BOONE COUNTY HOSPITAL

BCH HELIPAD

1015 UNION ST. BOONE, IA 50036

INVISION:24003 BOONE COUNTY HOSPITAL

CONSTRUCTION DOCUMENTS 14 JUNE 2024

OWNER BOONE COUNTY HOSPITAL 1015 UNION ST. BOONE, IA 50036 515-432-3140 https://www.boonehospital.com/ STRUCTURAL RAKER RHODES ENGINEERING 4717 GRAND AVE. DES MOINES, IA 50312 515-277-0275 https://rakerrhodes.com/ <u>MEP</u> BLUESTONE ENGINEERING 5518 NW 88TH ST JOHNSTON, IA 5013 515-727-0700 https://bluestonemep.com/

INVISION:24003 BOONE COUNTY HOSPITAL ISSUE DATE:14 JUNE 2024 CONSTRUCTION DOCUMENTS PROJECT ARCHITECT: HEIDI WILLIS | HEIDIW@INVISIONARCH.COM

BCH HELIPAD

900 Mulberry St Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax

PLANNING | ARCHITECTURE | INTERIORS

BOONE COUNTY HOSPITAL BCH HELIPAD

1015 UNION ST. BOONE, IA 50036

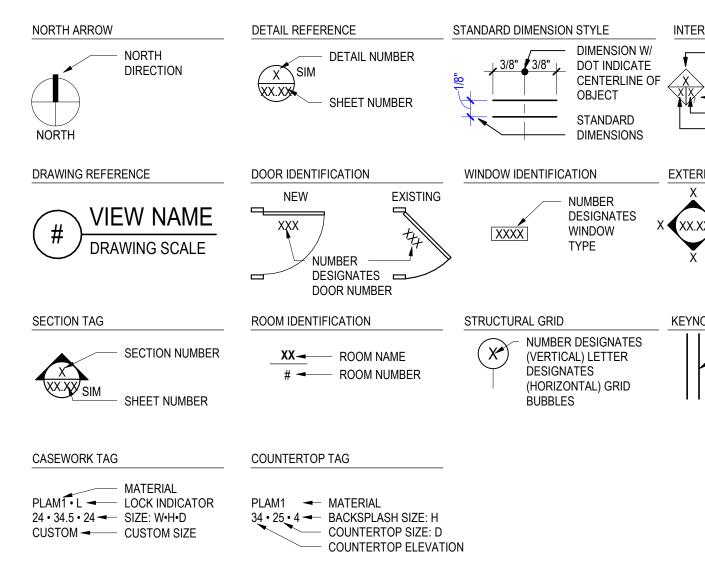
CONSTRUCTION DOCUMENTS 14 JUNE 2024



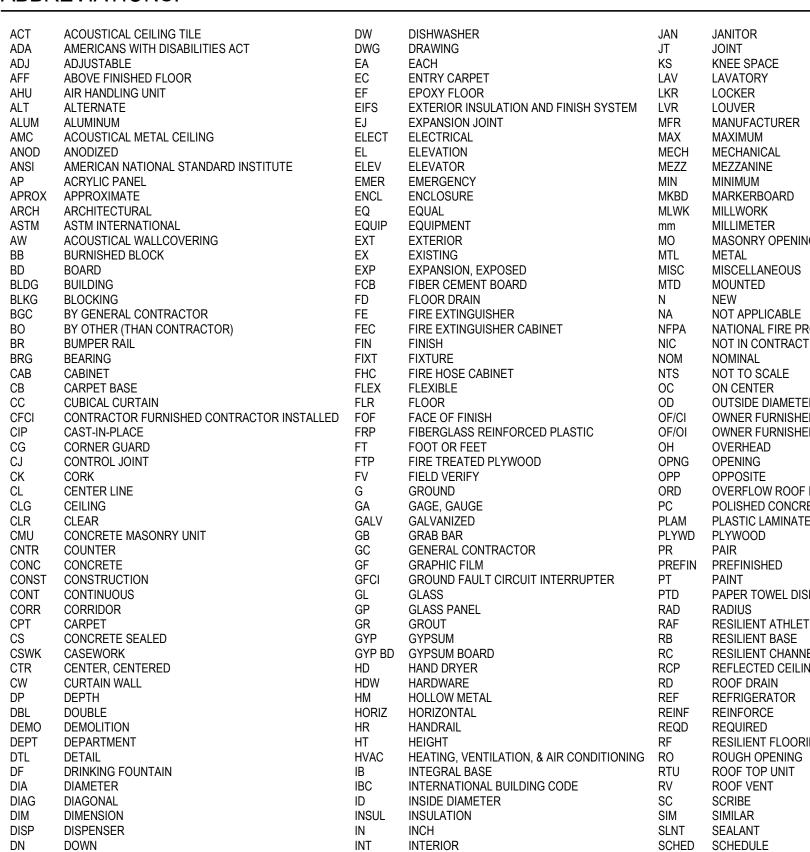
GENERAL NOTES:

- 1. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND ORDINANCES IN FORCE AT TIME OF CONSTRUCTION
- 2. VERIFY ALL DIMENSIONS, EXISTING AND NEW CONDITIONS ON THE JOB BEFORE PROCEEDING WITH THE WORK. DISCREPANCIES, IF ANY, ARE TO BE REFERRED TO THE ARCHITECT PRIOR TO START OF WORK.
- 3. UNLESS NOTED OTHERWISE, THE PLAN DIMENSIONS SHOWN ARE: A. TYPICALLY TO THE CENTERLINE OF STUD AT INTERIOR PARTITIONS B. TO THE FACE OF WALLS IN HALLWAYS SHOWING CLEAR WIDTHS C. TO THE FACE OF FURRED OUT WALLS D. TO THE FACE OF MASONRY OR FACE OF CONCRETE WHERE INDICATED (NOMINAL) E. IF DIMENSION POINT IS IN QUESTION, CONTACT ARCHITECT
- 4. DOORS NOT LOCATED BY DIMENSION ON PLANS OR DETAILS SHALL BE INSTALLED SUCH THAT THE DOOR, WHEN IN THE FULL OPEN POSITION AGAINST WALL STOP, IS PARALLEL TO ADJACENT WALL. COORDINATE WITH DOOR HARDWARE.
- CONDUITS, CABINETS AND EQUIPMENT, AND SHALL VERIFY SIZE AND LOCATION BEFORE PROCEEDING WITH WORK.
- LIKE ITEMS., AT ALL FIRE RATED BUILDING BUILDING COMPONENTS.
- 7. THE CONTRACTOR SHALL VERIFY ALL ROUGH-IN DIMENSIONS AND EQUIPMENT, FURNISHED AND INSTALLED BY HIMSELF/HERSELF OR OTHERS, PRIOR TO PROCEEDING WITH WORK. 8. REFER TO SPECIFICATIONS FOR ACCESS DOORS AND CONSULT WITH MECHANICAL CONTRACTOR FOR EXACT LOCATIONS OF ACCESS REQUIRED BY THEIR WORK. ACCESS MUST BE
- PROVIDED FOR ALL CONCEALED VALVES, DAMPER CONTROLS, FIRE DAMPER LINKAGE, ELECTRICAL JUNCTION BOXES, ETC. OBTAIN ARCHITECT'S APPROVAL IN LOCATING ALL ACCESS DOORS PRIOR TO INSTALLATION.
- THE ROOM FINISH SCHEDULE TO HAVE EXPOSED ROOF STRUCTURE.
- 10. SEE STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES AND SYMBOLS
- NEW OR FUTURE WORK INDICATED.
- 12. INTERIOR NONBEARING STUD PARTITIONS SHALL BE CONSTRUCTED PER WALL TYPES LOCATED ON A0.01 FOR ALL WALLS EXCEPT AS SPECIFICALLY NOTED OR DIMENSIONED OTHERWISE (SEE 1/8" SCALE FLOOR PLANS FOR SPECIFIC WALL TYPES).
- 13. PROVIDE CONSTRUCTION AND CONTROL JOINTS IN CONCRETE SLABS ON GRADE AS SHOWN OR DETAILED ON STRUCTURAL DRAWINGS, IF NOT SHOWN, PROVIDE JOINTING PLAN
- 14. ELECTRICAL OUTLETS AND COMMUNICATION RECEPTACLES SHOWN ON ARCHITECTURAL DRAWINGS DO NOT INCLUDE THE ENTIRE SCOPE OF WORK AND ARE SHOWN WHERE THERE MAY BE COORDINATION ISSUES WITH OTHER WORK. FOR FURTHER CLARIFICATION, CONSULT ELECTRICAL DRAWINGS.
- 15. ALL CONCEALED WOOD BLOCKING IN INTERIOR WALLS IS REQUIRED TO BE FIRE RETARDANT TREATED.

ARCHITECTURAL SYMBOLS:



ABBREVIATIONS:



5. CONTRACTORS SHALL CONSULT PLANS OF ALL TRADES FOR OPENINGS AND ROUGH-INS, ROUGH-OUTS THROUGH SLABS, WALLS, CEILINGS, AND ROOFS FOR DUCTS, PIPES,

6. PROVIDE FIRE RESISTIVE CLOSURE, MEETING THE REQUIREMENTS OF THE GOVERNING FIRE AUTHORITIES, AT ALL GAPS AROUND THE PENETRATING DUCT, PIPES, CONDUITS, OR

9. ALL PIPING, CONDUITS, DUCTS, ETC., SHALL BE FURRED-IN, IN ALL ROOMS EXCEPT ELECTRICAL CLOSETS, TELEPHONE CLOSETS, MECHANICAL ROOMS, AND ROOMS DESIGNATED IN

11. CONTRACTOR SHALL COORDINATE WITH ALL OWNER FURNISHED ITEMS AND PROVIDE ALL REQUIRED MECHANICAL AND ELECTRICAL CONNECTIONS, INCLUDING STUB OUTS FOR

SHEET INDEX:

0. GENERAL G0.00 COVER SHEET G0.01 TITLE SHEET G0.02 CODE REVIEW AND LIFE SAFETY 1. STRUCTURAL S1.01 STRUCTURAL NOTES SHEET - SEE THIS SHEET FOR STRUCTURAL SHEET INDEX AND STAMP 2. ARCHITECTURAL AD1.31 ROOF DEMOLITION PLAN A0.01 WALL TYPES, ASSEMBLIES, DETAILS A1.31 ROOF PLAN A5.01 DETAILS

3. MECHANICAL M1.01 MECHANICAL TITLE SHEET - SEE THIS SHEET FOR MECHANICAL SHEET INDEX AND STAMP

4. ELECTRICAL E1.01 ELECTRICAL TITLE SHEET - SEE THIS SHEET FOR ELECTRICAL SHEET INDEX AND STAMP

INTERIOR WALL IDENTIFICATION WALL TYPE

WALL TYPE

ADDITIONAL COMMENTS - INSULATION IDENTIFIER ----- FIRE RATING

EXTERIOR & INTERIOR ELEVATION - DENOTES ELEVATION SHOWN - SHEET NUMBER

FINISH TAG - NUMBER

DESIGNATES KEY NOTE

JAN JANITOR

KS

LAV

LKR

LVR

MFR

MAX

MIN

mm

MO

MTL

MISC

MTD

NFPA

NOM

NTS

OH

PT

PTD

RAF

RB

RF

RTU

RV

SC

SIM

RC

OPP

NIC

Ν

NA

JOINT

KNEE SPACE

MANUFACTURER

LAVATORY

LOCKER

LOUVER

MAXIMUM

MINIMUM

MILLIMETER

MOUNTED

METAL

NEW

NOMINAL

NOT TO SCALE

ON CENTER

OVERHEAD

OPPOSITE

PC POLISHED CONCRETE

PLAM PLASTIC LAMINATE

ORD OVERFLOW ROOF DRAIN

PAPER TOWEL DISPENSER

RESILIENT BASE

RCP REFLECTED CEILING PLAN

RESILIENT CHANNEL

RESILIENT FLOORING

ROOF TOP UNIT

ROOF VENT

SCRIBE

SIMILAR

SLNT SEALANT

SCHED SCHEDULE

OPNG OPENING

PLYWD PLYWOOD

RAD RADIUS

PREFIN PREFINISHED

RD ROOF DRAIN

REINF REINFORCE

REQD REQUIRED

REF REFRIGERATOR

PAINT

PR PAIR

MASONRY OPENING

MISCELLANEOUS

NOT APPLICABLE

NOT IN CONTRACT

OUTSIDE DIAMETER

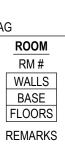
NATIONAL FIRE PROTECTION ASSOCIATION

MKBD MARKERBOARD

MECH MECHANICAL

MEZZ MEZZANINE

MLWK MILLWORK



SPOT ELEVATION ^{0"} 🕁

EXTERIOR WALL IDENTIFICATION

MATERIALS LEGEND:

0	FINISH CONTOURS
+	EXISTING CONTOURS
	EARTH
	GRAVEL
	BRICK
	CONCRETE
م بر	PARTICLE BOARD
	PRECAST CONCRETE
	RIGID INSULATION
	SPRAY INSULATION

GYPSUM BOARD PLYWOOD ACOUSTICAL BOARD MASONRY STEEL DIMENSION LUMBER ALUMINUM FINISH LUMBER

TOF TOS OF/CI OWNER FURNISHED, CONTRACTOR INSTALLED TP OF/OI OWNER FURNISHED, OWNER INSTALLED TPD ΤV TYP ΤZ RESILIENT ATHLETIC FLOORING

UL W/ WITH WB WBL

TILE BASE TROWELED CONCRETE TONGUE AND GROOVE THROUGH TACKABLE SURFACE TACKBOARD TILE T MOLDING TOP OF BEAM TOP OF CONCRETE TOP OF FOOTING TOP OF STEEL TOILET PARTITION TOILET PAPER DISPENSER TSTAT THERMOSTAT TELEVISION TYPICAL TERAZZO UNDERWRITERS LABORATORIES UNF UNFINISHED UNO UNLESS NOTED OTHERWISE VERT VERTICAL VEST VESTIBULE VIF VERIFY IN FIELD VTR VENT THOUGH ROOF VWP VINYL WALL PAD

SN STAIR NOSING

SPECD SPECIFIED

ST STAIR TREAD

STRUCT STRUCTURAL

SYMM SYMMETRICAL

TEMPERED

SURF SURFACE

SUSP SUSPEND

SQ SQUARE

STN STAIN

SR

SST

T&G

ΤK

ΤM

TOB

TOC

THRU

TKBD

SPEC SPECIFICATION

STAIR RISER

SSM SOLID SURFACE MATERIAL

STAINLESS STEEL

W/O WITHOUT WOOD BASE WOOD BLOCKING WC WALL COVERING WD WOOD WDSF WOOD SPORTS FLOORING WF WOOD FLOORING WP WALL PROTECTION WR WATER RESISTANT WSCT WAINSCOT WT WINDOW TREATMENT WWF WELDED WIRE FABRIC

