WRC Decentralization Phase 4 & Fire Alarm Phase 3 (#9279.40) Bid Issuance #1

Iowa Department of Administrative Services

1251 334th St, Woodward, IA 50276

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CERTIFICATIONS

CIVIL ENGINEER

CHRISTOPHER R. BAUER 19737 — LICENSED PROFESSIONAL ENGINEER — ★IOWA★

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Chris Bauer — DATE: 3-14-2025

PRINTED OR TYPED NAME: **Chris R. Bauer**

LICENSE NUMBER: **19737**

MY LICENSE RENEWAL DATE IS DECEMBER 31, **2025**

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ARCHITECT

CAMERON L. MANLEY 06716 — LICENSED ARCHITECT — ★IOWA★

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Cameron L. Manley — DATE: 3-14-2025

PRINTED OR TYPED NAME: **Cameron L. Manley**

LICENSE NUMBER: **06716**

MY LICENSE RENEWAL DATE IS JUNE 30, **2025**

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MECHANICAL ENGINEER

JOHN D. BAUMHOVER P25737 — LICENSED PROFESSIONAL ENGINEER — ★IOWA★

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: John Baumhover — DATE: 3-14-2025

PRINTED OR TYPED NAME: **John D. Baumhover**

LICENSE NUMBER: **25737**

MY LICENSE RENEWAL DATE IS DECEMBER 31, **2026**

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ELECTRICAL ENGINEER

KEVIN J. BRUXVOORT 19927 — LICENSED PROFESSIONAL ENGINEER — ★IOWA★

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Kevin Bruxvoort — DATE: 3-14-2025

PRINTED OR TYPED NAME: **Kevin J. Bruxvoort**

LICENSE NUMBER: **19927**

MY LICENSE RENEWAL DATE IS DECEMBER 31, **2025**

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SHIVEHATTERY
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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (#9279.40) Bid Issuance #1

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

ISSUED FOR CONSTRUCTION
ISSUE DATE: 03-14-2025

PROJECT NUMBER: 2240007040

00-G000

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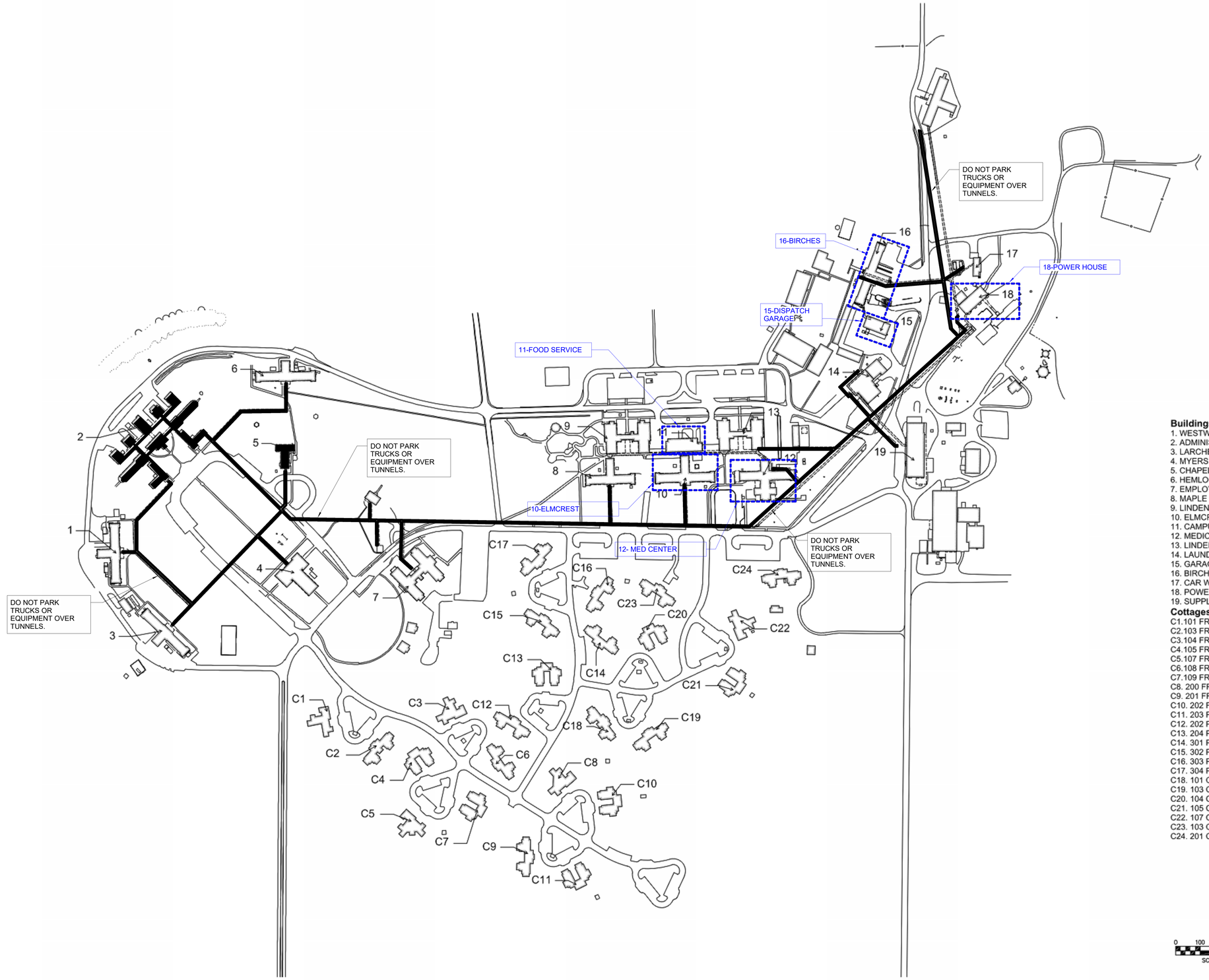

LEGEND

Buildings

1. WESTWOOD
2. ADMINISTRATION
3. LARCHES
4. MYERS HALL
5. CHAPEL
6. HEMLOCK
7. EMPLOYEE HOME
8. MAPLE LODGE
9. LINDEN COURT A/B
10. ELMCREST
11. CAMPUS FOOD SERVICES
12. MEDICAL CENTER
13. LINDEN COURT C/D
14. LAUNDRY
15. GARAGE
16. BIRCHES
17. CAR WASH
18. POWER HOUSE
19. SUPPLY DEPOT

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C2.103 FRANKLIN
C3.104 FRANKLIN
C4.105 FRANKLIN
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C6.108 FRANKLIN
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C14. 301 PINE
C15. 302 PINE
C16. 303 PINE
C17. 304 PINE
C18. 101 CHERRY
C19. 103 CHERRY
C20. 104 CHERRY
C21. 105 CHERRY
C22. 107 CHERRY
C23. 103 CEDAR
C24. 201 CEDAR

0 100 200 400
SCALE IN FEET

1 SITE MAP PH4
NOT TO SCALE

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (#9279.40)

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	LDF
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	03-14-2025
PROJECT NUMBER	2240007040
FIELD BOOK	

CAMPUS MAP

00-G001

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GENERAL NOTES

1. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THE DRAWINGS ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THE DRAWINGS. THE VERIFICATION OF EXISTENCE OF AND THE DETERMINATION OF THE EXACT LOCATION OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR(S).
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION.
3. THE FACILITY WILL COMPLETE PRIVATE UTILITY LOCATES OF KNOWN FACILITY UTILITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL LOCATES AND CONFIRM THEY ARE COMPLETED PRIOR TO THE START OF CONSTRUCTION.
4. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL BY CALLING 811 OR 1-800-292-8989 NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
5. NOTIFY UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS OF THE SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION.
6. UNLESS OTHERWISE SPECIFIED, ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT EDITION OF IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS).
7. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY/STATE REGULATIONS/CODES AND OSHA STANDARDS.
8. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
9. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.
10. PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
11. MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT THE PROJECT DURATION.
12. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. DRIVES, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES.
13. ALL OPEN EXCAVATIONS SHALL BE PROTECTED.
14. REPAIR OR REPLACE DAMAGED SITE FEATURES (WALLS, PAVEMENT, UTILITIES, FENCES, ETC.) TO REMAIN AT NO ADDITIONAL EXPENSE TO THE STATE.
15. ANY WORK REQUIRED TO COMPLETE THE SCOPE OF THIS PROJECT BUT NOT SPECIFICALLY CALLED OUT SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. NO ADDITIONAL COMPENSATION TO BE ALLOWED FOR THE COMPLETION OF THIS WORK.
16. WORK WHICH DOES NOT CONFORM TO THE REQUIREMENTS OF THE CONTRACT WILL BE CONSIDERED UNACCEPTABLE. UNACCEPTABLE WORK, WHETHER THE RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE MATERIALS, DAMAGE THROUGH CARELESSNESS OR ANY OTHER CAUSE FOUND TO EXIST PRIOR TO THE FINAL ACCEPTANCE OF THE WORK SHALL BE REMOVED AND REPLACED IN AN ACCEPTABLE MANNER AS REQUIRED BY THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. WORK DONE CONTRARY TO THE INSTRUCTIONS OF THE OWNER'S REPRESENTATIVE, WORK DONE BEYOND THE LINES SHOWN ON THE PLANS OR ANY EXTRA WORK DONE WITHOUT WRITTEN AUTHORIZATION WILL NOT BE PAID FOR.
17. THE CONTRACTOR SHALL MATCH EXISTING GRADES AT THE CONSTRUCTION LIMITS.
18. NO PONDING OF WATER WILL BE ACCEPTED ON ANY NEW PAVEMENT OR OVERLAY AREAS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY ANY AREAS OF EXISTING OR PROPOSED PAVEMENTS THAT HAVE THE POTENTIAL TO POND WATER AND MAKE ANY ADJUSTMENTS NECESSARY TO ENSURE THAT WATER WILL POSITIVELY DRAIN ACROSS THE PAVING.
19. STAGING LOCATIONS AND CONSTRUCTION ACCESS ROUTES FOR CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE COORDINATED WITH AND APPROVED BY THE FACILITY AND CONSTRUCTION MANAGER.
20. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES NECESSARY TO PROTECT AGAINST SILTATION, EROSION AND DUST POLLUTION ON THE PROJECT SITE AND ANY OFF-SITE BORROW OR DISPOSAL AREAS USED FOR THIS PROJECT. COMPLY WITH SOIL EROSION CONTROL REQUIREMENTS OF IOWA CODE, FEDERAL REGULATIONS AND LOCAL ORDINANCES.
21. ALL AREAS DISTURBED BY CONSTRUCTION NOT DESIGNATED AS PLANTED SHALL BE SEEDED PER SPECIFICATIONS. 6" OF TOPSOIL SHALL BE PROVIDED PER SPECIFICATIONS.
22. CONTROL DUST SPREADING FROM ALL WORK AND STAGING AREAS.
23. CONTRACTOR TO COORDINATE ANY SITE, UTILITY OR GRADE ADJUSTMENTS WITH THE CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.
24. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF WORK OF ALL SUBCONTRACTOR(S) INVOLVED ON THE PROJECT.

CONSTRUCTION STAGING NOTES

1. CONTRACTOR SHALL COORDINATE ALL STAGING AREAS WITH THE FACILITY AND CONSTRUCTION MANAGER.
2. CONTRACTOR SHALL REPLACE ALL PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES AT THE END OF CONSTRUCTION. CONTRACTOR TO PROVIDE PHOTO DOCUMENTATION OF EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
3. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS NOT TO BE PAVED TO THEIR ORIGINAL CONDITION AT THE END OF CONSTRUCTION. ALL DISTURBED AREAS SHALL BE SCARIFIED, TILLED AND SEEDED. CONTRACTOR TO PROVIDE PHOTO DOCUMENTATION PRIOR TO BEGINNING WORK.
4. CONTRACTOR SHALL PROVIDE BARRICADES, FENCING OR OTHER DEVICES TO KEEP UNAUTHORIZED PERSONNEL OUT OF PROJECT SITE.

TRAFFIC AND PEDESTRIAN CONTROL NOTES

1. CONTRACTOR IS ALLOWED TO CLOSE DOWN PARKING AND DRIVES DURING CONSTRUCTION WITH PRIOR APPROVAL FROM CONSTRUCTION MANAGER AND FACILITY. ACCESS TO ADJACENT BUILDINGS, DRIVES, PARKING AND SIDEWALKS ARE TO BE MAINTAINED THROUGHOUT CONSTRUCTION. PHASING OF UTILITY CONSTRUCTION AND ROAD PATCHING WILL BE REQUIRED TO MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC TO ALL BUILDINGS AND SHALL BE COORDINATED WITH SCHEDULES OF OTHER TRADES, CONTRACTORS AND UTILITY COMPANIES.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL TRAFFIC DURING CONSTRUCTION AND PROVIDE ADEQUATE TRAFFIC AND PEDESTRIAN CONTROL AND SIGNAGE. AT A MINIMUM, CONTRACTOR TO PROVIDE TYPE III BARRICADES AT EACH END OF CLOSED ROADS AND DRIVES.
3. CONTRACTOR TO INSTALL AND MAINTAIN CONSTRUCTION FENCE AROUND ALL AREAS OF ACTIVE CONSTRUCTION. CONTRACTOR SHALL ASSUME PEDESTRIAN TRAFFIC WILL BE IN THE AREA THROUGHOUT THE PROJECT DURATION.
4. PEDESTRIAN ACCESS MUST BE MAINTAINED TO ALL BUILDINGS THROUGHOUT CONSTRUCTION. COORDINATE WITH FACILITY AND CONSTRUCTION MANAGER ON PHASING AND SHUT DOWN OF ALL DRIVES AND SIDEWALKS. TEMPORARY GRANULAR PATCHES WILL BE REQUIRED FOR ANY DRIVES AND SIDEWALKS WHICH ARE NOT PATCHED WITH CONCRETE IN A TIMELY MANNER TO LIMIT DISRUPTIONS TO CAMPUS TRAFFIC AND PEDESTRIAN FLOW.
5. CONTRACTOR TO COORDINATE CONSTRUCTION ACCESS, STAGING AND PARKING AREAS WITH FACILITY AND CONSTRUCTION MANAGER AND MINIMIZE IMPACTS TO FACILITY'S OPERATIONS.

DEMOLITION NOTES

1. REMOVAL REQUIREMENTS SHOWN ON THE PLANS SHOULD BE CONSIDERED MINIMUM REMOVAL AND REPLACEMENT REQUIREMENTS. CONTRACTORS SHALL ADJUST REMOVAL LIMITS AND DIMENSIONS AS REQUIRED BY CONSTRUCTION MEANS AND METHODS AND ACTUAL SITE CONDITIONS. CONTRACTORS SHOULD FACTOR ADDITIONAL ANTICIPATED REMOVAL AND REPLACEMENT REQUIREMENTS INTO THEIR BIDS AS ADDITIONAL COMPENSATION REQUESTS FOR ADJUSTED OR EXPANDED REMOVAL LIMITS WILL NOT BE APPROVED.
2. CONTRACTOR SHALL REPLACE AT NO COST TO THE STATE ALL DAMAGED STREETS, DRIVES, SIDEWALKS, CURB AND GUTTER, SIGNS, PAVEMENT MARKINGS, LIGHTS, FENCES AND ALL OTHER SURFACE STRUCTURES NOT SCHEDULED TO BE REMOVED DURING THE COURSE OF THE WORK.
3. ALL LANDSCAPING, INCLUDING TREES, SHRUBS AND PERENNIALS NOT CALLED OUT TO BE REMOVED OR APPROVED FOR REMOVAL BY CONSTRUCTION MANAGER, SHALL BE PROTECTED AND REPLACED AT NO COST TO THE STATE IF DAMAGED DURING CONSTRUCTION. REPLACE TREES WITH (1) EQUIVALENT TREE UP TO 6" CALIPER AND (1) ADDITIONAL TREE FOR EVERY 6" CALIPER BEYOND THAT. ALL PLANTS THAT ARE DESTROYED OR DAMAGED SHALL BE REPLACED WITH NEW PLANTS OF THE EQUIVALENT TYPE.
4. WHERE A SECTION OF PAVEMENT, CURB AND GUTTER OR SIDEWALK IS CUT OR OTHERWISE DAMAGED BY THE CONTRACTOR, THE ENTIRE SECTION SHALL BE REMOVED AND REPLACED. PAVEMENT, CURBS AND GUTTERS AND SIDEWALKS SHALL BE REMOVED TO THE NEAREST JOINT A MINIMUM OF TWO FEET BEYOND THE EDGE OF ALL EXCAVATIONS. CONTRACTOR SHALL DOCUMENT (OR PHOTOGRAPH) ALL CRACKED PCC PAVEMENT OR DAMAGED HMA PAVEMENT PRIOR TO CONSTRUCTION. IF NEW CRACKS IN PCC PAVEMENT DEVELOP OR HMA PAVEMENT IS DAMAGED DUE TO CONSTRUCTION TRAFFIC (EXTENDS BEYOND CONSTRUCTION LIMITS), THE CONTRACTOR SHALL REPLACE THE DAMAGED AREA AT NO ADDITIONAL COST TO STATE.
5. FIRE PROTECTION ACCESS AND FIRE HYDRANTS SHALL BE MAINTAINED THROUGHOUT THE PROJECT. ALL EXISTING FIRE HYDRANTS WHICH ARE NOT CALLED OUT TO BE REMOVED SHALL BE PROTECTED AND MAINTAINED.
6. THE CONTRACTOR SHALL COORDINATE ANY DISRUPTION OF EXISTING UTILITIES SERVING THE FACILITY W
7. ITH THE FACILITY AND CONSTRUCTION MANAGER.

EXCAVATION NOTES

1. EXCAVATE TRENCH AND PROVIDE PIPE BEDDING AND BACKFILL MATERIAL PER IOWA SUDAS SPECIFICATIONS OR AS SHOWN ON THE DRAWINGS.
2. STRIP, STOCKPILE AND RESPREAD A MINIMUM OF 6" OF TOPSOIL IN ALL SEEDING OR SODDING AREAS DISTURBED BY CONSTRUCTION. DISTURBED AREAS SHALL BE LEFT IN SMOOTH CONDITION READY FOR FINAL SEEDBED PREPARATION. GRADE ALL DISTURBED ARES TO DRAIN, AS PONDING OF WATER WILL NOT BE ACCEPTABLE.
3. CONTRACTOR IS RESPONSIBLE FOR ALL TRENCH AND FILL SETTLEMENT FOR THE PROJECT'S ONE YEAR WARRANTY PERIOD. CONTRACTOR SHALL PROVIDE ADDITIONAL FILL MATERIAL AND IS RESPONSIBLE FOR RESEEDING OF ALL SETTLEMENT AREAS AFTER SITE RESTORATION HAS BEEN COMPLETED.

GRADING AND EROSION CONTROL NOTES

1. BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER'S REPRESENTATIVE.
2. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
3. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN UP FUEL OR CHEMICAL SPILLS AND LEAKS.
4. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
5. RUBBISH, TRASH, GARBAGE, LITTER OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
6. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE SEEDED OR SODDED. THESE AREAS SHALL BE SEEDED OR SODDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.
7. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
8. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
9. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, WATTLES, INLET PROTECTION, ETC.) TO PREVENT EROSION.
11. ALL STORM SEWER INTAKES THAT RECEIVE STORMWATER RUNOFF FROM DISTURBED AREAS SHALL BE PROVIDED WITH INLET PROTECTION.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, PERIODIC CHECKING AND REINSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES.
13. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE IOWA DNR, US EPA AND LOCAL REGULATIONS DEALING WITH STORMWATER RUNOFF AND EROSION CONTROL.
14. THE DISTURBED CONSTRUCTION AREA IS LESS THAN 1 ACRE, SO AN NPDES GENERAL PERMIT NO. 2 AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) ARE NOT REQUIRED. HOWEVER, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING EROSION CONTROL THROUGHOUT CONSTRUCTION.

UTILITY NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATIONS AND DEPTHS OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES AND WHETHER ADDITIONAL UTILITIES EXIST.
2. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR PROTECTION REQUIREMENTS AND SPECIFICATIONS. PROVIDE TEMPORARY SUPPORT OF EXISTING UTILITIES AS REQUIRED FOR CONSTRUCTION.
3. ALL EXISTING AND PROPOSED UTILITY CROSSINGS/CONFLICTS SHALL MEET OR EXCEED IOWA SUDAS HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS.
4. ALL UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
5. WATER TO BE INSTALLED WITH A MINIMUM COVER OF 5.5 FEET DEEP OR LOWER TO ACCOMMODATE UTILITY CROSSINGS.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH IOWA SUDAS STANDARD SPECIFICATIONS AND IOWA DOT SPECIFICATIONS, STANDARD ROAD PLANS AND ROAD DESIGN DETAILS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
7. ALL OPEN EXCAVATIONS SHALL BE PROTECTED WITH SAFETY FENCE, BARRIERS OR BARRICADES IN ACCORDANCE WITH OSHA.
8. CONTRACTOR TO IMPLEMENT TEMPORARY SHORING OR SUPPORT AT ALL UTILITY CROSSINGS AS REQUIRED BY CONTRACTOR'S MEANS AND METHODS. ALL DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE STATE.

PAVEMENT GENERAL NOTES

1. ALL PROPOSED PAVEMENT PATCHES ARE APPROXIMATE ONLY AND SHOULD BE CONSIDERED MINIMUM REMOVAL EXTENTS. EXTEND AND ADJUST PAVEMENT PATCHES AS REQUIRED WITH PRIOR APPROVAL BY ENGINEER.
2. ALL SLOPES IN PAVEMENT SHALL BE UNIFORM TO AVOID PONDING. ANY PONDING ON PAVEMENT PATCHES OR ADJACENT PATCHES WILL BE CONSIDERED UNACCEPTABLE AND SHALL BE REPLACED.
3. SALVAGE ALL SIGNS WITHIN THE CONSTRUCTION LIMITS AND REINSTALL IN THE SAME LOCATION AND CONDITION AFTER CONSTRUCTION. ANY STREET SIGNS OR POLES DAMAGED DURING THE COURSE OF WORK TO BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE STATE.
4. USE TYPE "A" COMPACTION PER IOWA DOT STANDARD SPECIFICATIONS ON SUBGRADE AND SUBBASE.

SPECIFICATIONS

THE MOST RECENT EDITION OF THE IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) SHALL APPLY TO ALL SITE WORK PERFORMED ON THIS PROJECT EXCEPT AS MODIFIED HEREIN.

A. CONCRETE PAVING

CONCRETE: MATERIALS AND MIXING FOR ALL CONCRETE WORK, UNLESS OTHERWISE SPECIFIED, SHALL CONFORM TO IOWA DOT SPECIFICATIONS FOR AIR-ENTRAINED TYPE C-4 MIX WITH TYPE I CEMENT.

FLY ASH (CONTRACTOR'S OPTION): ASTM C618, TYPE C, NOT TO EXCEED 15% OF CEMENTITIOUS MATERIAL.

COARSE AGGREGATE: DURABILITY SHALL BE CLASS III, 3/4" MAX.

COMPRESSIVE STRENGTH: 2800 PSI @ 7 DAYS AND 4000 PSI @ 28 DAYS
SLUMP: 3" ± 1" or 8" MAXIMUM WITH SUPER PLASTICIZER
AIR CONTENT: 7.0% ± 1.0%
WATER/CEMENT RATIO: NOT TO EXCEED 0.53
FINISH: HEAVY BROOM FINISH

TESTING: ONE SET OF TEST CYLINDERS REQUIRED FOR EACH 100 CY, OR PORTION THEREOF, OF CONCRETE POURED PER WORK LOCATION. CONCRETE TESTING TO BE DONE AND PAID FOR BY OWNER. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL REQUIRED TESTING AND GEOTECHNICAL WORK WITH CONSTRUCTION MANAGER.

SURFACE CURING: CONTRACTOR SHALL APPLY WHITE PIGMENT LIQUID CURING COMPOUND IN A FINE SPRAY TO FORM CONTINUOUS UNIFORM FILM AFTER FINISHING AND SURFACE MOISTURE HAS DISAPPEARED OR WITHIN 30 MINUTES AFTER FORMS ARE REMOVED.

SUBMIT CONCRETE MIX DESIGN FOR APPROVAL.

COLD WEATHER CONCRETE: WHEN THE ATMOSPHERIC AIR TEMPERATURE MAY BE EXPECTED TO DROP BELOW 40°F AT THE TIME CONCRETE IS DELIVERED TO THE WORK SITE, DURING PLACEMENT OR AT ANY TIME DURING CURING PERIOD, CONCRETE SHALL BE MIXED, PLACED AND PROTECTED IN ACCORDANCE WITH ACI STANDARD 306, "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING." IT IS THE OWNER'S PREFERENCE TO AVOID COLD WEATHER CONCRETE AND PROVIDE TEMPORARY GRANULAR SURFACING FOR SIDEWALK AND PAVING AS REQUIRED.

B. EXPANSION JOINT FILLER

CLOSED CELL POLYETHYLENE WITH STRIP-OFF CAP FOR SEALANT.

C. JOINT SEALANT

PAVING JOINTS SHALL BE SEALED PER IOWA DOT SPECIFICATIONS. BACKER ROD SHALL NOT BE USED FOR JOINT SEALING.

D. PAVEMENT REINFORCING STEEL

PAVING REINFORCEMENT SHALL BE ASTM C615 GRADE 60 AND SHALL HAVE A PROTECTIVE EPOXY COATING APPLIED BY ELECTROSTATIC SPRAY METHOD IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A775.

E. PAVEMENT JOINTING

PROVIDE IDOT TYPE 'C' JOINTS FOR TRANSVERSE JOINTS. PROVIDE JOINTS AT A MAXIMUM SPACING OF 12 FEET FOR PAVING OR SQUARE PANELS FOR SIDEWALKS.

PROVIDE IDOT TYPE 'L' JOINTS FOR LONGITUDINAL JOINTS.

PROVIDE IDOT TYPE 'RD' OR TYPE 'BT' JOINTS TO TIE INTO EXISTING PAVING.

PROVIDE IDOT TYPE 'DW' JOINTS FOR END OF DAY PAVING.

SAW CUTTING TO BE COMPLETED A MAXIMUM OF 24 HOURS FROM CONCRETE PLACEMENT. RANDOM CRACKING CAUSED BY DELAYED SAW CUTTING MAY REQUIRE REMOVAL AND REPLACEMENT.

CONTRACTOR TO PROVIDE OWNER'S REPRESENTATIVE WITH A POURING SEQUENCE AND JOINTING PLAN FOR APPROVAL PRIOR TO PAVING.

F. TRENCH EXCAVATION AND BACKFILL

BEDDING AND BACKFILL MATERIAL: SHALL COMPLY WITH IOWA SUDAS SECTION 3010.

BACKFILL COMPACTION REQUIREMENTS:
1. AREAS UNDER AND WITHIN FIVE (5) FEET OF PAVEMENT, SIDEWALKS, GRANULAR SURFACING OR OTHER SURFACE IMPROVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
2. AREAS UNDER LANDSCAPING AND LAWN AREAS SHALL BE COMPACTED TO 90% OF MAXIMUM STANDARD PROCTOR DENSITY.
3. COMPACTION TESTING SHALL BE COMPLETED ON A FREQUENCY OF ONE TEST PER 100 LINEAR FEET AT APPROXIMATELY EVERY OTHER 8" LIFT OR AT ALTERNATIVE LOCATIONS AND FREQUENCIES AS RECOMMENDED BY TESTING AGENCY. COMPACTION TESTING TO BE DONE BY AN INDEPENDENT TESTING LABORATORY AND PAID FOR BY OWNER. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL REQUIRED TESTING AND GEOTECHNICAL WORK WITH CONSTRUCTION MANAGER.

CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING, WHICH MAY BE REQUIRED INCIDENTAL TO THE PIPE INSTALLATION.

G. TOPSOIL

STRIP, STOCKPILE AND RESPREAD EXISTING TOPSOIL IN ALL AREAS TO BE SEEDED. THE DEPTH OF TOPSOIL SHALL BE A MINIMUM OF 6" AFTER NATURAL SETTLEMENT AND SHALL CONFORM SMOOTHLY TO THE ADJACENT LINES, GRADES AND ELEVATIONS. PROVIDE ADDITIONAL TOPSOIL IF EXISTING TOPSOIL IS NOT PROPERLY HANDLED AND PROTECTED.

H. SITE RESTORATION

HYDRAULIC SEEDING: ALL DISTURBED AREAS ON THE SITE NOT TO BE PAVED OR LANDSCAPED SHALL RECEIVE HYDRAULIC SEEDING. HYDRAULIC SEEDING MATERIALS AND INSTALLATION SHALL MEET SUDAS SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR PREPARING SEEDBED, APPLYING HYDRAULIC SEEDING AND FIRST AND SECOND APPLICATIONS OF FERTILIZER.

SEED MIXTURE: SUDAS TYPE 1 SEED MIXTURE (PERMANENT LAWN MIXTURE) OR APPROVED EQUAL.

K. CHAINLINK FENCING AND GATES

PROVIDE FENCING MATERIAL AND INSTAL ACCORDING TO IOWA SUDAS REQUIREMENTS UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DOCUMENTS.

PROVIDE SUBMITTALS FOR ALL GATE AND FENCE MATERIALS

L. GRANULAR SURFACING

MATERIALS AND INSTALLATION TO MEET IDOT SPECIFICATION 4120, CLASS A ROADSTONE OR APPROVED EQUAL

M. WEED BARRIER

PROVIDE A COMMERCIAL GRADE WEED BARRIER FABRIC THAT ALLOWS WATER, AIR AND NUTRIENTS TO PASS THROUGH

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IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES
1251 34TH ST. WOODWARD, IA 50276

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APPROVED BY	CRB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK:	----

GENERAL NOTES

00-C001

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EXISTING CONDITIONS AND DEMOLITION PLAN

00-CD02

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WOODWARD ACADEMY - BUILDING D

MEDICAL CENTER

CONCRETE

STAIRWELL TO DOORWAY (ABOVE AND BELOW GROUND)

STAIRWELL (BELOW GROUND)

LOADING RAMP

SHED OUTBUILDING

STAIRWELL AND DOORWAY CENTERED AT BUILDING IN STAIRWAY (BELOW GROUND)

RAMP AND DORWAY (ABOVE GROUND)

CHAINLINK FENCE

CONCRETE

ACCESS VAULT (STEEL)

ACCESS VAULT (STEEL)

UTILITY BUILDING

GRONE LOCATED

GRONE LOCATED

REMOVE AND DISPOSE OF EXISTING PCC PAVING. SAWCUT FULL DEPTH AND REMOVE TO NEAREST JOINT (TYP)

APPROXIMATE GRADING LIMITS (TYP)

PROTECT EXISTING PCC PAVING (TYP)

PROTECT EXISTING ELECTRICAL EQUIPMENT AND PCC PADS (TYP)

PROTECT EXISTING BOLLARDS (TYP)

CONTRACTOR TO POTHOLE TO A MINIMUM OF 4' DEEP AND FIND VERTICAL AND HORIZONTAL LOCATIONS OF EXISTING FIBER OPTIC AND ELECTRICAL LINES AT THE START OF PROJECT. MINIMUM POTHOLING LOCATIONS SHOWN.

14.0'

20.0'

16.0'

PROTECT EXISTING PCC STAIRS AND WALL (TYP)

PROTECT EXISTING UNDERGROUND UTILITIES (TYP)

PROTECT EXISTING BUILDING (TYP)

NORTH

0 5 10 20

SCALE IN FEET

EXISTING CONDITIONS AND DEMOLITION PLAN

C00-CD03

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File Name: N:\2024\2240007040\Construction\Drawings\C_Civil\C03-1 EXISTING CONDITIONS AND DEMOLITION PLAN.dwg

WOODWARD ACADEMY - BUILDING C

WOODWA
BUILDING

ELMCREST

CONCRETE

STAIRWELL
(BELOW GROUND)

DOORWAY AT GRADE
1.25 SOUTH OF BUILDING
CORNER TO EDGE OF DOOR

LINE DRAWN TO DIRECTION
NOT FIELD VERIFIED

STAIRWELL TO
DOORWAY 1.5 FROM
BUILDING CORNER TO
EDGE OF DOOR
(BELOW GROUND)

SANITARY CLEANOUT
1060.39 RIM
1054.28 IE WEST
NO DIRECTION FOUND

SANITARY CLEANOUT
1060.48 RIM
1084.38 IE WELL
NO DIRECTION FOUND

LINE DRAWN TO DIRECTION
NOT FIELD VERIFIED

SIDEWALK

CONCRETE

CONCRETE

CONCRETE

SHED / OUTBUILDING

GAZEBO
(ON CONCRETE PAD)

PCC EQUIPMENT PAD - EQUIPMENT PAD AND CLEARANCE DIMENSIONS SHOWN ARE APPROXIMATE AND SHOULD BE ADJUSTED AS REQUIRED FOR CONTRACTOR SELECTED EQUIPMENT AND MANUFACTURER RECOMMENDED SIZE AND CLEARANCE REQUIREMENTS

SUPPORTS REPRESENTATIVE OF APPROXIMATE REQUIRED SUPPORTING DISTANCE REQUIREMENTS AND QUANTITY. CONTRACTOR SHALL VERIFY SUPPORTING REQUIREMENTS WITH FINAL REFRIGERANT PIPE SIZES AND SPEC SECTION 23 2300. CONTRACTOR SHALL COORDINATE LOCATIONS OF SUPPORTS WITH ALL UNDERGROUND UTILITIES AND VERIFY ALL EXISTING CONDITIONS PRIOR TO EXCAVATION AND CONSTRUCTION.

35.3'
8.0'
23.3'
4.0'
6.9'
3.6'
0.6'
0.6'
0.6'

6' CHAIN LINK
FENCE (TYP)

CHILLER, SEE
MECHANICAL PLANS

INSTALL 6' WIDE DOUBLE
SWING MAINTENANCE GATE

GRANULAR
SURFACING (TYP)

SEE MECHANICAL PLANS
FOR APPROXIMATE PIPE
ROUTING TO BUILDING

SEED ALL DISTURBED
AREAS NOT TO BE
PAVED (TYP)

5.0'

5" PCC
SIDEWALK (TYP)

[DRONE LOCATE]

[DRONE LOCATE]

NORTH

0 5 10 20
SCALE IN FEET

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SITE PLAN

00-C102

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SITE PLAN

00-C103

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Plotted: 3/14/2025 3:14 PM

WOODWARD ACADEMY - BUILDING C

WOODWA
BUILDING

ELMCREST

CONCRETE

STAIRWELL TO DOORWAY 1.5 FROM BUILDING CORNER TO EDGE OF DOOR (BELOW GROUND)

DOORWAY AT GRADE 1.25 SOUTH OF BUILDING CORNER TO EDGE OF DOOR

STAIRWELL (BELOW GROUND)

SANITARY CLEANOUT
1060.39 RIM
1054.28 IE WEST
NO DIRECTION FOUND

SANITARY CLEANOUT
1060.48 RIM
1084.38 IE WEST
NO DIRECTION FOUND

LINE DRAWN TO DIRECTION NOT FIELD VERIFIED

GRADING LIMITS (TYP)

CONTRACTOR TO FIELD VERIFY ELEVATION OF EXISTING SIDEWALK PANEL PRIOR TO CONSTRUCTION

SHED / OUTBUILDING

GAZEBO (ON CONCRETE PAD)

SIDEWALK

[DRONE LOCATE]

NORTH

SCALE IN FEET

0 5 10 20

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GRADING PLAN

00-C202

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WOODWARD ACADEMY - BUILDING D

MEDICAL CENTER

CONCRETE

CONCRETE

CONCRETE

CONCRETE

CHILLER BUILDING

INTAKE FANS

CHAINLINK FENCE

(BELOW GROUND)

STAIRWELL TO DOORWAY (ABOVE AND BELOW GROUND)

LOADING RAMP

SHED / OUTBUILDING

STAIRWELL (BELOW GROUND)

STAIRWELL AND

RAMP AND DORRWAY (ABOVE GROUND)

ACCESS VAULT (STEEL)

ACCESS VAULT (STEEL)

DRONE LOCATE

DRONE LOCATE

MATCH EXISTING GRADES (TYP)

GRADING LIMITS (TYP)

1058.44

1058.37 ME

1057.78 ME

1058.57

1058.50 FG

1058.52

1058.40 FG

1058.10

1058.40 FG

1058.30 FG

1058.20 FG

1058.82 FG

1058.26 FG

1058.19 FG

1058.41 FG

1058.11 FG

1058.12 FG

1058.30 FG

1058.95 FG

1058.03 ME

1058.82

1058.88

1057.39 ME

1058.48 ME

1058.84 ME

1058.78 ME

3.73%

5.11%

6.32%

3.37%

5.05%

4.96%

2.50%

2.35%

NORTH

0 5 10 20

SCALE IN FEET

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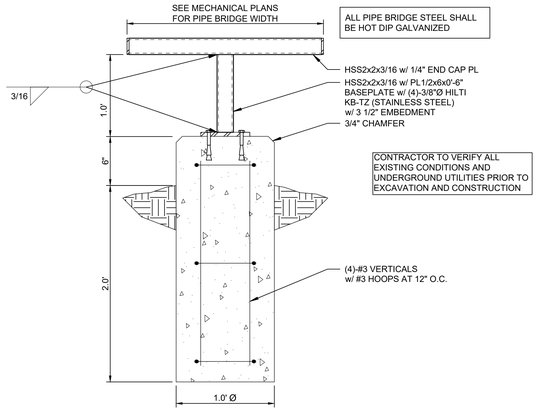
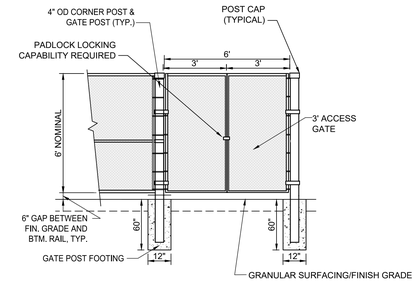
GRADING PLAN

00-C203

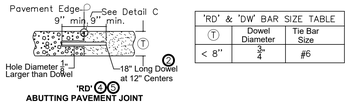
Plot date/time: 3/14/2025 8:34:38 AM
Plot by: JOSCO
File Name: C:\Projects\2024\2240007040\Deliverables\Drawings\C_Civil\C00 GRADING PLAN.dwg



B3 PIPE BRIDGE DETAILS
NOT TO SCALE

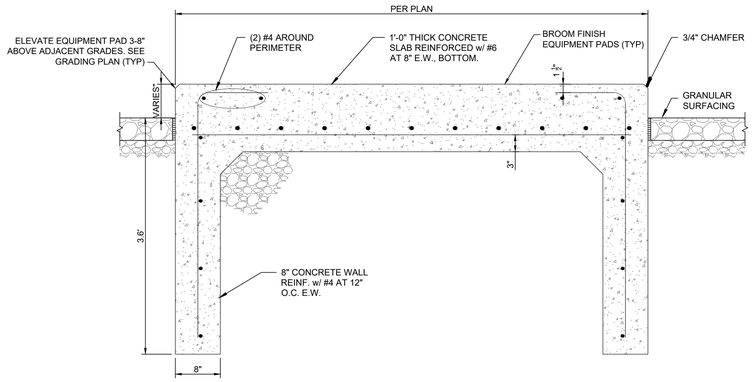


F3 6' WIDE DOUBLE SWING CHAIN LINK MAINTENANCE GATE
NOT TO SCALE

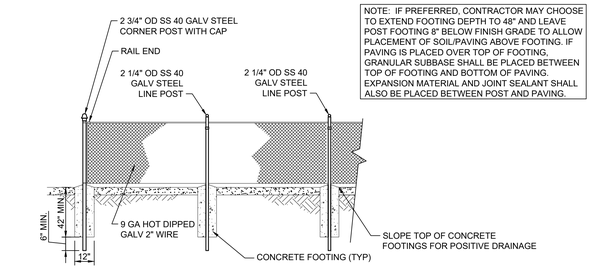


'RD' & 'DW' BAR SIZE TABLE		
T	Dowel Diameter	Tie Bar Size
< 8"	3/4"	#6

B4 JOINTING DETAILS
NOT TO SCALE

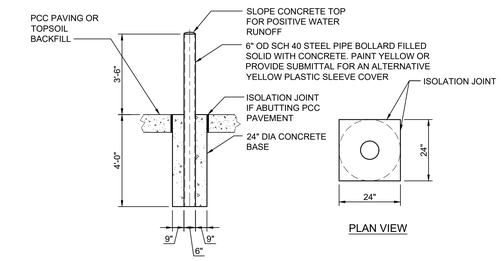


B6 PCC EQUIPMENT PAD
NTS

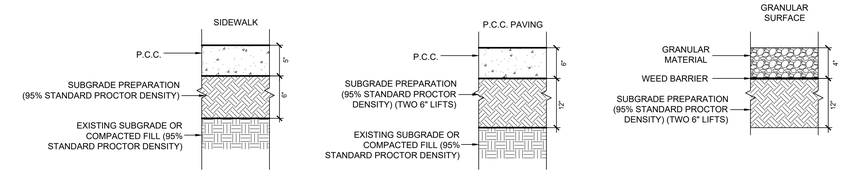


NOTE: IF PREFERRED, CONTRACTOR MAY CHOOSE TO EXTEND FOOTING DEPTH TO 48" AND LEAVE POST FOOTING 8" BELOW FINISH GRADE TO ALLOW PLACEMENT OF SOIL/PAVING ABOVE FOOTING. IF PAVING IS PLACED OVER TOP OF FOOTING, GRANULAR SUBBASE SHALL BE PLACED BETWEEN TOP OF FOOTING AND BOTTOM OF PAVING. EXPANSION MATERIAL AND JOINT SEALANT SHALL ALSO BE PLACED BETWEEN POST AND PAVING.

F4 TYPICAL 6' CHAIN LINK FENCE
NOT TO SCALE



F5 6" BOLLARD
NOT TO SCALE



F6 CROSS SECTIONS
NTS

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CONSTRUCTION DETAILS

00-C501

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CODE SUMMARY

Applicable Codes

2015 International Existing Building Code as adopted by Iowa Administrative Rule 661-301 and 661-350
2015 International Building Code as adopted by Iowa Administrative Rule 661-201 and 661-301
2015 International Fire Code as adopted by Iowa Administrative Rule 661-201
2012 International Energy Conservation Code as adopted by Iowa Administrative Rule 661-303
2012 NFPA 101 Life Safety Code as adopted by Iowa Administrative Rule 661-205
2010 Americans with Disabilities Act as adopted by Iowa Administrative Rule 661-302
Smoke Alarms/Detectors as adopted by Iowa Administrative Rule 661-210 (effective July 1, 2021)
Carbon Monoxide Alarms as adopted by Iowa Administrative Rule 661-211
State Mechanical Code as adopted by the Department of Public Health Iowa Administrative Rule 641-61
State Plumbing Code as adopted by the Department of Public Health Iowa Administrative Rule 641-25
State Electrical Code as adopted by the State Electrical Licensing Board Iowa Administrative Rule 661-504

Birches
Occupancy: F-1 (IBC as referenced from IEBC 302.5); use and occupancy will remain unchanged.

Per 504.1 of IEBC, project will be Level 2 alteration due to addition of Boiler room; work area is under 50%.

Birches is not sprinklered, so the new boiler room will be required to be fire rated per IBC Incidental Uses Table 509.

Elmcrest
Occupancy: B (IBC); Business (LSC)

Per previous reviews: According to CMS licensing, Elmcrest falls under ICF/MR. Although LSC Chapter 19 – Existing Health Care Occupancies includes Intermediate Care Facilities (ICF), section 19.1.1.1.9 states that "Facilities that do not provide housing on a 24-hour basis for their occupants shall be classified as other occupancies and shall be covered by other chapters of this Code." It is our understanding that Elmcrest does not provide sleeping accommodations for occupants, and therefore, it would be classified as an Existing Business Occupancy (Chapter 39 of LSC).
Per LSC 39.3.2.1 for existing Business occupancies: "Hazardous areas, including boiler or furnace rooms, shall be protected in accordance with Section 8.7."
LSC 8.7.1.1 "Protection from any area having a degree of hazard greater than that normal to the general occupancy of the building or structure shall be provided by one of the following: (1) Enclosing the area with a fire barrier without windows that has a 1-hour fire-resistance rating in accordance with Section 8.3 or (2) Protecting the area with automatic extinguishing systems in accordance with Section 9.7."

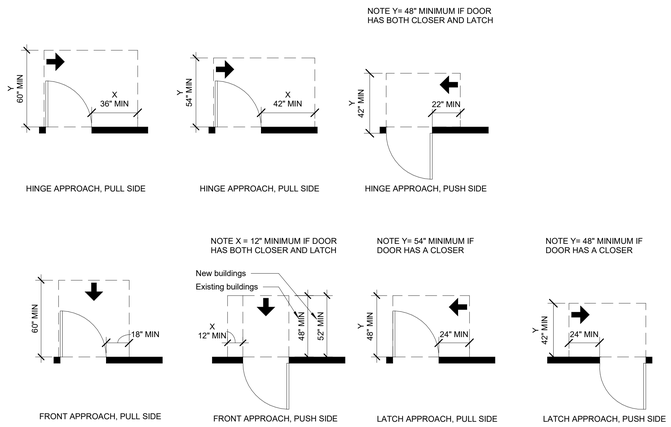
Elmcrest is sprinklered; however, a one-hour fire rating will be provided at the Chiller room due to ASHRAE 15 requirements regarding A2L refrigerant.

Med Center
Occupancy: I-2 (IBC); Healthcare (LSC)

Per previous reviews: According to CMS licensing, Med Center falls under ICF/MR. Per LSC section 19.1.1.1.5, "health care facilities regulated by this chapter shall be those that provide sleeping accommodations for their occupants." Because some occupants may need to stay overnight in Med Center, it would be classified as an Existing Health Care Occupancy (Chapter 19 of LSC).
Per LSC 19.3.2.1, "any hazardous areas shall be safe guarded by a fire barrier having a 1-hour fire resistance rating or shall be provided with an automatic extinguishing system in accordance with 8.7.1." However, per LSC 19.3.2.1.2: "where the sprinkler option is used, the areas shall be separated from other spaces by smoke partitions in accordance with Section 8.4."

Med Center is sprinklered; however, a one-hour fire rating will be provided at the Chiller room due to ASHRAE 15 requirements regarding A2L refrigerant.

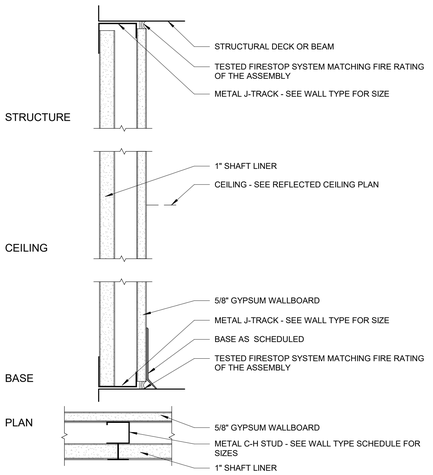
Dispatch
Occupancy: S-2 (IBC); Storage (LSC)



STANDARD ACCESSIBLE DOOR CLEARANCES - SWING DOORS

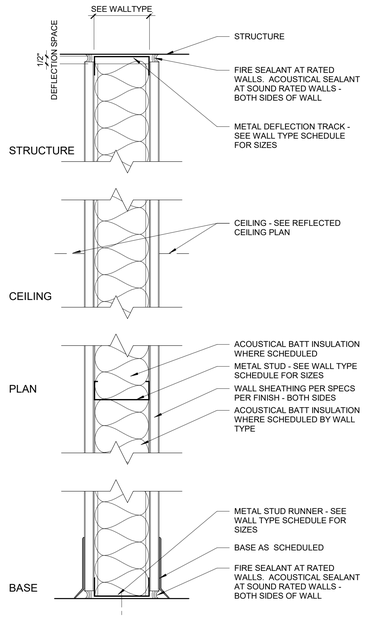
D2 1/4" = 1'-0" 0 6"

WALLTYPE CODES									
WALL CORE MATERIAL		MATERIAL WIDTH		WALL HEIGHT CODE		WALL MODIFIER CODE		WALL GYPSUM BOARD LAYERS	
CODE	MATERIAL	CODE	WIDTH	CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
S	METAL STUDS	0	7/8" FURRING CHANNEL	A	TO UNDERSIDE OF		(BLANK) NO MODIFIER		(BLANK) = NO GYP BD
		1	1 5/8" METAL STUD		STRUCTURAL DECK			1	(0) + (1)
		2	2 1/2" METAL STUD			A	SOUND ATTENUATION BATTS	2	(0) + (2)
		3	3 5/8" METAL STUD	B	TO 4" ABOVE CEILING			3	(0) + (3)
		4	4" METAL STUD					4	(0) + (4)
		6	6" METAL STUD	C	TO UNDERSIDE OF CEILING				
						F	FIRE RATED ASSEMBLY	11	(1) + (1) (WATER-RESISTANT)
H	SHAFT WALL CH STUDS	2	2 1/2" C-H METAL STUD						
		4	4" C-H METAL STUD					12	(1) + (2)
		6	6" C-H METAL STUD						
									H - SHAFT WALLS:
								S1	(SHAFT LINER) + (1) (WATER-RESISTANT)



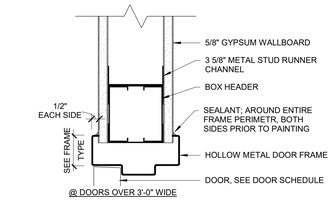
H2A-FS1 WALL TYPES					
TYPE	DESCRIPTION	WIDTH	ASSY	FIRE	STC
AWA - H2A-Fs1	2 1/2" C-H STUDS TO STRUCTURAL DECK OR BEAM ABOVE W/ 1" SHAFT LINER AND 5/8" GWB, FIRE RATED	3 1/8"	U415, System A	1 HR	39

A6 WALL TYPE H#A-Fs1 3" = 1'-0" 0 6"

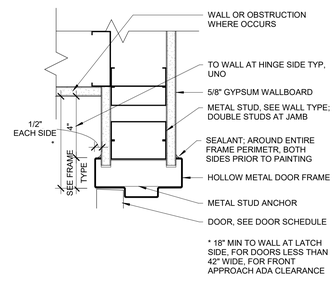


S3A-11 WALL TYPES					
TYPE	DESCRIPTION	WIDTH	ASSY	FIRE	STC
S3A-11	3 5/8" METAL STUD TO UNDERSIDE OF STRUCTURE W/ 1 LAYER 5/8" GYP BOTH SIDES	4 7/8"			
S3A-F11	3 5/8" METAL STUDS FIRE RATED TO UNDERSIDE OF STRUCTURE W/ 1 LAYER 5/8" GYP BOTH SIDES	4 7/8"	U415, System A	1 HR	

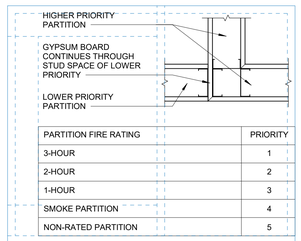
C6 WALLTYPE S3A-F11 3" = 1'-0" 0 6"



E4 HEAD - HM - METAL STUD 3" = 1'-0" 0 6"



E5 JAMB - HM - METAL STUD 3" = 1'-0" 0 6"



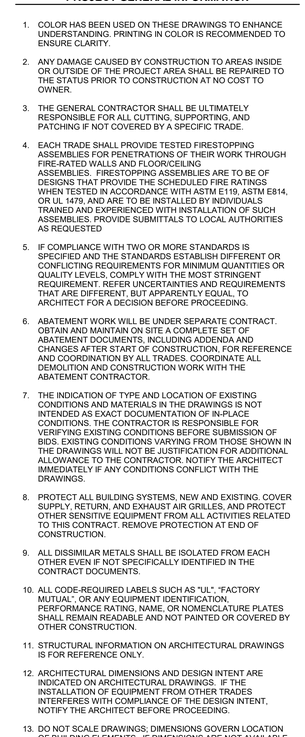
PARTITION FIRE RATING	PRIORITY
3-HOUR	1
2-HOUR	2
1-HOUR	3
SMOKE PARTITION	4
NON-RATED PARTITION	5

E6 PARTITION PRIORITY DIAGRAM 1 1/2" = 1'-0" 0 1'

PROJECT GENERAL INFORMATION

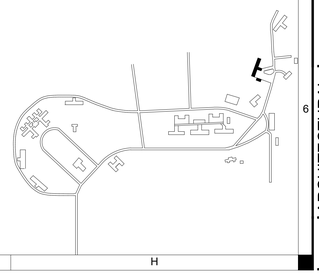
1. COLOR HAS BEEN USED ON THESE DRAWINGS TO ENHANCE UNDERSTANDING. PRINTING IN COLOR IS RECOMMENDED TO ENSURE CLARITY.
2. ANY DAMAGE CAUSED BY CONSTRUCTION TO AREAS INSIDE OR OUTSIDE OF THE PROJECT AREA SHALL BE REPAIRED TO THE STATUS PRIOR TO CONSTRUCTION AT NO COST TO OWNER.
3. THE GENERAL CONTRACTOR SHALL BE ULTIMATELY RESPONSIBLE FOR ALL CUTTING, SUPPORTING, AND PATCHING IF NOT COVERED BY A SPECIFIC TRADE.
4. EACH TRADE SHALL PROVIDE TESTED FIRESTOPPING ASSEMBLIES FOR PENETRATIONS OF THEIR WORK THROUGH FIRE-RATED WALLS AND FLOOR/CEILING ASSEMBLIES. FIRESTOPPING ASSEMBLIES ARE TO BE OF DESIGNS THAT PROVIDE THE SCHEDULED FIRE RATINGS WHEN TESTED IN ACCORDANCE WITH ASTM E119, ASTM E814, OR UL 1479, AND ARE TO BE INSTALLED BY INDIVIDUALS TRAINED AND EXPERIENCED WITH INSTALLATION OF SUCH ASSEMBLIES. PROVIDE SUBMITTALS TO LOCAL AUTHORITIES AS REQUESTED
5. IF COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED AND THE STANDARDS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, COMPLY WITH THE MOST STRINGENT REQUIREMENT. REFER UNCERTAINTIES AND REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, TO ARCHITECT FOR A DECISION BEFORE PROCEEDING.
6. ABATEMENT WORK WILL BE UNDER SEPARATE CONTRACT. OBTAIN AND MAINTAIN ON SITE A COMPLETE SET OF ABATEMENT DOCUMENTS, INCLUDING ADDENDA AND CHANGES AFTER START OF CONSTRUCTION, FOR REFERENCE AND COORDINATION BY ALL TRADES. COORDINATE ALL DEMOLITION AND CONSTRUCTION WORK WITH THE ABATEMENT CONTRACTOR.
7. THE INDICATION OF TYPE AND LOCATION OF EXISTING CONDITIONS AND MATERIALS IN THE DRAWINGS IS NOT INTENDED AS EXACT DOCUMENTATION OF IN-PLACE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS BEFORE SUBMISSION OF BIDS. EXISTING CONDITIONS VARYING FROM THOSE SHOWN IN THE DRAWINGS WILL NOT BE JUSTIFICATION FOR ADDITIONAL ALLOWANCE TO THE CONTRACTOR. NOTIFY THE ARCHITECT IMMEDIATELY IF ANY CONDITIONS CONFLICT WITH THE DRAWINGS.
8. PROTECT ALL BUILDING SYSTEMS, NEW AND EXISTING. COVER SUPPLY, RETURN, AND EXHAUST AIR GRILLES, AND PROTECT OTHER SENSITIVE EQUIPMENT FROM ALL ACTIVITIES RELATED TO THIS CONTRACT. REMOVE PROTECTION AT END OF CONSTRUCTION.
9. ALL DISSIMILAR METALS SHALL BE ISOLATED FROM EACH OTHER EVEN IF NOT SPECIFICALLY IDENTIFIED IN THE CONTRACT DOCUMENTS.
10. ALL CODE-REQUIRED LABELS SUCH AS "UL", "FACTORY MUTUAL", OR ANY EQUIPMENT IDENTIFICATION, PERFORMANCE RATING, NAME, OR NOMENCLATURE PLATES SHALL REMAIN READABLE AND NOT PAINTED OR COVERED BY OTHER CONSTRUCTION.
11. STRUCTURAL INFORMATION ON ARCHITECTURAL DRAWINGS IS FOR REFERENCE ONLY.
12. ARCHITECTURAL DIMENSIONS AND DESIGN INTENT ARE INDICATED ON ARCHITECTURAL DRAWINGS. IF THE INSTALLATION OF EQUIPMENT FROM OTHER TRADES INTERFERES WITH COMPLIANCE OF THE DESIGN INTENT, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
13. DO NOT SCALE DRAWINGS; DIMENSIONS GOVERN LOCATION OF BUILDING ELEMENTS. IF DIMENSIONS ARE NOT AVAILABLE, CONTACT THE ARCHITECT.
14. WHEN DIMENSIONS ON SMALL SCALE DRAWINGS CONFLICT WITH THOSE ON LARGE SCALE DRAWINGS, THE LARGE SCALE DRAWINGS GOVERN.

GENERAL SYMBOLS LEGEND



ABBREVIATIONS

SYMBOLS	
&	AND
#	NUMBER or POUND
A	
A/E	ARCHITECT / ENGINEER
ACP	ACOUSTICAL CEILING PANEL
ADA	AMERICANS WITH DISABILITIES ACT
ADD	ADDENDUM
ADMIN	ADMINISTRATION
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AL or ALUM	ALUMINUM
APPROX	APPROXIMATE (LY)
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AUTO	AUTOMATIC (DOOR OPERATOR)
AVG	AVERAGE
B	
B/O	BOTTOM OF
BLDG	BUILDING
C	
CG	CORNER GUARD
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CL	CENTER LINE
CLR	CLEAR (ANCE)
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
D	
DBL	DOUBLE
DEMO	DEMOLITION/ DEMOLISH
DEPT	DEPARTMENT
DN	DOWN
DTL	DETAIL
DWG	DRAWING
DWGS	DRAWINGS
E	
EA	EACH
EJ	EXPANSION JOINT
ELEC	ELECTRIC / ELECTRICAL
ELEV	ELEVATION
ENGR	ENGINEER
EP	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
F	
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FFE	FINISH (ED) FLOOR ELEVATION
FT	FOOT (FEET)
FTG	FOOTING
G	
GA	GAGE or GAUGE
GC	GENERAL CONTRACTOR
GWB	GYPSUM WALLBOARD
H	
HDWD	HARDWOOD
HDWR	HARDWARE
HM	HOLLOW METAL
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
I	
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
IN	INCHES
INFO	INFORMATION
J	
JAN	JANITOR
JC	JANITOR'S CLOSET
L	
LAV	LAVATORY
LF	LINEAR FOOT
M	
MAINT	MAINTENANCE
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFRG	MANUFACTURING
MFR	MANUFACTURER
MIN	MINIMUM or MINUTE
MISC	MISCELLANEOUS
N	
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
O	
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OHD	OVERHEAD DOOR
P	
P	PAINT
PLWD	PLYWOOD
PR	PAIR
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PREP	PREPARE (ATION)
R	
R	RAD or RADIUS
RCP	REFLECTED CEILING PLAN
RM	ROOM
RO	ROUGH OPENING
S	
SCHED	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SH	SHIVE-HATTERY
SOG	SLAB ON GRADE
SPEC(S)	SPECIFICATION(S)
STC	SOUND TRANSMITTANCE CLASS
STD	STANDARD
STL	STEEL
STRUC	STRUCTURE (AL)
SYM	SYMMETRICAL
T	
TEMP	TEMPORARY
THRU	THROUGH
TYP	TYPICAL
U	
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	
W	WIDTH
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET or WALL COVERING



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

Iowa Department of Administrative Services
1251 334th Street, Woodward, IA 50276

DRAWN BY	LDF
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

ARCHITECTURAL GENERAL INFORMATION

00-A001

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Autodesk Revit 2022

MECHANICAL SYMBOLS LIST

- 8" CHWS — PIPE SIZE, SYSTEM, AND FLOW TAG (DIAMETER)
- CHWS — EXISTING TO REMAIN
- CHWS — TO BE DEMOLISHED
- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- LPC — LOW PRESSURE CONDENSATE
- LPS — LOW PRESSURE STEAM
- PD — PUMP DISCHARGE
- RHG — REFRIGERANT-HOT GAS
- RL — REFRIGERANT-LIQUID
- RS — REFRIGERANT-SUCTION
- BALANCING VALVE
- BALL VALVE
- CHECK VALVE
- THREE WAY VALVE
- MOTORIZED CONTROL VALVE
- THREE WAY MOTORIZED CONTROL VALVE
- PRESSURE REDUCING VALVE
- SOLENOID VALVE
- BUTTERFLY VALVE
- ELBOW UP
- ELBOW DOWN
- PIPE OFFSET UP
- PIPE OFFSET DOWN
- PIPE TEE TURNED UP
- PIPE TEE TURNED DOWN
- PIPE TEE
- PIPE CAP
- PIPE UNION
- PIPE TRANSITION

- 12x12 — DUCT SIZE TAG (SQ. OR RECT.)
- 12ø — DUCT SIZE TAG (ROUND)
- EXISTING TO REMAIN
- TO BE DEMOLISHED
- SUPPLY DUCT (SA)
- RETURN DUCT (RA)
- EXHAUST DUCT (EA)
- 12x12 SA UP — SQ. OR RECT. ELBOW TURNED UP W/ TAG
- 12x12 SA DN — SQ. OR RECT. ELBOW TURNED DOWN W/ TAG
- 12ø SA UP — ROUND ELBOW TURNED UP W/ TAG
- 12ø SA DN — ROUND ELBOW TURNED DOWN
- FLEXIBLE DUCT
- 45° TAP BRANCH TAKE-OFF
- CONICAL TAP ROUND BRANCH TAKE-OFF
- CONICAL TAP ROUND BRANCH TAKE-OFF W/ MANUAL VOLUME DAMPER
- DOUBLE SIDED TRANSITION
- SINGLE SIDED TRANSITION
- SQ. OR RECT. ELBOW WITH TURNING VANES (45° AND 90°)
- SQ. OR RECT. TEE WITH TURNING VANES
- RADIUS ELBOW (45° AND 90°)
- MANUAL VOLUME DAMPER
- F — FIRE DAMPER
- S — SMOKE DAMPER
- FS — FIRE/SMOKE DAMPER
- M — MOTORIZED DAMPER
- DUCT SMOKE DETECTOR

CD-1 / 8ø / 200
- TYPE - SEE BELOW
- ID. NO. - SEE SCHEDULE
- NECK SIZE IN INCHES (ROUND SHOWN)
- AIR FLOW (CFM)

DIFFUSER, GRILLE, REGISTER NOTATIONS

CD = CEILING DIFFUSER RR = RETURN REGISTER
EG = EXHAUST DIFFUSER SG = SUPPLY GRILLE
ER = EXHAUST REGISTER SR = SUPPLY REGISTER
LD = LINEAR DIFFUSER TG = TRANSFER GRILLE
RG = RETURN GRILLE

- KEYNOTE
- CAP EXISTING PIPE OR DUCT
- NEW CONNECTION INTO EXISTING PIPE OR DUCT
- AIR FLOW ARROW POSITIVE PRESSURE
- AIR FLOW ARROW NEGATIVE PRESSURE
- CO_2 — CARBON DIOXIDE SENSOR
- CO — CARBON MONOXIDE SENSOR
- P — PRESSURE SENSOR
- TS — TEMPERATURE SENSOR
- T — THERMOSTAT
- H — HUMIDISTAT OR HUMIDITY SENSOR
- T — TRAP
- THERMOMETER
- PRESSURE GAUGE
- A — ANCHOR
- G — GUIDE
- S — SUPPORT
- DETAIL NUMBER
- SHEET NUMBER ON WHICH THE DETAIL RESIDES

PLUMBING SYMBOLS LIST

- 2" CW — PIPE SIZE AND SYSTEM TAG (DIAMETER)
- 1/4" / 12" — PIPE SLOPE TAG
- I.E. 100'-0 27/64" — PIPE INVERT ELEVATION TAG
- SAN — EXISTING TO REMAIN
- SAN — TO BE DEMOLISHED
- FPD — FIRE PROTECTION DRY
- FPO — FIRE PROTECTION OTHER
- FPPA — FIRE PROTECTION PRE-ACTION
- FPW — FIRE PROTECTION WET
- NG — NATURAL GAS
- SAN — SANITARY SEWER
- V — SANITARY VENT

- 6" CW UP — ELBOW UP
- 6" HW DN — ELBOW DOWN
- PIPE OFFSET UP
- PIPE OFFSET DOWN
- PIPE TEE TURNED UP
- PIPE TEE TURNED DOWN
- PIPE TEE
- PIPE CAP
- PIPE UNION
- PIPE TRANSITION
- KEYNOTE
- CAP EXISTING PIPE
- NEW CONNECTION INTO EXISTING PIPE
- THERMOMETER
- PRESSURE GAUGE
- A — ANCHOR
- G — GUIDE
- S — SUPPORT
- DETAIL NUMBER
- SHEET NUMBER ON WHICH THE DETAIL RESIDES

PLUMBING

1. UNLESS NOTED OTHERWISE: LIGHT LINES DENOTE EXISTING PIPING, OR EQUIPMENT WHICH IS TO REMAIN. BOLD LINES INDICATE NEW WORK TO BE INSTALLED UNDER THIS CONTRACT.
2. PLUMBING SHOWN IS IN SCHEMATIC FORM. NOT ALL RISERS AND DROPS ARE SHOWN. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCE WITH OTHER TRADES. THE CONTRACTOR SHALL PROVIDE COMPLETE FULLY FUNCTIONAL SYSTEMS.
3. PROVIDE ACCESSIBLE ISOLATION VALVES AT ALL BRANCH CONNECTIONS TO MAINS AND PIPING FIXTURE GROUPS. COORDINATE VALVE LOCATIONS WITH ACCESSIBLE CEILINGS.
4. REFER TO PLUMBING FIXTURE ROUGH-IN SCHEDULE FOR CONNECTION SIZES AT INDIVIDUAL FIXTURES.
5. PROVIDE WATER HAMMER ARRESTORS FOR EACH NEW PLUMBING FIXTURE OR GROUP OF FIXTURES. SIZE AND LOCATION REQUIREMENTS SHALL BE AS PER PDI STANDARD PDI-WH-201.
6. ALL EQUIPMENT AND ACCESSORIES SHALL BE INSTALLED TO BE EASILY ACCESSIBLE.
7. PLUMBING WORK SHALL BE COORDINATED WITH OTHER TRADES, INCLUDING BUT NOT LIMITED TO DUCTWORK, ELECTRICAL EQUIPMENT, PIPING AND FIRE PROTECTION. SPACE ABOVE CEILING IS LIMITED AND SHALL BE COORDINATED WITH OTHER TRADES.
8. ALL WORK WITHIN THE CONTRACT DOCUMENTS, WHICH INCLUDE THIS DRAWING, SHALL BE COMPLETED IN A SAFE WORKMANLIKE MANNER AND IN ACCORDANCE WITH ALL APPLICABLE STATE, LOCAL AND NATIONAL CODES, REGULATIONS AND ORDINANCES. IF ANY CONFLICTS ARISE BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE CODES, REGULATIONS OR ORDINANCE, THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL WORK CONFORM TO THE STRICTER OF SAID REQUIREMENTS.
9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS AS REQUIRED FOR ELECTRICAL, FIRE PROTECTION, PLUMBING, MECHANICAL AND BACKFLOW PREVENTION INSTALLATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE BOTH A COMPLETE AND COMPLIANT INSTALLATION AS MAY BE DETERMINED BY THE AUTHORITY(S) HAVING JURISDICTION.
10. CONTRACTOR SHALL NOT PROCURE OR FABRICATE ANY PIPING, DUCTWORK OR OTHER EQUIPMENT WITHOUT FIRST VERIFYING ALL DIMENSIONS AND CONDITIONS WHETHER CURRENTLY EXISTING OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, INCLUDING ANY REQUIRED REWORK.
11. MAINTAIN ALL MANUFACTURER RECOMMENDED EQUIPMENT SERVICE AND SAFETY CLEARANCES. DO NOT LOCATE ANY EQUIPMENT OR RUN MATERIALS ABOVE ANY ELECTRICAL PANELS OR SWITCHGEAR. MAINTAIN ALL NFPA/NEC CODE REQUIRED CLEARANCES.
12. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING, SCHEDULING AND SEQUENCING OF THEIR WORK WITH ALL OTHER TRADES. PROVIDE OFFSETS, EASEMENTS, OR RELOCATE TO AVOID CONFLICTS WITH WORK OF OTHER TRADES. FURNISH SUFFICIENT RESOURCES TO MEET ALL PROJECT MILESTONES AND DEADLINES.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE WATERTIGHT AND WEATHER-PROOF INTEGRITY OF ROOFS, WALLS AND FLOORS DURING CONSTRUCTION. EACH TRADE SHALL LOCATE/DIMENSION/COORDINATE THEIR ROOF, FLOOR AND WALL OPENINGS WITH THE GENERAL CONTRACTOR (GC) OR CONSTRUCTION MANAGER.
14. PROTECT NEW WORK FROM DAMAGE OR DECONTAMINATION. PROVIDE TEMPORARY PROTECTIVE CAPPING OR TAPED POLYETHYLENE ENCLOSURES OVER OPEN DUCTWORK AND PIPING ENDS AND EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING MECHANICAL SYSTEMS PRIOR TO PLACING THEM IN SERVICE.
15. IN A NEAT AND WORKMANLIKE MANNER: PATCH ANY REMAINING OPENINGS AND FILL EXCESSIVE GAPS; REWORK AND REFINISH TO MATCH ADJACENT STRUCTURES; FLASH AND SEAL ALL MECHANICAL AND ELECTRICAL PENETRATIONS THRU WALLS, CEILINGS AND FLOORS WITH METAL FRAMEWORK OR ESCUTCHEONS. ALL OPENINGS SHALL BE PROPERLY SEALED SO AS TO MEET FIRE RATING NEEDS.

