ASHRAE 34.

B. Refrigerant Compatibility: Parts exposed to refrigerants shall be fully compatible with refrigerants, and pressure components shall be rated for refrigerant pressures.

C. Refrigerant Circuit: Each circuit shall include an electronic-expansion valve, refrigerant charging connections, a hot-gas muffler, compressor suction and discharge shutoff valves, a liquid-line shutoff valve, a replaceable-core filter-dryer, a sight glass with moisture indicator, a liquid-line solenoid valve, and an insulated suction line.

D. Refrigerant Isolation: Factory install positive shutoff isolation valves in the compressor discharge line and the refrigerant liquid-line to allow the isolation and storage of the refrigerant charge in the chiller condenser.
   1. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in each circuit in lieu of each compressor.

E. Pressure Relief Device:
   1. Comply with requirements in ASHRAE 15, ASHRAE 147, and applicable portions of ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
   2. Select and configure pressure relief devices to protect against corrosion and inadvertent release of refrigerant.
   3. ASME-rated, spring-loaded, pressure relief valve; single- or multiple-reseating type. Pressure relief valve(s) shall be provided for each heat exchanger.

2.7 EVAPORATOR

A. Brazed Plate:
   1. Direct-expansion, single-pass, brazed-plate design.
   2. Type 304 or 316 stainless-steel construction.
   3. Code Compliance: Tested according to ASME Boiler and Pressure Vessel Code.
   4. Fluid Nozzles: Terminate with mechanical-coupling end connections for connection to field piping.
   5. Inlet Strainer: Factory-furnished, 20 or 40-mesh strainer for field installation in supply piping to evaporator. Manufacturer has option to factory install strainer.

B. Flow Switch: Factory-furnished and -installed, flow switch wired to chiller operating controls.

C. Low ambient: Heaters and other components required to allow operation down to 0ºF.

2.8 AIR-COOLED CONDENSER

A. Coil(s) with integral subcooling on each circuit.
B. Aluminum Microchannel Coils:
   1. Series of flat tubes containing a series of multiple, parallel-flow microchannels layered between refrigerant header manifolds.
   2. Single- or multiple-pass arrangement.
   3. Construct fins, tubes, and header manifolds of aluminum alloy treated with a corrosion-resistant coating.
C. Hail Protection: Provide condenser coils with louvers, baffles, or hoods to protect against hail damage.
D. Fans: Direct-drive propeller type with statically and dynamically balanced fan blades, arranged for vertical air discharge.
E. Fan Motors: TENV or TEAO enclosure, with sealed and permanently lubricated bearings, and having built-in overcurrent- and thermal-overload protection.
   1. Overcurrent- and thermal-overload protection not integral to motor is acceptable if provided with chiller electrical power package.
F. Fan Guards: Removable steel safety guards with corrosion-resistant coating.
G. Low Ambient Controls: To allow operation down to 0ºF.

2.9 INSULATION

A. Closed-cell, flexible, elastomeric thermal insulation complying with ASTM C534/C534M, Type I for tubular materials and Type II for sheet materials.
   1. Thickness: 3/4 inch.
B. Adhesive: As recommended by insulation manufacturer.
C. Factory-applied insulation over all cold surfaces of chiller capable of forming condensation. Components shall include, but not be limited to, evaporator, evaporator water boxes including nozzles, refrigerant suction pipe from evaporator to compressor, cold surfaces of compressor, refrigerant-cooled motor, and auxiliary piping.
   1. Apply adhesive to 100 percent of insulation contact surface.
   2. Before insulating steel surfaces, prepare surfaces for paint, and prime and paint as indicated for other painted components. Do not insulate unpainted steel surfaces.
   3. Seal seams and joints to provide a vapor barrier.
   4. After adhesive has fully cured, paint exposed surfaces of insulation to match other painted parts.
   5. Manufacturer has option to factory or field insulate chiller components to reduce potential for damage during installation.
   6. Field-Applied Insulation:
      a. Components that are not factory insulated shall be field insulated to comply with requirements indicated.
      b. Manufacturer shall be responsible for chiller insulation whether factory or field installed to ensure that manufacturer is the single point of responsibility for chillers.
      c. Manufacturer's factory-authorized service representative shall instruct and supervise installation of field-applied insulation.
      d. After field-applied insulation is complete, paint insulation to match factory-applied finish.

2.10 ELECTRICAL

A. Factory installed and wired, and functionally tested at factory before shipment.
B. Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to water chiller.
C. Wiring shall be numbered and color-coded to match wiring diagram.
D. Field power interface shall be to NEMA KS 1, heavy-duty, nonfused disconnect switch. Minimum SCCR according to UL 508 shall be as required by electrical power distribution system, but not less than 65,000 A.

E. Each motor shall have branch power circuit and controls with one of the following disconnecting means having SCCR to match main disconnecting means:
   1. NEMA KS 1, heavy-duty, fusible switch with rejection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 60947-4-1.
   2. NEMA KS 1, heavy-duty, nonfusible switch.
   3. UL 489, motor-circuit protector (circuit breaker) with field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
F. Each motor shall have overcurrent protection.
G. Overload relay sized according to UL 1995, or an integral component of water chiller control microprocessor.
H. Phase-Failure and Undervoltage: Solid-state sensing with adjustable settings.
I. Controls Transformer: Unit-mounted transformer with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.
J. Control Relays: Auxiliary and adjustable time-delay relays, or an integral to water chiller microprocessor.
K. Service Receptacle:
   1. Unit-mounted, 120-V GFI duplex receptacle.
   2. Power receptacle from chiller internal electrical power wiring.
L. Indicate the following for water chiller electrical power supply:
   1. Current, phase to phase, for all three phases.
   2. Voltage, phase to phase and phase to neutral for all three phases.
   3. Three-phase real power (kilowatts).
   4. Three-phase reactive power (kilovolt amperes reactive).
   5. Power factor.
   6. Running log of total power versus time (kilowatt hours).
   7. Fault log, with time and date of each.

2.11 CONTROLS
A. Factory installed and wired, and functionally tested at factory before shipment.
B. Standalone, microprocessor based, with all memory stored in nonvolatile memory so that reprogramming is not required on loss of electrical power.
C. Enclosure: Share enclosure with electrical power devices or provide a separate enclosure of matching construction.
D. Operator Interface: Keypad or pressure-sensitive touch screen. Multiple-character, digital display. Display the following:
   1. Run time.
   2. Number of starts.
   3. Current chiller operating mode.
   4. Chilled water set point and set point source.
   5. Demand current limit set point and set point source.
   6. Entering and leaving evaporator water temperatures.
   7. Saturated evaporator and condenser refrigerant temperatures.
   8. Evaporator and condenser refrigerant pressure.
   9. Phase reversal/unbalance/single phasing and over/under voltage protection.
   10. Low chilled water temperature protection.
   11. High and low refrigerant pressure protection.
   12. Load limit thermostat to limit compressor loading on high return water temperature.
   13. Condenser fan sequencing to automatically cycle fans in response to load, expansion valve pressure, condenser pressure, and differential pressure to optimize chiller efficiency.
   14. Display diagnostics.
   15. Compressors: Status (on/off), anti-short cycle timer, and automatic compressor lead-lag.
E. Control Functions:
   1. Manual or automatic startup and shutdown time schedule.
   2. Capacity control based on evaporator leaving-fluid temperature.

3. Capacity control compensated by rate of change of evaporator entering-fluid temperature.
4. Chilled-water entering and leaving temperatures, control set points, and motor load limit. Chilled-water leaving temperature shall be reset based on return water temperature.
5. Current limit and demand limit.

F. Manual-Reset Safety Controls: The following conditions shall shut down water chiller and require manual reset:
1. Low evaporator pressure or high condenser pressure.
2. Low chilled-water temperature.
3. Refrigerant high pressure.
4. High or low oil pressure.
5. High oil temperature.
6. Loss of chilled-water flow.
7. Control device failure.

G. BAS System Interface: Factory-install hardware and software to enable system to monitor, control, and display chiller status and alarms.
1. Hardwired I/O Points:
a. Monitoring: On/off status, common trouble alarm electrical power demand (kilowatts) electrical power consumption (kilowatt hours).
b. Control: On/off operation, chilled-water discharge temperature set-point adjustment.
2. Communication Interface: ASHRAE 135 (BACnet) communication interface shall enable control system operator to remotely control and monitor the water chiller from an operator workstation. Control features and monitoring points displayed locally at water chiller control panel shall be available through DDC system for HVAC.

2.12 ACCESSORIES

A. Factory-furnished neoprene isolators for field installation.

2.13 MATERIALS

A. Steel:
1. ASTM A36/A36M for carbon structural steel.
2. ASTM A568/A568M for steel sheet.

B. Stainless Steel:
1. Manufacturer's standard grade for casing.
2. Manufacturer's standard type, ASTM A240/A240M for bare steel exposed to airstream or moisture.

C. Galvanized Steel: ASTM A653/A653M.

D. Aluminum: ASTM B209.

2.14 SOURCE QUALITY CONTROL

A. Perform functional test of water chillers before shipping.

B. Factory performance test water chillers, before shipping, according to AHRI 550/590.
1. Test the following conditions:
a. Design conditions indicated.
b. AHRI 550/590 part-load points.

C. Factory test and inspect evaporator according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1. Stamp with ASME label.