WWM WELDED WIRE MESH

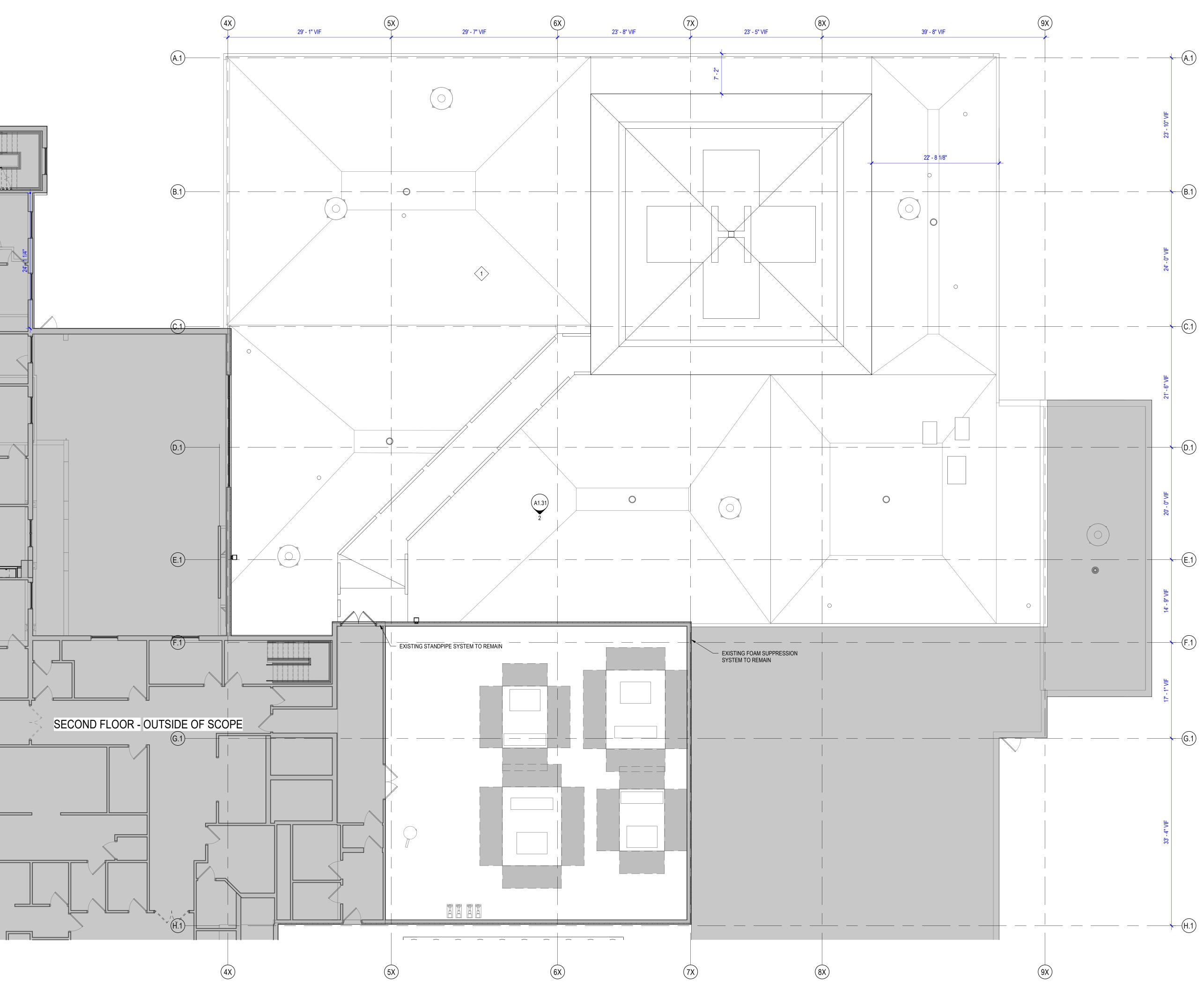
WOC WALK-OFF CARPET

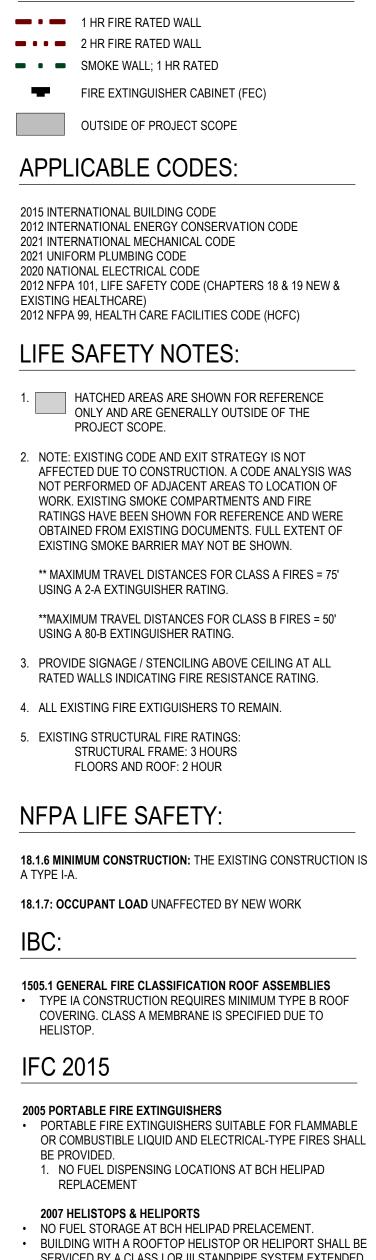
INVISION 900 Mulberry St Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE **ENGINEERING REVISIONS:** Description Date No. OWNER SIGN-OFF: NAME ST. ELIP 1015 UNION S BOONE, IA 50 $\mathbf{\alpha}$ PROJECT NO: 24003 DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS SHEET NAME: TITLE SHEET SHEET

PROP CONTENT VIEW 10 OR O Ŭ Z **G** 2 ш Σ SH S CONTE COLOR CONTAINS SHEET THIS

ERLY







LIFE SAFETY LEGEND:

- SERVICED BY A CLASS I OR III STANDPIPE SYSTEM EXTENDED TO THE ROOF LEVEL ON WHICH THE HELISTOP OR HELIPORT IS
- LOCATED.
- NOT LESS THAN ONE PORTABLE FIRE EXTINGUISHER HAVING A MINIMUM 80-B:C RATING SHALL BE PROVIDED FOR EACH TAKE OFF AND LANDING AREA.
- ON ALL SIDES HAVING A MINIMUM AVERAGE WIDTH AT ROOF LEVEL OF 15 FEET, BUT NO LESS THAN 5 FEET. THE CLEAR AREA SHALL BE MAINTAINED.

NFPA 99:

WORK IS BEING CONDUCTED ON THE ROOF TO REPLACE THE EXISTING HELIPAD AND ROOF MEMBRANE. PER NFPA 99, THE ROOF WOULD BE CLASSIFIED AS A CATEGORY 4 SPACE WHEREAS FAILURE OF THE DEPARTMENT DOESN'T HAVE IMPACT ON PATIENT CARE.

THE HOSPITAL IS UTILIZING A TEMPORARY HELISTOP OR THE LOCAL AIRPORT DURING THE CONSTRUCTION PROJECT TO PROVIDE PATIENT CARE AS NEEDED.

HELISTOPS SHALL HAVE A TOUCHDOWN AREA SURROUNDED



900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

REVISIONS: Description Date No.

NAME

OWNER SIGN-OFF:

DATE

HELIP ()മ



PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION

sheet name: CODE REVIEW AND LIFE SAFETY

SHEET: G0.02

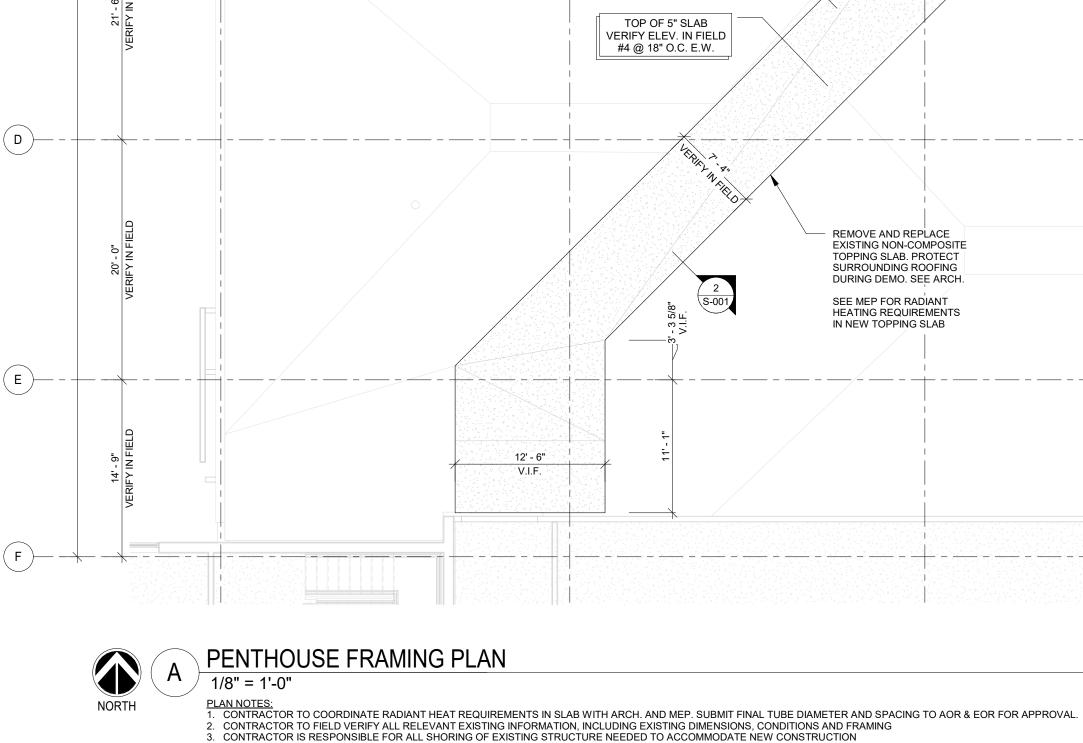
<u>GP</u> GP1	<u>GENERAL PARAMETERS</u> STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL, AND ELE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DRAWINGS INTO THEIR SHOP DRAWINGS AN	CTRICAL
GP2	VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO FABRICATION OF ANY ITEM	IS.
GP3	DRAWINGS SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL OPENINGS, ELEC COMPONENTS, FLOOR DEPRESSIONS, ETC. NOT SHOWN ON DRAWINGS. COORDINATE LOCATION, SIZE AND REINFORCEMENT OF ALL OPENINGS WIT RESPECTIVE TRADES BEFORE FABRICATION. REPORT ANY DISCREPANCIES INTERFERENCE PROBLEMS TO THE ARCHITECT AND STRUCTURAL ENGINEI RECORD.	TH S AND/OR
GP4	THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REF THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES A DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVEL GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE PROVIDE CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.	ND R THE
GP5	THE BUILDING IS NOT STRUCTURALLY STABLE UNTIL ALL CONNECTIONS, FF SHEAR WALLS, X-BRACING, AND EXTERIOR WALLS ARE COMPLETE AND HA ACHIEVED FINAL DESIGN STRENGTH. CONTRACTOR IS SOLELY RESPONSIB MAINTAINING STRUCTURAL STABILITY OVERALL AND TO ALL PORTIONS OF BUILDING DURING DEMOLITION, ERECTION AND CONSTRUCTION. TEMPORA GRAVITY AND LATERAL FORCE BRACING SYSTEMS THAT MAY BE REQUIRED BE DESIGNED BY, AND AT THE EXPENSE OF, THE CONTRACTOR. STRUCTUF DRAWINGS DO NOT NECESSARILY INDICATE ANY OR ALL REQUIRED TEMPO SUPPORT SYSTEMS. TEMPORARY BRACING SYSTEMS ARE NOT TO BE REM UNTIL STRUCTURAL WORK IS COMPLETE OR CONTRACTOR DEEMS THE AR UNDER CONSIDERATION TO BE STABLE.	VE LE FOR THE RY O WILL RAL OVED
GP6	CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.	
GP7	RETAINING WALLS AND BASEMENT WALLS WHICH TIE TO UPPER SLABS SH. BE BACKFILLED UNTIL THE UPPER SLABS REACH FULL DESIGN STRENGTH, ADEQUATE BRACING IS PROVIDED AT THE TOP OF THE WALL.	
GP8	AS USED IN GENERAL NOTES AND THROUGHOUT STRUCTURAL DRAWINGS TERM "CONTRACTOR" IS DEFINED TO INCLUDE ANY OR ALL OF THE FOLLOW GENERAL CONTRACTOR AND THEIR SUBCONTRACTORS, CONSTRUCTION MANAGER AND THEIR SUBCONTRACTORS, FABRICATORS, INSTALLERS, DEI DESIGNERS/ENGINEERS AND ERECTORS.	/ING:
<u>SU</u> SU1	SUBMITTALS GENERAL CONTRACTOR TO PROVIDE A SHOP DRAWING SUBMITTAL LOG IT ALL PROPOSED SUBMITTALS FOR APPROVAL BY STRUCTURAL ENGINEER C RECORD.	-
SU2	ALL SHOP DRAWINGS SHALL BE CHECKED BY THE FABRICATOR AND APPRO BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE STRUCTURA ENGINEER OF RECORD. SHOP DRAWING REVIEW BY ENGINEER IS LIMITED VERIFYING GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES FROM THE CONTRACT DOCUMENTS, DIMENSIONAL ERRORS, COORDINATION ERRORS, OR OMISSIONAL SHOP DRAWINGS.	L TO
SU3	SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION REGARDING ALL STRUCTURAL ITEMS, INCLUDING THE FOLLOWING: • CONCRETE MIX DESIGNS (5 DAYS BEFORE POUR, MIN.) • CONCRETE REINFORCEMENT	
SU4	SHOP DRAWINGS SHALL INCLUDE CONNECTIONS AS WELL AS SIZE, SPACIN GRADE OF ALL MEMBERS. PLANS AND ANY DETAILING NECESSARY FOR DETERMINING FIT AND PLACEMENT SHALL ALSO BE INCLUDED.	IG, AND
SU5	IF SHOP DRAWINGS DIFFER FROM OR ADD TO THE DESIGN OF THE STRUC DRAWINGS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF AN ENGINEEF REGISTERED IN THE APPROPRIATE STATE. ANY CHANGES TO THE STRUCT DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO	R JRAL
SU6	REVIEW AND APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD. DESIGN DRAWINGS, SHOP DRAWINGS, AND CALCULATIONS FOR THE DESIG FABRICATION OF ITEMS THAT ARE DESIGNED BY THE CONTRACTOR, INCLUI • TEMPORARY SHORING	
	SHALL BEAR THE SEAL AND SIGNATURE OF AN ENGINEER REGISTERED IN T APPROPRIATE STATE AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOF FABRICATION AND CONSTRUCTION. CALCULATIONS SHALL BE INCLUDED FO CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS OF STRUCTURAL ELEMENTS INDUCED BY THE CONNECTION LOADS.	r to Dr all
SU7	ITEMS THAT ARE DESIGNED BY THE CONTRACTOR SHALL BE DESIGNED TO THE LIVE LOADS INDICATED IN STRUCTURAL NOTES, DEAD LOAD, SELF WEI ANY ADDITIONAL LOADING INDICATED ON PLANS AND DETAILS, SNOW DRIF NET WIND UPLIFT.	GHT,
SU8	ITEMS THAT ARE DESIGNED BY THE CONTRACTOR SHALL INCLUDE ANY REI TECHNICAL LITERATURE FROM MANUFACTURER. ALSO PROVIDE A CERTIFIC FROM THE MANUFACTURER SHOWING THE PRODUCT IS IN COMPLIANCE W APPLICABLE CODES AND STANDARDS.	CATION
SU9	THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANI PLUMBING, AND ELECTRICAL EQUIPMENT, MACHINERY, AND ASSOCIATED P WITH THE STRUCTURE. ANY CONNECTIONS TO STRUCTURE SHALL CONFOR ASCE 7, CHAPTER 13 AND SHALL BE DESIGNED BY AN ENGINEER REGISTER THE APPROPRIATE STATE, AND SHALL BE SUBMITTED TO THE ARCHITECT F TO FABRICATION.	PIPING RM TO RED IN
SU10	FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DIFF FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AN SIGNATURE OF AN ENGINEER REGISTERED IN THE APPROPRIATE STATE AN SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.	D
<u>SP</u> SP1 SP2	SPECIAL INSPECTION SPECIAL INSPECTION PROGRAM SHALL CONFORM TO CHAPTER 17 OF THE THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR TO PERFORM THE REQ TESTS AND SPECIAL INSPECTIONS WITH QUALIFICATIONS DESCRIBED PER CHAPTER 17 AND THE PROJECT SPECIFICATIONS.	UIRED IBC
SP3 SP4	SPECIAL INSPECTION REPORTS SHALL BE FURNISHED TO BUILDING OFFICI/ OWNER, ARCHITECT, STRUCTURAL ENGINEER, AND CONTRACTOR. SPECIAL INSPECTOR SHALL SUBMIT A FINAL REPORT STATING THAT THE STRUCTURAL WORK WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S	ΑL,
SP5	KNOWLEDGE, PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.	
		FREQUENC
	ATION AND INSPECTION ETE	/ TASK
1. INSP	ETE ECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, RIFY PLACEMENT.	PERIODIC
2. INSP	ECT REINFORCING BAR WELDING:	
	RIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. SPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16".	PERIODIC PERIODIC
C. IN	SPECT ALL OTHER WELDS.	CONT.
-	ECT ANCHORS CAST IN CONCRETE. ECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS:	PERIODIC
	DHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED RIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	CONT.
	ECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A. FY USE OF REQUIRED DESIGN MIX.	PERIODIC
6. PRIC	R TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH S. PERFORM SLUMP & AIR CONTENT TESTS AND DETERMINE CONCRETE	CONT.
TEM	S, PERFORM SLUMP & AIR CONTENT TESTS AND DETERMINE CONCRETE PERATURE. ECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	CONT.
8. VERI	FY MAINTENANCE OF SPECIFIED CURING TEMPERATURE & TECHNIQUES.	PERIODIC
-	PECT PRECAST CONCRETE FOR: PLICATION OF PRESTRESSING FORCES.	CONT.
	ROUTING OF BONDED PRESTRESSING TENDONS.	CONT.
11. VER	PECT ERECTION OF PRECAST CONCRETE MEMBERS. IFY OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF	PERIODIC PERIODIC
TEN	DONS IN POST TENSIONED CONCRETE & PRIOR TO REMOVAL OF RES & FORMS FROM BEAMS & STRUCTURAL SLABS.	