GENERAL MECHANICAL ABBREVIATIONS

SYMBOLS

&	AND
@	AT
#	NUMBER or POUND

A

A/E	ARCHITECT/ENGINEER
AC	AIR CONDITIONER(ING)
ACH	AIR CHANGES PER HOUR
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
ADJ	ADJUSTABLE/ADJACENT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMB	AMBIENT
AP	ACCESS PANEL
APPROX	APPROXIMATE(LY)
ASD	ADJUSTABLE SPEED DRIVE
AS	AIR SEPARATOR
ASSY	ASSEMBLY
ATM	ATMOSPHERE
AUX	AUXILIARY
AV	AIR VENT
AVG	AVERAGE

B

BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR

C

CAL	CALIBRATE
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CCR	CONCENTRIC REDUCER
CCW	COUNTER CLOCKWISE
CFM	CUBIC FEET PER MINUTE
CFH	CUBIC FEET PER HOUR
CH	CHILLER
CHP	CHILLED WATER PUMP
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CIRC	CIRCULATING
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR(ANCE)
CLW	CLOCKWISE
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COND	CONDENSATE
CONSTR	CONSTRUCTION
CONT	CONTINUATION
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CP	CONDENSATE PUMP
CT	COOLING TOWER
CTRL	CONTROL
CU	COPPER
CU FT	CUBIC FEET
CU IN	CUBIC INCH
CUH	CABINET UNIT HEATER
CWP	CONDENSER WATER PUMP

D

°/DEG	DEGREE
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROLS
DEMO	DEMOLITION
DIA	DIAMETER
DIAG	DIAGRAM
DIFF	DIFFUSER
DMPR	DAMPER
DN	DOWN
DWG	DRAWING

E

EA	EXHAUST AIR OR EACH
EAT	ENTERING AIR TEMPERATURE
ECCR	ECCENTRIC REDUCER
ECON	ECONOMIZER
ECU	EVAPORATIVE COOLING UNIT
EDB	ENTERING DRY BULB (TEMP)
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN / ENERGY FACTOR
EG	EXHAUST GRILLE
ELEV	ELEVATION
ELEC	ELECTRICAL
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING

F

FD	FIRE DAMPER
FEA	FLUE EXHAUST AIR
FOB	DUCT FLAT ON BOTTOM
FOT	DUCT FLAT ON TOP
FPT	FEMALE PIPE THREAD
FS	FLOW SWITCH
FSD	FIRE/SMOKE DAMPER
FT	FINNED TUBE RADIATION
FTHD	FOOT HEAD OR PRESSURE DROP

G

GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE

H

H	HUMIDISTAT
HORIZ	HORIZONTAL
HP	HORSEPOWER
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HX	HEAT EXCHANGER
HZ	HERTZ (FREQUENCY)

I

ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
IN WC	INCHES (WATER COLUMN)
INS	INSULATION
INSTR	INSTRUMENT
ISO	ISOMETRIC

K

KW	KILOWATT
KWH	KILOWATT HOUR

L

LAT	LEAVING AIR TEMPERATURE
LB(S)	POUND(S)
LDB	LEAVING DRY BULB (TEMP)
LWB	LEAVING WET BULB (TEMP)
LWT	LEAVING WATER TEMPERATURE

M

MAINT	MAINTENANCE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	BRITISH THERMAL UNIT (1000/HR)
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM OR MINUTE
MISC	MISCELLANEOUS
MOD	MOTOR OPERATED DAMPER
MOV	MOTOR OPERATED VALVE
MPT	MALE PIPE THREAD

N

NA	NOT APPLICABLE
NC	NORMALLY CLOSED OR NOISE CRITERIA
NO	NORMALLY OPEN
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE

O

OA	OUTDOOR AIR
OAD	OUTDOOR AIR DAMPER
OD	OUTER DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED

P

PG	PRESSURE GAUGE
PH	PHASE
PRV	PRESSURE RELIEF VALVE OR PRESSURE REGULATING VALVE
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PUH	PROPELLER UNIT HEATER

R

RA	RETURN AIR
REFR	REFRIGERATION
REQD	REQUIRED
RG	RETURN AIR GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE
RTU	ROOFTOP UNIT

S

SA	SUPPLY AIR
SCH	SCHEDULE
SCHM	SCHEMATIC
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY FAN OR SQUARE FEET
SHT	SHEET
SP	STATIC PRESSURE
SPEC	SPECIFICATION(S)
SQ IN	SQUARE INCH
SS	STAINLESS STEEL
STBY	STANDBY
STD	STANDARD
STL	STEEL
SUCT	SUCTION
SV	SAFETY VALVE
SYS	SYSTEM
SRV	SAFETY RELIEF VALVE

T

T	THERMOSTAT
TAB	TERMINAL AIR BOX
TEMP	TEMPERATURE OR TEMPORARY
THRU	THROUGH
TOD	TOP OF DUCT
TOP	TOP OF PIPE
TP	TOTAL PRESSURE
TYP	TYPICAL

U

UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY

V

VAV	VARIABLE AIR VOLUME
VBX	VALVE BOX
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE

W

W/	WITH
W/O	WITHOUT
WB	WET BULB
WPD	WATER PRESSURE DROP
WT	WEIGHT
WTR	WATER

MECHANICAL DUCTWORK

1. LIGHT LINES INDICATE EXISTING PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN. BOLD LINES INDICATE PIPING, DUCTWORK, EQUIPMENT, ETC. TO BE INSTALLED BY THIS CONTRACTOR UNLESS NOTED OTHERWISE.
2. NEW WORK HAS BEEN SHOWN DIAGRAMATICALLY AND DUE TO THE LIMITED SCALE OF THESE DRAWINGS, THE PLACEMENT AND ROUTING OF ALL DUCTWORK, PIPING, ETC. IS CONSIDERED SCHEMATIC IN NATURE; THEREFORE THE DRAWINGS MAY NOT SHOW ALL OFFSETS AND TRANSITIONS WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL PROVIDE COMPLETE FULLY FUNCTIONAL SYSTEMS.
3. COORDINATE ROUGH-IN AND FINAL LOCATION OF DUCTWORK AND PIPING WITH LIGHTING, STRUCTURE, SPRINKLERS, ETC. PROVIDE OFFSETS AND/OR EASEMENTS, OR RELOCATE AS REQUIRED AVOIDING CONFLICTS WITH WORK OF OTHER TRADES.
4. INSTALL MANUAL VOLUME DAMPERS IN ALL SUPPLY, RETURN AND EXHAUST DUCT SYSTEMS AS REQUIRED FOR CONTROLLING AIR VOLUMES TO TRUNK DUCTS, BRANCH DUCTS, OUTLETS, AND INLETS. CONTRACTOR SHALL INSTALL A COMPLETE SYSTEM OF DAMPERS AS REQUIRED FOR BALANCING AIR SYSTEMS.
5. PLACE DIFFUSERS AS CLOSE TO PLAN LOCATION AS POSSIBLE WITHOUT INTERFERING WITH LIGHT GRID.
6. ALL EXPOSED DUCTWORK SHALL BE DOUBLE WALL INSULATED DUCT AND PAINTED. CONFIRM COLOR PRIOR TO PAINTING.
7. THERMOSTATS SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR. COORDINATE LOCATION WITH OTHER WALL MOUNTED DEVICES.
8. PROVIDE CONCEALING FLANGES AT ALL VISIBLE DUCT PENETRATIONS THROUGH WALLS.
9. ENSURE ALL MANUFACTURER RECOMMENDED CLEARANCES ARE MET FOR ALL EQUIPMENT.
10. PROVIDE REQUIRED NEC CLEARANCE FOR ALL CONTROL PANELS INCLUDING VAV BOX CONTROL BOXES LOCATED ABOVE CEILINGS.
11. DO NOT ROUTE ANY COMPONENTS ABOVE ELECTRICAL EQUIPMENT. MAINTAIN ALL CODE REQUIRED CLEARANCES.
12. ALL FLOOR MOUNTED MECHANICAL EQUIPMENT SHALL BE MOUNTED ON MINIMUM 4" CONCRETE HOUSEKEEPING PADS.
13. PREP ALL EXPOSED METAL DUCTWORK TO RECEIVE PAINT.
14. ALL WORK WITHIN THE CONTRACT DOCUMENTS, WHICH INCLUDE THIS DRAWING, SHALL BE COMPLETED IN A SAFE WORKMANLIKE MANNER AND IN ACCORDANCE WITH ALL APPLICABLE STATE, LOCAL AND NATIONAL CODES, REGULATIONS AND ORDINANCES. IF ANY CONFLICTS ARISE BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE CODES, REGULATIONS OR ORDINANCE, THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL WORK CONFORM TO THE STRICTER OF SAID REQUIREMENTS.
15. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS AS REQUIRED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE BOTH A COMPLETE AND COMPLIANT INSTALLATION AS MAY BE DETERMINED BY THE AUTHORITY(S) HAVING JURISDICTION.
16. CONTRACTOR SHALL NOT PROCURE OR FABRICATE ANY PIPING, DUCTWORK OR OTHER EQUIPMENT WITHOUT FIRST VERIFYING ALL DIMENSIONS AND CONDITIONS WHETHER CURRENTLY EXISTING OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, INCLUDING ANY REQUIRED REWORK.
17. MAINTAIN ALL MANUFACTURER RECOMMENDED EQUIPMENT SERVICE AND SAFETY CLEARANCES. DO NOT LOCATE ANY EQUIPMENT OR RUN MATERIALS ABOVE ANY ELECTRICAL PANELS OR SWITCHGEAR. MAINTAIN ALL NFPA/NEC CODE REQUIRED CLEARANCES.
18. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING, SCHEDULING AND SEQUENCING OF THEIR WORK WITH ALL OTHER TRADES. PROVIDE OFFSETS, EASEMENTS, OR RELOCATE TO AVOID CONFLICTS WITH WORK OF OTHER TRADES. FURNISH SUFFICIENT RESOURCES TO MEET ALL PROJECT MILESTONES AND DEADLINES.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE WATERTIGHT AND WEATHER-PROOF INTEGRITY OF ROOFS, WALLS AND FLOORS DURING CONSTRUCTION. EACH TRADE SHALL LOCATE/DIMENSION/COORDINATE THEIR ROOF, FLOOR AND WALL OPENINGS WITH THE CONSTRUCTION MANAGER.
20. PROTECT NEW WORK FROM DAMAGE OR CONTAMINATION. PROVIDE TEMPORARY PROTECTIVE CAPPING OR TAPED POLYETHYLENE ENCLOSURES OVER OPEN DUCTWORK AND PIPING ENDS AND EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING MECHANICAL SYSTEMS PRIOR TO PLACING THEM IN SERVICE.
21. IN A NEAT AND WORKMANLIKE MANNER: PATCH ANY REMAINING OPENINGS AND FILL EXCESSIVE GAPS; REWORK AND REFINISH TO MATCH ADJACENT STRUCTURES; FLASH AND SEAL ALL MECHANICAL AND ELECTRICAL PENETRATIONS THRU WALLS, CEILINGS AND FLOORS WITH METAL FRAMEWORK OR ESCUTCHEONS. ALL OPENINGS SHALL BE PROPERLY SEALED SO AS TO MEET FIRE RATING NEEDS.
22. ALL BRANCH DUCTWORK SHALL BE EQUIPMENT CONNECTION SIZE UNLESS OTHERWISE NOTED.
23. PROVIDE ACCESS PANELS IN HARD LID CEILINGS TO ALLOW ACCESS FOR ALL DUCT MOUNTED EQUIPMENT (VOLUME DAMPERS, FIRE DAMPERS, FIRE/SMOKE DAMPERS, ETC.) COORDINATE LOCATION WITH CEILING PLAN AND ARCHITECTURAL REQUIREMENTS.
24. ALL PIPING, EQUIPMENT AND DUCTWORK SUSPENDED BELOW THE ROOF SHALL BE SUSPENDED FROM THE STRUCTURE AND NOT THE ROOF DECK.

MECHANICAL PIPING

1. PIPING IS SHOWN IN SCHEMATIC FORM, ROUTE AS REQUIRED FOR CLEARANCE. VERIFY ROUTING AND CLEARANCES AND COORDINATE WITH OTHER TRADES PRIOR TO FABRICATION. THE CONTRACTOR SHALL PROVIDE COMPLETE FULLY FUNCTIONAL SYSTEMS.
2. BREAK CONNECTIONS REQUIRED AT ALL MAJOR EQUIPMENT AND PIPING ITEMS THAT REQUIRE REMOVAL FOR MAINTENANCE.
3. PIPE REDUCTIONS ON HORIZONTAL PIPING GOING FROM LARGER TO SMALLER SHALL BE MADE WITH ECCENTRIC REDUCERS: TOP FLAT FOR LIQUID SYSTEMS, CONCENTRIC REDUCERS MAY BE USED FOR FLOW GOING FROM SMALL TO LARGER SIZE PIPE.
4. FIRE SAFE ALL PIPE PENETRATIONS PER UL AT RATED WALLS.
5. NEW FLOOR/WALL/CEILING PENETRATIONS REQUIRED FOR MECHANICAL PIPING INSTALLATION SHALL BE CLEANLY BORED AT RIGHT ANGLES. AS NEW PIPING IS INSTALLED, NEW PIPING PENETRATIONS SHALL BE NEATLY CAULKED TO FILL VOID. WALL PENETRATIONS SHALL BE FINISHED WITH ESCUTCHEONS.
6. ALL NEW PIPING EXPOSED IN OCCUPIED SPACES SHALL HAVE PVC JACKETS INSTALLED OVER THE PIPING INSULATION. ANY PIPING REQUIRED TO BE EXPOSED SHALL BE INSTALLED VERTICALLY OR HORIZONTALLY IN LEAST VISIBLE LOCATION.
7. ALL NEW EQUIPMENT AND ACCESSORIES SHALL BE INSTALLED SO AS TO BE EASILY ACCESSIBLE.
8. CONTRACTOR SHALL PATCH/REPAIR ALL UNUSED OPENINGS AND MODIFIED FINISH SURFACES. PATCHING SHALL MATCH MATERIALS, FINISH AND TEXTURE OF ADJACENT SURFACES.
9. ALL WORK WITHIN THE CONTRACT DOCUMENTS, WHICH INCLUDE THIS DRAWING, SHALL BE COMPLETED IN A SAFE WORKMANLIKE MANNER AND IN ACCORDANCE WITH ALL APPLICABLE STATE, LOCAL AND NATIONAL CODES, REGULATIONS AND ORDINANCES. IF ANY CONFLICTS ARISE BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE CODES, REGULATIONS OR ORDINANCE, THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL WORK CONFORM TO THE STRICTER OF SAID REQUIREMENTS.
10. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS AS REQUIRED FOR ELECTRICAL, FIRE PROTECTION, PLUMBING, MECHANICAL AND BACKFLOW PREVENTION INSTALLATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE BOTH A COMPLETE AND COMPLIANT INSTALLATION AS MAY BE DETERMINED BY THE AUTHORITY(S) HAVING JURISDICTION.
11. CONTRACTOR SHALL NOT PROCURE OR FABRICATE ANY PIPING, DUCTWORK OR OTHER EQUIPMENT WITHOUT FIRST VERIFYING ALL DIMENSIONS AND CONDITIONS WHETHER CURRENTLY EXISTING OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, INCLUDING ANY REQUIRED REWORK.
12. MAINTAIN ALL MANUFACTURER RECOMMENDED EQUIPMENT SERVICE AND SAFETY CLEARANCES. DO NOT LOCATE ANY EQUIPMENT OR RUN MATERIALS ABOVE ANY ELECTRICAL PANELS OR SWITCHGEAR. MAINTAIN ALL NFPA/NEC CODE REQUIRED CLEARANCES.
13. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING, SCHEDULING AND SEQUENCING OF THEIR WORK WITH ALL OTHER TRADES. PROVIDE OFFSETS, EASEMENTS, OR RELOCATE TO AVOID CONFLICTS WITH WORK OF OTHER TRADES. FURNISH SUFFICIENT RESOURCES TO MEET ALL PROJECT MILESTONES AND DEADLINES.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE WATERTIGHT AND WEATHER-PROOF INTEGRITY OF ROOFS, WALLS AND FLOORS DURING CONSTRUCTION. EACH TRADE SHALL LOCATE/DIMENSION/COORDINATE THEIR ROOF, FLOOR AND WALL OPENINGS WITH THE GENERAL CONTRACTOR (GC) OR CONSTRUCTION MANAGER.
15. PROTECT NEW WORK FROM DAMAGE OR CONTAMINATION. PROVIDE TEMPORARY PROTECTIVE CAPPING OR TAPED POLYETHYLENE ENCLOSURES OVER OPEN DUCTWORK AND PIPING ENDS AND EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING MECHANICAL SYSTEMS PRIOR TO PLACING THEM IN SERVICE.
16. IN A NEAT AND WORKMANLIKE MANNER: PATCH ANY REMAINING OPENINGS AND FILL EXCESSIVE GAPS; REWORK AND REFINISH TO MATCH ADJACENT STRUCTURES; FLASH AND SEAL ALL MECHANICAL AND ELECTRICAL PENETRATIONS THRU WALLS, CEILINGS, AND FLOORS WITH METAL FRAMEWORK OR ESCUTCHEONS. ALL OPENINGS SHALL BE PROPERLY SEALED SO AS TO MEET FIRE RATING NEEDS.
17. ALL BRANCH PIPING TO EQUIPMENT TO BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED.
18. EXTEND ALL DRAIN CONNECTIONS FOR MECHANICAL EQUIPMENT TO NEAREST FLOOR DRAIN, MOP SINK, ETC.. PROVIDE P-TRAP AS REQUIRED BY MANUFACTURER. DRAIN PIPING TO BE SIZED PER CODE OR LINE SIZE, WHICHEVER IS LARGER.

MECHANICAL DEMOLITION

1. THIS DRAWING DIAGRAMMATICALLY REPRESENTS THE LAYOUT OF EXISTING CONDITIONS WITH MAJOR MECHANICAL AND ELECTRICAL COMPONENTS. THEY ARE NOT INTENDED TO SHOW ACCESSORIES OR INCIDENTALS COMMON TO EQUIPMENT INDICATED, THOUGH THESE ITEMS ARE TO BE REMOVED, ACCESSIBILITY TO DEMOLITION ITEMS SHALL NOT BE INFERRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF BUILDING AND EXISTING CONDITIONS, PRIOR TO BID SUBMISSION.
2. DEMOLITION SHALL INCLUDE ALL HANGERS, FITTINGS, DAMPERS, VALVES, ETC.
3. REPAIR ANY INSULATION DAMAGED DURING REMOVAL. REPAIR WORK TO BE SAME AS NEW.
4. COORDINATE WALL AND FLOOR PATCHING REQUIREMENTS WITH THE GENERAL CONTRACTOR. PATCHWORK SHALL MATCH MATERIALS, FINISH AND TEXTURE OF ADJACENT SURFACES. REFERENCE ARCHITECTURAL PLANS.
5. CONTRACTOR SHALL PATCH/REPAIR ALL UNUSED OPENINGS AND MODIFIED FINISH SURFACES. PATCH SHALL MATCH MATERIALS, FINISH AND TEXTURE OF ADJACENT SURFACES.
6. OWNER SHALL RETAIN FIRST SALVAGE RIGHTS TO ALL REMOVED EQUIPMENT AND MATERIALS. UNLESS NOTED OTHERWISE, CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER AND TIMELY DISPOSAL OF ALL CONSTRUCTION DEBRIS INCLUDING BUT NOT LIMITED TO EQUIPMENT AND MATERIALS NOT CLAIMED BY OWNER TO AN EPA APPROVED, ENVIRONMENTALLY RESPONSIBLE, RECYCLE FACILITY OR LANDFILL.
7. IT IS ESSENTIAL TO MINIMIZE DISRUPTIONS. COORDINATE ALL DEMOLITION WITH OWNER, CONSTRUCTION MANAGER BEFORE SHUTTING DOWN ANY UTILITY OR SIMILAR SYSTEM. SHUTDOWNS FOR UTILITIES OR SIMILAR SYSTEMS SHALL BE REQUESTED WELL IN ADVANCE AND PRE-APPROVED BY THE PROPER AUTHORITY(S) HAVING JURISDICTION BEFORE BEGINNING WORK.
8. ALL WORK WITHIN THE CONTRACT DOCUMENTS, WHICH INCLUDE THIS DRAWING, SHALL BE COMPLETED IN A SAFE WORKMANLIKE MANNER AND IN ACCORDANCE WITH ALL APPLICABLE STATE, LOCAL AND NATIONAL CODES, REGULATIONS AND ORDINANCES. IF ANY CONFLICTS ARISE BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE CODES, REGULATIONS OR ORDINANCE, THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL WORK CONFORM TO THE STRICTER OF SAID REQUIREMENTS.
9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS AS REQUIRED FOR ELECTRICAL, FIRE PROTECTION, PLUMBING, MECHANICAL AND BACKFLOW PREVENTION INSTALLATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE BOTH A COMPLETE AND COMPLIANT INSTALLATION AS MAY BE DETERMINED BY THE AUTHORITY(S) HAVING JURISDICTION.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE WATERTIGHT AND WEATHER-PROOF INTEGRITY OF ROOFS, WALLS AND FLOORS DURING CONSTRUCTION. EACH TRADE SHALL LOCATE/DIMENSION/COORDINATE THEIR ROOF, FLOOR AND WALL OPENINGS WITH THE CONSTRUCTION MANAGER.

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

IA DAS
Woodward, IA 50276

DRAWN BY	LDF
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
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GENERAL MECHANCIAL AND PLUMBING SYMBOLS & NOTES

00-M000

ELECTRICAL SYMBOL LEGEND

HT AFF	SYMBOL	DESCRIPTION
	X	SURFACE LIGHT (TYPE DENOTED)
	X	RECESSED LIGHT (TYPE DENOTED)
PER SCHED	X	WALL MOUNTED LIGHT (TYPE DENOTED)
PER SCHED	X	WALL MOUNTED FLOOD LIGHT (TYPE DENOTED)
		SURFACE LIGHT (TYPE DENOTED)
		SUSPENDED OR PENDANT LIGHT (TYPE DENOTED)
		RECESSED LIGHT (TYPE DENOTED)
PER SCHED	X	SITE POLE MOUNTED LIGHT (TYPE DENOTED)
PER SCHED	X	SITE BOLLARD LIGHT (TYPE DENOTED)
AS NOTED		TRACK AND TRACK LIGHT (TYPE DENOTED)
96"	EM	EMERGENCY BATTER LIGHT (TYPE DENOTED)
	E EHL	EXIT SIGN (TYPE DENOTED)
AS NOTED		LIGHT FIXTURE ON EMERGENCY CIRCUIT
	1	LIGHTING CONTROL DENOTATION
48"	$	SINGLE POLE SWITCH
48"	$3	3-WAY SWITCH
48"	$4	4-WAY SWITCH
48"	$K	KEYED SWITCH
48"	$D	DIMMER SWITCH
48"	$OS	OCCUPANCY SENSOR SWITCH
48"	$MS	MOMENTARY CONTACT SWITCH
48"	$T	TIMER SWITCH
48"	$SP	FAN SPEED CONTROL
48"	$M	MOTOR HORSEPOWER RATED SWITCH
48"		PUSH BUTTON
48"	UC	DURESS PUSH BUTTON, UNDER COUNTER
18" UNO		DUPLEX RECEPTACLE
18" UNO		FOURPLEX RECEPTACLE
	FB 1	FLOOR BOX (TYPE DENOTED)
	CLG	CEILING MOUNTED DUPLEX RECEPTACLE

HT AFF	SYMBOL	DESCRIPTION
18"	A	SURFACE RACEWAY (TYPE DENOTED)
	A	CLOCK (TYPE DENOTED)
	P	POWER POLE (OPEN OFFICE STYLE)
	E	ELECTRICAL CONNECTION (SEE SCHEDULE)
AS NOTED		JUNCTION BOX
72"**		CIRCUIT BREAKER PANEL
72"**		POWER OR DISTRIBUTION PANEL
72"**		SPECIAL CABINET (TYPE DENOTED)
	T	TRANSFORMER (TYPE DENOTED)
	25 KVA	GENERATOR (KVA DENOTED)
	1 SF-1	MOTOR (SEE SCHEDULE)
	M*****	MOTORIZED DAMPER
72"**		SAFETY DISCONNECTION SWITCH
	ASD	ADJUSTABLE SPEED DRIVE
72"**	R	RELAY
	OS IR	OCCUPANCY SENSOR (TYPE DENOTED)
	LS A	LIGHT LEVEL SENSOR (TYPE DENOTED)
AS NOTED	PC	PHOTOCELL
AS NOTED		CCTV CAMERA (TYPE DENOTED)
	SM	SURVEILLANCE MONITOR
48"	V	VOLUME CONTROL
48"	IC	INTERCOM STATION
	ICM	INTERCOM MASTER
	E#	KEYED NOTE (SEE SCHEDULE)
	FS	SPRINKLER FLOW SWITCH
	TS	SPRINKLER VALVE TAMPER SWITCH
	CT	CONTACT SENSING CONTROL MODULE
	CR	RELAY OUTPUT CONTROL MODULE
	VFD	VARIABLE FREQUENCY DRIVE
	DDC	DIRECT DIGITAL CONTROL PANEL

HT AFF	SYMBOL	DESCRIPTION
		CONDUIT CONCEALED IN WALL OR OVERHEAD
		CONDUIT CONCEALED BELOW FLOOR
		CONDUIT TRANSITION UP
		CONDUIT TRANSITION DOWN
		CONDUIT STUBBED OUT
		BRANCH CIRCUIT HOME RUN
		CABLE TRAY (TYPE DENOTED)
		CONDUIT SLEEVE (SIZE DENOTED)
48"**	W	WALL TELEPHONE OUTLET (TYPE DENOTED)
18" UNO		TELEPHONE OUTLET (TYPE DENOTED)
18" UNO	X	DATA OUTLET (INDICATED QTY CABLES)
18" UNO		VOICE/DATA OUTLET (TYPE DENOTED)
		WIRELESS ACCESS POINT
18" UNO	TV	TELEVISION OUTLET
	TV	CEILING MOUNTED TELEVISION OUTLET
84"		SPEAKER (WALL OR CEILING MOUNT)
84"		HORN TYPE SPEAKER
		SURFACE MOUNT SPEAKER SUSPENDED FROM CEILING
60"		NURSE CALL SINGLE PATIENT STATION
60"	3	37 PIN BED INTERFACE RECEPTACLE
60"	J	AUXILIARY ALARM STATION, TWO JACK
36" UNO	E	EMERGENCY PULL CORD STATION
60"	T	STAFF TERMINAL, TOUCHSCREEN
60"	D	DUTY STATION
60"	S	NURSE CALL STAFF STATION
60"	A	STAFF ASSIST
48"	B	CODE BLUE STATION
12"*	N 1 N 1	NURSE CALL DOME LIGHT
48"**	NCM	NURSE CALL MASTER STATION
48"**	NCC	NURSE CALL EQUIPMENT CABINET
72"**	NC ANNUN	NURSE CALL ANNUNCIATOR PANEL

HT AFF	SYMBOL	DESCRIPTION
	F	MANUAL PULL STATION (46" ABOVE FLOOR) K = KEY OPERATED INSTITUTIONAL PULL STATION
	B	AUDIO NOTIFICATION DEVICE - CEILING MOUNTED B = BELL C = CHIME H = HORN S = SPEAKER
	B	AUDIO NOTIFICATION DEVICE - CEILING MOUNTED 80" ABOVE FLOOR OR AS NOTED B = BELL C = CHIME H = HORN S = SPEAKER
	L	VISUAL NOTIFICATION DEVICE - CEILING MOUNTED
	L	VISUAL NOTIFICATION DEVICE - WALL MOUNTED 80" ABOVE FLOOR OR AS NOTED
		AUDIO/VISUAL NOTIFICATION DEVICE - CEILING MOUNTED B = BELL C = CHIME H = HORN S = SPEAKER
		AUDIO/VISUAL NOTIFICATION DEVICE - WALL MOUNTED 80" ABOVE FLOOR OR AS NOTED B = BELL C = CHIME H = HORN S = SPEAKER
72"**	FACP	FIRE ALARM CONTROL PANEL
72"**	FARP	FIRE ALARM RELAY PANEL
72"**	ANN	FIRE ALARM REMOTE ANNUNCIATOR
8"*****	P P	SMOKE DETECTOR (TYPE DENOTED)
	R/F135 R/F135	HEAT DETECTOR (TYPE AND TEMP DENOTED)
		LINEAR HEAT DETECTOR
		DUCT SMOKE DETECTOR (TYPE DENOTED)
	DH	DOOR HOLDER
	CH	DOOR CLOSER/HOLD OPEN
	DR	SMOKE DAMPER RELEASE
	FR	FIRE ALARM SHUT DOWN RELAY

ALL DISTANCES ARE TO CENTER OF DEVICE OR EQUIPMENT UNLESS OTHERWISE NOTED. DEVICES INDICATED AT 48" MAY NOT BE INSTALLED WITH ANY OPERABLE PART HIGHER THAN 48". DEVICES MAY BE INSTALLED IN CONCRETE MASONRY UNITS WITH THE TOP OF THE DEVICE AT 48".

* DISTANCE ABOVE DOOR FRAME ** DISTANCE TO TOP OF EQUIPMENT OR DEVICE *** DISTANCE TO HIGHEST OPERABLE POINT OF EQUIPMENT **** DISTANCE BELOW CEILING ***** DISTANCE TO BOTTOM OF DEVICE

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	DCP	DOMESTIC WATER CIRCULATING PUMP	HT	HEIGHT	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
A	AMPERE	DEPT	DEPARTMENT	HTG	HEATING		
AC	ABOVE COUNTER	DET	DETAIL	HTR	HEATER	SYS	SYSTEM
ACLG	ABOVE CEILING	DIA	DIAMETER	HV	HIGH VOLTAGE	NFDS	NON-FUSED SAFETY
ADO	AUTOMATIC DOOR OPENER	DISC	DISCONNECT	HVAC	HEATING, VENTILATING AND AIR CONDITIONING		DISCONNECT SWITCH
AF	AMP FRAME	DIST	DISTRIBUTION	HWP	HYDRONIC WATER PUMP	NIC	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR	DN	DOWN			NL	NIGHT LIGHT
AFG	ABOVE FINISHED GRADE	DPR	DAMPER	IC	INTERRUPTING CAPACITY	N.O.	NORMALLY OPEN
AFI	ARC FAULT CIRCUIT INTERRUPTER	DS	SAFETY DISCONNECT SWITCH	IG	ISOLATED GROUND	NPF	NORMAL POWER FACTOR
		DT	DOUBLE THROW	IMC	INTERMEDIATE METAL CONDUIT	NTS	NOT TO SCALE
AHU	AIR HANDLING UNIT	DWG	DRAWING	INCAND	INCANDESCENT	OH	OVERHEAD
AL	ALUMINUM			IR	INFRARED	OL	OVERLOADS
ALT	ALTERNATE	EC	ELECTRICAL CONTRACTOR	IW	INTERLOCK WITH		
AMP	AMPERE	ELEC	ELECTRIC, ELECTRICAL			PA	PUBLIC ADDRESS
AMPL	AMPLIFIER	ELEV	ELEVATOR	J-BOX	JUNCTION BOX	PB	PULL BOX OR PUSHBUTTON
ANNUN	ANNUNCIATOR	EM	EMERGENCY			PE	PNEUMATIC ELECTRIC
APPROX	APPROXIMATELY	EMS	ENERGY MANAGEMENT SYSTEM	KV	KILOVOLT	PED	PEDESTAL
AQ-STAT	AQUASTAT	EMT	ELECTRICAL METALLIC TUBING	KVA	KILOVOLT-AMPERE	PF	POWER FACTOR
ARCH	ARCHITECT, ARCHITECTURAL	EP	ELECTRIC PNEUMATIC	KVAR	KILOVOLT-AMPERE REACTIVE	PH	PHASE
AS	AMP SWITCH	EQUIP	EQUIPMENT	KW	KILOWATT	PIV	POST INDICATING VALVE
AT	AMP TRIP	EWC	ELECTRIC WATER COOLER	KWH	KILOWATT HOUR	PNL	PANEL
ATS	AUTOMATIC TRANSFER SWITCH	EXIST	EXISTING			PP	POWER POLE
AUTO	AUTOMATIC	EXH	EXHAUST	LOC	LOCATE OR LOCATION	PR	PAIR
AUX	AUXILIARY	EXP	EXPLOSION PROOF	LT	LIGHT	PRI	PRIMARY
AV	AUDIO VISUAL			LTG	LIGHTING	PROJ	PROJECTION
AWG	AMERICAN WIRE GAUGE	FA	FIRE ALARM	LTNG	LIGHTNING	PRV	POWER ROOF VENTILATOR
		FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	LV	LOW VOLTAGE	PT	POTENTIAL TRANSFORMER
BATT	BATTERY					PVC	POLYVINYL CHLORIDE (CONDUIT)
BD	BOARD	FACP	FIRE ALARM CONTROL PANEL	MAX	MAXIMUM		
BLDG	BUILDING	FCU	FAN COIL UNIT	MAG.S	MAGNETIC STARTER	PWR	POWER
BMS	BUILDING MANAGEMENT SYSTEM	FIXT	FIXTURE	M/C	MOMENTARY CONTACT		
		FLR	FLOOR	MC	MECHANICAL CONTRACTOR	QUAN	QUANTITY
C	CONDUIT	FLUOR	FLUORESCENT	MCA	MINIMUM CIRCUIT AMPACITY		
CAB	CABINET	FU	FUSE	MCB	MAIN CIRCUIT BREAKER	RCPT	RECEPTACLE
CAT	CATALOG	FUDS	FUSED SAFETY DISCONNECT SWITCH	MCC	MOTOR CONTROL CENTER	REQD	REQUIRED
CATV	CABLE TELEVISION			MDC	MAIN DISTRIBUTION CENTER	RM	ROOM
CB	CIRCUIT BREAKER	GA	GAUGE	MDP	MAIN DISTRIBUTION PANEL	RSC	RIGID STEEL CONDUIT
CCTV	CLOSED CIRCUIT TELEVISION	GAL	GALLON	MFR	MANUFACTURER	RTU	ROOF TOP UNIT
CKT	CIRCUIT	GALV	GALVANIZED	MFS	MAIN FUSED DISCONNECT SWITCH		
CLG	CEILING	GC	GENERAL CONTRACTOR	MH	MANHOLE	SC	SURFACE CONDUIT
COMB	COMBINATION	GEN	GENERATOR	MIC	MICROPHONE	SEC	SECONDARY
CMPR	COMPRESSOR	GFI	GROUND FAULT CIRCUIT INTERRUPTER	MIN	MINIMUM	SHT	SHEET
CONN	CONNECTION			MISC	MISCELLANEOUS	SIM	SIMILAR
CONST	CONSTRUCTION	GFP	GROUND FAULT PROTECTOR	MLO	MAIN LUGS ONLY	S/N	SOLID NEUTRAL
CONT	CONTINUATION OR CONTINUOUS	GND	GROUND	MMS	MANUAL MOTOR STARTER	SPEC	SPECIFICATION
		GRS	GALVANIZED RIGID STEEL (CONDUIT)	MOA	MULTIOUTLET ASSEMBLY	SP	SPARE
CONTR	CONTRACTOR			MOCP	MAXIMUM OVER-CURRENT PROTECTION	SR	SURFACE RACEWAY
CONV	CONVECTOR	GYP BD	GYPSUM BOARD			SS	STAINLESS STEEL
CP	CIRCULATING PUMP			MSP	MOTOR STARTER PANELBOARD	SSW	SELECTOR SWITCH
CRT	CATHODE-RAY TUBE	HOA	HANDS-OFF-AUTOMATIC SWITCH	MSBD	MAIN SWITCHBOARD	S/S	STOP/START PUSHBUTTONS
CT	CURRENT TRANSFORMER			MT	MOUNT	STA	STATION
CTR	CENTER	HORIZ	HORIZONTAL	MT.C	EMPTY CONDUIT	STD	STANDARD
CU	COPPER	HP	HORSEPOWER	MTS	MANUAL TRANSFER SWITCH	SURF	SURFACE MOUNTED
		HPF	HIGH POWER FACTOR	MTR	MOTOR, MOTORIZED	SW	SWITCH
				N.C.	NORMALLY CLOSED		
				NEC	NATIONAL ELECTRICAL CODE		

SWBD	SWITCHBOARD		
SYM	SYMMETRICAL		
SYS	SYSTEM		
TEL	TELEPHONE		
TEL/DATA	TELEPHONE/DATA		
TERM	TERMINAL		
TL	TWIST LOCK		
TR	TAMPER RESISTANT		
T-STAT	THERMOSTAT		
TTC	TELEPHONE TERMINAL CABINET		
TV	TELEVISION		
TVTC	TELEVISION TERMINAL CABINET		
TYP	TYPICAL		
UC	UNDER COUNTER		
UE	UNDERGROUND ELECTRICAL		
UG	UNDERGROUND		
UH	UNIT HEATER		
UNO	UNLESS NOTED OTHERWISE		
UT	UNDERGROUND TELEPHONE		
UTIL	UTILITY		
UV	UNIT VENTILATOR OR ULTRAVIOLET		
V	VOLT		
VA	VOLT-AMPERES		
VDT	VIDEO DISPLAY TERMINAL		
VERT	VERTICAL		
VFD	VARIABLE FREQUENCY DRIVE		
VOL	VOLUME		
W	WATT		
W/	WITH		
WG	WIRE GUARD		
WH	WATER HEATER		
W/O	WITHOUT		
WP	WEATHERPROOF		
XFMR	TRANSFORMER		
XFR	TRANSFER		
∠	ANGLE		
@	AT		
Δ	DELTA		
'	FEET		
"	INCHES		
#	NUMBER		
Ø	PHASE		
℄	CENTER LINE		
₱	PLATE		

DEMOLITION GENERAL NOTES

1. LIGHT LINES INDICATE EXISTING WALLS AND EQUIPMENT TO REMAIN. DASHED LINES INDICATE WALLS, EQUIPMENT, AND ELECTRICAL ITEMS TO BE REMOVED.
2. COORDINATE PATCHING REQUIREMENTS FOR UNUSED OPENINGS WITH THE CONSTRUCTION MANAGER.
3. FIRE ALARM - REMOVE EXISTING CEILING MOUNTED DEVICES TO PERMIT REMOVAL OF CEILING. WALL MOUNTED NOTIFICATION DEVICES SHALL BE DEMOLISHED. COORDINATE WORK WITH PROJECT PHASING TO MAINTAIN FIRE ALARM SYSTEM PROTECTION OF SPACES AT ALL TIMES.
4. COORDINATE DISPOSAL OF ALL ITEMS NOT REQUESTED AS SALVAGE BY THE OWNER.
5. DISCONNECT OUTLETS, WIRING, AND OTHER NOTED EQUIPMENT TO PERMIT DEMOLITION OF WALLS. VERIFY AND MAINTAIN CONNECTION TO EXISTING OUTLETS THAT WILL NOT BE REMOVED BUT ARE ON COMMON CIRCUITS WITH ITEMS TO BE REMOVED.
6. DRAWINGS DO NOT IDENTIFY ALL OUTLETS, SWITCHES, CABLING, OR EQUIPMENT TO BE REMOVED. CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE PRIOR TO BIDDING AND INCLUDE LABOR AND MATERIAL NECESSARY FOR REQUIRED DEMOLITION IN THEIR BID.
7. WIRING SHALL BE REMOVED BACK TO SERVING PANEL. INSTALLATION OF NEW CONDUCTORS IN EXISTING CONDUITS WILL BE PERMITTED AS DESCRIBED IN THE DIVISION 26 SPECIFICATIONS.
8. HVAC EQUIPMENT NOTED FOR REMOVAL IS FOR REFERENCE ONLY. THE ELECTRICAL CONTRACTOR SHALL REVIEW THE MECHANICAL SYSTEMS DEMOLITION PLANS AND INCLUDE ALL LABOR AND MATERIAL NECESSARY TO FACILITATE REMOVAL OF EQUIPMENT AS SHOWN ON THOSE DRAWINGS. THIS SHALL INCLUDE ALL ITEMS NOTED ON EITHER THE PLUMBING OR MECHANICAL SERIES OF DRAWINGS.
9. CONTRACTOR TO CONTACT JEREMY DENMON AT SIEMENS FOR DECOMMISSIONING AND REPROGRAMMING OF EXISTING SIEMENS SYSTEM jeremy.denmon@siemens.com 515-553-7019.

STATE HISTORICAL PRESERVATION OFFICE REQUIREMENTS

1. FOR FINISHED SPACES (OFFICES, RECEPTION, ETC.), PAINT EXPOSED CONDUIT WHITE.
2. FOR UNFINISHED SPACES (BASEMENTS, ATTICS, WORKSHOPS, ETC.) CONDUIT CAN REMAIN UNPAINTED.

HAZARDOUS MATERIAL NOTES

BUILDING CONTAINS HAZARDOUS MATERIAL SUCH AS ASBESTOS AND LEAD PAINT. SUPPLEMENTAL HAZARDOUS MATERIAL REPORT IS PROVIDED IN THE BID DOCUMENTS AS A SEPARATE ATTACHMENT. REFER TO HAZARDOUS MATERIAL REPORT FOR EXTENTS OF TESTING AND RESULTS.

ELECTRICAL GENERAL NOTES

1. ALL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE - LATEST EDITION ADOPTED BY THE STATE, THE STATE AMENDMENTS, AND THE AUTHORITY HAVING JURISDICTION. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADAAG (AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES).
2. IT IS THE INTENT OF THESE DOCUMENTS TO COMPLY WITH THE APPLICABLE CODES. WHERE DISCREPANCIES OCCUR, NOTIFY THE ENGINEER/ARCHITECT IN WRITING FOR INTERPRETATION. CORRECT ANY INSTALLATION THAT FAILS TO COMPLY WITH THE CODES AND STANDARDS AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR SHALL PROVIDE ALL WORK NECESSARY INCLUDING ALL LABOR, MATERIALS, PERMITS, TAXES, FEES, INSPECTIONS, HARDWARE, AND COST FOR INSTALLATION FOR A COMPLETE AND OPERATIONAL SYSTEM.
4. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, COMPLETE WITH MANUFACTURER'S GUARANTEE OR WARRANTY AND SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL).
5. COORDINATE ELECTRICAL INSTALLATION WITH ALL TRADES PRIOR TO INSTALLATION. IF ELECTRICAL WORK INSTALLED INTERFERES WITH OTHER TRADES AFTER INSTALLATION, THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES TO CORRECT THE CONDITION AT NO ADDITIONAL COST TO THE OWNER.
6. DRAWINGS ARE DIAGRAMMATIC. ALL DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL ELECTRICAL INSTALLATION THIS CONTRACTOR SHALL ADJUST CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
7. ALL ELECTRICAL PANELS WITH ANY BRANCH CIRCUIT/LOAD REVISIONS (DEMOLITION OR NEW WORK) SHALL HAVE A NEW TYPED UPDATED CIRCUIT DIRECTORY CARD INSTALLED INSIDE THE DOOR OF THE ELECTRICAL PANEL. THE CONTRACTOR SHALL VERIFY THAT ALL UNUSED CIRCUIT BREAKERS ARE TURNED 'OFF' AND PROPERLY INDICATED AS 'SPARE' ON THE NEW CIRCUIT DIRECTORY CARD. THE CONTRACTOR SHALL INSTALL FILLER PLATES WHERE BREAKERS ARE REMOVED AS PART OF THIS PROJECT OR HAVE BEEN REMOVED PREVIOUSLY.
8. NO ENERGIZED CONDUCTORS SHALL BE EXPOSED AT ANYTIME EXCEPT WHEN THE IMMEDIATE AREA IS UNDER THE SUPERVISION OF A QUALIFIED ELECTRICIAN.
9. WHERE CONDUIT IS SURFACE MOUNTED TO A WALL AND RUN VERTICALLY DOWN TO A SWITCH/OUTLET BOX, UTILIZE 1-HOLE OR 2-HOLE CONDUIT STRAPS.
10. PENETRATIONS THROUGH FIRE RATED WALLS BY OR FOR DIVISION 26 CONTRACTOR SHALL BE SEALED WITH APPROPRIATE FIRE PROOFING MATERIAL TO RESTORE FIRE RATING.
11. THE CONTRACTOR SHALL KEEP THE WORK AREA CLEAN OF ALL DEBRIS ON A DAILY BASIS. ALL NEW MATERIALS AWAITING INSTALLATION SHALL BE KEPT IN AREAS DESIGNATED BY THE OWNER.
12. PERIODIC SITE OBSERVATION BY THE ENGINEER IS SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.
13. THE INFORMATION CONTAINED ON THE ELECTRICAL DRAWINGS IS IN ITSELF INCOMPLETE AND VOID UNLESS USED IN CONJUNCTION WITH ALL OTHER DISCIPLINE DRAWINGS, THE SPECIFICATIONS, TRADE PRACTICES, OR APPLICABLE STANDARDS, CODES, ETC., AND SHALL BE CONSIDERED THE CONTRACT DOCUMENTS AND WITH ALL THEREIN BY REFERENCE, WHICH THE CONTRACTOR CERTIFIES KNOWLEDGE OF BY SIGNING THE CONTRACT.
14. CONTRACTOR IS TO ASSUME FULL RESPONSIBILITY, UNRELIEVED BY REVIEW OF SHOP DRAWINGS OR PERIODIC OBSERVATION OF CONSTRUCTION, FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED ON THE JOB SITE AND BETWEEN INDIVIDUAL DRAWINGS OR SETS OF DRAWINGS FOR FABRICATION PROCESSES AND CONSTRUCTION TECHNIQUES (INCLUDING EXCAVATION, SHORING, SCAFFOLDING, BRACING, ERECTION, FORM WORK, ETC.). FOR COORDINATION OF THE VARIOUS TRADES. AND FOR SAFE CONDITIONS ON THE JOB SITE. VARIATIONS IN FIELD CONDITIONS RELATIVE TO THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE ENGINEER AS SOON AS THEY ARE FOUND. WORK SHALL NOT PROGRESS UNTIL WRITTEN PERMISSION FROM THE ENGINEER IS OBTAINED.

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	RML
APPROVED BY	KJB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
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	FIELD BOOK

ELECTRICAL GENERAL INFORMATION

00-E000

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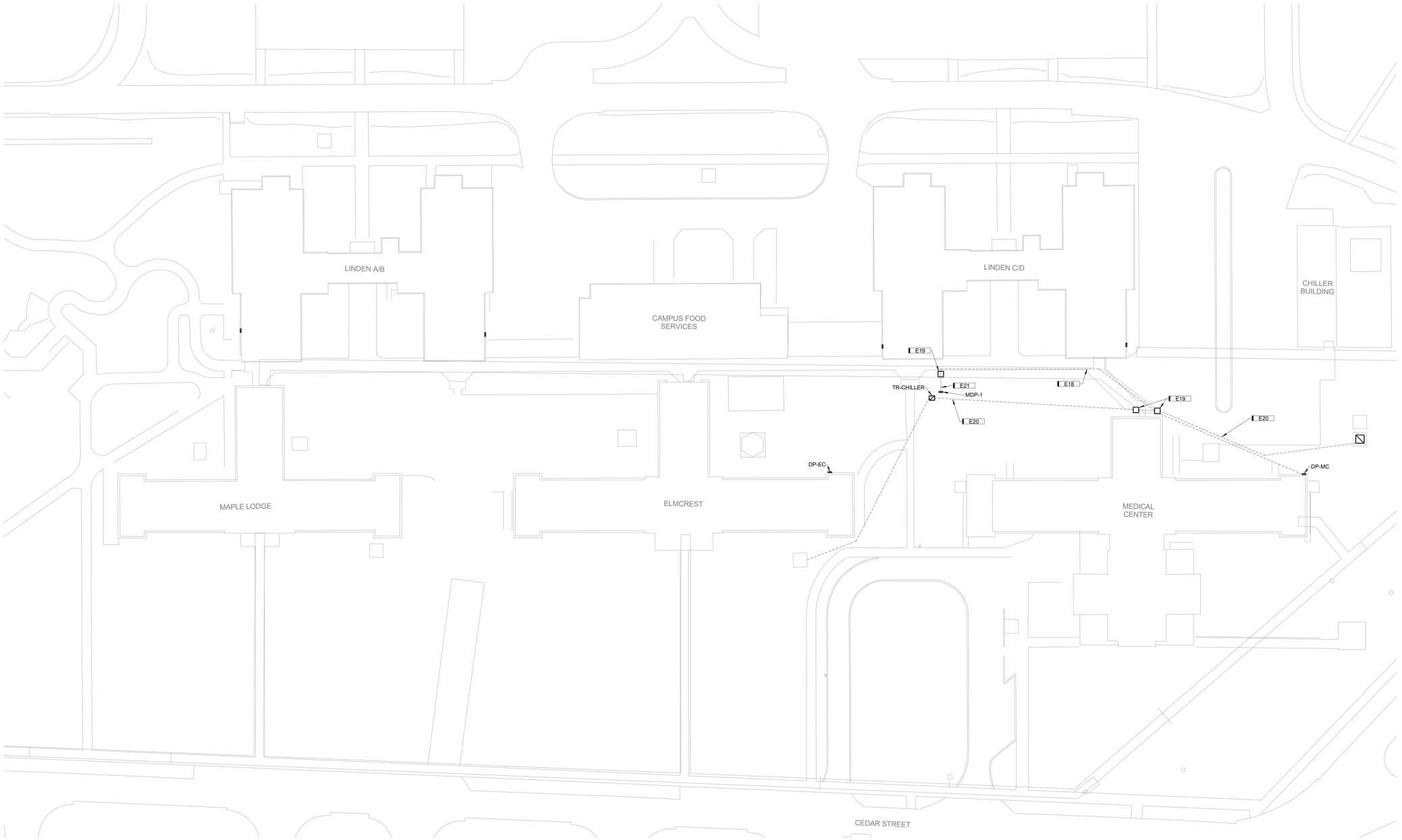
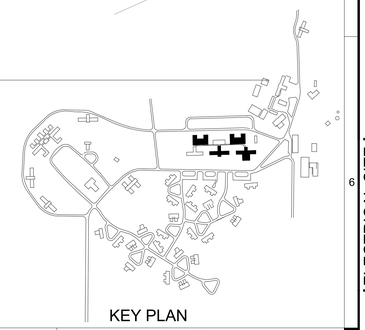
KEYNOTES	
KEY	NOTE
E18	ROUTE FEEDER THROUGH EXISTING TUNNEL
E19	EXCAVATE NEXT TO TUNNEL TO TRANSITION CONDUITS OUT OF OR INTO TUNNEL. INSTALL MEDIUM VOLTAGE CONDUITS IN TUNNEL. PROVIDE WATER TIGHT LINK SEALS ON TUNNEL WALL TO SEAL CONDUITS.
E20	DIRECTIONAL BORE NEW MEDIUM VOLTAGE FEEDERS TO CONTINUE MEDIUM VOLTAGE LOOP. REFER TO RISER DIAGRAM FOR FEEDER SIZE.
E21	FURNISH AND INSTALL (4) 4" CONDUITS FOR FUTURE WORK.



NORTH

A6 ELECTRICAL SITE PLAN
1" = 30'-0" 0 45'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
10-Elmcrest

IA DAS
Woodward, IA 50276

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ELECTRICAL SITE PLAN - LINDEN COURT

00-E010

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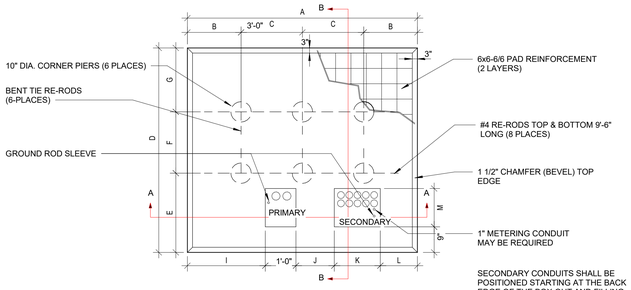
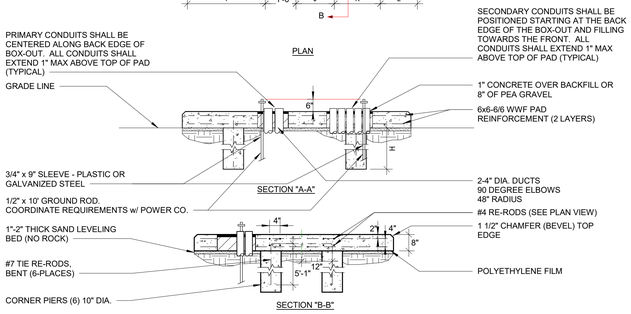
KEYNOTES	
KEY	NOTE
E11	EXTENT MEDIUM VOLTAGE PRIMARY LOOP. NEW TRANSFORMER CONNECT BETWEEN EXISTING ELMCREST AND MEDICAL CENTER TRANSFORMERS. FEEDER TO BE (3) # 250 KCM, 15KV CABLE, IN 4" CONDUIT. TERMINATE CABLES ON EACH END. REFER TO 00-E010 FOR FEEDER ROUTING.
E17	STUB (4) 4" CONDUITS INTO EXISTING TUNNEL. CONDUITS FOR FUTURE PANEL FEEDS TO LINDEN A, LINDEN B, LINDEN C AND LINDEN D.



PLAN



SECTION "A-A"

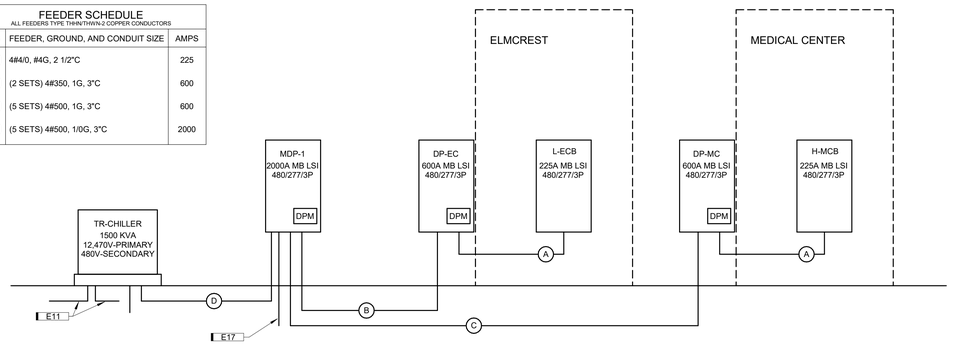
SECTION "B-B"

PAD DIMENSION SCHEDULE												
3-PHASE KVA	PAD PIER DIMENSIONS							CABLE OPENING DIMENSIONS				
	A	B	C	D	E	F	G	H	I	J	K	L	M
1500-2500	10'-0"	18"	42"	8'-8"	30"	44"	30"	60"	40"	15"	25"	28"	15"

DESIGN DATA
CONCRETE: F'C>3500 PSI AT 28 DAYS REINFORCING STEEL: ASTM A 615-40 6x6-6/6 WELDED WIRE FABRIC (WWF) ASTM A 185 SOIL: >95% PROCTOR DENSITY OR 55 PSI PBV.

F4 Transformer Pad Detail (1500-2500 kVA)
NOT TO SCALE

FEEDER SCHEDULE ALL FEEDERS TYPE THWN/THWN-2 COPPER CONDUCTORS		
TAG	FEEDER, GROUND, AND CONDUIT SIZE	AMPS
A	4/#4/0, #4G, 2 1/2"C	225
B	(2 SETS) 4/#350, 1G, 3"C	600
C	(5 SETS) 4/#500, 1G, 3"C	600
D	(5 SETS) 4/#500, 1/0G, 3"C	2000



B5 ELMCREST & MEDICAL CENTER RISER DIAGRAM
NOT TO SCALE

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
MDP-1	**480Y/277**	**3**	**4**	**2000 AMPS**	**2000 A**	**65,000 AMPS SYMMETRICAL**
						MOUNTING: UNISTRUT
ROOM:	SERVICE ENTRANCE RATED 100% RATED MAIN BREAKER					**ENCLOSURE:** NEMA 3R
FED FROM:						**FEED:**

CKT	CIRCUIT DESCRIPTION	NOTES	TRIP	POLES	A	B	C
1,2,3	DP-EC		600 A	3	83915.9 VA	83915.9 VA	83915.9 VA
4,5,6	DP-MC		600 A	3	107822.8...	107822.8...	107822.8...
7,8,9	DP-LCA (FUTURE)	2	225 A	3	0 VA	0 VA	0 VA
10,11,12	DP-LCB (FUTURE)	2	225 A	3	0 VA	0 VA	0 VA
13,14,15	DP-LCC (FUTURE)	2	225 A	3	0 VA	0 VA	0 VA
16,17,18	DP-LCD (FUTURE)	2	225 A	3	0 VA	0 VA	0 VA
19							
20							
21							
				TOTAL LOAD:	191739 VA	191739 VA	191739 VA
				TOTAL AMPS:	692 A	692 A	692 A

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)	PANEL TOTALS	
SPEC	575215.9 VA	100%	575215.9 VA	**CONNECTED LOAD:**	575216 VA
				ESTIMATED DEMAND:	575216 VA
				CONNECTED CURRENT:	692 A
				ESTIMATED DEMAND CURRENT:	692 A

NOTES:
1. PROVIDE GROUND FAULT PROTECTION ON MAIN CIRCUIT BREAKER.
2. FURNISH AND INSTALL BREAKERS FOR FUTURE LOADS.
2. PROVIDE LOCKABLE FRONT ACCESS DOOR.

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
10-Elmcrest
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ELECTRICAL RISER DIAGRAM

00-E011

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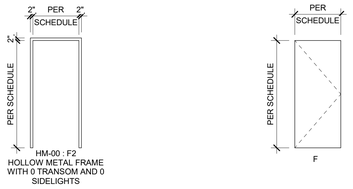
Door Schedule

MARK	ROOM NAME	OPENING SIZE		DOOR			FRAME		HDWR	FIRE RATING	REMARKS
		WIDTH	HEIGHT	TYPE	MATERIAL	THICKNESS	TYPE	MATERIAL			
B39A	CHILLER	3' - 0"	6' - 8"	F	HM	0' - 1 3/4"	HM-00 : V2	HM	01	45 MIN	



C2 DOOR FRAME ELEVATION
1/4" = 1'-0" 0 6'

D2 DOOR PANEL ELEVATION
1/4" = 1'-0" 0 6'

DOOR HARDWARE GROUPS

GROUP 01

SINGLE FIRE RATED DOOR. FOR USE ON DOOR NO. B39A

3 EA.	HEAVY DUTY HINGES	TA795, 4-1/2"	US26D	MCK
1 EA.	STOREROOM LOCKSET	PROVIDED BY OWNER	-	-
1 EA.	CLOSER	4040XP DEL EDA	AL	LCN
1 EA.	OVERHEAD STOP	599S	US26D	RO
1 EA.	KICKPLATE	8400 30" X 34"	US32D	IV
1 SET	SMOKE GASKET	PK52BL	BL	PE

MANUFACTURER ABBREVIATIONS

IV - IVES
LCN - LCN CLOSERS
MCK - MCKINNEY
PE - PEMKO
RO - ROCKWOOD
SA - SARGENT

FRAME NAMING CONVENTION

HM-12-V2

FRAME MATERIAL
AL ALUMINUM
HM HOLLOW METAL
WD WOOD

FRAME CONFIGURATION
1ST DIGIT TRANSOM (0=NO, 1=YES)
2ND DIGIT NUMBER OF SIDELIGHTS
DE DOUBLE EGRESS
NS NO STOP
F FULL FRAME

FRAME HEAD HEIGHT
2 2" HIGH
4 4" HIGH

FRAME DEPTH
V MATCH WALL WIDTH
F FIXED/ SPECIFIED

WALL RATING INDICATORS AND CODES

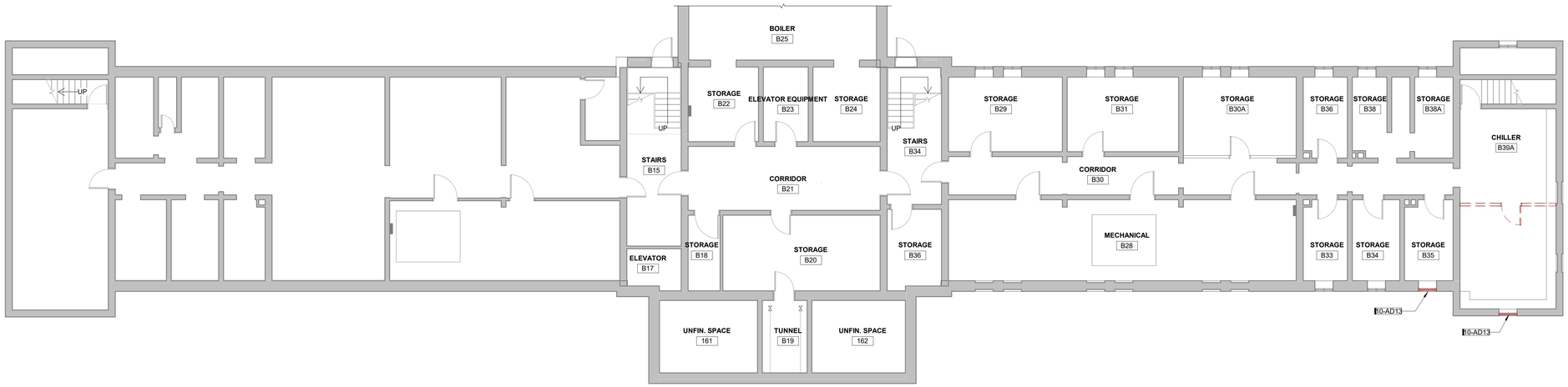
PLAN INDICATOR LINE STYLE	SEPARATION DESIGNATION	RATING	DESCRIPTION	USE	DOORS	HVAC
	FB-1-HP	1 HR	FIRE BARRIER	HAZARD PROTECTION	45 MIN	ALLOWED W/ FIRE DAMPERS

CODE PLAN GENERAL NOTES

1. FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IN THE CONCEALED SPACE. SUCH IDENTIFICATION SHALL BE LOCATED WITHIN 15' OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30' MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION AND INCLUDE LETTERING NOT LESS THAN 3" TALL AND A MINIMUM 3/8-INCH STROKE IN A CONTRASTING COLOR STATING: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS".