D. For water chillers located outdoors, rate sound power level according to AHRI 370 procedure.

PART 3 - EXECUTION

3.1 GENERAL

A. The Chiller has been pre-purchased by the District. Installation of the chiller shall be under this contract.

1. **The installation contractor shall be fully responsible for installation of Owner furnished chiller.**
2. **Chiller is being delivered to Owner "freight on board". Installation contractor shall coordinate delivery with owner.**
3. **Installation contractor shall off load chiller and take full responsibility for chiller installation.**
4. **Factory start-up and commissioning support has been included in chiller purchase. Installation contractor shall be responsible to coordinate start-up and commissioning with chiller supplier.**
5. **Reviewed chiller submittals have been provided to District representatives. A copy has been included by addendum. Contractors shall be responsible to confirm chiller purchase with District representatives.**

B. EXAMINATION

C. Before water chiller installation, examine roughing-in for equipment support, anchor-bolt sizes and locations, piping, controls, and electrical connections to verify actual locations, sizes, and other conditions affecting water chiller performance, maintenance, and operations.
   1. The water chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping, controls, and electrical connections.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 WATER CHILLER INSTALLATION

A. Coordinate sizes and locations of bases with actual equipment provided. Cast anchor-bolt inserts into concrete bases.

B. Maintain manufacturer's recommended clearances for service and maintenance.

C. Maintain clearances required by governing code.

D. Chiller manufacturer's factory-trained service personnel shall charge water chiller with refrigerant if not factory charged and fill with oil if not factory installed.

E. Install separate devices furnished by manufacturer and not factory installed.
   1. Chillers shipped in multiple major assemblies shall be field assembled by chiller manufacturer's factory-trained service personnel.

3.3 PIPING CONNECTIONS

A. Comply with requirements in Section 232113 "Hydronic Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to chillers, allow space for service and maintenance.

C. Connect each drain connection with a drain valve, full size of drain connection.

3.4 ELECTRICAL POWER CONNECTIONS

A. Connect wiring according to Division 26

B. Ground equipment according to Division 26

C. Provide nameplate for each electrical connection indicating electrical equipment designation and circuit number feeding connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high. Locate nameplate where easily visible.

3.5 CONTROLS CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring between chillers and other equipment to interlock operation as required to provide a complete and functioning system.

C. Connect control wiring between chiller control interface and DDC system for remote monitoring and control of chillers.

D. Provide nameplate on face of chiller control panel indicating control equipment designation serving chiller and the I/O point designation for each control connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high.

3.6 STARTUP SERVICE

A. Include a factory-authorized service representative to perform startup service.

B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.

C. Complete installation and startup checks according to manufacturer's written instructions and perform the following:
   1. Verify that refrigerant charge is sufficient and water chiller has been leak tested.
   2. Verify that pumps are installed and functional.
   3. Verify that thermometers and gages are installed.
   4. Operate water chiller for run-in period.
   5. Check bearing lubrication and oil levels.
   6. Verify that refrigerant pressure relief device for chillers installed indoors is vented outside.
   7. Verify proper motor rotation.
   8. Verify static deflection of vibration isolators, including deflection during water chiller startup and shutdown.
   9. Verify and record performance of chilled-water flow and low-temperature interlocks.
   10. Verify and record performance of water chiller protection devices.
   11. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

D. Visually inspect chiller for damage before starting. Repair or replace damaged components, including insulation. Do not start chiller until damage that is detrimental to operation has been corrected.

E. Prepare a written startup report that records results of tests and inspections.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain water chillers. Video record the training sessions and provide electronic copy to Owner.
   1. Instructor shall be factory trained and certified.
   2. Provide not less than eight hours of training.
   3. Train personnel in operation and maintenance and to obtain maximum efficiency in plant operation.
   4. Provide instructional videos showing general operation and maintenance that are coordinated with operation and maintenance manuals.
   5. Obtain Owner sign-off that training is complete.
   6. Owner training shall be held at Project site.

END OF SECTION 236423

morrissey engineering inc

mechanical | electrical | lighting | technology | commissioning

letter of transmittal

attn:	Matt Herzog	**from:**	Nick Limpach
company:	Project Advocates	**date:**	12/14/2023
project name:	Westside Middle School Cafeteria		
project no:	23331		
re:	Chiller Procurement Submittal		
via:	e-mail		
cc:	Amanda Schnatz - BVH		

copies	date	no.	description
1e	12/13/23	1	Air Cooled Chillers CH-1A,1B

Remarks:

morrissey engineering, inc.
4940 north 118th street
omaha, nebraska 68164

✔	A Reviewed, no exceptions taken		D Rejected
	B Reviewed, exceptions taken as noted		E No Action Taken
	C Revise and resubmit		

CHECKED BY: Nick Limpach DATE: 12/14/2023

Reviewing is only for conformance with the design concept of the Project and compliance with information given in the Contract documents. The Contractor is responsible for quantities, the verification of all field dimensions; for information pertaining to fabrication process, installation details, and/or construction methods and procedures; and for coordination of the work with all trades.

4940 North 118th Street
Omaha, NE 68164
P: 402.491.4144
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Mechanical Sales

7222 S 142nd Street
Omaha, NE 68138

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SUBMITTAL

Date: 12/13/2023

Project: Westside MS Chillers

Specification: Air-Cooled Chillers

Revision: Original

Architect: Westside

Engineer: Morrissey

Contractor: Westside

Sales Engineer: Mike Nebel

Comments

- NA

Job Information	Technical Data Sheet
Job Name	Westside Middle Chiller
Date	12/13/2023
Submitted By	Mike Nebel
Software Version	14.70
Unit Tag	ACCH-1A & 1B

Image may not represent ordered unit

Unit Overview

Model Number	Max Capacity ton	Voltage	Unit Starter Type	ASHRAE 90.1*	LEED Enhanced Refrigerant Management Credit
AGZ211E	193.9	460 V / 60 Hz / 3 Ph	Across the Line	'07, '10, '13, '16 & '19	Pass

Unit

Unit Type	Platform	Unit Revision
Air-Cooled Scroll Compressor Chiller	Packaged	0B

Head Pressure	Tubing
VFD w/Line Reactors & Control Box Heaters [Low Ambient]	Replaceable Filter Dryer with Discharge & Liquid Valves, no HGBP

Unit Controls	Display
Electronic Expansion Valve	On Controller only

Refrigerant Type	Refrigerant Weight
R410A	182 lb (per unit)

Pump Controls
Dual Evaporator Pumps - Dual Control Output

Approval
ETL/cETL, AHRI & ASHRAE 90.1

Evaporator

Fluid Volume:	18.0 gal
Connection Hand:	Universal Connection - Facing out back
Connection Size:	6.0 in
Insulation:	Single Layer Insulation to Suction at each Compressor

Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Glycol Concentration	Fluid Flow	Fluid Flow (with glycol) Min / Max	Pressure Drop	Pressure Drop (with glycol) Min / Max	Fouling Factor
54.00 °F	44.00 °F	Propylene Glycol	30.0 %	487.2 gpm	196.9 / 820.6 gpm	16.5 ft H_2O	3.60 / 37.0 ft H_2O	0.000100 °F.ft².h/Btu

Note: Evaporator Pressure Drop includes Field Installed Accessory Kit Strainer. Pressure drop without strainer is 14.8. Minimum flow is based on a Variable Flow Pumping System Type and applies to part load conditions only.

Condenser

Coil Fins:	MicroChannel
Guards:	Condenser Coil Louvers & Base Frame Wire Grilles

Design Ambient Air Temperature	Altitude	Fan Diameter	Minimum Design Ambient Temperature
95.0 °F	0.000 ft	30.0 in	0.0 °F

Unit Performance

Performance Points rated at User Defined DPLV Load Points - with Glycol

Unit									Evaporator				Condenser	
Point #	% Load Max Capacity	% Load Request Capacity	Capacity ton	Input Power kW	IPLV.IP * (EER) Btu/W.h	% DPLV Weighting	DPLV Btu/W.h	Efficiency (EER) Btu/W.h	Fluid Flow gpm	Pressure Drop ft H_2O	Entering Fluid °F	Leaving Fluid °F	Ambient Air °F	Altitude ft
Max	100.0		193.9	227.4	16.67			10.23	492.9	15.1	54.00	44.00	95.0	0.000
1	98.0	100.0	190.0	222.3		1	15.67	10.26	487.2	14.8	53.90	44.00	95.0	0.000
2	73.5	75.0	142.5	131.8		42		12.97	487.2	14.8	51.40	44.00	86.3	0.000
3	49.0	50.0	95.00	66.79		45		17.07	487.2	14.8	49.00	44.00	67.5	0.000
4	24.5	25.0	47.50	28.32		12		20.13	487.2	14.8	46.50	44.00	55.0	0.000

** IPLV reflects AHRI standard rating conditions with water and does not change with user defined conditions*
Note: Evaporator Pressure Drop in this table does Not include strainer. For strainer pressure drop data see 'Evaporator' table on page 1.