			,
	CN8	SPECIAL	INSPECTOR SHALL BE NOTIFIED IF ANY WATER IS TO BE ADDED IN FIELD.
, AND	CN9	NOT USE	D
	CN10	NOT USE	D
IRAL	CN11	NOT USE	D
RAL	CN12	SLAB CO CN12.1	NTROL JOINTS: PROVIDE SLAB CONTROL JOINTS FOR THE FOLLOWING, U.N.O.: • PRECAST TOPPING SLABS (NON-COMPOSITE)15' ± 3'
AND NG:		CN12.2 CN12.3 CN12.4	PROVIDE SLAB CONTROL JOINTS ON GRID LINÉ WHERE PRACTICAL. MAINTAIN A SLAB CONTROL JOINT ASPECT RATIO OF APPROXIMATELY 1:1. DO NOT PROVIDE SLAB CONTROL JOINTS FOR THE FOLLOWING, U.N.O.: • COMPOSITE PRECAST TOPPING SLAB
E O	CN13	NOT USE	D
R ALL	CN14	CONCRE CN14.1	TE ACCESSORIES: U.N.O., HEADED SHEAR STUDS TO BE NELSON HEADED ANCHORS WITH FLUXED ENDS OR APPROVED EQUIVALENT AND SHALL BE
ESIST HT, AND A		CN14.2	AUTOMATICALLY END WELDED BY UTILIZING THE MANUFACTURER'S STANDARD EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. U.N.O., DEFORMED BAR ANCHORS (D.B.A.) SHALL BE NELSON, TYPE D2L,
VANT		CN14.3	OR APPROVED EQUIVALENT AND SHALL BE AUTOMATICALLY END WELDED BY UTILIZING THE MANUFACTURER'S STANDARD EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
H ALL		CN 14.5	U.N.O., EXPANSION BOLTS TO BE HILTI KWIK BOLT TZ OR APPROVED EQUIVALENT WITH EQUAL ICC TENSION AND SHEAR VALUES. EXPANSION ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN
ING 4 TO D IN IOR		CN14.4	NEW OR EXISTING CONCRETE DURING INSTALLATION. U.N.O., EPOXY ANCHORS TO BE HILTI HIT-RE 500 V3 OR APPROVED EQUIVALENT WITH EQUAL ICC TENSION AND SHEAR VALUES. EPOXY ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION.
R	CN15	GALVAN	ENTLY EXPOSED EMBEDDED PLATES AND ANGLES TO BE HOT-DIP ZED AFTER FABRICATION, U.N.O. NO LOADS OR WELDS SHALL BE PLACED EDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING.
	CN16	NOT USE	D
C. RED C	CN17	COMPON THE EPO MINIMUM SHALL BI COMPLIA	REPAIR ADHESIVE SHALL CONFORM TO ASTM C881 AND SHALL BE A TWO- IENT, LIQUID EPOXY WITH NON-SAG CONSISTENCY AND A LONG POT LIFE. IXY ADHESIVE SHALL BE SUITABLE FOR USE IN DRY OR DAMP CONDITIONS. I SHEAR STRENGTH SHALL BE 5,000 PSI; MINIMUM TENSILE STRENGTH E 4,000 PSI. HOLE SIZES AND INSTALLATION SHALL BE IN STRICT INCE WITH THE APPROVED ICC REQUIREMENTS. DO NOT CUT RCING IN NEW OR EXISTING CONCRETE DURING PLACEMENT.
,	CN18	COLD WE CN18.1 CN18.2 CN18.3	EATHER PROTECTION DURING COLD WEATHER CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR PROTECTING CURING CONCRETE PER THE RQMTS. OF ACI 306. DURING COLD WEATHER CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR PROTECTING FOUNDATIONS THAT DO NOT EXTEND TO FROST DEPTH FROM HEAVING. AT CONTRACTOR'S OPTION, BOTTOM OF FOOTINGS MAY BE EXTENDED BEYOND THE FROST ZONE, IN LIEU OF SURFACE PROTECTION METHODS. NO ADD'L REINFORCING WILL BE REQ'D AT EXTENDED FOUNDATIONS. ALL MITIGATION WORK SHALL BE PART OF THE CONTRACTOR BID AND NOT COMPENSIBLE BY CHANGE ORDER. CONTRACTOR TO PROVIDE A FROST STOOP PER TYP. STOOP DETAIL @ ALL EXTERIOR DOORS, SEE ARCH. FOR DOOR LOCATIONS.
FREQUENCY / TASK	CN19	EXPOSE CN19.1	D CONCRETE: WHERE SLAB ON GRADE, SLAB, OR TOPPING SLAB IS PERMANENTLY EXPOSED TO VIEW, SLAB SHALL BE WET CURED. SEE ARCH. FOR
PERIODIC		CN19.2	LOCATIONS. SEE SPECIFICATIONS FOR WET CURING INFORMATION. WHERE PERMANENTLY EXPOSED TO VIEW, ALL CONCRETE CONTROL
		CN19.3	JOINTS & COLD JOINTS SHALL BE COORDINATED WITH THE ARCHITECT. CONTRACTOR SHALL PARTICIPATE IN A PRE-CONSTRUCTION MEETING
PERIODIC			PRIOR TO ANY CONCRETE POURS WHERE THE CONCRETE SHALL BE PERMANENTLY EXPOSED TO VIEW.
PERIODIC		CN19.4	CONCRETE MIXES USED FOR CONCRETE SURFACES PERMANENTLY EXPOSED TO VIEW SHALL NOT INCLUDE DELETERIOUS MATERIAL WHICH
CONT.		CN19.5	MAY CAUSE FINISHED SURFACE IRREGULARITIES. CONCRETE FINISHES PERMANENTLY EXPOSED TO VIEW SHALL BE
PERIODIC			PLACED AND FINISHED ACCORDING TO ACI 347.3R.
CONT.			
PERIODIC			
PERIODIC CONT.			
CONT.			
DEDIGESS			

TENDONS IN POST TENSIONED CONCRETE & PRIOR TO REMOVAL OF SHORES & FORMS FROM BEAMS & STRUCTURAL SLABS. 2. INSPECT FORMWORK FOR SHAPE, LOCATION & DIMENSIONS OF THE PERIODIC CONCRETE MEMBER BEING FORMED. PROGRAM FOOTNOTES
1. THE ITEMS INDICATED ABOVE SHALL BE INSPECTED IN ACCORDANCE WITH CHAPTER 17 OF THE IBC BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS, REFER TO THE PROJECT SPECIFICATIONS

& THE SPECIFIC STRUCTURAL NOTES SECTIONS. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING & INSPECTION REPORTS DIRECTLY TO THE ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR, & BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. SPECIAL INSPECTION TESTING REQUIREMENTS APPLY EQUALLY TO ALL BIDDER DESIGNED COMPONENTS. 2. CONT. - CONTINUOUS SPECIAL INSPECTION. SPECIAL INSPECTOR IS PRESENT WHEN & WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED. (IBC SECTION 1702). 3. PERIODIC - PERIODIC SPECIAL INSPECTION. SPECIAL INSPECTOR IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED. OBSERVE - SPECIAL INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS (AISC 360 SECTION N5).
 PERFORM - SPECIAL INSPECTOR SHALL PERFORM THESE TASKS FOR EACH JOINT, CONNECTION, ELEMENT OR MEMBER (AISC 360 SECTION N5). 6. SPECIAL INSPECTION IS NOT REQUIRED FOR WORK PERFORMED BY AN APPROVED FABRICATOR (IBC SECTION 1704.2.2).

<u>CN</u>		TE NOTES_
CN1 CN2	WHERE I	TE WORK SHALL CONFORM TO CHAPTER 19 OF THE IBC. NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING
	AMPLITU	
CN3	ALL EXPO	OSED EDGES OF CONCRETE MEMBERS SHALL BE CHAMFERED 3/4" U.N.O.
CN4	CONCRE CN4.1	TE FORMWORK: SLEEVES, OPENINGS, CONDUIT, AND OTHER EMBEDDED ITEMS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO POURING CONCRETE. CONDUITS EMBEDDED IN SLABS SHALL NOT BE LARGER IN OUTSIDE DIMENSION THAN ONE THIRD OF THE THICKNESS OF THE SLAB AND SHALL NOT BE SPACED CLOSER THAN THREE DIAMETERS ON CENTER.
	CN4.2	VERIFY ALL BLOCK OUTS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING REQUIREMENTS PRIOR TO POURING.
CN5	CONCRE CN5.1	TE REINFORCEMENT: DETAILING, FABRICATION, AND PLACEMENT OF REINFORCEMENT SHALL
	CN5.2	CONFORM TO ACI-315. ALL REINFORCEMENT TO BE ASTM A615 GRADE 60 U.N.O. WELDED WIRE FABRIC TO BE ASTM A185 WITH WIRE CONFORMING TO ASTM A82. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE USING #16 ANNEALED IRON WIRE. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS, U.N.O.
	CN5.3	ALL CONTINUOUS REINFORCING SHALL BE SPLICED USING CLASS B TENSION SPLICES, U.N.O.
	CN5.4	BARS IN BEAMS AND SLABS SHALL BE SUPPORTED ON WELL-CURED CONCRETE BLOCKS OR APPROVED METAL CHAIRS, AS SPECIFIED BY THE
	CN5.5	CRSI MANUAL OF STANDARD PRACTICE, MSP-1. CONTINUE HORIZONTAL WALL BARS THROUGH PILASTERS, COLUMNS, INTERSECTING WALLS AND INTERSECTING FOUNDATIONS. REFER TO TYPICAL DETAILS FOR LAYOUT OF CORNER BARS AND BARS IN SMALL WALL SECTIONS. SLAB BARS SHALL BE HOOKED INTO WALLS OR HOOKED DOWELS SHALL BE PROVIDED TO MATCH SLAB REINFORCING. PROVIDE HOOKED DOWELS FROM FOOTINGS TO MATCH VERTICAL WALL REINFORCING.
	CN5.6	ADD TWO DIAGONAL #5 BARS, FOUR FEET LONG, CENTERED, AT EACH CORNER OF FOUNDATION OR SLAB OPENING, U.N.O.
	CN5.7	U.N.O., INSTALL WWF 1 1/2" FROM TOP OF ALL SLABS ON GRADE, TOPPING SLABS ON DECK, OR TOPPING SLABS ON PRECAST. LAP JOINTS TWO FULL MESHES BUT NOT LESS THAN 8". AT CONSTRUCTION JOINTS, LOCATE WWF AT MID DEPTH OF SLAB.
CN6	COVERA CN6.1	GE FOR REINFORCEMENT: CONCRETE CAST AGAINST AND
	CN6.2	PERMANENTLY EXPOSED TO EARTH
	CN6.3	AND SMALLER
		SLABS, WALLS, JOISTS: #14 AND # 181 1/2" #11 BAR AND SMALLER
		BEAMS, COLUMNS: PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS
CN7	28-DAY C	TE COMPRESSIVE STRENGTHS SHALL BE VERIFIED BY STANDARD SYLINDER TESTS PER ASTM C39 AND SHALL BE AS FOLLOWS: S SLABS
CN8	SPECIAL	INSPECTOR SHALL BE NOTIFIED IF ANY WATER IS TO BE ADDED IN FIELD.
CN9	NOT USE	D
CN10	NOT USE	D
CN11	NOT USE	D
CN12	SLAB CO CN12.1	NTROL JOINTS: PROVIDE SLAB CONTROL JOINTS FOR THE FOLLOWING, U.N.O.: • PRECAST TOPPING SLABS (NON-COMPOSITE)15' ± 3'
	CN12.2 CN12.3 CN12.4	PROVIDE SLAB CONTROL JOINTS ON GRID LINÉ WHERE PRACTICAL. MAINTAIN A SLAB CONTROL JOINT ASPECT RATIO OF APPROXIMATELY 1:1. DO NOT PROVIDE SLAB CONTROL JOINTS FOR THE FOLLOWING, U.N.O.: • COMPOSITE PRECAST TOPPING SLAB
CN13	NOT USE	D
CN14	CONCRE CN14.1	TE ACCESSORIES: U.N.O., HEADED SHEAR STUDS TO BE NELSON HEADED ANCHORS WITH FLUXED ENDS OR APPROVED EQUIVALENT AND SHALL BE AUTOMATICALLY END WELDED BY UTILIZING THE MANUFACTURER'S
	CN14.2	STANDARD EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. U.N.O., DEFORMED BAR ANCHORS (D.B.A.) SHALL BE NELSON, TYPE D2L, OR APPROVED EQUIVALENT AND SHALL BE AUTOMATICALLY END
	CN14.3	WELDED BY UTILIZING THE MANUFACTURER'S STANDARD EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. U.N.O., EXPANSION BOLTS TO BE HILTI KWIK BOLT TZ OR APPROVED EQUIVALENT WITH EQUAL ICC TENSION AND SHEAR VALUES. EXPANSION ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH
	CN14.4	MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION. U.N.O., EPOXY ANCHORS TO BE HILTI HIT-RE 500 V3 OR APPROVED EQUIVALENT WITH EQUAL ICC TENSION AND SHEAR VALUES. EPOXY ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION.
CN15	GALVANI	ENTLY EXPOSED EMBEDDED PLATES AND ANGLES TO BE HOT-DIP ZED AFTER FABRICATION, U.N.O. NO LOADS OR WELDS SHALL BE PLACED EDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING.
CN16	NOT USE	D
CN17	COMPON THE EPO MINIMUM SHALL BI COMPLIA	REPAIR ADHESIVE SHALL CONFORM TO ASTM C881 AND SHALL BE A TWO- IENT, LIQUID EPOXY WITH NON-SAG CONSISTENCY AND A LONG POT LIFE. XY ADHESIVE SHALL BE SUITABLE FOR USE IN DRY OR DAMP CONDITIONS. I SHEAR STRENGTH SHALL BE 5,000 PSI; MINIMUM TENSILE STRENGTH E 4,000 PSI. HOLE SIZES AND INSTALLATION SHALL BE IN STRICT INCE WITH THE APPROVED ICC REQUIREMENTS. DO NOT CUT CING IN NEW OR EXISTING CONCRETE DURING PLACEMENT.
CN18		EATHER PROTECTION DURING COLD WEATHER CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR PROTECTING CURING CONCRETE PER THE RQMTS. OF ACI 306.
	CN18.2	FOR PROTECTING CORING CONCRETE PER THE RQMTS. OF ACT 306. DURING COLD WEATHER CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR PROTECTING FOUNDATIONS THAT DO NOT EXTEND TO FROST DEPTH FROM HEAVING. AT CONTRACTOR'S OPTION, BOTTOM OF FOOTINGS MAY