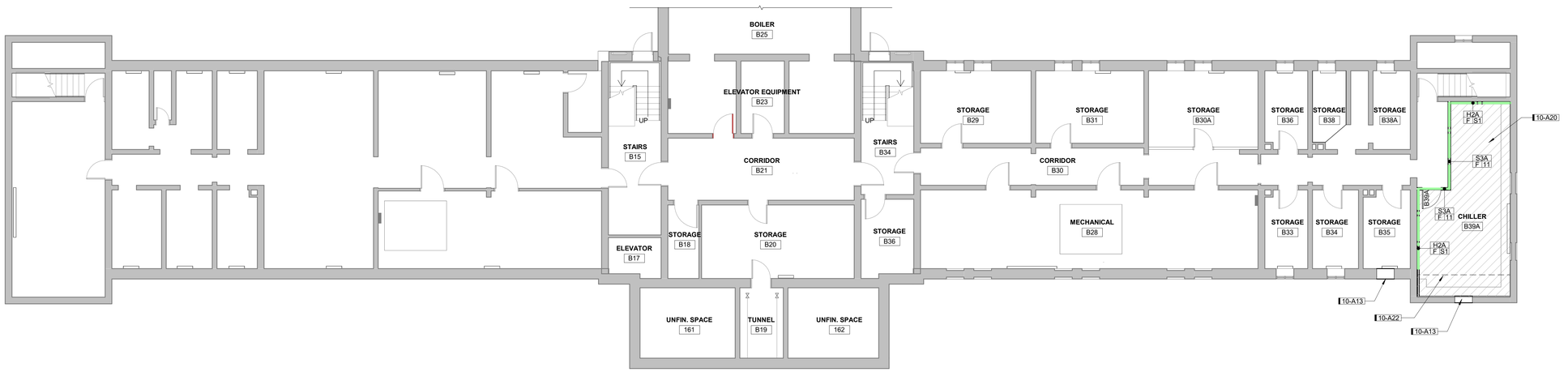
KEYNOTES

KEY	NOTE
10-A13	INFILL WITH NEW LOUVER TO FULL EXTENT OF EXISTING WINDOW OPENING - REFER TO MECHANICAL DRAWINGS FOR LOUVER
10-A20	PROVIDE NEW 1-HOUR FIRE RATED CEILING BETWEEN BASEMENT AND FIRST FLOOR: 3 5/8" METAL STUD FRAMING WITH 3 LAYERS OF 5/8" TYPE X GYPSUM BOARD PER UL DESIGN #504. FIRESTOP ALL NEW PENETRATIONS.
10-A22	PROVIDE SPRAY APPLIED FIREPROOFING TO ACHIEVE 1-HOUR RATING AT EXPOSED STEEL BEAM
10-AD13	DEMOLITION OF EXISTING WINDOW WILL BE BY OWNER'S ABATEMENT CONTRACTOR



NORTH

A4 BASEMENT DEMOLITION PLAN
1/8" = 1'-0" 0 12'



NORTH

A6 BASEMENT FLOOR PLAN
1/8" = 1'-0" 0 12'

ARCHITECTURAL DEMOLITION NOTES

1. FIELD VERIFY EXISTING CONDITIONS PRIOR TO START OF DEMOLITION WORK. NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES BETWEEN WORK SHOWN IN THE DRAWINGS AND FIELD CONDITIONS ENCOUNTERED.
2. TO PROTECT OWNER AND CONTRACTOR, PHOTOGRAPHICALLY DOCUMENT EXISTING CONDITIONS TO REMAIN, PRIOR TO START OF DEMOLITION AND CONSTRUCTION ACTIVITIES. COPY ARCHITECT AND OWNER ON PHOTOGRAPHIC DOCUMENTATION.
3. OPEN FLAME EQUIPMENT IS NOT PERMITTED FOR REMOVAL OF EXISTING WORK WITHOUT SPECIFIC WRITTEN PERMISSION FROM THE OWNER.
4. COORDINATE WITH OWNER ANY ITEMS TO BE SALVAGED.
5. OWNER WILL REMOVE ALL NON-FIXED FURNISHINGS AND EQUIPMENT FROM THE CONSTRUCTION AREA PRIOR TO START OF CONSTRUCTION UNLESS NOTED OTHERWISE.
6. MAINTAIN BUILDING IN A WEATHER-TIGHT CONDITION. DO NOT PERFORM WORK ON EXTERIOR OPENINGS THAT CANNOT BE COMPLETED OR MADE WEATHER-TIGHT WHEN INCLEMENT WEATHER IS POSSIBLE.
7. PROTECT ALL FINISHES (TO REMAIN) IN THE PROJECT AREA. COORDINATE WITH ARCHITECT AND OWNER PRIOR TO DEMOLITION.
8. ENSURE THAT DUST AND DEBRIS ARE PREVENTED FROM ENTERING THE EXISTING HVAC SYSTEM AND ADJOINING SPACES WITH TEMPORARY BARRIERS AS REQUIRED PER THE BUILDING.
9. ALL NEW PENETRATIONS IN EXISTING INTERIOR AND EXTERIOR WALLS, FLOORS AND CEILING DECKS SHALL RECEIVE UL AND FACILITY APPROVED FIRE SEALANT MATERIALS TO MATCH RATING REQUIREMENT OF AREA BEING PENETRATED. FOR LOCATIONS AND EXTENTS OF NEW PENETRATIONS SEE MECHANICAL AND ELECTRICAL DRAWINGS.
10. COORDINATE WITH OTHER TRADES CUTTING AND PATCHING REQUIRED FOR DEMOLITION OR NEW CONSTRUCTION.
11. ANY DEMOLITION OR REMOVAL INDICATED IS SHOWN IN GENERAL TO PROVIDE THE EXTENT OF DEMOLITION AND IS NOT TO BE CONSIDERED AS A RECORD DRAWING OF EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR IN FIELD VERIFICATION AND COORDINATION WITH THE ARCHITECT PRIOR TO COMMENCING WITH STATED WORK.
12. ALL CONSTRUCTION TO REMAIN WHICH IS AFFECTED BY DEMOLITION SHALL BE PATCHED, BE PROPERLY ALIGNED AND FINISHED SO AS TO LEAVE NO EVIDENCE OF PATCHING OR REPAIR. REPAIR OR REPLACE ANY EXISTING CONSTRUCTION, MATERIALS, OR EQUIPMENT DAMAGED DURING DEMOLITION TO LIKE NEW CONDITION.
13. THE CONTRACTOR IS TO RETURN SALVAGEABLE MATERIALS, INCLUDING BUT NOT LIMITED TO DOORS, FRAMES, HARDWARE, MARBLE, EQUIPMENT, AND LIGHTING FIXTURES TO THE OWNER AND STOCKPILE THEM IN AN APPROVED CONSTRUCTION AREA. DISPOSE OF THESE MATERIALS AFTER OWNER'S REVIEW AND APPROVAL.
14. BUILDING CONTAINS HAZARDOUS MATERIAL SUCH AS ASBESTOS AND LEAD PAINT. SUPPLEMENTAL HAZARDOUS MATERIAL REPORT IS PROVIDED IN THE BID DOCUMENTS AS A SEPARATE ATTACHMENT. REFER TO HAZARDOUS MATERIAL REPORT FOR EXTENTS OF TESTING AND RESULTS.
15. TEMPORARILY REMOVE OR SUPPORT FIXTURES AND OTHER DEVICES, INCLUDING DIFFUSERS, AS NEEDED TO COMPLETE NEW WORK. REINSTALL ONCE MECHANICAL/ELECTRICAL WORK IS COMPLETE.

DEMOLITION PLAN SYMBOLS LEGEND

- EXISTING WALL PARTITIONS
- TEMPORARY WALL PARTITIONS
- DEMOLISHED WALL PARTITIONS
- EXISTING DOOR
- DEMOLISHED DOOR

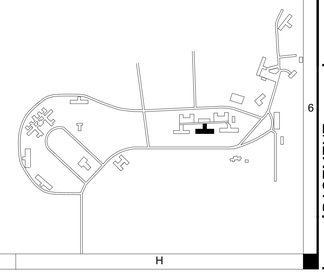
FLOOR PLAN NOTES

1. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR STUD PARTITIONS IN TOILET ROOMS, JANITOR'S CLOSETS, FIRE SERVICE ROOMS, MECHANICAL ROOMS, AND ANY ADDITIONAL LOCATIONS DESIGNATED IN CONTRACT DOCUMENTS.
2. WHERE STRUCTURAL ELEMENTS INTERFERE WITH FIRE-RATED PARTITIONS, FRAME TOP OF WALL AROUND STRUCTURAL ELEMENT.
3. REFER TO DRAWINGS OF ALL TRADES FOR ADDITIONAL INFORMATION REGARDING ITEMS PENETRATING FLOORS, WALLS, AND CEILINGS.
4. ALL NEW PARTITIONS ARE DIMENSIONED TO FACE OF STUD, MASONRY, OR CONCRETE COMPONENT UNLESS NOTED OTHERWISE. DIMENSIONS TO EXISTING ELEMENTS ARE TO EXPOSED FACE.
5. ALL DOORS IN STUD WALL CONSTRUCTION ARE TO BE LOCATED WITH EDGE OF FRAME 4" FROM FACE OF ADJACENT PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS LOCATING DOORS NOT DIRECTLY ADJACENT TO WALLS ARE GIVEN TO OUTSIDE EDGE OF FRAME.

FLOOR PLAN SYMBOLS LEGEND

- 101 — DOOR MARK
- M12A / S 44 — WALL CORE MATERIAL; WALL CORE WIDTH; WALL HEIGHT CODE
- WALL GYP LAYERS
- WALL MODIFIER CODE

Room name
- 101 — ROOM NUMBER
- W WLF1 — WALL FINISH DESIGNATION
- B BF1 — WALL BASE DESIGNATION
- F FLR1 — FLOOR FINISH DESIGNATION



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
10 - Elmcrest

Iowa Department of Administrative Services
1251 334th Street, Woodward, IA 50276

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ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	Field Book

BASEMENT DEMOLITION AND FLOOR PLAN

10-AD00

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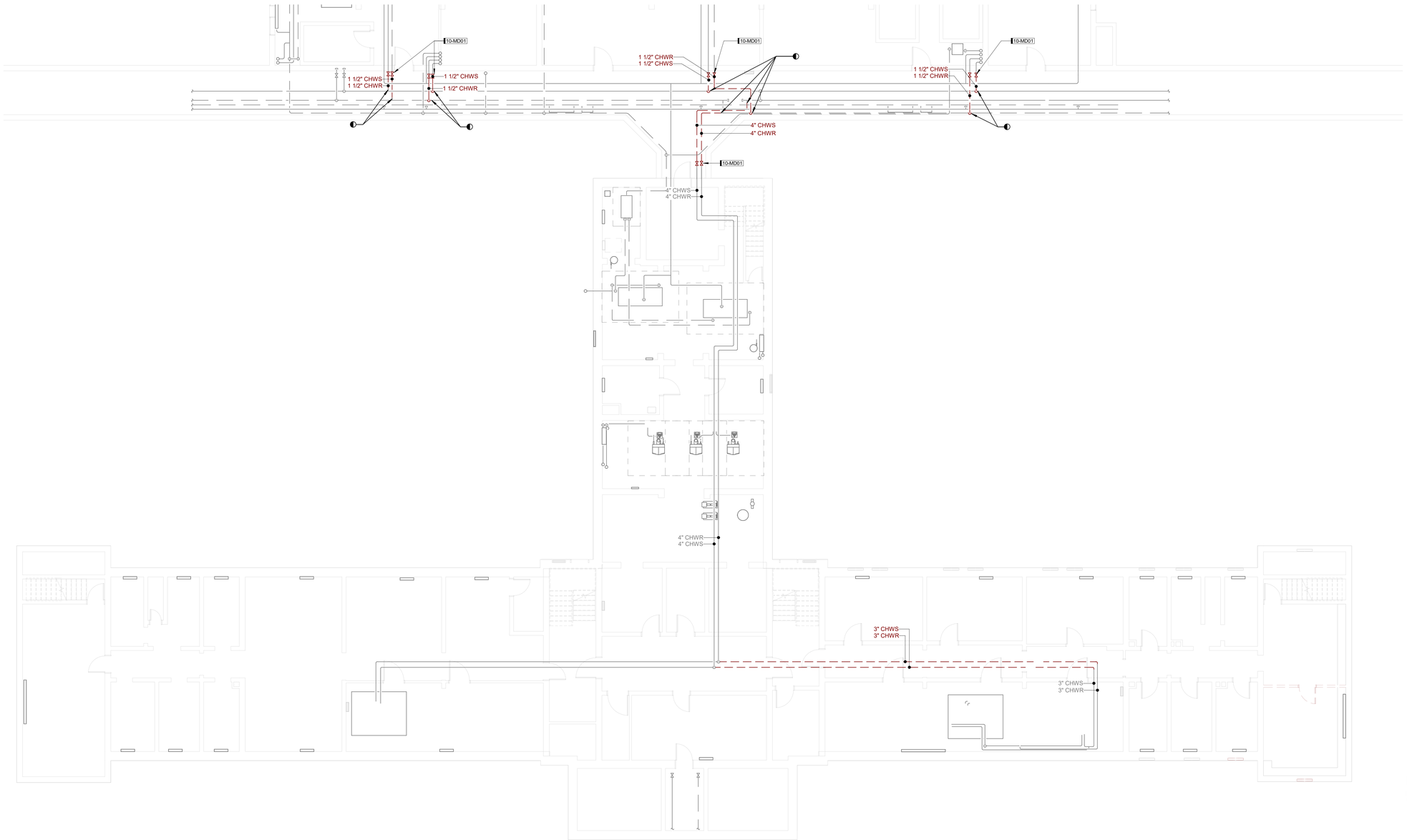
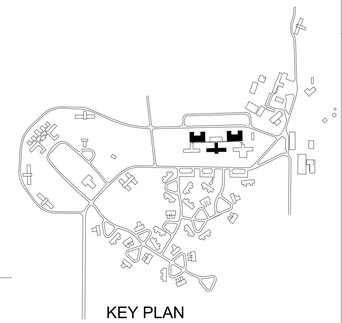
KEYNOTES	
KEY	NOTE
10-MD01	EXISTING ISOLATION VALVES ARE RUSTED AND IN BAD CONDITION. DEMOLISH AND REPLACE WITH NEW ISOLATION VALVES.



NORTH

A6 BASEMENT MECHANICAL PIPING DEMOLITION
1/8" = 1'-0" 0 12'



KEY PLAN

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
9 - LINDEN A/B -IC/D

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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BASEMENT MECHANICAL PIPING DEMOLITION PLAN

10-MD01

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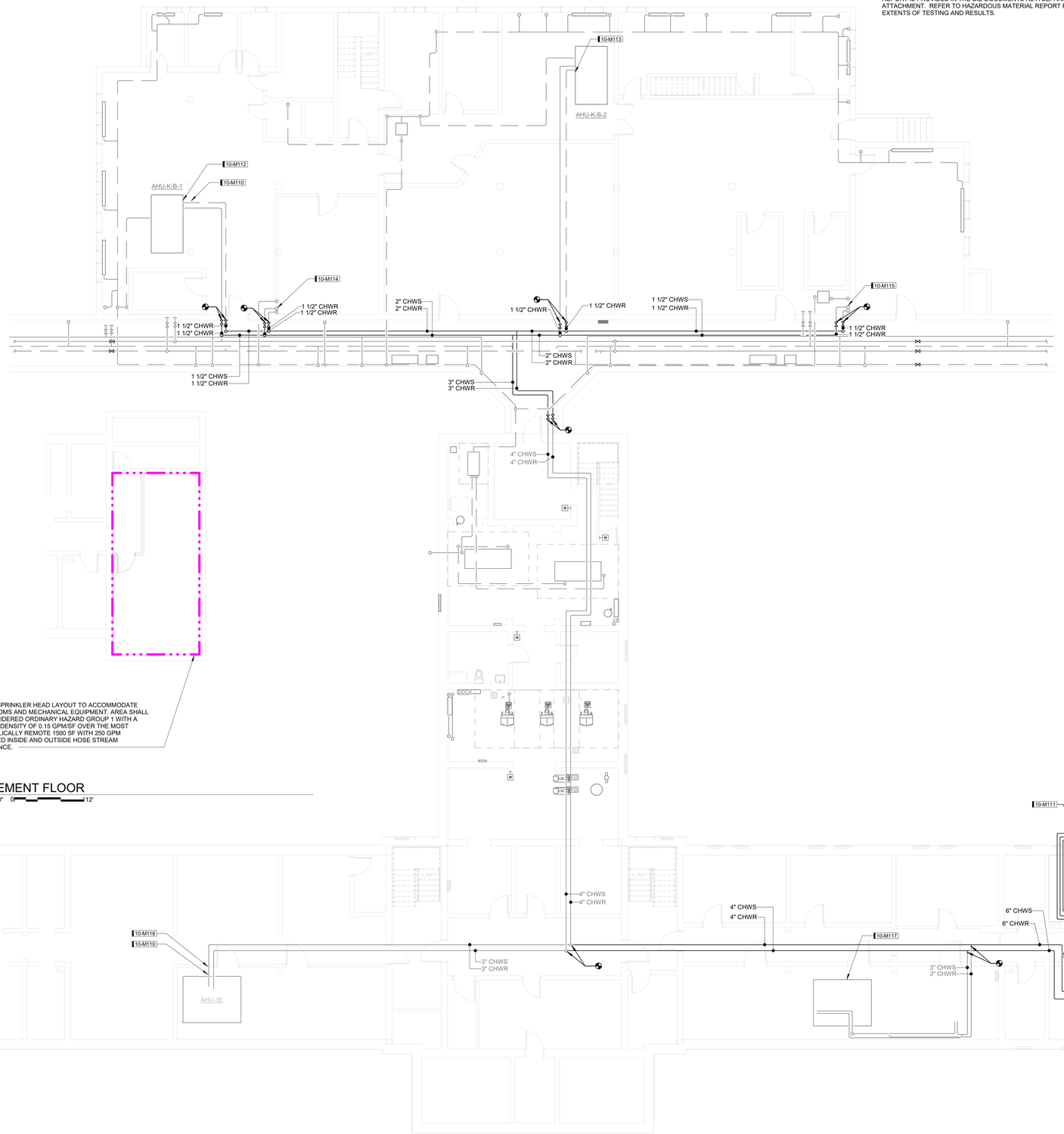
NOTE:

BUILDING CONTAINS HAZARDOUS MATERIAL SUCH AS ASBESTOS AND LEAD PAINT. SUPPLEMENTAL HAZARDOUS MATERIAL REPORT IS PROVIDED IN THE BID DOCUMENTS AS A SEPARATE ATTACHMENT. REFER TO HAZARDOUS MATERIAL REPORT FOR EXTENTS OF TESTING AND RESULTS.

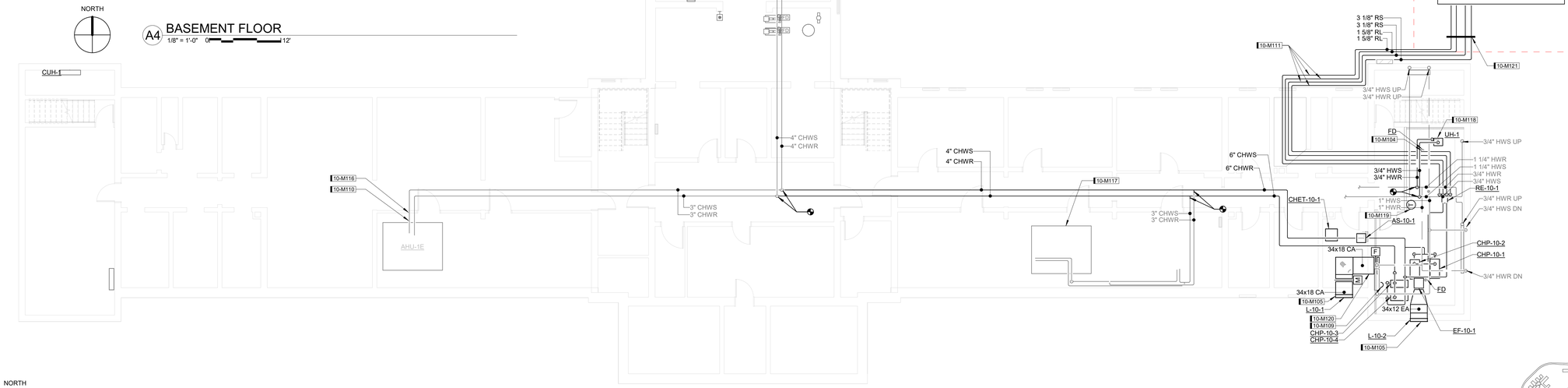
KEYNOTES

KEY	NOTE
10-M103	APPROXIMATE SAW CUT AND FLOOR PATCHING AREA FOR INSTALLATION OF NEW SANITARY PIPING TO BE CONNECTED TO EXISTING SANITARY PIPING. FIELD VERIFY PIPE ROUTING AND CONDITIONS PRIOR TO CUTTING. REINFORCE WITH #3 18" O.C. EACH WAY (DRILL AND GROUT 6" INBED) COORDINATE DEPTH OF THE SAW CUT AND METHOD OF SLAB REMOVAL. CONCRETE - 4000 PSI, MAXIMUM W/C RATIO = 0.42. PATCH VAPOR BARRIER TO MATCH EXISTING.
10-M104	REFER TO PLAN E3 ON SHEET M100 FOR FURTHER DETAILS ON NEW FLOOR DRAIN.
10-M105	EXISTING WINDOW TO BE REMOVED. NEW LOUVER TO BE INSTALLED IN EXTERIOR WALL PENETRATION.
10-M106	ROUTE SANITARY VENT PIPING UP TO FIRST FLOOR PLUMBING CHASE. CONNECT TO SANITARY VENT RISER IN FIRST FLOOR CHASE.
10-M107	ROUTE SANITARY PIPING ALONG WALL UP TO CEILING. COORDINATE LOCATION WITH WALL-MOUNTED EQUIPMENT.
10-M108	ROUTE VENT PIPING TO FIRST FLOOR PLUMBING CLOSET.
10-M109	INSTALL NEW CHEMICAL FEEDER AT APPROXIMATELY THIS LOCATION. SEE DETAIL ON 12-M600 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
10-M110	INSTALL NEW 3-WAY VALVE TO SERVE THIS AIR HANDLING UNIT. SEE COIL DETAIL ON SHEET 12-M600.
10-M111	REFRIGERANT PIPE SIZES ARE SHOWN ARE APPROXIMATIONS BASED ON THE BASIS OF DESIGN SYSTEM AND APPROXIMATE ROUTING SHOWN. FINAL REFRIGERANT PIPING SIZES SHALL BE DETERMINED IN ACCORDANCE WITH CHILLER MANUFACTURER'S REQUIREMENTS.
10-M112	REBALANCE EXISTING CHILLED WATER COIL TO 13 GPM.
10-M113	REBALANCE EXISTING CHILLED WATER COIL TO 18 GPM.
10-M114	REBALANCE EXISTING CHILLED WATER COIL TO 21 GPM.
10-M115	REBALANCE EXISTING CHILLED WATER COIL TO 25 GPM.
10-M116	REBALANCE EXISTING CHILLED WATER COIL TO 132 GPM.
10-M117	REBALANCE EXISTING CHILLED WATER COIL TO 192 GPM.
10-M118	NEW HW UNIT HEATER TO BE INSTALLED IN THIS LOCATION. ROUTE PIPING TO MAIN HW PIPING THAT ENTERS THE ROOM AS SHOWN.
10-M119	NEW THERMOSTAT FOR HW UNIT HEATER TO BE INSTALLED IN THIS APPROXIMATE LOCATION. CONTRACTOR TO COORDINATE FINAL LOCATION WITH FACILITY.
10-M120	INSTALL NEW LINTEL AT DUCT PENETRATION. SEE DETAIL.
10-M121	SUPPORT REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS AND REFRIGERANT PIPING SPECIFICATION. SEE CIVIL PLANS FOR ADDITIONAL DETAILS.



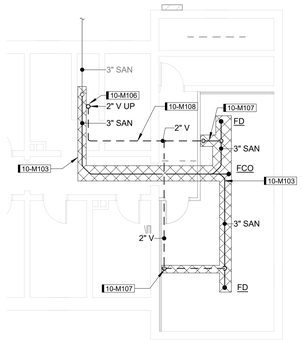
NORTH

A4 BASEMENT FLOOR
1/8" = 1'-0" 0 12'



NORTH

A6 BASEMENT MECHANICAL PIPING PLAN
1/8" = 1'-0" 0 12'



NORTH

E3 UNDERSLAB SANITARY PIPING PLAN
1/8" = 1'-0" 0

KEY PLAN

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(#9279.30) WRC Decentralization Phase 4
10-Elmcrest

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FIELD BOOK	

BASEMENT MECHANICAL PIPING PLAN

10-M100

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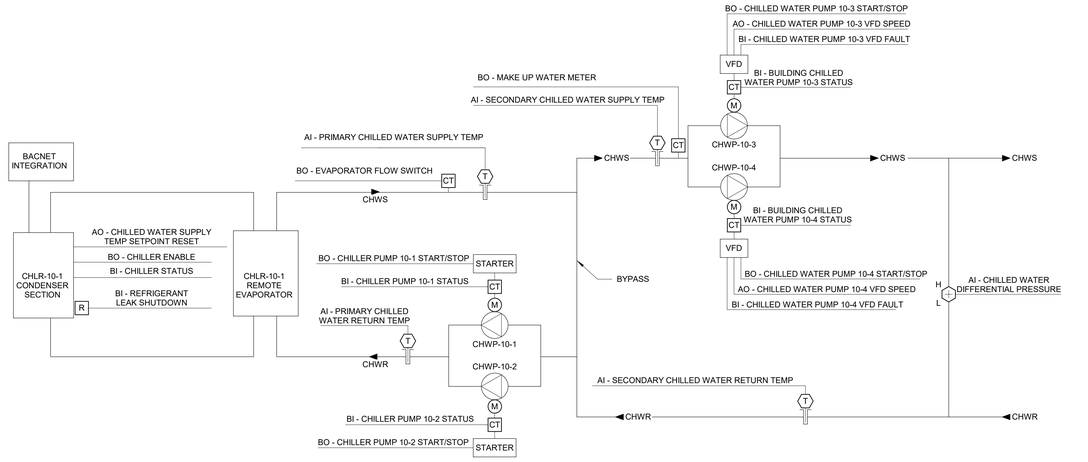


CONTROLS SCHEMATIC - AIR COOLED CHILLER REMOTE EVAP

A2 NOT TO SCALE

1. AIR COOLED CHILLER WITH REMOTE EVAPORATOR

CHILLER - RUN CONDITIONS:
THE CHILLER SHALL BE ENABLED TO RUN WHENEVER:
- A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING
- AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 54°F (ADJ.).

TO PREVENT SHORT CYCLING, THE CHILLER SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.

THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTABLE DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.

TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY (ADJ.) BETWEEN STAGING UP OR DOWN, UNLESS SHUTDOWN ON SAFETIES OR FAILURE. EACH CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
- THE LEAD CHILLER SHALL RUN FIRST.
- ON FAILURE OF THE LEAD CHILLER, THE LAG CHILLER SHALL RUN AND THE LEAD CHILLER SHALL TURN OFF.

THE DESIGNATED LEAD CHILLER SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):
- MANUALLY THROUGH A SOFTWARE SWITCH
- IF CHILLER RUNTIME (ADJ.) IS EXCEEDED
- DAILY
- WEEKLY
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- CHILLER 1 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CHILLER 2 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- LEAD CHILLER FAILURE: THE LEAD CHILLER IS IN FAILURE AND THE LAG CHILLER IS ON.

EMERGENCY SHUTDOWN:
THE CHILLER SHALL SHUT DOWN AND AN ALARM GENERATED UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL STATUS.

REFRIGERANT DETECTION:
THE CHILLER SHALL SHUT DOWN AND AN ALARM GENERATED UPON RECEIVING A REFRIGERANT LEAK DETECTION STATUS FROM EITHER THE CHILLER'S INTERNAL LEAK DETECTION OR THE MECHNAICAL ROOM REFRIGERANT DETECTION SYSTEM.

THE DELAY TIMES SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN, AND SEQUENCING.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAILURE: VALVE COMMANDED OPEN BUT THE STATUS INDICATES CLOSED.
- OPEN IN HAND: VALVE COMMANDED CLOSED BUT THE STATUS INDICATES OPEN.

CHILLER - RUN CONDITIONS:
THE CHILLER SHALL BE ENABLED TO RUN WHENEVER IT IS COMMANDED TO BE ENABLED BY THE CHILLER MANAGER PROGRAM. THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

CHILLER:
THE CHILLER SHALL BE ENABLED A USER ADJUSTABLE TIME AFTER PUMP STATUSES ARE PROVEN ON. THE CHILLER SHALL THEREFORE HAVE A USER ADJUSTABLE DELAY ON START.

THE DELAY TIME SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.

THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- CHILLER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CHILLER RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- CHILLER RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

PRIMARY CHILLED WATER PUMP LEAD/LAG OPERATION:
THE PRIMARY CHILLED WATER PUMPS SHALL OPERATE IN A LEAD/LAG FASHION.
- THE LEAD PUMP SHALL RUN FIRST.
- ON FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.

PRIMARY CHILLED WATER PUMP:
THE PRIMARY CHILLED WATER PUMP SHALL RUN ANYTIME THE CHILLER IS CALLED TO RUN.

THE PRIMARY CHILLED WATER PUMP SHALL START PRIOR TO THE CHILLER BEING ENABLED AND SHALL STOP ONLY AFTER THE CHILLER IS DISABLED. THE PRIMARY CHILLED WATER PUMP SHALL THEREFORE HAVE:
- A USER ADJUSTABLE DELAY ON START.
- AND A USER ADJUSTABLE DELAY ON STOP.

THE DELAY TIMES SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- PRIMARY CHILLED WATER PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- PRIMARY CHILLED WATER PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

CHILLER INTERFACE:

A CHILLER SEQUENCING CONTROL PANEL (INTEGRAL TO CHILLERS AND PROVIDED BY THE CHILLER MANUFACTURER) SHALL AUTOMATICALLY MODULATE THE CHILLER AND PROVIDE EXTERNAL CONNECTIONS TO THE DDC SYSTEM FOR CHILLER SHUT-OFF AND MONITORING VIA BACNET. THE CHILLER SHALL BE ENABLED TO OPERATE BY THE DDC OR MANUAL OVERRIDE.

SECONDARY CHILLED WATER PUMP SYSTEM - RUN CONDITIONS:
THE SECONDARY CHILLED WATER PUMPS SHALL BE ENABLED WHENEVER:
- A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING.

TO PREVENT SHORT CYCLING, THE SECONDARY CHILLED WATER PUMP SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE).

SECONDARY CHILLED WATER PUMP LEAD/LAG OPERATION:
THE TWO VARIABLE SPEED CHILLED WATER PUMPS SHALL OPERATE IN A LEAD/LAG FASHION.
- THE LEAD PUMP SHALL RUN FIRST.
- ON FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.

THE DESIGNATED LEAD PUMP SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):
- MANUALLY THROUGH A SOFTWARE SWITCH
- IF PUMP RUNTIME (ADJ.) IS EXCEEDED
- DAILY
- WEEKLY
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SECONDARY CHILLED WATER PUMP 1
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
  - VFD FAULT.
- SECONDARY CHILLED WATER PUMP 2
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
  - VFD FAULT.

SECONDARY CHILLED WATER SUPPLY TEMPERATURE - SETPOINT RESET:
THE SECONDARY CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET USING A TRIM AND RESPOND ALGORITHM BASED ON COOLING REQUIREMENTS BY MONITORING COOLING VALVE POSITIONS AND INCREASING CHILLED WATER TEMPERATURE SETPOINT, TO A MAXIMUM OF 53°F (ADJ.) AS LONG AS ALL CHILLED WATER VALVES ARE OPEN LESS A USER DEFINABLE THRESHOLD (90% OPEN, TYP.)

THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET TO A LOWER VALUE, WITH A MINIMUM OF 42°F (ADJ.), AS THE FACILITY'S CHILLED WATER VALVES OPEN BEYOND A USER DEFINABLE THRESHOLD (90% OPEN, TYP.), ONCE THE CHILLED WATER COILS ARE SATISFIED (VALVES CLOSING) THEN THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL GRADUALLY RISE OVER TIME TO REDUCE COOLING ENERGY USE.

THE SYSTEM SHALL HAVE THE ABILITY TO SET PRIORITY LEVELS TO VALVES IN ORDER TO MINIMIZE ROGUE VALVES FROM DRIVING THE SUPPLY SETPOINT DOWN. TREND SUPPLY TEMPERATURE SETPOINT AND COOLING REQUESTS AND ADJUST SYSTEM DURING THE FIRST COOLING SEASON TO MAXIMIZE EFFICIENCY.

THE SECONDARY CHILLED WATER TEMPERATURE RESET SHALL TAKE PRIORITY OVER THE SECONDARY PUMP STATIC PRESSURE RESET SEQUENCE. THE SECONDARY PUMPS STATIC PRESSURE RESET TRIM AND RESPOND LOGIC SHALL NOT BE INITIATED UNTIL CHILLED WATER SUPPLY TEMPERATURE SETPOINT RESET HAS REACHED IT'S MAXIMUM (53°F, ADJ.)

CHILLED WATER DIFFERENTIAL PRESSURE CONTROL:
THE CONTROLLER SHALL MEASURE CHILLED WATER DIFFERENTIAL PRESSURE AND MODULATE THE CHILLED WATER PUMP VFDS IN SEQUENCE TO MAINTAIN ITS CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT. THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.

THE CONTROLLER SHALL MODULATE CHILLED WATER PUMP SPEEDS TO MAINTAIN A CHILLED WATER DIFFERENTIAL PRESSURE OF 10 PSI (ADJ.). COORDINATE EXACT DIFFERENTIAL PRESSURE SETTING WITH TESTING AND BALANCING CONTRACTOR. THE VFDS MINIMUM SPEED SHALL NOT DROP BELOW 20% (ADJ.).

CHILLED WATER DIFFERENTIAL PRESSURE - SETPOINT RESET:
THE CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT SHALL RESET USING A TRIM AND RESPOND ALGORITHM BASED ON COOLING REQUIREMENTS BY MONITORING COOLING VALVE POSITIONS AND INCREASE CHILLED WATER DIFFERENTIAL SETPOINT, TO A MAXIMUM OF 15 PSI (ADJ.) AS LONG AS ALL CHILLED WATER VALVES ARE OPEN LESS A USER DEFINABLE THRESHOLD (90% OPEN, TYP.)

THE CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT SHALL RESET TO A LOWER VALUE, WITH A MINIMUM OF 5 PSI (ADJ.), AS THE FACILITY'S CHILLED WATER VALVES OPEN BEYOND A USER DEFINABLE THRESHOLD (90% OPEN, TYP.). ONCE THE CHILLED WATER COILS ARE SATISFIED (VALVES CLOSING) THEN THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL GRADUALLY RISE OVER TIME TO REDUCE COOLING ENERGY USE.

THE DIFFERENTIAL PRESSURE SETPOINT RESET SHALL NOT BE ENABLED UNTIL CHILLED WATER SUPPLY TEMPERATURE HAS BEEN RESET TO IT'S MAXIMUM.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.
- LOW CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.

PRIMARY CHILLED WATER TEMPERATURES:
THE BAS SHALL MONITOR THE PRIMARY CHILLED WATER SUPPLY AND RETURN TEMPERTAURES. THE BAS SHALL ALSO MONITOR THE SCHILLED WATER SUPPLY TEMPERATURES FROM EACH CHILLER.

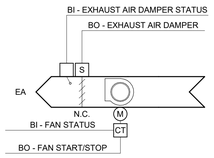
SECONDARY CHILLED WATER TEMPERATURES:

- HIGH MAIN CHILLED WATER SUPPLY TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER SUPPLY TEMPERATURE IS GREATER THAN 60°F (ADJ.)
- LOW MAIN CHILLED WATER SUPPLY TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER SUPPLY TEMPERATURE IS LESS THAN 38°F (ADJ.)
- HIGH MAIN CHILLED WATER RETURN TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER RETURN TEMPERATURE IS GREATER THAN 66°F (ADJ.)
- LOW MAIN CHILLED WATER RETURN TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER RETURN TEMPERATURE IS LESS THAN 46°F (ADJ.)

POINTS MATRIX - CHILLER PLANT

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
CHILLED WATER DIFFERENTIAL PRESSURE	x								x		x
CHILLED WATER FLOW	x								x		x
CHILLED WATER PRIMARY RETURN TEMP	x								x		x
CHILLED WATER PRIMARY SUPPLY TEMP	x								x		x
CHILLED WATER SECONDARY RETURN TEMP	x								x		x
CHILLED WATER SECONDARY SUPPLY TEMP	x								x		x
CHILLED WATER BYPASS VALVE		x							x		x
CHILLED WATER PUMP 1 VFD SPEED		x							x		x
CHILLED WATER PUMP 2 VFD SPEED		x							x		x
CHILLED WATER SUPPLY TEMP SETPOINT RESET		x							x		x
FAN VFD SPEED		x							x		x
CHILLED WATER ISOLATION VALVE STATUS			x						x		x
SECONDARY CHILLED WATER PUMP 1 STATUS			x						x		x
SECONDARY CHILLED WATER PUMP 1 VFD FAULT			x							x	x
SECONDARY CHILLED WATER PUMP 2 STATUS			x						x		x
SECONDARY CHILLED WATER PUMP 2 VFD FAULT			x							x	x
CHILLER STATUS			x						x		x
FAN STATUS			x						x		x
FAN VFD FAULT			x							x	x
HIGH WATER LEVEL SWITCH			x							x	x
LOW WATER LEVEL MAKEUP SWITCH			x						x		x
LOW WATER LEVEL SWITCH			x							x	x
REFRIGERANT LEAK SHUTDOWN			x						x	x	x
VIBRATION STATUS			x						x	x	x
CHILLED WATER ISOLATION VALVE				x							x
CHILLED WATER PUMP 1 START/STOP				x					x		x
CHILLED WATER PUMP 2 START/STOP				x					x		x
CHILLER ENABLE				x					x		x
FAN START/STOP				x							x
MAKEUP VALVE				x							x
CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT		x			x				x		x
CHILLED WATER FLOW SETPOINT		x			x				x		x
OUTSIDE AIR TEMP	x				x				x		x
CHILLED WATER PUMP 1 FAILURE			x							x	
CHILLED WATER PUMP 1 RUNNING IN HAND			x							x	
CHILLED WATER PUMP 1 RUNTIME EXCEEDED					x					x	
CHILLED WATER PUMP 2 FAILURE			x							x	
CHILLED WATER PUMP 2 RUNNING IN HAND			x							x	
CHILLED WATER PUMP 2 RUNTIME EXCEEDED					x					x	
CHILLER FAILURE			x							x	
CHILLER RUNNING IN HAND			x							x	
CHILLER RUNTIME EXCEEDED					x					x	
FAN FAILURE			x							x	
FAN IN HAND			x							x	
FAN RUNTIME EXCEEDED					x					x	
HIGH CHILLED WATER DIFFERENTIAL PRESSURE	x									x	
HIGH CHILLED WATER SUPPLY TEMP	x									x	
LOW CHILLED WATER DIFFERENTIAL PRESSURE	x									x	
LOW CHILLED WATER FLOW	x									x	
LOW CHILLED WATER SUPPLY TEMP	x									x	
MAKEUP VALVE RUNTIME EXCEEDED					x					x	
TOTALS	12	7	21	6	8	0	0	0	25	25	33
	TOTAL HARDWARE (46)				TOTAL SOFTWARE (91)						

MACHINERY RERFRIGERATION ROOM
1. CHILLER ROOM EXHAUST FAN (EF-1 CHILLER ROOM OCCUPIED): THE EXHAUST FAN SHALL BE USED FOR CONSTANT VENTILATION. THE OUTDOOR AIR DAMPER AND EXHAUST FAN DAMPER SHALL BE OPENED WHENEVER THE EF-1 IS IN OPERATION
   - VENTILATION: EXHAUST FAN SHALL BE IN OPERATION AT ALL TIMES TO MEET VENTILATION REQUIREMENTS.
     - EXHAUST FAN IS TO OPERATE AT SCHEDULED MINIMUM VENTILATION CFM AT ALL TIMES UNLESS THE REFRIGERANT DETECTION SYSTEM IS ACTIVATED.
   - FAN POWERED OFF: WHENEVER THE EXHAUST FAN IS SHUT OFF, THE FANS AUTO DAMPER SHALL BE IN THE CLOSED POSITION.
2. CHILLER ROOM EXHAUST FAN (EF-1 CHILLER ROOM EMERGENCY): THE NEW EXHAUST FAN SHALL BE USED FOR EMERGENCY "PURGE" VENTILATION. IF THE NEW REFRIGERANT MONITORING SYSTEM IS ALARMED:
   - THE GENERAL VENTILATION PROGRAM WILL BE DISABLED
   - THE OUTDOOR AIR DAMPER SHALL OPEN
   - THE EXHAUST FAN SHALL RAMP UP TO THE SCHEDULED MAXIMUM CFM.
   - EXHAUST FAN SHALL TURN DOWN TO VENTILATION CFM WHEN REFIRGERANT ALARM SYSTEM DISABLES ALARM.
3. REFRIGERANT MONITORING SYSTEM
   - MONITOR THE 4-20 MA OUTPUT FROM THE CHILLER REFRIGERANT MONITORING SYSTEM. AN ALARM SHALL BE ISSUED IF ANY REFRIGERANT IS DETECTED.
     1. IF THE REFRIGERANT LEVEL EXCEEDS 10 PPM (ADJ.) THE EMERGENCY "PURGE" VENTILATION SYSTEM SHALL BE INITIATED.
     2. COORDINATE LEVELS WITH FINAL REFRIGERATION SENSOR MANUFACTURER. STROBES SHALL BE ENGAGED UPON DETECTION OF REFRIGERANT.
     3. ALARM SHALL BE DISABLED WHEN REFRIGERANT LEVEL DROPS TO 5PPM (ADJ.) FOR 5MIN.
4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   - FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
   - FAN RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON
   - DAMPER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
   - DAMPER IN HAND: COMMANDED OFF, BUT THE STATUS IS ON
   - REFRIGERANT DETECTION SYSTEM ACTIVATED AND FAN IS CONTROLLING FOR PURGE OPERATION.



CONTROLS SCHEMATIC - EF

D5 NOT TO SCALE

SEQUENCE - EF - VENTILATION AND PURGE

E5 NOT TO SCALE

POINTS MATRIX - EF - VENTILATION AND PURGE

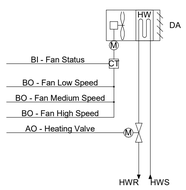
POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
EXHAUST AIR DAMPER STATUS			x						x		x
FAN STATUS			x						x		x
EXHAUST AIR DAMPER				x					x		x
FAN START/STOP				x					x		x
EXHAUST AIR DAMPER FAILURE			x							x	
EXHAUST AIR DAMPER IN HAND			x							x	
FAN FAILURE			x							x	
FAN IN HAND			x							x	
REFRIGERANT DETECTION			x							x	
TOTALS	0	0	7	2	0	0	0	0	4	5	4
	TOTAL HARDWARE (9)				TOTAL SOFTWARE (13)						

POINTS MATRIX - UH - UNIT HEATER

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
ZONE TEMP	x								x		x
HEATING VALVE		x							x		x
FAN STATUS			x						x		x
FAN HIGH SPEED				x							x
FAN LOW SPEED				x							x
FAN MEDIUM SPEED				x							x
HEATING SETPOINT					x				x		x
FAN FAILURE			x							x	
FAN IN HAND			x							x	
LOW ZONE TEMP						x				x	
TOTALS	1	1	3	3	1	1	0	0	4	3	7
	TOTAL HARDWARE (8)				TOTAL SOFTWARE (16)						

SEQUENCE OF OPERATIONS - AIR COOLED CHILLER REMOTE EVAP

A5a NOT TO SCALE



ADD DDC TEMPERATURE SENSOR INSIDE OR NEAR EXISTING PNEUMATIC THERMOSTAT WHERE THERMOSTATS ARE CURRENTLY BEING USED FOR BOTH COOLING AND HEATING. EXISTING THERMOSTATS WILL REMAIN TO CONTROL COOLING. NEW SENSOR WILL CONTROL HEATING UNTIL COOLING IS CONVERTED TO DDC IN THE FUTURE.

FOR AREAS WITHOUT EXISTING PNEUMATIC THERMOSTATS OR HEATING-ONLY PNEUMATIC THERMOSTATS PROVIDE NEW DDC THERMOSTAT.

1. UNIT HEATER

THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 70°F (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 10°F (ADJ.).

FAN:
THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT, UNLESS SHUTDOWN ON SAFETIES.

HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

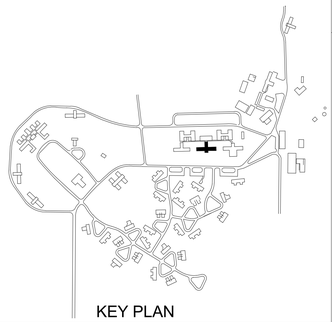
THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE FAN IS ON.

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

CONTROLS SCHEMATIC - UNIT HEATER

A6 NOT TO SCALE



KEY PLAN

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515.223.9104 | SHIVEHATTERY.COM

(#9279.30) WRC Decentralization Phase 4
10-Elmcrest

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	JDB
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-09-14
PROJECT NUMBER	2240007040
FIELD BOOK	

MECHANICAL CONTROLS

10-M500

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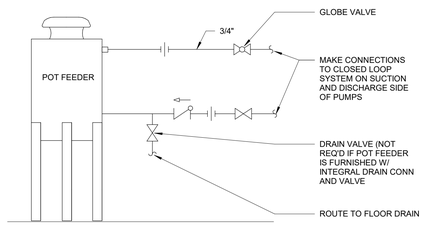
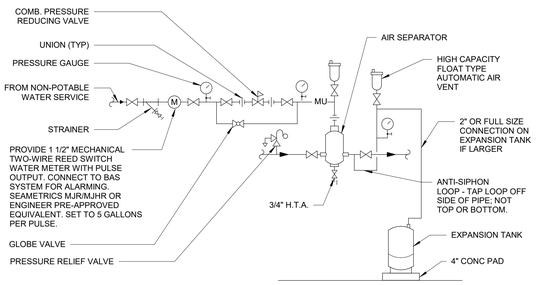
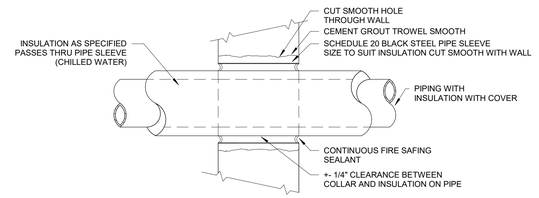


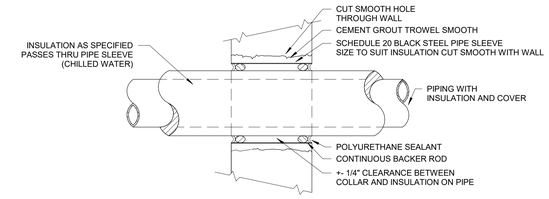
A2 POT FEEDER PIPING DETAIL
NOT TO SCALE



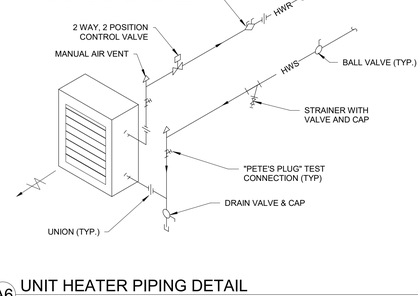
B2 AIR SEPARATOR/BLADDER TYPE EXP. TANK DETAIL
NOT TO SCALE



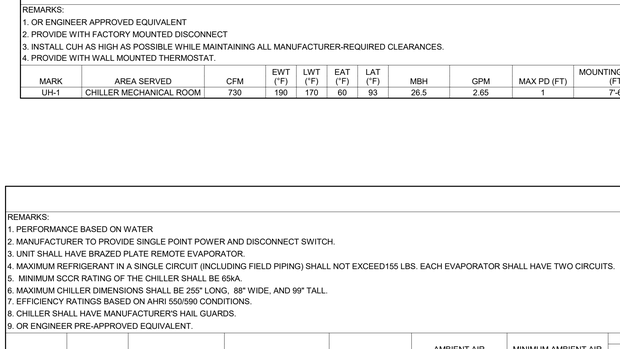
D2 INTERIOR FIRE RATED WALL PIPE PENETRATION DETAIL
NOT TO SCALE



E2 EXTERIOR WALL PIPE PENETRATION DETAIL
NOT TO SCALE

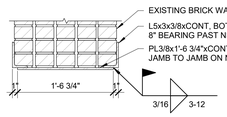


A3 BASE MOUNTED PUMP DETAIL
NOT TO SCALE

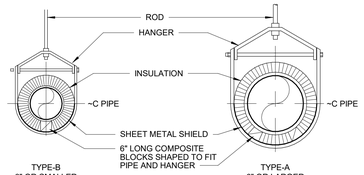


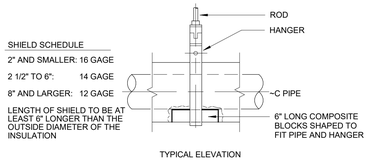
B4 REMOTE EVAPORATOR DETAIL
NOT TO SCALE

E3 AHU COIL PIPING DETAIL
NOT TO SCALE

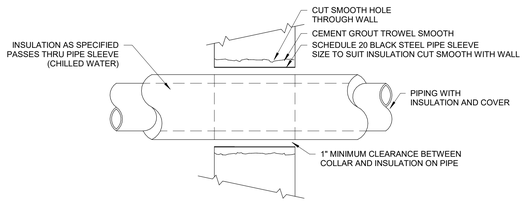


1 LINTEL DETAIL
NOT TO SCALE





A5 INSULATED PIPE HANGER DETAIL
NOT TO SCALE



B5 INTERIOR WALL PIPE PENETRATION DETAIL
NOT TO SCALE

A6 UNIT HEATER PIPING DETAIL
NOT TO SCALE

PLUMBING FIXTURE SCHEDULE

FLOOR DRAIN (FD):
FIXTURE: 3" ZURN Z-415-B SERIES, CAST IRON, MEMBRANE CLAMP, FLASHING COLLAR, WEEP HOLES, HUB OUTLET WITH GASKETED CONNECTION, 5" DIA ADJUSTABLE NICKEL BRONZE STRAINER, VANDAL-PROOF. SET TOP OF STRAINER FLUSH WITH FINISHED FLOOR. PROVIDE DEEP SEAL P-TRAP

BACKFLOW PREVENTER:
FIXTURE: WATTS, 009 SERIES, FULL LINE SIZE. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, TWO INDEPENDENTLY OPERATING CHECK VALVES WITH INTERMEDIATE RELIEF VALVE, BALL VALVE TEST COCKS, COMPLIANT WITH USCFCC MANUAL FOR CROSS CONNECTION CONTROL, ASSE STANDARD 1013, AWWA STANDARD C506-78. PROVIDE WATTS DRAIN CONNECTION WITH AIR GAP

FCO (FLOOR CLEANOUT):

FIXTURE: ZURN, Z-1400 LEVEL-TROL SERIES FLOOR CLEANOUT, CAST IRON, INSIDE CAULK CONNECTION, ADJUSTABLE, THREADED ABS PLUG, SECURED SATIN NICKEL BRONZE TOP. SET TOP FLUSH WITH FINISHED CONCRETE. PROVIDE EXTRA HEAVY DUTY FLOOR CLEANOUT COVER FOR CLEANOUTS LOCATED IN MECHANICAL SPACES

LOUVER SCHEDULE

REMARKS:
1. LOUVER SHALL BE CUSTOM COLOR SELECTED BY ARCHITECT DURING SUBMITTAL PROCESS.
2. OR ENGINEER APPROVED EQUIVALENT.

MARK	AIR FLOW (CFM)	DIMENSIONS H	W	D	MAX FREE AREA (%)	FREE AREA VELOCITY (FPM)	PRESSURE DROP (WG)	DESIGN BASIS	REMARKS
L-10-1	1250	18"	34"	6"	49	770	0.09	GREENHECK ESD-635	
L-10-2	1250	18"	34"	6"	49	770	0.08	GREENHECK ESD-635	

MECHANICAL PIPING EXPANSION TANK SCHEDULE

REMARKS:
1. OR ENGINEER APPROVED EQUIVALENT.

MARK	SYSTEM SERVED	TYPE	TANK CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	RELIEF VALVE RELIEF AT (PSI)	RELIEF VALVE FILL AT (PSI)	DESIGN BASIS	REMARKS
CHET-10-1	CHW	DIAPHRAGM	7.8	6.3	125	30	GRUNDFOS GNTA-15	

AIR SEPARATOR SCHEDULE

REMARKS:
1. OR ENGINEER APPROVED EQUIVALENT.

MARK	SYSTEM SERVED	SIZE (IN)	CAPACITY (GPM)	STRAINER (Y/N)	MAX PD (FT)	MINIMUM AIR REMOVAL (%)	DESIGN BASIS	REMARKS
AS-10-1	CHW	5"	480	N	1	99.7	GRUNDFOS GSPA-5	

FAN SCHEDULE

REMARKS:
1. OR ENGINEER APPROVED EQUIVALENT.
2. COORDINATE DAMPERS WITH SHEET METAL CONTRACTOR.
3. ALL FANS SHALL HAVE FACTORY-MOUNTED DISCONNECT SWITCH.
4. EF-10-1 SHALL BE CAPABLE OF OPERATING AT 1250 CFM AND ALSO CAPABLE OF TURNING DOWN TO 250 CFM.

MARK	AREA SERVED	FAN TYPE	CFM	ESP (IN WG)	MOTOR DATA BHP	HP	RPM	DRIVE	ELECTRICAL DATA VOLTS	PHASE	DAMPER TYPE	INLET SONES	DESIGN BASIS	REMARKS
EF-10-1	REFRIGERANT PURGE	INLINE	1250	0.5	0.17	1	1721	DIRECT	120	1	MOTORIZED	17.5	GREENHECK AX-41-31-0317-VG	

UNIT HEATER SCHEDULE - HOT WATER

REMARKS:
1. OR ENGINEER APPROVED EQUIVALENT
2. PROVIDE WITH FACTORY MOUNTED DISCONNECT
3. INSTALL CUH AS HIGH AS POSSIBLE WHILE MAINTAINING ALL MANUFACTURER-REQUIRED CLEARANCES.
4. PROVIDE WITH WALL MOUNTED THERMOSTAT.

MARK	AREA SERVED	CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	MAX PD (FT)	MOUNTING HEIGHT (FT)	FAN MOTOR DATA HP	VOLTS	PHASE	DESIGN BASIS	REMARKS
UH-1	CHILLER MECHANICAL ROOM	730	190	170	60	93	26.5	2.65	1	7'-6"	1/12	120	1	MODINE HC-47	1, 2, 3, 4

MECHANICAL PUMP SCHEDULE

REMARKS:
1. OR ENGINEER APPROVED EQUIVALENT.
2. VFD TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
3. DISCONNECT TO BE PROVIDED AND INSTALLED BY E.C.

MARK	SYSTEM SERVED	TYPE	GPM	HEAD (FT)	SHUTOFF HEAD (FT)	PLEV %	MOTOR DATA HP	BHP	RPM	ELECTRICAL DATA VOLTS	PHASE	DESIGN BASIS	REMARKS
CHP-10-1	PRIMARY CHW	END SUCTION	478	36	47.6	83.5	7.5	5.86	1770	460	3	GRUNDFOS NBS 040-070-4P	1,2,3
CHP-10-2	PRIMARY CHW	END SUCTION	478	36	47.6	83.5	7.5	5.86	1770	460	3	GRUNDFOS NBS 040-070-4P	1,2,3
CHP-10-4	SECONDARY CHW	END SUCTION	401	81	91.3	73.4	15	11.64	1765	460	3	GRUNDFOS NBS 030-135-4P	1,2,3
CHP-10-3	SECONDARY CHW	END SUCTION	401	81	91.3	73.4	15	11.64	1765	460	3	GRUNDFOS NBS 030-135-4P	1,2,3

AIR COOLED CHILLER SCHEDULE

REMARKS:
1. PERFORMANCE BASED ON WATER
2. MANUFACTURER TO PROVIDE SINGLE POINT POWER AND DISCONNECT SWITCH.
3. UNIT SHALL HAVE BRAZED PLATE REMOTE EVAPORATOR.
4. MAXIMUM REFRIGERANT IN A SINGLE CIRCUIT (INCLUDING FIELD PIPING) SHALL NOT EXCEED155 LBS. EACH EVAPORATOR SHALL HAVE TWO CIRCUITS.
5. MINIMUM SCCR RATING OF THE CHILLER SHALL BE 65kA.
6. MAXIMUM CHILLER DIMENSIONS SHALL BE 255" LONG, 88" WIDE, AND 99" TALL.
7. EFFICIENCY RATINGS BASED ON AHRI 550/590 CONDITIONS.
8. CHILLER SHALL HAVE MANUFACTURER'S HAIL GUARDS.
9. OR ENGINEER PRE-APPROVED EQUIVALENT.

MARK	AREA SERVED	SYSTEM SERVED	CAPACITY (TONS)	MINIMUM LOAD (%)	AMBIENT AIR TEMPERATURE (°F)	MINIMUM AMBIENT AIR TEMPERATURE (°F)	MAXIMUM ALLOWABLE SOUND PRESSURE (AT 30 FEET) 63	125	250	500	1000	2000	4000	8000	EFFICIENCY EER @100%	IPLV	EVAPORATOR DATA MINIMUM GPM	GPM	EWT (°F)	LWT(° F)	MAX PD (FT)	NUMBER OF COMPRESSORS	FOULING FACTOR	ELECTRICAL DATA VOLTS	PHASE	MCA	MOCP	REFRIGERANT REFRIGERANT LBS	TYPE	DESIGN BASIS	REMARKS
CHLR-10-1	ELMCREST	CHILLED WATER	185	30	95	32	45	53	57	62	62	61	53	48	10.37	18.4	240	442	52	42	11.6	6	0.0001	460	3	395	450 A	142	R32	DAIKIN AGZ012F	

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(#9279.30) WRC Decentralization Phase 4
18 - POWER HOUSE

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

JOB	
JOB	
DRAWN BY	
APPROVED BY	
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

MECHANICAL SCHEDULES AND DETAILS

10- M600

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BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
DP-EC	480Y/277	3	4	600 AMPS	600 A	42,000 AMPS SYMMETRICAL
						MOUNTING: WALL
ROOM:						ENCLOSURE: NEMA 3R
FED FROM:						FEED:

CKT	CIRCUIT DESCRIPTION	NOTES	TRIP	POLES	A	B	C
1,2,3	H-ECB		100 A	3	17736.2 VA	17736.2 VA	17736.2 VA
4,5,6	EXTERIOR - CHLR-11-1		450 A	3	87572.5 VA	87572.5 VA	87572.5 VA
7,8,9	SPARE	--	150 A	3	0 VA	0 VA	0 VA
10,11,12	SPARE	--	150 A	3	0 VA	0 VA	0 VA
13,14	SPARE	--	100 A	2	0 VA	0 VA	
15,16	SPARE	--	100 A	2	0 VA		0 VA
17	SPACE	--	--	1		--	
18	SPACE	--	--	1			--
				TOTAL LOAD:	105309 VA	105309 VA	105309 VA
				TOTAL AMPS:	380 A	380 A	380 A

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
HVAC - COOLING	262717.5 VA	100%	262717.5 VA
MOTORS	53208.6 VA	108.2%	57573.4 VA

PANEL TOTALS	
CONNECTED LOAD:	315926 VA
ESTIMATED DEMAND:	320291 VA
CONNECTED CURRENT:	380 A
ESTIMATED DEMAND CURRENT:	385 A

NOTES:

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
H-ECB	480Y/277	3	4	225 AMPS	225 A	22,000 AMPS SYMMETRICAL
	CODE: L=LIGHTING, R=RECEPTACLES, E=EQUIPMENT, K=KITCHEN					MOUNTING: SURFACE
ROOM:						ENCLOSURE: NEMA 1
FED FROM: DP-EC						FEED:

LOAD	CODE	NOTE	POLE	BKR	CKT #	A KVA	B KVA	C KVA	CKT #	BKR	POLE	NOTE	CODE	LOAD
					1	3.0 / 3.0			2					
RM B50 - CHP-10-2	E		3	25 A	3		3.0 / 3.0		4	25 A	3		E	RM B50 - CHP-10-1
					5			3.0 / 3.0	6					
					7	5.8 / 5.8			8					
RM B50 - CHP-10-4	E		3	50 A	9		5.8 / 5.8		10	50 A	3		E	RM B50 - CHP-10-3
					11			5.8 / 5.8	12					
SPARE	--	--	1	20 A	13	0.0 / 0.0			14	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	15		0.0 / 0.0		16	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	17			0.0 / 0.0	18	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	19	0.0 / 0.0			20	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	21		0.0 / 0.0		22	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	23			0.0 / 0.0	24	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	25	0.0 / 0.0			26	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	27		0.0 / 0.0		28	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	29			0.0 / 0.0	30	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	31	0.0 / 0.0			32	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	33		0.0 / 0.0		34	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	35			0.0 / 0.0	36	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	37	0.0 / 0.0			38	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	39		0.0 / 0.0		40	20 A	1	--	--	SPARE
SPARE	--	--	1	20 A	41			0.0 / 0.0	42	20 A	1	--	--	SPARE
				TOTAL LOAD:		17736.2 VA	17736.2 VA	17736.2 VA						
				TOTAL AMPS:		64.0 A	64.0 A	64.0 A						

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
MOTORS	53208.6 VA	108.2%	57573.4 VA

PANEL TOTALS	
CONNECTED LOAD:	53208.6 VA
ESTIMATED DEMAND:	57573.4 VA
CONNECTED CURRENT:	64.0 A
ESTIMATED DEMAND CURRENT:	69.3 A

NOTES:

LIGHTING FIXTURE SCHEDULE

CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE DESCRIPTION AND THE SPECIFICATIONS SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS FOR DESIGN. ALL LAMPS/LIGHT SOURCES FOR THIS PROJECT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. ALL LIGHT FIXTURES SHALL BE PROVIDED WITH INTEGRAL DISCONNECT(S) FACTORY INSTALLED IN ACCORDANCE WITH NEC. REFER TO SPECIFICATIONS FOR SHOP DRAWING SUBMITTAL REQUIREMENTS AND ADDITIONAL INFORMATION.

MOUNTING STYLES (MTG): RE-A = RECESSED (ACT), RE-G = RECESSED (GYP), RE-W = RECESSED (WALL), CL = CEILING SURFACE, PW = PERIMETER WALL, SP = SUSPENDED (AIR-CRAFT CABLE), ST = STEM, WL = WALL, WL-H = WALL HORIZONTAL, WL-V = WALL VERTICAL, UNV = UNIVERSAL, POLE = POLE, UC = UNDER CABINET, TR = TRACK, GND = GROUND

LED DRIVER TYPES: STND = STANDARD DRIVER, DIM10 = 0-10V 10% DIMMING, DIM1 = 0-10V 1% DIMMING, DIMD = 0-10V DIM TO DARK, STEP = STEP DIMMING, NOND = NON-DIMMING, DALI = DIGITAL ADDRESSABLE LIGHTING INTERFACE, DMX = DIGITAL MULTIPLEX, LUTR = LUTRON HI-LUME, POE = POWER OVER ETHERNET, SDIM = STEP DIMMING

GENERAL NOTES:

A. WHERE "OR APPROVED EQUIVALENT" IS LISTED IN THE MANUFACTURER COLUMN, FIXTURES MUST BE SUBMITTED AS A SUBSTITUTION FOR APPROVAL PRIOR TO BID SUBMISSION.
B. LISTED LUMENS ARE DELIVERED LUMENS. PROVIDE FIXTURE WITHIN +/- 5% OF LISTED LUMENS.
C. LIGHTING PRODUCTS SHALL BE PROVIDED THROUGH THE AUTHORIZED LIGHTING MANUFACTURER'S REPRESENTATIVE RESIDING WITHIN PROJECT LOCATION.
D. SUBMITTALS SHALL BE PRODUCED AND SUBMITTED BY LOCAL AUTHORIZED LIGHTING MANUFACTURER'S REPRESENTATIVE. LETTERHEAD SHALL CONTAIN REPRESENTATIVES' CONTACT INFORMATION, PROJECT...

SCHEDULE NOTES:

1. CONNECT TO UNSWITCHED PORTION OF LIGHTING CIRCUIT.
2. PROVIDE WITH INTEGRAL OCCUPANCY AND DAYLIGHTING WIRELESS SENSOR.

TYPE	DESCRIPTION	LENS-LOUVER	MTG	LIGHTING OUTPUT/CCT	DRIVER	VOLT	WATT	BASIS OF DESIGN	APPROVED EQUIVALENT	NOTES
L10	3" W X 4' LONG LED LENSED STRIP, STEEL HOUSING	ACRYLIC SEMI-FROST LENS	SP	LED, 3000 LUMENS, 4000K	DIM10	120 V	19 W	LITHONIA CLX	COLUMBIA MPS, DAY-BRITE FSS, DECO LIGHTING DACH-LED, LSI SDL, METALUX SNLED	

MECHANICAL AND ELECTRICAL COORDINATION SCHEDULE - CHILLER REPLACEMENT

GENERAL NOTES:

A. MOCP SIZES SHOWN BELOW ARE FOR BIDDING PURPOSES ONLY. VERIFY MOCP WITH EQUIPMENT NAME PLATE DATA PRIOR TO ORDERING EQUIPMENT.
B. MINIMUM WIRE SIZE SHALL BE #12 AWG AND MINIMUM CONDUIT SIZE SHALL BE 3/4".
C. INCLUDE A SEPARATE, GREEN, CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT CONDUITS.