Supplemental IPLV Performance Points rated at AHRI Standard Condition - with Water

Unit					Evaporator			Condenser	
Point #	% Load	Capacity ton	Input Power kW	Efficiency (EER) Btu/W.h	Fluid Flow gpm	Entering Fluid °F	Leaving Fluid °F	Ambient Air °F	Altitude ft
1	100	198.3	229.2	10.38	474.4	54.00	44.00	95.0	0.000
2	75	148.7	123.5	14.45	474.4	51.50	44.00	80.0	0.000
3	50	99.13	66.50	17.89	474.4	49.00	44.00	65.0	0.000
4	25	49.56	29.17	20.39	474.4	46.50	44.00	55.0	0.000

**Unit will be configured from the factory to support glycol performance as rated. The unit must not operate with water only without consulting the factory.*

Sound (with insulation)

Type of Sound Insulation: Low Noise (Sound Reduction Compressor Blankets)

Sound Pressure (*at 30 feet*)

63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA	75% Load dBA	50% Load dBA	25% Load dBA
66	61	63	62	62	57	54	47	**66**	65	63	62

Sound Power

63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA	75% Load dBA	50% Load dBA	25% Load dBA
93	88	90	89	89	84	81	74	**93**	92	90	89

Octave band is non 'A' weighted and overall readings are 'A' weighted. Sound data rated in accordance with AHRI Standard-370.

Physical

Unit

Length*	Height	Width*	Shipping Weight*	Operating Weight*
283 in	99 in	88 in	9229 lb	9379 lb

**Shipping and Operating Weights are based on 'worst case' unit configuration variations and include the below listed Option weights but do not include the weights of any Accessories. Contact Chiller Applications for additional information.*

Option Weights

Louvers:	560 lb
Total:	560 lb

Note: Option weights shown may be 'worst case' and should not be used to calculate unit weight without the option present.

Electrical

Unit Electrical Data

Voltage	Starter Type	Fan Motor Quantity	LRA Fan Motor (each)	FLA Fan Motors (each)
460 V / 60 Hz / 3 Ph	Across the Line	12	17.8 A	3.6 A

Power Connection Type:	High Short Circuit Current Rating with Single Point Disconnect Switch and Circuit Protection
Short Circuit Current Rating:	65 kA
Phase Voltage:	Phase & Under/Over Voltage Protection with LED

Single Point Power Connection

Minimum Circuit Ampacity (MCA):	450 A
Recommended Overcurrent Protection Size:	500 A
Maximum Overcurrent Protection Size(MOCP):	500 A
Lug Connection Size:	(2) 3/0 - 500 MCM

Compressor Electrical Data

Compressor Type	Compressor Quantity	Starter Type
Scroll	6	Across the Line

Circuit #:	1			2		
Compressor #:	**1**	**3**	**5**	**2**	**4**	**6**
Rated Load Amps (RLA):	57.2 A	76 A	57.2 A	57.2 A	76 A	57.2 A
Inrush Current:	310 A	408 A	310 A	310 A	408 A	310 A

Note: Power wiring connections to the chiller may be done with either copper or aluminum wiring. Wire should be sized per NEC and/or local codes. Wire sizing and wire count must fit in the power connection lug sizing listed above. Please contact your local sales office for more information.

Options

Basic Unit

Control Box Ambient:	High Ambient with Exhaust Fans (125ºF maximum)

Control

Communication:	BACnet MS/TP

Electrical

Ground Fault:	Unit Ground Fault Protection
Unit Options:	115V Convenience Outlet
Water Flow Indicator:	Thermal Dispersion Type

Warranty

Unit Startup	By Others
Standard Warranty:	1st Year Entite Unit Parts only
Extended Compressor Warranty:	Compressor Only; extended 4 years parts only (5 Years Total)

AHRI Certification

Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found In the AHRI Directory at www.ahridirectory.org. Unit contains freeze protection liquids in the evaporator and is certified when rated per the Standard with water.

Performance at AHRI Standard Condition – with Water

Unit					Evaporator				Condenser	
% Load	**Capacity** ton	**Input Power** kW	**Efficiency (EER)** Btu/W.h	**IPLV.IP* (EER)** Btu/W.h	**Fluid Flow** gpm	**Pressure Drop** ft H_2O	**Entering Fluid** °F	**Leaving Fluid** °F	**Ambient Air** °F	**Altitude** ft
100	198.3	229.2	10.38	16.67	474.4	11.0	54.00	44.00	95.0	0.000

Note: Performance with water given as reference only to show compliance with AHRI Standard 550/590. Unit will be configured from the factory to support glycol performance as rated. The unit must not operate with water only without consulting the factory.

Accessories

Optional	
Part Number	**Description**
332325114	RIS Isolator Kit; AGZ: Packaged, 190-241E; Single Pump 140-180E; Dual Pmp 140-180E
331758946	Strainer Kit; Grooved; 6", AGZ191E, 211E, 226E, 241E

9819YA

Westside Middle Chiller

8

12/13/2023

ACCH-1A & 1B

AGZ191-211E_CndLuv_BsGrl_Drawing

Trailblazer® Air-Cooled ScrollAGZ-E Guards: Condenser Coil Louvers, Base Wire Grilles

0A

Diagram Notes
Diagram simulates wrap, grille and louver options as selected only. Refrigeration components may vary depending on selected options.

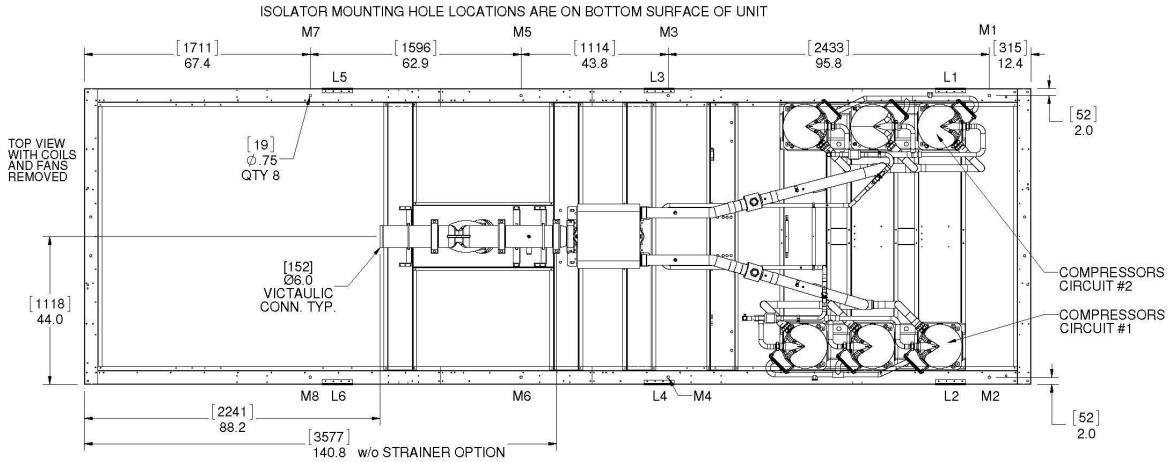
Product Drawing	Unit Tag: ACCH-1A & 1B			Sales Office: Mechanical Sales, Inc.			DAIKIN
Product: Trailblazer® Air-Cooled Scroll Air-	Project Name: Westside Middle Chiller			Sales Engineer: Mike Nebel			13600 Industrial Park Blvd. Minneapolis, MN 55441
Model: AGZ211E AGZ191-211E	Dec. 13, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: N/A	Tolerance: N/A	Dwg Units: N/A	www.DaikinApplied.com Software Version: 14.70

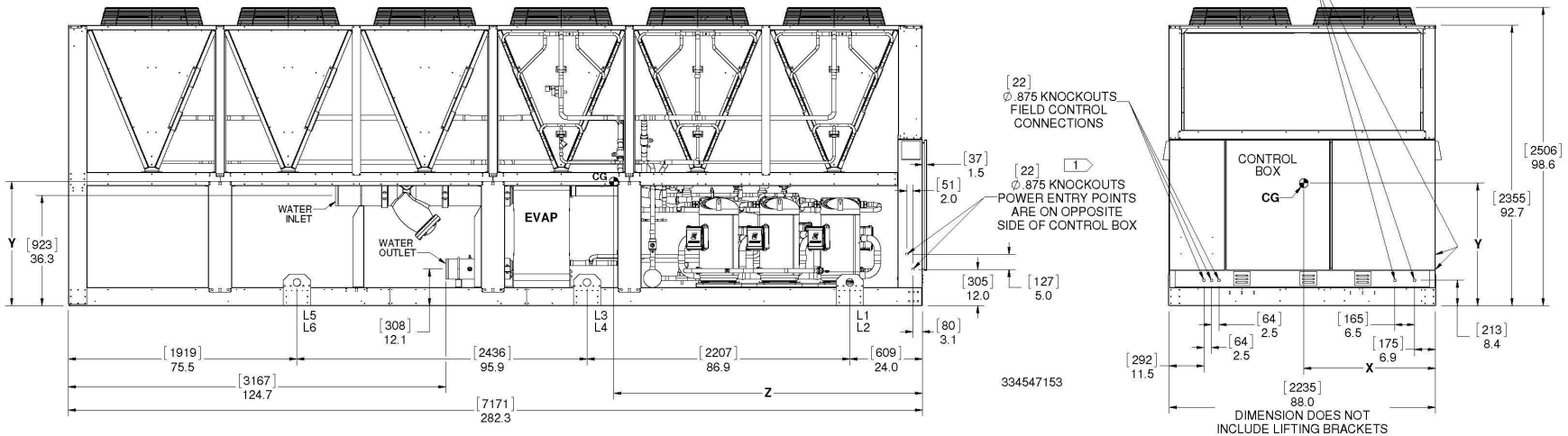
00

Trailblazer® Air-Cooled ScrollAGZ211E Packaged (Microchannel Condenser)

Unit Dimensions

Unit Weight Data																
Units	Weight		Lifting Weight				Mounting Weight									
	Shipping	Operating	L1	L2	L3	L4	L5	L6	M1	M2	M3	M4	M5	M6	M7	M8
lb	8669	8819	1766	1753	1461	1450	1124	1116	1585	1573	1166	1158	975	968	700	695
kg	3932	4000	801	795	663	658	510	506	719	713	529	525	442	439	318	315





Unit and Center of Gravity Dimensions				
Units	Connection Size (Victaulic)	Center of Gravity		
		X	Y	Z
in	6.0	43.8	40.5	100.4
mm	152	1113	1029	2550

NOTE

A water strainer must be installed at the inlet of the evaporator to protect it from damage. Please refer to the IOM for additional details. It is recommended that the side locations be used for power entry wire sizes larger than 350 mcm.