(4

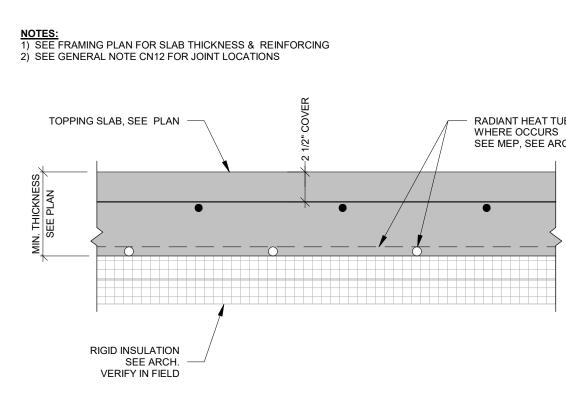
(B)—

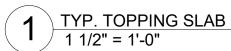
(c)—

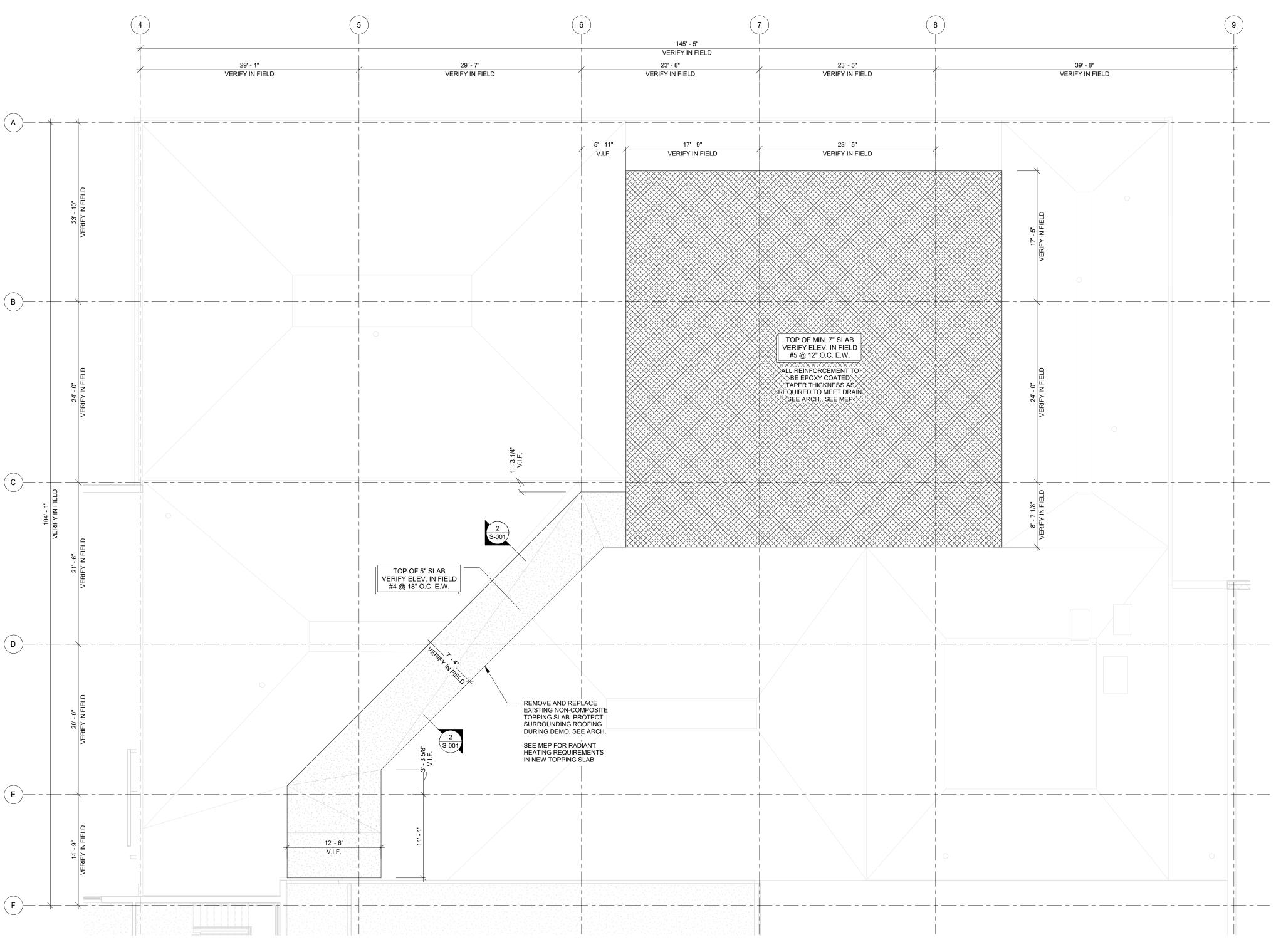
(5

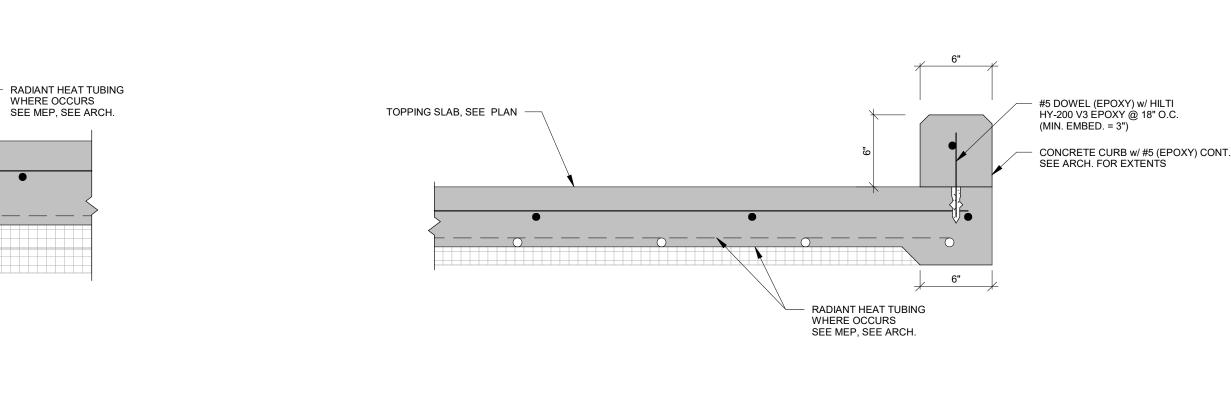
29' - 1"

VERIFY IN FIELD

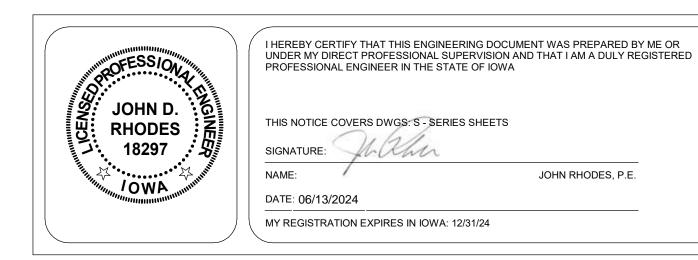




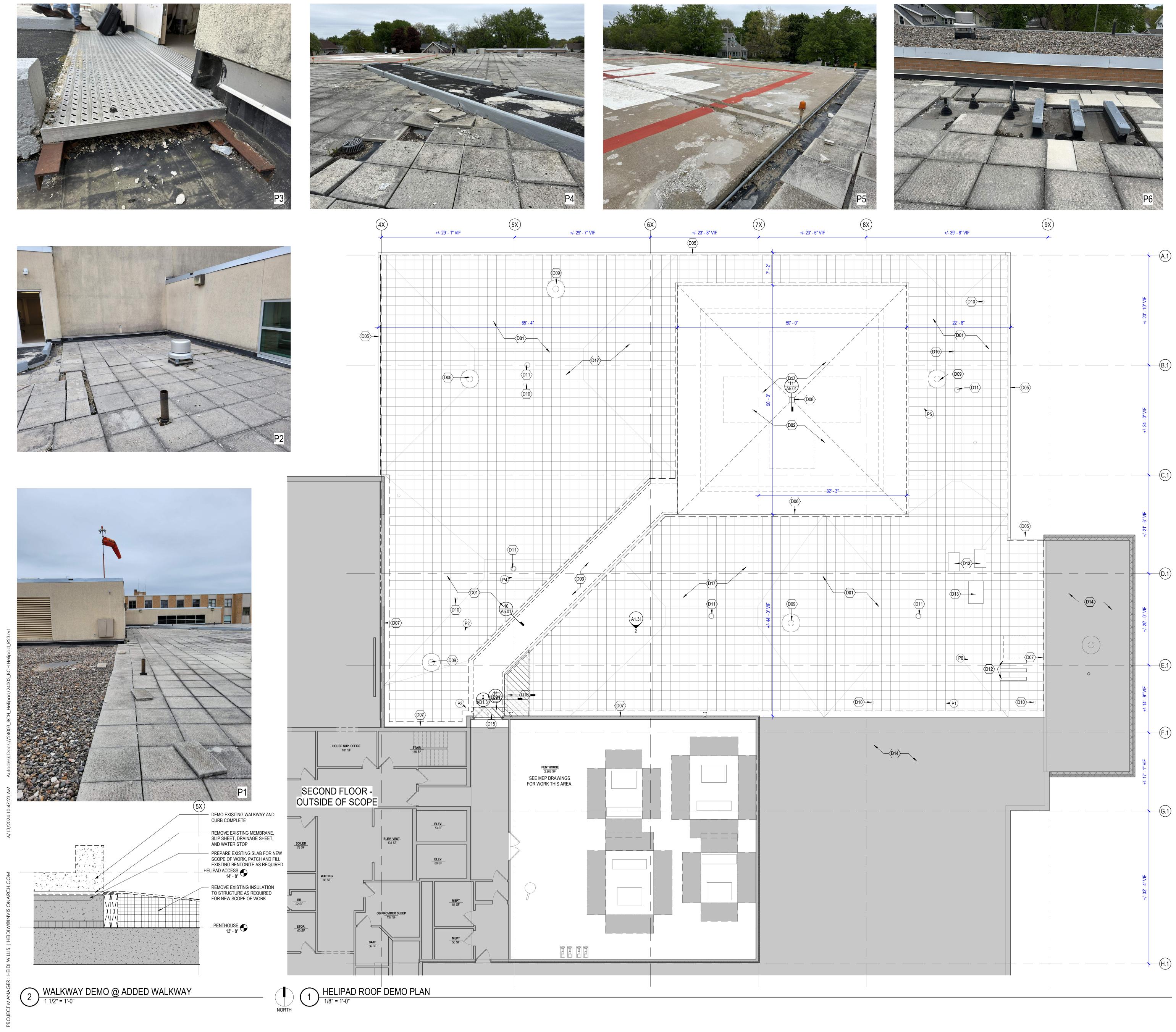




2 <u>TYP. WALKWAY CURB</u> 1 1/2" = 1'-0"



INVISION 9 900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 www.invisionarch.com _ _ __ CONSULTANT: <u>STRUCTURAL</u> RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING **REVISIONS:** Description Date No. **OWNER SIGN-OFF:** NAME \square 4 ST. HELIP, UNION (NE, IA 50 Т 1015 BOOI \bigcirc В PROJECT NO: 24003 DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS Sheet Name: STRUCTURAL NOTES & plans SHEET: S-0(





GENERAL DEMOLITION PLAN NOTES:

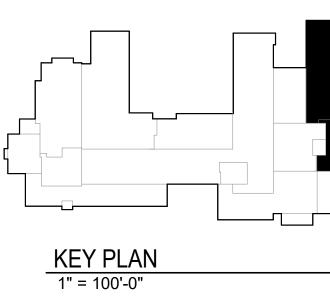
- HATCHED AREAS ARE SHOWN FOR REFERENCE ONLY AND ARE GENERALLY OUTSIDE OF PROJECT SCOPE.
- 2. EXISTING ROOM NUMBERS AND NAMES SHOWN ON DEMOLITION PLANS. SEE NEW WORK PLANS FOR NEW ROOM NUMBERS AND NAMES.
- 3. DASHED LINES INDICATE ITEMS TO BE REMOVED. PATCH AND REPAIR ALL ADJACENT SURFACES TO MATCH EXISTING SURFACE.
- 4. SEE ALL OTHER DISCIPLINES SHEETS FOR ADDITIONAL DEMOLITION.
- 5. REFER TO FLOOR PLANS FOR DIMENSIONS OF NEW OPENINGS NOT DIMENSIONS ON THE DEMOLITION SHEETS.
- 6. PROTECT ALL ITEMS / SURFACES "TO REMAIN" DURING DEMOLITION / CONSTRUCTION. REPAIR / REPLACE ALL ITEMS DAMAGED DURING DEMOLITION / CONSTRUCTION.
- 7. PATCH SURFACES TO MATCH ADJACENT SURFACES AT ALL REMOVED (ALL DISCIPLINES) DEVICES.
- SURFACE TEXTURE OF ALL WALL PATCHES / INFILL TO MATCH ADJACENT EXISTING SURFACES BLEND NEW WALL TEXTURE INTO EXISTING WALL TEXTURE FOR UNIFORM FINISH / APPEARANCE. REPAINT ENTIRE WALL.
- 9. ANY EQUIPMENT USED FOR DEMOLITION ON THE ROOF NEEDS TO BE APPROVED BY THE DESIGN TEAM FOR REVIEW OF EQUIPMENT WEIGHT AND PATH OF USE.

ROOF DEMO NOTES

А.	HATCHED AREAS ARE SHOWN FOR REFERENCE OF GENERALLY OUTSIDE OF PROJECT SCOPE.
B.	ROOF PLAN LAYOUT, LOCATIONS, SECTIONS AND TAKEN FROM EXISTING BUILDING PLANS AND FIE OBSERVATIONS. THE CONTRACTOR SHALL FIELD CONDITIONS PRIOR TO THE START OF CONSTRUCT
C.	 EXISTING ROOFING SYSTEM ARE BELIEVED TO CO FOLLOWING (ALL ROOF AREAS UNLESS NOTED O' A. EXISTING ROOF IN SCOPE BOUNDARIES: a. CONCRETE PAVER b. EPDM ROOFING SYSTEM c. POLY-ISO INSULATION (4" MIN, 6" AVERAGE B. EXISTING BALLASTED ROOF a. BALLAST ROCK b. EPDM ROOFING SYSTEM c. POLY-ISO INSULATION (4" MIN, 6" AVERAGE
D.	REFER TO MECHANICAL, PLUMBING, AND ELECTR FOR ADDITIONAL DEMOLITION NOTES.
E.	PROTECT ALL ITEMS / SURFACES TO REMAIN DUP DEMOLITION / CONSTRUCTION. REPAIR / REPLACE SURFACES DAMAGED DURING DEMOLITION / CON MATCH EXISTING CONDITIONS.
W	ALL LEGEND:

EXISTING WALL

	DEMO WALL
	DEMO KEYNOTES
#	DISCRIPTION
D01	REMOVE EXISTING CONCRETE ROOF PAVERS COMPLETE.
D02	DEMO EXISTING CONCRETE HELIPAD (6" CONCRETE SLAB). PROTECT EXISTING SLAB TO REMAIN BELOW ROOF MEMBRANE. NOTIFY DESIGN TEAM & CM IF THERE APPEARS TO BE DAMAGE/DEGRADATION TO SLAB BELOW EXISTING ROOF MEMBRANE.
D03	DEMO EXISTING 6" CONCRETE WALKWAY AND CURB. PROTECT EXISTING SLAB TO REMAIN BELOW ROOF MEMBRANE. NOTIFY DESIGN TEAM & CM IF THERE APPEARS TO BE DAMAGE/DEGRADATION TO SLAB BELOW EXISTING ROOF MEMBRANE.
D04	REMOVE EXISTING GRATING AND ANGLE SUPPORT.
D05	REMOVE EXISTING PREFINISHED SHEET METAL COPING.
D06	SEE MEPT PLANS AND SPECIFICATIONS FOR DEMOLITION OF EXISTING FIXTURES.
D07	EXISTING SHEET METAL FLASHING TO REMAIN.
D08	REFER TO PLUMBING DWGS FOR EXTENT OF REMOVAL OF EXISTING DRAIN AND GRATE.
D09	EXISTING EXHAUST VENT - SEE MECH PROTECT DURING CONSTRUCTION.
D10	EXISTING PLUMBING VENT - SEE PLUMBING - PROTECT DURING CONSTRUCTION.
D11	EXISTING ROOF DRAIN - PROTECT DURING CONTSTRUCTION.
D12	DEMO EXISTING CURB.
D13	EXISTING RTU - PROTECT DURING CONSTRUCTION
D14	EXISTING BALLASTED ROOF TO REMAIN.
D15	EXISTING DOOR TO REMAIN. REMOVE AND REINSTALL DOOR THRESHOLD AS REQUIRED FOR SCOPE OF WORK.
D16	REMOVE PORTION OF EXISTING INSULATION TO PRECAST. PREPARE FOR NEW SCOPE OF WORK.
D17	REMOVE EXISTING EPDM MEMBRANE IN AREA OF SCOPE OF WORK INCLUDING BELOW PAVERS, HELIPAD, AND WALKWAY AS REQUIRED FOR ROOF REPLACEMENT.