REMARKS:

1. VFD FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
2. MINI SPLIT POWERED THROUGH CONDENSING UNIT.

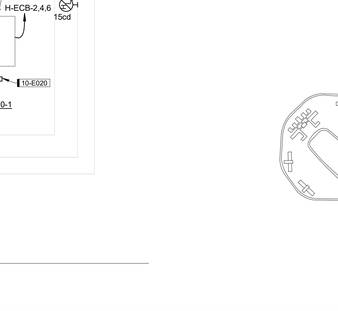
ABBREVIATIONS:

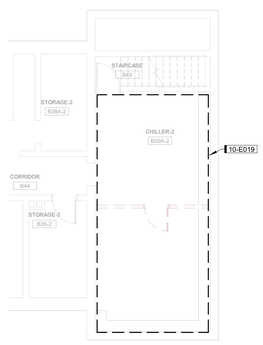
EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
MFR - MANUFACTURER
TCC - TEMPERATURE CONTROL CONTRACTOR
OWN - OWNER
NF - NON-FUSED DISCONNECT
PWE - PROVIDED WITH EQUIPMENT
VDF - VARIABLE FREQUENCY DRIVE

MARK	VOLTAGE	PHASE	FLA	MCA	MOCP	HP	KVA	CONDUIT AND WIRE SIZE	CONTROLLER OR STARTER FURNISHED / INSTALLED	DISCONNECT FURNISHED / INSTALLED	REMARKS
CHLR-10-1	480	3	316	395	450	-	262.717	3#400KCMIL, 1#3GND, 3"C.	VFD	EC	-
CHP-10-1	480	3	11	13.8	25	7.5	9.145	3#12, 1#12 GND, 3/4" C	VFD	EC	1
CHP-10-2	480	3	11	13.8	25	7.5	9.145	3#12, 1#12 GND, 3/4" C	VFD	EC	1
CHP-10-3	480	3	21	26.3	50	15	17.459	3#10, 1#10 GND, 3/4" C	VFD	EC	1
CHP-10-4	480	3	21	26.3	50	15	17.459	3#10, 1#10 GND, 3/4" C	VFD	EC	1
EF-10-1	120	1	17.2	21.5	30	1	2.064	2#12, 1#12GND, 3/4"C.	VFD	EC	1
UH-1	120	1	1.4	1.8	20	1/12	0.168	2#12, 1#12 GND, 3/4" C	MC	PWE	-

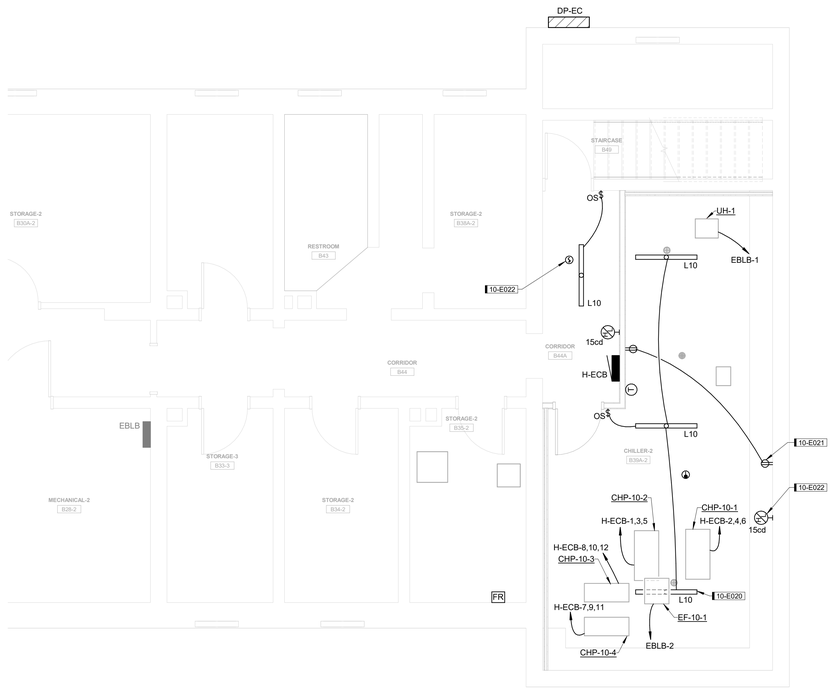
KEYNOTES

KEY	NOTE
10-E019	REMOVE EXISTING LIGHT FIXTURES AND LIGHTING CONDUIT IN THE SPACE. EXISTING LIGHTING CIRCUIT TO REMAIN. EXTEND EXISTING LIGHTING CIRCUIT TO NEW LIGHTING FIXTURES
10-E020	CIRCUIT NEW LIGHTS TO EXISTING LIGHTING CIRCUIT.
10-E021	CIRCUIT RECEPTACLE TO NEAREST CONVENIENCE RECEPTACLE CIRCUIT.
10-E022	RELOCATE FIRE ALARM DEVICE

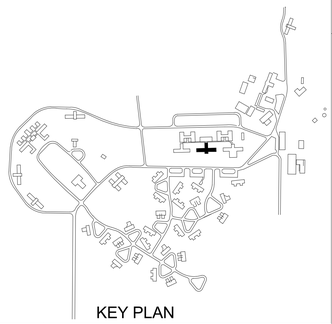




A6 BASEMENT LEVEL - CHILLER UPGRADES DEMOLITION
1/8" = 1'-0" 0 12'



C6 BASEMENT LEVEL - CHILLER UPGRADES
1/4" = 1'-0" 0 6'



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(#9279.30) WRC Decentralization Phase 4
10-Elmcrest

Iowa Department of Administrative Services
1251 334th St. Woodward, IA 50276

DRAWN BY	RML
APPROVED BY	KJB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

BASEMENT LEVEL CHILLER UPGRADES

10-E100

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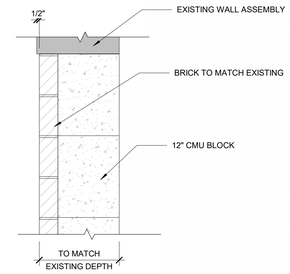
WALL RATING INDICATORS AND CODES						
PLAN INDICATOR LINE STYLE	SEPARATION DESIGNATION	RATING	DESCRIPTION	USE	DOORS	HVAC
— - — — - — — - —	FB-1-HP	1 HR	FIRE BARRIER	HAZARD PROTECTION	45 MIN*	ALLOWED W/ FIRE DAMPERS

*RATING FOR NEW USE ONLY REQUIRES 1 HOUR FIRE BARRIER WALLS AND 45 MINUTE DOORS; EXISTING DOOR IS LABELED AS 90 MINUTE DOOR AND WILL REMAIN.

CODE PLAN GENERAL NOTES

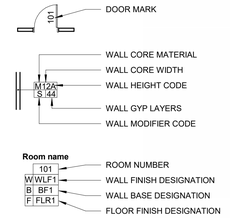
1. FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IN THE CONCEALED SPACE. SUCH IDENTIFICATION SHALL BE LOCATED WITHIN 15' OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30' MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION AND INCLUDE LETTERING NOT LESS THAN 3' TALL AND A MINIMUM 3/8-INCH STROKE IN A CONTRASTING COLOR STATING: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS".

A3 BASEMENT DEMOLITION PLAN
1/8" = 1'-0" 0 12'



E2 EXTERIOR WALL ASSEMBLY INFILL
1" = 1'-0" 0 1'-6"

FLOOR PLAN SYMBOLS LEGEND

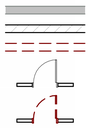


LIFE SAFETY SYMBOLS LEGEND

ARCHITECTURAL DEMOLITION NOTES

1. FIELD VERIFY EXISTING CONDITIONS PRIOR TO START OF DEMOLITION WORK. NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES BETWEEN WORK SHOWN IN THE DRAWINGS AND FIELD CONDITIONS ENCOUNTERED.
2. TO PROTECT OWNER AND CONTRACTOR, PHOTOGRAPHICALLY DOCUMENT EXISTING CONDITIONS TO REMAIN, PRIOR TO START OF DEMOLITION AND CONSTRUCTION ACTIVITIES. COPY ARCHITECT AND OWNER ON PHOTOGRAPHIC DOCUMENTATION.
3. OPEN FLAME EQUIPMENT IS NOT PERMITTED FOR REMOVAL OF EXISTING WORK WITHOUT SPECIFIC WRITTEN PERMISSION FROM THE OWNER.
4. COORDINATE WITH OWNER ANY ITEMS TO BE SALVAGED.
5. OWNER WILL REMOVE ALL NON-FIXED FURNISHINGS AND EQUIPMENT FROM THE CONSTRUCTION AREA PRIOR TO START OF CONSTRUCTION UNLESS NOTED OTHERWISE.
6. MAINTAIN BUILDING IN A WEATHER-TIGHT CONDITION. DO NOT PERFORM WORK ON EXTERIOR OPENINGS THAT CANNOT BE COMPLETED OR MADE WEATHER-TIGHT WHEN INCLEMENT WEATHER IS POSSIBLE.
7. PROTECT ALL FINISHES (TO REMAIN) IN THE PROJECT AREA. COORDINATE WITH ARCHITECT AND OWNER PRIOR TO DEMOLITION.
8. ENSURE THAT DUST AND DEBRIS ARE PREVENTED FROM ENTERING THE EXISTING HVAC SYSTEM AND ADJOINING SPACES WITH TEMPORARY BARRIERS AS REQUIRED PER THE BUILDING.
9. ALL NEW PENETRATIONS IN EXISTING INTERIOR AND EXTERIOR WALLS, FLOORS AND CEILING DECKS SHALL RECEIVE UL AND FACILITY APPROVED FIRE SEALANT MATERIALS TO MATCH RATING REQUIREMENT OF AREA BEING PENETRATED. FOR LOCATIONS AND EXTENTS OF NEW PENETRATIONS SEE MECHANICAL AND ELECTRICAL DRAWINGS.
10. COORDINATE WITH OTHER TRADES CUTTING AND PATCHING REQUIRED FOR DEMOLITION OR NEW CONSTRUCTION.
11. ANY DEMOLITION OR REMOVAL INDICATED IS SHOWN IN GENERAL TO PROVIDE THE EXTENT OF DEMOLITION AND IS NOT TO BE CONSIDERED AS A RECORD DRAWING OF EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR IN FIELD VERIFICATION AND COORDINATION WITH THE ARCHITECT PRIOR TO COMMENCING WITH STATED WORK.
12. ALL CONSTRUCTION TO REMAIN WHICH IS AFFECTED BY DEMOLITION SHALL BE PATCHED, BE PROPERLY ALIGNED AND FINISHED SO AS TO LEAVE NO EVIDENCE OF PATCHING OR REPAIR. REPAIR OR REPLACE ANY EXISTING CONSTRUCTION, MATERIALS, OR EQUIPMENT DAMAGED DURING DEMOLITION TO LIKE NEW CONDITION.
13. THE CONTRACTOR IS TO RETURN SALVAGEABLE MATERIALS, INCLUDING BUT NOT LIMITED TO DOORS, FRAMES, HARDWARE, MARBLE, EQUIPMENT, AND LIGHTING FIXTURES TO THE OWNER AND STOCKPILE THEM IN AN APPROVED CONSTRUCTION AREA. DISPOSE OF THESE MATERIALS AFTER OWNER'S REVIEW AND APPROVAL.
14. BUILDING CONTAINS HAZARDOUS MATERIAL SUCH AS ASBESTOS AND LEAD PAINT. SUPPLEMENTAL HAZARDOUS MATERIAL REPORT IS PROVIDED IN THE BID DOCUMENTS AS A SEPARATE ATTACHMENT. REFER TO HAZARDOUS MATERIAL REPORT FOR EXTENTS OF TESTING AND RESULTS.
15. TEMPORARILY REMOVE OR SUPPORT FIXTURES AND OTHER DEVICES, INCLUDING DIFFUSERS, AS NEEDED TO COMPLETE NEW WORK. REINSTALL ONCE MECHANICAL/ELECTRICAL WORK IS COMPLETE.

DEMOLITION PLAN SYMBOLS LEGEND

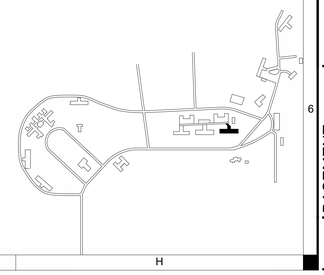


FLOOR PLAN NOTES

1. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR STUD PARTITIONS IN TOILET ROOMS, JANITOR'S CLOSETS, FIRE SERVICE ROOMS, MECHANICAL ROOMS, AND ANY ADDITIONAL LOCATIONS DESIGNATED IN CONTRACT DOCUMENTS.
2. WHERE STRUCTURAL ELEMENTS INTERFERE WITH FIRE-RATED PARTITIONS, FRAME TOP OF WALL AROUND STRUCTURAL ELEMENT.
3. REFER TO DRAWINGS OF ALL TRADES FOR ADDITIONAL INFORMATION REGARDING ITEMS PENETRATING FLOORS, WALLS, AND CEILINGS.
4. ALL NEW PARTITIONS ARE DIMENSIONED TO FACE OF STUD, MASONRY, OR CONCRETE COMPONENT UNLESS NOTED OTHERWISE. DIMENSIONS TO EXISTING ELEMENTS ARE TO EXPOSED FACE.
5. ALL DOORS IN STUD WALL CONSTRUCTION ARE TO BE LOCATED WITH EDGE OF FRAME 4" FROM FACE OF ADJACENT PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS LOCATING DOORS NOT DIRECTLY ADJACENT TO WALLS ARE GIVEN TO OUTSIDE EDGE OF FRAME.

KEYNOTES	
KEY	NOTE
12-A07	MAINTAIN EXISTING FIRE RATING AT EXISTING DOOR.
12-A13	INFILL WITH NEW LOUVER TO FULL EXTENTS OF EXISTING WINDOW OPENING - REFER TO MECHANICAL DRAWINGS FOR LOUVER
12-A14	INFILL WITH NEW FACE BRICK (OWNER-PROVIDED, CONTRACTOR-INSTALLED) AND CMU BACKUP PER DETAIL E2; NEW MECHANICAL PENETRATIONS TO BE CORE DRILLED THROUGH NEW MASONRY AND SEALED. SEE MECHANICAL FOR PENETRATION LOCATIONS
12-A15	INFILL OPENING WITH 8" CMU TO PROVIDE 1-HOUR FIRE RATING
12-A21	MAINTAIN 1-HOUR FIRE RATING AT FLOOR/CEILING BETWEEN BASEMENT AND FIRST FLOOR. FIRESTOP ALL NEW PENETRATIONS.
12-AD11	DEMOLITION OF EXISTING WINDOW WILL BE BY OWNER'S ABATEMENT CONTRACTOR

A6 BASEMENT FLOOR PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
12 - Med Center
Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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FIELD BOOK	

BASEMENT DEMOLITION AND FLOOR PLAN

12-AD00

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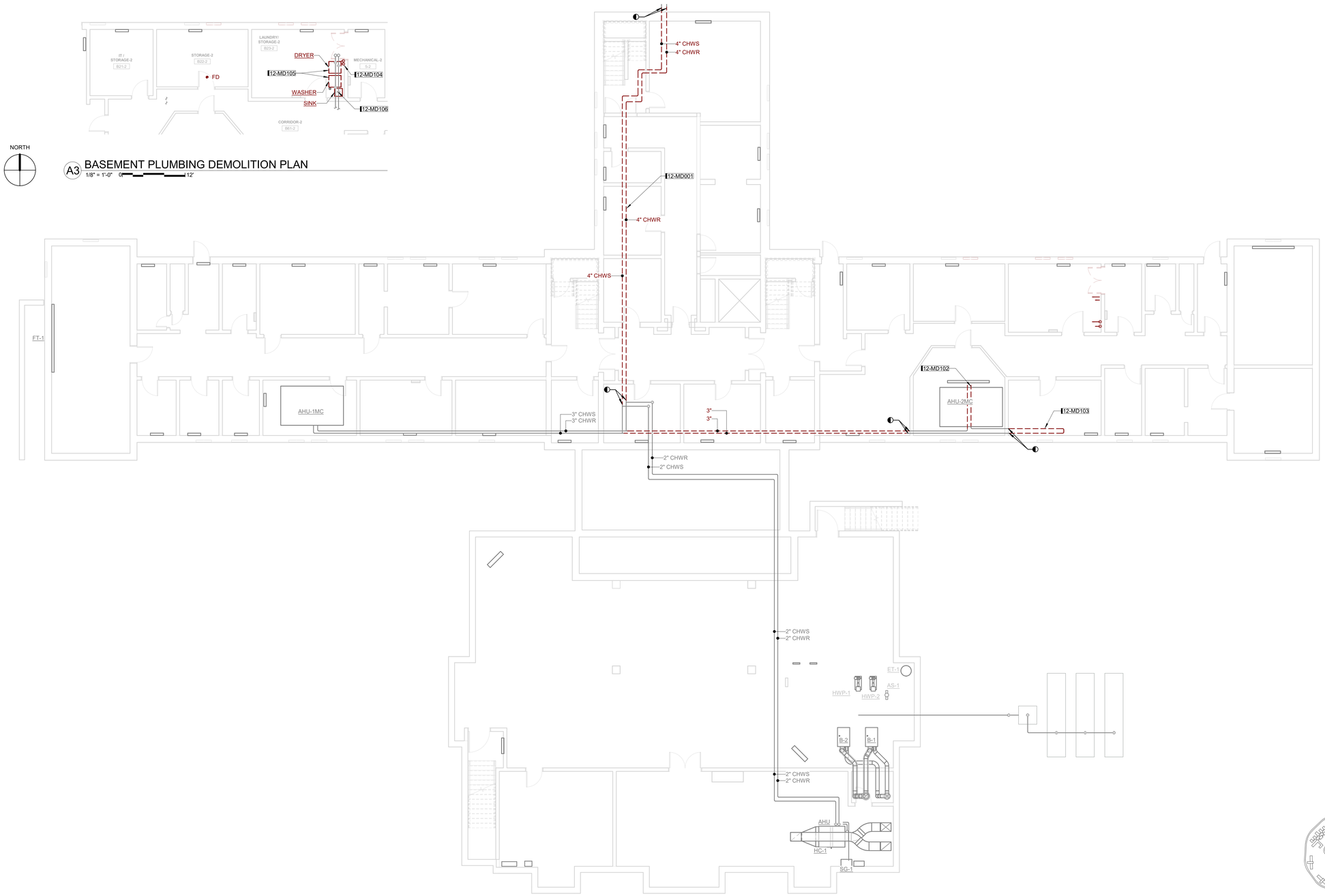
KEYNOTES	
KEY	NOTE
12-MD001	REMOVE EXISTING CHILLED WATER FROM APPROXIMATE POINT INDICATED BACK TO TUNNEL. PREPARE PIPING IN BUILDING FOR NEW CONNECTION. CAP PIPING IN TUNNEL.
12-MD102	DISCONNECT EXISTING CHILLED WATER SUPPLY AND RETURN PIPING FROM EXISTING COIL AND DEMOLISH ACCESSIBLE PORTION OF PIPING. EXISTING COIL TO REMAIN FOR NEW CONNECTION.
12-MD103	DEMOLISH EXISTING CONTROL AND BYPASS VALVE AND ACCESSIBLE CHILLED WATER PIPING AS SHOWN.
12-MD104	DEMOLISH EXISTING WASHING MACHINE CW AND HW PIPING BACK TO BRANCH PIPING. PREPARE TAPS FOR NEW CONNECTION.
12-MD105	EXISTING WASHER, DRYER, AND SINK TO BE RELOCATED BY OWNER.
12-MD106	DEMOLISH SINK CW AND HW PIPING BACK TO BRANCH PIPING. PREPARE TAPS FOR NEW CONNECTION.

NORTH

A3 BASEMENT PLUMBING DEMOLITION PLAN

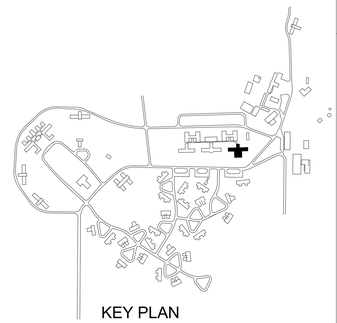
1/8" = 1'-0" 0 12'



NORTH

A6 BASEMENT MECHANICAL PIPING DEMOLITION PLAN

1/8" = 1'-0" 0 12'



KEY PLAN

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

12-Med Center

Iowa Department of Administrative Services
1251 334th St. Woodward, IA 50276

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BASEMENT MECHANICAL PIPING DEMOLITION PLAN

12-MD1

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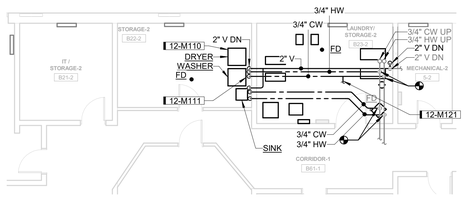


NORTH

A2 BASEMENT PLUMBING PLAN

1/8" = 1'-0" 0' 12'

NORTH

A3 UNDERFLOOR PLUMBING PLAN

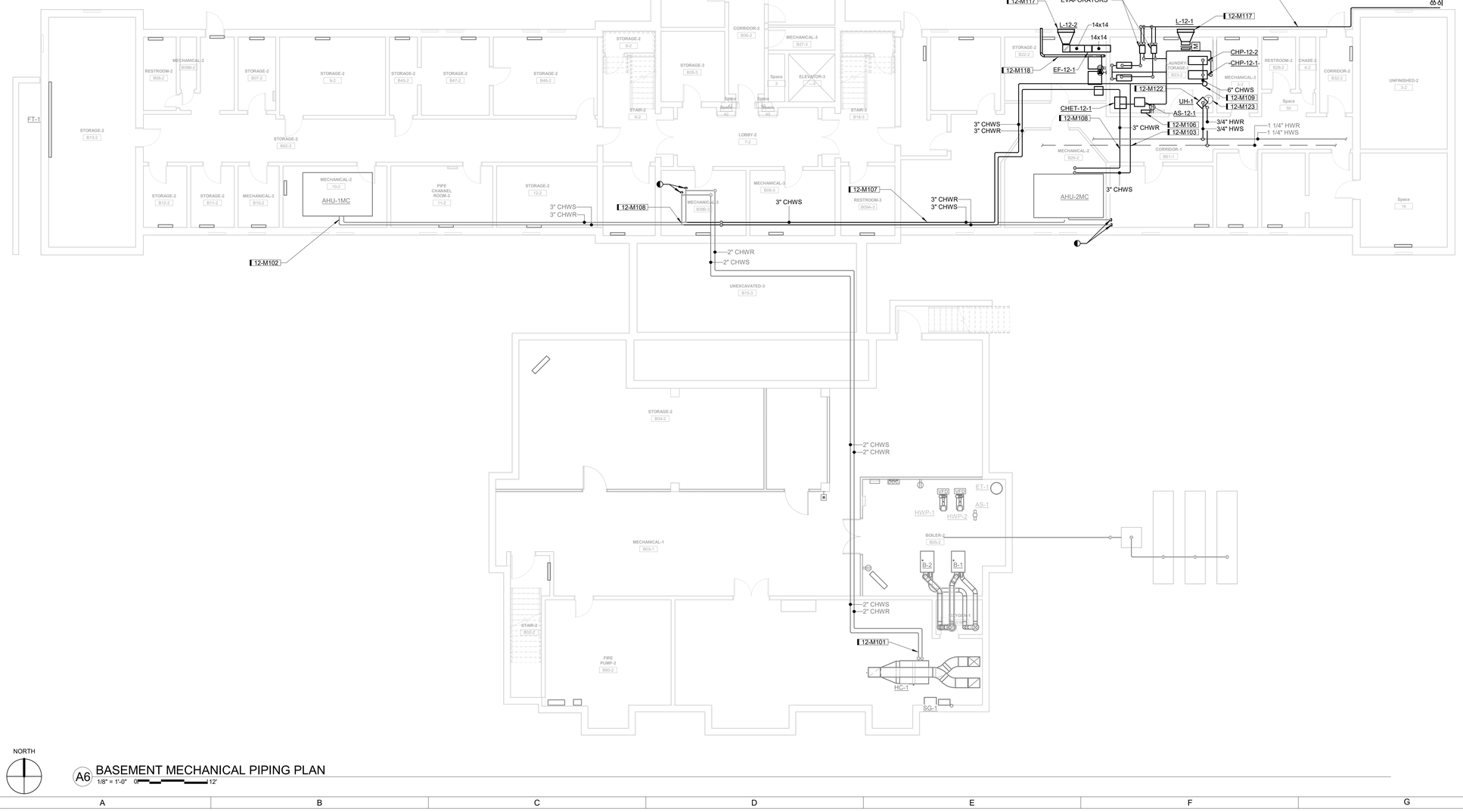
1/8" = 1'-0" 0'

NOTE:

BUILDING CONTAINS HAZARDOUS MATERIAL SUCH AS ASBESTOS AND LEAD PAINT. SUPPLEMENTAL HAZARDOUS MATERIAL REPORT IS PROVIDED IN THE BID DOCUMENTS AS A SEPARATE ATTACHMENT. REFER TO HAZARDOUS MATERIAL REPORT FOR EXTENTS OF TESTING AND RESULTS.

KEYNOTES

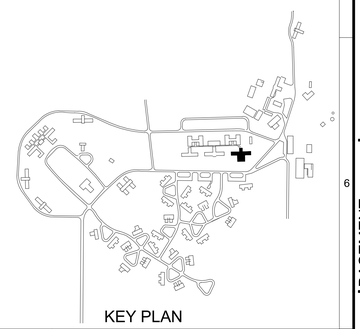
KEY	NOTE
12-M101	BALANCE EXISTING CHILLED WATER COIL TO 32 GPM.
12-M102	BALANCE EXISTING AHU-1MC CHILLED WATER COIL TO 115 GPM.
12-M103	ROUTE NEW 3" CHWS/R PIPE AS HIGH AS POSSIBLE ACROSS CORRIDOR AND ROUTE THROUGH WALL TO AHU-2MC. SEE COIL PIPING DETAIL ON SHEET 12-M600. BALANCE EXISTING AHU-2MC CHILLED WATER COIL TO 157 GPM.
12-M104	REFRIGERANT PIPING TO BE ROUTED FROM CHILLERS TO BUILDING AND ROUTED ALONG NORTH WALL. PIPING SHALL BE OFFSET ON WALL OVER EXISTING DOORWAY AND TO AVOID EXISTING WINDOWS AND GUTTERS.
12-M106	INSTALL REFRIGERANT DETECTION SYSTEM IN MECHANICAL ROOM. COORDINATE EXACT LOCATION WITH OWNER.
12-M107	INSTALL NEW 3" CHILLED WATER SUPPLY AND RETURN LINES IN APPROXIMATE LOCATIONS SHOWN. DESIGN INTENT IS TO FOLLOW ROUTING OF DEMOLISHED PORTION OF CHILLED WATER PIPING. ROUTING IS SCHEMATIC AND WILL REQUIRE OFFSETS TO FOLLOW EXISTING ROUTING. EXISTING HOLES IN WALLS MAY NEED TO BE INCREASED IN SIZE TO ACCOMMODATE PIPE SLEEVES AND INSULATION.
12-M108	CONNECT TO EXISTING 3" CHILLED WATER SUPPLY AND RETURN IN MECHANICAL ROOM AT APPROXIMATE LOCATION SHOW TO MAINTAIN SERVICE TO ALL CONNECTED EQUIPMENT UTILIZING CHILLED WATER.
12-M109	INSTALL NEW CHEMICAL FEEDER AT APPROXIMATELY THIS LOCATION. SEE DETAIL ON 12-M600 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
12-M110	WASHING MACHINE AND DRYER EQUIPMENT TO BE RELOCATED TO THIS ROOM. COORDINATE LOCATION AND FINAL PIPE ROUTING WITH FACILITY PRIOR TO COMPLETING WORK.
12-M111	INSTALL NEW WASHING MACHINE BOX AT NEW WASHING MACHINE LOCATION. CONNECT NEW HW AND CW PIPING FOR RELOCATED WASHING MACHINE AT THIS LOCATION.
12-M112	NEW FLOOR DRAIN FOR CHILLER PUMPS TO BE INSTALLED AT THIS LOCATION.
12-M113	APPROXIMATE SAW CUT AND FLOOR PATCHING AREA FOR INSTALLATION OF NEW SANITARY PIPING. FIELD VERIFY PIPE ROUTING AND CONDITIONS PRIOR TO CUTTING. REINFORCE WITH #3 18" O.C. EACH WAY ((DRILL AND GROUT 6" INBED) COORDINATE DEPTH OF TH SAW CUT AND METHOD OF SLAB REMOVAL. CONCRETE - 4000 PSI , MAXIMUM W.C RATION = 0.42. PATCH VAPOR BARRIER TO MATCH EXISTING.
12-M114	REFRIGERANT PIPE SIZES ARE SHOWN ARE APPROXIMATIONS BASED ON THE BASIS OF DESIGN SYSTEM AND APPROXIMATE ROUTING SHOWN. FINAL REFRIGERANT PIPING SIZES SHALL BE DETERMINED IN ACCORDANCE WITH CHILLER MANUFACTURER'S REQUIREMENTS. A SINGLE SET OF REFRIGERANT PIPES FOR EACH CHILLER ARE SHOWN FOR CLARITY. TWO SETS OF REFRIGERANT PIPING ARE REQUIRED FOR EACH BASIS OF DESIGN CHILLER.
12-M116	ROUTE NEW SANITARY PIPING TO WALL. ROUTE PIPING ABOVE FLOOR BEFORE CONNECTING TO EXISTING SANITARY VENT. CONFIRM SANITARY VENT LOCATION BEFORE CUTTING FLOOR.
12-M117	INSTALL REDUCER AT LOUVER CONNECTION TO AVOID INTERFERENCE WITH EXISTING HEATING WATER PIPING.
12-M118	ROUTE NEW 4" DRYER EXHAUST DUCT THROUGH WINDOW INFILL PANEL. COORDINATE LOCATION WITH INFILL PANEL.
12-M119	NEW SANITARY PIPING TO BE ROUTED TO NEW WASHER AND DRYER LOCATION. ROUTE PIPING UP WALL TO SERVE WASHER DRAIN HOSE.
12-M120	DEMOLISH EXISTING FLOOR DRAIN AND INSTALL NEW FLOOR DRAIN AT APPROXIMATE LOCATION SHOWN.
12-M121	ROUTE TO CHILLED WATER MAKE UP WATER. SEE DETAILS ON SHEET 12-M600.
12-M122	NEW HW UNIT HEATER TO BE INSTALLED IN THIS LOCATION. HW PIPING TO ROUTE TO EXISTING HWS/R MAIN PIPING LOCATED IN CORRIDOR.
12-M123	NEW HW UNIT HEATER TO BE CONTROLLED BY EXISTING WALL MOUNTED THERMOSTAT.
12-M124	SUPPORT REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS AND REFRIGERANT PIPING SPECIFICATION. SEE CIVIL PLANS FOR ADDITIONAL DETAILS.



NORTH

A6 BASEMENT MECHANICAL PIPING PLAN

1/8" = 1'-0" 0' 12'



KEY PLAN

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
4125 WESTOWN PKWY, SUITE 100
WEST DES MOINES, IA 50266
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(#9279.30) WRC Decentralization Phase 4
12-Med Center

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	JDB
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

BASEMENT MECHANICAL PIPING PLAN

12 -M100

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1. AIR COOLED CHILLER WITH REMOTE EVAPORATOR

CHILLER - RUN CONDITIONS:
THE CHILLER SHALL BE ENABLED TO RUN WHENEVER:
- A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING
- AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 54°F (ADJ.).

TO PREVENT SHORT CYCLING, THE CHILLER SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.

THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

THE TWO CHILLER TRAINS, (EACH CHILLER AND ITS ASSOCIATED SUPPORT EQUIPMENT), SHALL OPERATE IN A LEAD/LAG FASHION. THE CHILLERS SHALL BE OPTIMIZED TO OPERATE AT PEAK EFFICIENCIES THROUGHOUT THE LOAD PROFILE BASED ON PART LOAD EFFICIENCIES. COORDINATE WITH FINAL EQUIPMENT MANUFACTURER FOR OPTIMAL POINTS TO ENABLE/DISABLE SECOND CHILLER. THE CHILLER MANAGER SHALL ENABLE THE SECOND CHILLER WHEN A SIGNLE CHILLER IS MORE THAN 75% (ADJ.) LOADED FOR A MINIMUM AMOUNT OF TIME (30 MINS, ADJ.) TO PREVENT SHORT CYCLING. THE SEQUENCE SHALL OPERATE IN REVERSE ORDER WHEN THE LOAD DECRESES.

THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTABLE DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.

TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY (ADJ.) BETWEEN STAGING UP OR DOWN, UNLESS SHUTDOWN ON SAFETIES OR FAILURE. EACH CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
- THE LEAD CHILLER SHALL RUN FIRST.
- ON FAILURE OF THE LEAD CHILLER, THE LAG CHILLER SHALL RUN AND THE LEAD CHILLER SHALL TURN OFF.

THE DESIGNATED LEAD CHILLER SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):
- MANUALLY THROUGH A SOFTWARE SWITCH
- IF CHILLER RUNTIME (ADJ.) IS EXCEEDED
- DAILY
- WEEKLY
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- CHILLER 1 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CHILLER 2 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- LEAD CHILLER FAILURE: THE LEAD CHILLER IS IN FAILURE AND THE LAG CHILLER IS ON.

EMERGENCY SHUTDOWN:
THE CHILLER SHALL SHUT DOWN AND AN ALARM GENERATED UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL STATUS.

REFRIGERANT DETECTION:
THE CHILLER SHALL SHUT DOWN AND AN ALARM GENERATED UPON RECEIVING A REFRIGERANT LEAK DETECTION STATUS FROM EITHER THE CHILLER'S INTERNAL LEAK DETECTION OR THE MECHNAICAL ROOM REFRIGERANT DETECTION SYSTEM.

THE DELAY TIMES SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN, AND SEQUENCING.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAILURE: VALVE COMMANDED OPEN BUT THE STATUS INDICATES CLOSED.
- OPEN IN HAND: VALVE COMMANDED CLOSED BUT THE STATUS INDICATES OPEN.

CHILLER - RUN CONDITIONS:
THE CHILLER SHALL BE ENABLED TO RUN WHENEVER IT IS COMMANDED TO BE ENABLED BY THE CHILLER MANAGER PROGRAM. THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

CHILLER:
THE CHILLER SHALL BE ENABLED A USER ADJUSTABLE TIME AFTER PUMP STATUSES ARE PROVEN ON. THE CHILLER SHALL THEREFORE HAVE A USER ADJUSTABLE DELAY ON START.

THE DELAY TIME SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.

THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- CHILLER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CHILLER RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- CHILLER RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

PRIMARY CHILLED WATER PUMP:
THE PRIMARY CHILLED WATER PUMP SHALL RUN ANYTIME THE CHILLER IS CALLED TO RUN.

THE PRIMARY CHILLED WATER PUMP SHALL START PRIOR TO THE CHILLER BEING ENABLED AND SHALL STOP ONLY AFTER THE CHILLER IS DISABLED. THE PRIMARY CHILLED WATER PUMP SHALL THEREFORE HAVE:
- A USER ADJUSTABLE DELAY ON START.
- AND A USER ADJUSTABLE DELAY ON STOP.

THE DELAY TIMES SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- PRIMARY CHILLED WATER PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- PRIMARY CHILLED WATER PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

CHILLER INTERFACE:

A CHILLER SEQUENCING CONTROL PANEL (INTEGRAL TO CHILLERS AND PROVIDED BY THE CHILLER MANUFACTURER) SHALL AUTOMATICALLY MODULATE THE CHILLER AND PROVIDE EXTERNAL CONNECTIONS TO THE DDC SYSTEM FOR CHILLER SHUT-OFF AND MONITORING VIA BACNET. THE CHILLER SHALL BE ENABLED TO OPERATE BY THE DDC OR MANUAL OVERRIDE.

SECONDARY CHILLED WATER PUMP SYSTEM - RUN CONDITIONS:
THE SECONDARY CHILLED WATER PUMPS SHALL BE ENABLED WHENEVER:
- A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING.

TO PREVENT SHORT CYCLING, THE SECONDARY CHILLED WATER PUMP SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE).

SECONDARY CHILLED WATER PUMP LEAD/LAG OPERATION:
THE TWO VARIABLE SPEED CHILLED WATER PUMPS SHALL OPERATE IN A LEAD/LAG FASHION.
- THE LEAD PUMP SHALL RUN FIRST.
- ON FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.

THE DESIGNATED LEAD PUMP SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):
- MANUALLY THROUGH A SOFTWARE SWITCH
- IF PUMP RUNTIME (ADJ.) IS EXCEEDED
- DAILY
- WEEKLY
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SECONDARY CHILLED WATER PUMP 1
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
  - VFD FAULT.
- SECONDARY CHILLED WATER PUMP 2
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
  - VFD FAULT.

SECONDARY CHILLED WATER SUPPLY TEMPERATURE - SETPOINT RESET:
THE SECONDARY CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET USING A TRIM AND RESPOND ALGORITHM BASED ON COOLING REQUIREMENTS BY MONITORING COOLING VALVE POSITIONS AND INCREASING CHILLED WATER TEMPERATURE SETPOINT, TO A MAXIMUM OF 53°F (ADJ.) AS LONG AS ALL CHILLED WATER VALVES ARE OPEN LESS A USER DEFINABLE THRESHOLD (90% OPEN, TYP.)

THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET TO A LOWER VALUE, WITH A MINIMUM OF 42°F (ADJ.), AS THE FACILITY'S CHILLED WATER VALVES OPEN BEYOND A USER DEFINABLE THRESHOLD (90% OPEN, TYP.). ONCE THE CHILLED WATER COILS ARE SATISFIED (VALVES CLOSING) THEN THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL GRADUALLY RISE OVER TIME TO REDUCE COOLING ENERGY USE.

THE SYSTEM SHALL HAVE THE ABILITY TO SET PRIORITY LEVELS TO VALVES IN ORDER TO MINIMIZE ROGUE VALVES FROM DRIVING THE SUPPLY SETPOINT DOWN. TREND SUPPLY TEMPERATURE SETPOINT AND COOLING REQUESTS AND ADJUST SYSTEM DURING THE FIRST COOLING SEASON TO MAXIMIZE EFFICIENCY.

THE SECONDARY CHILLED WATER TEMPERATURE RESET SHALL TAKE PRIORITY OVER THE SECONDARY PUMP STATIC PRESSURE RESET SEQUENCE. THE SECONDARY PUMPS STATIC PRESSURE RESET TRIM AND RESPOND LOGIC SHALL NOT BE INITIATED UNTIL CHILLED WATER SUPPLY TEMPERATURE SETPOINT RESET HAS REACHED IT'S MAXIMUM (53°F, ADJ.)

CHILLED WATER DIFFERENTIAL PRESSURE CONTROL:
THE CONTROLLER SHALL MEASURE CHILLED WATER DIFFERENTIAL PRESSURE AND MODULATE THE CHILLED WATER PUMP VFDS IN SEQUENCE TO MAINTAIN ITS CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT. THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.

THE CONTROLLER SHALL MODULATE CHILLED WATER PUMP SPEEDS TO MAINTAIN A CHILLED WATER DIFFERENTIAL PRESSURE OF 10 PSI (ADJ.). COORDINATE EXACT DIFFERENTIAL PRESSURE SETTING WITH TESTING AND BALANCING CONTRACTOR. THE VFDS MINIMUM SPEED SHALL NOT DROP BELOW 20% (ADJ.).

CHILLED WATER DIFFERENTIAL PRESSURE - SETPOINT RESET:
THE CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT SHALL RESET USING A TRIM AND RESPOND ALGORITHM BASED ON COOLING REQUIREMENTS BY MONITORING COOLING VALVE POSITIONS AND INCREASE CHILLED WATER DIFFERENTIAL SETPOINT, TO A MAXIMUM OF 15 PSI (ADJ.) AS LONG AS ALL CHILLED WATER VALVES ARE OPEN LESS A USER DEFINABLE THRESHOLD (90% OPEN, TYP.)

THE CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT SHALL RESET TO A LOWER VALUE, WITH A MINIMUM OF 5 PSI (ADJ.), AS THE FACILITY'S CHILLED WATER VALVES OPEN BEYOND A USER DEFINABLE THRESHOLD (90% OPEN, TYP.). ONCE THE CHILLED WATER COILS ARE SATISFIED (VALVES CLOSING) THEN THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL GRADUALLY RISE OVER TIME TO REDUCE COOLING ENERGY USE.

THE DIFFERENTIAL PRESSURE SETPOINT RESET SHALL NOT BE ENABLED UNTIL CHILLED WATER SUPPLY TEMPERATURE HAS BEEN RESET TO IT'S MAXIMUM.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.
- LOW CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.

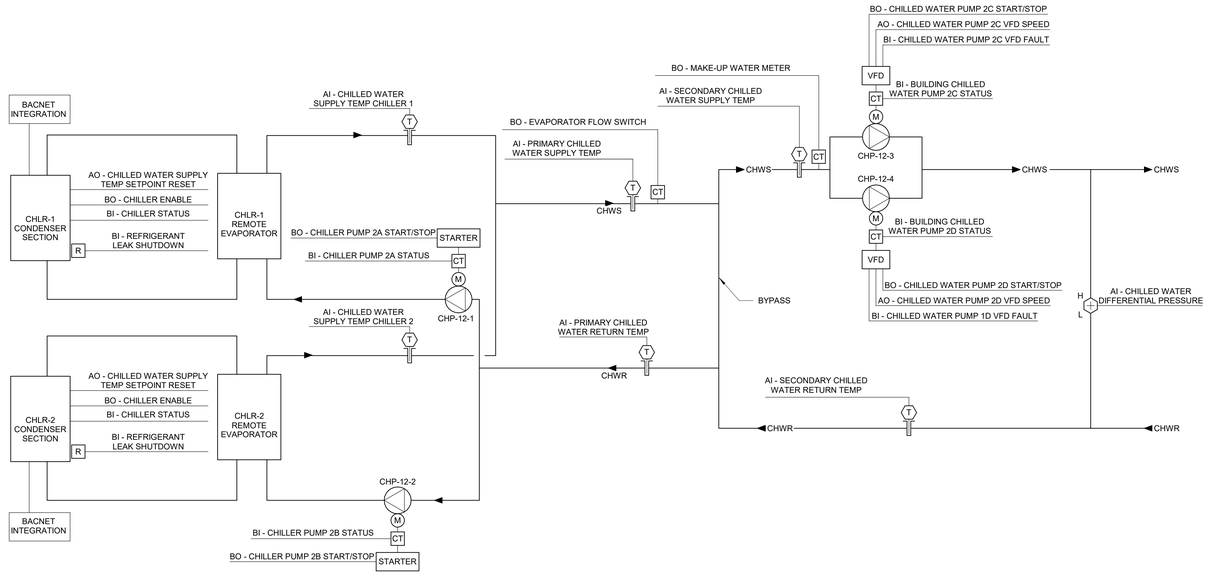
PRIMARY CHILLED WATER TEMPERATURES:
THE BAS SHALL MONITOR THE PRIMARY CHILLED WATER SUPPLY AND RETURN TEMPERTAURES. THE BAS SHALL ALSO MONITOR THE SCHILLED WATER SUPPLY TEMPERATURES FROM EACH CHILLER.

SECONDARY CHILLED WATER TEMPERATURES:

- HIGH MAIN CHILLED WATER SUPPLY TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER SUPPLY TEMPERATURE IS GREATER THAN 60°F (ADJ.)
- LOW MAIN CHILLED WATER SUPPLY TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER SUPPLY TEMPERATURE IS LESS THAN 38°F (ADJ.)
- HIGH MAIN CHILLED WATER RETURN TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER RETURN TEMPERATURE IS GREATER THAN 66°F (ADJ.)
- LOW MAIN CHILLED WATER RETURN TEMPREATURE (AFTER DECOUPLED): IF THE MAIN CHILLED WATER RETURN TEMPERATURE IS LESS THAN 46°F (ADJ.)

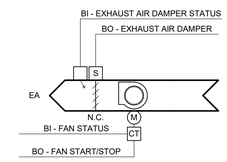
POINTS MATRIX - CHILLER PLANT

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
CHILLED WATER DIFFERENTIAL PRESSURE	x								x		x
CHILLED WATER FLOW	x								x		x
CHILLED WATER RETURN TEMP	x								x		x
CHILLED WATER SUPPLY TEMP	x								x		x
CHILLED WATER BYPASS VALVE		x							x		x
CHILLED WATER PUMP 1 VFD SPEED		x							x		x
CHILLED WATER PUMP 2 VFD SPEED		x							x		x
CHILLED WATER SUPPLY TEMP SETPOINT RESET		x							x		x
FAN VFD SPEED		x							x		x
CHILLED WATER ISOLATION VALVE STATUS			x						x		x
CHILLED WATER PUMP 1 STATUS			x						x		x
CHILLED WATER PUMP 1 VFD FAULT			x							x	x
CHILLED WATER PUMP 2 STATUS			x						x		x
CHILLED WATER PUMP 2 VFD FAULT			x							x	x
CHILLER STATUS			x						x		x
FAN STATUS			x						x		x
FAN VFD FAULT			x							x	x
HIGH WATER LEVEL SWITCH			x							x	x
LOW WATER LEVEL MAKEUP SWITCH			x						x		x
LOW WATER LEVEL SWITCH			x							x	x
REFRIGERANT LEAK SHUTDOWN			x						x	x	x
VIBRATION STATUS			x						x	x	x
CHILLED WATER ISOLATION VALVE				x							x
CHILLED WATER PUMP 1 START/STOP				x					x		x
CHILLED WATER PUMP 2 START/STOP				x					x		x
CHILLER ENABLE				x					x		x
FAN START/STOP				x							x
MAKEUP VALVE				x							x
CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT		x			x				x		x
CHILLED WATER FLOW SETPOINT		x			x				x		x
OUTSIDE AIR TEMP	x				x						x
CHILLED WATER ISOLATION VALVE FAILURE			x							x	
CHILLED WATER ISOLATION VALVE IN HAND			x							x	
CHILLED WATER ISOLATION VALVE RUNTIME EXCEEDED					x					x	
CHILLED WATER PUMP 1 FAILURE			x							x	
CHILLED WATER PUMP 1 RUNNING IN HAND			x							x	
CHILLED WATER PUMP 1 RUNTIME EXCEEDED					x					x	
CHILLED WATER PUMP 2 FAILURE			x							x	
CHILLED WATER PUMP 2 RUNNING IN HAND			x							x	
CHILLED WATER PUMP 2 RUNTIME EXCEEDED					x					x	
CHILLER FAILURE			x							x	
CHILLER RUNNING IN HAND			x							x	
CHILLER RUNTIME EXCEEDED					x					x	
FAN FAILURE			x							x	
FAN IN HAND			x							x	
FAN RUNTIME EXCEEDED					x					x	
HIGH CHILLED WATER DIFFERENTIAL PRESSURE	x									x	
HIGH CHILLED WATER SUPPLY TEMP	x									x	
LOW CHILLED WATER DIFFERENTIAL PRESSURE	x									x	
LOW CHILLED WATER FLOW	x									x	
LOW CHILLED WATER SUPPLY TEMP	x									x	
MAKEUP VALVE RUNTIME EXCEEDED	x									x	
TOTALS	11	7	23	6	3	0	0	0	26	25	34
	TOTAL HARDWARE (47)				TOTAL SOFTWARE (88)						



A3 SEQUENCE OF OPERATIONS - AIR COOLED CHILLER REMOTE EVAP1
NOT TO SCALE

MACHINERY REFRIGERATION ROOM
1. CHILLER ROOM EXHAUST FAN (EF-1 CHILLER ROOM OCCUPIED): THE EXHAUST FAN SHALL BE USED FOR CONSTANT VENTILATION. THE OUTDOOR AIR DAMPER AND EXHAUST FAN DAMPER SHALL BE OPENED WHENEVER THE EF-1 IS IN OPERATION.
   - VENTILATION: EXHAUST FAN SHALL BE IN OPERATION AT ALL TIMES TO MEET VENTILATION REQUIREMENTS.
     - EXHAUST FAN IS TO OPERATE AT SCHEDULED MINIMUM VENTILATION CFM AT ALL TIMES UNLESS THE REFRIGERANT DETECTION SYSTEM IS ACTIVATED.
   - FAN POWERED OFF: WHENEVER THE EXHAUST FAN IS SHUT OFF, THE FANS AUTO DAMPER SHALL BE IN THE CLOSED POSITION.
2. CHILLER ROOM EXHAUST FAN (EF-1 CHILLER ROOM EMERGENCY): THE NEW EXHAUST FAN SHALL BE USED FOR EMERGENCY "PURGE" VENTILATION. IF THE NEW REFRIGERANT MONITORING SYSTEM IS ALARMED:
   - THE GENERAL VENTILATION PROGRAM WILL BE DISABLED
   - THE OUTDOOR AIR DAMPER SHALL OPEN.
   - THE EXHAUST FAN SHALL RAMP UP TO THE SCHEDULED MAXIMUM CFM.
   - EXHAUST FAN SHALL TURN DOWN TO VENTILATION CFM WHEN REFRIGERANT ALARM SYSTEM DISABLES ALARM.
3. REFRIGERANT MONITORING SYSTEM – R-32 SENSOR
   - MONITOR THE 4-20 MA OUTPUT FROM THE CHILLER REFRIGERANT MONITORING SYSTEM. AN ALARM SHALL BE ISSUED IF ANY REFRIGERANT IS DETECTED.
     1. IF THE REFRIGERANT LEVEL EXCEEDS 10 PPM (ADJ.) THE EMERGENCY "PURGE" VENTILATION SYSTEM SHALL BE INITIATED.
     2. COORDINATE LEVELS WITH FINAL REFRIGERATION SENSOR MANUFACTURER. STROBES SHALL BE ENGAGED UPON DETECTION OF REFRIGERANT.
     3. ALARM SHALL BE DISABLED WHEN REFRIGERANT LEVEL DROPS TO 5PPM (ADJ.) FOR 5MIN.
4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   - FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
   - FAN RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON
   - DAMPER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
   - DAMPER IN HAND: COMMANDED OFF, BUT THE STATUS IS ON
   - REFRIGERANT DETECTION SYSTEM ACTIVATED AND FAN IS CONTROLLING FOR PURGE OPERATION.



D5 SEQUENCE - EF - VENTILATION AND PURGE
NOT TO SCALE

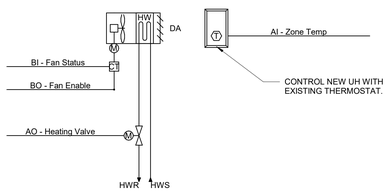
E5 CONTROLS SCHEMATIC - EF - VENTILATION AND PURGE
NOT TO SCALE

POINTS MATRIX - EF - VENTILATION AND PURGE

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
EXHAUST AIR DAMPER STATUS			x						x		x
FAN STATUS			x						x		x
EXHAUST AIR DAMPER				x					x		x
FAN START/STOP				x					x		x
EXHAUST AIR DAMPER FAILURE			x							x	
EXHAUST AIR DAMPER IN HAND			x							x	
FAN FAILURE			x							x	
FAN IN HAND			x							x	
REFRIGERANT DETECTION			x							x	
TOTALS	0	0	7	2	0	0	0	0	4	5	4
	TOTAL HARDWARE (9)				TOTAL SOFTWARE (13)						

POINTS MATRIX - UH - UNIT HEATER

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
ZONE TEMP	x								x		x
HEATING VALVE		x							x		x
FAN STATUS				x					x		x
FAN ENABLE				x					x		x
HEATING SETPOINT					x				x		x
FAN FAILURE			x							x	
FAN IN HAND			x							x	
LOW ZONE TEMP						x				x	
TOTALS	1	1	2	2	1	1	0	0	5	3	5
	TOTAL HARDWARE (6)				TOTAL SOFTWARE (15)						



3 CONTROLS SCHEMATIC - UNIT HEATER
NOT TO SCALE

1. UNIT HEATER

THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 70°F (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 10°F (ADJ.).

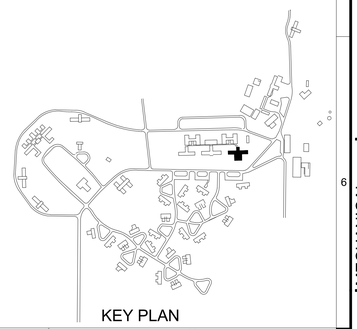
FAN:
THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT, UNLESS SHUTDOWN ON SAFETIES.

HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE FAN IS ON.

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.



KEY PLAN

SHIVEHATTERY
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WRC CAMPUS FIBER UPGRADES (#9279.40)
12-Med Center

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	TLS
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FIELD BOOK	

MECHANICAL CONTROLS

12 -M500

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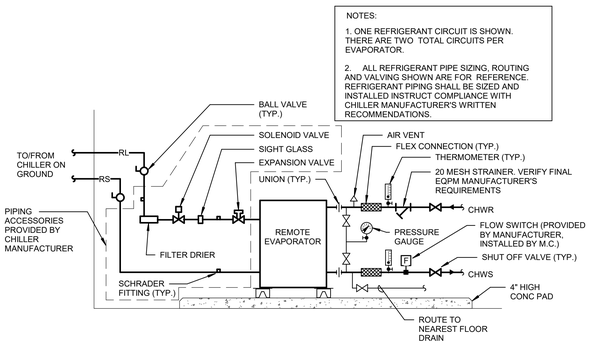
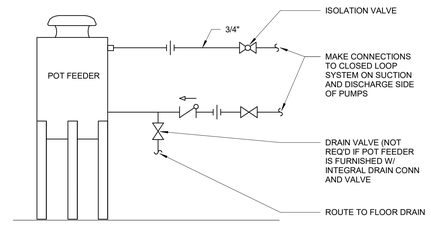
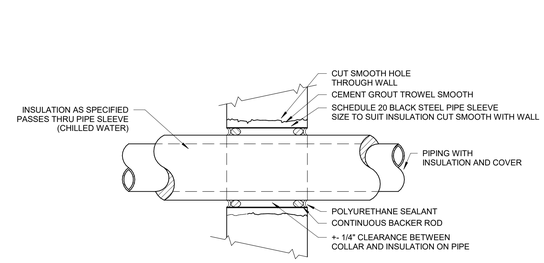


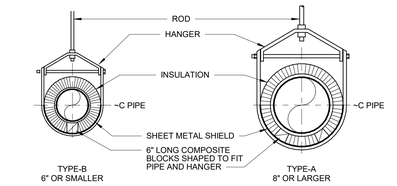
A2 Evaporative Chiller Piping Diagram
NOT TO SCALE

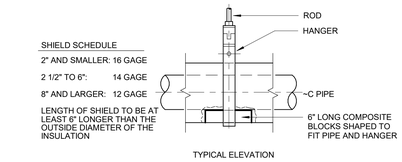


C2 POT FEEDER DETAIL
NOT TO SCALE

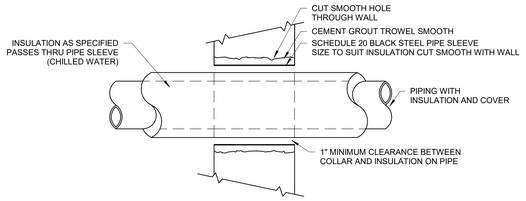


D2 Exterior Wall Pipe Penetration Detail
NOT TO SCALE

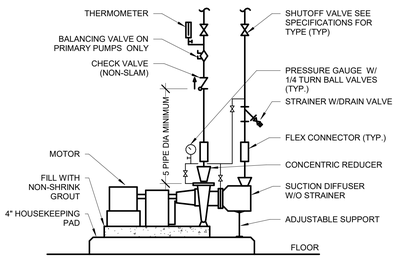




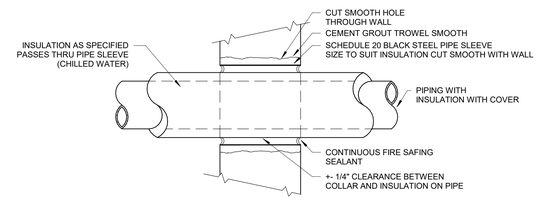
E2 Insulated Pipe Hanger Detail
NOT TO SCALE



A3 Interior Wall Pipe Penetration Detail
NOT TO SCALE



B3 Base Mounted Pump Detail
NOT TO SCALE



D3 Interior Fire Rated Wall Pipe Penetration Detail
NOT TO SCALE

PLUMBING FIXTURE SCHEDULE

FLOOR DRAIN (FD):
FIXTURE: 3" ZURN Z-415-B SERIES, CAST IRON, MEMBRANE CLAMP, FLASHING COLLAR, WEEP HOLES, HUB OUTLET WITH GASKETED CONNECTION, 5" DIA ADJUSTABLE NICKEL BRONZE STRAINER, VANDAL-PROOF, SET TOP OF STRAINER FLUSH WITH FINISHED FLOOR. PROVIDE DEEP SEAL P-TRAP

BACKFLOW PREVENTER:
FIXTURE: WATTS, 009 SERIES, FULL LINE SIZE, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, TWO INDEPENDENTLY OPERATING CHECK VALVES WITH INTERMEDIATE RELIEF VALVE, BALL VALVE TEST COCKS, COMPLIANT WITH USCFCC MANUAL FOR CROSS CONNECTION CONTROL, ASSE STANDARD 1013, AWWA STANDARD C506-78. PROVIDE WATTS DRAIN CONNECTION WITH AIR GAP

FCO (FLOOR CLEANOUT):
FIXTURE: ZURN, Z-1400 LEVEL-TROL SERIES FLOOR CLEANOUT, CAST IRON, INSIDE CAULK CONNECTION, ADJUSTABLE, THREADED ABS PLUG, SECURED SATIN NICKEL BRONZE TOP. SET TOP FLUSH WITH FINISHED CONCRETE. PROVIDE EXTRA HEAVY DUTY FLOOR CLEANOUT COVER FOR CLEANOUTS LOCATED IN MECHANICAL SPACES

A5 Air Separator/Bladder Type Exp. Tank Detail
NOT TO SCALE

B5 AHU 2MC Chilled Water Coil Piping Detail
NOT TO SCALE

LOUVER SCHEDULE

REMARKS:
1. LOUVER SHALL BE CUSTOM COLOR SELECTED BY ARCHITECT DURING SUBMITTAL PROCESS.
2. OR ENGINEER PRE-APPROVED EQUIVALENT.

MARK	AIR FLOW (CFM)	DIMENSIONS H	W	D	MAX FREE AREA (%)	FREE AREA VELOCITY (FPM)	PRESSURE DROP (WG)	DESIGN BASIS	REMARKS
L-12-1	1025	18"	34"	6"	49	620	0.06	GREENHECK ESD-635	
L-12-2	1025	18"	34"	6"	49	620	0.05	GREENHECK ESD-635	

AIR SEPARATOR SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT

MARK	SYSTEM SERVED	SIZE (IN)	CAPACITY (GPM)	STRAINER (Y/N)	MAX PD (FT)	MINIMUM AIR REMOVAL (%)	DESIGN BASIS	REMARKS
AS-12-1	CHW	0" - 6"	305	N	1.25	99.7	GRUNDFOS GSPA-5	

MECHANICAL PIPING EXPANSION TANK SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT

MARK	SYSTEM SERVED	TYPE	TANK CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	RELIEF VALVE RELIEF AT (PSI)	RELIEF VALVE FILL AT (PSI)	DESIGN BASIS	REMARKS
CHET-12-1	CHILLED WATER	BLADDER	7.8	6.3	125	30	GRUNDFOS GNTA-15	

A6 Backflow Preventer Detail
NOT TO SCALE

UNIT HEATER SCHEDULE - HOT WATER

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. TO BE INSTALLED WITH FACTORY MOUNTED DISCONNECT
3. PROVIDE ALL CUHS WITH 3-WAY VALVE. SEE DETAILS.
4. TO BE CONTROLLED VIA EXISTING THERMOSTAT

MARK	AREA SERVED	CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	MAX PD (FT)	MOUNTING HEIGHT (FT)	FAN MOTOR DATA HP	VOLTS	PHASE	DESIGN BASIS	REMARKS
UH-1	LAUNDRY ROOM	730	190	170	60	93	26.5	2.65	1	7' - 6"	1/12	120	1	MODINE HC-47	

MECHANICAL PUMP SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. VFD TO BE PROVIDED BY ELECTRICAL CONTRACTOR.

MARK	SYSTEM SERVED	TYPE	GPM	HEAD (FT)	SHUTOFF HEAD (FT)	PLEV %	MOTOR DATA HP	BHP	RPM	ELECTRICAL DATA VOLTS	PHASE	DESIGN BASIS	REMARKS
CHP-12-1	PRIMARY CHW	END SUCTION	190	36	48.7	78.9	5	3.31	1750	480	3	GRUNFOS 030-070-4P	
CHP-12-2	PRIMARY CHW	END SUCTION	190	36	48.7	78.9	5	3.31	1750	480	3	GRUNFOS 030-070-4P	
CHP-12-3	SECONDARY CHW	END SUCTION	304	100	136	74.8	15	12.03	1765	480	3	GRUNFOS 025-110-4P	
CHP-12-4	SECONDARY CHW	END SUCTION	304	100	136	74.8	15	12.03	1765	480	3	GRUNFOS 025-110-4P	

FAN SCHEDULE

REMARKS:
1. OR ENGINEER APPROVED EQUIVALENT.
2. COORDINATE DAMPERS WITH SHEET METAL CONTRACTOR.
3. FAN SHALL BE CAPABLE OF OPERATING AT SCHEDULED CFM AND REDUCING FLOW TO 240 CFM. SEE CONTROL SEQUENCE.
4. ALL FANS SHALL HAVE FACTORY-MOUNTED DISCONNECT SWITCH.

MARK	AREA SERVED	FAN TYPE	CFM	ESP (IN WG)	MOTOR DATA BHP	HP	RPM	DRIVE	ELECTRICAL DATA VOLTS	PHASE	DAMPER TYPE	INLET SONES	DESIGN BASIS	REMARKS
EF-12-1	MECHANICAL ROOM 60	CENTRIFUGAL	1025	0.5	0.31	0.5	1172	DIRECT	120	1	MOTORIZED	18	GREENHECK SQ-7-M1-VG	

1 UNIT HEATER PIPING DETAIL
NOT TO SCALE

AIR COOLED CHILLER SCHEDULE

REMARKS:
1. PERFORMANCE BASED ON WATER.
2. MANUFACTURER TO PROVIDE SINGLE POINT POWER AND DISCONNECT SWITCH.
3. UNIT SHALL HAVE BRAZED PLATE REMOTE EVAPORATOR.
4. MAXIMUM REFRIGERANT IN A SINGLE CIRCUIT (INCLUDING FIELD PIPING) SHALL NOT EXCEED 105 LBS. EACH REMOTE EVAPORATOR HAS TWO CIRCUITS.
5. MINIMUM SCCR RATING OF THE CHILLER SHALL BE 65kA.
6. MAXIMUM CHILLER DIMENSIONS SHALL BE 170" LONG, 88" WIDE, AND 99" TALL.
7. EFFICIENCY RATINGS BASED ON AHRI 550/590 CONDITIONS.
8. CHILLER SHALL HAVE MANUFACTURER'S HAIL GUARDS.
9. OR ENGINEER PRE-APPROVED EQUIVALENT.

MARK	AREA SERVED	SYSTEM SERVED	CAPACITY (TONS)	AMBIENT AIR TEMPERATURE (°F)	MINIMUM AMBIENT AIR TEMPERATURE (°F)	MAXIMUM ALLOWABLE SOUND PRESSURE (AT 30 FEET) 63	125	250	500	1000	2000	4000	8000	EFFICIENCY EER @100%	DPLV.IP	EVAPORATOR DATA MINIMUM GPM	GPM	EWT (°F)	LWT(°F)	MAX PD (FT)	NUMBER OF COMPRESSORS	FOULING FACTOR	ELECTRICAL DATA VOLTS	PHASE	MCA	MOCP	REFRIGERANT REFRIGERANT LBS	TYPE	DESIGN BASIS	REMARKS
CHLR-12-1	MED CENTER	CHILLED WATER	95.3	95	32	43	51	55	58	60	57	51	46	11.9	19.39	120	190	56	44	7.4	4	0.0001	460	3	196	225	90	R32	DAIKIN AGZ008F	
CHLR-12-2	MED CENTER	CHILLED WATER	95.3	95	32	43	51	55	58	60	57	51	46	11.9	19.39	120	190	56	44	7.4	4	0.0001	460	3	196	225	90	R32	DAIKIN AGZ008F	

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WRC CAMPUS FIBER UPGRADES (#9279.40)
12-Med Center

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	JDB
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240607040
FIELD BOOK	

MECHANICAL SCHEDULES AND DETAILS

12 -M600

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BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
DP-MC	**480/277 Wye**	**3**	**4**	**600 AMPS**	**600**	**42,000 AMPS SYMMETRICAL**
						MOUNTING:
ROOM:						ENCLOSURE: NEMA 3R
FED FROM:						FEED:

CKT	CIRCUIT DESCRIPTION	NOTES	TRIP	POLES	A	B	C
1,2,3	H-MCB		225	3	19399	19399	19399
4,5,6	CHLR-12-1		225	3	43454	43454	43454
7,8,9	CHLR-12-2		225	3	43454	43454	43454
10							
11							
12							
				TOTAL LOAD:	103086 VA	103086 VA	103086 VA
				TOTAL AMPS:	372 A	372 A	372 A

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
HVAC - COOLING	260722	100.00%	260722
MOTORS	58197	106.25%	61834

PANEL TOTALS	
CONNECTED LOAD:	309257 VA
ESTIMATED DEMAND:	312400 VA
CONNECTED CURRENT:	372 A
ESTIMATED DEMAND CURRENT:	376 A

NOTES:

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
H-MCB	**480/277 Wye**	**3**	**4**	**225 AMPS**	**225**	**22,000 AMPS SYMMETRICAL**
	CODE: L=LIGHTING, R=RECEPTACLES, E=EQUIPMENT, K=KITCHEN				MOUNTING: SURFACE	
ROOM:					ENCLOSURE: NEMA 1	
FED FROM: DP-MC					FEED:	

LOAD	CODE	NOTE	POLE	BKR	CKT #	A KVA	B KVA	C KVA	CKT #	BKR	POLE	NOTE	CODE	LOAD
					1	4.8 / 4.8			2					
RM B23-2 - CHP-12-1	E		3	20	3		4.8 / 4.8		4	20	3		E	RM B23-2 - CHP-12-2
					5			4.8 / 4.8	6					
					7	4.8 / 4.8			8					
RM B23-2 - CHP-12-3	E		3	50	9		4.8 / 4.8		10	50	3		E	RM B23-2 - CHP-12-4
					11			4.8 / 4.8	12					
					13				14					
					15				16					
					17				18					
					19				20					
					21				22					
					23				24					
					25				26					
					27				28					
					29				30					
					31				32					
					33				34					
					35				36					
					37				38					
					39				40					
					41				42					
						19399.0 VA	19399.0 VA	19399.0 VA						
						70.0 A	70.0 A	70.0 A						

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
MOTORS	58197	106.25%	61834

PANEL TOTALS	
CONNECTED LOAD:	58196.9 VA
ESTIMATED DEMAND:	61834.2 VA
CONNECTED CURRENT:	70.0 A
ESTIMATED DEMAND CURRENT:	74.4 A

NOTES:

ELECTRICAL AND MECHANICAL COORDINATION SCHEDULE

GENERAL NOTES:

MOCP SIZES SHOWN BELOW ARE FOR BIDDING PURPOSES ONLY. VERIFY MOCP WITH EQUIPMENT NAME PLATE DATA PRIOR TO ORDERING EQUIPMENT.
MINIMUM WIRE SIZE SHALL BE #12 AWG AND MINIMUM CONDUIT SIZE SHALL BE 3/4".
INCLUDE A SEPARATE, GREEN, CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT CONDUITS.