Product Drawing	Unit Tag: ACCH-1A & 1B			Sales Office: Mechanical Sales, Inc.		
Product: Trailblazer® Air-Cooled Scroll Air-	Project Name: Westside Middle Chiller			Sales Engineer: Mike Nebel		
Model: AGZ211E AGZ211E	Dec. 13, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in [mm]

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Software Version: 14.70

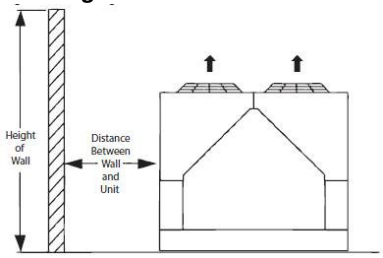
Trailblazer® Air-Cooled ScrollAGZ-E Close Spacing Performance | 0A

The graphs below are based on individual cases and should not be combined with other scenarios

Case 1: Building or Wall on One Side of Unit

Assumes a solid height wall taller than unit. Refer to Case 4 for partial wall openings

Building or Wall on One Side of Unit



For models AGZ030-101E, maintain a 4 feet minimum from a wall of any height.

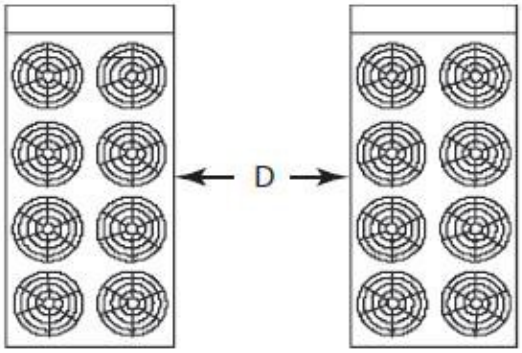
For models AGZ110-130E, maintain a 6 feet minimum from a wall of any height.

For models AGZ140-241E, maintain an 8 feet minimum from a wall of any height.

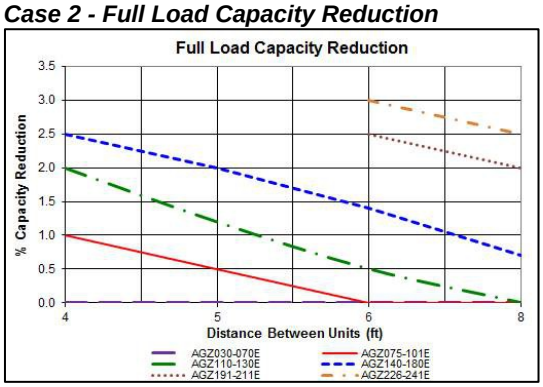
Case 2: Two Units, Side-by-Side

For models 030-180, there must be a minimum of 4 feet between two units placed side-by-side; however, performance may be affected at this distance. For models 191-241, the minimum is 6 feet as closing spacing may cause air recirculation and elevated condenser pressure. Assuming the requirement of one side having at least 8 feet of service clearance is met, Case 2 figures show performance adjustments as the distance between two units increases.

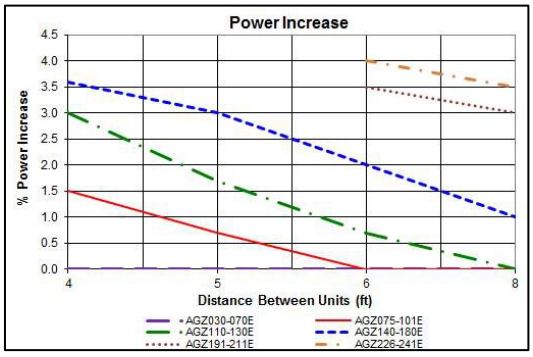
Two Units, Side-by-Side



Case 2 - Full Load Capacity Reduction



Case 2 – Power Increase

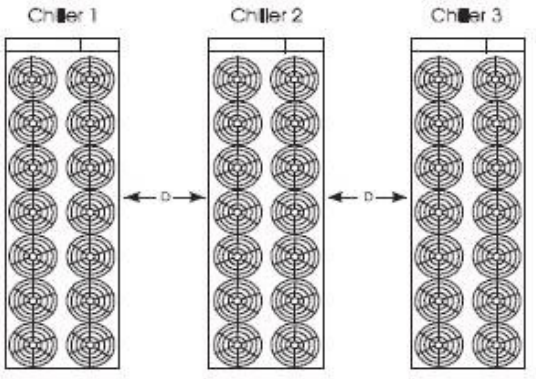


Product Drawing						
Product: Trailblazer® Air-Cooled ScrollAir-	Project Name:					
Model: AGZ211EAGZ-E	Sales Office: Mechanical Sales, Inc.					
Sales Engineer: Mike Nebel	Dec. 13, 2023	Ver/Rev:	Sheet 1 of 1	Scale: NTS	Tolerance: +/-1.0"	Dwg Units: in [mm]

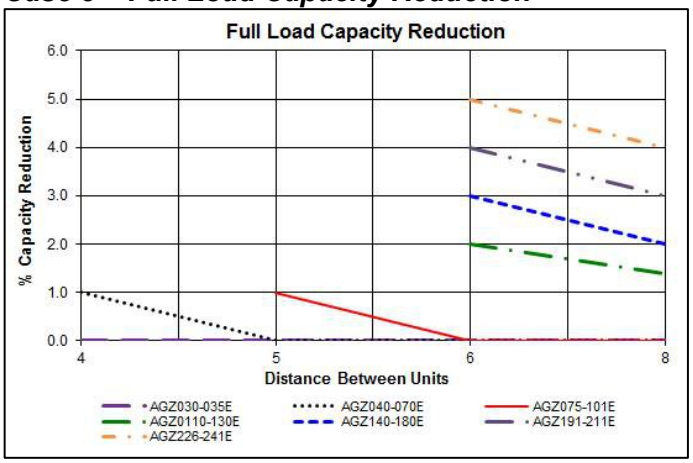
Case 3: Three or More Units, Side-by-Side

For all models, there must be a minimum distance between any units placed side-by-side; however, performance may be affected at this distance. Minimum distances are: models 030 to 070 - 4 feet, models 075 to 101 - 5 feet, models 110 to 241 - 6 feet. The Case 3 charts below depict Case 3 performance adjustments as the distance between units increases. Data shown is for the middle unit with a unit on each side. See Case 2 adjustment factors for the two outside units.

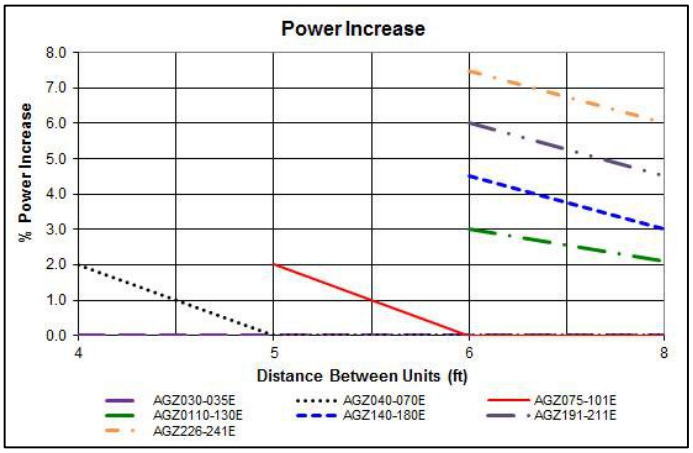
Three or More Units, Side-by-Side



Case 3 – Full Load Capacity Reduction



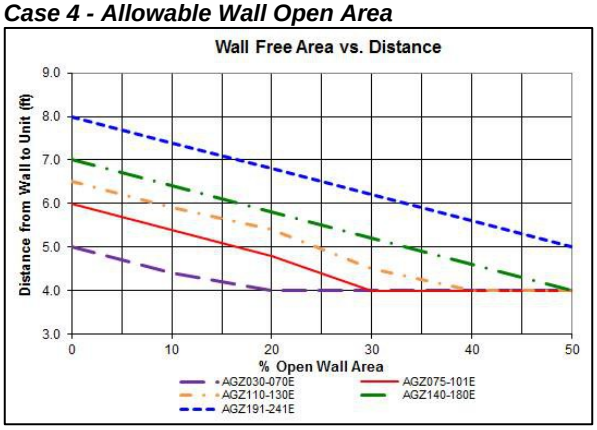
Case 3 – Power Increase



Case 4: Open Screening Walls

Decorative screening walls are often used to help conceal a unit either on grade or on a rooftop. When possible, design these walls such that the combination of their open area and distance from the unit (see chart below) do not require performance adjustment. If the wall opening percentage is less than recommended for the distance to the unit, it should be considered as a solid wall. It is assumed that the wall height is equal to or less than the unit height when mounted on its base support. If the wall height is greater than the unit height, see Case 5: Pit Installation for performance adjustment factors. The distance from the sides of the unit to the side walls must be sufficient for service, such as opening control panel doors. For uneven wall spacing, the distance from the unit to each wall can be averaged providing no distance is less than 4 feet. Values are based on walls on all four sides.