ONLY AND ARE

ID DETAILS WERE FI D D VERIFY ALL UCTION .

CONSIST OF THE DTHERWISE):

TRICAL SHEETS

RING ACE ALL ITEMS / ONSTRUCTION TO

ËS
TION
OF PAVERS COMPLETE.
AD (6" CONCRETE SLAB). IN BELOW ROOF MEMBRANE. RE APPEARS TO BE BELOW EXISTING ROOF
KWAY AND CURB. PROTECT ROOF MEMBRANE. NOTIFY ARS TO BE
ELOW EXISTING ROOF
NGLE SUPPORT.
HEET METAL COPING.
IONS FOR DEMOLITION OF
TO REMAIN.
XTENT OF REMOVAL OF
CH PROTECT DURING
UMBING - PROTECT DURING
DURING CONTSTRUCTION.
CONSTRUCTION
MAIN.
VE AND REINSTALL DOOR





900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 www.invisionarch.com

CONSULTANT: <u>STRUCTURAL</u> RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

REVISIONS: Description Date No.

OWNER SIGN-OFF:

NAME

HELIP \bigcirc В

1015 UNION ST. BOONE, IA 50036

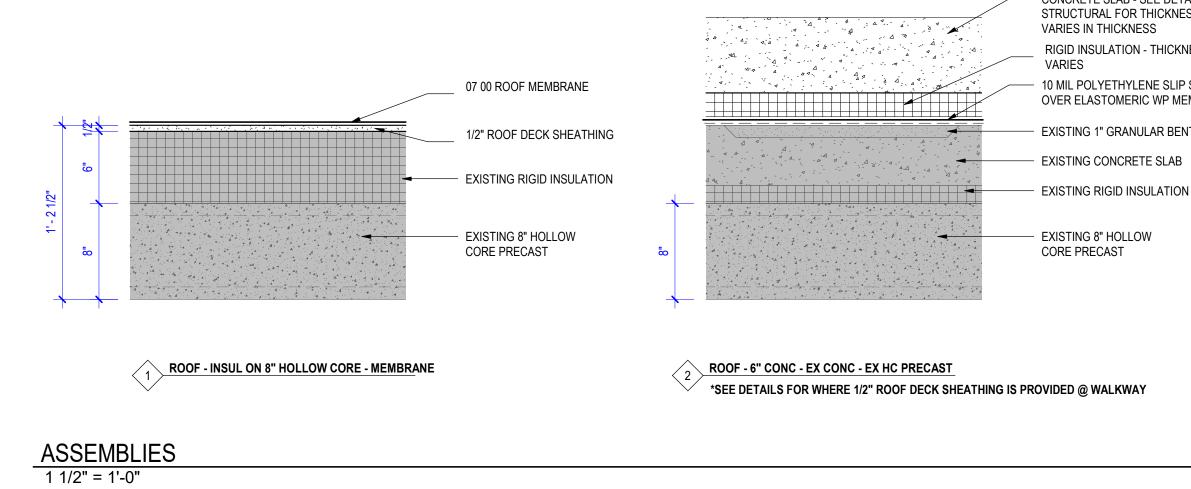
PROJECT NO: 24003

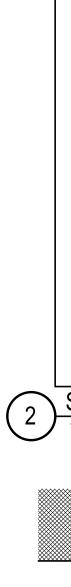
DATE: 14 JUNE 2024 sheet set: CONSTRUCTION DOCUMENTS

sheet name: ROOF DEMOLITION PLAN



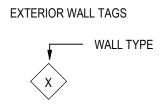
X



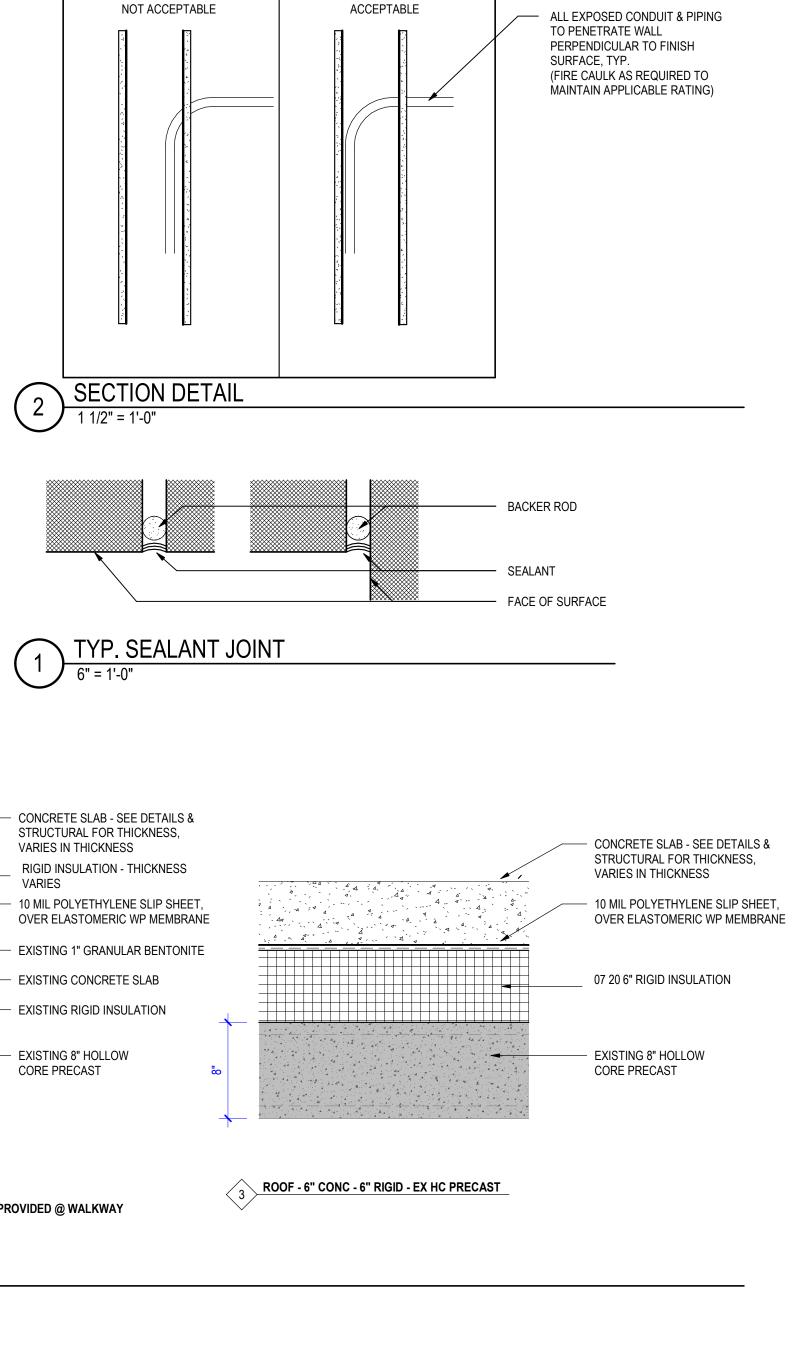


GENERAL WALL TYPE CONSTRUCTI

1. SEE FLOOR PLANS FOR LOCATIONS OF WALL TYPES. NOT ALL WAL TAGS. IF WALL TYPE IS IN QUESTION, CONTACT ARCHITECT FOR C



- 2. TYPICAL WALL STYLE UNLESS INDICATED OTHERWISE ON THE PLA EXTERIOR WALL IS WALL TYPE <u>Z.</u>
- 3. WALL CONSTRUCTION WALL TYPES DESCRIBE GENERAL CONSTRU ASSEMBLY. PROVIDE CONSTRUCTION PER NOTED FIRE RATED SYS RATINGS, & REFERENCED STANDARDS, OR APPROVED EQUALS.
- 4. CONNECTIONS AT SPRAY APPLIED FIREPROOFING AT FRAMING C COMPONENTS WITH SPRAY APPLIED FIRE PROOFING, PROVIDE REC BRACKETS/CLIPS TO MAINTAIN RATINGS.
- 5. RECESSED UTILITY BOXES OR EQUIPMENT RECESSED BOXES OR OPPOSITE WALL FACES ARE TO BE STAGGERED, UNLESS SPECIFIC INSTALLED BACK TO BACK. PROVIDE MINIMUM 3" OF ACOUSTIC INSU STAGGERED ITEMS.
- 6. CONCEALED WALL BACKING PROVIDE CONCEALED BLOCKING OR SURFACE MOUNTED CONSTRUCTION & EQUIPMENT, WHETHER IN C OWNER SUPPLIED. CONTRACTOR TO VERIFY OWNER SUPPLIED EC BUT NOT LIMITED TO, BREAK ROOM ACCESSORIES, TOILET ACCESS ARTWORK, MEDICAL EQUIPMENT, TVS, PROJECTION SCREENS, ETC SHALL VERIFY WITH OWNER AND/OR OWNERS AGENT PRIOR TO BI APPLICABLE.



EXISTING EIFS FINISH - PATCH AND REPAIR AS REQUIRED FOR NEW SCOPE OF WORK

— EXISTING RIGID INSULATION

----- EXISTING EXTERIOR SHEATHING

— EXISTING 6" METAL STUDS

- EXISTING GYP BOARD SHEATHING

____#_EIFS-RIGID-GYP-6 MTL STUD-GYP

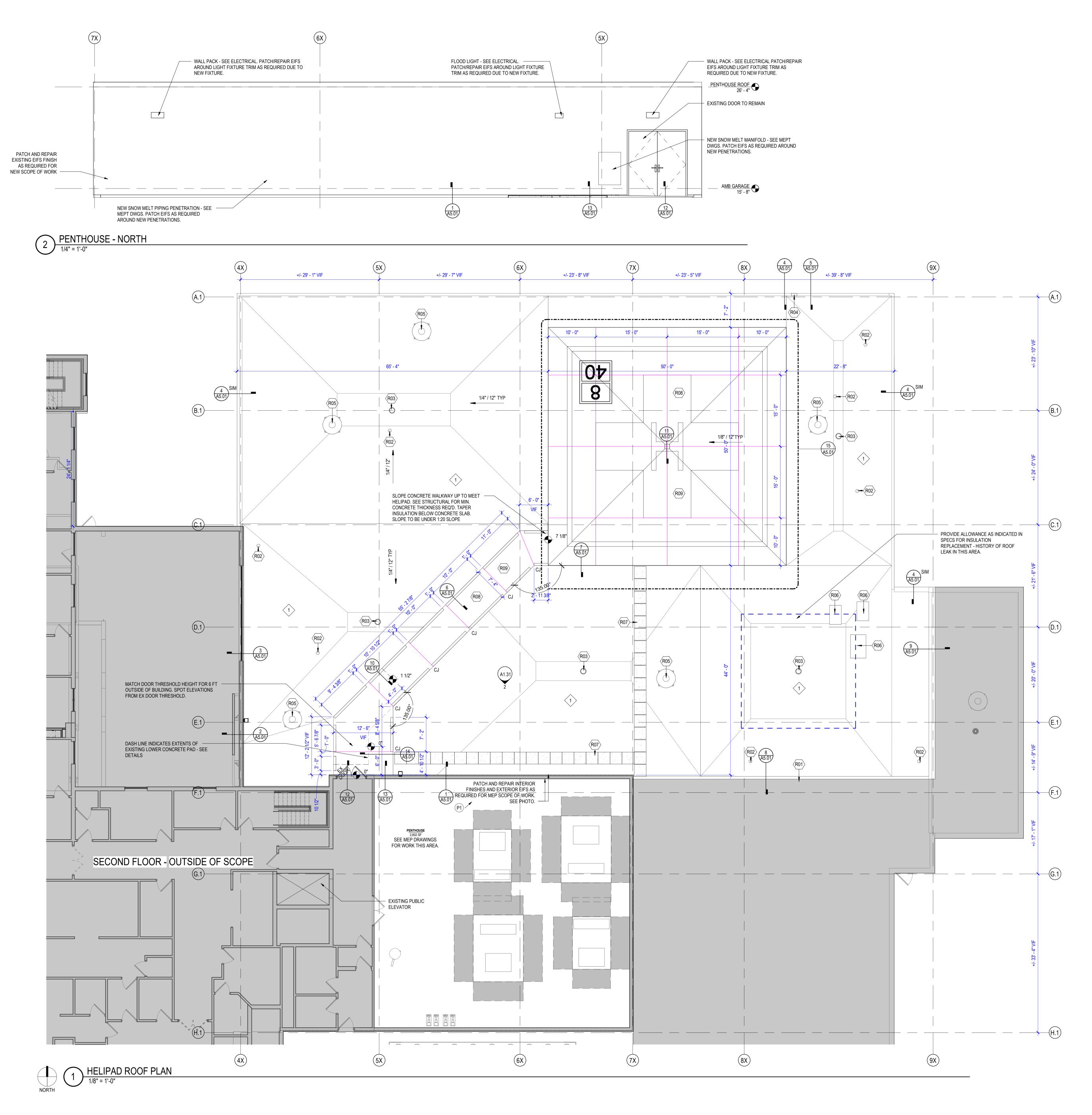
Z R 13.8354 (h·ft².°F)/BTU MASS 1.3738 BTU/(ft².°F)

EXTERIOR WALL TYPES

1 1/2" = 1'-0"

ION NOTES: LLS ARE KEYED WITH CLARIFICATION.	INVISION Planning architecture interiors
LANS, THE STANDARD RUCTION OF EACH STEMS, SOUND TEST CONNECTIONS TO EQUIRED STAND-OFF R EQUIPMENT ON CALLY NOTED TO BE SULATION BETWEEN	900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 www.invisionarch.com CONSULTANT: <u>STRUCTURAL</u> RAKER RHODES ENGINEERING <u>MEP</u> BLUESTONE ENGINEERING
QUIPMENT SUCH AS, SSORIES, FURNITURE, C. CONTRACTOR IDDING IF	REVISIONS: Description Date No.
	OWNER SIGN-OFF: DATE NAME
	BOOME COUNT HOSPITAL BOOME COUNT HOSPITAL BELLINAN BOOME AND BOOME

A0.01 Copyright © 2024

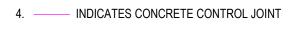


GENERAL FLOOR PLAN NOTES:

- 1. REFER TO ADDITIONAL NOTES AND REQUIREMENTS ON ALL OTHER DOCUMENTS, OTHER DISCIPLINES AND SPECIFICATIONS.
- 2. ALL SITE INFO, FIXTURES AND EQUIPMENT SHOWN ON THIS SHEET IS PROVIDED FOR COORDINATION PURPOSES ONLY. THE LAYOUT IS CONSIDERED CONCEPTUAL. REFER TO MECHANICAL, ELECTRICAL, PLUMBING, FIRE SPRINKLER, LIFE-SAFETY, ETC. DOCUMENTS FOR SPECIFIC DESIGN INFORMATION.
- CAULK & SEAL ALL CONTROL-EXPANSION, SAWCUT JOINTS AT ALL INTERIOR & EXTERIOR MASONRY & CONCRETE.
- 4. PATCH/REPAIR EIFS AS REQUIRED DUE TO NEW WORK AT CONTRACTORS EXPENSE. MATCH EXISTING COLOR.