ABBREVIATIONS:

EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
MFR - MANUFACTURER
TCC - TEMPERATURE CONTROL CONTRACTOR
OWN - OWNER
NF - NON-FUSED DISCONNECT
PWE - PROVIDED WITH EQUIPMENT

REMARKS:

1. VFD FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

MARK	VOLTAGE	PHASE	FLA	MCA	MOCP	HP	WATTAGE	CONDUIT AND WIRE SIZE	CONTROLLER OR STARTER FURNISHED / INSTALLED	DISCONNECT FURNISHED / INSTALLED	REMARKS
CHLR-12-1	480	3	156.80	196.00	225.00	-	130361.07	3#4/0, 1#4GND, 2-1/2"	MC	PWE	-
CHLR-12-2	480	3	156.80	196.00	225.00	-	130361.07	3#4/0, 1#4GND, 2-1/2"	MC	PWE	-
CHP-12-1	480	3	7.60	9.50	20.00	5	6318.52	3#10, 1#10 GND, 3/4" C	EC	EC	1
CHP-12-2	480	3	7.60	9.50	20.00	5	6318.52	3#10, 1#10 GND, 3/4" C	EC	EC	1
CHP-12-3	480	3	17.50	21.88	50.00	15	14549.23	3#12, 1#12 GND, 3/4" C	EC	EC	1
CHP-12-4	480	3	17.50	21.88	50.00	15	14549.23	3#12, 1#12 GND, 3/4" C	EC	EC	1
EF-12-1	120	1	4.00	5.00	20.00	0.5	480.00	2#12, 1#12 GND, 3/4" C	MC	PWE	-
UH-1	120	1	1.40	1.75	20.00	1/12	168.00	2#12, 1#12 GND, 3/4" C	MC	PWE	-

LIGHTING FIXTURE SCHEDULE - CHILLER REPLACEMENT

CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE DESCRIPTION AND THE SPECIFICATIONS SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS FOR DESIGN. ALL LAMPS/LIGHT SOURCES FOR THIS PROJECT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. ALL LIGHT FIXTURES SHALL BE PROVIDED WITH INTEGRAL DISCONNECT(S) FACTORY INSTALLED IN ACCORDANCE WITH NEC. REFER TO SPECIFICATIONS FOR SHOP DRAWING SUBMITTAL REQUIREMENTS AND ADDITIONAL INFORMATION.

MOUNTING STYLES (MTG): RE-A = RECESSED (ACT), RE-G = RECESSED (GYP), RE-W = RECESSED (WALL), CL = CEILING SURFACE, PW = PERIMETER WALL, SP = SUSPENDED (AIR-CRAFT CABLE), ST = STEM, WL = WALL, WL-H = WALL HORIZONTAL, WL-V = WALL VERTICAL, UNV = UNIVERSAL, POLE = POLE, UC = UNDER CABINET, TR = TRACK, GND = GROUND

LED DRIVER TYPES: STND = STANDARD DRIVER, DIM10 = 0-10V 10% DIMMING, DIM1 = 0-10V 1% DIMMING, DIMD = 0-10V DIM TO DARK, STEP = STEP DIMMING, NOND = NON-DIMMING, DALI = DIGITAL ADDRESSABLE LIGHTING INTERFACE, DMX = DIGITAL MULTIPLEX, LUTR = LUTRON HI-LUME, POE = POWER OVER ETHERNET, SDIM = STEP DIMMING

GENERAL NOTES:

A. WHERE "OR APPROVED EQUIVALENT" IS LISTED IN THE MANUFACTURER COLUMN, FIXTURES MUST BE SUBMITTED AS A SUBSTITUTION FOR APPROVAL PRIOR TO BID SUBMISSION.
B. LISTED LUMENS ARE DELIVERED LUMENS. PROVIDE FIXTURE WITHIN +/- 5% OF LISTED LUMENS.
C. LIGHTING PRODUCTS SHALL BE PROVIDED THROUGH THE AUTHORIZED LIGHTING MANUFACTURER'S REPRESENTATIVE RESIDING WITHIN PROJECT LOCATION.
D. SUBMITTALS SHALL BE PRODUCED AND SUBMITTED BY LOCAL AUTHORIZED LIGHTING MANUFACTURER'S REPRESENTATIVE. LETTERHEAD SHALL CONTAIN REPRESENTATIVES' CONTACT INFORMATION, PROJECT NAME, AND PROJECT LOCATION.

SCHEDULE NOTES:

1.
2.

TYPE	DESCRIPTION	LENS-LOUVER	MTG	LIGHTING OUTPUT/CCT	DRIVER	VOLT	WATT	BASIS OF DESIGN	APPROVED EQUIVALENT	NOTES
L10	3" W X 4' LONG LED LENSED STRIP, STEEL HOUSING	ACRYLIC SEMI-FROST LENS	SP	LED, 3000 LUMENS, 4000K	DIM10	120	19	LITHONIA CLX	COLUMBIA MPS, DAY-BRITE FSS, DECO LIGHTING DACH-LED, LSI SDL, METALUX SNLED	

KEYNOTES

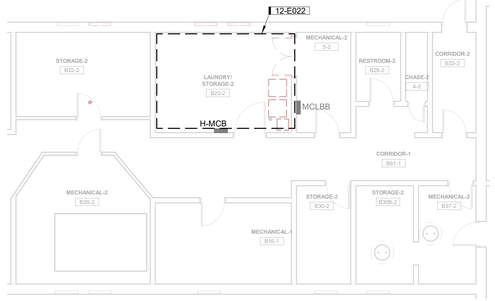
KEY	NOTE
12-E022	REMOVE EXISTING LIGHT FIXTURES AND LIGHTING CONDUIT IN THE SPACE. EXISTING LIGHTING CIRCUIT TO REMAIN. EXTEND EXISTING LIGHTING CIRCUIT TO NEW LIGHTING FIXTURES
12-E023	CIRCUIT NEW LIGHTS TO EXISTING LIGHTING CIRCUIT.
12-E024	CIRCUIT RECEPTACLE TO NEAREST CONVENIENCE RECEPTACLE CIRCUIT.
12-E025	RECIRCUIT TO THE CIRCUIT SERVING WASHING MACHINE.
12-E026	RECIRCUIT TO THE CIRCUIT SERVING DRYER.

CHLR-12-1

DP-MC-4,5,6

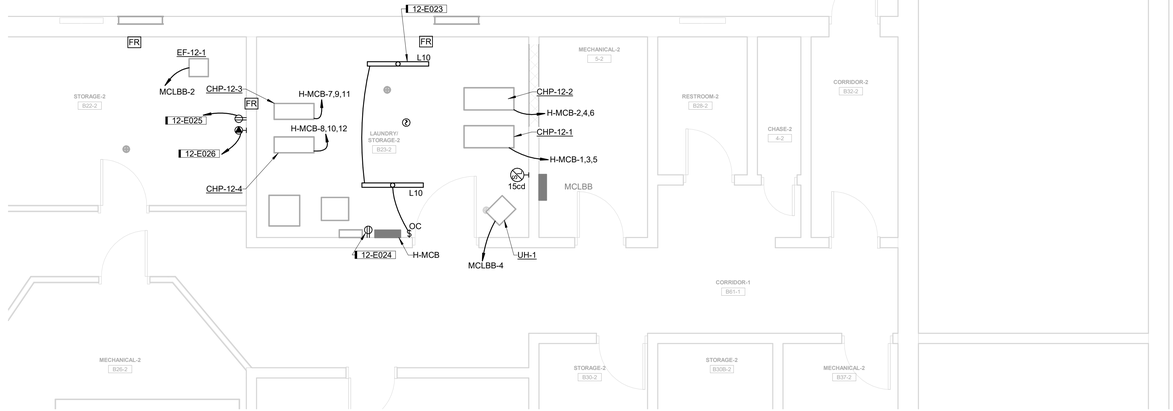
CHLR-12-2

DP-MC-7,8,9



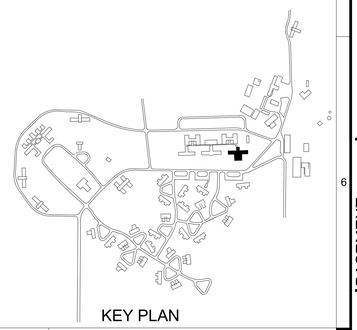
NORTH

A6 BASEMENT LEVEL - CHILLER DEMOLITION UPGRADES
1/8" = 1'-0" 0 12'



NORTH

B6 BASEMENT LEVEL - CHILLER UPGRADES
1/4" = 1'-0" 0 6'



KEY PLAN

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WRC CAMPUS FIBER UPGRADES (#9279.40)
12-Med Center

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	RML
APPROVED BY	KJB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2026-03-14
PROJECT NUMBER	2240607040
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BASEMENT LEVEL CHILLER UPGRADES

12-E100

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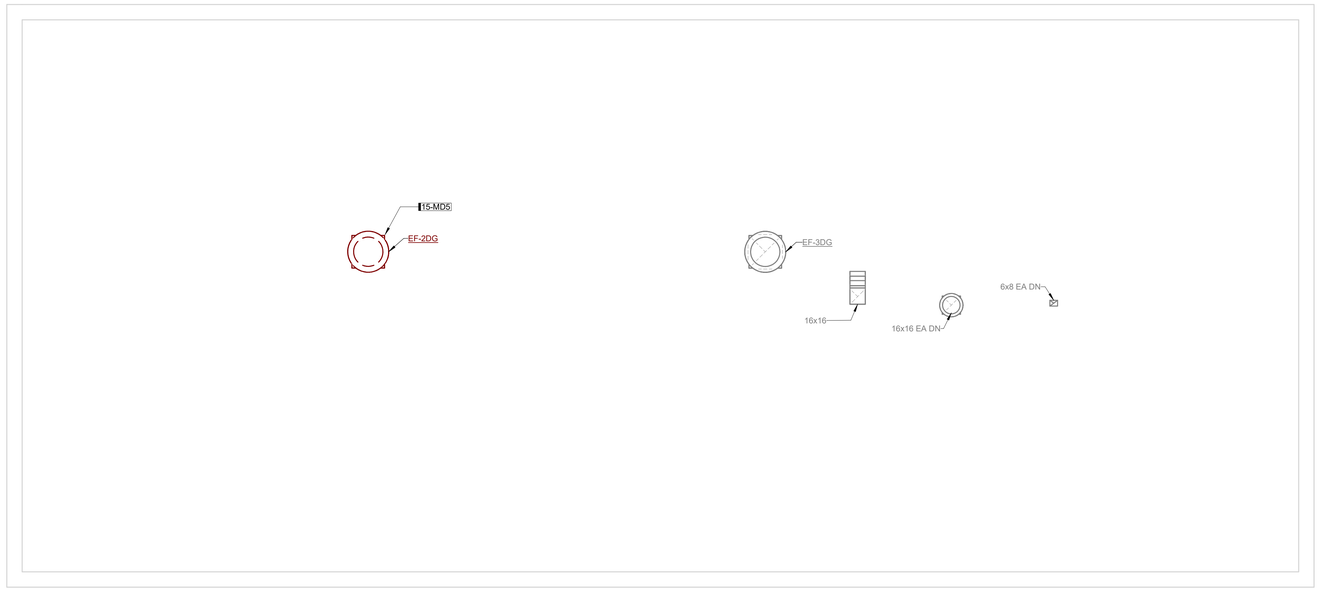
KEYNOTES

KEY	NOTE
15-MD1	REMOVE ALL LOW PRESSURE STEAM PIPING AND ASSOCIATED HANGERS AND FITTINGS.
15-MD2	VALVE, SEAL, AND CAP STEAM PIPE MAINS AT THE NEAREST SHUTOFF VALVE IN THE TUNNEL OUTSIDE OF BUILDING FOOTPRINT.
15-MD3	REMOVE HANGING STEAM HEATER AND ALL ASSOCIATED HANGERS AND PIPING.
15-MD5	REMOVE EXISTING EXHAUST FAN. ROOF CURB TO REMAIN.
15-MD6	REMOVE DUCTWORK UP TO APPROXIMATELY 6'-0" AFF.
15-MD7	DEMOLISH STEAM CONDENSATE PUMP AND ASSOCIATED CONTROLS AND ACCESSORIES. COORDINATE DEMOLITION OF ELECTRICAL CIRCUIT WITH E.C.
15-MD8	DEMOLISH CONDENSATE PIPING DOWN TO SLOP SINK.

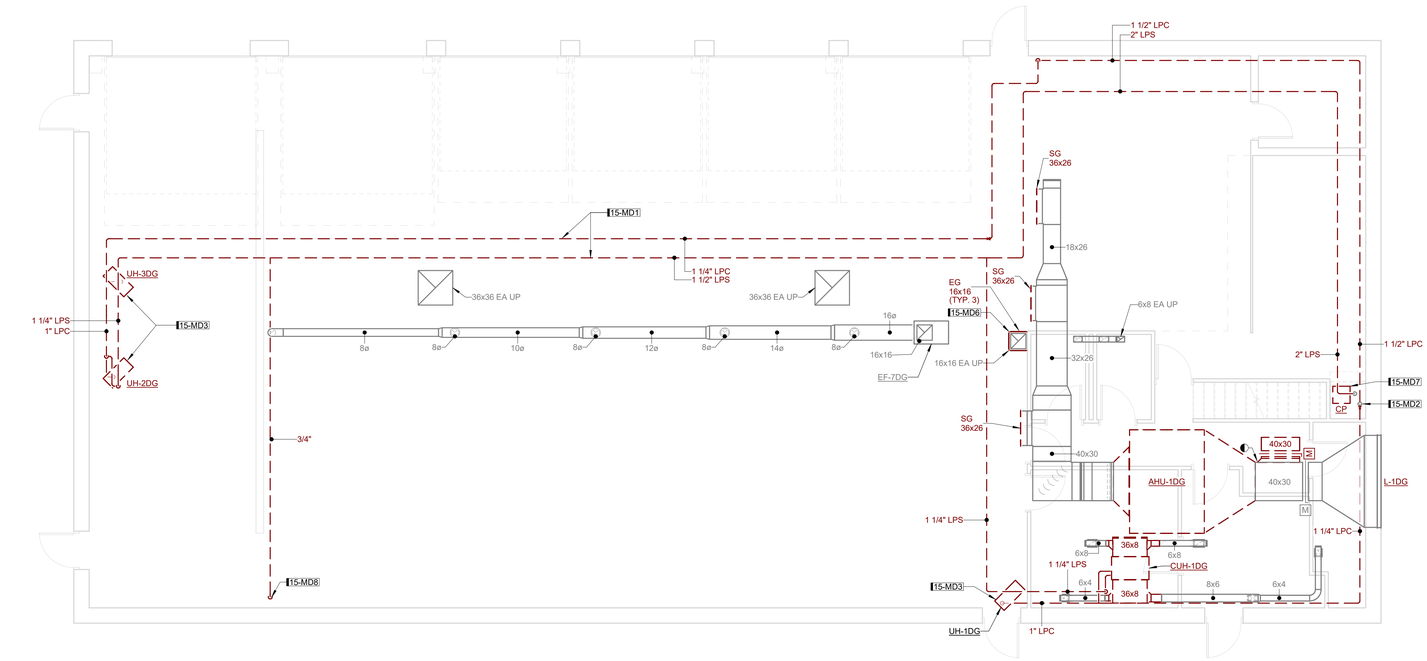
GENERAL DEMOLITION NOTE:N.

1. REMOVE EXISTING FACED INSULATION AS REQUIRED FOR INSTALLATION OF MECHANICAL SYSTEMS. INSTALL NEW FACED INSULATION, IN SAME THICKNESS AND TYPE OF INSULATION AS EXISTING, WITH NEW STEEL BANDING AS REQUIRED TO SUPPORT INSULATION. TAPE SEAM BETWEEN EXISTING AND NEW INSULATION AND SEAL ANY PENETRATIONS THROUGH INSULATION FACING.



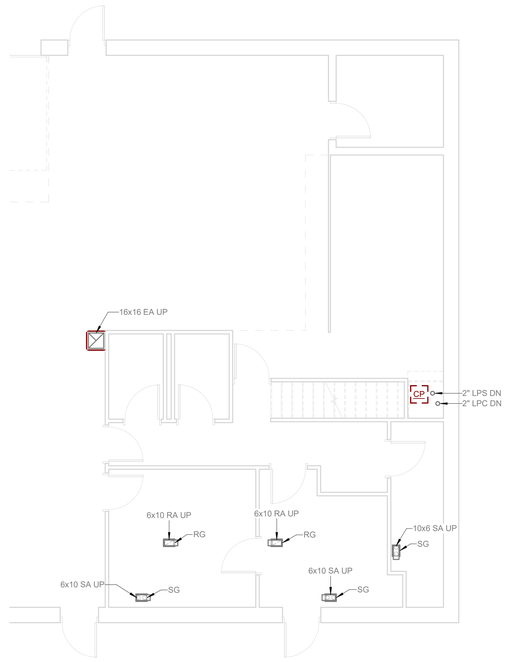
PLAN NORTH
TRUE NORTH

1C ROOF MECHANICAL DEMOLITION PLAN
3/16" = 1'-0"



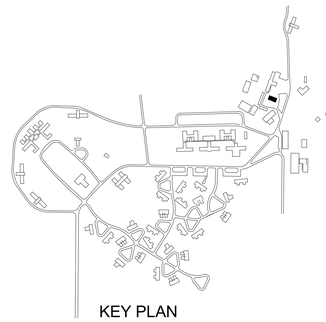
PLAN NORTH
TRUE NORTH

1A FIRST FLOOR MECHANICAL DEMOLITION PLAN
3/16" = 1'-0"



PLAN NORTH
TRUE NORTH

6B OFFICE MECHANICAL DEMOLITION PLAN
3/16" = 1'-0"



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

15-Dispatch Garage

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

MECHANICAL DEMOLITION PLANS

15-MD101

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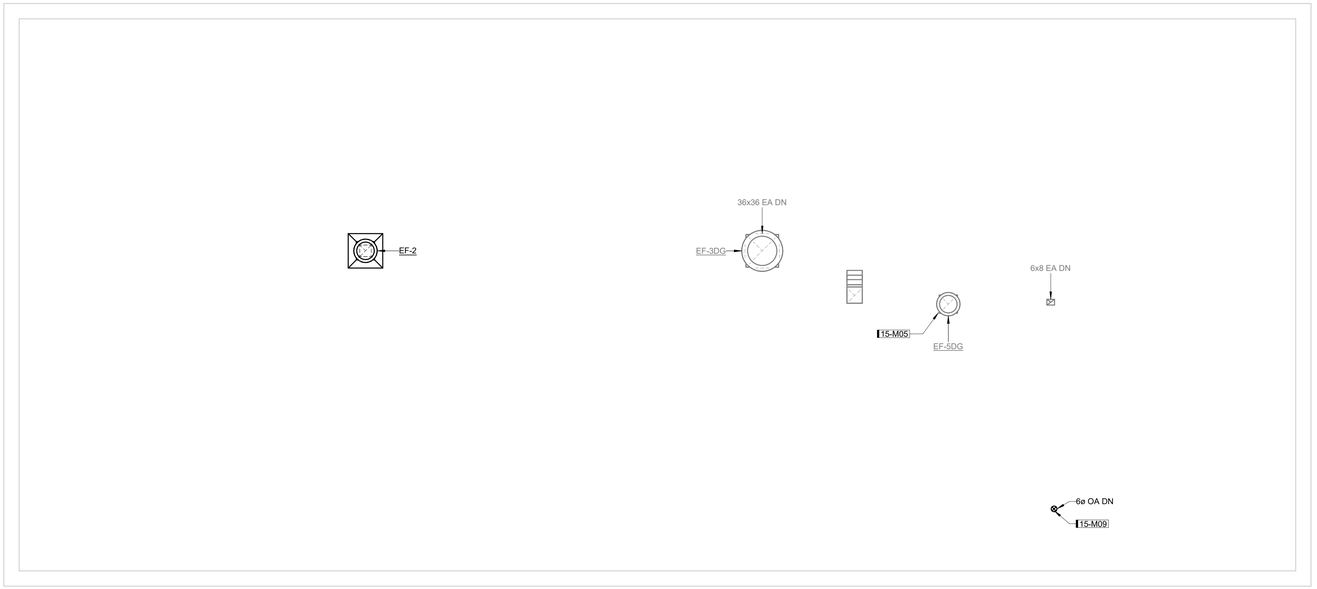
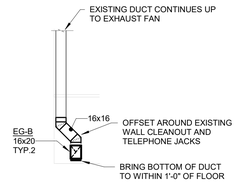
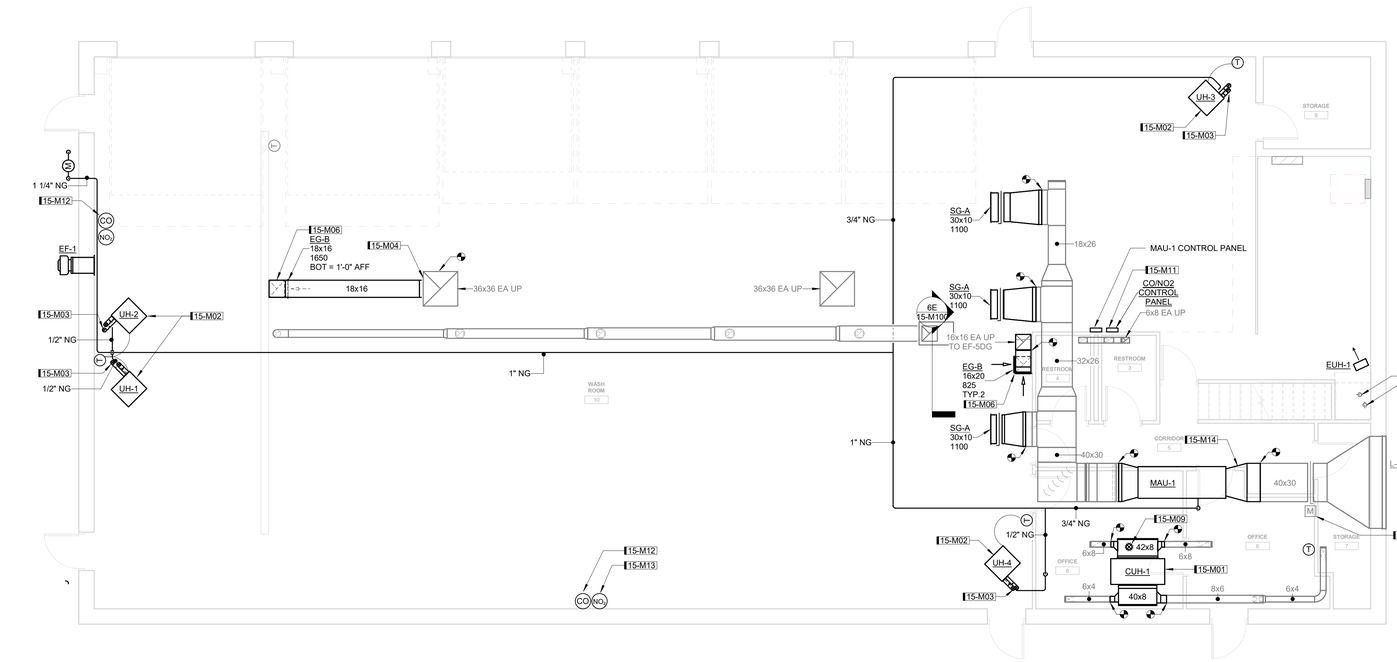
KEYNOTES	
KEY	NOTE
15-M01	INSTALL NEW CABINET UNIT HEATER AND ADAPT DUCTWORK AS NECESSARY.
15-M02	HANG UNIT HEATERS FROM STRUCTURE ABOVE. SEE DETAIL 1 ON 15-M600 FOR REFERENCE.
15-M03	TERMINATE UNIT HEATER USING CONCENTRIC VENT KIT.
15-M04	EXTEND NEW 36X36 EA DUCT DOWN FROM EXISTING. TAP 18X16 DUCT OFF THE SIDE OF THE NEW 36X36 DUCT. CAP THE BOTTOM OF NEW 36X36 DUCT.
15-M05	EXISTING FAN (REBALANCE TO 1650 CFM WITH NEW DUCTWORK CONFIGURATION)
15-M06	BOTTOM OF DUCT 1'-0" AFF.
15-M08	REFURBISH EXISTING MOTORIZED DAMPER AND REPLACE ACTUATOR.
15-M09	6" Ø OA DUCT WITH MOTORIZED DAMPER UP THROUGH ROOF. TERMINATE WITH RAIN CAP.
15-M10	RE-BALANCE EXISTING GRILLE TO AIRFLOW INDICATED BELOW
15-M11	PROVIDE TOXALERT TOX-4ANA CONTROL PANEL WITH THE ABILITY TO ACCOMMODATE 4 SENSORS. SEE DETAIL 3 ON SHEET 15-M600 FOR REFERENCE.
15-M12	PROVIDE TOXALERT TOX-EC-CO CO SENSOR MOUNTED APPROX 42" AFF.
15-M13	PROVIDE TOXALERT TOX-EC-NO2 NO2 SENSOR. MOUNT 1-3 FEET BELOW INSULATED TRUSS SPACE.
15-M14	INSULATE OUTDOOR AIR DUCT WITH 2" TYPE "I" DUCT WRAP. REPAIR ANY DAMAGED INSULATION ON EXISTING DUCT.



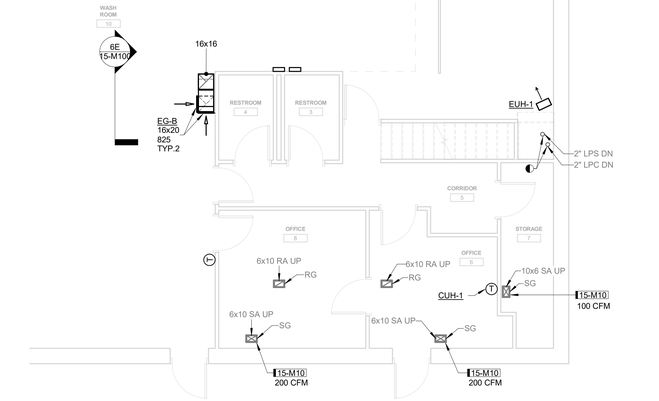


6E EXHAUST DUCT SECTION
1/8" = 1'-0" 0 12'

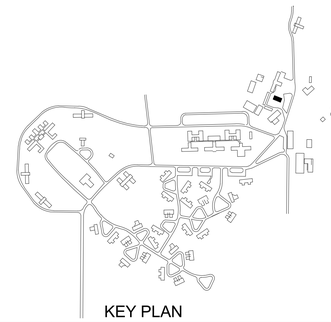


1C ROOF MECHANICAL PLAN
3/16" = 1'-0" 0 8'

1A FIRST FLOOR MECHANICAL PLAN
3/16" = 1'-0" 0 8'



6B OFFICE MECHANICAL PLAN
3/16" = 1'-0" 0 8'



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15-Dispatch Garage

Iowa Department of Administrative Services
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MECHANICAL PLANS

15-M100

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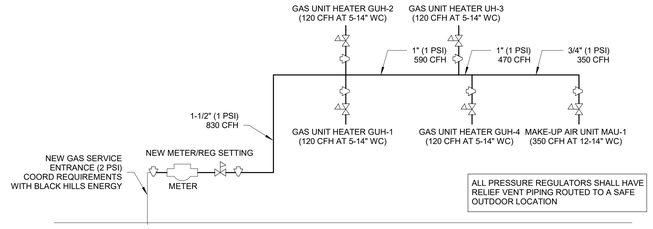
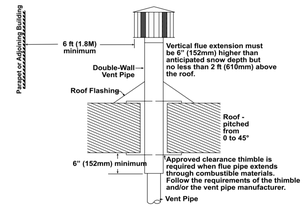
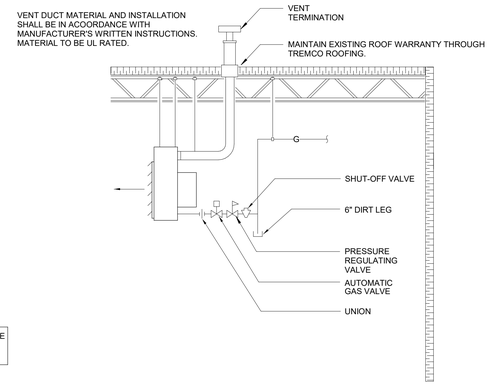


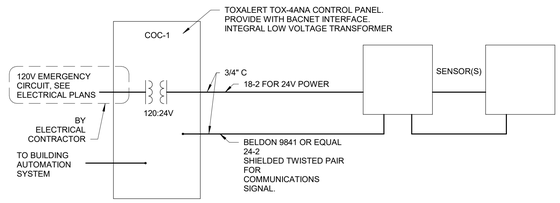
4D GAS PIPING SCHEMATIC
NOT TO SCALE



DESIGN BASIS DETAIL OF ROOF PENETRATION. INSTALL
PER MANUFACTURER'S INSTRUCTIONS.



7D GAS UNIT HEATER DETAIL
NOT TO SCALE



1. EACH CO/NO2 CONTROL PANEL CONTROLS ONE ZONE. IN EACH ZONE, THE EXHAUST FANS AND ASSOCIATED MOTORIZED DAMPERS ARE TO OPERATE ON ALARM SIGNAL FROM THE CONTROL PANELS. THE ZONES ARE AS FOLLOWS :

COC-1 - EF-2, EF-5DG, MAU-1

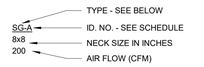
2. ELECTRICAL CONTRACTOR TO EXTEND 120V CONTACT SIGNAL INTO 'AUTO' CONTROL LEG OF COMBINATION STARTER/DISCONNECTS SERVING EXHAUST FANS.

3. 120V CIRCUIT TO CONTROL PANEL COC-1 BY ELECTRICAL CONTRACTOR.

4. LOW VOLTAGE (24V) WIRING, RELAY, TRANSFORMERS AND CONTROLLERS BY TEMPERATURE CONTROLS CONTRACTOR. REFER TO SPECIFIC WIRING REQUIREMENTS OF CO/NO CONTROL PANEL BY MANUFACTURER.

5. ALARM TO BUILDING AUTOMATION SYSTEM WHEN EMERGENCY VENTILATION IS ACTIVATED.

3B CO/NO2 CONTROL PANEL DETAIL
NOT TO SCALE



DIFFUSER, GRILLE, REGISTER NOTATIONS

SG = SUPPLY GRILLE
RG = RETURN GRILLE
EG = EXHAUST GRILLE

DIFFUSERS REGISTERS AND GRILLES SCHEDULE

MARK	MATERIAL	DESCRIPTION	FACE SIZE	FACTORY FINISH	DESIGN BASIS	REMARKS
A	ALUMINUM	LONG THROW, HIGH CAPACITY SUPPLY GRILLE WITH ROTATING DRUM	SEE PLANS	WHITE	TITUS 272FL	
B	ALUMINUM	LOUVERED RETURN GRILLE, 1/2" BLADE SPACING, 35 DEGREE DEFLECTION	SEE PLANS	WHITE	TITUS 355FL	

UNIT HEATER SCHEDULE - GAS

REMARKS:
1. PROVIDE VERTICAL VENT TERMINATION.
2. PROVIDE 30 DEGREE DOWNTURN NOZZLE
3. PROVIDE THERMOSTAT
4. PROVIDE TWO-STAGE GAS VALVE
5. PROVIDE WITH FACTORY MOUNTED DISCONNECT.

MARK	AREA SERVED	CFM	EAT (°F)	LAT (°F)	MINIMUM GAS PRESSURE HEATING INPUT (MBH)	MINIMUM GAS PRESSURE HEATING OUTPUT (MBH)	MOUNTING HEIGHT (FT)	ORIENTATION	FAN MOTOR DATA HP	FAN MOTOR DATA VOLTS	FAN MOTOR DATA PHASE	DESIGN BASIS	REMARKS
UH-1	GARAGE SPACE	1537	50	110	120	99.6	12'-0"	VERTICAL	1/4	115	1	REZNOR UDXC	
UH-2	GARAGE SPACE	1537	50	110	120	99.6	12'-0"	VERTICAL	1/4	115	1	REZNOR UDXC	
UH-3	GARAGE SPACE	1537	50	110	120	99.6	12'-0"	VERTICAL	1/4	115	1	REZNOR UDXC	
UH-4	GARAGE SPACE	1537	50	110	120	99.6	12'-0"	VERTICAL	1/4	115	1	REZNOR UDXC	

UNIT HEATER SCHEDULE - ELECTRIC

REMARKS:
1. PROVIDE WITH FACTORY MOUNTED DISCONNECT SWITCH
2. PROVIDE WITH BUILT-IN THERMOSTAT
3. PROVIDE WITH REMOTE THERMOSTAT WITH 7-DAY SCHEDULE CAPABILITIES. INTERLOCK FAN OPERATION WITH MOTORIZED DAMPER TO PROVIDE FRESH AIR DURING OCCUPIED MODES.

MARK	AREA SERVED	CFM	EAT (°F)	LAT (°F)	FAN MOTOR HP	MOUNTING HEIGHT (FT)	ORIENTATION	ELECTRICAL DATA KW	ELECTRICAL DATA VOLTS	ELECTRICAL DATA PHASE	ELECTRICAL DATA FLA	DESIGN BASIS	REMARKS
CUH-1	OFFICES	500	56.5	85	1/25	9'-6"	HORIZONTAL	6	208	3	14.3	TRANE FFDB080	1,3
EUH-1	TUNNEL ENTRANCE	350	60	87	1/100	7'-6"	VERTICAL	3	208	1	14.5	QMARK MUH03-81	1,2

FAN SCHEDULE

REMARKS:
1. PROVIDE WITH WALL GRILLE, WALL BRACKET, BACKDRAFT DAMPER, BIRDSCREEN AND DISCONNECT SWITCH
2. PROVIDE WITH CURB ADAPTER, MOTORIZED DAMPER, BIRDSCREEN AND DISCONNECT SWITCH.

Mark	AREA SERVED	SYSTEM SERVED	FAN TYPE	CFM	ESP (IN H20)	NO FLOW ESP (IN H20)	MOTOR DATA BHP	MOTOR DATA HP	MOTOR DATA RPM	MOTOR DATA DRIVE	ELECTRICAL DATA VOLTS	ELECTRICAL DATA PHASE	DAMPER TYPE	INLET SONES	DESIGN BASIS	REMARKS
EF-1	PARKING AREA	STANDBY EXHAUST	WALL MOUNTED	250	0.3	0.475	0.03	1/15	1725	DIRECT	120	1	BACKDRAFT	4.9	GREENHECK CUE-070-VG	1
EF-2	PARKING AREA	EMERGENCY EXHAUST	ROOF MOUNTED	1650	0.5	1.41	0.35	1/2	1725	DIRECT	120	1	BACKDRAFT	14.4	GREENHECK G-120-VG	2

DIRECT FIRED MAKE-UP AIR UNIT SCHEDULE

REMARKS:
1. PROVIDE AND INSTALL MANUFACTURER'S REMOTE CONTROL PANEL. COORDINATE EXACT LOCATION WITH OWNER.
2. PROVIDE ROOM THERMOSTAT TO RESET DISCHARGE AIR TEMPERATURE TO MAINTAIN ROOM SETPOINT.
3. INTERLOCK WITH CO/NO2 PANEL. MAU-1 SHALL OPERATE WHEN SYSTEM IS IN EMERGENCY EXHAUST MODE.
4. PROVIDE NIGHT THERMOSTAT SET TO 50°F AS BACKUP TO GAS FIRED UNIT HEATERS.
5. INTERLOCK WITH EXISTING OUTSIDE AIR DAMPER. REFURBISH EXISTING DAMPER AND ACTUATOR.
6. UNIT SHALL HAVE FACTORY-MOUNTED DISCONNECT SWITCH.

MARK	AREA SERVED	SUPPLY CFM	MINIMUM OA (%)	SUPPLY FAN DATA: SUPPLY FAN CFM	RPM	STATIC PRESSURE: TOTAL (T.S.P.)	STATIC PRESSURE: EXTERNAL (E.S.P.)	TYPE	SUPPLY FAN ELECTRICAL DATA: BHP	HP	VOLTS	PHASE	HEATING: TYPE	EAT DB (°F)	LAT DB (°F)	MBH	GAS: INPUT (MBH)	GAS: OUTPUT (MBH)	GAS: THERMAL EFFICIENCY	PRE-FILTER: TYPE	PRE-FILTER: DEPTH (IN)	ELECTRICAL DATA: HP	VOLTS	PHASE	MOP	MCA	DESIGN BASIS	REMARKS
MAU-1	DISPATCH GARAGE	3300	100	3300	2025	1.931	1	MIXED FLOW	1.8	2	208	3	DIRECT FIRED NATURAL GAS	-20	70	350	348.7	320.8	92	MERV 8	2	2	208	3	20 A	10.1 A	GREENHECK DGX-P115-H12-MF	

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
15-Dispatch Garage

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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MECHANICAL SCHEDULES & DETAILS

15-M600

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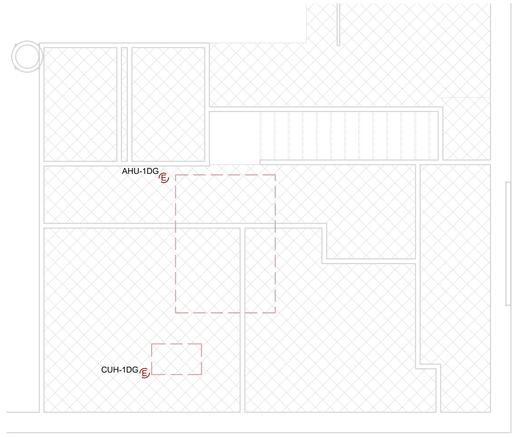
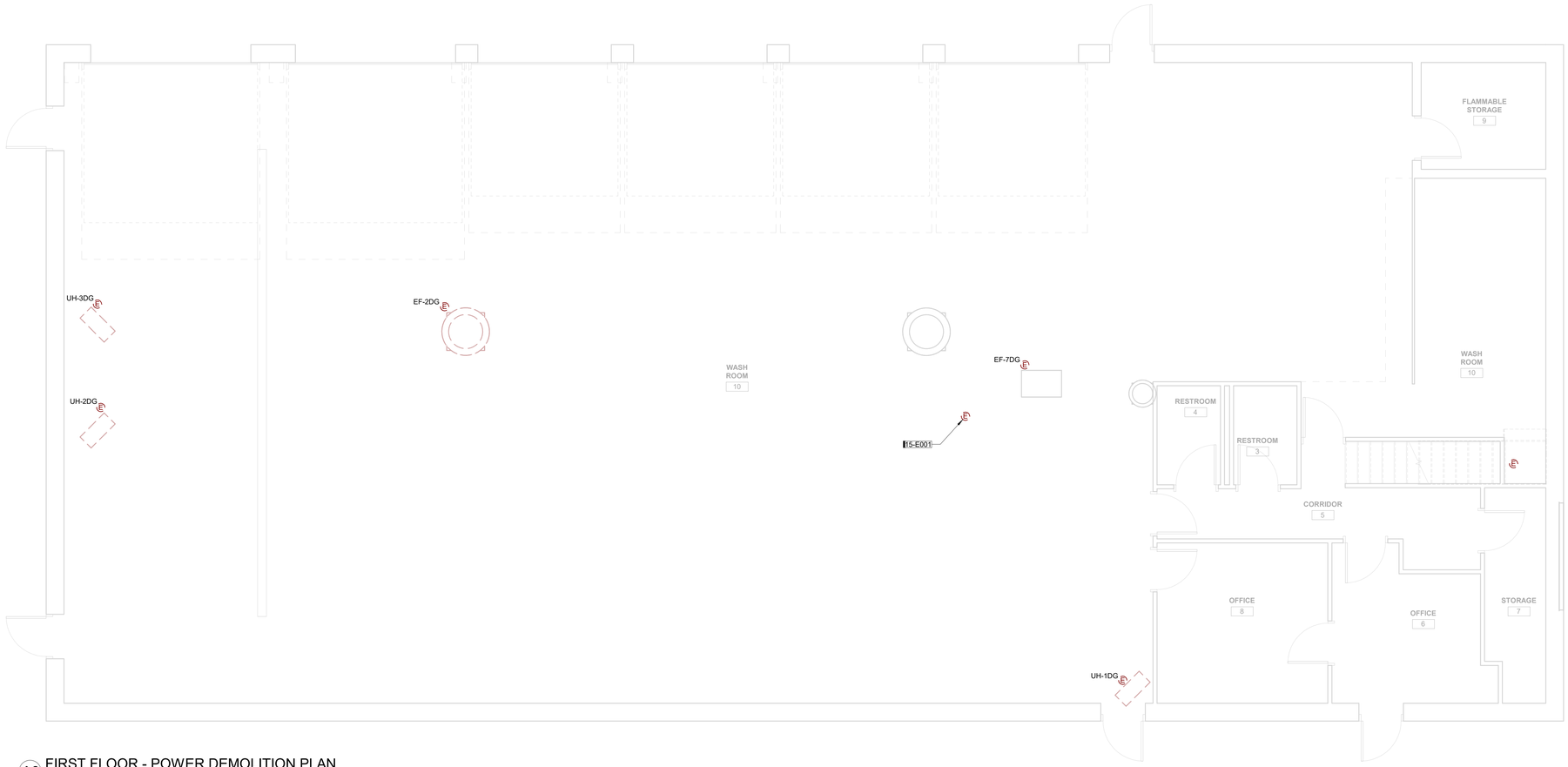
KEYNOTES	
KEY	NOTE
15-E001	REMOVE ELECTRICAL CONNECTION TO VEHICLE EXHAUST SYSTEM.



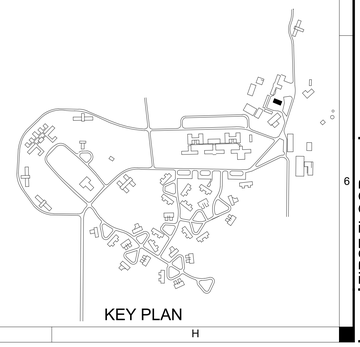
PLAN NORTH
TRUE NORTH

E3 MEZZANINE LEVEL - POWER DEMOLITION PLAN
1/4" = 1'-0" 0' 6'



PLAN NORTH
TRUE NORTH

A6 FIRST FLOOR - POWER DEMOLITION PLAN
1/4" = 1'-0" 0' 6'



KEY PLAN

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
15 - DISPATCH GARAGE

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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FIRST FLOOR AND MEZZANINE LEVEL POWER DEMOLITION PLAN

15-ED201

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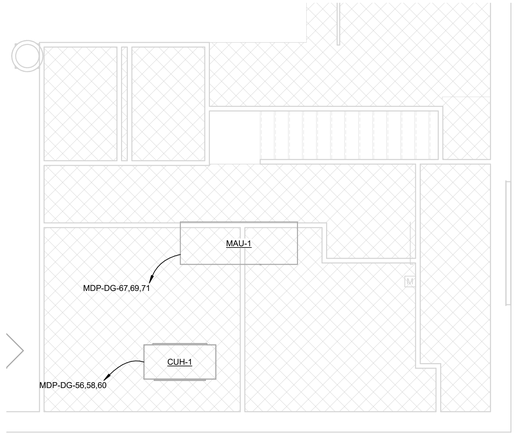
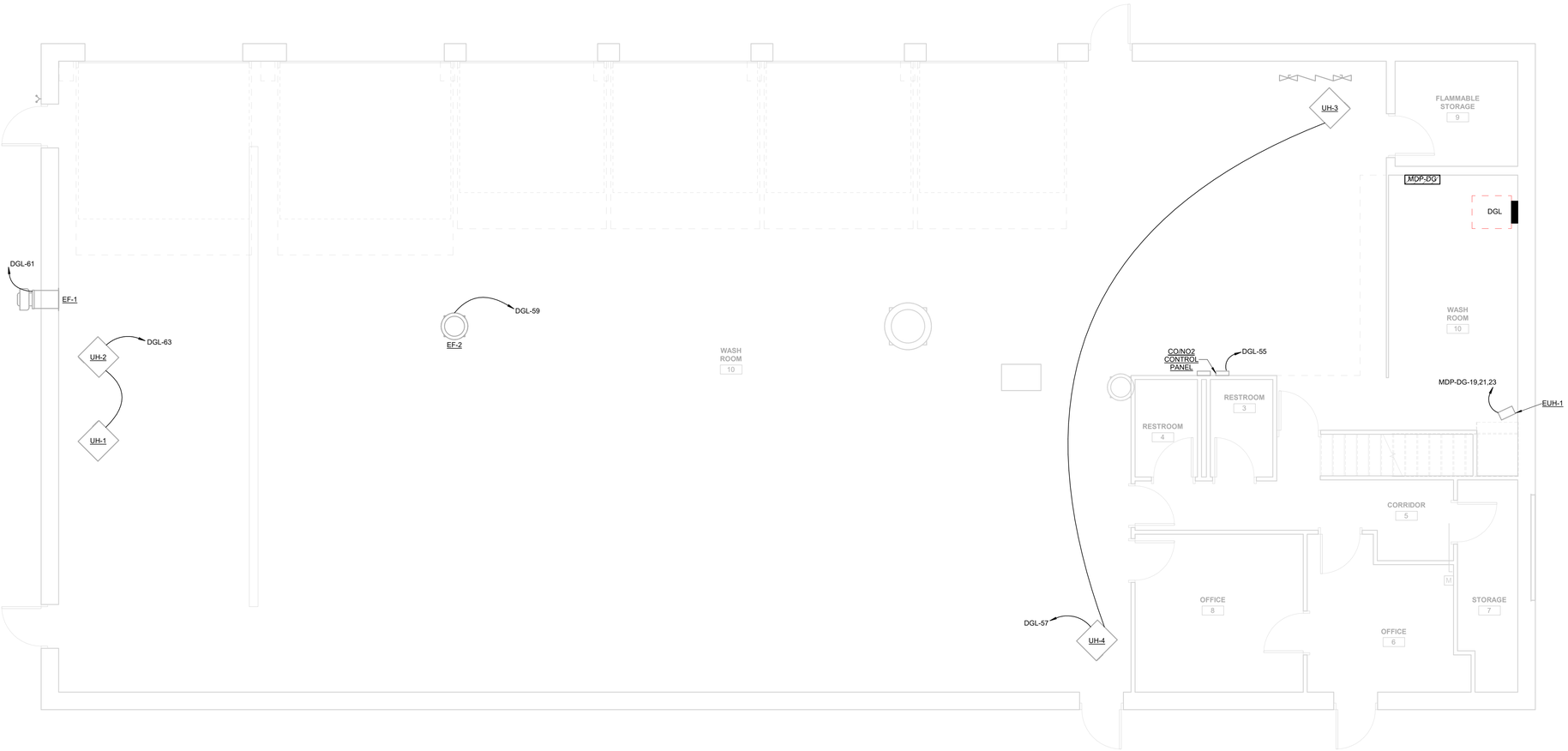


PLAN NORTH

TRUE NORTH

E3 MEZZANINE LEVEL - POWER PLAN

1/4" = 1'-0" 0 6'

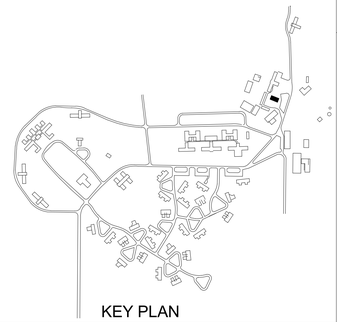


PLAN NORTH

TRUE NORTH

1A FIRST FLOOR - POWER PLAN

1/4" = 1'-0" 0 6'



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15 - DISPATCH GARAGE

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FIRST FLOOR AND MEZZANINE LEVEL POWER PLAN

15-E201

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BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
MDP-DG	**208Y/120**	**3**	**4**	**400 AMPS**	**400 A**	**42,000 AMPS SYMMETRICAL**
	CODE: L=LIGHTING, R=RECEPTACLES, E=EQUIPMENT, K=KITCHEN					MOUNTING:
ROOM: WASH ROOM 10	EXISTING WESTINGHOUSE FUSED DISTRIBUTION PANEL...					ENCLOSURE: Type 1
FED FROM:						FEED:

LOAD	CODE	NOTE	POLE	BKR.	CKT #	A	B	C	CKT #	BKR.	POLE	NOTE	CODE	LOAD
OVERHEAD DOOR 1	--	--	3	30 A	1	0.0 / 0.0			2	30 A	3	--	--	OVERHEAD DOOR 2
--	--	--	--	--	3		0.0 / 0.0		4	--	--	--	--	--
--	--	--	--	--	5			0.0 / 0.0	6	--	--	--	--	--
OVERHEAD DOOR 3	--	--	3	30 A	7	0.0 / 0.0			8	30 A	3	--	--	OVERHEAD DOOR 4
--	--	--	--	--	9		0.0 / 0.0		10	--	--	--	--	--
--	--	--	--	--	11			0.0 / 0.0	12	--	--	--	--	--
OVERHEAD DOOR 5	--	--	3	30 A	13	0.0 / 0.0			14	30 A	3	--	--	OVERHEAD DOOR 6
--	--	--	--	--	15		0.0 / 0.0		16	--	--	--	--	--
--	--	--	--	--	17			0.0 / 0.0	18	--	--	--	--	--
EUH-1	E	1	3	20 A	19	1.0 / 0.0			20	30 A	3	--	--	SPARE
--	--	--	--	--	21		1.0 / 0.0		22	--	--	--	--	--
--	--	--	--	--	23			1.0 / 0.0	24	--	--	--	--	--
SPARE	--	--	3	30 A	25	0.0 / 0.0			26	30 A	3	--	--	SPARE
--	--	--	--	--	27		0.0 / 0.0		28	--	--	--	--	--
--	--	--	--	--	29			0.0 / 0.0	30	--	--	--	--	--
SPARE	--	--	3	30 A	31	0.0 / 0.0			32	30 A	3	--	--	AIR COMP.
--	--	--	--	--	33		0.0 / 0.0		34	--	--	--	--	--
--	--	--	--	--	35			0.0 / 0.0	36	--	--	--	--	--
LIGHTING PANEL DGL	--	--	3	200 A	37	0.0 / 0.0			38	400 A	3	--	--	MAIN
--	--	--	--	--	39		0.0 / 0.0		40	--	--	--	--	--
--	--	--	--	--	41			0.0 / 0.0	42	--	--	--	--	--
EXHAUST FAN 1DG	--	--	3	60 A	43	0.0 / 0.0			44	60 A	3	--	--	SPARE
--	--	--	--	--	45		0.0 / 0.0		46	--	--	--	--	--
--	--	--	--	--	47			0.0 / 0.0	48	--	--	--	--	--
EXHAUST FAN 3DG	--	--	3	60 A	49	0.0 / 0.0			50	60 A	3	--	--	EXHAUST FAN 7DG
--	--	--	--	--	51		0.0 / 0.0		52	--	--	--	--	--
--	--	--	--	--	53			0.0 / 0.0	54	--	--	--	--	--
EXHAUST FAN 5DG	--	--	3	60 A	55	0.0 / 2.0			56	20 A	3	1	E	CUH-1
--	--	--	--	--	57		0.0 / 2.0		58	--	--	--	--	--
--	--	--	--	--	59			0.0 / 2.0	60	--	--	--	--	--
EXISTING LOAD	--	--	3	60 A	61	0.0 / 0.0			62	60 A	3	--	--	EWH-1DG WATER HTR
--	--	--	--	--	63		0.0 / 0.0		64	--	--	--	--	--
--	--	--	--	--	65			0.0 / 0.0	66	--	--	--	--	--
MAU-1	E	1	3	20 A	67	1.0 / 0.0			68	60 A	3	--	--	WELDER RECEPT.
--	--	--	--	--	69		1.0 / 0.0		70	--	--	--	--	--
--	--	--	--	--	71			1.0 / 0.0	72	--	--	--	--	--
CAR-MON EXHAUST FAN	--	--	3	60 A	73	0.0 / 0.0			74					
--	--	--	--	--	75		0.0 / 0.0		76					
--	--	--	--	--	77			0.0 / 0.0	78					
				TOTAL LOAD:		3820.9 VA	3820.9 VA	3820.9 VA						
				TOTAL AMPS:		31.8 A	31.8 A	31.8 A						

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)	PANEL TOTALS	
HVAC	2911 VA	100%	2911 VA	**CONNECTED LOAD:**	11462.6 VA
HEATING HVAC	9000 VA	100%	9000 VA	**ESTIMATED DEMAND:**	11462.6 VA
				CONNECTED CURRENT:	31.8 A
				ESTIMATED DEMAND CURRENT:	31.8 A

NOTES:
1. CONNECT TO EXISTING FUSED SWITCH. FUSE SIZE PER MANUFACTURER RECOMMENDATIONS.

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
DGL	**208Y/120**	**3**	**4**	**225 AMPS**	**MLO**	**10,000 AMPS SYMMETRICAL**
	CODE: L=LIGHTING, R=RECEPTACLES, E=EQUIPMENT, K=KITCHEN					MOUNTING: SURFACE
ROOM: WASH ROOM 10	EXISTING WESTINGHOUSE PANELBOARD					ENCLOSURE: NEMA1
FED FROM:						FEED:

LOAD	CODE	NOTE	POLE	BKR.	CKT #	A	B	C	CKT #	BKR.	POLE	NOTE	CODE	LOAD
PIT PUMP	--	--	1	20 A	1	0.0 / 0.0			2	20 A	1	--	--	FUEL PUMPS
PIT PUMP	--	--	1	20 A	3		0.0 / 0.0		4	20 A	1	--	--	EXISTING LOAD
SPARE	--	--	1	20 A	5			0.0 / 0.0	6	20 A	1	--	--	EXISTING LOAD
SPARE	--	--	1	20 A	7	0.0 / 0.0			8	20 A	1	--	--	EXISTING LOAD
SPARE	--	--	1	20 A	9		0.0 / 0.0		10	20 A	1	--	--	RECEPTACLE UNDER PANEL
EXISTING LOAD	--	--	1	20 A	11			0.0 / 0.0	12	20 A	1	--	--	OFFICE RECEPTACLES
EXAUST CONTROL	--	--	1	20 A	13	0.0 / 0.0			14	20 A	1	--	--	OUTSIDE RECEPTACLES
EXISTING LOAD	--	--	2	20 A	15		0.0 / 0.0		16	20 A	2	--	--	EXISTING LOAD
--	--	--	--	--	17			0.0 / 0.0	18	--	--	--	--	--
EXISTING LOAD	--	--	2	20 A	19	0.0 / 0.0			20	20 A	2	--	--	EXISITNG LOAD
--	--	--	--	--	21		0.0 / 0.0		22	--	--	--	--	--
SPACE	--	--	1	--	23			0.0 / 0.0	24	--	1	--	--	SPACE
OFFICE HEATER	--	--	1	20 A	25	0.0 / 0.0			26	20 A	1	--	--	EXISTING LOAD
EXISTING LOAD	--	--	1	20 A	27		0.0 / 0.0		28	20 A	1	--	--	HEATERS
SOUTHWEST UNIT HEATER	--	--	1	20 A	29			0.0 / 0.0	30	20 A	1	--	--	LIGHTS OVER WORK BENCH
EXISTING LOAD	--	--	1	20 A	31	0.0 / 0.0			32	20 A	1	--	--	RESTROOM & HALL LIGHTS
EXISTING LOAD	--	--	1	20 A	33		0.0 / 0.0		34	20 A	1	--	--	SHOWER ROOM LIGHTS
FLOURESCENT LIGHTS	--	--	1	20 A	35			0.0 / 0.0	36	20 A	1	--	--	OFFICE LIGHTS
JOHNSON CONTROL	--	--	1	20 A	37	0.0 / 0.0			38	20 A	1	--	--	PARTS RM AND LOFT LGT
FIRE ALARM	--	--	1	20 A	39		0.0 / 0.0		40	20 A	1	--	--	OUTSIDE LIGHTS
BENCH RECEPTACLES	--	--	1	20 A	41			0.0 / 0.0	42	20 A	1	--	--	OUTSIDE LIGHTS
BENCH RECEPTACLES	--	--	1	20 A	43	0.0 / 0.0			44	20 A	1	--	--	OUTSIDE LIGHTS
BENCH RECEPTACLES	--	--	1	20 A	45		0.0 / 0.0		46	20 A	1	--	--	OUTSIDE LIGHTS
EXISTING LOAD	--	--	1	20 A	47			0.0 / 0.0	48	20 A	1	--	--	RECEPTACLE SOUTH SIDE
SPARE	--	--	3	15 A	49	0.0 / 0.0			50	20 A	1	--	--	RECEPTACLE SOUTH SIDE
--	--	--	--	--	51		0.0 / 0.0		52	30 A	2	--	--	EXISTING LOAD
--	--	--	--	--	53			0.0 / 0.0	54	--	--	--	--	--
COC-1	E	1	1	20 A	55	0.0 / 0.0			56	--	1	--	--	SPACE
UH-3, UH-4	E	1	1	20 A	57		3.2 / 0.0		58	20 A	1	--	--	EXISTING LOAD
EF-2	E	1	1	20 A	59			0.8 / 0.0	60	--	1	--	--	SPACE
EF-1	E	1	1	20 A	61	0.2 / 0.0			62	60 A	2	--	--	EXISTING LOAD
UH-1, UH-2	E	1	1	20 A	63		3.2 / 0.0		64	--	--	--	--	--
SPACE	--	--	1	--	65			0.0 / 0.0	66	--	1	--	--	SPACE
				TOTAL LOAD:		156.0 VA	6336.0 VA	768.0 VA						
				TOTAL AMPS:		1.3 A	53.6 A	7.2 A						

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)	PANEL TOTALS	
MOTORS	924 VA	120.78%	1116 VA	**CONNECTED LOAD:**	7096.9 VA
HEATING HVAC	6336 VA	100%	6336 VA	**ESTIMATED DEMAND:**	7259.9 VA
SPEC	0 VA	0%	0 VA	**CONNECTED CURRENT:**	19.7 A
				ESTIMATED DEMAND CURRENT:	20.2 A

NOTES:
1. PROVIDE NEW BREAKER IN EXISTING PANEL.

ELECTRICAL AND MECHANICAL COORDINATION SCHEDULE

GENERAL NOTES:
MOCP SIZES SHOWN BELOW ARE FOR BIDDING PURPOSES ONLY. VERIFY MOCP WITH EQUIPMENT NAME PLATE DATA PRIOR TO ORDERING EQUIPMENT.
MINIMUM WIRE SIZE SHALL BE #12 AWG AND MINIMUM CONDUIT SIZE SHALL BE 3/4".
INCLUDE A SEPARATE, GREEN, CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT CONDUITS.

ABBREVIATIONS:
EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
MFR - MANUFACTURER
TCC - TEMPERATURE CONTROL CONTRACTOR
OWN - OWNER
NF - NON-FUSED DISCONNECT
PWE - PROVIDED WITH EQUIPMENT

REMARKS:

Mark	VOLTAGE	PHASE	FLA	MCA	MOCP	HP	FUSE	WATTAGE	CONDUIT AND WIRE SIZE	CONTROL OR STARTER	CONTROLLER OR STARTER FURNISHED / INSTALLED	DISCONNECT TYPE	DISCONNECT FURNISHED / INSTALLED	AIC RATING	MATERIAL LIST	REMARKS
CUH-1	208 V	3	14.3 A	17.9 A	20 A	1/25	-	6000 W	4#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
EF-1	120 V	1	1.3 A	1.6 A	20 A	1/15	-	156 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
EF-2	120 V	1	6.4 A	8 A	20 A	1/2	-	768 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
EUH-1	208 V	1	14.5 A	18.1 A	20 A	1/100	-	3000 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
MAU-1	208 V	3	8.1 A	10.1 A	20 A	2	-	2910.95 W	3#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
UH-1	120 V	1	13.2 A	16.5 A	20 A	1/4	-	1584 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
UH-2	120 V	1	13.2 A	16.5 A	20 A	1/4	-	1584 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
UH-3	120 V	1	13.2 A	16.5 A	20 A	1/4	-	1584 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--
UH-4	120 V	1	13.2 A	16.5 A	20 A	1/4	-	1584 W	2#12, 1#12 GND, 3/4" C	--	MC	NF	PWE	--	--	--

KEY PLAN

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
15 - DISPATCH GARAGE
...tch Garage

Iowa Department of Administrative Services
1251 334th St. Woodward, IA 50276

DRAWN BY	PJD
APPROVED BY	KJB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2142203394
FIELD BOOK	

ELECTRICAL SCHEDULES

15-E600

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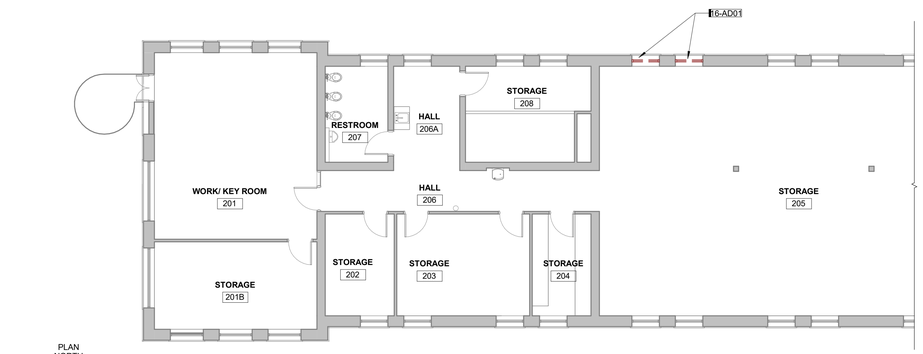


PLAN NORTH
TRUE NORTH

A2 SECOND FLOOR DEMOLITION PLAN
1/8" = 1'-0" 0 12'

PLAN NORTH
TRUE NORTH

A4 FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0" 0 12'

PLAN NORTH
TRUE NORTH

A6 BASEMENT DEMOLITION PLAN
1/8" = 1'-0" 0 12'

ARCHITECTURAL DEMOLITION NOTES

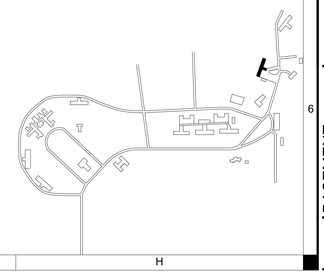
1. FIELD VERIFY EXISTING CONDITIONS PRIOR TO START OF DEMOLITION WORK. NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES BETWEEN WORK SHOWN IN THE DRAWINGS AND FIELD CONDITIONS ENCOUNTERED.
2. TO PROTECT OWNER AND CONTRACTOR, PHOTOGRAPHICALLY DOCUMENT EXISTING CONDITIONS TO REMAIN, PRIOR TO START OF DEMOLITION AND CONSTRUCTION ACTIVITIES. COPY ARCHITECT AND OWNER ON PHOTOGRAPHIC DOCUMENTATION.
3. OPEN FLAME EQUIPMENT IS NOT PERMITTED FOR REMOVAL OF EXISTING WORK WITHOUT SPECIFIC WRITTEN PERMISSION FROM THE OWNER.
4. COORDINATE WITH OWNER ANY ITEMS TO BE SALVAGED.
5. OWNER WILL REMOVE ALL NON-FIXED FURNISHINGS AND EQUIPMENT FROM THE CONSTRUCTION AREA PRIOR TO START OF CONSTRUCTION UNLESS NOTED OTHERWISE.
6. CONSTRUCTION MANAGER WILL PROVIDE TEMPORARY COVERING OF DEMOLISHED WINDOWS.
7. MAINTAIN BUILDING IN A WEATHER-TIGHT CONDITION. DO NOT PERFORM WORK ON EXTERIOR OPENINGS THAT CANNOT BE COMPLETED OR MADE WEATHER-TIGHT WHEN INCLEMENT WEATHER IS POSSIBLE.
8. PROTECT ALL FINISHES (TO REMAIN) IN THE PROJECT AREA. COORDINATE WITH ARCHITECT AND OWNER PRIOR TO DEMOLITION.
9. ENSURE THAT DUST AND DEBRIS ARE PREVENTED FROM ENTERING THE EXISTING HVAC SYSTEM AND ADJOINING SPACES WITH TEMPORARY BARRIERS AS REQUIRED PER THE BUILDING.
10. ALL NEW AND EXISTING PENETRATIONS IN EXISTING FIRE-RATED INTERIOR AND EXTERIOR WALLS, FLOORS AND CEILING DECKS SHALL RECEIVE UL AND FACILITY APPROVED FIRE SEALANT MATERIALS TO MATCH RATING REQUIREMENT OF AREA BEING PENETRATED. FOR LOCATIONS AND EXTENTS OF NEW PENETRATIONS SEE MECHANICAL AND ELECTRICAL DRAWINGS.
11. COORDINATE WITH OTHER TRADES CUTTING AND PATCHING REQUIRED FOR DEMOLITION OR NEW CONSTRUCTION.
12. ANY DEMOLITION OR REMOVAL INDICATED IS SHOWN IN GENERAL TO PROVIDE THE EXTENT OF DEMOLITION AND IS NOT TO BE CONSIDERED AS A RECORD DRAWING OF EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR IN FIELD VERIFICATION AND COORDINATION WITH THE ARCHITECT PRIOR TO COMMENCING WITH STATED WORK.
13. ALL CONSTRUCTION TO REMAIN WHICH IS AFFECTED BY DEMOLITION SHALL BE PATCHED, BE PROPERLY ALIGNED AND FINISHED SO AS TO LEAVE NO EVIDENCE OF PATCHING OR REPAIR. REPAIR OR REPLACE ANY EXISTING CONSTRUCTION, MATERIALS, OR EQUIPMENT DAMAGED DURING DEMOLITION TO LIKE NEW CONDITION.
14. THE CONTRACTOR IS TO RETURN SALVAGEABLE MATERIALS, INCLUDING BUT NOT LIMITED TO DOORS, FRAMES, HARDWARE, MARBLE, EQUIPMENT, AND LIGHTING FIXTURES TO THE OWNER AND STOCKPILE THEM IN AN APPROVED CONSTRUCTION AREA. DISPOSE OF THESE MATERIALS AFTER OWNER'S REVIEW AND APPROVAL.
15. BUILDING CONTAINS HAZARDOUS MATERIAL SUCH AS ASBESTOS AND LEAD PAINT. SUPPLEMENTAL HAZARDOUS MATERIAL REPORT IS PROVIDED IN THE BID DOCUMENTS AS A SEPARATE ATTACHMENT. REFER TO HAZARDOUS MATERIAL REPORT FOR EXTENTS OF TESTING AND RESULTS.
16. TEMPORARILY REMOVE OR SUPPORT FIXTURES AND OTHER DEVICES, INCLUDING DIFFUSERS, AS NEEDED TO COMPLETE NEW WORK. REINSTALL ONCE MECHANICAL/ELECTRICAL WORK IS COMPLETE.