Case 4 - Allowable Wall Open Area



Case *5: Pit Installation*

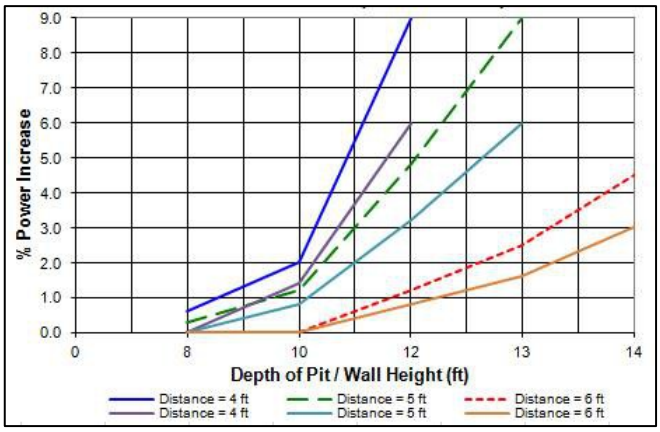
Pit installations can cause operating problems resulting from air recirculation and restriction and require care that sufficient air clearance is provided, safety requirements are met and service access is provided. A solid wall surrounding a unit is substantially a pit and this data should be used. Derates are based on single chiller installation only.

Steel grating is sometimes used to cover a pit to prevent accidental falls or trips into the pit. The grating material and installation design must be strong enough to prevent such accidents, yet provide abundant open area to avoid recirculation problems. Have any pit installation reviewed by the Daikin Applied sales representative prior to installation to ensure it has sufficient air-flow characteristics and approved by the installation design engineer to avoid risk of accident.

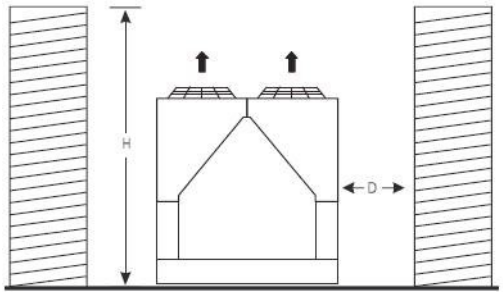
Models AGZ030-070E:

The Case 5 figures for models AGZ030-070E show adjustment factors for pit/wall heights of 4 feet, 5 feet, and 6 feet.

Case 5 - Full Load Capacity Reduction and Power Increase (AGZ030E-070E)



Case 5- Pit Installation



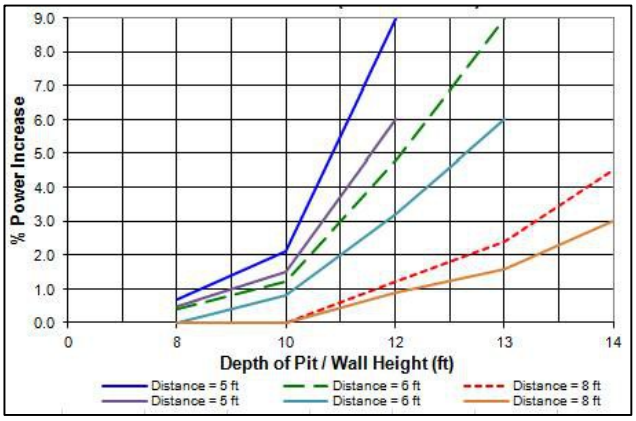
KEY:

- - - - - - - - - - : ***Power Increase***

_____***: Capacity Reduction***

Models AGZ075-130E:
The Case 5 figures for models AGZ075-130E show adjustment factors for pit/wall heights of 5 feet, 6 feet, and 8 feet.

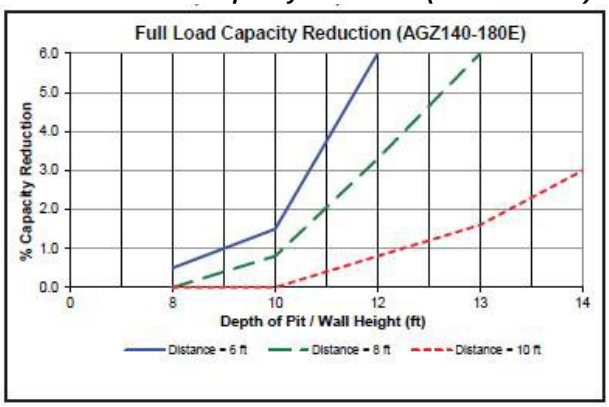
Case 5 - Full Load Capacity Reduction and Power Increase (AGZ075-130E)



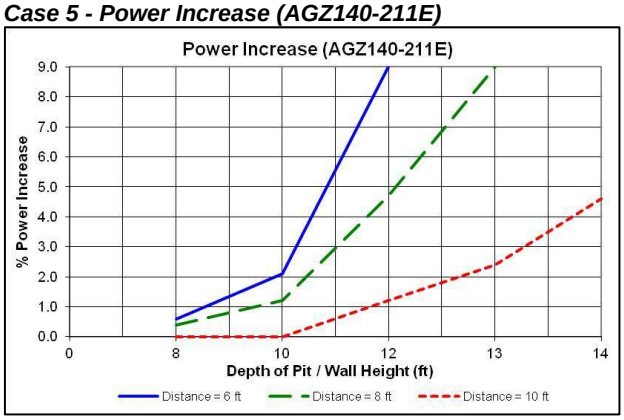
KEY:
- - - - - - - - - - : ***Power Increase***
_____***: Capacity Reduction***

Models AGZ140-241E:
The Case 5 figures for models AGZ140-241E show adjustment factors for pit/wall heights of 6 feet, 8 feet, and 10 feet.

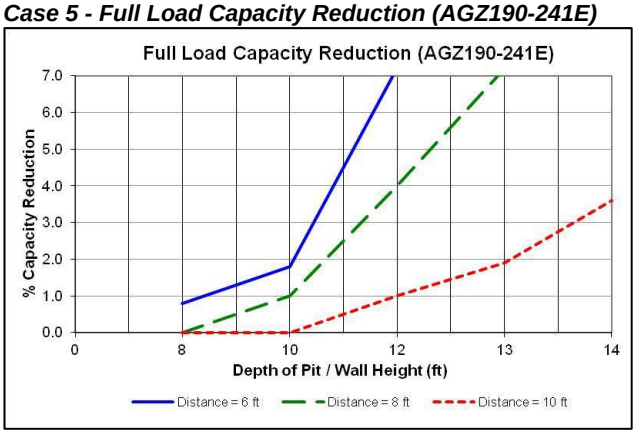
Case 5 - Full Load Capacity Reduction (AGZ140-180E)



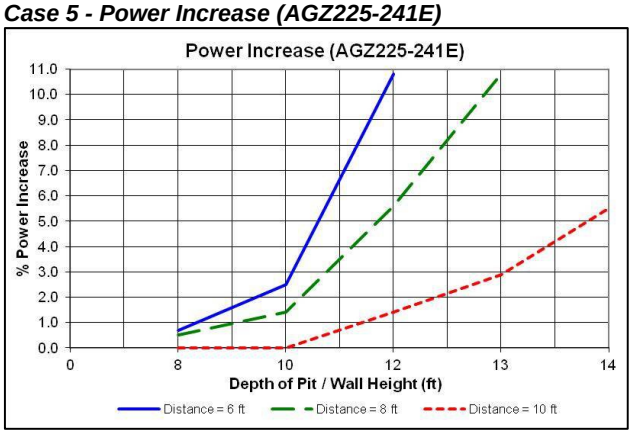
Case 5 - Power Increase (AGZ140-211E)



Case 5 - Full Load Capacity Reduction (AGZ190-241E)