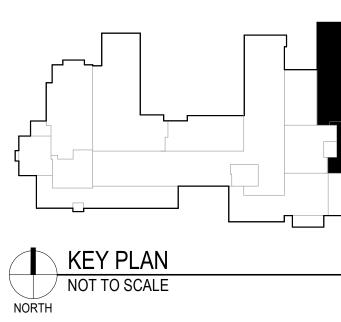
GENERAL ROOF PLAN NOTES:

- HATCHED AREAS ARE SHOWN FOR REFERENCE ONLY AND ARE GENERALLY OUTSIDE OF PROJECT SCOPE.
- 2. ARROWS ON THE PLAN INDICATE DIRECTION OF DRAINAGE OF THE SLOPED STRUCTURE OR TAPERED INSULATION CRICKET (SLOPED +/- 1/4" PER 12" UNLESS NOTED OTHERWISE).
- 3. DETAIL REFERENCES NOTED AS "TYPICAL" ON THE PLAN ENCOMPASS ALL SIMILAR LOCATIONS ON THE PROJECT UNLESS NOTED OTHERWISE.



ROOF KEYNOTES		
#	DESCRIPTION	
R01	PROVIDE MANUFACTURER-APPROVED TRANSITION BETWEEN NEW TPO ASSEMBLY AND EXISTING BALLASTED ROOF.	
R02	EXISTING PLUMBING VENT - SEE PLUMBING.	
R03	EXISTING ROOF DRAIN.	
R04	EXISTING METAL SCUPPER AT ROOF EDGE. REPLACE METAL FLASHING AS REQUIRED. TO REMAIN IN SAME LOCATION.	
R05	EXISTING EXHAUST VENT - SEE MECH.	
R06	EXISTING MECHANICAL UNIT ON EXISTING PAVERS. RELOCATE TO NEW ROOF CURB. SEE MECH DWGS.	
R07	ROOF WALKWAY PADS. EXTEND TO EXISTING WALKWAY.	
R08	SALT & WATER GUARD - HELIPAD & WALKWAY. SEE SPEC.	
R09	6" WIDE TPO SELF-ADHERING STRIPPING AT ANY SEAMS BELOW HELIPAD & HELIPAD WALKWAY.	





) .
ISTING WALKWAY.
LKWAY. SEE SPEC.
IG AT ANY SEAMS BELOW





900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

REVISIONS:		
Description	Date	No.
OWNER SIGN-OFF:		
DATE		NAME

HELIP Т \bigcirc В



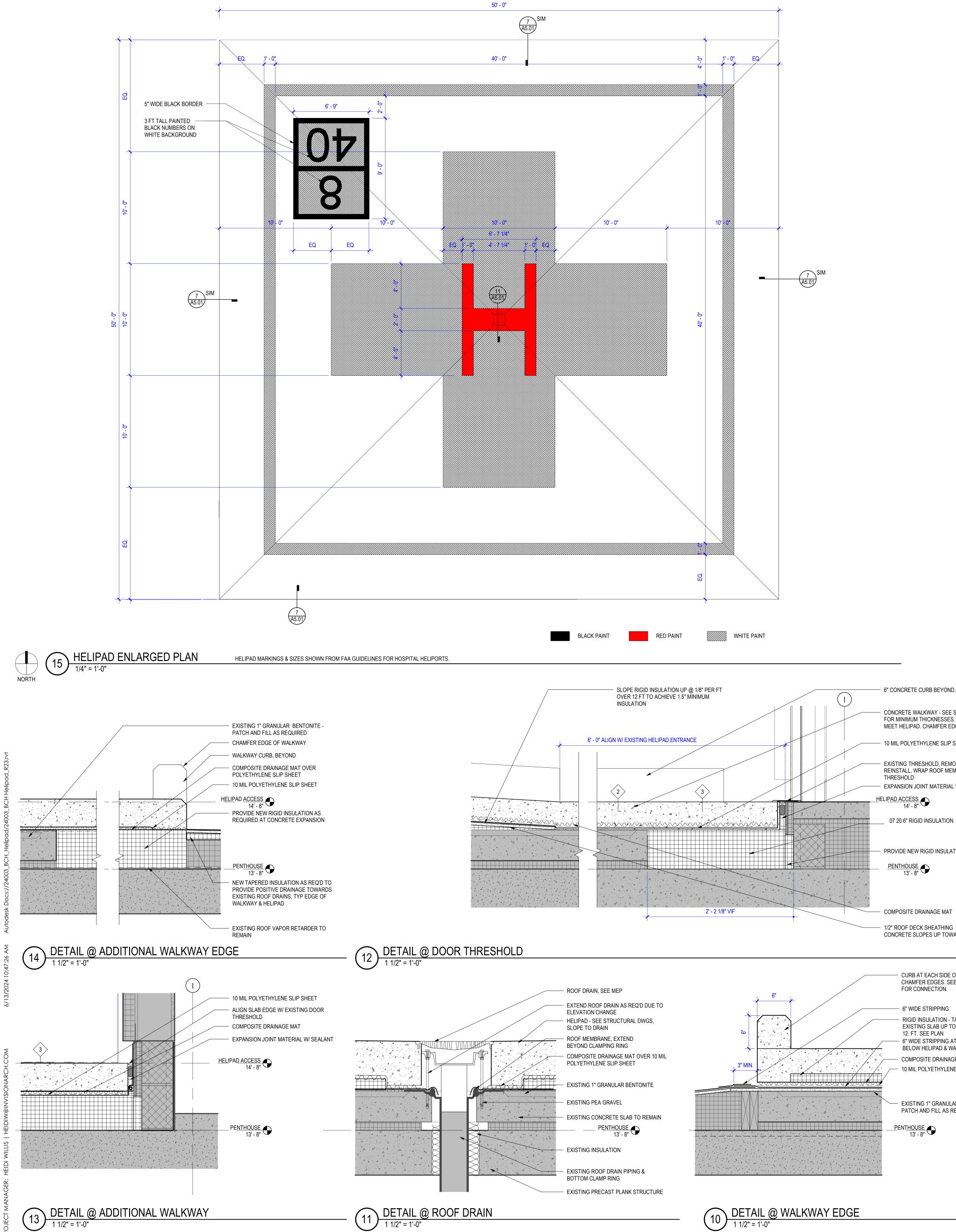
PROJECT NO: 24003

DATE: 14 JUNE 2024 sheet set: CONSTRUCTION DOCUMENTS

sheet name: ROOF PLAN







6" CONCRETE CURB BEYOND, REFER TO PLAN

CONCRETE WALKWAY - SEE STRUCTURAL FOR MINIMUM THICKNESSES. SLOPE TO MEET HELIPAD. CHAMFER EDGES.

10 MIL POLYETHYLENE SLIP SHEET

- EXISTING THRESHOLD, REMOVE AND REINSTALL, WRAP ROOF MEMBRANE INTO THRESHOLD EXPANSION JOINT MATERIAL W/ SEALANT

HELIPAD ACCESS 14' - 8"

PROVIDE NEW RIGID INSULATION AS REQUIRED

PENTHOUSE 13' - 8"

COMPOSITE DRAINAGE MAT

- 1/2" ROOF DECK SHEATHING - PROVIDE AS CONCRETE SLOPES UP TOWARDS HELIPAD.

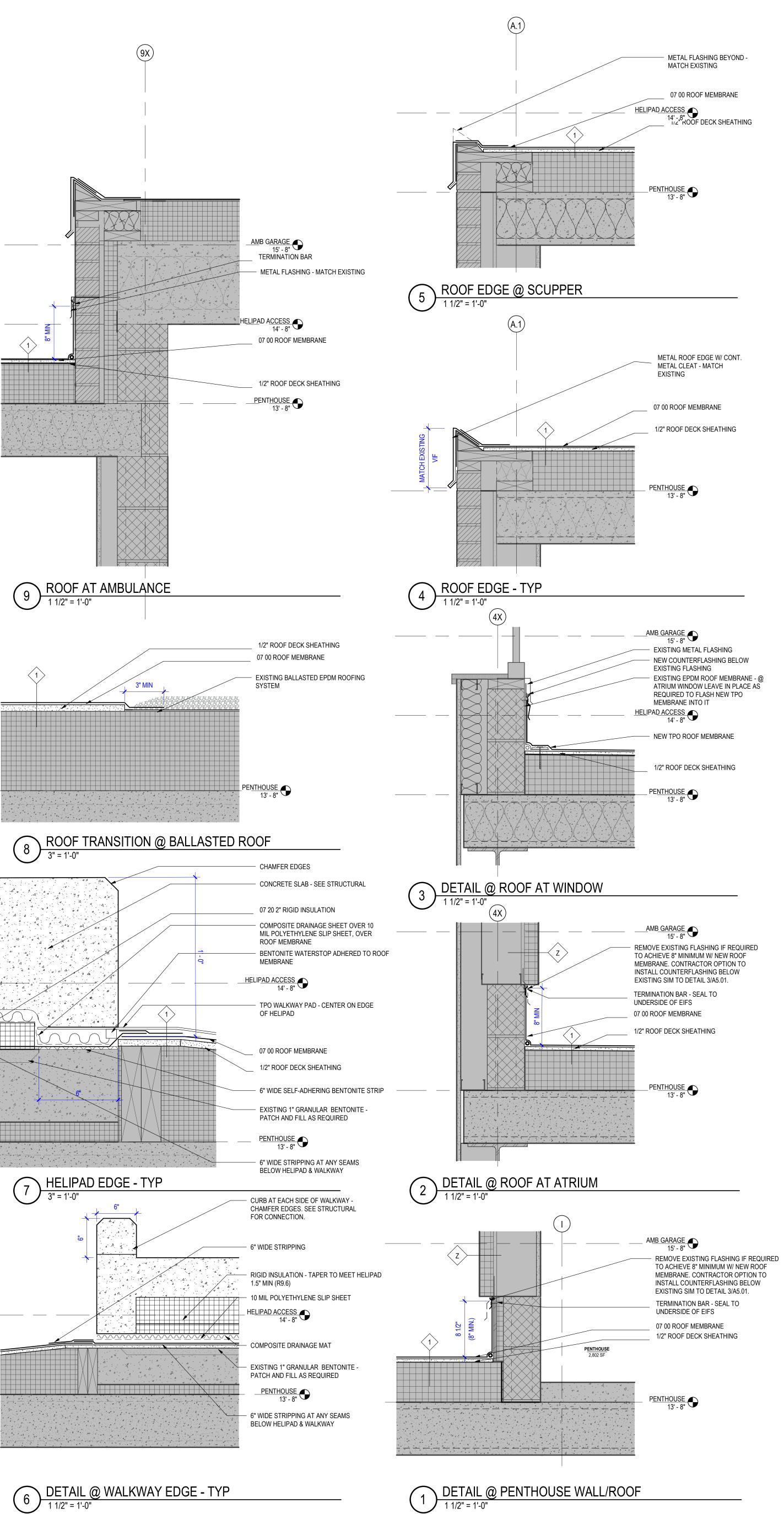
> CURB AT EACH SIDE OF WALKWAY CHAMFER EDGES. SEE STRUCTURAL FOR CONNECTION.

6" WIDE STRIPPING

RIGID INSULATION - TAPER FROM EXISTING SLAB UP TO 1.5" MIN OVER 12. FT. SEE PLAN ------ 6" WIDE STRIPPING AT ANY SEAMS BELOW HELIPAD & WALKWAY COMPOSITE DRAINAGE MAT — 10 MIL POLYETHYLENE SLIP SHEET

> - EXISTING 1" GRANULAR BENTONITE -PATCH AND FILL AS REQUIRED





INVISION ANNING ARCHITECTURE INTERIO

900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

REVISIONS:

Description Date No.

OWNER SIGN-OFF:

ATE

NAME

 \square 4 ELIP Т Ω

1015 UNION ST. BOONE, IA 50036

PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

SHEET NAME: DETAILS



GENERAL S	YMBOLS LIST
	COLD WATER
1" CW	COLD WATER
1" SCW — 1" FW —	SOFTENED COLD WATER
	HOT WATER
1" HW	HOT WATER
1" SHW	SOFTENED HOT WATER
1" HW 140	HOT WATER 140°
1" HW 180	HOT WATER 180°
	HOT WATER RECIRC
1" HWC	HOT WATER RECIRC
1" HWC 140	HOT WATER RECIRC 140°
1" HWC 180	HOT WATER RECIRC 180°
	STORM UNDERGROUND
· 1" SAN —	SANITARY UNDERGROUND
	GREASE SANITARY UNDERGROUND
— — · 1" AW — — —	ACID WASTE UNDERGROUND
— — -1" AV — — —	ACID VENT UNDERGROUND
	WATER UNDERGROUND
1" DT	DRAIN TILE
	PIPING/PLUMBING
1" W	WATER
1" SAN ——	SANITARY GREASE SANITARY
1" PS	PUMPED SANITARY
1" AW	ACID WASTE
1"V	VENT
— — — 1" AV — — —	ACID VENT
1" ST	STORM
1" STO	STORM OVERFLOW
1" PST	PUMPED STORM
1" PC	PUMPED CONDENSATE
1" PD	
1" R	REFRIGERANT
1" LIQ	LIQUID
1" S	SUCTION
1" G	NATURAL GAS
1" P	PROPANE
1" NPW	NON-POTABLE WATER REVERSE OSMOSIS
1" ROR	REVERSE OSMOSIS RETURN
1" DIW	DEIONIZED WATER
	DEIONIZED WATER RETURN
	CHILLED WATER SUPPLY
	CHIELED WATER SOFFET
1" CWR	CHILLED WATER RETURN
1" GCWR	CHILLED WATER RETURN
1" GCWR	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY
1" GCWR — 1" GCWS — 1" HWS —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY
1" GCWR	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY
1" GCWR — 1" GCWS — 1" HWS — 1" HWR —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN
	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY
	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN
	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY
— 1" GCWR — — 1" GCWS — — 1" HWS — — 1" HWR — — 1" GHWS — — 1" GHWR — — 1" CDWS — — 1" CDWR — — 1" LWS — — 1" LWR —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY
1" GCWR 1" GCWS 1" HWS 1" HWS 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" LWS 1" LWR 1" GLWS	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY
1" GCWR 1" GCWS 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" LWS 1" LWS 1" GLWS 1" GLWR	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN
1" GCWR 1" GCWS 1" HWS 1" HWS 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" LWS 1" LWR 1" GLWS	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY
— 1" GCWR — — 1" GCWS — — 1" HWS — — 1" HWR — — 1" GHWS — — 1" GHWR — — 1" CDWS — — 1" CDWR — — 1" LWS — — 1" GLWS — — 1" GLWS — — 1" GEO LWS —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN
— 1" GCWR — — 1" GCWS — — 1" HWS — — 1" HWR — — 1" GHWS — — 1" GHWR — — 1" CDWS — — 1" CDWR — — 1" LWS — — 1" GLWS — — 1" GLWS — — 1" GEO LWS — — 1" GEO LWR —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER SUPPLY
1" GCWR 1" GCWS 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" CDWR 1" CDWR 1" LWS 1" GLWS 1" GLWS 1" GEO LWS 1" GEO LWR 1" S##	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE)
1" GCWR 1" GCWS 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" GLWS 1" GEO LWS 1" GEO LWR 1" S## 1" LPS	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM
— 1" GCWR — — 1" GCWS — — 1" HWS — — 1" GHWS — — 1" GHWR — — 1" CDWS — — 1" CDWR — — 1" GLWS — — 1" GEO LWS — — 1" GEO LWR — — 1" S## — — 1" LPS — — 1" HPS —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM
1" GCWR 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" GLWS 1" GEO LWS 1" GEO LWS 1" GEO LWR 1" GEO LWS 1" HPS 1" LPS 1" HPS 1" LPC 1" BFW	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE
— 1" GCWR — — 1" GCWS — — 1" HWS — — 1" GHWS — — 1" GHWR — — 1" CDWS — — 1" CDWR — — 1" GLWS — — 1" GEO LWS — — 1" S## — — 1" S## — — 1" LPS — — 1" HPS — — 1" HPS — — 1" HPS — — 1" HPC — — 1" BFW — — 1" BD —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER SUPPLY CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER
1" GCWR 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" GLWS 1" GEO LWR 1" HPS 1" HPS <t< th=""><th>CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER</th></t<>	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER RETURN GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER
— 1" GCWR — — 1" GCWS — — 1" HWS — — 1" GHWS — — 1" GHWR — — 1" CDWS — — 1" CDWR — — 1" GLWS — — 1" GEO LWS — — 1" S## — — 1" S## — — 1" LPS — — 1" HPS — — 1" HPS — — 1" HPS — — 1" HPC — — 1" BFW — — 1" BD —	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER SUPPLY CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER
1" GCWR 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" GEO LWS 1" GEO LWS 1" GEO LWR 1" BEN 1" HPS 1" HPS 1" HPS 1" HPS 1" HPS 1" HPC 1" HPC <t< th=""><th>CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER BOILER BLOW DOWN FUEL OIL SUPPLY FUEL OIL RETURN</th></t<>	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER RETURN CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER RETURN GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER BOILER BLOW DOWN FUEL OIL SUPPLY FUEL OIL RETURN
1" GCWR 1" GCWS 1" HWS 1" HWR 1" GHWS 1" GHWR 1" CDWS 1" CDWR 1" GEO LWR 1" BEN 1" HPS	CHILLED WATER RETURN GLYCOL CHILLED WATER RETURN GLYCOL CHILLED WATER SUPPLY HOT WATER SUPPLY HOT WATER RETURN GLYCOL HEATING WATER SUPPLY GLYCOL HEATING WATER SUPPLY CONDENSER WATER SUPPLY CONDENSER WATER RETURN LOOP WATER SUPPLY LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GLYCOL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER SUPPLY GEOTHERMAL LOOP WATER RETURN STEAM (PRESSURE) LOW PRESSURE STEAM HIGH PRESSURE STEAM HIGH PRESSURE CONDENSATE LOW PRESSURE CONDENSATE BOILER FEEDWATER BOILER FEEDWATER BOILER FEEDWATER BOILER BLOW DOWN