DEMOLITION PLAN SYMBOLS LEGEND

- EXISTING WALL PARTITIONS
- TEMPORARY WALL PARTITIONS
- DEMOLISHED WALL PARTITIONS
- EXISTING DOOR
- DEMOLISHED DOOR

KEYNOTES

KEY	NOTE
16-AD01	EXISTING WINDOW WILL BE REMOVED BY OWNER'S ABATEMENT CONTRACTOR
16-AD02	DEMOLISH EXISTING WOOD STUD AND PLYWOOD WALL



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
16 - Birches

Iowa Department of Administrative Services
1251 334th Street, Woodward, IA 50276

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APPROVED BY	CLM
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BASEMENT, FIRST, AND SECOND DEMOLITION PLANS

16-AD01

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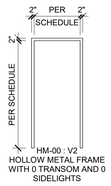
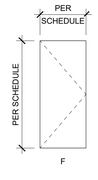
DOOR AND FRAME SCHEDULE

MARK	ROOM NAME	OPENING SIZE		DOOR			FRAME		HDWR	FIRE RATING	REMARKS
		WIDTH	HEIGHT	TYPE	MATERIAL	THICKNESS	TYPE	MATERIAL			
B05C	BOILER ROOM	6' - 0"	7' - 0"	F / F	HM	0' - 1 3/4"	HM-00 : F4	HM	B01	45 MIN	





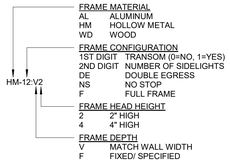
DOOR HARDWARE GROUP

MANUFACTURERS LISTED ARE BASIS OF DESIGN; SEE SPECIFICATIONS FOR ADDITIONAL MANUFACTURERS

GROUP B01

6 EA.	HEAVY DUTY HINGES	TA795, 4 1/2"	US26D	MCK
1 EA.	STOREROOM LOCKSET	PROVIDED BY OWNER	-	-
1 EA.	CLOSER	4040XP DEL EDA	AL	LCN
1 EA	OVERHEAD STOP	599S	US26D	RO
2 EA.	KICKPLATE	8400 30" X 34"	US32D	IV
2 EA.	FLUSH BOLT	555	US26D	RO
1 EA.	DUST PROOF STRIKE	570	US26D	RO
1 SET	SMOKE GASKET	PK52BL	BL	PE

FRAME NAMING CONVENTION



WALL RATING INDICATORS AND CODES

PLAN INDICATOR LINE STYLE	SEPARATION DESIGNATION	RATING	DESCRIPTION	USE	DOORS	HVAC
	FB-1-HP	1 HR	FIRE BARRIER	HAZARD PROTECTION	45 MIN	ALLOWED W/ FIRE DAMPERS

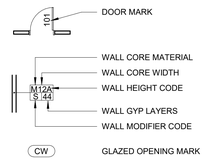
CODE PLAN GENERAL NOTES

1. FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IN THE CONCEALED SPACE. SUCH IDENTIFICATION SHALL BE LOCATED WITHIN 15' OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30' MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION AND INCLUDE LETTERING NOT LESS THAN 3" TALL AND A MINIMUM 3/8-INCH STROKE IN A CONTRASTING COLOR STATING: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS".

FLOOR PLAN NOTES

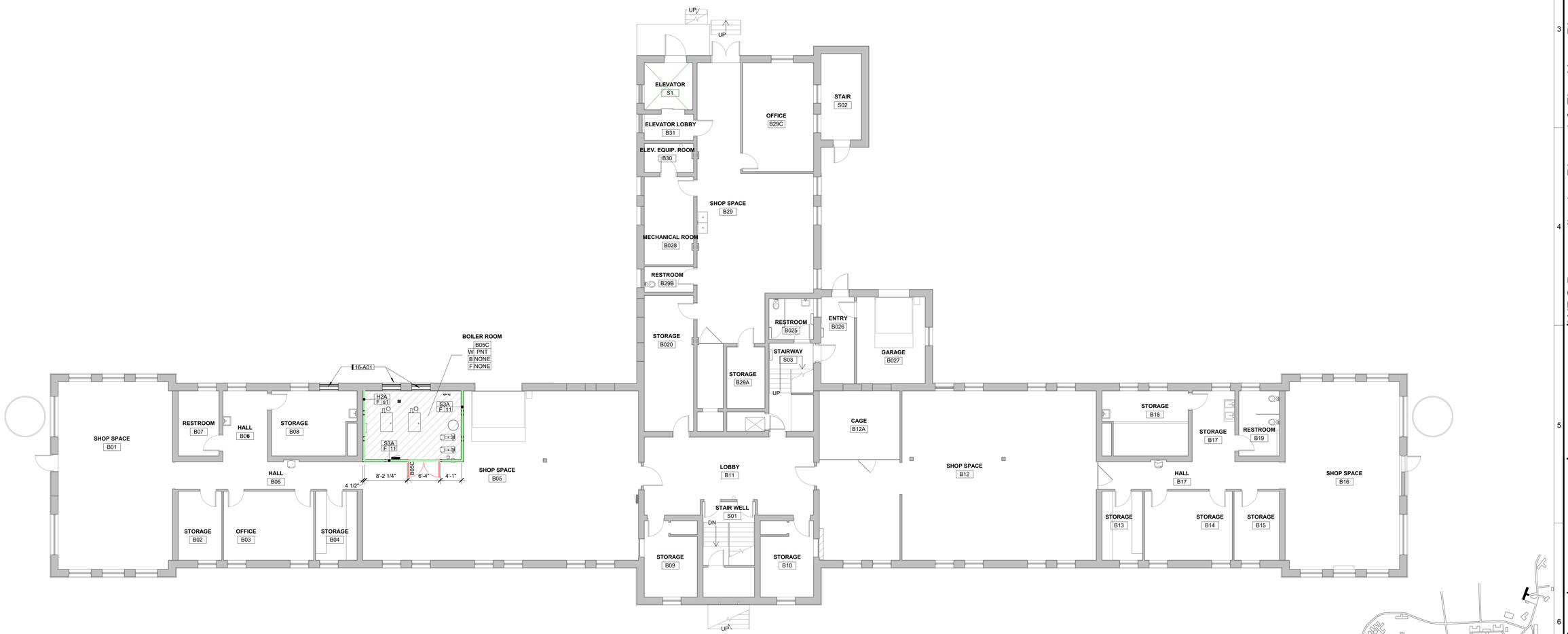
1. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR STUD PARTITIONS IN TOILET ROOMS, JANITOR'S CLOSETS, FIRE SERVICE ROOMS, MECHANICAL ROOMS, AND ANY ADDITIONAL LOCATIONS DESIGNATED IN CONTRACT DOCUMENTS.
2. WHERE STRUCTURAL ELEMENTS INTERFERE WITH FIRE-RATED PARTITIONS, FRAME TOP OF WALL AROUND STRUCTURAL ELEMENT.
3. REFER TO DRAWINGS OF ALL TRADES FOR ADDITIONAL INFORMATION REGARDING ITEMS PENETRATING FLOORS, WALLS, AND CEILINGS.
4. ALL NEW PARTITIONS ARE DIMENSIONED TO FACE OF STUD, MASONRY, OR CONCRETE COMPONENT UNLESS NOTED OTHERWISE. DIMENSIONS TO EXISTING ELEMENTS ARE TO EXPOSED FACE.
5. ALL DOORS IN STUD WALL CONSTRUCTION ARE TO BE LOCATED WITH EDGE OF FRAME 4" FROM FACE OF ADJACENT PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS LOCATING DOORS NOT DIRECTLY ADJACENT TO WALLS ARE GIVEN TO OUTSIDE EDGE OF FRAME.
7. PROVIDE NEW CONVECTOR CABINET COVER TO MATCH EXISTING COVERS (SEE A2/16-A102) AT LOCATIONS NOTED ON MECHANICAL PIPING PLANS.

FLOOR PLAN SYMBOLS LEGEND



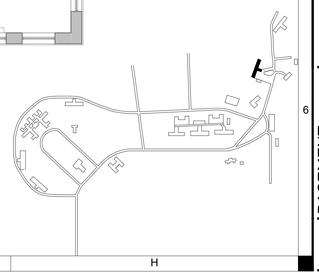
KEYNOTES

KEY	NOTE
16-A01	INFILL WINDOW OPENING (APPROXIMATELY 3'-7" WIDE X 4'-11" HIGH - FIELD VERIFY) WITH METAL WINDOW INFILL PANEL WITH METAL STUD FRAMING AROUND NEW MECHANICAL FLUES. SEE SHEET 16-M400 FOR PENETRATION LOCATIONS.



PLAN NORTH
TRUE NORTH

A6 BASEMENT FLOOR PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
16 - Birches

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BASEMENT FLOOR PLAN

16-A100

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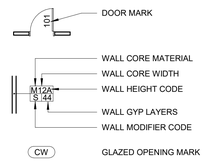
FLOOR PLAN NOTES

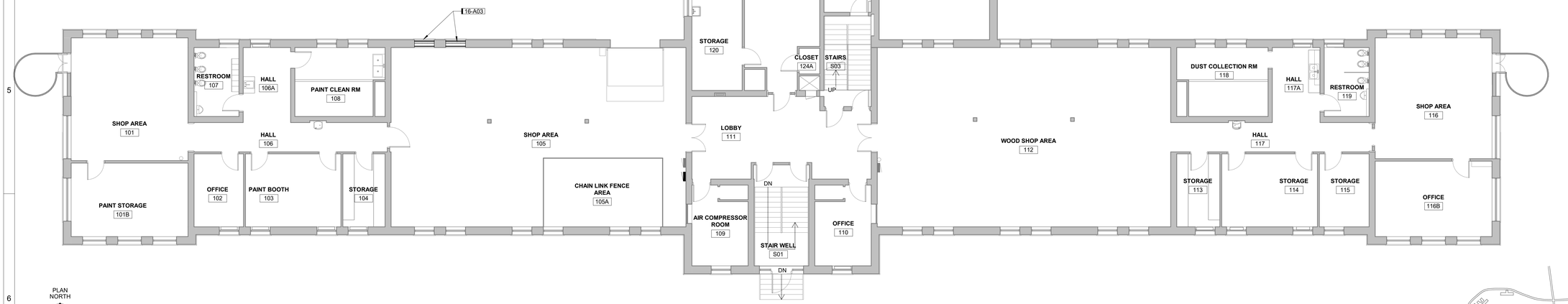
1. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR STUD PARTITIONS IN TOILET ROOMS, JANITOR'S CLOSETS, FIRE SERVICE ROOMS, MECHANICAL ROOMS, AND ANY ADDITIONAL LOCATIONS DESIGNATED IN CONTRACT DOCUMENTS.
2. WHERE STRUCTURAL ELEMENTS INTERFERE WITH FIRE-RATED PARTITIONS, FRAME TOP OF WALL AROUND STRUCTURAL ELEMENT.
3. REFER TO DRAWINGS OF ALL TRADES FOR ADDITIONAL INFORMATION REGARDING ITEMS PENETRATING FLOORS, WALLS, AND CEILINGS.
4. ALL NEW PARTITIONS ARE DIMENSIONED TO FACE OF STUD, MASONRY, OR CONCRETE COMPONENT UNLESS NOTED OTHERWISE. DIMENSIONS TO EXISTING ELEMENTS ARE TO EXPOSED FACE.
5. ALL DOORS IN STUD WALL CONSTRUCTION ARE TO BE LOCATED WITH EDGE OF FRAME 4" FROM FACE OF ADJACENT PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS LOCATING DOORS NOT DIRECTLY ADJACENT TO WALLS ARE GIVEN TO OUTSIDE EDGE OF FRAME.
7. PROVIDE NEW CONVECTOR CABINET COVER TO MATCH EXISTING COVERS (SEE A2/16-A102) AT LOCATIONS NOTED ON MECHANICAL PIPING PLANS.

FLOOR PLAN SYMBOLS LEGEND

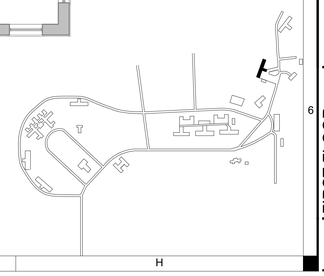


KEYNOTES

KEY	NOTE
16-A03	INFILL WINDOW OPENING (APPROXIMATELY 3'-7" WIDE X 5'-10" HIGH - FIELD VERIFY) WITH METAL WINDOW INFILL PANEL. REFER TO DETAILS B3, B3A, AND B4 ON SHEET 16-A102.



A6 FIRST FLOOR PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
16 - Birches

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FIRST FLOOR PLAN

16-A101

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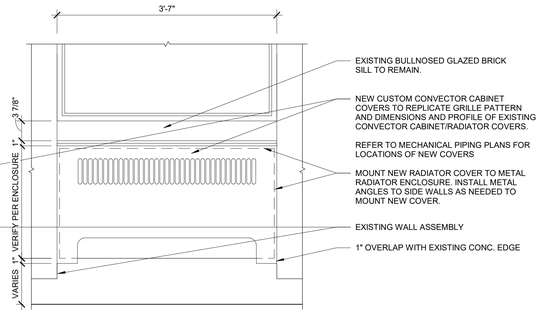
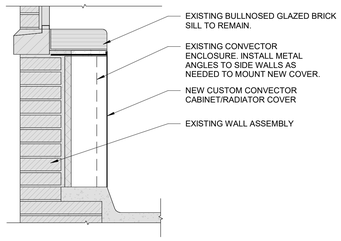
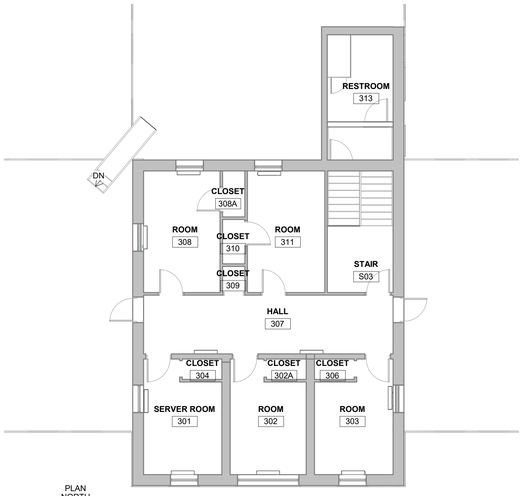


A2 TYPICAL CONVECTOR/RADIATOR COVER
1" = 1'-0" 0 1'-6"



D2 CONVECTOR/RADIATOR ENCLOSURE SECTION
1" = 1'-0" 0 1'-6"



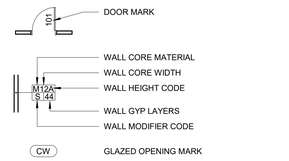
PLAN NORTH
TRUE NORTH

E3 THIRD FLOOR PLAN
1/8" = 1'-0" 0 12'

FLOOR PLAN NOTES

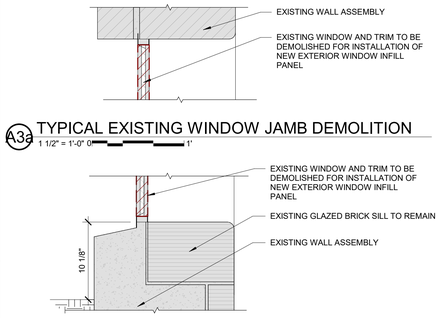
1. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR STUD PARTITIONS IN TOILET ROOMS, JANITOR'S CLOSETS, FIRE SERVICE ROOMS, MECHANICAL ROOMS, AND ANY ADDITIONAL LOCATIONS DESIGNATED IN CONTRACT DOCUMENTS.
2. WHERE STRUCTURAL ELEMENTS INTERFERE WITH FIRE-RATED PARTITIONS, FRAME TOP OF WALL AROUND STRUCTURAL ELEMENT.
3. REFER TO DRAWINGS OF ALL TRADES FOR ADDITIONAL INFORMATION REGARDING ITEMS PENETRATING FLOORS, WALLS, AND CEILINGS.
4. ALL NEW PARTITIONS ARE DIMENSIONED TO FACE OF STUD, MASONRY, OR CONCRETE COMPONENT UNLESS NOTED OTHERWISE. DIMENSIONS LOCATING DOORS NOT DIRECTLY ADJACENT TO WALLS ARE GIVEN TO OUTSIDE EDGE OF FRAME.
7. PROVIDE NEW CONVECTOR CABINET COVER TO MATCH EXISTING COVERS (SEE A2/16-A102) AT LOCATIONS NOTED ON MECHANICAL PIPING PLANS.

FLOOR PLAN SYMBOLS LEGEND

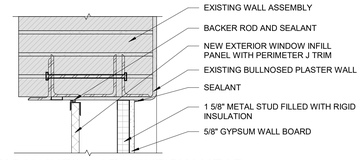


KEYNOTES

KEY	NOTE
16-A03	INFILL WINDOW OPENING (APPROXIMATELY 3'-7" WIDE X 5'-10" HIGH - FIELD VERIFY) WITH METAL WINDOW INFILL PANEL. REFER TO DETAILS B3, B3A, AND B4 ON SHEET 16-A102.

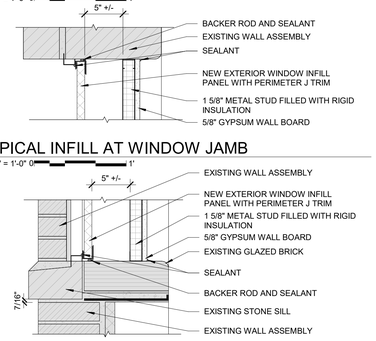


A3 TYPICAL EXISTING WINDOW HEAD DEMOLITION
1 1/2" = 1'-0" 0 1'



B3 TYPICAL INFILL AT WINDOW HEAD
1 1/2" = 1'-0" 0 1'

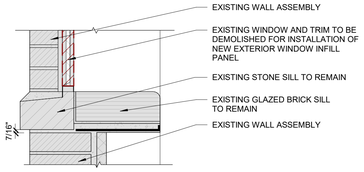
A3a TYPICAL EXISTING WINDOW JAMB DEMOLITION
1 1/2" = 1'-0" 0 1'



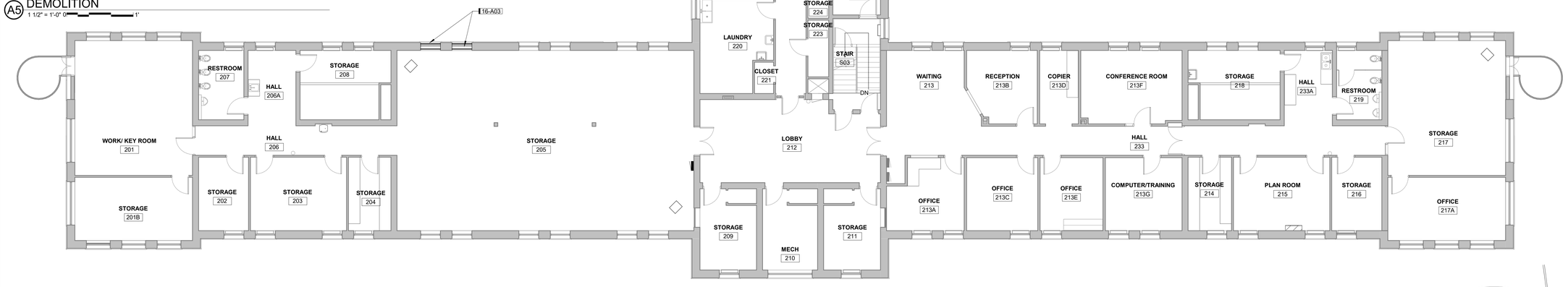
B3a TYPICAL INFILL AT WINDOW JAMB
1 1/2" = 1'-0" 0 1'

TYPICAL EXISTING WINDOW SILL AT BASEMENT DEMOLITION
A4a 1 1/2" = 1'-0" 0 1'

B4 TYPICAL INFILL AT WINDOW SILL
1 1/2" = 1'-0" 0 1'

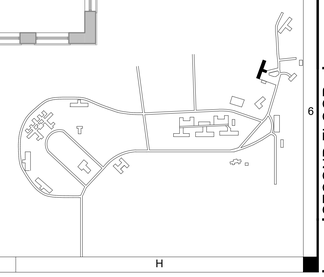


TYPICAL EXISTING WINDOW SILL AT UPPER FLOORS DEMOLITION
A5 1 1/2" = 1'-0" 0 1'



PLAN NORTH
TRUE NORTH

A6 SECOND FLOOR PLAN
1/8" = 1'-0" 0 12'



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SECOND FLOOR PLAN AND THIRD FLOOR PLAN

16-A102

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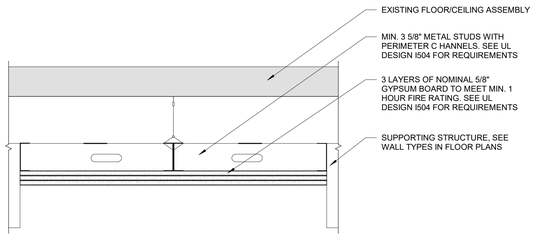

A2 1-HR RATED CEILING ASSEMBLY
1 1/2" = 1'-0"

KEYNOTES

KEY	NOTE
16-A04	PROVIDE NEW 1-HOUR FIRE RATED CEILING BETWEEN BASEMENT AND FIRST FLOOR: 3 5/8" METAL STUD FRAMING WITH 3 LAYERS OF 5/8" TYPE X GYPSUM BOARD PER UL DESIGN #I504. FIRESTOP ALL NEW PENETRATIONS.

CEILING PLAN NOTES

1. LOCATIONS OF LIGHT FIXTURES, DIFFUSERS, ETC. SHALL REMAIN IN PLACE. NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO PROCEEDING WITH CONSTRUCTION. REFER TO DRAWINGS AND SPECIFICATIONS OF ALL TRADES FOR SYSTEM DESIGN AND ADDITIONAL INFORMATION.
2. COORDINATE WITH ALL TRADES TO CONFIRM THEIR WORK CAN BE INSTALLED TO ACHIEVE CEILING HEIGHTS AS SHOWN. TRADE PRIORITY SHALL BE AS FOLLOWS UNLESS DIRECTED OTHERWISE BY THE ARCHITECT.
   - ELECTRICAL LIGHTING FIXTURES
   - MECHANICAL GRILLES AND DIFFUSERS
   - MECHANICAL DUCTWORK
   - ELECTRICAL CONDUIT
   - PIPING SYSTEMS
3. CONTRACTOR TO REPLACE FROM OWNER STOCK CEILING TILES DAMAGED DURING CONSTRUCTION.

CEILING PLAN SYMBOLS LEGEND

ACP-1 / +8'-0" — CEILING MATERIAL DESIGNATION ('X' INDICATES EXISTING); CEILING HEIGHT
PLASTER ON METAL LATH SUBSTRATE CEILING
GYPSUM BOARD CEILING/ SOFFIT
ACOUSTICAL CEILING TILE SYSTEM
ETS — EXPOSED TO STRUCTURE

PLAN NORTH / TRUE NORTH

A4 FIRST FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

PLAN NORTH / TRUE NORTH

A6 BASEMENT REFLECTED CEILING PLAN
1/8" = 1'-0"

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BASEMENT AND FIRST FLOOR REFLECTED CEILING PLANS

16-A110

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CEILING PLAN NOTES

1. LOCATIONS OF LIGHT FIXTURES, DIFFUSERS, ETC. SHALL REMAIN IN PLACE. NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO PROCEEDING WITH CONSTRUCTION. REFER TO DRAWINGS AND SPECIFICATIONS OF ALL TRADES FOR SYSTEM DESIGN AND ADDITIONAL INFORMATION.
2. COORDINATE WITH ALL TRADES TO CONFIRM THEIR WORK CAN BE INSTALLED TO ACHIEVE CEILING HEIGHTS AS SHOWN. TRADE PRIORITY SHALL BE AS FOLLOWS UNLESS DIRECTED OTHERWISE BY THE ARCHITECT.
   - ELECTRICAL LIGHTING FIXTURES
   - MECHANICAL GRILLES AND DIFFUSERS
   - MECHANICAL DUCTWORK
   - ELECTRICAL CONDUIT
   - PIPING SYSTEMS
3. CONTRACTOR TO REPLACE FROM OWNER STOCK CEILING TILES DAMAGED DURING CONSTRUCTION.

CEILING PLAN SYMBOLS LEGEND

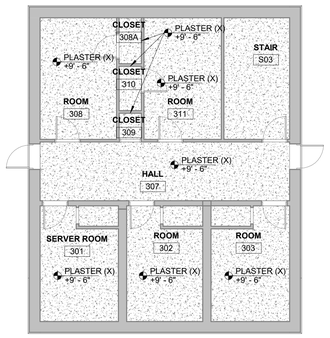
ACP-1 / +8'-0" — CEILING MATERIAL DESIGNATION ('X' INDICATES EXISTING); CEILING HEIGHT

PLASTER ON METAL LATH SUBSTRATE CEILING

GYPSUM BOARD CEILING/ SOFFIT

ACOUSTICAL CEILING TILE SYSTEM

ETS — EXPOSED TO STRUCTURE

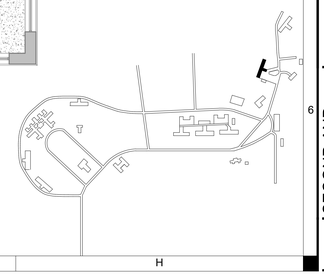


PLAN NORTH / TRUE NORTH

C3 THIRD FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0" 0 12'

PLAN NORTH / TRUE NORTH

A6 SECOND FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0" 0 12'



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SECOND AND THIRD FLOOR REFLECTED CEILING PLANS

16-A111

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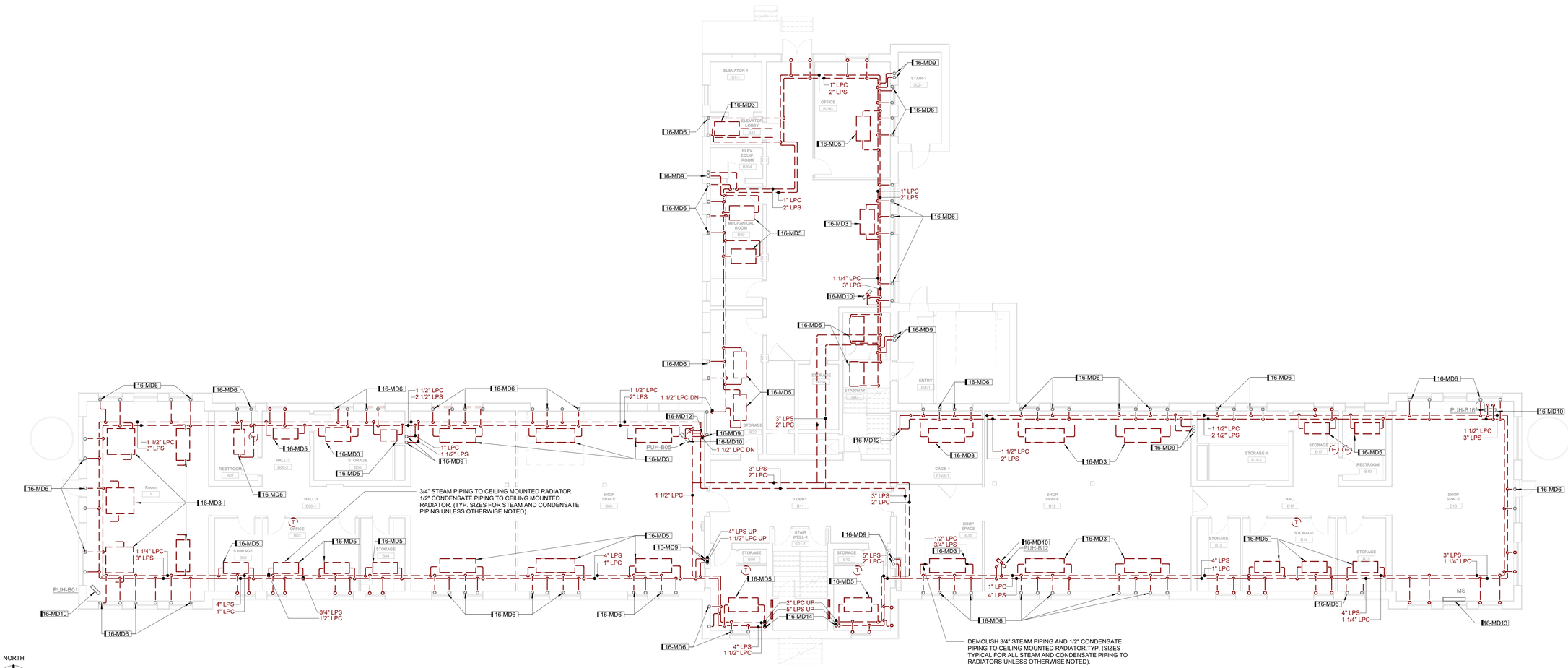
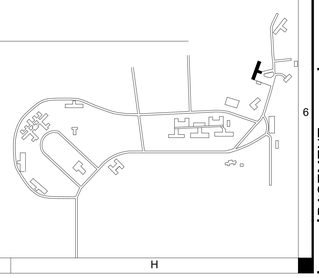
KEYNOTES	
KEY	NOTE
16-MD3	STEAM RADIATOR HAS BEEN DISCONNECTED AND ABANDONED. STEAM RADIATOR AND ASSOCIATED PIPING TO BE DEMOLISHED.
16-MD5	EXISTING CEILING MOUNTED STEAM RADIATOR, ASSOCIATED PIPING, CONTROLS, AND ACCESSORIES TO BE DEMOLISHED.
16-MD6	EXISTING STEAM AND CONDENSATE PIPING TO BE DEMOLISHED TO FLOOR PENETRATION. CAP PIPING AT FLOOR PENETRATION AND ABANDON IN PLACE.
16-MD9	DEMOLISH STEAM AND CONDENSATE PIPING TO WALL CHASE. EXISTING STEAM AND CONDENSATE RISERS TO BE CAPPED AND ABANDONED IN WALL CHASE. PATCH AND FILL WALL PENETRATION. TO MATCH ADJACENT FINISH
16-MD10	STEAM PUN TO BE REUSED. DEMOLISH EXISTING STEAM AND CONDENSATE PIPING AND VALVES. ELECTRICAL CONNECTION TO REMAIN.
16-MD12	DEMOLISH CONDENSATE PIPING TO FLOOR AND CAP AT THE FLOOR.
16-MD13	EXISTING MINI SPLIT HEAT PUMP TO REMAIN.
16-MD14	DEMOLISH STEAM AND CONDENSATE PIPE MAINS DOWN INTO STEAM TUNNEL. DEMOLISH PIPES IN TUNNEL BACK TO ISOLATION VALVES. CAP THE PIPING AND ABANDON IN PLACE. DEMOLISH PIPING UP TO SECOND FLOOR. PREPARE FLOOR PENETRATIONS FOR NEW HW PIPE MAINS.



NORTH

A6 BASEMENT MECHANICAL PIPING DEMOLITION PLAN

1/8" = 1'-0" 0 12'



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Fire Alarm Phase 3 (9279.40)

WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

16 - Birches

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BASEMENT MECHANICAL PIPING DEMOLITION PLAN

16-MD100

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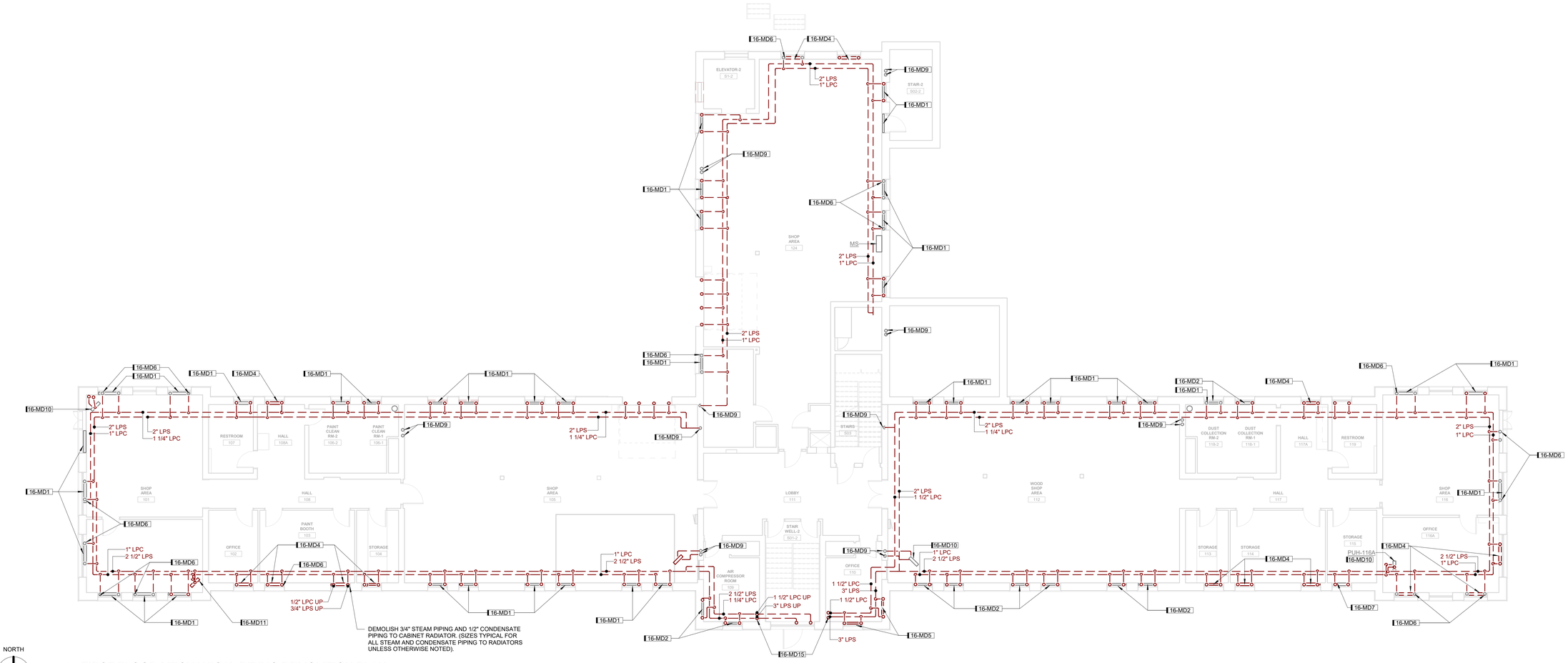
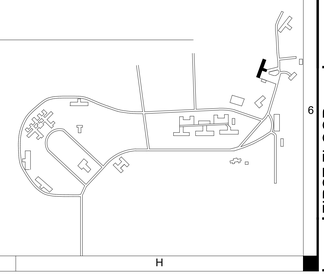
KEYNOTES	
KEY	NOTE
16-MD1	EXISTING STEAM RADIATOR IS BLOCKED BY FURNITURE/SHELVINGETC. EXISTING STEAM RADIATOR AND RISER PIPING TO BE DISCONNECTED FROM THE MAIN STEAM/CONDENSATE PIPING AND ABANDONED IN PLACE. PIPING SHALL BE DEMOLISHED TO THE FLOOR PENETRATION ON THE FLOOR BELOW.
16-MD2	EXISTING STEAM RADIATOR AND RISER PIPING TO BE DISCONNECTED FROM THE MAIN STEAM/CONDENSATE PIPING AND ABANDONED IN PLACE. PIPING SHALL BE DEMOLISHED TO THE FLOOR PENETRATION.
16-MD4	EXISTING STEAM RADIATOR, ASSOCIATED PIPING, CONTROLS, AND ACCESSORIES TO BE DEMOLISHED.
16-MD5	EXISTING CEILING MOUNTED STEAM RADIATOR, ASSOCIATED PIPING, CONTROLS, AND ACCESSORIES TO BE DEMOLISHED.
16-MD6	EXISTING STEAM AND CONDENSATE PIPING TO BE DEMOLISHED TO FLOOR PENETRATION. CAP PIPING AT FLOOR PENETRATION AND ABANDON IN PLACE.
16-MD7	STEAM RADIATOR HAS BEEN DISCONNECTED AND ABANDONED. EXISTING STEAM RADIATOR, MOUNTING HARDWARE, AND PIPING TO BE DEMOLISHED.
16-MD9	DEMOLISH STEAM AND CONDENSATE PIPING TO WALL CHASE. EXISTING STEAM AND CONDENSATE RISERS TO BE CAPPED AND ABANDONED IN WALL CHASE. PATCH AND FILL WALL PENETRATION. TO MATCH ADJACENT FINISH
16-MD10	STEAM PUH TO BE REUSED. DEMOLISH EXISTING STEAM AND CONDENSATE PIPING AND VALVES. ELECTRICAL CONNECTION TO REMAIN.
16-MD11	STEAM PUH TO BE DEMOLISHED. DEMOLISH EXISTING STEAM AND CONDENSATE PIPING AND VALVES. ELECTRICAL CONNECTION TO REMAIN.
16-MD15	DEMOLISH STEAM AND CONDENSATE RISERS TO BASEMENT AND SECOND FLOOR. PREPARE FLOOR PENETRATIONS FOR REUSE WITH NEW PIPING.



NORTH

A6 FIRST FLOOR MECHANICAL PIPING DEMOLITION PLAN

1/8" = 1'-0"



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FIRST FLOOR MECHANICAL PIPING DEMOLITION PLAN

16-MD101

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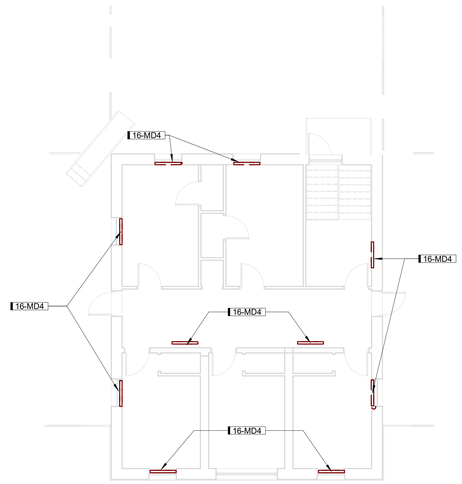
KEYNOTES	
KEY	NOTE
16-MD1	EXISTING STEAM RADIATOR IS BLOCKED BY FURNITURE/SHELVING/ETC. EXISTING STEAM RADIATOR AND RISER PIPING TO BE DISCONNECTED FROM THE MAIN STEAM/CONDENSATE PIPING AND ABANDONED IN PLACE. PIPING SHALL BE DEMOLISHED TO THE FLOOR PENETRATION ON THE FLOOR BELOW.
16-MD4	EXISTING STEAM RADIATOR, ASSOCIATED PIPING, CONTROLS, AND ACCESSORIES TO BE DEMOLISHED.
16-MD8	EXISTING STEAM RADIATOR IS BLOCKED BY FURNITURE/SHELVING/ETC. OBSTRUCTION TO BE REMOVED BY OWNER PRIOR TO DEMOLITION AND INSTALLATION OF NEW EQUIPMENT. EXISTING STEAM RADIATOR AND RISER PIPING TO BE DEMOLISHED.
16-MD9	DEMOLISH STEAM AND CONDENSATE PIPING TO WALL CHASE. EXISTING STEAM AND CONDENSATE RISERS TO BE CAPPED AND ABANDONED IN WALL CHASE. PATCH AND FILL WALL PENETRATION. TO MATCH ADJACENT FINISH
16-MD11	STEAM PUH TO BE DEMOLISHED. DEMOLISH EXISTING STEAM AND CONDENSATE PIPING AND VALVES. ELECTRICAL CONNECTION TO REMAIN.
16-MD16	DEMOLISH STEAM AND CONDENSATE PIPING FROM THE FLOOR BELOW.



NORTH

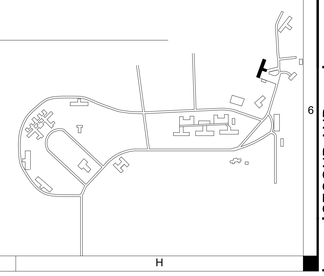
C3 THIRD FLOOR MECHANICAL PIPING DEMOLITION PLAN

1/8" = 1'-0" 0 12'

NORTH

A6 SECOND FLOOR MECHANICAL PIPING DEMOLITION PLANS

1/8" = 1'-0" 0 12'



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SECOND AND THIRD FLOOR MECHANICAL PIPING DEMOLITION PLAN

16-MD102

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PLUMBING FIXTURE SCHEDULE

FLOOR DRAIN (FD):
FIXTURE: 3" ZURN Z-415-B SERIES, CAST IRON, MEMBRANE CLAMP, FLASHING COLLAR, WEEP HOLES, HUB OUTLET WITH GASKETED CONNECTION, 5" DIA ADJUSTABLE NICKEL BRONZE STRAINER, VANDAL-PROOF. SET TOP OF STRAINER FLUSH WITH FINISHED FLOOR. PROVIDE DEEP SEAL P-TRAP

BACKFLOW PREVENTER:
FIXTURE: WATTS, 009 SERIES, FULL LINE SIZE, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, TWO INDEPENDENTLY OPERATING CHECK VALVES WITH INTERMEDIATE RELIEF VALVE, BALL VALVE TEST COCKS, COMPLIANT WITH USCFCC MANUAL FOR CROSS CONNECTION CONTROL, ASSE STANDARD 1013, AWWA STANDARD C506-78. PROVIDE WATTS DRAIN CONNECTION WITH AIR GAP

LOUVER SCHEDULE

REMARKS:
1. LOUVER SHALL BE CUSTOM COLOR SELECTED BY ARCHITECT DURING SUBMITTAL PROCESS.
2. OR ENGINEER APPROVED EQUIVALENT.

MARK	AREA SERVED	AIR FLOW (CFM)	DIMENSIONS			MAX FREE AREA (%)	FREE AREA VELOCITY (FPM)	PRESSURE DROP (WG)	DESIGN BASIS	REMARKS
			H	W	D					
L-1	BOILER ROOM	70	12"	12"	6"	49	350	0.02	GREENHECK ESD-635	1,2

FAN SCHEDULE

REMARKS:
1. PROVIDE MANUFACTURER'S FACTORY-MOUNTED DISCONNECT SWITCH.
2. OR ENGINEER APPROVED EQUIVALENT.

MARK	FAN TYPE	CFM	ESP (IN WG)	MOTOR DATA				ELECTRICAL DATA		DAMPER TYPE	DESIGN BASIS	REMARKS
				BHP	HP	RPM	DRIVE	VOLTS	PHASE			
EF-1	INLINE	70	0.3	0.02	1/15	1538	DIRECT	115	1	MOTORIZED	GREENHECK SQ-80-VG	1,2

UNIT HEATER SCHEDULE - ELECTRIC

REMARKS:
1. PROVIDE WITH DISCONNECT SWITCH.
2. PROVIDE WITH BUILT-IN THERMOSTAT WITH TAMPER PROOF COVER.
3. UNIT TO BE SURFACE MOUNTED. PROVIDE MANUFACTURER'S SURFACE MOUNTED FRAME.

MARK	CFM	ELECTRICAL DATA				DESIGN BASIS	REMARKS
		KW	VOLTS	PHASE	FLA		
EUH-1	100	1.5	208	1	7.2	QMARK VFK151F	1,2,3
EUH-2	100	2	208	1	9.6	QMARK VFK204F	1,2,3
EUH-3	100	3	208	1	14.4	QMARK VFK304F	1,2,3
EUH-4	100	4	208	1	19.2	QMARK VFK408F	1,2,3

AIR SEPARATOR SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT

MARK	SYSTEM SERVED	SIZE (IN)	CAPACITY (GPM)	STRAINER (Y/N)	MAX PD (FT)	MINIMUM AIR REMOVAL (%)	DESIGN BASIS	REMARKS
AS-1	HEATING WATER	4"	300	N	1	99	B&G ROLAIRTROL RL-4F	1

MECHANICAL PIPING EXPANSION TANK SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT

MARK	SYSTEM SERVED	TYPE	TANK CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	RELIEF VALVE		DESIGN BASIS	REMARKS
					RELIEF AT (PSI)	FILL AT (PSI)		
ET-1	HEATING WATER	BLADDER	106	106	100	30	GRUNDFOS GNLA-400	1

MECHANICAL PUMP SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. VFD TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.

MARK	SYSTEM SERVED	TYPE	GPM	HEAD (FT)	SHUTOFF HEAD (FT)	MOTOR DATA			ELECTRICAL DATA		DESIGN BASIS	REMARKS
						HP	BHP	RPM	VOLTS	PHASE		
HWP-1	HEATING WATER	END SUCTION	190	80	88.9	7.5	5.46	1770	208	3	GRUNDFOS 020-110-4P	1,2
HWP-2	HEATING WATER	END SUCTION	190	80	88.9	7.5	5.46	1770	208	3	GRUNDFOS 020-110-4P	1,2

UNIT HEATER SCHEDULE - HOT WATER

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. TO BE INSTALLED WITH FACTORY MOUNTED DISCONNECT
3. PROVIDE ALL PUHS WITH 3-WAY VALVE. SEE DETAILS.

MARK	CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	MAX PD (FT)	MOUNTING HEIGHT (FT)	FAN MOTOR DATA			DESIGN BASIS	REMARKS
										HP	VOLTS	PHASE		
PUH-1	2010	180	160	60	92	71.7	7.17	0.6	8'-0"	1/12	208	1	MODINE HC-108	1,2,3
PUH-2	370	180	160	60	94	13.9	1.39	0.8	8'-0"	1/25	208	1	MODINE HC-24	1,2,3
PUH-3	730	180	160	60	93	26.5	2.65	0.4	8'-0"	1/12	208	1	MODINE HC-47	1,2,3
PUH-4	1120	180	160	60	92	39.1	3.91	0.6	8'-0"	1/12	208	1	MODINE HC-63	1,2,3
PUH-5	730	180	160	60	93	51.6	5.16	0.4	8'-0"	1/12	208	1	MODINE HC-86	1,2,3

UNIT HEATER SCHEDULE - HOT WATER - EXISTING

REMARKS:
1. EXISITNG PUH TO BE REUSED AND CONVERTED TO HW.
2. CONTRACTOR TO PROVIDE CONVERSION KITS AND CONTROLS FOR HW.
3. PROVIDE ALL PUHS WITH 3-WAY VALVE. SEE DETAILS.

MARK	AREA SERVED	CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	MOUNTING HEIGHT (FT)	FAN MOTOR DATA			DESIGN BASIS	REMARKS
										HP	VOLTS	PHASE		
PUH-101	101	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV46A	1,2,3
PUH-112	112	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV48A	1,2,3
PUH-116A	116A	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV46A	1,2,3
PUH-B01	B01	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV46	1,2,3
PUH-B05	B05	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5UT21	1,2,3
PUH-B16	B16 SHOP	900	180	160	60	97	37.4	3.75	7'-0"	1/20	208	1	DAYTON 5PV48A	1,2,3
PUH-B29	B29	450	180	160	60	90	14.9	1.5	7'-0"	16W	208	1	DAYTON 3DUF7	1,2,3

FIN TUBE RADIATION SCHEDULE - HYDRONIC

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. PROVIDE WITH 3-WAY VALVE. SEE DETAILS.
3. ELEMENT IS BARE. NO ENCLOSURE FOR THIS FIN TUBE. COVER TO BE INSTALLED OVER EXISTING CABINET.
4. ENCLOSURE TO BE PROVIDED WITH END CAPS.
5. ELEMENT AND ENCLOSURE TO BE CEILING MOUNTED

MARK	CAPACITY (MBH)	EWT (°F)	LWT (°F)	GPM	TUBE SIZE (IN)	NUMBER OF TUBES OR ROWS	ELEMENT LENGTH (FT)	EAT (°F)	HEATING COIL FIN DATA			ENCLOSURE			DESIGN BASIS	REMARKS
									FIN HEIGHT (IN)	FIN WIDTH (IN)	FINS PER FOOT	LENGTH	DEPTH	HEIGHT		
FT-1	6	180	168	1	0.75	3	3'-0"	65	4 1/4"	4 1/4"	48	0"	0"	0"	ZEHNDER-RITTLING 'BARE' COPPER TUBE-ALUMINUM FIN	1,3
FT-2	5.5	180	174	1.8	1.25	3	2'-4 5/16x4"	65	4 1/4"	4 1/4"	48	0"	0"	0"	ZEHNDER-RITTLING 'BARE' COPPER TUBE-ALUMINUM FIN	1,3
FT-3	5.9	180	160	0.6	0.75	1	6'-0"	65	4 1/4"	4 1/4"	48	6'-6"	4 1/2"	4 1/2"	ZEHNDER-RITTLING EXO COPPER TUBE-ALUMINUM FIN	1,4,5
FT-4	12.3	180	160	1.2	0.75	2	7'-6"	65	4 1/4"	4 1/4"	48	8'-0"	4 1/2"	10 1/2"	ZEHNDER-RITTLING EXO COPPER TUBE-ALUMINUM FIN	1,4,5
FT-5	9.2	180	160	0.9	0.75	3	4'-0"	65	4 1/4"	4 1/4"	48	4'-6"	5 3/8"	2'-0"	ZEHNDER-RITTLING FF COPPER TUBE-ALUMINUM FIN	1,4
FT-6	6.9	180	160	0.7	0.75	3	3'-0"	65	4 1/4"	4 1/4"	48	3'-6"	5 3/8"	2'-0"	ZEHNDER-RITTLING FF COPPER TUBE-ALUMINUM FIN	1,2,4
FT-7	15.4	180	160	1.5	0.75	3	6'-6"	65	4 1/4"	4 1/4"	48	7'-0"	5 3/8"	2'-0"	ZEHNDER-RITTLING FF COPPER TUBE-ALUMINUM FIN	1,4

FIRE-TUBE BOILER SCHEDULE - HOT WATER

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. DISCONNECT TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR

MARK	INPUT (MBH)	OUTPUT (MBH)	MIN GAS PRESSURE REQUIRED(IN)	EFFICIENCY (%)	EWT (°F)	LWT (°F)	GPM	MAX PD (FT)	FUEL TYPE	INLET FUEL PRESSURE (IN)	TURNDOWN RATIO	OPERATING PRESSURE (PSIG)	MAX DIMENSIONS			ELECTRICAL DATA					DESIGN BASIS	REMARKS
													MAX HEIGHT	MAX LENGTH	MAX WIDTH	VOLTS	PHASE	FLA	MCA	MOCP		
BLR-1	1500	1305	4	87	160	180	205	7	NG	14	20:1	160	6'-6"	2'-4"	3'-8"	120	1	16	20	30	AERCO BMK-1500	1,2
BLR-2	1500	1305	4	87	160	180	205	7	NG	14	20:1	160	6'-6"	2'-4"	3'-8"	120	1	16	20	30	AERCO BMK-1500	1,2

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IWRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
16 - Birches

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
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MECHANICAL SCHEDULES

16-M600

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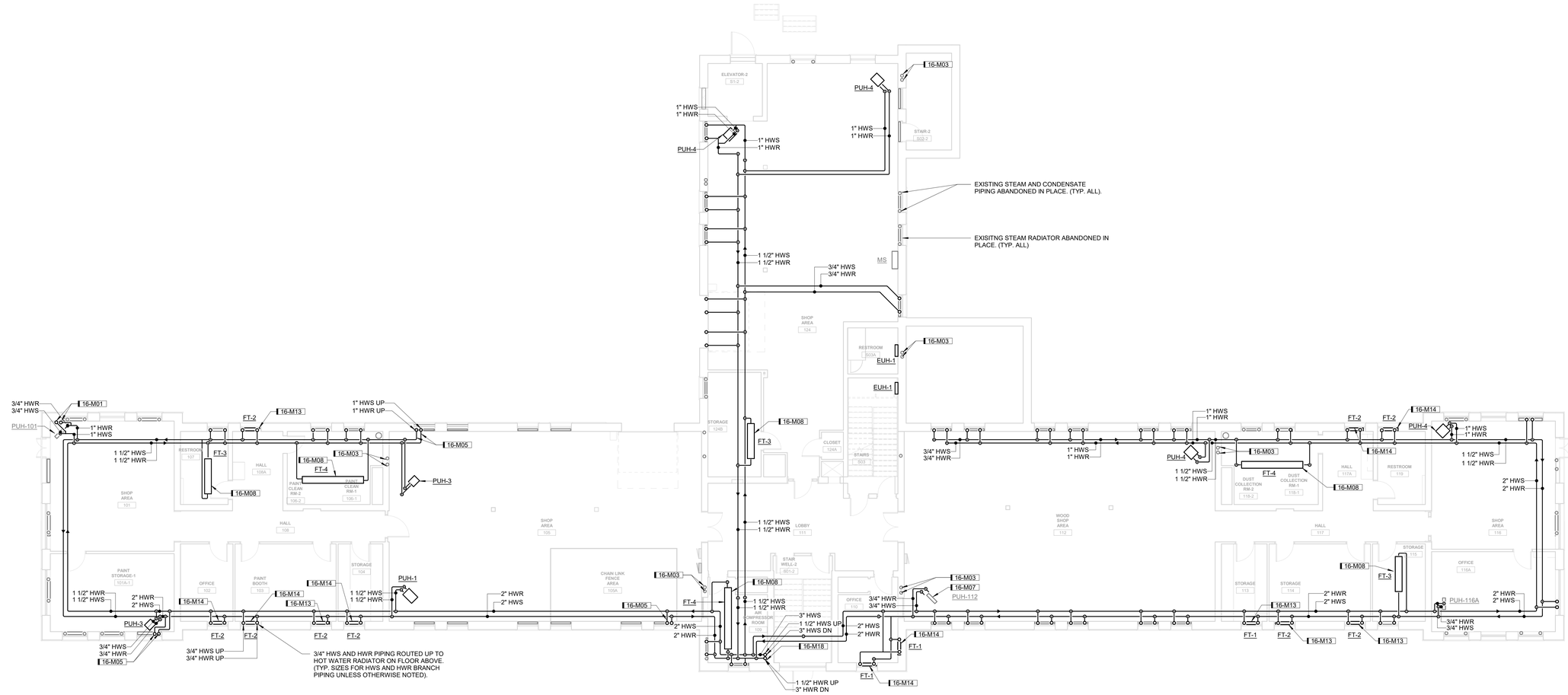
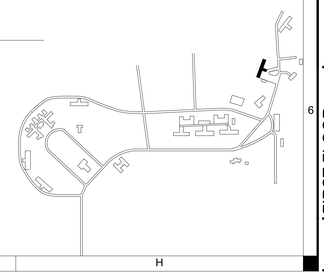
KEYNOTES

KEY	NOTE
16-M01	HOT WATER SUPPLY AND RETURN PIPING TO BE ROUTED UP TO NEW HW UNIT HEATER ON FLOOR ABOVE.
16-M03	EXISTING CAPPED STEAM AND CONDENSATE PIPING TO REMAIN ABANDONED IN WALL.
16-M05	HWS AND HWR PIPING TO BE ROUTED UP THROUGH CABINET ON FLOOR ABOVE. REUSE EXISTING PIPE LOCATIONS IF POSSIBLE.
16-M07	EXISTING PUH TO BE REUSED. PUH TO BE CONVERTED TO HOT WATER.
16-M08	NEW HW FIN TUBE TO BE CEILING MOUNTED.
16-M13	EXISTING CABINET COVER TO REMAIN.
16-M14	INSTALL NEW CABINET COVER AT THIS LOCATION PER DETAIL A2 ON SHEET 16-A102. FIELD VERIFY REQUIRED COVER DIMENSIONS.
16-M18	COORDINATE RISER PIPING LOCATION WITH EXISTING CABINETS IN AIR COMPRESSOR ROOM.



NORTH

A6 FIRST FLOOR MECHANICAL PIPING PLAN
1/8" = 1'-0"



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16 - Birches

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FIRST FLOOR MECHANICAL PIPING PLAN

16-M101

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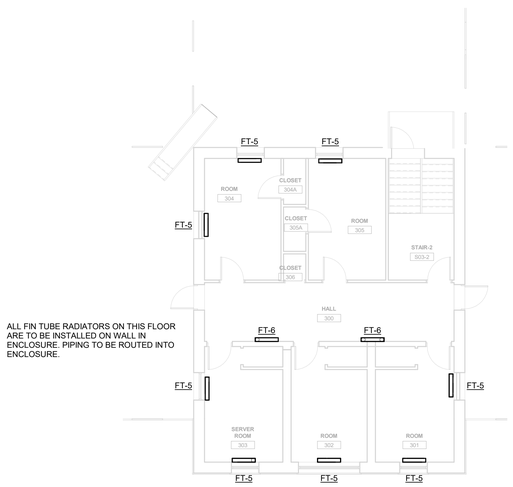
KEYNOTES	
KEY	NOTE
16-M03	EXISTING CAPPED STEAM AND CONDENSATE PIPING TO REMAIN ABANDONED IN WALL
16-M06	HWS AND HWR PIPING TO BE ROUTED FROM CABINET UP TO PUH. KEEP PIPING TIGHT TO WALL.
16-M08	NEW HW FIN TUBE TO BE CEILING MOUNTED.
16-M13	EXISTING CABINET COVER TO REMAIN.
16-M14	INSTALL NEW CABINET COVER AT THIS LOCATION PER DETAIL A2 ON SHEET 16-A102. FIELD VERIFY REQUIRED COVER DIMENSIONS.
16-M20	NEW HW FIN TUBE TO BE WALL MOUNTED. COORDINATE MOUNTING HEIGHT AND LOCATION WITH EXISTING ELECTRICAL CONDUIT AND DISCONNECT PANEL.

ALL FIN TUBE RADIATORS ON THIS FLOOR ARE TO BE INSTALLED ON WALL IN ENCLOSURE. PIPING TO BE ROUTED INTO ENCLOSURE.



NORTH

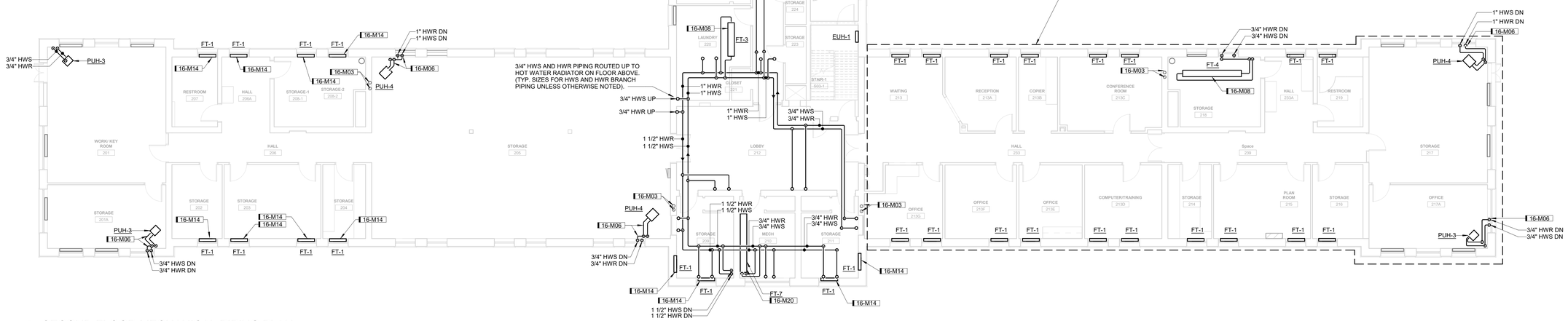
C3 THIRD FLOOR MECHANICAL PIPING PLAN

1/8" = 1'-0" 0 12'

3/4" HWS AND HWR PIPING ROUTED UP TO HOT WATER RADIATOR ON FLOOR ABOVE. (TYP. SIZES FOR HWS AND HWR BRANCH PIPING UNLESS OTHERWISE NOTED).

EXISITNG STEAM RADIATOR ABANDONED IN PLACE. (TYP. ALL)

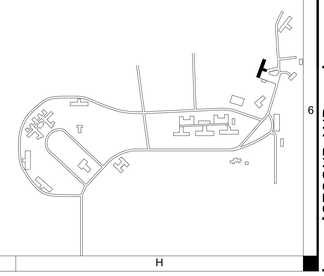
ALL CONVECTOR CABINETS IN ADMIN WING OF BUILDING SHALL BE PROVIDED WITH NEW RADIATOR COVER. VERIFY DIMENSIONS OF REQUIRED RADIATOR COVER. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR COVER DETAILS.