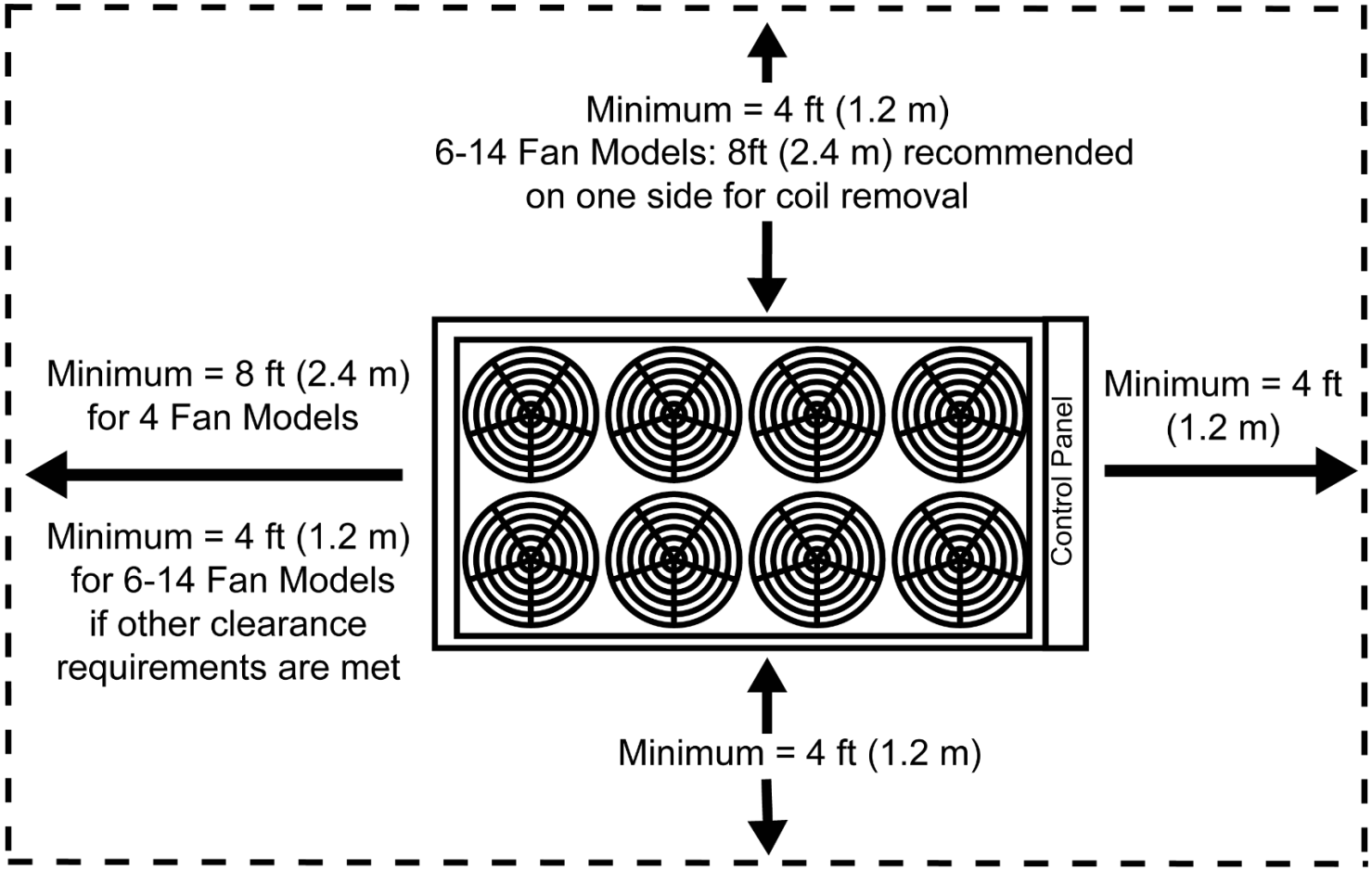


Case 5 - Power Increase (AGZ225-241E)



0B

AGZ-E Service Clearance

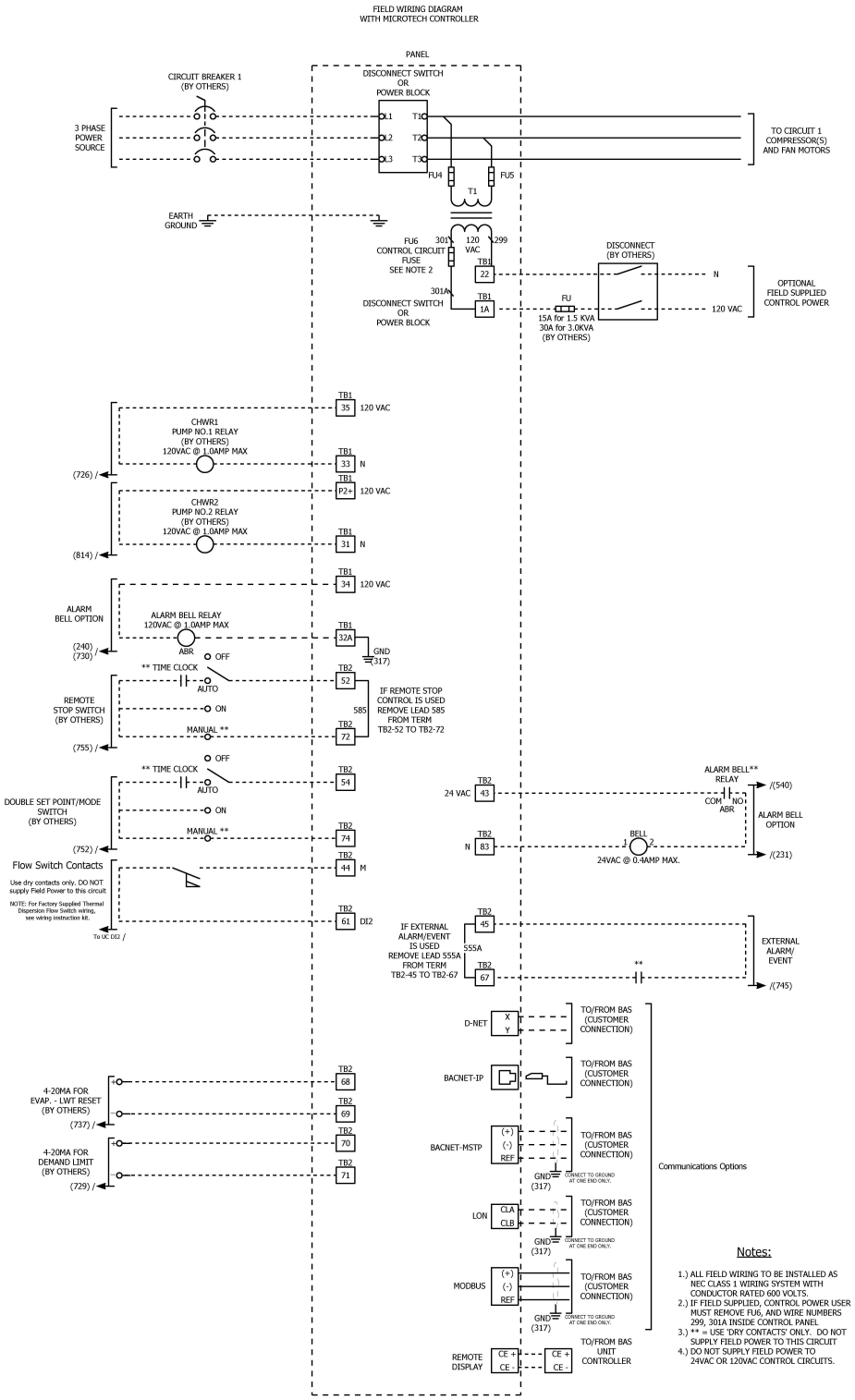


- NOTE: Additional clearance may be required for proper airflow. Please consult Close Spacing drawings and IOM for additional details.

Product Drawing	Unit Tag: ACCH-1A & 1B			Sales Office: Mechanical Sales, Inc.			DAIKIN
Product: Air-Cooled Scroll Chiller	Project Name: Westside Middle Chiller			Sales Engineer: Mike Nebel			13600 Industrial Park Blvd. Minneapolis, MN 55441
Model: AGZ-E	Dec. 13, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in [mm]	www.DaikinApplied.com Software Version: 14.70

0D

AGZ030-241E Single-Point Connection Field Wiring Diagram

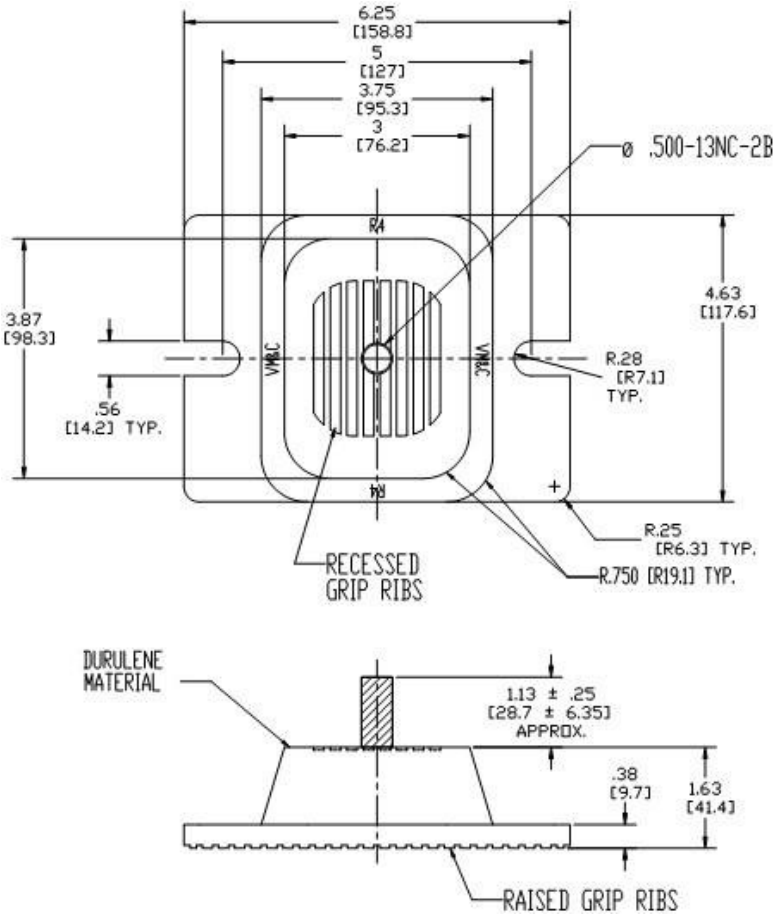


Field Wiring Diagram	Unit Tag: ACCH-1A & 1B			DAIKIN		
Product: Trailblazer® Air-Cooled ScrollAir-	Project Name: Westside Middle Chiller			13600 Industrial Park Blvd. Minneapolis, MN 55441		
Model: AGZ211EAGZ030-241E Single-Point	Sales Office: Mechanical Sales, Inc.			www.DaikinApplied.com	Software Version: 14.70	
Sales Engineer: Mike Nebel	Dec. 13, 2023	Ver/Rev:	Sheet 1 of 1	Scale: N/A	Tolerance: N/A	Dwg Units: N/A