GENERAL SYMBOLS LIST	
$\mathbf{\Theta}$	NEW TO EXISTING CONNECTION
100.00 I.E.	PIPING INVERT ELEVATION
FINISHED FLOOR ELEV.	- FINISHED FLOOR ELEVATION
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
A.T.C.	AUTOMATIC TEMPERATURE CONTROLS CONTRACTOR
G.C.	GENERAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
BF	BOILER FLUE
BI	BOILER INTAKE
EA	EXHAUST AIR
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
VA	VENTILATION AIR
EQUIPMENT	SCHEDULED EQUIPMENT (UNDERLINED)
EQUIPMENT	NON-SCHEDULE EQUIPMENT
XEQUIPMENT	EXISTING EQUIPMENT (X PREFIX)

HVAC SYMBOLS LIST			
LABEL NECK CFM	DIFFUSER CALLOUT SYMBOL		
\square	SUPPLY		
\square	EXHAUST		
	RETURN		
	RATED DAMPER (FD-FIRE DAMPER, SD=SMOKE, FSD= FIRE/SMOKE, CFSD=CONTROL FIRE SMOKE)		
P	MOTORIZED D/	AMPER	
	VOLUME DAMF	PER	
-\/ -	AIRFLOW DIRE	CTION	
LS	LEVEL SENSO	२	
DC	DRY CONTACTS		
СТ	CURRENT TRANSDUCER		
AO	ANALOG OUTPUT		
ВО	BINARY OUTPUT		
AI	ANALOG INPUT		
BI	BINARY INPUT		
X	DDC SENSOR		
AS	AIRFLOW STATION		
	VARIABLE FREQUENCY DRIVE		
	MOTOR		
	THERMOSTAT/TEMP SENSOR		
Н	HUMIDSTAT		
	CARBON DIOXIDE SENSOR		
(NO ²)	NITROGEN DIOXIDE SENSOR		
S	GENERIC SENSOR		
60	CARBON MONOXIDE SENSOR		
DP	DIFFERENTIAL PRESSURE SENSOR		
R	REFRIGERANT SENSOR		
SD	SD SMOKE DETECTOR		
	BELLMOUTH FI	TTING	
	SINGLE DUCT		
	RETURN		
	PARALLEL FAN POWERED	TERMINAL AIR BOX	
Ē	PRECISION		

INVESTIGATION ELEONY (MOLEGREE) Image: Second Sec	HVAC SYMBOLS LIST		
N→→ 45 DEGREE ELBOW → PIPE TEE RISERDROP → PIPE RISER → PIPE ROP → PIPE DROP → PIPE CAP → PIPE CAP → PIPE CAP → PIPE RISER → PIPE CAP → VALVE (GENERIC) → LOCKABLE VALVE → PRESSURE REDUCING VALVE → PRESSURE REDUCING VALVE → PRESSURE RELIEF VALVE → PRESSURE RELIEF VALVE → PRESSURE RELIEF VALVE → CONTROL VALVE (TWO-WAY) → CONTROL VALVE (TWO-WAY) → CONTROL VALVE (TWO-WAY) → CONTROL VALVE (TWO-WAY) → SOLENDID VALVE → PRESSURE CAUGE AND ↓ PRESSURE CAUGE			
···· PIPE TEE RISER/DROP ···· PIPE DROP ···· PIPE DROP ···· PIPE DROP ···· PIPE CAP ···· PIPE REAK ···· PIPE REAK ···· LOCKABLE VALVE ···· CHECK VALVE ···· CHECK VALVE ···· PRESSURE RELIEF VALVE ···· PRESSURE RELIEF VALVE ···· PRESSURE RELIEF VALVE ···· PRESSURE RELIEF VALVE ···· PRESSURE CAUGE AND ···· CONTROL VALVE (THREE-WAY) ···· SOLENOID VALVE ···· PRESSURE CAUGE AND ···· DIFFERENTIAL PRESSURE SWITCH ···· PRESSURE CAUGE AND ···· PRESSURE CAUGE AND ···· PRESSURE CAUGE AND ···· PRESSURE CAUGE AND ···· PRESSURE SUBJE CAUGE AND <tr< th=""><th>t</th><th>TEE (HORIZONTAL)</th></tr<>	t	TEE (HORIZONTAL)	
PIPE DROP PIPE DROP PIPE CAP PIPE CAP PIPE CAP PIPE BREAK	· · · · · · · · · · · · · · · · · · ·		
FLOW DIRECTION PIPE CAP PIPE BREAK PIPE BREAK UNICON VALVE (GENERIC) CHECK VALVE CHECK VALVE PRESSURE REDUCING VALVE PRESSURE RELIEF VALVE PRESSURE SURE SWICH			
Image: Constraint of the second se	ə		
→ PIPE BREAK →I→ UNION →→ VALVE (GENERIC) →→ LOCKABLE VALVE →→ CHECK VALVE →→ PRESSURE REDUCING VALVE →→ PRESSURE REDUCING VALVE →→ PRESSURE RELIEF VALVE →→ BALANCING VALVE →→ BALANCING VALVE →→ CONTROL VALVE (TWO-WAY) →→ PRESSURE SENSOR → PRESSURE SENSOR →→		FLOW DIRECTION	
→I UNION →e VALVE (GENERIC) →e LOCKABLE VALVE →e CHECK VALVE →e PRESSURE REDUCING VALVE →e THROTILING VALVE →e PRESSURE REDUCING VALVE →e DALANCING VALVE →e BALANCING VALVE →e CONTROL VALVE (TWO-WAY) →e CONTROL VALVE ↓ PRESSURE SOUTER ↓ PRESSURE SOUTER ↓ PRESSURE SOUTER ↓ PRESSURE SENSOR ↓<	_	PIPE CAP	
Image: Second	_	PIPE BREAK	
Image: Constraint of the second se		UNION	
N- CHECK VALVE N- PRESSURE REDUCING VALVE N- THROTLING VALVE N- BALANCING VALVE N- CONTROL VALVE (THREE-WAY) N- CONTROL VALVE N- CONTROL VALVE N- FONT N- FONT N- CONCENTRIC PIPING REDUCER N- ECCENTRIC PIPING REDUCER N- FLEXIBLE CONNECTION N- FLEXIBLE CONNECTION N- FLEXIBLE CONNECTION N- FLEXIBLE CONNECT	—×—	VALVE (GENERIC)	
	x	LOCKABLE VALVE	
Image: Second Party Second	N	CHECK VALVE	
	&	PRESSURE REDUCING VALVE	
BALANCING VALVE BALANCING VALVE CONTROL VALVE (TWO-WAY) SOLENOID VALVE P CONTROL VALVE (THREE-WAY) P SOLENOID VALVE P	——₩——	THROTTLING VALVE	
-A CONTROL VALVE (TWO-WAY) -A CONTROL VALVE (TWO-WAY) -A SOLENOID VALVE		PRESSURE RELIEF VALVE	
Image: Control value (Information) Image: Control value (Informatic) Image: Control value (Information) Image: Control value (Inf	¢4	BALANCING VALVE	
-R SOLENOID VALVE PRESSURE GAUGE AND GAUGECOCK PRESSURE GAUGE AND GAUGECOCK PP DIFFERENTIAL PRESSURE SWITCH PP THERMOMETER PP TEMPERATURE SENSOR PP CONCENTRIC PIPING REDUCER PP CONCENTRIC PIPING REDUCER PP PORT PONT ECCENTRIC PIPING REDUCER PP PORT PONT FLORMATIC) AIR VENT (AUTOMATIC) AIR VENT (MANUAL) PONT STRAINER PUMP (GENERIC) ALIGNMENT GUIDE PIPE ANCHOR PIPE ANCHOR PIPE EXPANSION JOINT PONT WATER METER WATER METER WATER METER WATER METER GAS REGULATOR PIPE ANCHOR GAS REGULATOR PIPE ANCHOR GAS REGULATOR PIPE ANCHOR DRAIN FLOOR SINK PIPE ANCHOR DR	&	CONTROL VALVE (TWO-WAY)	
Image: Construct of the second sec		CONTROL VALVE (THREE-WAY)	
AUGECOCK Image: Differential pressure switch Image: Differential pressure switch Image: Differential pressure sensor Image: D	&	SOLENOID VALVE	
Image: Constraint of the second se	Ç X		
Image: Constraint of the second se			
Image: Sensor intermediate sensor i	ن ن	FLOW METER	
Image: Concentric piping Reducer Image		THERMOMETER	
Image: Concentric piping reducer Image: Concentricon Image: Concentric	 ⊔	TEMPERATURE SENSOR	
Image: Construct property of the second s		PRESSURE SENSOR	
Image: Constraint of the second se		CONCENTRIC PIPING REDUCER	
Image: Strainer FLEXIBLE CONNECTION AIR VENT (AUTOMATIC) AIR VENT (AUTOMATIC) Image: AIR VENT (MANUAL) Image: AIR VENT (MANUAL) Image: AIR VENT (MANUAL) Image: AIR VENT (ECCENTRIC PIPING REDUCER	
AIR VENT (AUTOMATIC) AIR VENT (AUTOMATIC) AIR VENT (MANUAL) STRAINER PUMP (GENERIC) ALIGNMENT GUIDE ALIGNMENT GUIDE PIPE ANCHOR EXPANSION JOINT WATER METER HWC BALANCING VALVE, (FLOW IN GPM) WHA# WATER METER HWC BALANCING VALVE, (FLOW IN GPM) WHA# GAS REGULATOR GO FLOOR DRAIN Image: FLOOR SINK Image: TRENCH DRAIN Image: FLOOR SINK Image: FLOAT VALVE		PT PORT	
AIR VENT (MANUAL) Image: Strainer Image: Strain		FLEXIBLE CONNECTION	
Image: Strainer		AIR VENT (AUTOMATIC)	
PUMP (GENERIC) ALIGNMENT GUIDE ALIGNMENT GUIDE PIPE ANCHOR ES EXPANSION JOINT WATER METER WATER METER HWC BALANCING VALVE, (FLOW IN GPM) WHA# WATER HAMMER ARRESTOR Image: State of the		AIR VENT (MANUAL)	
ALIGNMENT GUIDE ALIGNMENT GUIDE HIPE ANCHOR EXPANSION JOINT WATER METER WATER METER HWC BALANCING VALVE, (FLOW IN GPM) WHA# WATER HAMMER ARRESTOR Image: Strategy of the strategy	- \-	STRAINER	
PIPE ANCHOR EXPANSION JOINT EXPANSION JOINT WATER METER WATER METER HWC BALANCING VALVE, (FLOW IN GPM) WHA# WHA# GAS REGULATOR O FLOOR DRAIN FLOOR SINK TRENCH DRAIN t HOSE BIB / WALL HYDRANT Image: FLOAT VALVE	•	PUMP (GENERIC)	
EXPANSION JOINT Image: Constraint of the second		ALIGNMENT GUIDE	
Image: Second		PIPE ANCHOR	
Image: Second	-==	EXPANSION JOINT	
0.5 (FLOW IN GPM) WHA.# WATER HAMMER ARRESTOR ☑ GAS REGULATOR ○ FLOOR DRAIN ○ ROOF DRAIN ☑ FLOOR SINK Immediate TRENCH DRAIN ↑ HOSE BIB / WALL HYDRANT ✓ FLOAT VALVE	®		
Image: State of the second	0.5	HWC BALANCING VALVE, (FLOW IN GPM)	
O FLOOR DRAIN O ROOF DRAIN Image: State of the st	<u></u> ;	WATER HAMMER ARRESTOR	
Image: Constraint of the second se	B	GAS REGULATOR	
FLOOR SINK Image: Strength of the second	0	FLOOR DRAIN	
Image: Constraint of the second se			
+ HOSE BIB / WALL HYDRANT Image: state			
FLOAT VALVE		TRENCH DRAIN	
		HOSE BIB / WALL HYDRANT	
ST STEAM TRAP	لم 	FLOAT VALVE	
	ST	STEAM TRAP	

GENERAL NOTES: MECHANICAL

	SERVICE TO ALL EQUIPMENT TO INCLUDE A MINIMUM OF 3 ALL OBSTRUCTIONS (WALLS, STRUCTURE, DUCTWORK, PI ETC.). CLEARANCE SHALL MAINTAIN ACCESS TO ALL ELE(PANELS, ACCESS DOORS, CONTROLLERS, VALVES, JUNCT AND OPERATORS AND INCLUDE THE AREA DIRECTLY IN FF ABOVE THE SYSTEM COMPONENTS.
<u>GEN</u>	IERAL NOTES: MECHANICAL DEMOLITIC
A.	THE DRAWINGS ARE INTENDED TO INDICATE THE GENERA DEMOLITION REQUIRED AND DOES NOT INDICATE EVERY I OF EQUIPMENT THAT MUST BE REMOVED.
B.	ITEMS THAT ARE NOT IN THE REQUIRED SCOPE OF DEMOI SPECIFICALLY NOTED, SHALL REMAIN IN PLACE. SUCH ITE ASSOCIATED EQUIPMENT, FIXTURES, DOMESTIC PLUMBIN AND STORM PIPING, SHALL BE MAINTAINED OPERATIONAL CONDITION BY THIS CONTRACTOR.
C	SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FO

- C. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONTRACTOR AND ALL OTHER TRADES. D. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN
- SERVICE DURING CONSTRUCTION. REMOVE PIPING, DUCTWORK, EQUIPMENT, ETC INCLUDING ABANDONED, E. TO SOURCE OF SUPPLY AND/OR MAIN LINES. REMOVE ALL ASSOCIATED CLAMPS, HANGERS, SUPPORTS, ETC., ASSOCIATED WITH REMOVAL.
- F. PATCH SURFACES TO MATCH EXISTING CONDITIONS. G. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING
- DEMOLITION AND EXTENSION WORK. MATCH ORIGINAL CONSTRUCTION. VERIFY ALTERNATIVE OR SPECIAL REPAIR METHODS WITH ARCHITECT/ENGINEER BEFORE PROCEEDING WITH DEMOLITION.
- H. REPAIR ANY PIPING OR DUCT INSULATION THAT IS DAMAGED OR REMOVED DURING CONSTRUCTION.