NORTH

A6 SECOND FLOOR MECHANICAL PIPING PLAN

1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

16 - Birches

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SECOND AND THIRD FLOOR MECHANICAL PIPING PLAN

16-M102

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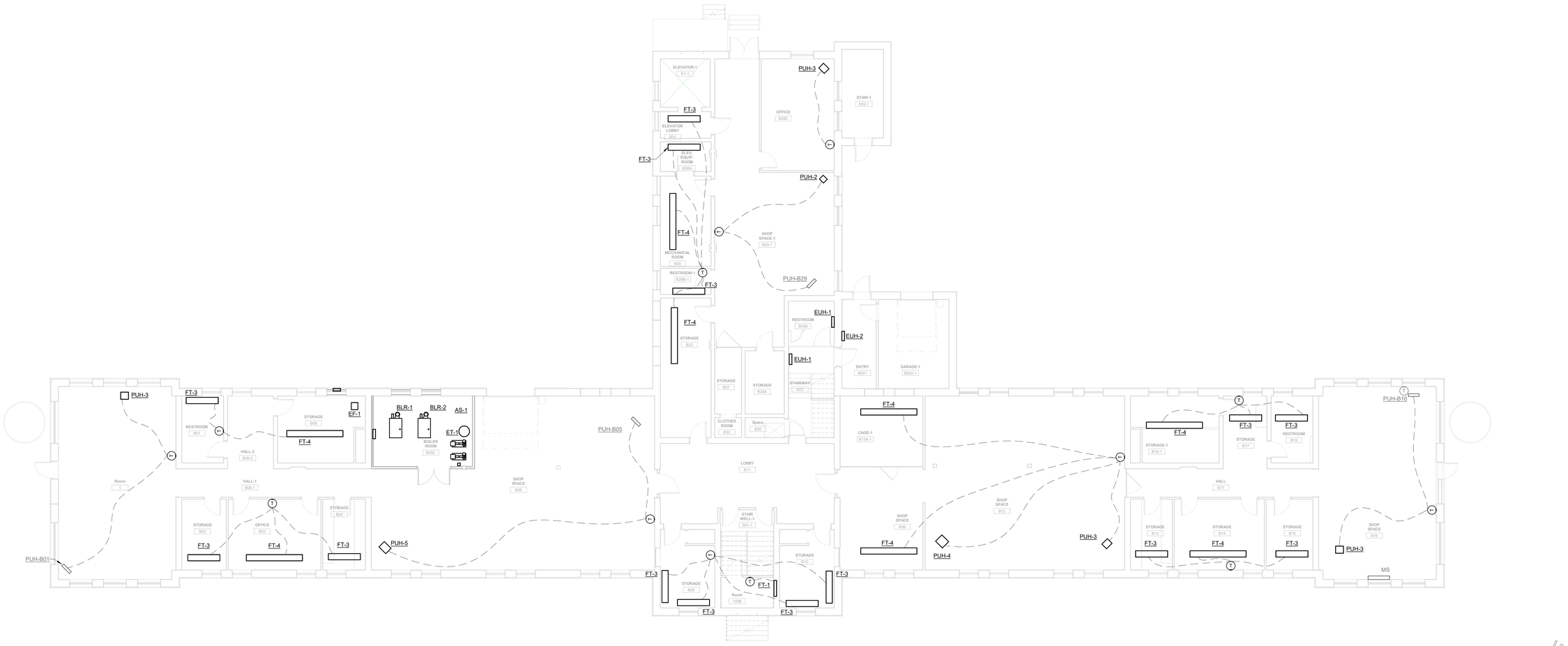
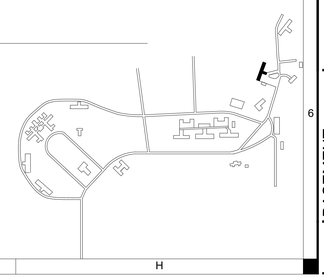
KEYNOTES	
KEY	NOTE



NORTH

A6 BASEMENT THERMOSTAT PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
16 - Birches

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BASEMENT MECHANICAL THERMOSTAT PLAN

16-M300

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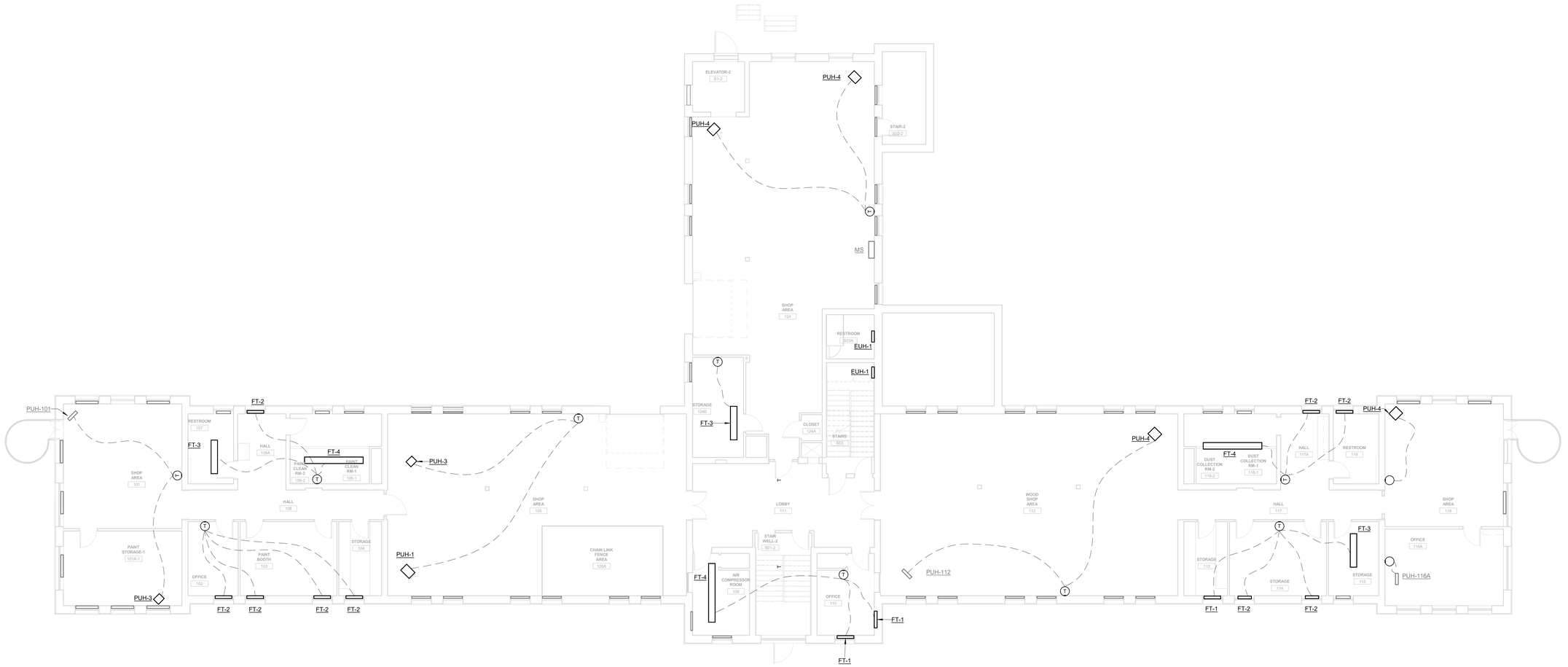
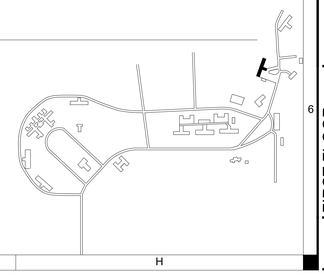
KEYNOTES	
KEY	NOTE



NORTH

A6 FIRST FLOOR THERMOSTAT PLAN

1/8" = 1'-0" 0 12'



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FIRST FLOOR MECHANICAL THERMOSTAT PLAN

16-M301

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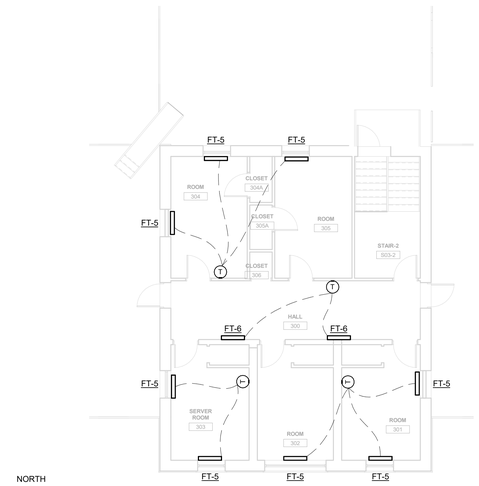
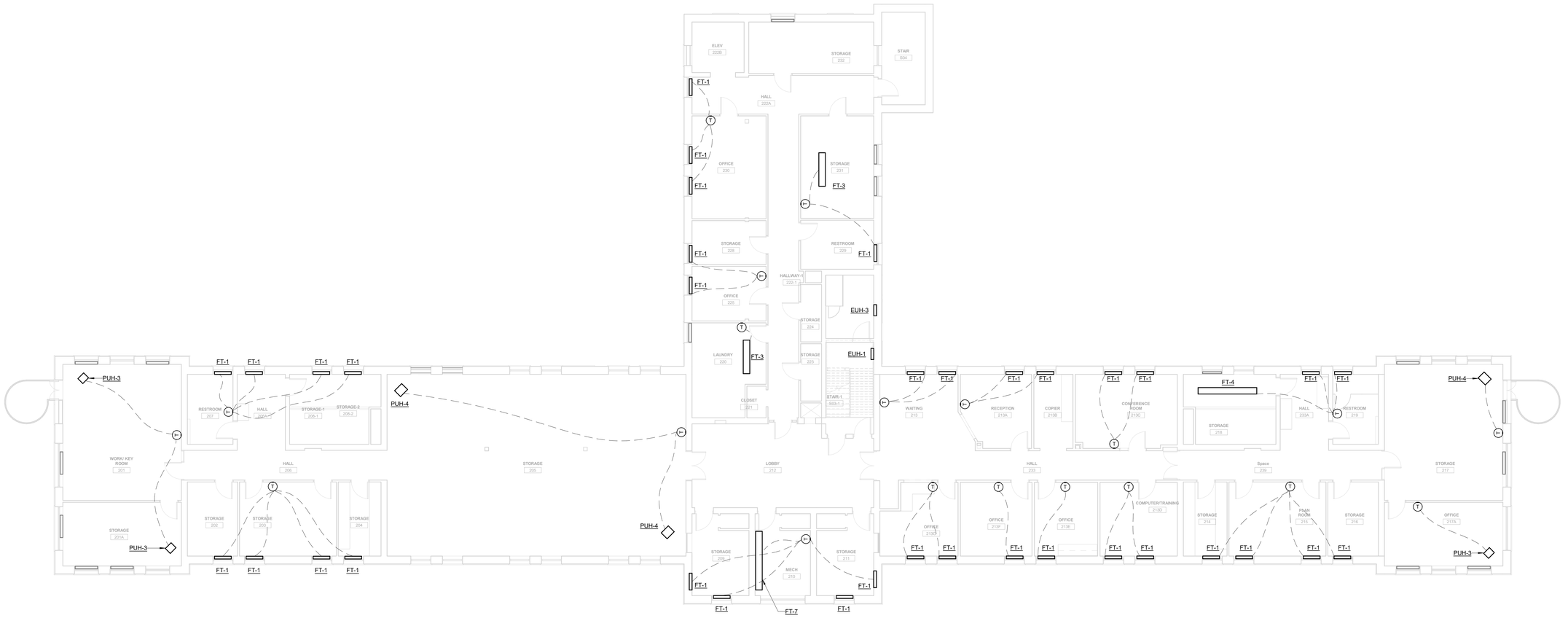
KEYNOTES	
KEY	NOTE



NORTH

C3 THIRD FLOOR THERMOSTAT PLAN

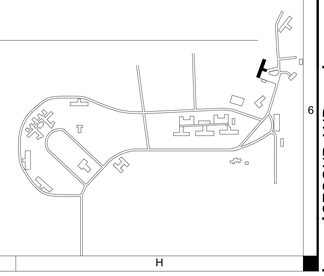
1/8" = 1'-0" 0 12'



NORTH

A6 SECOND FLOOR THERMOSTAT PLAN

1/8" = 1'-0" 0 12'



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SECOND AND THIRD FLOOR MECHANICAL THERMOSTAT PLAN

16-M302

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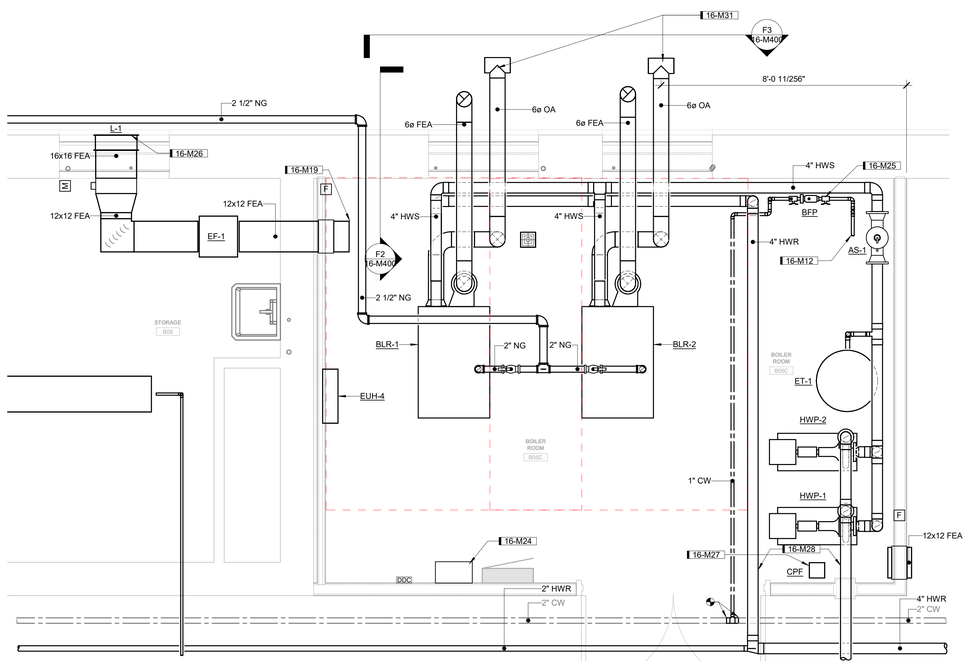
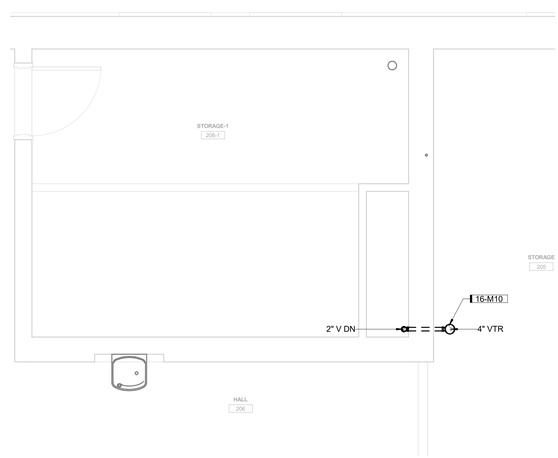


NORTH

A3 BOILER MECHANICAL ROOM PIPING PLAN

1/2" = 1'-0" 0 3'

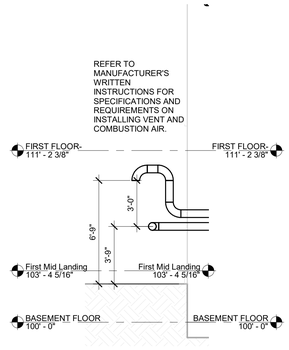


NORTH

D3 SECOND FLOOR PLUMBING PLAN

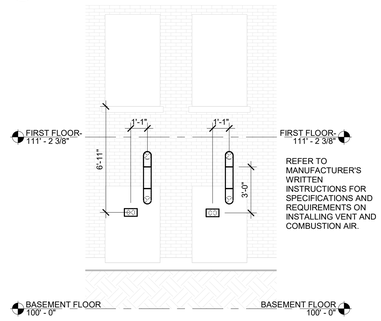
3/8" = 1'-0" 0 4'

KEYNOTES	
KEY	NOTE
16-M04	APPROXIMATE SAW CUT AND FLOOR PATCHING AREA FOR INSTALLATION OF NEW SANITARY PIPING. NEW SANITARY PIPING IS TO BE CONNECTED TO EXISTING SANITARY PIPING. FIELD VERIFY PIPE ROUTING AND CONDITIONS PRIOR TO CUTTING. REINFORCE WITH #3 18" O.C. EACH WAY (DRILL AND GROUT 6" INBED) COORDINATE DEPTH OF THE SAW CUT AND METHOD OF SLAB REMOVAL. CONCRETE - 4000 PSI, MAXIMUM W/C RATIO = 0.42. PATCH VAPOR BARRIER TO MATCH EXISTING.
16-M09	SANITARY VENT PIPING TO BE ROUTED IN PLUMBING CHASE TO 1ST FLOOR.
16-M10	SANITARY VENT PIPING TO CONNECT TO EXISTING 4" VENT IN THIS LOCATION.
16-M12	ROUTE MAKE-UP WATER TO HEATING WATER SYSTEM. SEE DETAIL ON SHEET 16-M500.
16-M19	INSTALL 3/4" HARDWARE CLOTH AND MOUNTING BRACKET OVER DUCT OPENING.
16-M22	NEW SANITARY VENT TO BE ROUTED ABOVE FLOOR IN THIS LOCATION.
16-M23	SANITARY VENT TO BE ROUTED THROUGH WALL AND SEALED TO MAINTAIN FIRE RATED WALL.
16-M24	PROVIDE HARD WIRED CARBON MONOXIDE (CO) DETECTOR. MOUNT APPROX. 3'-0" AFF. CO DETECTOR SHALL HAVE A VISIBLE DISPLAY SHOWING PARTS PER MILLION VALUE OF CO DETECTED. HARDWIRED TO BUILDING POWER WITH BATTERY BACKUP. LOCAL VISIBLE/AUDIBLE ALARMS. LOW BATTERY STATUS, AND CONTAIN REPLAY CONTACTS FOR ALARM CONNECTION TO DDC SYSTEM. COORDINATE ALARM REQUIREMENTS WITH DDC CONTRACTOR. MSA TOXGARD II GAS MONITOR, HONEYWELL E3POINT, OR ENGINEER APPROVED EQUIVALENT.
16-M25	COORDINATE BACKFLOW PREVENTER LOCATION WITH HWS PIPING, AIR SEPARATOR, AND EXPANSION TANK IN THIS AREA.
16-M26	INSTALL L-1 IN NEW WINDOW INFILL PANEL. COORDINATE INSTALLATION WITH INFILL PANEL MANUFACTURER.
16-M27	REFER TO DETAIL E5 ON SHEET 16-M500 FOR PIPING DETAILS.
16-M28	ANTICIPATED DIFFERENTIAL PRESSURE SWITCH LOCATION. FIELD VERIFY ADEQUATE LOCATION BASED ON CONTROLS SCHEMATIC B6 ON SHEET 16-M501.
16-M31	COORDINATE COMBUSTION AIR AND FLUE PENETRATIONS THROUGH NEW ARCHITECTURAL PANEL.



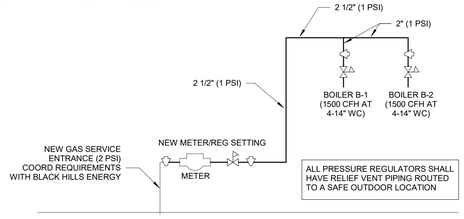
F2 BOILER VENT TERMINATION SECTION VIEW

1/4" = 1'-0" 0 6"



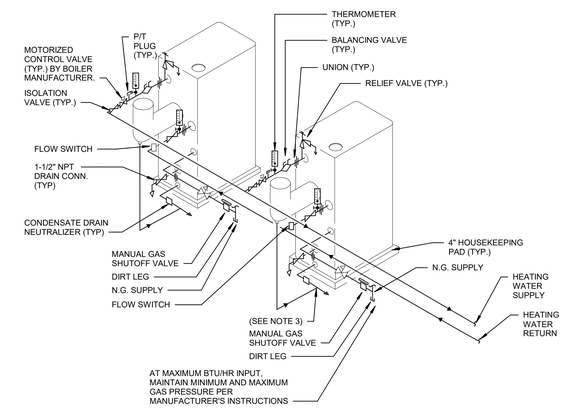
F3 BOILER VENT TERMINATION EXTERIOR ELEVATION

1/4" = 1'-0" 0 6"



F4 GAS PIPING SCHEMATIC

NOT TO SCALE

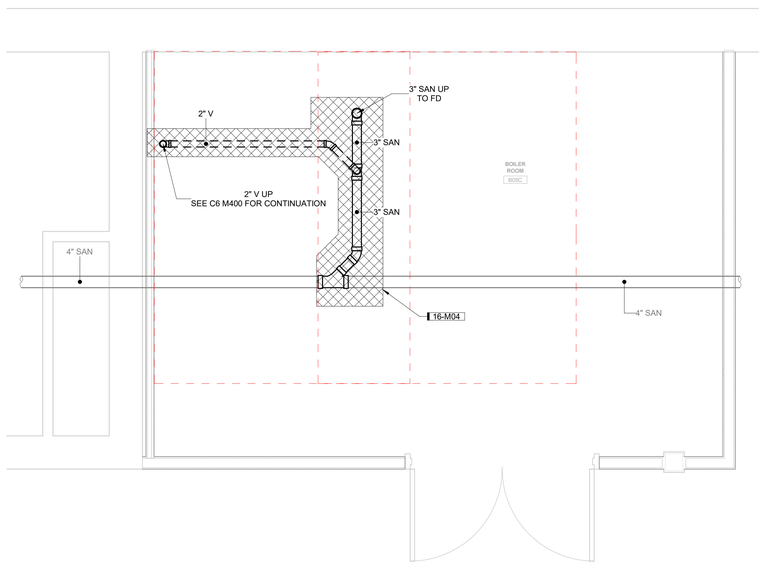


NOTES:

1) SHELL DRAIN VALVE AND CONDENSATE DRAIN TRAP SHOULD BE ARRANGED TO PERMIT THE FLUIDS TO DRAIN FREELY, BY GRAVITY, TO A CONVENIENT FLOOR DRAIN. RELIEF VALVE SHOULD BE PIPED VERTICALLY TO A HEIGHT 18" ABOVE FLOOR.

2) LOCATE WATER INLET AND OUTLET FITTINGS (I.E. UNIONS, ELBOWS, ETC.) A MINIMUM OF 6" FROM BOILER FITTINGS TO PREVENT INTERFERENCE WITH REMOVAL OF BOILER PANELS AND COVERS. ALL PIPING AND ELECTRIC CONNECTIONS (SERVICE SWITCHES, CONDUIT BOXES) SHOULD LIKEWISE BE 6" AWAY FROM SIDE PANELS.

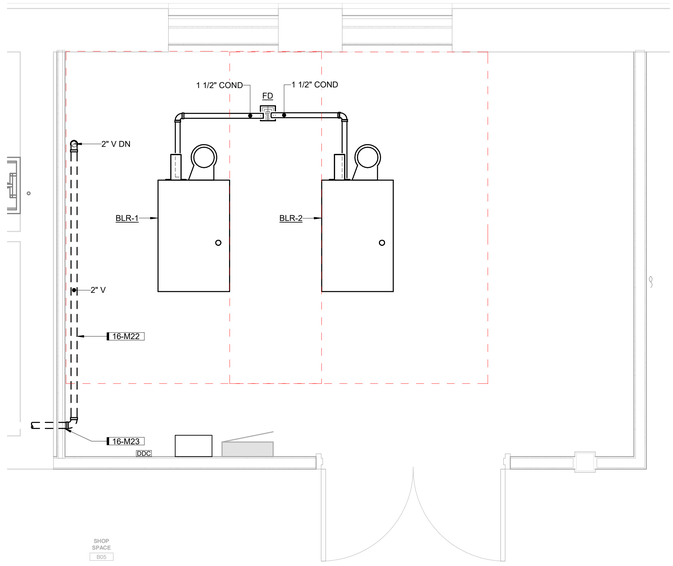
3) EACH CONDENSATE PORT SHALL BE PIPED INDIVIDUALLY TO MAIN DRAIN. EACH DRAIN SHALL ROUTE THROUGH ACID NEUTRALIZATION SYSTEM WITH LIMESTONE CHIPS PRIOR TO DISCHARGING INTO SANITARY SEWER SYSTEM. ACID NEUTRALIZATION TANK SHALL BE SCIENTIFIC PLASTICS COMPANY, INC. W121206-001 OR APPROVED EQUIVALENT.



NORTH

A6 BOILER MECHANICAL ROOM UNDERFLOOR PLUMBING PLAN

1/2" = 1'-0" 0 3'



NORTH

C6 BOILER MECHANICAL ROOM PLUMBING PLAN

1/2" = 1'-0" 0 3'

F6 GAS FIRED BOILER PIPING DETAIL

NOT TO SCALE

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
4125 WESTOWN PKWY, SUITE 100
WEST DES MOINES, IA 50266
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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

16 - Birches

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	LDF
APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

ENLARGED MECHANICAL PLANS AND SCHEMATICS

16-M400

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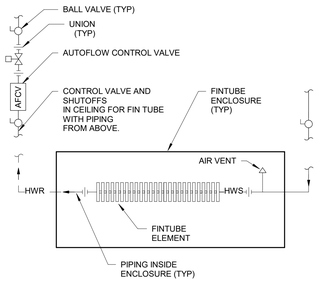
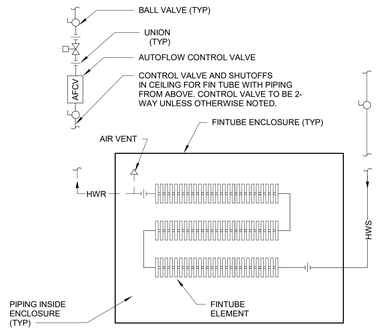
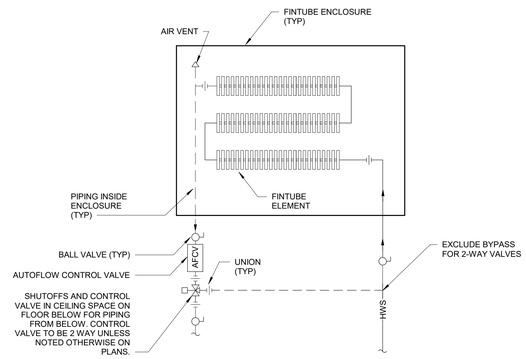


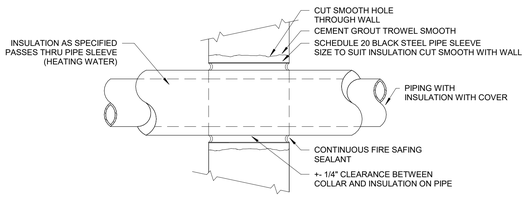
B2 1 TIER FIN TUBE PIPING DIAGRAM - PIPING IN CEILING ABOVE
NOT TO SCALE



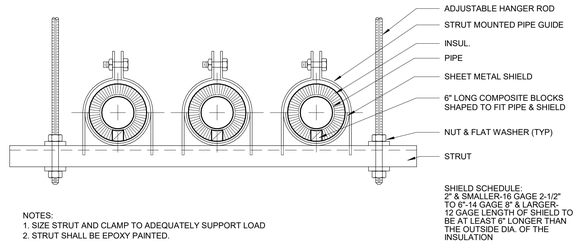
D2 3 TIER FIN TUBE PIPING DIAGRAM - PIPING IN CEILING ABOVE
NOT TO SCALE



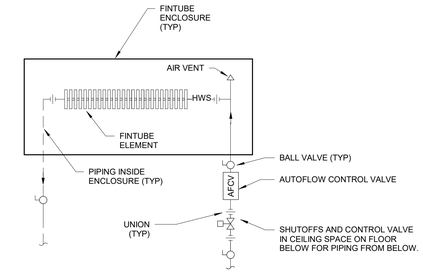
F2 3 TIER FIN TUBE PIPING DIAGRAM - PIPING IN FLOOR BELOW
NOT TO SCALE



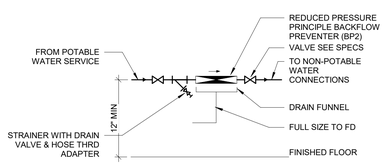
B3 INTERIOR FIRE RATED WALL PIPE PENETRATION DETAIL
NOT TO SCALE



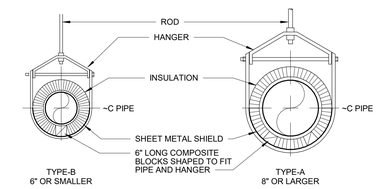
D3 TRAPEZE TYPE HANGER DETAIL
NOT TO SCALE



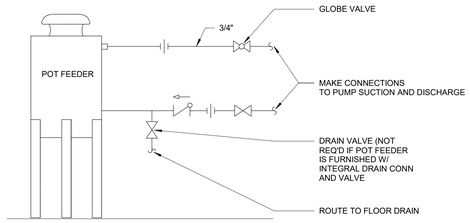
F3 1 TIER FIN TUBE PIPING DIAGRAM - PIPING IN FLOOR BELOW
NOT TO SCALE



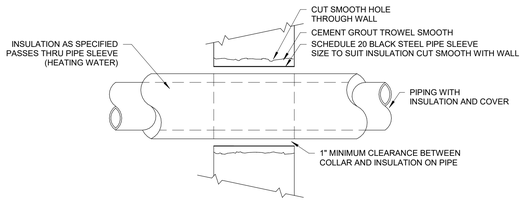
A6 BACKFLOW PREVENTER DETAIL
NOT TO SCALE



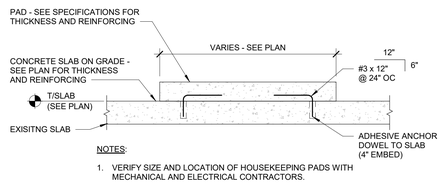
C5 INSULATED PIPE HANGER DETAIL
NOT TO SCALE



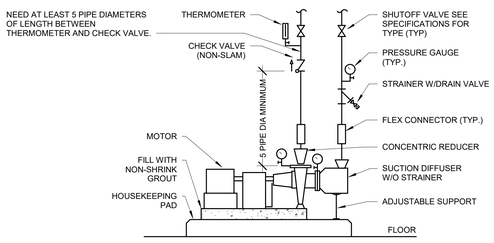
E5 POT FEEDER DETAIL
NOT TO SCALE



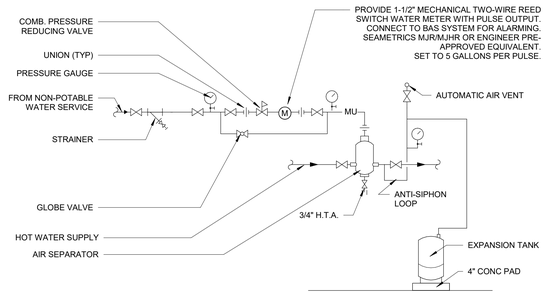
F5 INTERIOR WALL PIPE PENETRATION DETAIL
NOT TO SCALE



C6 TYPICAL HOUSEKEEPING PAD
3/4" = 1'-0" 0 2'



E6 BASE MOUNTED PUMP DETAIL
NOT TO SCALE



F6 AIR SEPARATOR/BLADDER TYPE EXP. TANK DETAIL
NOT TO SCALE

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
4125 WESTOWN PKWY, SUITE 100
WEST DES MOINES, IA 50266
515.223.8184 | SHIVEHATTERY.COM

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MECHANICAL DETAILS

16-M500

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1. CONVECTIVE / FIN TUBE HEATER (TYPICAL OF 1)

RUN CONDITIONS - CONTINUOUS:
THE UNIT SHALL RUN CONTINUOUSLY AND SHALL MAINTAIN A HEATING SETPOINT OF 70°F (ADJ.). LIMIT THERMOSTAT ADJUSTMENT RANGE TO 68F-75F (ADJ.)

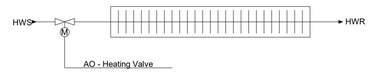
ALARMS SHALL BE PROVIDED AS FOLLOWS:
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 5°F (ADJ.).

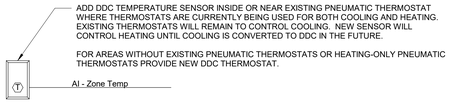
HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND OPEN OR CLOSE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.

CREATE A TABLE IN THE BUILDING AUTOMATION GRAPHICS WHICH DISPLAYS EACH FIN TUBE IN THE BUILDING WITH FIN TUBE LOCATION, VALVE POSITION, SPACE TEMPERATURE AND SPACE TEMPERATURE SETPOINT. ONE FIN TUBE PER LINE IN THE TABLE.

POINTS MATRIX - FIN TUBE HEATER											
POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
ZONE TEMP	x								x		x
HEATING VALVE				x					x		x
HEATING SETPOINT					x				x		x
LOW ZONE TEMP										x	





A2 CONTROLS SCHEMATIC - FIN TUBE HEATER
NOT TO SCALE

1. UNIT HEATER

THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 70°F (ADJ.). LIMIT THERMOSTAT ADJUSTMENT RANGE TO 68F-75F (ADJ.)

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 5°F (ADJ.).

FAN:
THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT, UNLESS SHUTDOWN ON SAFETIES.

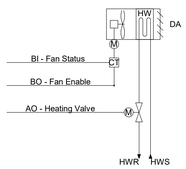
HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

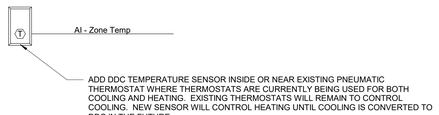
THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE FAN IS ON.

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

POINTS MATRIX - UNIT HEATER											
POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
ZONE TEMP	x								x		x
HEATING VALVE		x							x		x
FAN STATUS			x						x		x
FAN HIGH SPEED				x							x
FAN LOW SPEED				x							x
FAN MEDIUM SPEED				x							x
HEATING SETPOINT					x				x		x
FAN FAILURE										x	
FAN IN HAND										x	
LOW ZONE TEMP										x	





A4 CONTROLS SCHEMATIC - UNIT HEATER
NOT TO SCALE

1. EXHAUST FAN - ON/OFF

RUN CONDITIONS - INTERLOCKED:
THE FAN(S) EF-1 SHALL BE INTERLOCKED TO RUN CONSTANTLY.

EXHAUST AIR DAMPER:
THE EXHAUST AIR DAMPER SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPER SHALL CLOSE 30 SEC (ADJ.) AFTER THE FAN STOPS. PROVIDE DAMPER STATUS WITH END SWITCH PRIOR TO ENERGIZING FAN.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED.
- DAMPER IN HAND: COMMANDED CLOSED, BUT THE STATUS IS OPEN.

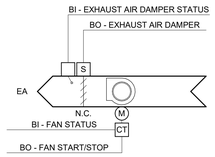
DAMPER STATUS:
THE FAN SHALL BE ENABLED AFTER THE DAMPER STATUS HAS PROVEN.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED.
- DAMPER IN HAND: COMMANDED CLOSED, BUT THE STATUS IS OPEN.

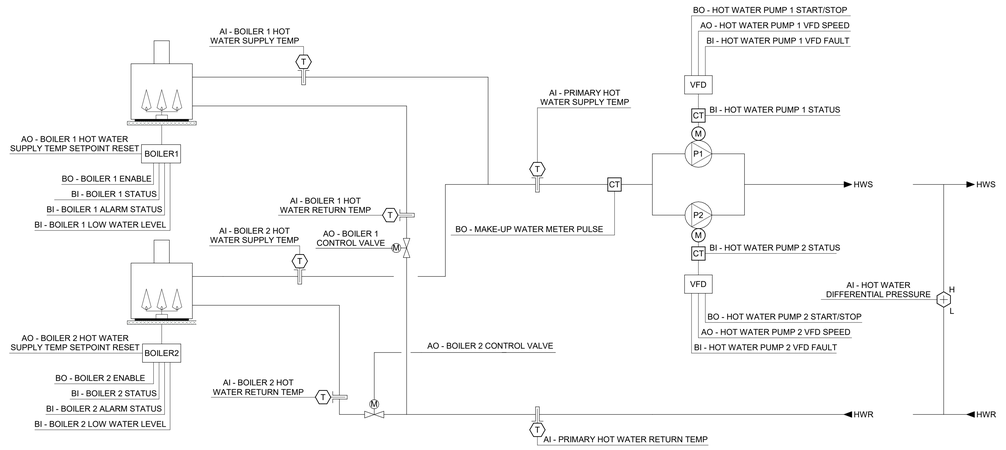
FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.

POINTS MATRIX - EF - ON/OFF											
POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
FILTER DIFFERENTIAL PRESSURE	x								x		x
EXHAUST AIR DAMPER STATUS			x						x		x
FAN STATUS			x						x		x
EXHAUST AIR DAMPER				x					x		x
FAN START/STOP				x					x		x
EXHAUST AIR DAMPER FAILURE										x	
EXHAUST AIR DAMPER IN HAND										x	
FAN FAILURE										x	
FAN IN HAND										x	
FAN RUNTIME EXCEEDED										x	
FILTER CHANGE REQUIRED										x	
TOTALS	1	0	2	2	0	0	0	0	5	6	5
	TOTAL HARDWARE (5)				TOTAL SOFTWARE (11)						



A5 CONTROLS SCHEMATIC - EF - ON/OFF
NOT TO SCALE



B6 CONTROLS SCHEMATIC - TWO BOILER SYSTEM
NOT TO SCALE

POINTS MATRIX - BOILER											
POINT NAME	HARDWARE POINTS				SOFTWARE POINTS						SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	
BOILER 1 HOT WATER RETURN TEMP	x								x		x
BOILER 1 HOT WATER SUPPLY TEMP	x								x		x
BOILER 2 HOT WATER RETURN TEMP	x								x		x
BOILER 2 HOT WATER SUPPLY TEMP	x								x		x
HOT WATER DIFFERENTIAL PRESSURE	x								x		x
PRIMARY HOT WATER RETURN TEMP	x								x		x
PRIMARY HOT WATER SUPPLY TEMP	x								x		x
BOILER 1 HOT WATER SUPPLY TEMP SETPOINT RESET		x							x		x
BOILER 2 HOT WATER SUPPLY TEMP SETPOINT RESET		x							x		x
HOT WATER PUMP 1 VFD SPEED		x							x		x
HOT WATER PUMP 2 VFD SPEED		x							x		x
BOILER 1 ALARM STATUS			x						x	x	x
BOILER 1 LOW WATER LEVEL			x						x	x	x
BOILER 1 STATUS			x						x		x
BOILER 2 ALARM STATUS			x						x	x	x
BOILER 2 LOW WATER LEVEL			x						x	x	x
BOILER 2 STATUS			x						x		x
CIRCULATION PUMP 1 STATUS			x						x		x
CIRCULATION PUMP 2 STATUS			x						x		x
HOT WATER PUMP 1 STATUS			x						x		x
HOT WATER PUMP 1 VFD FAULT			x							x	x
HOT WATER PUMP 2 STATUS			x						x		x
HOT WATER PUMP 2 VFD FAULT			x							x	x
BOILER 1 ENABLE				x							x
BOILER 2 ENABLE				x							x
CIRCULATION PUMP 1 START/STOP				x					x		x
CIRCULATION PUMP 2 START/STOP				x					x		x
HOT WATER PUMP 1 START/STOP				x							x
HOT WATER PUMP 2 START/STOP				x							x
HOT WATER DIFFERENTIAL PRESSURE SETPOINT					x				x		x
OUTSIDE AIR TEMP					x						x
BOILER 1 FAILURE										x	
BOILER 1 HIGH HOT WATER SUPPLY TEMP										x	
BOILER 1 LOW HOT WATER SUPPLY TEMP										x	
BOILER 1 RUNNING IN HAND										x	
BOILER 1 RUNTIME EXCEEDED										x	
BOILER 2 FAILURE										x	
BOILER 2 HIGH HOT WATER SUPPLY TEMP										x	
BOILER 2 LOW HOT WATER SUPPLY TEMP										x	
BOILER 2 RUNNING IN HAND										x	
BOILER 2 RUNTIME EXCEEDED										x	
CIRCULATION PUMP 1 FAILURE										x	
CIRCULATION PUMP 1 RUNNING IN HAND										x	
CIRCULATION PUMP 1 RUNTIME EXCEEDED										x	
CIRCULATION PUMP 2 FAILURE										x	
CIRCULATION PUMP 2 RUNNING IN HAND										x	
CIRCULATION PUMP 2 RUNTIME EXCEEDED										x	
HIGH HOT WATER DIFFERENTIAL PRESSURE										x	
HIGH PRIMARY HOT WATER SUPPLY TEMP										x	
HOT WATER PUMP 1 FAILURE										x	
HOT WATER PUMP 1 RUNNING IN HAND										x	
HOT WATER PUMP 1 RUNTIME EXCEEDED										x	
HOT WATER PUMP 2 FAILURE										x	
HOT WATER PUMP 2 RUNNING IN HAND										x	
HOT WATER PUMP 2 RUNTIME EXCEEDED										x	
LEAD BOILER FAILURE										x	x
LOW HOT WATER DIFFERENTIAL PRESSURE										x	
LOW PRIMARY HOT WATER SUPPLY TEMP										x	
WATER METER ALARM		x							x	x	x

1. TWO BOILER SYSTEM WITH CONDENSING BOILERS, VARIABLE-PRIMARY FLOW.

BOILER SYSTEM RUN CONDITIONS:
THE BOILER SYSTEM SHALL BE ENABLED TO RUN WHENEVER:
- A HOT WATER COIL OR RADIATOR NEED HEATING.
- AND OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).

TO PREVENT SHORT CYCLING, THE BOILER SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.

THE BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

THE BOILER SYSTEM SHALL ALSO RUN FOR FREEZE PROTECTION WHENEVER THE OUTSIDE AIR TEMPERATURE IS LESS THAN 38°F (ADJ.).

BOILER 1 SAFETIES:
THE FOLLOWING SAFETIES SHALL BE MONITORED:
- BOILER ALARM.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- BOILER ALARM.

BOILER 2 SAFETIES:
THE FOLLOWING SAFETIES SHALL BE MONITORED:
- BOILER ALARM.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- BOILER ALARM.

HOT WATER PUMP LEAD/LAG OPERATION:
THE TWO HOT WATER PUMPS SHALL OPERATE IN A LEAD/LAG FASHION.
- THE LEAD PUMP SHALL RUN FIRST.
- ON FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.
- ON DECREASING HOT WATER DIFFERENTIAL PRESSURE, THE LAG PUMP SHALL STAGE ON AND RUN IN UNISON WITH THE LEAD PUMP TO MAINTAIN HOT WATER DIFFERENTIAL PRESSURE SETPOINT.

THE DESIGNATED LEAD PUMP SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE). THE LAG PUMP SHALL BE ENABLED PRIOR TO THE LEAD PUMP BEING DISABLED AND VFD SPEEDS STAGED SUCH THAT BOILER NUISANCE TRIPS DO NOT OCCUR BECAUSE OF LOW FLOW.
- MANUALLY THROUGH A SOFTWARE SWITCH
- IF PUMP RUNTIME (ADJ.) IS EXCEEDED
- DAILY
- WEEKLY
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HOT WATER PUMP 1
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER 3000 CONTINOUS HOURS LIMIT.
  - VFD FAULT.
- HOT WATER PUMP 2
  - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
  - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER 3000 CONTINOUS HOURS LIMIT.
  - VFD FAULT.

HOT WATER DIFFERENTIAL PRESSURE CONTROL:
THE CONTROLLER SHALL MEASURE HOT WATER DIFFERENTIAL PRESSURE AND MODULATE THE HOT WATER PUMP VFDS IN SEQUENCE TO MAINTAIN ITS HOT WATER DIFFERENTIAL PRESSURE SETPOINT AT THE WORST CASE SENSOR.

THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PROCESS TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.

THE CONTROLLER SHALL MODULATE HOT WATER PUMP SPEEDS TO MAINTAIN A HOT WATER DIFFERENTIAL PRESSURE OF 12 PSI (ADJ.). THE VFDS MINIMUM SPEED SHALL NOT DROP BELOW 20% (ADJ.).

ON DROPPING HOT WATER DIFFERENTIAL PRESSURE, THE VFDS SHALL STAGE ON AND RUN TO MAINTAIN SETPOINT AS FOLLOWS:
- THE CONTROLLER SHALL MODULATE THE LEAD VFD TO MAINTAIN SETPOINT.
- IF THE LEAD VFD SPEED IS GREATER THAN A SETPOINT OF 90% (ADJ.), THE LAG VFD SHALL STAGE ON.
- THE LAG VFD SHALL RAMP UP TO MATCH THE LEAD VFD SPEED AND THEN RUN IN UNISON WITH THE LEAD VFD TO MAINTAIN SETPOINT.

ON RISING HOT WATER DIFFERENTIAL PRESSURE, THE VFDS SHALL STAGE OFF AS FOLLOWS:
- IF THE VFDS SPEEDS DROPS BACK TO 60% (ADJ.) BELOW SETPOINT, THE LAG VFD SHALL STAGE OFF.
- THE LEAD VFD SHALL CONTINUE TO RUN TO MAINTAIN SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH HOT WATER DIFFERENTIAL PRESSURE: IF 25% (ADJ.) GREATER THAN SETPOINT.
- LOW HOT WATER DIFFERENTIAL PRESSURE: IF 25% (ADJ.) LESS THAN SETPOINT.

THE PACKAGED BOILER CONTROLS SHALL MANAGE LEAD/LAG CASCADING OPERATION.

<u>HOT WATER SUPPLY TEMPERATURE SETPOINT RESET:</u>
THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET BASED ON OUTSIDE AIR TEMPERATURE.

AS OUTSIDE AIR TEMPERATURE RISES FROM 0 F (ADJ.) TO 65 F (ADJ.) THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET DOWNWARDS FROM 180 F (ADJ.) TO 90 F (ADJ.) FROM THE CURRENT BOILER SETPOINT.

HOT WATER TEMPERATURE MONITORING:
THE FOLLOWING TEMPERATURES SHALL BE MONITORED:
- HOT WATER SUPPLY.
- HOT WATER RETURN.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH HOT WATER SUPPLY TEMP: IF GREATER THAN 190°F (ADJ.).
- LOW HOT WATER SUPPLY TEMP: IF LESS THAN 80°F (ADJ.).

BOILER 1 HOT WATER TEMPERATURE MONITORING:
THE FOLLOWING TEMPERATURES SHALL BE MONITORED:
- BOILER 1 HOT WATER SUPPLY.
- BOILER 1 HOT WATER RETURN.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH HOT WATER SUPPLY TEMP: IF GREATER THAN 190°F (ADJ.).
- LOW HOT WATER SUPPLY TEMP: IF LESS THAN 80°F (ADJ.).

BOILER 2 HOT WATER TEMPERATURE MONITORING:
THE FOLLOWING TEMPERATURES SHALL BE MONITORED:
- BOILER 2 HOT WATER SUPPLY.
- BOILER 2 HOT WATER RETURN.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH HOT WATER SUPPLY TEMP: IF GREATER THAN 190°F (ADJ.).
- LOW HOT WATER SUPPLY TEMP: IF LESS THAN 80°F (ADJ.).

PROVIDE ALARM FROM MECHANICAL WATER METER ON WATER FILL LINE FOR SYSTEM. ALARM IF WATER METER OUTPUTS ANY PULSE SIGNALS.

F6 BOILER & PUMP SEQUENCE OF OPERATION
NOT TO SCALE

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
16 - Birches

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2026-03-14
PROJECT NUMBER	2240607040
FIELD BOOK	

MECHANICAL CONTROLS

16-M501

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PLUMBING FIXTURE SCHEDULE

FLOOR DRAIN (FD):
FIXTURE: 3" ZURN Z-415-B SERIES, CAST IRON, MEMBRANE CLAMP, FLASHING COLLAR, WEEP HOLES, HUB OUTLET WITH GASKETED CONNECTION, 5" DIA ADJUSTABLE NICKEL BRONZE STRAINER, VANDAL-PROOF. SET TOP OF STRAINER FLUSH WITH FINISHED FLOOR. PROVIDE DEEP SEAL P-TRAP

BACKFLOW PREVENTER:
FIXTURE: WATTS, 009 SERIES, FULL LINE SIZE, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, TWO INDEPENDENTLY OPERATING CHECK VALVES WITH INTERMEDIATE RELIEF VALVE, BALL VALVE TEST COCKS, COMPLIANT WITH USCFCC MANUAL FOR CROSS CONNECTION CONTROL, ASSE STANDARD 1013, AWWA STANDARD C506-78. PROVIDE WATTS DRAIN CONNECTION WITH AIR GAP

LOUVER SCHEDULE

REMARKS:
1. LOUVER SHALL BE CUSTOM COLOR SELECTED BY ARCHITECT DURING SUBMITTAL PROCESS.
2. OR ENGINEER APPROVED EQUIVALENT.

MARK	AREA SERVED	AIR FLOW (CFM)	DIMENSIONS			MAX FREE AREA (%)	FREE AREA VELOCITY (FPM)	PRESSURE DROP (WG)	SSBIA NGSDIE	SKARMRE
			W	H	D					
L-1	BOILER ROOM	500	16"	16"	6"	49	0	0	GREENHECK ESD-635	1,2

FAN SCHEDULE

REMARKS:
1. PROVIDE MANUFACTURER'S FACTORY-MOUNTED DISCONNECT SWITCH.
2. OR ENGINEER APPROVED EQUIVALENT.

MARK	FAN TYPE	PHASE	CFM	ESP (IN WG)	MOTOR DATA				ELECTRICAL DATA				SSBIA NGSDIE	SKARMRE
					HP	RPM	VOLTS	PHASE	DRIVE	SERVICE				
EF-1	INLINE	70	0.3	0.02	1/15	1538	DIRECT	115	1	MOTORIZED	GREENHECK SQ-80-VG	1,2		

UNIT HEATER SCHEDULE - ELECTRIC

REMARKS:
1. PROVIDE WITH DISCONNECT SWITCH.
2. PROVIDE WITH BUILT-IN THERMOSTAT WITH TAMPER PROOF COVER.
3. UNIT TO BE SURFACE MOUNTED. PROVIDE MANUFACTURER'S SURFACE MOUNTED FRAME.

MARK	CAPACITY (KW)	ELECTRICAL DATA					SSBIA NGSDIE	SKARMRE
		MBH	VOLTS	PHASE	AMPS			
EUH-1	100	1.5	208	1	7.2	QMARK VFK151F	1,2,3	
EUH-2	100	2	208	1	9.6	QMARK VFK204F	1,2,3	
EUH-3	100	3	208	1	14.4	QMARK VFK304F	1,2,3	
EUH-4	100	4	208	1	19.2	QMARK VFK408F	1,2,3	

AIR SEPARATOR SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT

MARK	SYSTEM SERVED	SIZE (IN)	CAPACITY (GPM)	STRAINER (Y/N)	MAX PD (FT)	MINIMUM AIR REMOVAL (%)	DESIGN BASIS	REMARKS
AS-1	HEATING WATER	4"	300	N	1	99	B&G ROLAIRTROL RL-4F	1

MECHANICAL PIPING EXPANSION TANK SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT

MARK	SYSTEM SERVED	TYPE	TANK CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	RELIEF VALVE		DESIGN BASIS	REMARKS
					RELIEF AT (PSI)	FILL AT (PSI)		
ET-1	HEATING WATER	BLADDER	106	106	100	30	GRUNDFOS GNLA-400	1

MECHANICAL PUMP SCHEDULE

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. VFD TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.

MARK	SYSTEM SERVED	TYPE	GPM	HEAD (FT)	SHUTOFF HEAD (FT)	MOTOR DATA			ELECTRICAL DATA			SSBIA NGSDIE	SKARMRE
						HP	VOLTS	PHASE					
HWP-1	HEATING WATER	END SUCTION	190	80	88.9	7.5	5.46	1770	208	3	GRUNDFOS 020-110-4P	1,2	
HWP-2	HEATING WATER	END SUCTION	190	80	88.9	7.5	5.46	1770	208	3	GRUNDFOS 020-110-4P	1,2	

UNIT HEATER SCHEDULE - HOT WATER

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. TO BE INSTALLED WITH FACTORY MOUNTED DISCONNECT
3. PROVIDE ALL PUHS WITH 3-WAY VALVE. SEE DETAILS.

MARK	CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	MAX PD (FT)	MOUNTING HEIGHT (FT)	FAN MOTOR DATA			SSBIA NGSDIE	SKARMRE
										HP	VOLTS	PHASE		
PUH-1	2010	180	160	60	92	71.7	7.17	0.6	8'-0"	1/12	208	1	MODINE HC-108	1,2,3
PUH-2	370	180	160	60	94	13.9	1.39	0.8	8'-0"	1/25	208	1	MODINE HC-24	1,2,3
PUH-3	730	180	160	60	93	26.5	2.65	0.4	8'-0"	1/12	208	1	MODINE HC-47	1,2,3
PUH-4	1120	180	160	60	92	39.1	3.91	0.6	8'-0"	1/12	208	1	MODINE HC-63	1,2,3
PUH-5	730	180	160	60	93	51.6	5.16	0.4	8'-0"	1/12	208	1	MODINE HC-86	1,2,3

UNIT HEATER SCHEDULE - HOT WATER - EXISTING

REMARKS:
1. EXISITNG PUH TO BE REUSED AND CONVERTED TO HW.
2. CONTRACTOR TO PROVIDE CONVERSION KITS AND CONTROLS FOR HW.
3. PROVIDE ALL PUHS WITH 3-WAY VALVE. SEE DETAILS.

MARK	AREA SERVED	CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	MOUNTING HEIGHT (FT)	FAN MOTOR DATA			SSBIA NGSDIE	SKARMRE
										HP	VOLTS	PHASE		
PUH-101	101	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV46A	1,2,3
PUH-112	112	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV48A	1,2,3
PUH-116A	116A	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV46A	1,2,3
PUH-B01	B01	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5PV46	1,2,3
PUH-B05	B05	750	180	160	60	96	29.8	3	7'-0"	1/20	208	1	DAYTON 5UT21	1,2,3
PUH-B16	B16 SHOP	900	180	160	60	97	37.4	3.75	7'-0"	1/20	208	1	DAYTON 5PV48A	1,2,3
PUH-B29	B29	450	180	160	60	90	14.9	1.5	7'-0"	16W	208	1	DAYTON 3DUF7	1,2,3

FIN TUBE RADIATION SCHEDULE - HYDRONIC

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. PROVIDE WITH 3-WAY VALVE. SEE DETAILS.
3. ELEMENT IS BARE. NO ENCLOSURE FOR THIS FIN TUBE. COVER TO BE INSTALLED OVER EXISTING CABINET.
4. ENCLOSURE TO BE PROVIDED WITH END CAPS.
5. ELEMENT AND ENCLOSURE TO BE CEILING MOUNTED

MARK	CAPACITY (MBH)	EWT (°F)	LWT (°F)	GPM	TUBE SIZE (IN)	NUMBER OF TUBES OR ROWS	ELEMENT LENGTH (FT)	EAT (°F)	HEATING COIL FIN DATA			ENCLOSURE			DESIGN BASIS	REMARKS
									FIN HEIGHT (IN)	FIN WIDTH (IN)	FINS PER FOOT	LENGTH	DEPTH	HEIGHT		
FT-1	6	180	168	1	0.75	3	3'-0"	65	4 1/4"	4 1/4"	48	0"	0"	0"	ZEHNDER-RITTLING 'BARE' COPPER TUBE-ALUMINUM FIN	1,3
FT-2	5.5	180	174	1.8	1.25	3	2'-4 51/64"	65	4 1/4"	4 1/4"	48	0"	0"	0"	ZEHNDER-RITTLING 'BARE' COPPER TUBE-ALUMINUM FIN	1,3
FT-3	5.9	180	160	0.6	0.75	1	6'-0"	65	4 1/4"	4 1/4"	48	6'-6"	4 1/2"	4 1/2"	ZEHNDER-RITTLING EXO COPPER TUBE-ALUMINUM FIN	1,4,5
FT-4	12.3	180	160	1.2	0.75	2	7'-6"	65	4 1/4"	4 1/4"	48	8'-0"	4 1/2"	10 1/2"	ZEHNDER-RITTLING EXO COPPER TUBE-ALUMINUM FIN	1,4,5
FT-5	9.2	180	160	0.9	0.75	3	4'-0"	65	4 1/4"	4 1/4"	48	4'-6"	5 3/8"	2'-0"	ZEHNDER-RITTLING FF COPPER TUBE-ALUMINUM FIN	1,4
FT-6	6.9	180	160	0.7	0.75	3	3'-0"	65	4 1/4"	4 1/4"	48	3'-6"	5 3/8"	2'-0"	ZEHNDER-RITTLING FF COPPER TUBE-ALUMINUM FIN	1,2,4
FT-7	15.4	180	160	1.5	0.75	3	6'-6"	65	4 1/4"	4 1/4"	48	7'-0"	5 3/8"	2'-0"	ZEHNDER-RITTLING FF COPPER TUBE-ALUMINUM FIN	1,4

FIRE-TUBE BOILER SCHEDULE - HOT WATER

REMARKS:
1. OR ENGINEER PRE-APPROVED EQUIVALENT.
2. DISCONNECT TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR

MARK	INPUT (MBH)	OUTPUT (MBH)	MIN GAS PRESSURE REQUIRED(IN)	EFFICIENCY (%)	EWT (°F)	LWT (°F)	GPM	MAX PD (FT)	FUEL TYPE	INLET FUEL PRESSURE (IN)	TURNDOWN RATIO	OPERATING PRESSURE (PSIG)	MAX DIMENSIONS			ELECTRICAL DATA					DESIGN BASIS	REMARKS
													LENGTH	WIDTH	HEIGHT	VOLTS	PHASE	FLA	MCA	MOCP		
BLR-1	1500	1305	4	87	160	180	205	7	NG	14	20:1	160	6'-6"	2'-4"	3'-8"	120	1	16	20	30	AERCO BMK-1500	1,2
BLR-2	1500	1305	4	87	160	180	205	7	NG	14	20:1	160	6'-6"	2'-4"	3'-8"	120	1	16	20	30	AERCO BMK-1500	1,2

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16 - Birches
Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY: LDF
APPROVED BY: JDB
ISSUED FOR: CONSTRUCTION
ISSUE DATE: 2025-03-14
PROJECT NUMBER: 2240007040
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MECHANICAL SCHEDULES

16-M600

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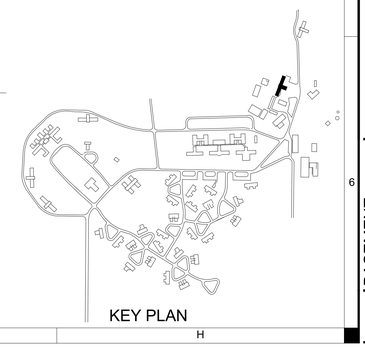
KEYNOTES	
KEY	NOTE
E01	REMOVE ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT. REMOVE WIRING BACK TO ELECTRICAL PANEL.

NORTH

A6 BASEMENT LEVEL ELECTRICAL SYSTEMS DEMOLITION PLAN

1/8" = 1'-0"



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BASEMENT ELECTRICAL SYSTEMS DEMOLITION PLAN

16-ED100

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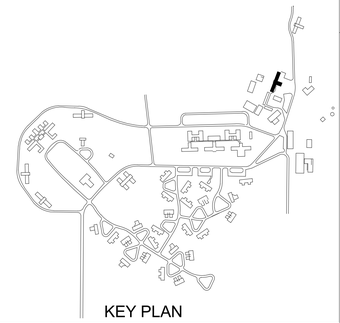
KEYNOTES	
KEY	NOTE
E01	REMOVE ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT. REMOVE WIRING BACK TO ELECTRICAL PANEL.

NORTH

A6 FIRST FLOOR ELECTRICAL SYSTEMS DEMOLITION PLAN

1/8" = 1'-0" 0 12'



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16 - BIRCHES

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FIRST FLOOR ELECTRICAL SYSTEMS DEMOLITION PLAN

16-ED101

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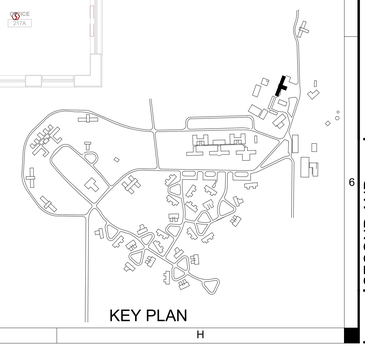
KEYNOTES	
KEY	NOTE
E01	REMOVE ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT. REMOVE WIRING BACK TO ELECTRICAL PANEL.
E11	EXISTING FIRE ALARM CONTROL PANEL TO REMAIN OPERATIONAL DURING CONSTRUCTION. REMOVE EXISTING DEVICES, CONDUIT TO DEVICES AND WIRING TO DEVICES AFTER NEW FIRE ALARM SYSTEM IS OPERATIONAL. FIRE ALARM PANEL TO REMAIN AS FIBER SIGNAL BOOSTER AFTER EXISTING DEVICES ARE REMOVED.

NORTH

C3 THIRD FLOOR/TOP OF ROOF ELECTRICAL SYSTEMS DEMOLITION PLANS
1/8" = 1'-0" 0 12'

NORTH

A6 SECOND FLOOR ELECTRICAL SYSTEMS DEMOLITION PLAN
1/8" = 1'-0" 0 12'



KEY PLAN

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SECOND AND THIRD FLOOR ELECTRICAL SYSTEMS DEMOLITION PLAN

16-ED102

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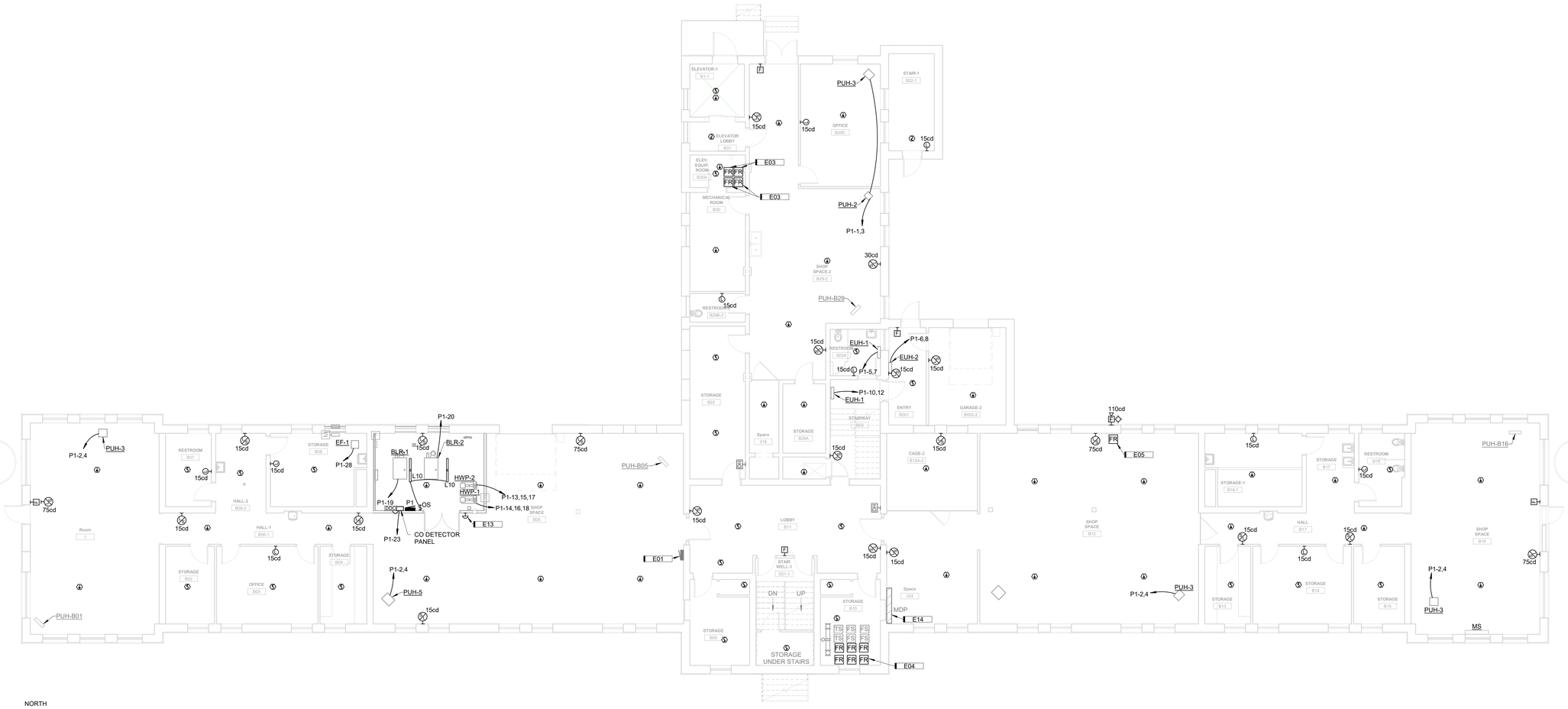
KEYNOTES

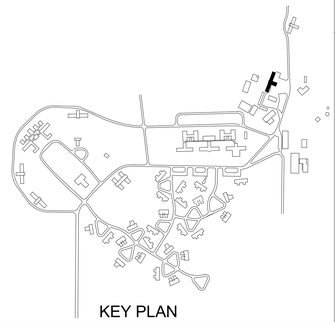
KEY	NOTE
E01	REMOVE ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT. REMOVE WIRING BACK TO ELECTRICAL PANEL.
E03	ELEVATOR RECALL RELAYS.
E04	FIRE PROTECTION RELAYS.
E05	HVAC SHUTDOWN RELAY
E13	BOILER EPO SWITCH. SINGLE SWITCH TO SHUTDOWN BOTH BOILERS.
E14	FURNISH AND INSTALL NEW 225A/3P BREAKER IN EXISTING SQUARE D I-LINE PANEL. CIRCUIT PANEL "P1" WITH (4) 4/0 AND #4 GND IN 2-1/2"C.