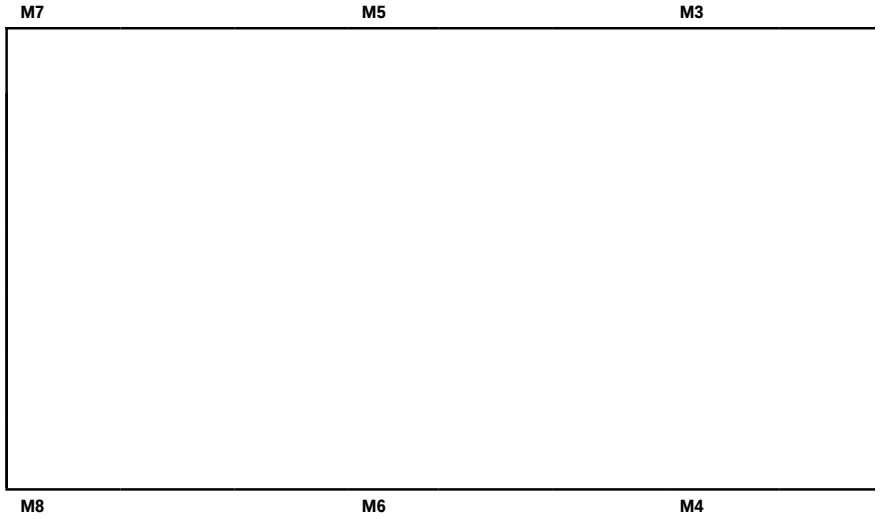
Rubber-in-Shear (RIS) Isolator Kit

00

Dimensions and Placement



Mounting Location							
M1	M2	M3	M4	M5	M6	M7	M8
Red	Red	Brown	Brown	Brown	Brown	Brown	Brown



Product Drawing	Unit Tag: ACCH-1A & 1B			Sales Office: Mechanical Sales, Inc.		
Accessory: Rubber-in-Shear (RIS) Isolator Kit	Project Name: Westside Middle Chiller			Sales Engineer: Mike Nebel		
Kit Part Number: 332325114	Dec. 13, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in [mm]

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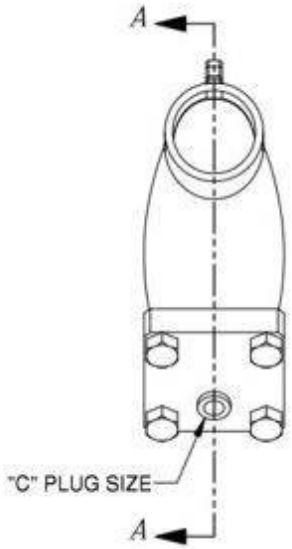
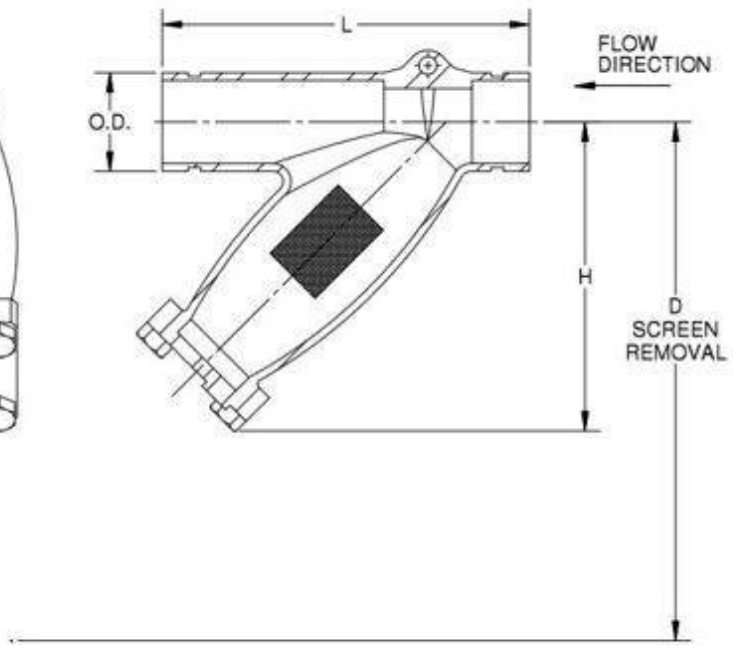
Strainer Kit

00

Dimensions and Placement

PART #									
335043706	0C	6.0 150	6.625 168.3	0.059 1.5	19.76 502	14.96 380	1.50 38.1	22.00 559	119.5 54.2





NOTES:

1. SCREEN MESH MATERIAL: 304 STAINLESS STEEL
2. DIMENSIONS ARE IN INCHES/MM.
3. RATED WORKING PRESSURE: 175 PSI MIN.
4. WORKING TEMPERATURE: 14° to 248°F

Product Drawing	Unit Tag: ACCH-1A & 1B			Sales Office: Mechanical Sales, Inc.			
Accessory: Strainer Kit	Project Name: Westside Middle Chiller			Sales Engineer: Mike Nebel			
Kit Part Number: 331758946	Dec. 13, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in [mm]	

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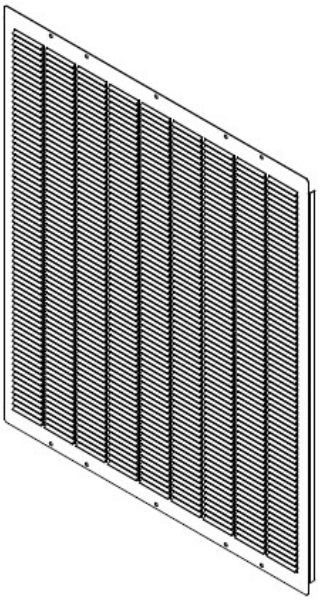
Coil Louver



Description

- Painted and galvanized steel construction for durability
- Protects the unit from unwanted access
- Helps protect against physical damage
- High percentage open area allows free air flow to the coils for optimal performance

Compressor Sound Blanket

Description

Compressor acoustical blankets dampen unit noise and are factory-installed on each compressor. Velcro® seams allow for easy removal for compressor access. Blankets are also available for retrofit field installation.

Features

- Reinforced vinyl envelope for durability
- 1” thick batt consisting of 2.0 – 2.7 lb. density fiberglass, 30 oz. felt, and 12 oz. loaded vinyl septum
- All open edges are sealed with a double stitch and Velcro® hook and loop closures

CSD-02059-00 (Apr-18)

ACCH-1A & 1B

MicroTech® III BACnet® MS-TP Communication Module

Part Number: 350147414

Description

The BACnet communication module connects the MicroTech III chiller unit controller to a building automation system (BAS). This interface enables the exchange of BACnet objects between the unit controller and the network. The BACnet communication module, together with the unit controller, support the BACnet MS/TP (EIA 485) data link layer (physical layer.)

Features

- Integration into a building automation and control system via BACnet MS/TP (B-AAC profile)
- Simple attachment to a MicroTech III chiller unit controller
- LEDs indicate communication status and network activity
- Network parameters configurable via the unit controller, BAS, or remote HMI
- BACnet application comes pre-installed and ready for custom configuration
- Circuit board components enclosed in protective housing
- Board-to-board connector: 10-pin plug between communication module and unit controller

Specifications

General	
Dimensions	W × H × D: 1.77 × 4.33 × 2.95 in (45 × 110 × 75 mm)
Weight	3.5 oz (98 g)
Operating	
Temperature	-40 – 158°F (-40 – 70°C)
Humidity	<90% RH
Atmospheric pressure	Min. 10 psi (70kPa), corresponding to max. 9,842 ft (3,000 m) above sea level
Storage and Transportation	
Temperature	-40 – 158°F (-40 – 70°C)
Humidity	<95% RH
Atmospheric pressure	Min. 3.77 psi (26kPa), corresponding to max. 32,808 ft (10,000 m) above sea level
Electrical	
Power	DC 5 V (+5% / -5%) bus connector, max. 270 mA
Network cable	RS-485 (EIA-485)
	3-wire twisted pair, shielded
Bus connection/ Transceiver	Galvanically isolated; A+, B-, REF (3 wires)
	Isolated transceiver with fail-safe circuitry; 1/8 Unit load
Bus termination	680 Ω / 120 Ω +1 nF / 680 Ω (switch by software)
Agency Listings	
US	UL916, UL873
Canada	CSA C22.2M205
Europe	
EMC directive	2004/108/EC
Low-voltage directive	2006/95/EC Listings
RoHS directive	2002/95/EC

Phase Voltage Monitor

Part Number:

Description

The MotorSaver® 460 is a 3-phase voltage monitor that protects 190–480VAC or 475–600V, 50/60Hz motors regardless of size. The product provides a user selectable nominal voltage setpoint and the voltage monitor automatically senses line voltage.

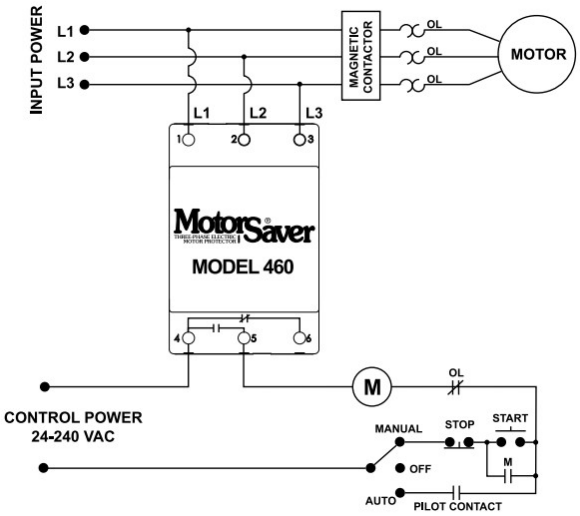
This unique microcontroller-based voltage and phase-sensing device constantly monitors the 3-phase voltages to detect harmful power line conditions such as low, high, and unbalanced voltage, loss of any phase, and phase reversal. When a harmful condition is detected, the 460 output relay is deactivated after a specified trip delay. The output relay reactivates after power line conditions return to an acceptable level for a specified amount of time (restart delay). The trip and restart delays prevent nuisance tripping due to rapidly fluctuating power line conditions.

All 460 models feature adjustable 1–30 second trip delay, 1–500 second restart delay, 2–8% voltage unbalance trip point, and one form C contact except where noted.

Features

Auto-sensing wide voltage range	Automatically senses system voltage between 190–480VAC or 475–600VAC
Adjustable trip & restart delay settings	Prevent nuisance tripping due to rapidly fluctuating power line conditions
Microcontroller based circuitry	Improved accuracy and higher reliability
Advanced LED diagnostics	Quick visual indicator for cause of trip and relay status
Adjustable voltage unbalance trip setting	Provides reliable protection when regenerative voltage is present

Wiring Diagram



Strainer

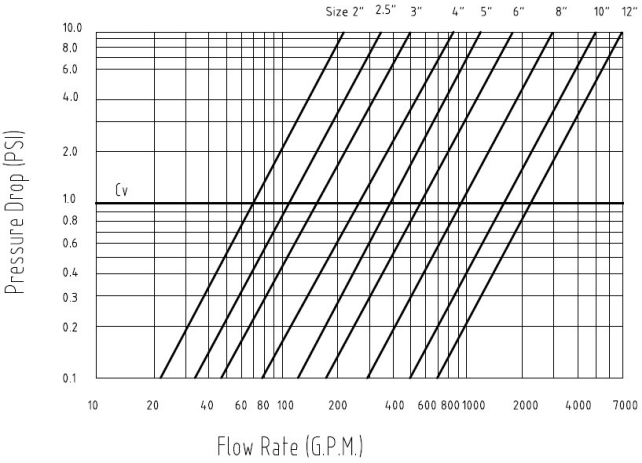
Description

The strainer is designed to remove foreign debris from the hydronic system. It protects pumps, meters, valves, and other equipment from debris. Additionally, the strainer helps prevent degradation of system efficiency due to fouling or damage.

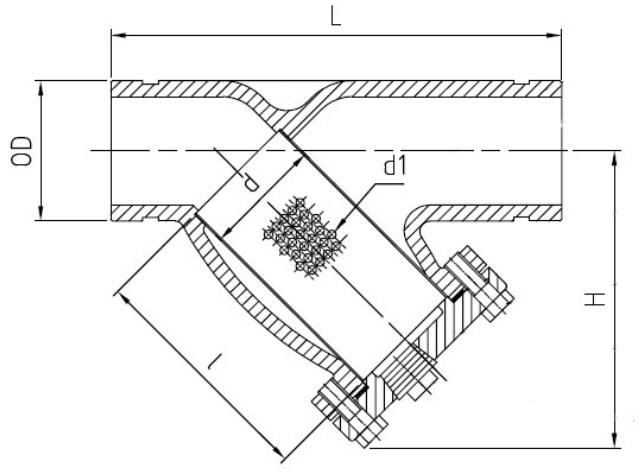
Specifications

Working pressure	16 bar
Working temperature	-10°C to 120°C
Corrosion protection	Internally and externally liquid epoxy painted or fusion bonded epoxy powder coated (FBE)
Materials	
Body	Ductile iron
Cover	Ductile iron
Screen	Stainless steel
Gasket	Teflon® / graphite
Plug	Ductile iron

Pressure Drop



Dimensions



Dimensions(mm)									
Size	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**
OD	60.3	73.0/76.1	88.9	114.3	139.7/141.3	165.1/168.3	219.1	273	323
L	225	285	318	375	448	502	640	710	780
H	152	215	219	254	322	365	462	540	600
l	150	175	180	222	291	325	420	469	515
d	Ø56	Ø72.5	Ø80	Ø105	Ø130	Ø158	Ø210	Ø266	Ø317
d1	Ø1.5	Ø1.5	Ø1.5	Ø3	Ø3	Ø3	Ø3	Ø3	Ø3
Free flow	33%	33%	33%	40%	40%	40%	40%	40%	40%
Plug	1/2”	1”	1”	1”	1-1/4”	1-1/2”	1-1/2”	2”	2”

ID	Task Mode	Task Name	Duration	Start	Finish
1		**Westside Middle School Addition/Renovation**	**416 days**	**Wed 11/29/23**	**Wed 7/2/25**
2		**Preconstruction**	**353 days**	**Tue 1/16/24**	**Fri 5/23/25**
14		**Addition / Renovation**	**416 days**	**Wed 11/29/23**	**Wed 7/2/25**
15		**Priority Procurement**	**270 days**	**Wed 11/29/23**	**Tue 12/10/24**
37		**Mobilization**	**8 days**	**Wed 5/1/24**	**Fri 5/10/24**
43		**Demolition / Relocations**	**186 days**	**Mon 1/22/24**	**Mon 10/7/24**
44		**Utilities / MEP**	**186 days**	**Mon 1/22/24**	**Mon 10/7/24**
45		Potholing	8 days	Mon 1/22/24	Wed 1/31/24
46		Relocate MUD Gas Line / Meter	4 days	Fri 5/10/24	Wed 5/15/24
47		Relocate Private Gas from Meter to Generator/Boiler	6 days	Thu 5/16/24	Thu 5/23/24
48		Remove Selective Paving	4 days	Thu 5/16/24	Tue 5/21/24
49		Remove Shed	10 days	Wed 5/22/24	Tue 6/4/24
50		Relocate Water to Street Hydrant	8 days	Thu 5/16/24	Mon 5/27/24
51		Relocate Existing Storm Pipe/Inlets	15 days	Tue 5/28/24	Mon 6/17/24
52		Remove Boilers	10 days	Thu 5/16/24	Wed 5/29/24
53		Remove Kitchen RTU	10 days	Tue 5/28/24	Mon 6/10/24
54		Remove Cafeteria AHU	10 days	Tue 6/11/24	Mon 6/24/24
55		Remove Chiller and Structure	5 days	Tue 10/1/24	Mon 10/7/24
56		**Existing Cafeteria**	**20 days**	**Tue 5/28/24**	**Mon 6/24/24**
57		Interior Safety, Signage, and Temp Protection	3 days	Tue 5/28/24	Thu 5/30/24
58		Remove Owner's Equipment	3 days	Fri 5/31/24	Tue 6/4/24
59		Remove Finishes	10 days	Fri 5/31/24	Thu 6/13/24
60		Remove Structural Components	5 days	Fri 6/14/24	Thu 6/20/24
61		Temp Cafeteria Wall Enclosure (Exterior Partition)	2 days	Fri 6/21/24	Mon 6/24/24
62		**Electrical for Chiller**	**17 days**	**Tue 10/8/24**	**Wed 10/30/24**
67		**Chiller Enclosure**	**57 days**	**Tue 10/8/24**	**Wed 12/25/24**
72		**Structure for Addition**	**52 days**	**Tue 10/8/24**	**Wed 12/18/24**
81		**Roof**	**20 days**	**Thu 12/19/24**	**Wed 1/15/25**
84		**Envelope**	**60 days**	**Fri 12/13/24**	**Thu 3/6/25**
91		**MEP & Fire Suppression**	**246 days**	**Wed 7/17/24**	**Wed 6/25/25**
102		**Interior Buildout**	**124 days**	**Fri 12/27/24**	**Wed 6/18/25**
122		**Site Improvements**	**45 days**	**Tue 4/1/25**	**Mon 6/2/25**
128		**Building Finals / Punch / Turnover**	**25 days**	**Thu 5/29/25**	**Wed 7/2/25**
129		HCI Completion List	10 days	Thu 5/29/25	Wed 6/11/25
130		Punch List	15 days	Thu 6/12/25	Wed 7/2/25
131		Final Inspections	3 days	Thu 6/19/25	Mon 6/23/25
132		Certificate of Occupancy	1 day	Tue 6/24/25	Tue 6/24/25
133		Substantial Completion	0 days	Wed 7/2/25	Wed 7/2/25

4/4/2024

HAUSMANN construction

Westside Middle School Bid Walk

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