NORTH

A6 BASEMENT LEVEL ELECTRICAL SYSTEMS PLAN

1/8" = 1'-0" 0



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BASEMENT ELECTRICAL SYSTEMS PLAN

16-E100

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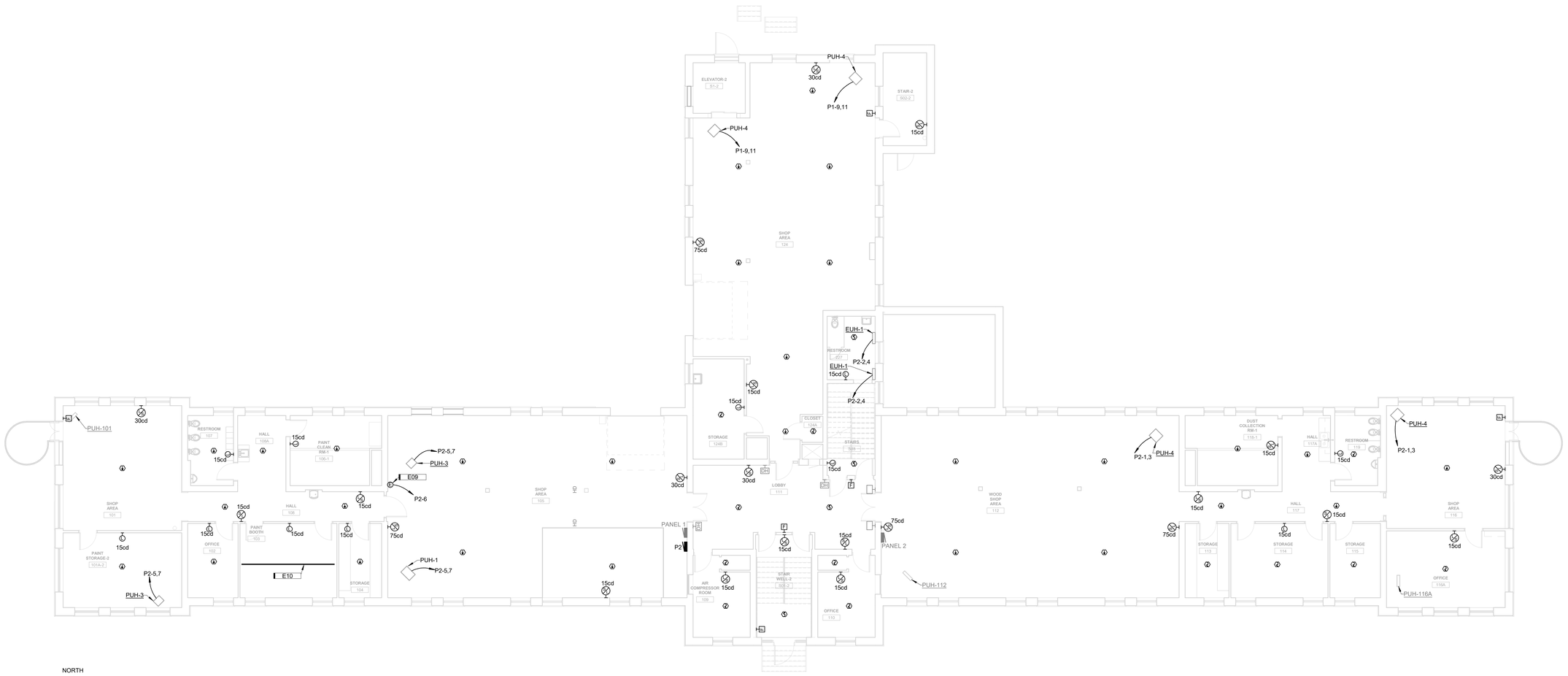
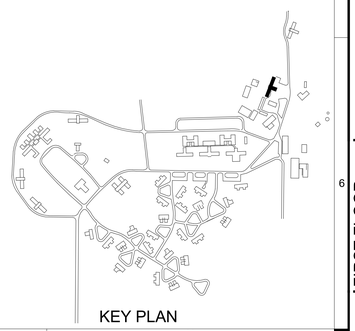
KEYNOTES	
KEY	NOTE
E09	TEST SWITCH AND ADDRESSABLE RELAY FOR LINEAR HEAT DETECTOR WIRE.
E10	LINEAR HEAT DETECTOR WIRE. INSTALL WITH J-HOOKS



NORTH

A6 FIRST FLOOR ELECTRICAL SYSTEMS PLAN

1/8" = 1'-0" 0 12'



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FIRST FLOOR ELECTRICAL SYSTEMS PLAN

16-E101

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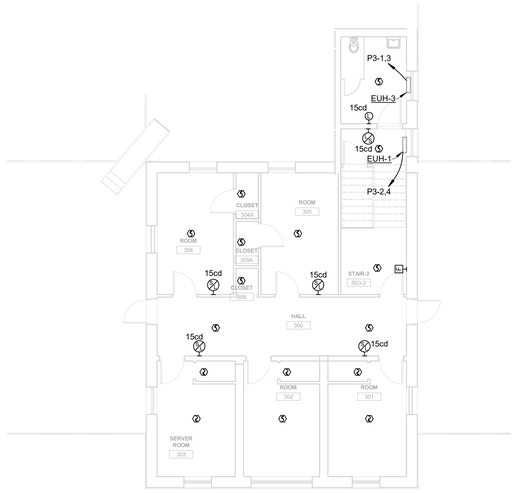
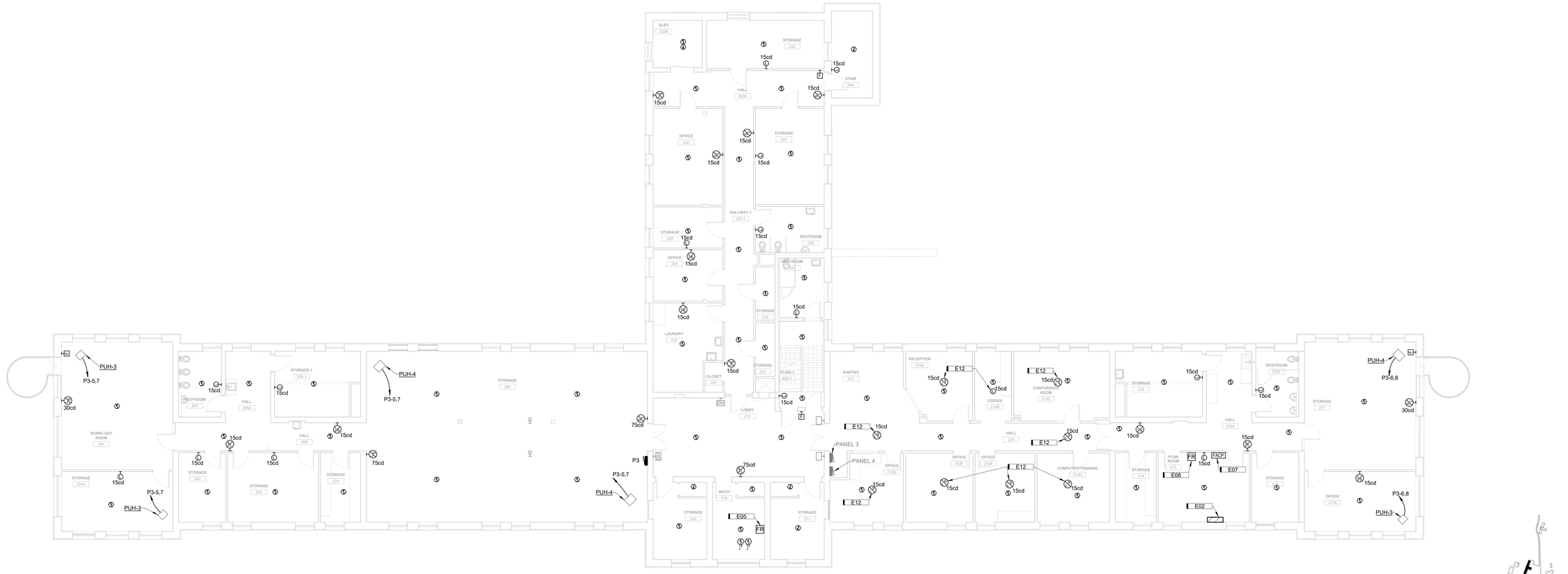
KEYNOTES	
KEY	NOTE
E02	EXISTING FIBER CABINET
E05	HVAC SHUTDOWN RELAY
E07	EXTEND EXISTING FIRE ALARM CIRCUIT TO NEW FIRE ALARM CONTROL PANEL LOCATION. CIRCUIT WITH (2) #12 AND 1#12 GND IN 3/4" C.
E08	FIRE ALARM DOOR HOLDER RELAY. WIRE RELAY TO EXISTING DOOR HOLDERS THROUGHOUT THE BUILDING.
E12	INSTALL FIRE ALARM DEVICE IN EXISTING LAY-IN CEILING.



NORTH

C3 THIRD FLOOR/TOP OF ROOF SLAB ELECTRICAL SYSTEMS PLAN

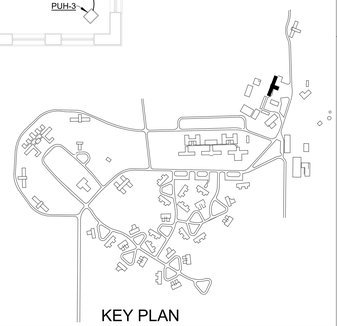
1/8" = 1'-0" 0' 12'



NORTH

A6 SECOND FLOOR ELECTRICAL SYSTEMS PLAN

1/8" = 1'-0" 0' 12'



KEY PLAN

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

16 - BIRCHES

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	RML
APPROVED BY	KJB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

SECOND AND THIRD FLOOR ELECTRICAL SYSTEMS PLAN

16-E102

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BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
P1	208Y/120	3	4	225 AMPS	225 A	22,000 AMPS SYMMETRICAL
	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN				MOUNTING: SURFACE	
ROOM: BOILER ROOM B05C					ENCLOSURE: NEMA 1	
FED FROM:					FEED:	

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	C KVA	CKT #	BKR	POLE	CODE	LOAD
RM B29C - PUH-3 RM B29 - PUH-2		2	20 A	1	0.3 / 0.9			2	20 A	2		RM 1 - PUH-3, RM B05 - PUH-5, RM B12 - PUH-3, B16 - PUH-3
				3		0.3 / 0.9		4				
RESTROOM S03A - EUH-2		2	20 A	5			0.8 / 1.0	6	20 A	2		RM B001 - EUH-1
				7	0.8 / 1.0			8				
RM 124 - PUH-4		2	20 A	9		0.5 / 0.8		10	20 A	2		RM S03 - EUH-2
				11			0.5 / 0.8	12				
BOILER ROOM B05C - HWP-1		3	40 A	13	2.1 / 2.1			14				
				15		2.1 / 2.1		16	40 A	3		BOILER ROOM B05C - HWP-2
				17			2.1 / 2.1	18				
BOILER ROOM B05C - ...		1	20 A	19	1.9 / 1.9			20	20 A	1		BOILER ROOM B05C -...
SHUNT TRIP SPACE	--	1	--	21		0.0 / 0.0		22	--	1	--	SHUNT TRIP SPACE
RM B05C - DDC & CO DECT...		1	20 A	23			0.0 / 0.0	24				
				25				26				
				27		0.0 / 0.3		28	20 A	1		RM B08 - EF-1
				29				30				
				31				32				
				33				34				
				35				36				
				37	2.7 / 3.6			38				
PANEL P2		3	60 A	39		2.0 / 2.3		40	60 A	3		PANEL P3
				41			0.7 / 1.4	42				
			TOTAL LOAD:		17362.0 VA	11143.3 VA	9265.7 VA					
			TOTAL AMPS:		147.1 A	95.3 A	77.2 A					

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
HVAC - HEATING	12500 VA	100%	12500 VA

PANEL TOTALS	
TOTAL CONN. LOAD:	37770.9 VA
TOTAL EST. DEMAND:	39347.1 VA
TOTAL CONN. CURRENT:	104.8 A
TOTAL EST. DEMAND CURRENT:	109.2 A

NOTES:
1. CIRCUIT PANEL WITH 4#4 AND 1#8 GND IN 1-1/4" CONDUIT.
2. SHUNT TRIP BREAKER

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
P2	208Y/120	3	4	60 AMP	60 A	10,000 AMPS SYMMETRICAL
	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN				MOUNTING: SURFACE	
ROOM: SHOP AREA 105					ENCLOSURE: NEMA 1	
FED FROM: P1					FEED:	

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	C KVA	CKT #	BKR	POLE	CODE	LOAD
RM 112 - PUH-4, PUH-112 RM 116A-PUH-116A,RM116-PUH-4		2	20 A	1	0.5 / 1.5			2				
				3		0.5 / 1.5		4	20 A	2		RM 227 - EUH-2
RM 101A-2 PUH-3, RM 105 - PUH-1,PUH-3		2	20 A	5			0.7 / 0.0	6	20 A	1		RM 105 TEST SWITCH
				7	0.7 / 0.0			8				
				9				10				
				11				12				
				13				14				
				15				16				
				17				18				
				19				20				
				21				22				
				23				24				
				25				26				
				27				28				
				29				30				
			TOTAL LOAD:		2664.8 VA	1965.9 VA	698.9 VA					
			TOTAL AMPS:		23.8 A	18.0 A	5.8 A					

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
HVAC - HEATING	3000 VA	100%	3000 VA

PANEL TOTALS	
TOTAL CONN. LOAD:	5329.6 VA
TOTAL EST. DEMAND:	5329.6 VA
TOTAL CONN. CURRENT:	14.8 A
TOTAL EST. DEMAND CURRENT:	14.8 A

NOTES:

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
P3	208Y/120	3	4	60 AMPS	60 A	10,000 AMPS SYMMETRICAL
	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN				MOUNTING: SURFACE	
ROOM: STORAGE 205					ENCLOSURE: NEMA 1	
FED FROM: P1					FEED:	

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	C KVA	CKT #	BKR	POLE	CODE	LOAD
STAIRWAY RESTROOM - EUH-3		2	20 A	1	1.5 / 0.8			2				
				3		1.5 / 0.8		4	20 A	2		STAIR-1 S03-1 - EUH-2
RM 201-PUH-3,201A-PUH-3, RM 205 PUH4, PUH-4		2	20 A	5			0.9 / 0.5	6				
				7	0.9 / 0.5			8	20 A	2		HEATING HVAC Room 217, 217A
				9				10				
				11				12				
				13				14				
				15				16				
				17				18				
				19				20				
				21				22				
				23				24				
				25				26				
				27				28				
				29				30				
			TOTAL LOAD:		3647.8 VA	2250.0 VA	1397.8 VA					
			TOTAL AMPS:		31.5 A	19.8 A	11.6 A					

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)
HVAC - HEATING	4500 VA	100%	4500 VA

PANEL TOTALS	
TOTAL CONN. LOAD:	7295.5 VA
TOTAL EST. DEMAND:	7295.5 VA
TOTAL CONN. CURRENT:	20.3 A
TOTAL EST. DEMAND CURRENT:	20.3 A

NOTES:

MECHANICAL AND ELECTRICAL COORDINATION SCHEDULE

GENERAL NOTES:

A. MOCP SIZES SHOWN BELOW ARE FOR BIDDING PURPOSES ONLY. VERIFY MOCP WITH EQUIPMENT NAME PLATE DATA PRIOR TO ORDERING EQUIPMENT.
B. MINIMUM WIRE SIZE SHALL BE #12 AWG AND MINIMUM CONDUIT SIZE SHALL BE 3/4".
C. INCLUDE A SEPARATE, GREEN, CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT CONDUITS.

ABBREVIATIONS:

EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
MFR - MANUFACTURER
TCC - TEMPERATURE CONTROL CONTRACTOR
OWN - OWNER

REMARKS:

1. XXX.
2. XXX.

MARK	VOLTAGE	PHASE	FLA	MCA	MOCP	HP	WATTAGE	KVA	CONDUIT AND WIRE SIZE	DISCONNECT TYPE	DISCONNECT FURNISHED / INSTALLED	REMARKS
11	0	1	0	0	0		0	0	XXX	XXX	XXX	XXX
BLR-1	120	1	16	20	30	-	1920	1.92	2#12, 1#12 GND, 3/4" C	NF	EC	XXX
BLR-2	120	1	16	20	30	-	1920	1.92	2#12, 1#12 GND, 3/4" C	NF	EC	XXX
EF-1	120	1	2.1	2.6	20	1/15	252	0.252	2#12, 1#12 GND, 3/4" C	PWE	MFR	-
EUH-1	208	1	7.2	9	20	-	1500	1.875	2#12 & #12g - 3/4"C	-	MFR	-
EUH-1	208	1	7.2	9	20	-	1500	1.875	2#12 & #12g - 3/4"C	-	MFR	-
EUH-1	208	1	7.2	9	20	-	1500	1.875	2#12 & #12g - 3/4"C	-	MFR	-
EUH-1	208	1	7.2	9	20	-	1500	1.875	2#12 & #12g - 3/4"C	-	MFR	-
EUH-1	208	1	7.2	9	20	-	1500	1.875	2#12 & #12g - 3/4"C	-	MFR	-
EUH-2	208	1	9.6	12	0	-	2000	2.5	2#12 & #12g - 3/4"C	-	MFR	-
EUH-3	208	1	14.4	18	30	-	3000	3.75	2#12 & #12g - 3/4"C	-	MFR	-
EUH-4	208	1	19.2	24	0	-	4000	5	2#12 & #12g - 3/4"C	-	MFR	-
HWP-1	208	3	17.5	21.9	40	7.5	6305	6.305	3#10, 1#10 GND, 3/4" C	VFD	EC	--
HWP-2	208	3	17.5	21.9	40	7.5	6305	6.305	3#10, 1#10 GND, 3/4" C	VFD	EC	--
PUH-1	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-2	208	1	1.1	1.4	20	1/25	183	0.229	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-3	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-4	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-
PUH-5	208	1	2.8	3.5	20	1/12	466	0.582	2#12 & #12g - 3/4"C	-	MFR	-

LIGHTING FIXTURE SCHEDULE

CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE DESCRIPTION AND THE SPECIFICATIONS SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS FOR DESIGN. ALL LAMPS/LIGHT SOURCES FOR THIS PROJECT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. ALL LIGHT FIXTURES SHALL BE PROVIDED WITH INTEGRAL DISCONNECT(S) FACTORY INSTALLED IN ACCORDANCE WITH NEC. REFER TO SPECIFICATIONS FOR SHOP DRAWING SUBMITTAL REQUIREMENTS AND ADDITIONAL INFORMATION.

MOUNTING STYLES (MTG): RE-A = RECESSED (ACT), RE-G = RECESSED (GYP), RE-W = RECESSED (WALL), CL = CEILING SURFACE, PW = PERIMETER WALL, SP = SUSPENDED (AIR-CRAFT CABLE), ST = STEM, WL = WALL, WL-H = WALL HORIZONTAL, WL-V = WALL VERTICAL, UNV = UNIVERSAL, POLE = POLE, UC = UNDER CABINET, TR = TRACK, GND = GROUND

LED DRIVER TYPES: STND = STANDARD DRIVER, DIM10 = 0-10V 10% DIMMING, DIM1 = 0-10V 1% DIMMING, DIMD = 0-10V DIM TO DARK, STEP = STEP DIMMING, NOND = NON-DIMMING, DALI = DIGITAL ADDRESSABLE LIGHTING INTERFACE, DMX = DIGITAL MULTIPLEX, LUTR = LUTRON HI-LUME, POE = POWER OVER ETHERNET, SDIM = STEP DIMMING

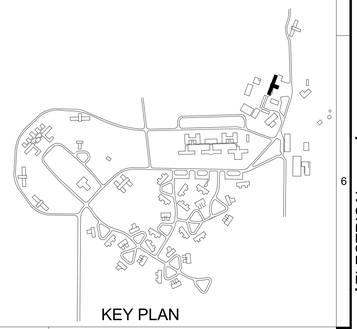
GENERAL NOTES:

A. WHERE "OR APPROVED EQUIVALENT" IS LISTED IN THE MANUFACTURER COLUMN, FIXTURES MUST BE SUBMITTED AS A SUBSTITUTION FOR APPROVAL PRIOR TO BID SUBMISSION.
B. LISTED LUMENS ARE DELIVERED LUMENS. PROVIDE FIXTURE WITHIN +/- 5% OF LISTED LUMENS.
C. LIGHTING PRODUCTS SHALL BE PROVIDED THROUGH THE AUTHORIZED LIGHTING MANUFACTURER'S REPRESENTATIVE RESIDING WITHIN PROJECT LOCATION.
D. SUBMITTALS SHALL BE PRODUCED AND SUBMITTED BY LOCAL AUTHORIZED LIGHTING MANUFACTURER'S REPRESENTATIVE. LETTERHEAD SHALL CONTAIN REPRESENTATIVES' CONTACT INFORMATION, PROJECT...

SCHEDULE NOTES:

1. CONNECT TO UNSWITCHED PORTION OF LIGHTING CIRCUIT.
2. PROVIDE WITH INTEGRAL OCCUPANCY AND DAYLIGHTING WIRELESS SENSOR.

TYPE	DESCRIPTION	LENS-LOUVER	MTG	LIGHTING OUTPUT/CCT	DRIVER	VOLT	WATT	BASIS OF DESIGN	APPROVED EQUIVALENT	NOTES
L10	3' W X 4' LONG LED LENSED STRIP, STEEL HOUSING	ACRYLIC SEMI-FROST LENS	SP	LED, 3000 LUMENS, 4000K	DIM10	120 V	19 W	LITHONIA CLX	COLUMBIA MPS, DAY-BRITE FSS, DECO LIGHTING DACH-LED, LSI SDL, METALUX SNLED	



KEY PLAN

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Phase 4 & Fire Alarm Phase 3 (9279.40)

WRC Decentralization Phase
16 - BIRCHES

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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ELECTRICAL SCHEDULES

16-E400

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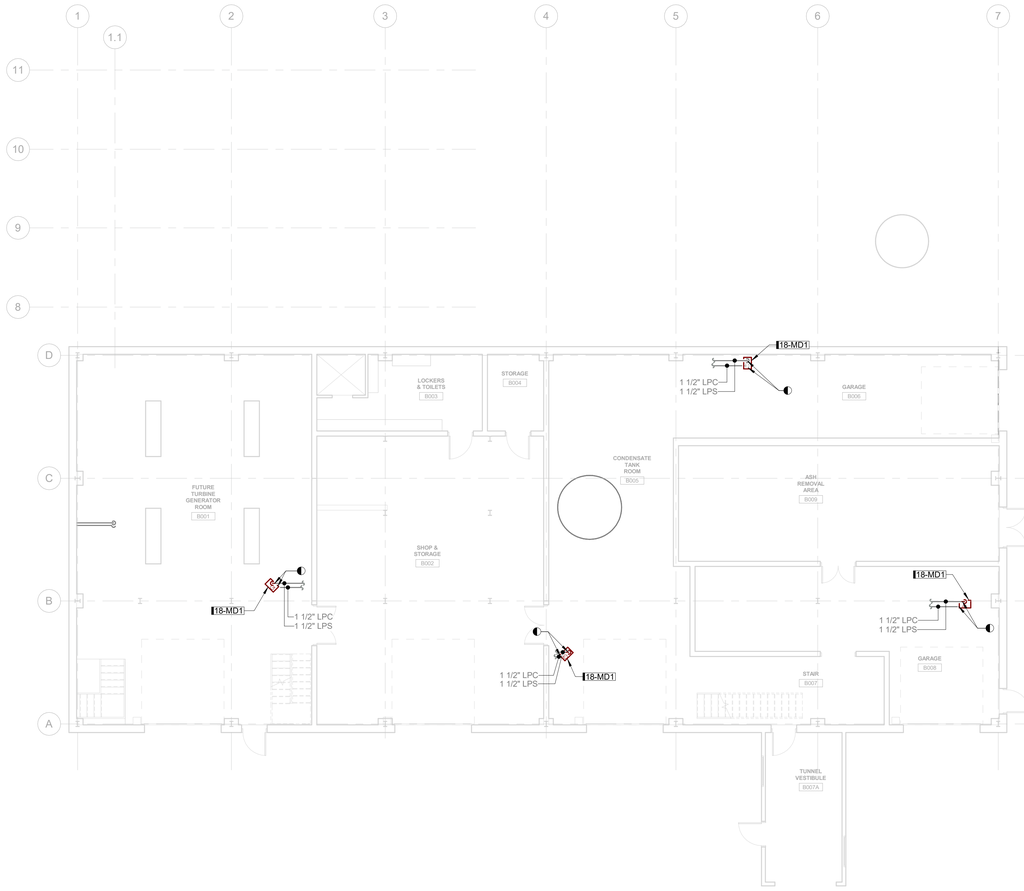
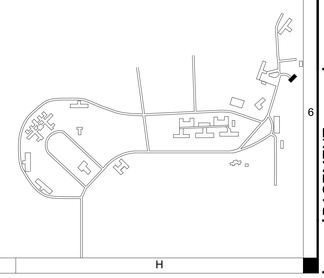
KEYNOTES

KEY	NOTE
18-MD1	DISCONNECT EXISTING UNIT HEATER FROM STEAM AND CONDENSATE PIPING. DEMOLISH UNIT HEATER AND ASSOCIATED CONTROLLER. EXISTING STEAM AND CONDENSATE PIPING TO BE CAPPED AND ABANDONED IN PLACE.



NORTH

C6 BASEMENT MECHANICAL DEMOLITION PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
18 - Power House

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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BASEMENT MECHANICAL PIPING DEMOLITION PLAN

18-MD100

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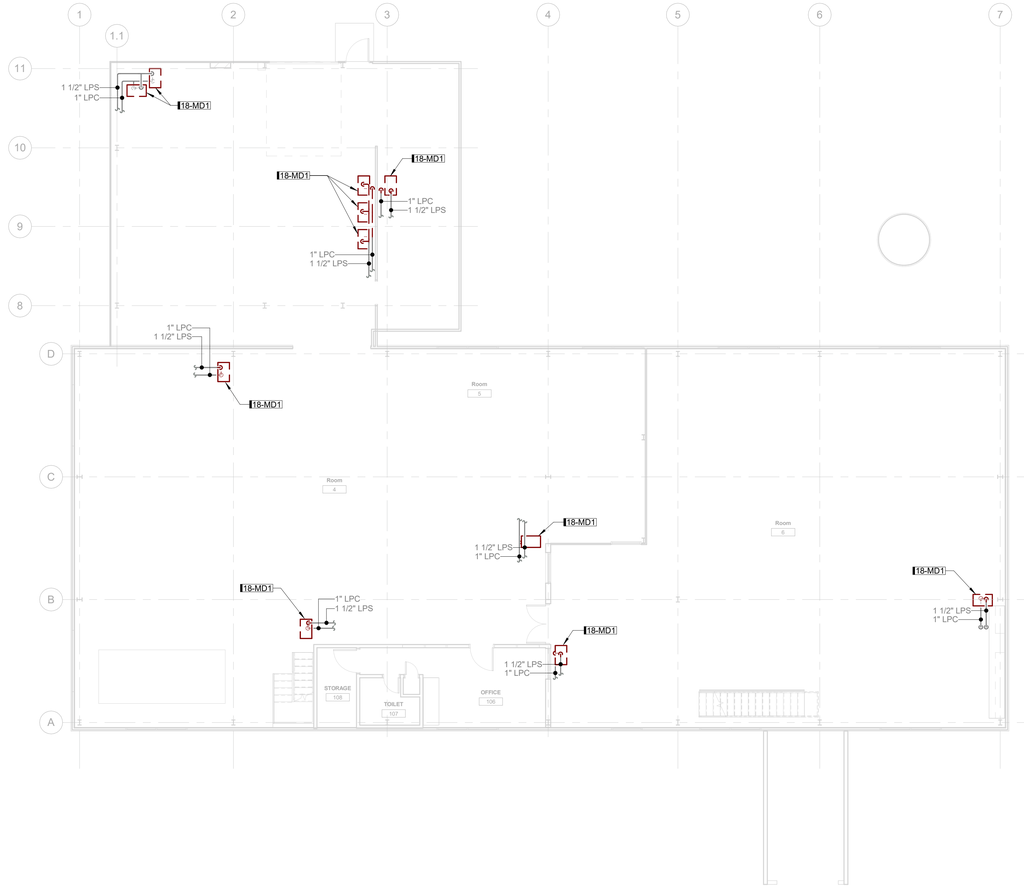
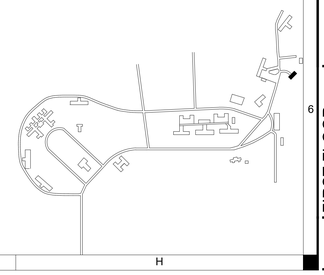
KEYNOTES

KEY	NOTE
18-MD1	DISCONNECT EXISTING UNIT HEATER FROM STEAM AND CONDENSATE PIPING. DEMOLISH UNIT HEATER AND ASSOCIATED CONTROLLER. EXISTING STEAM AND CONDENSATE PIPING TO BE CAPPED AND ABANDONED IN PLACE.



NORTH

C6 FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
18 - Power House

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1251 334th St, Woodward, IA 50276

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FIRST FLOOR MECHANICAL PIPING DEMOLITION PLAN

18-MD101

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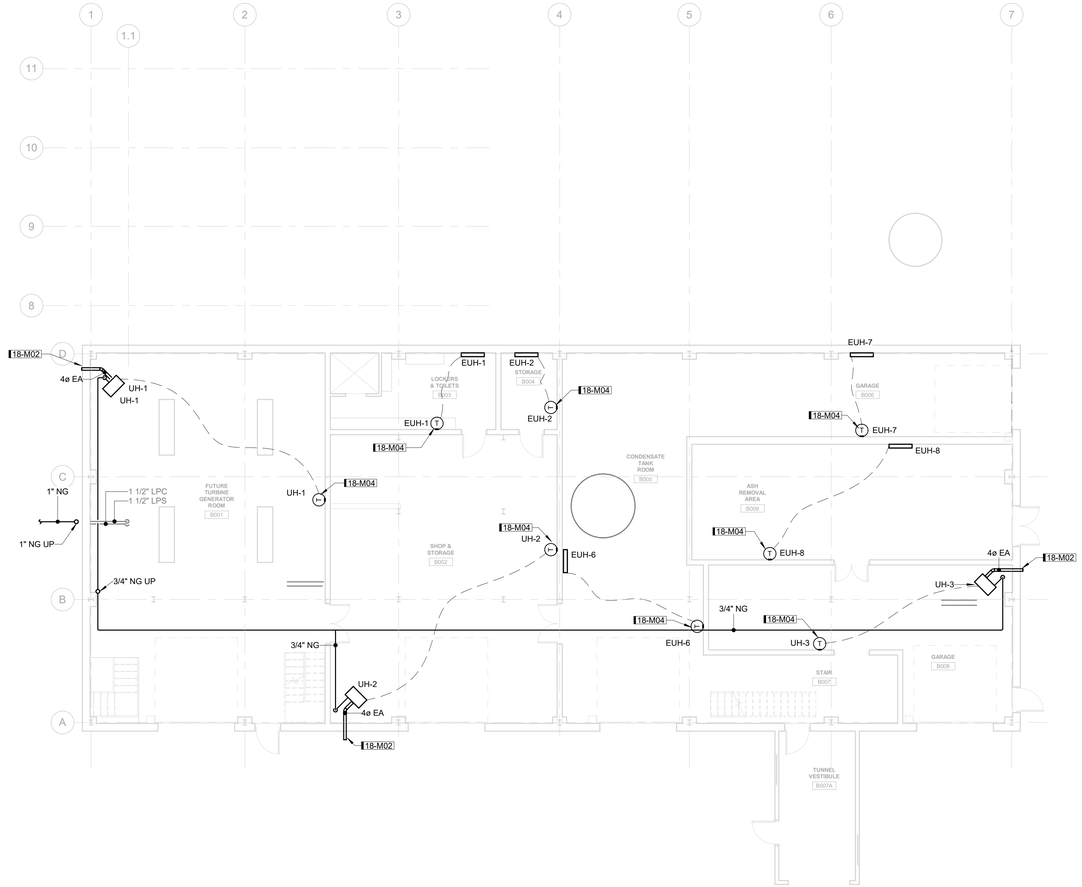
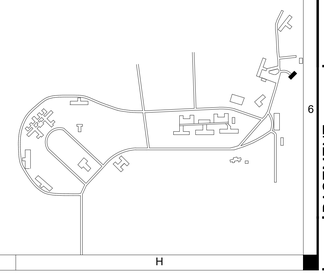
KEYNOTES	
KEY	NOTE
18-M02	INSTALL HORIZONTAL VENT TERMINATION THROUGH WALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
18-M04	MOUNT TOP OF THERMOSTAT AT 4'-0" AFF TO MEET ADA REQUIREMENTS. THERMOSTAT LOCATIONS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS/ELEVATIONS WITH OWNER PRIOR TO INSTALLATION.



NORTH

C6 BASEMENT MECHANICAL PLAN
1/8" = 1'-0" 0 1' 2'



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18 - Power House

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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APPROVED BY	JDB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
PROJECT NUMBER	2240007040
FIELD BOOK	

BASEMENT MECHANICAL PLAN

18-M100

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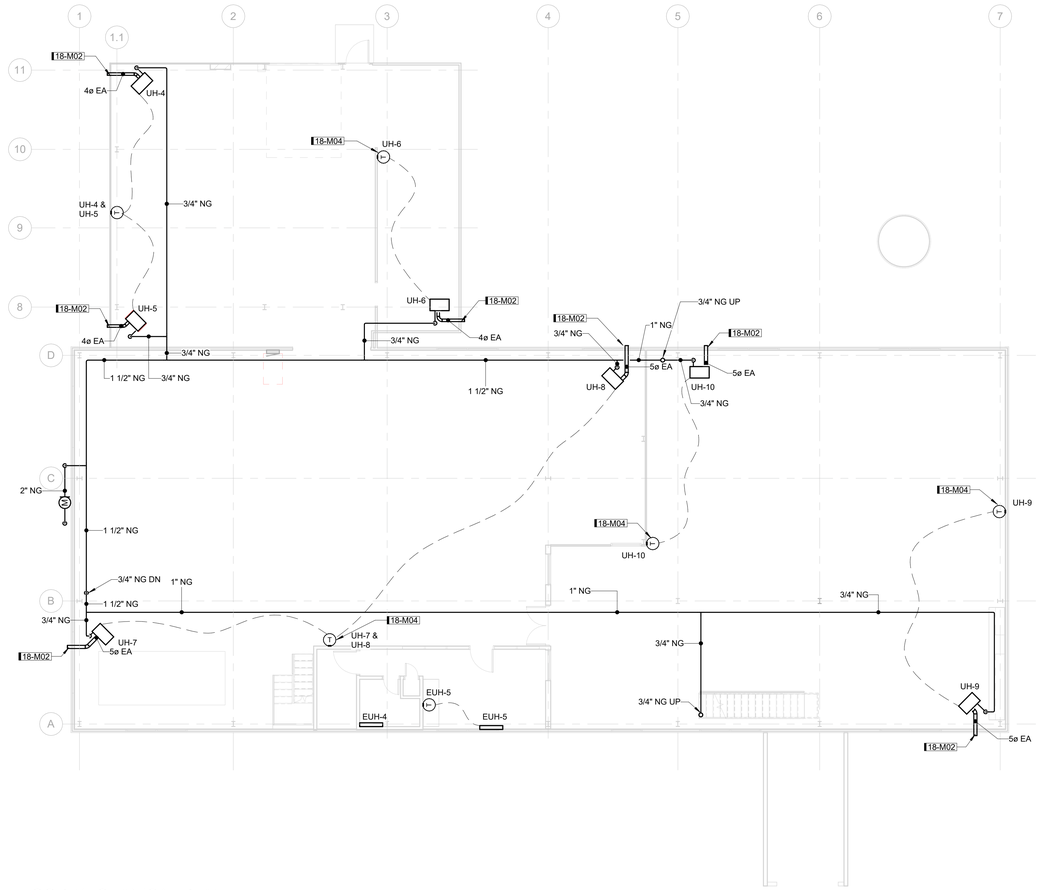
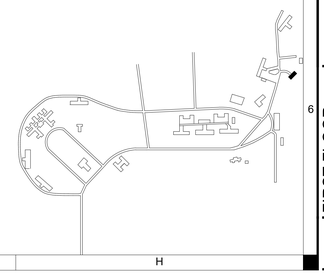
KEYNOTES	
KEY	NOTE
18-M02	INSTALL HORIZONTAL VENT TERMINATION THROUGH WALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
18-M04	MOUNT TOP OF THERMOSTAT AT 4'-0" AFF TO MEET ADA REQUIREMENTS. THERMOSTAT LOCATIONS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS/ELEVATIONS WITH OWNER PRIOR TO INSTALLATION.



NORTH

C6 FIRST FLOOR MECHANICAL PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
18 - Power House

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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FIRST FLOOR MECHANICAL PLAN

18-M101

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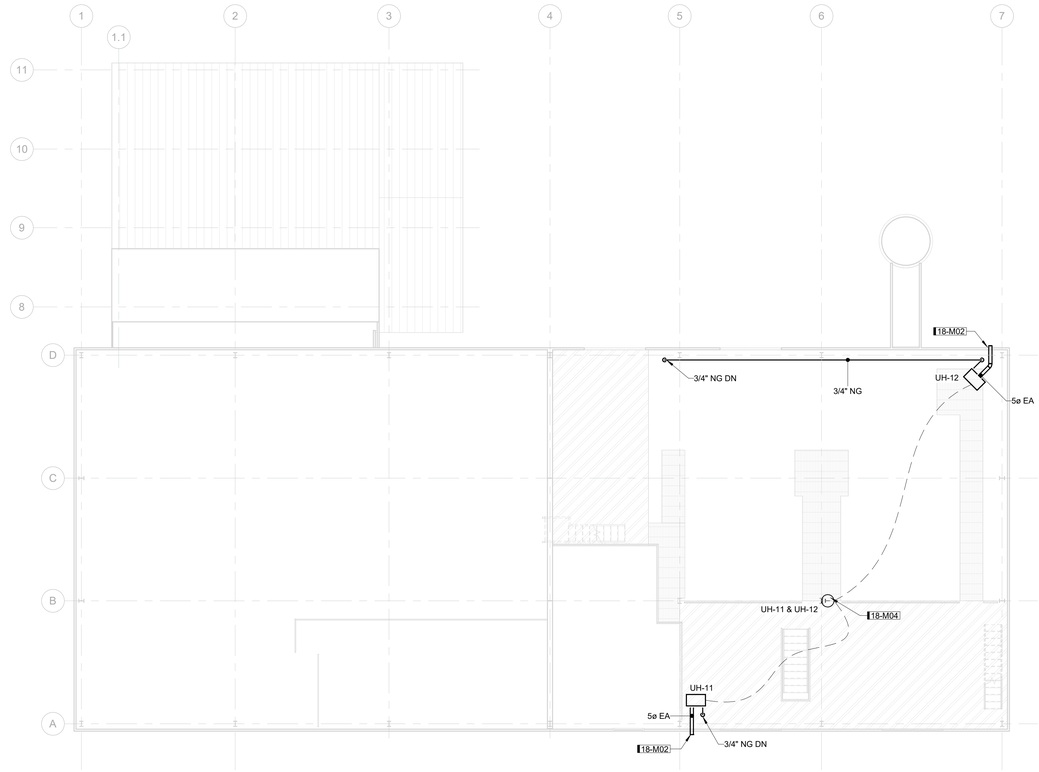
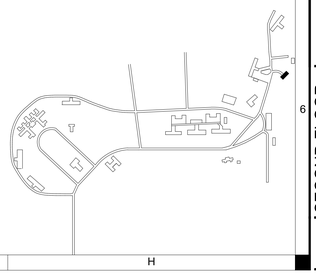
KEYNOTES	
KEY	NOTE
18-M02	INSTALL HORIZONTAL VENT TERMINATION THROUGH WALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
18-M04	MOUNT TOP OF THERMOSTAT AT 4'-0" AFF TO MEET ADA REQUIREMENTS. THERMOSTAT LOCATIONS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS/ELEVATIONS WITH OWNER PRIOR TO INSTALLATION.





NORTH

C6 SECOND LEVEL MECHANICAL PLAN
1/8" = 1'-0" 0 12"

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18 - Power House

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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PROJECT NUMBER	2240007040
FIELD BOOK	

SECOND FLOOR MECHANICAL PLAN

18-M102

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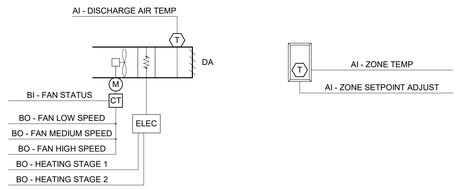


A2 CONTROLS SCHEMATIC - UH - ELECTRIC
NOT TO SCALE

1. ELECTRIC UNIT HEATER

RUN CONDITIONS - SCHEDULED:
THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:
- OCCUPIED MODE: THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 70°F (ADJ.).
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 65°F (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE SETPOINT ADJUST:
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING SETPOINTS AT THE ZONE SENSOR.

FAN:
THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT, UNLESS SHUTDOWN ON SAFETIES. THE FAN SPEEDS SHALL BE INDEXED AS FOLLOWS:
- LOW SPEED SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS BELOW SETPOINT.
- MEDIUM SPEED SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS FURTHER BELOW SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- HIGH SPEED SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS EVEN FURTHER BELOW SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

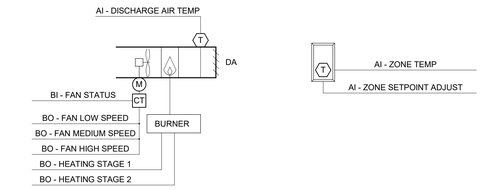
ELECTRIC HEATING STAGES:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
- LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F (ADJ.).

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.



D2 CONTROLS SCHEMATIC - UH - NATURAL GAS
NOT TO SCALE

1. GAS UNIT HEATER

RUN CONDITIONS - SCHEDULED:
THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:
- OCCUPIED MODE: THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 70°F (ADJ.).
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 65°F (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE SETPOINT ADJUST:
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING SETPOINTS AT THE ZONE SENSOR.

FAN:
THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT, UNLESS SHUTDOWN ON SAFETIES. THE FAN SPEEDS SHALL BE INDEXED AS FOLLOWS:
- LOW SPEED SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS BELOW SETPOINT.
- MEDIUM SPEED SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS FURTHER BELOW SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- HIGH SPEED SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS EVEN FURTHER BELOW SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

GAS HEATING STAGES:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
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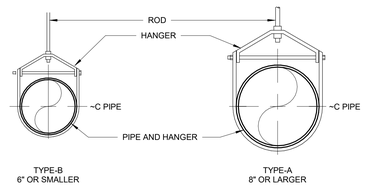
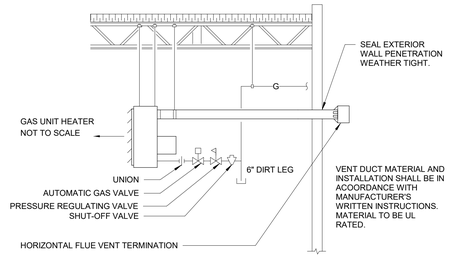
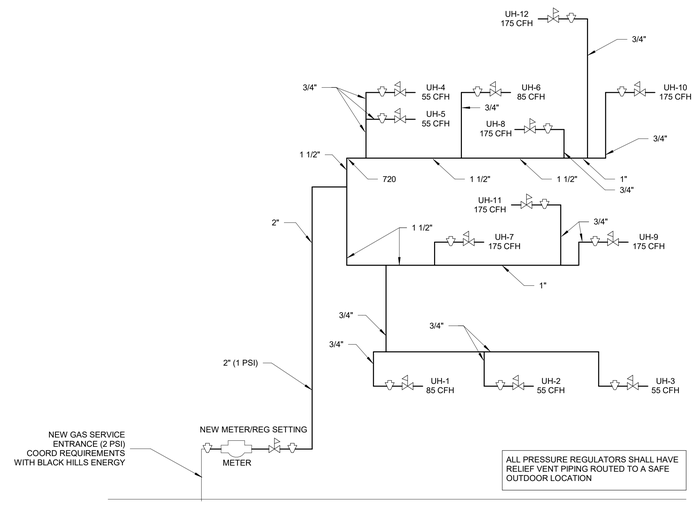


E4 UNINSULATED PIPE HANGER DETAIL
NOT TO SCALE



G4 GAS UNIT HEATER DETAIL
NOT TO SCALE



C6 GAS PIPING SCHEMATIC
NOT TO SCALE

EQUIVALENT PRODUCTS BY MANUFACTURERS WHICH ARE NOT LISTED IN SCHEDULES OR IN SPECIFICATIONS MAY BE USED WITH PRE-APPROVAL FROM ENGINEER. SEE SPECIFICATION FOR SUBSTITUTION REQUEST INSTRUCTIONS.

UNIT HEATER SCHEDULE - ELECTRIC

REMARKS:
1. DISCONNECT SWITCH TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
2. EUH TO HAVE INTEGRAL THERMOSTAT
3. EUH TO HAVE A 7-DAY PROGRAMMABLE THERMOSTAT.
4. EUH TO HAVE WALL MOUNTED NON-PROGRAMMABLE THERMOTAT.

				ELECTRICAL DATA					
MARK	AREA SERVED	CFM	ORIENTATION	KW	VOLTS	PHASE	FLA	DESIGN BASIS	REMARKS
EUH-1	B2 RR	100	HORIZONTAL	1.5	208	1	7.2	BERKO VFK151F	1,4
EUH-2	B3 RR	100	HORIZONTAL	1.5	208	1	7.2	BERKO VFK151F	1,4
EUH-4	103B RR	100	HORIZONTAL	3	208	1	14.4	BERKO VFK304F	1,2
EUH-5	103 OFFICE	100	HORIZONTAL	4	208	1	19.2	BERKO VFK408F	1,3
EUH-6	B5	100	HORIZONTAL	8	208	1	38.5	BERKO MFQ8008	1,4
EUH-7	B5	100	HORIZONTAL	6	208	1	28.8	BERKO MFQ6008	1,4
EUH-8	B6	100	HORIZONTAL	6	208	1	28.8	BERKO MFQ6008	1,4

UNIT HEATER SCHEDULE - GAS

REMARKS:
1. PROVIDE FACTORY-MOUNTED DISCONNECT SWITCH.
2. PROVIDE 2-STAGE GAS VALVE AND HORIZONTAL VENT TERMINATION KIT.
3. PROVIDE MANUFACTURER'S 2-STAGE THERMOSTATS. SEE DRAWINGS FOR LOCATIONS.

					GAS			FAN MOTOR DATA				
MARK	AREA SERVED	CFM	EAT (°F)	LAT (°F)	HEATING INPUT (MBH)	HEATING OUTPUT (MBH)	MOUNTING HEIGHT (FT)	ORIENTATION	HP	VOLTS	PHASE	DESIGN BASIS	REMARKS
UH-1	B1	1345	45	105	100	87.1	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-2	B4	769	45	94	60	49.8	8'-0"	HZ	1/20	120	1	REZNOR UDXC	1,2,3
UH-3	B7	769	45	94	60	49.8	8'-0"	HZ	1/20	120	1	REZNOR UDXC	1,2,3
UH-4	1 GARAGE	769	45	94	60	49.8	8'-0"	HZ	1/20	120	1	REZNOR UDXC	1,2,3
UH-5	1 GARAGE	769	45	94	60	49.8	8'-0"	HZ	1/20	120	1	REZNOR UDXC	1,2,3
UH-6	2 STORAGE	1345	45	104	100	87.1	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-7	102 STORAGE	2562	45	104	200	166	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-8	6 BOILER ROOM	2562	45	104	200	166	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-9	6 BOILER ROOM	2562	45	104	200	166	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-10	6 BOILER ROOM	2562	45	104	200	166	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-11	6 BOILER ROOM	2562	45	104	200	166	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3
UH-12	6 BOILER ROOM	2562	45	104	200	166	8'-0"	HZ	1/4	120	1	REZNOR UDXC	1,2,3

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18 - Power House
Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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PROJECT NUMBER	224000/7040
FIELD BOOK	

MECHANICAL SCHEDULES

18-M600

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Thursday, March 27, 2025 1:54:27 PM
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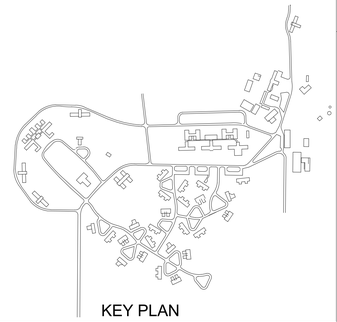
KEYNOTES	
KEY	NOTE
18-E11	

NORTH

A6 BASEMENT LEVEL SYSTEM DEMOLITION PLAN
1/8" = 1'-0" 0 12'



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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)
18 - POWER HOUSE

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

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FIELD BOOK	

BASEMENT ELECTRICAL SYSTEMS DEMOLITION PLAN

18-ED100

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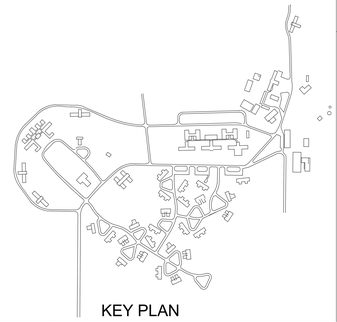
KEYNOTES	
KEY	NOTE
18-E10	
18-E11	

NORTH

A6 FIRST FLOOR ELECTRICAL SYSTEMS DEMOLITION PLAN

1/8" = 1'-0" 0 12'



KEY PLAN

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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

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FIRST FLOOR ELECTRICAL SYSTEM DEMOLITION PLAN

18-ED101

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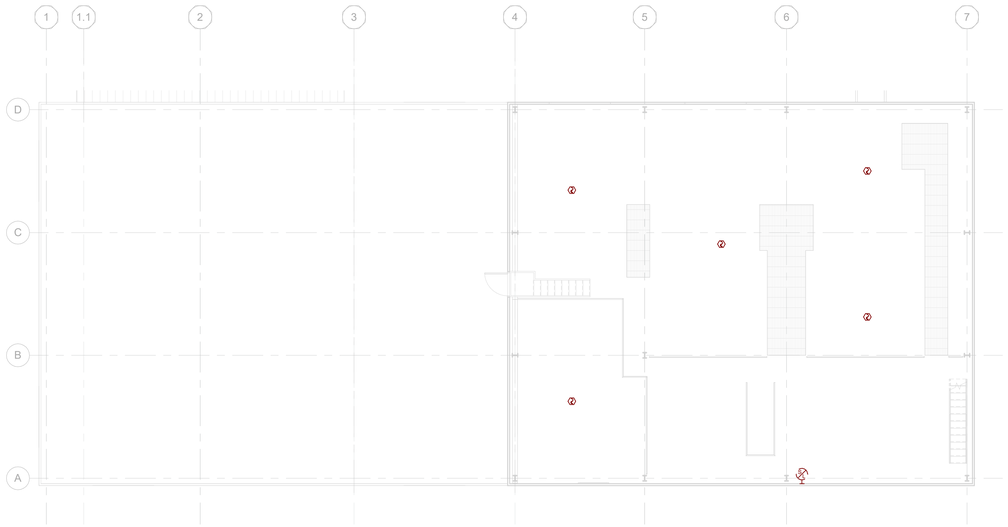
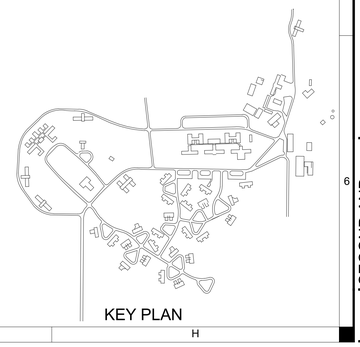
KEYNOTES	
KEY	NOTE



NORTH

A5 SECOND LEVEL ELECTRICAL SYSTEMS DEMOLITION
1/8" = 1'-0" 0 12'



KEY PLAN

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SECOND AND THIRD FLOOR ELECTRICAL DEMOLITION PLAN

18-ED102

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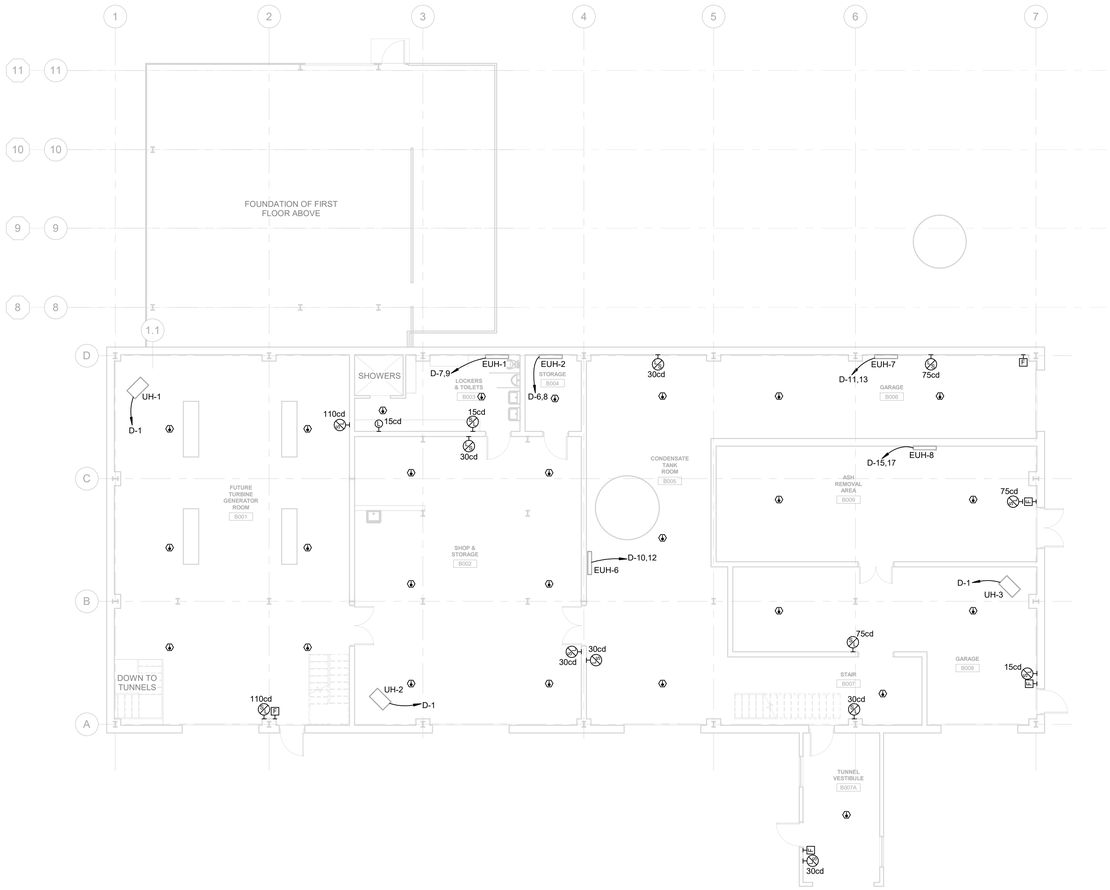
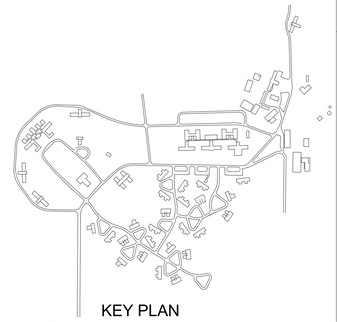
KEYNOTES	
KEY	NOTE



NORTH

A6 BASEMENT ELECTRICAL SYSTEMS PLAN

1/8" = 1'-0" 0 12'



KEY PLAN

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BASEMENT ELECTRICAL SYSTEMS PLAN

18-E100

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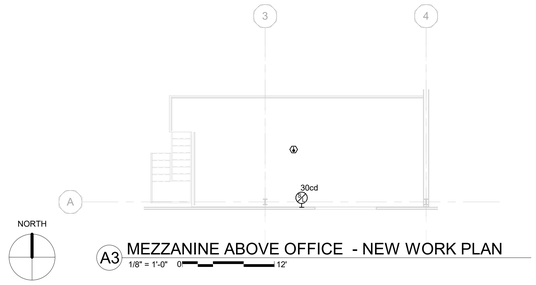
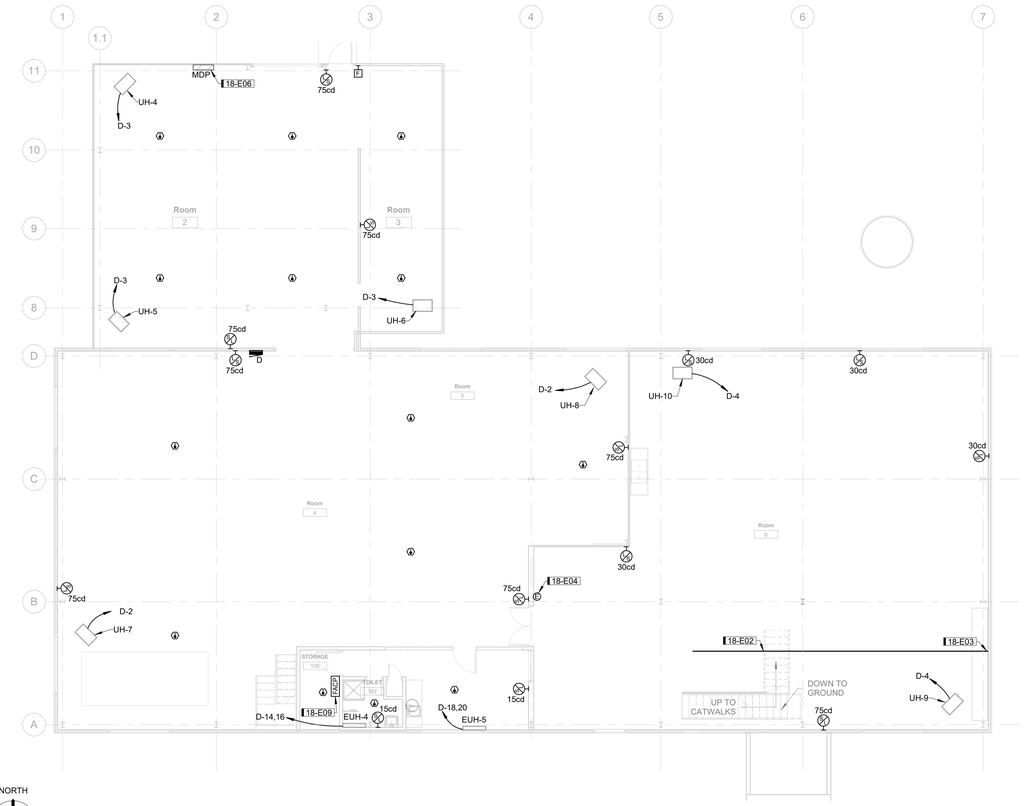
KEYNOTES	
KEY	NOTE
18-E02	
18-E03	
18-E04	
18-E06	
18-E09	



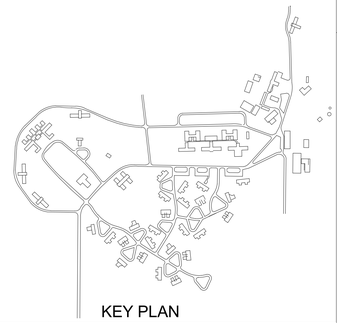
A3 MEZZANINE ABOVE OFFICE - NEW WORK PLAN

1/8" = 1'-0" 0 12'



A6 FIRST FLOOR ELECTRICAL SYSTEMS PLAN

1/8" = 1'-0" 0 12"



KEY PLAN

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FIRST FLOOR ELECTRICAL SYSTEMS PLAN

18-E101

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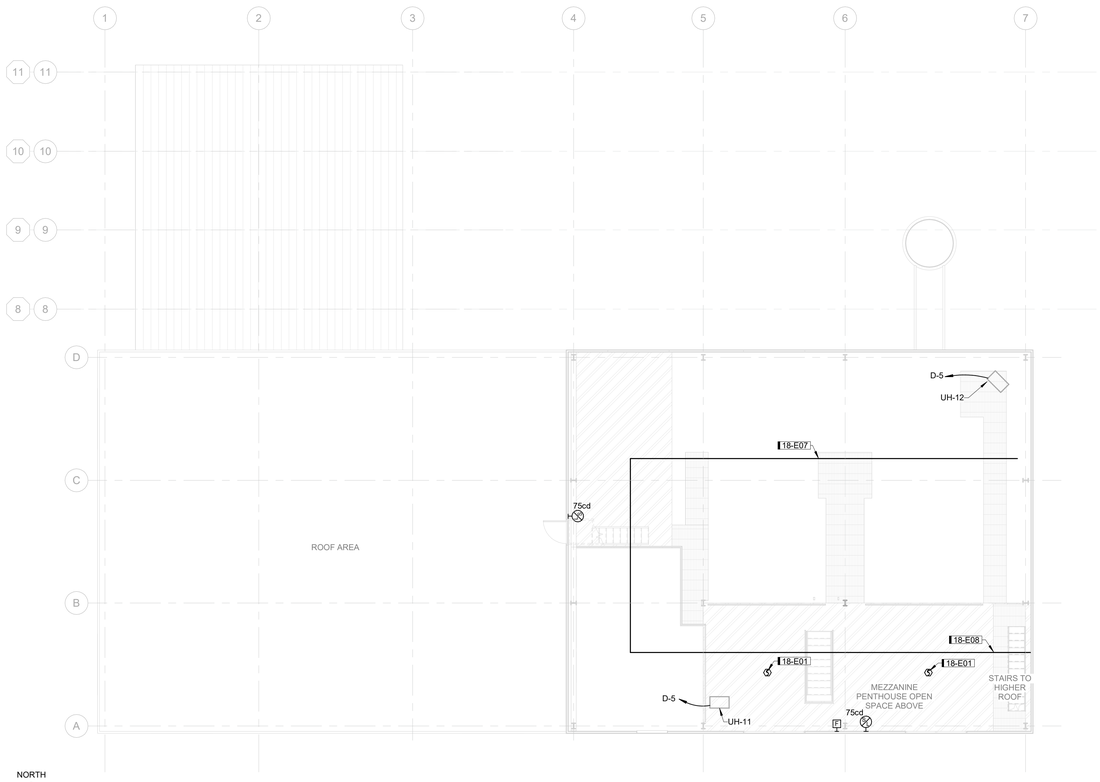
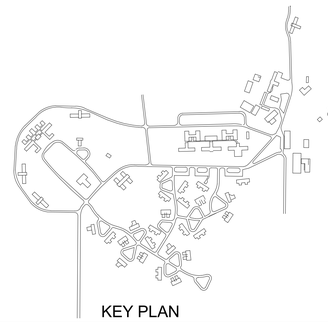
KEYNOTES	
KEY	NOTE
18-E01	
18-E07	
18-E08	



NORTH

A6 SECOND LEVEL ELECTRICAL SYSTEMS PLAN

1/8" = 1'-0" 0' 12'



KEY PLAN

SHIVEHATTERY
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4125 WESTOWN PKWY, SUITE 100
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WRC Decentralization Phase 4 & Fire Alarm Phase 3 (9279.40)

18 - POWER HOUSE

Iowa Department of Administrative Services
1251 334th St, Woodward, IA 50276

DRAWN BY	RML
APPROVED BY	KJB
ISSUED FOR	CONSTRUCTION
ISSUE DATE	2025-03-14
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SECOND AND THIRD FLOOR ELECTRICAL SYSTEMS PLAN

18-E102

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MECHANICAL AND ELECTRICAL COORDINATION SCHEDULE

GENERAL NOTES:

A. MOCP SIZES SHOWN BELOW ARE FOR BIDDING PURPOSES ONLY. VERIFY MOCP WITH EQUIPMENT NAME PLATE DATA PRIOR TO ORDERING EQUIPMENT.
B. MINIMUM WIRE SIZE SHALL BE #12 AWG AND MINIMUM CONDUIT SIZE SHALL BE 3/4".
C. INCLUDE A SEPARATE, GREEN, CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT CONDUITS.

ABBREVIATIONS:

EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
MFR - MANUFACTURER
TCC - TEMPERATURE CONTROL CONTRACTOR
OWN - OWNER

REMARKS:

1. XXX.
2. XXX.

MARK	VOLTAGE	PHASE	FLA	MCA	MOCP	HP	WATTAGE	KVA	CONDUIT AND WIRE SIZE	DISCONNECT TYPE	DISCONNECT FURNISHED / INSTALLED	REMARKS
EUH-1	208	1	7.2	9	20	-	1500	1.875	3#12 & #12G. - 3/4"	NF	EC	-
EUH-2	208	1	7.2	9	20	-	1500	1.875	3#12 & #12G. - 3/4"	NF	EC	-
EUH-4	208	1	14.4	18	20	-	3000	3.75	3#12 & #12G. - 3/4"	NF	EC	-
EUH-5	208	1	19.2	24	30	-	4000	5	3#12 & #10G. - 3/4"	NF	EC	-
EUH-6	208	1	38.5	48.1	50	-	8000	10	3#12 & #10G. - 1"	NF	EC	-
EUH-7	208	1	28.8	36.1	40	-	6000	7.5	3#8 & #10G. - 1"	NF	EC	-
EUH-8	208	1	28.8	36.1	40	-	6000	7.5	3#8 & #10G. - 1"	NF	EC	-
UH-1	120	1	1.8	2.3	20	1/4	216	0.216	2#12 &# 12G. - 3/4"	NF	MFR	-
UH-2	120	1	1.8	2.3	20	1/20	216	0.216	2#12 &# 12G. - 3/4"	NF	MFR	-
UH-3	120	1	1.8	2.3	20	1/20	216	0.216	2#12 & #12G. - 3/4"	NF	MFR	-
UH-4	120	1	1.8	2.3	20	1/20	216	0.216	2#12 & #12G. - 3/4"	NF	MFR	-
UH-5	120	1	1.8	2.3	20	1/20	216	0.216	2#12 & #12G. - 3/4"	NF	MFR	-
UH-6	120	1	1.8	2.3	20	1/4	216	0.216	2#12 & #12G. - 3/4"	NF	MFR	-
UH-7	120	1	5.8	7.3	20	1/4	696	0.696	2#12 & #12G. - 3/4"	NF	MFR	-
UH-8	120	1	5.8	7.3	20	1/4	696	0.696	2#12 & #12G. - 3/4"	NF	MFR	-
UH-9	120	1	5.8	7.3	20	1/4	696	0.696	2#12 & #12G. - 3/4"	NF	MFR	-
UH-10	120	1	5.8	7.3	20	1/4	696	0.696	2#12 & #12G. - 3/4"	NF	MFR	-
UH-11	120	1	5.8	7.3	20	1/4	696	0.696	2#12 & #12G. - 3/4"	NF	MFR	-
UH-12	120	1	5.8	7.3	20	1/4	696	0.696	2#12 & #12G. - 3/4"	NF	MFR	-

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
D	208Y/120	3	4	225 AMPS	225 A	22,000 AMPS SYMMETRICAL
	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN					MOUNTING: SURFACE
ROOM: Room 4						ENCLOSURE: NEMA 1
FED FROM: MDP						FEED:

LOAD	CODE	POLE	BKR	CKT #	A KVA	B KVA	C KVA	CKT #	BKR	POLE	CODE	LOAD
BASEMENT - UH-1, UH-2, UH-3		1	20 A	1	0.6 / 1.4			2	20 A	1		FIRST FLOOR - UH-7, UH-8
FIRST FLOOR - UH-4, UH-5,...		1	20 A	3		0.6 / 1.4		4	20 A	1		FIRST FLOOR - UH-9, UH-10
FIRST FLOOR - UH-11, UH-12		1	20 A	5			1.4 / 0.8	6	20 A	2		STORAGE B004 - EUH-2
LOCKERS & TOILETS B003 - EUH-1		2	20 A	7	0.8 / 0.8			8				
				9		0.8 / 4.0		10	50 A	2		RM B005 - EUH-6
GARAGE B006 - EUH-7		2	40 A	11			3.0 / 4.0	12				
				13	3.0 / 1.5			14	20 A	2		TOILET 107 - EUH-4
ASH REMOVAL AREA B009 - EUH-8		2	40 A	15		3.0 / 1.5		16				
				17			3.0 / 2.0	18	30 A	2		OFFICE 106 - EUH-5
				19	0.0 / 2.0			20				
				21				22				
				23				24				
				25				26				
				27				28				
				29				30				
				31				32				
				33				34				
				35				36				
				37				38				
				39				40				
				41				42				
			TOTAL LOAD:		10040.0 VA	11290.0 VA	14142.0 VA					
			TOTAL AMPS:		83.7 A	95.7 A	119.5 A					

LOAD CLASSIFICATION	CONNECTED LOAD (VA)	DEMAND FACTOR	ESTIMATED DEMAND (VA)	PANEL TOTALS
				TOTAL CONN. LOAD: 35472.0 VA
				TOTAL EST. DEMAND: 35472.0 VA
				TOTAL CONN. CURRENT: 98.5 A
				TOTAL EST. DEMAND CURRENT: 98.5 A

NOTES:

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ELECTRICAL SCHEDULES

18-E400

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