<u>GENERAL NOTES: PIPING</u>

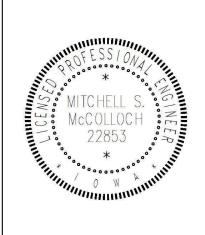
A. COORDINATE INSTALLATION WITH ARCHITECTURAL CODE PLANS. ALL WALL AND FLOOR PENETRATIONS OF FIRE RATED ASSEMBLIES TO BE SEALED. B. COORDINATE PIPING PENETRATIONS THRU WALLS, ROOFS, OR CEILINGS WITH ALL TRADES. C. ROUTE ALL PIPING IN EXPOSED AREAS AS HIGH AS POSSIBLE, UNLESS NOTED OTHERWISE. D. PLANS DO NOT INCLUDE ALL OFFSETS FOR COORDINATION WITH DUCT, PIPING, LIGHTING AND STRUCTURAL SYSTEMS. PROVIDE ALLOWANCES FOR REQUIRED OFFSETS. E. DO NOT ROUTE PIPE ABOVE OR BELOW ELECTRICAL PANELS INCLUDING SERVICE CLEARANCES. F. PIPES ARE SHOWN SPREAD OUT ON PLANS FOR DRAWING CLARITY. G. COORDINATE PIPE ROUTING TO AVOID RUNNING PIPING BELOW ROOF HATCHES, SKYLIGHTS AND ACCESS PANELS. H. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING METHODS OF BRINGING IN MECHANICAL EQUIPMENT THROUGH BUILDING INTO MECHANICAL ROOMS. I. PIPING SHALL NOT BE SUPPORTED FROM OTHER PIPING, CONDUIT, OR DUCTWORK. J. MAINTAIN SERVICE CLEARANCE AND ACCESS TO ALL EQUIPMENT.

GENERAL NOTES: PLUMBING

A.	COORDINATE INSTALLATION WITH ARCHITECTURAL CODE WALL AND FLOOR PENETRATIONS OF FIRE RATED ASSEM SEALED.
В.	COORDINATE PIPING PENETRATIONS THRU WALLS, ROOF WITH ALL TRADES
C.	ROUTE ALL PIPING IN EXPOSED AREAS AS HIGH AS POSSI NOTED OTHERWISE.

- D. PLANS DO NOT INCLUDE ALL OFFSETS FOR COORDINATION WITH DUCT, PIPING, LIGHTING AND STRUCTURAL SYSTEMS. PROVIDE ALLOWANCES FOR REQUIRED OFFSETS.
- E. DO NOT ROUTE PIPE ABOVE OR BELOW ELECTRICAL PANELS INCLUDING PANEL SERVICE CLEARANCES.
- F. PIPES ARE SHOWN SPREAD OUT ON PLANS FOR DRAWING CLARITY.
- G. COORDINATE PIPE ROUTING TO AVOID RUNNING PIPING BELOW ROOF HATCHES, SKYLIGHTS AND ACCESS PANELS.
- H. PIPING SHALL NOT BE SUPPORTED FROM OTHER PIPING, CONDUIT OR DUCTWORK.
- I. INSTALL PIPING, VALVES, AND ACCESSORIES SO THEY ARE ACCESSIBLE.

*NOT ALL SYMBOLS/NOTES ARE USED



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. Mitt Mellh 6/13/24 Date Signatur e

Mitchell S. McColloch License number 22853

My license renewal date is December 31, 2024. Pages or sheets covered by this seal: M-Sheets



A. PROVIDE CLEARANCE FOR INSPECTION, REPAIR, REPLACEMENT, AND SERVICE TO ALL EQUIPMENT TO INCLUDE A MINIMUM OF 36 INCHES FRO OF 36 INCHES FROM PIPES, LECTRICAL N FRONT OF AND

> ERAL SCOPE OF Y PIPE OR PIECE

IOLITION, OR AS ITEMS, INCLUDING BING, SANITARY NAL AND IN GOOD

ODE PLANS. ALL SEMBLIES TO BE

OFS, OR CEILING

SSIBLE, UNLESS

5518 NW 88th Street Johnston, IA 50131 5018 NW 88th Street Johnston, IA 50131 515-727-0700 www.bluestonemep.com/ Project #: 124-045 Project #: 124-045 engineering

BLUESTONE ENGINEERING, LLC RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF BLUESTONE ENGINEERING, LLC AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF BLUESTONE ENGINEERING, LLC. © 2024 BLUESTONE ENGINEERING, LLC

INVISION ANNING ARCHITECTURE INTERI

900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

REVISIONS: Description Date No.

_____ _____

_____ .

_____ _____

NAME

_____ _____

_____ _____

OWNER SIGN-OFF: ATE

> \square \triangleleft HELIP, Т \bigcirc В

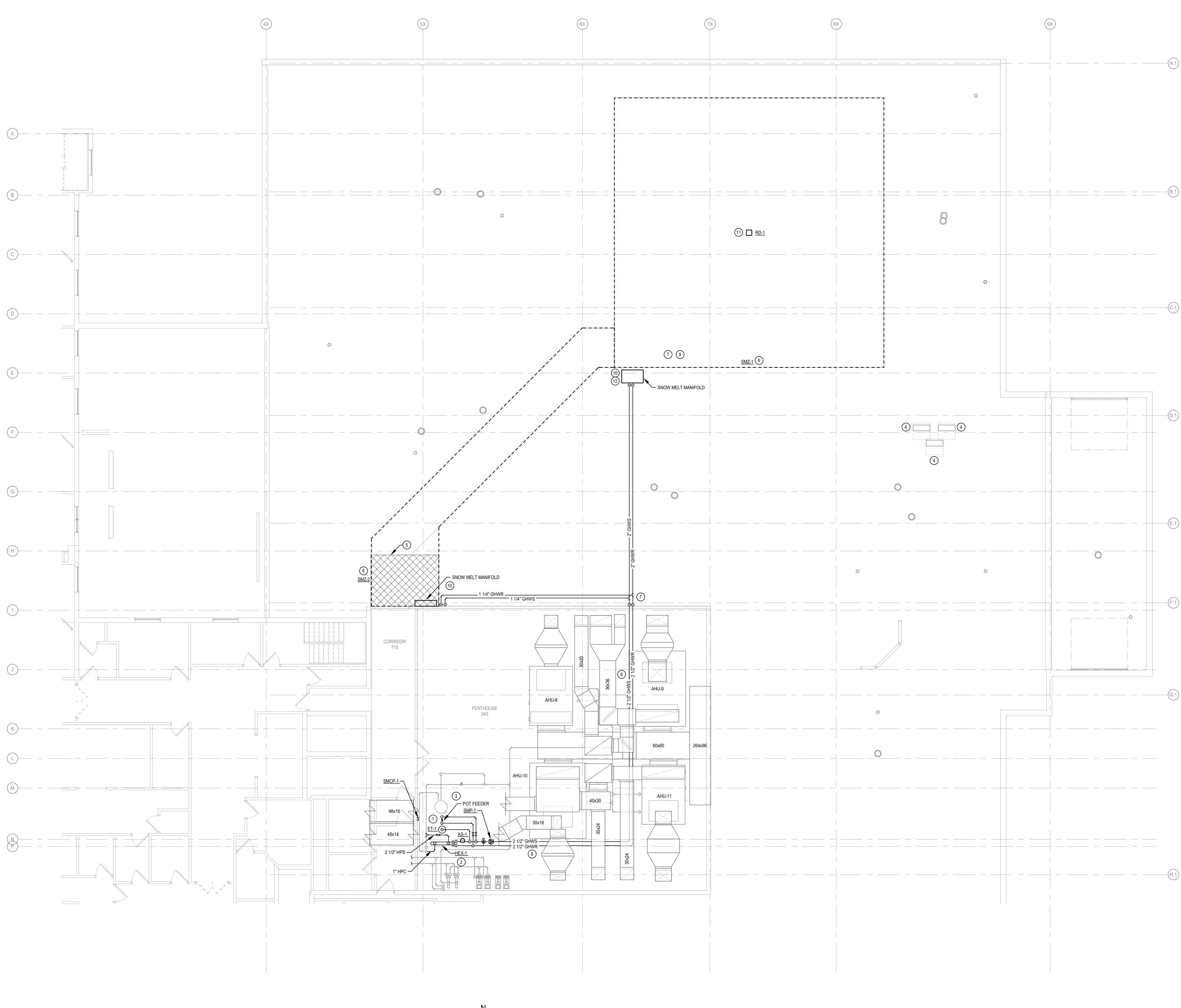
9 1015 UNION ST. BOONE, IA 50036

PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

Sheet Name: MECHANICAL GENERAL NOTES & SYMBOLS





1 MECHANICAL ROOF PLAN

GENERAL NOTES:

GL	NERAL NOTES.
1.	ALL VALVES TO BE LOCATED IN ACCESSIBLE LOCATIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
2.	BALANCING CONTRACTOR TO BALANCE ALL SNOW MELT SYSTEM TO THE VALUE THE DRAWINGS.
3.	REFER TO M5.0 SERIES DRAWINGS FOR THE FOLLOWING REFERENCED DETAILS SNOWMELT/ RADIANT IN-FLOOR HEATING CONTROL DIAGRAM SNOWMELT ZONE CONTROL DIAGRAM PUMPS - IN-LINE VERTICAL SNOW MELT - RADIANT IN-FLOOR MANIFOLD STEAM TRAP - STEAM TRAP ASSEMBLY RADIANT SNOW MELT TUBING PIPE HANGERS HEAT EXCHANGER - STEAM - SHELL AND TUBE ROOF DRAIN
<u>KE</u> `	YED NOTES:
1.	REMOVE EXISTING RO SYSTEM IN THIS AREA. REMOVE ASSOCIATED PIPING BAC MAINS AND CAP. PATCH INSULATION TO MATCH EXISTING.
2.	M.C. TO PROVIDE STEEL RACK FOR HEAT EXCHANGER MOUNTING.
3.	LOCATED ALL NEW EQUIPMENT ABOVE THE CURBED DRAIN AREA IN THIS LOCAT
4.	PROVIDE STANDS FOR EXISTING SPLIT SYSTEM CONDENSING UNIT. STANDS SHA TO RECTORSEAL BIG FOOT STANDS P# B5550. MODIFY/EXTEND REFRIGERANT P ELECTRICAL CONNECTIONS AS REQUIRED TO ACCOMMODATE STANDS.
5.	SNOW MELT TUBING IN HATCHED AREA SHALL BE 6" ON CENTER. REFER TO ARC PLANS FOR MORE INFORMATION RELATED TO SLAB THICKNESS.
6.	PROVIDE CORRUGATED PIPE SLEEVES WHERE SNOW MELT TUBING CROSSES S JOINTS.
7.	EXTERIOR ROOF MOUNTED PIPING. INSTALL RISER TIGHT TO EXTERIOR WALL. R PIPING APPLICATION SCHEDULE FOR JACKETING REQUIREMENTS.
8.	COORDINATE HYDRONIC PIPING ROUTING WITH EXISTING DUCTWORK, AHUS, PI PRIOR TO INSTALLATION.
9.	SLAB TEMPERATURE AND MOISTURE SENSOR. FIELD COORDINATE FINAL LOCAT INSTALLATION. SENSOR SHALL BE PROVIDED WITH AND INSTALLED IN A BRASS

SLAB TEMPERATURE AND MOISTURE SENSOR. FIELD COORDINATE FINAL LOCATION PRIOR TO INSTALLATION. SENSOR SHALL BE PROVIDED WITH AND INSTALLED IN A BRASS SLEEVE. CONTROL WIRING SHALL BE INSTALLED IN RIGID CONDUIT BACK TO SNOW MELT CONTROLLER. CONDUIT INSTALLATION BY E.C. COORDINATE CONDUIT ROUTING WITH ELECTRICAL PLANS. 10. INSTALL MANIFOLDS IN EXTERIOR RATED, LOCKABLE ENCLOSURE. DEMO AND REPLACE EXISTING HELIPAD ROOF DRAIN GRATE. DRAIN BODY, CLAMPS, AND WATERPROOF MEMBRANE SHALL REMAIN. RECONNECT NEW DRAIN GRATE TO EXISTING DRAIN BODY. PROVIDE DRAIN EXTENSION AS REQUIRED TO ACCOMMODATE NEW HELIPAD SLAB THICKNESS. COORDINATE WITH ARCHITECTURAL PLANS. 11.

INSTALL MANIFOLD HORIZONTALLY ADJACENT TO THE HELIPAD. HEIGHT OF MANIFOLD CABINET SHALL BE EVEN WITH TOP OF HELIPAD SLAB. COORDINATE HEIGHTS WITH ARCHITECTURAL PLANS.

12.

bluestone

YSTEM TO THE VALUES LISTED ON

REFERENCED DETAILS ROL DIAGRAM

SOCIATED PIPING BACK TO THE

UNTING.

N AREA IN THIS LOCATION. SING UNIT. STANDS SHALL BE EQUAL (TEND REFRIGERANT PIPING AND DATE STANDS.

ENTER. REFER TO ARCHITECTURAL NESS.

T TUBING CROSSES SLAB SAW CUT TO EXTERIOR WALL. REFER TO

MENTS. DUCTWORK, AHUS, PIPING, ETC.

INVISION

900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MFP BLUESTONE ENGINEERING

REVISIONS:

Description Date No.

OWNER SIGN-OFF:

NAME

Ļ	
Ξ	
DSPIT/	
Q	
Ϋ́	
Ź	
0	
ш	
Z	
X	

HELIP $\mathbf{\Omega}$



PROJECT NO: 24003

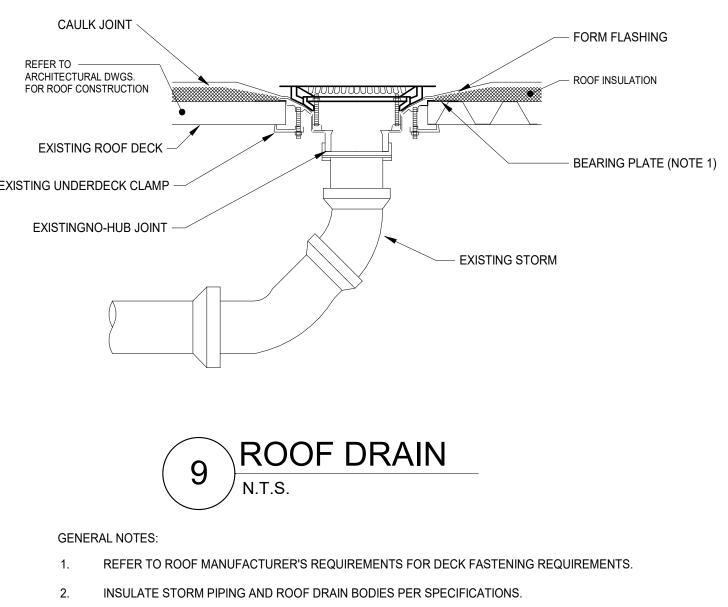
DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

Sheet Name: MECHANICAL ROOF PLAN

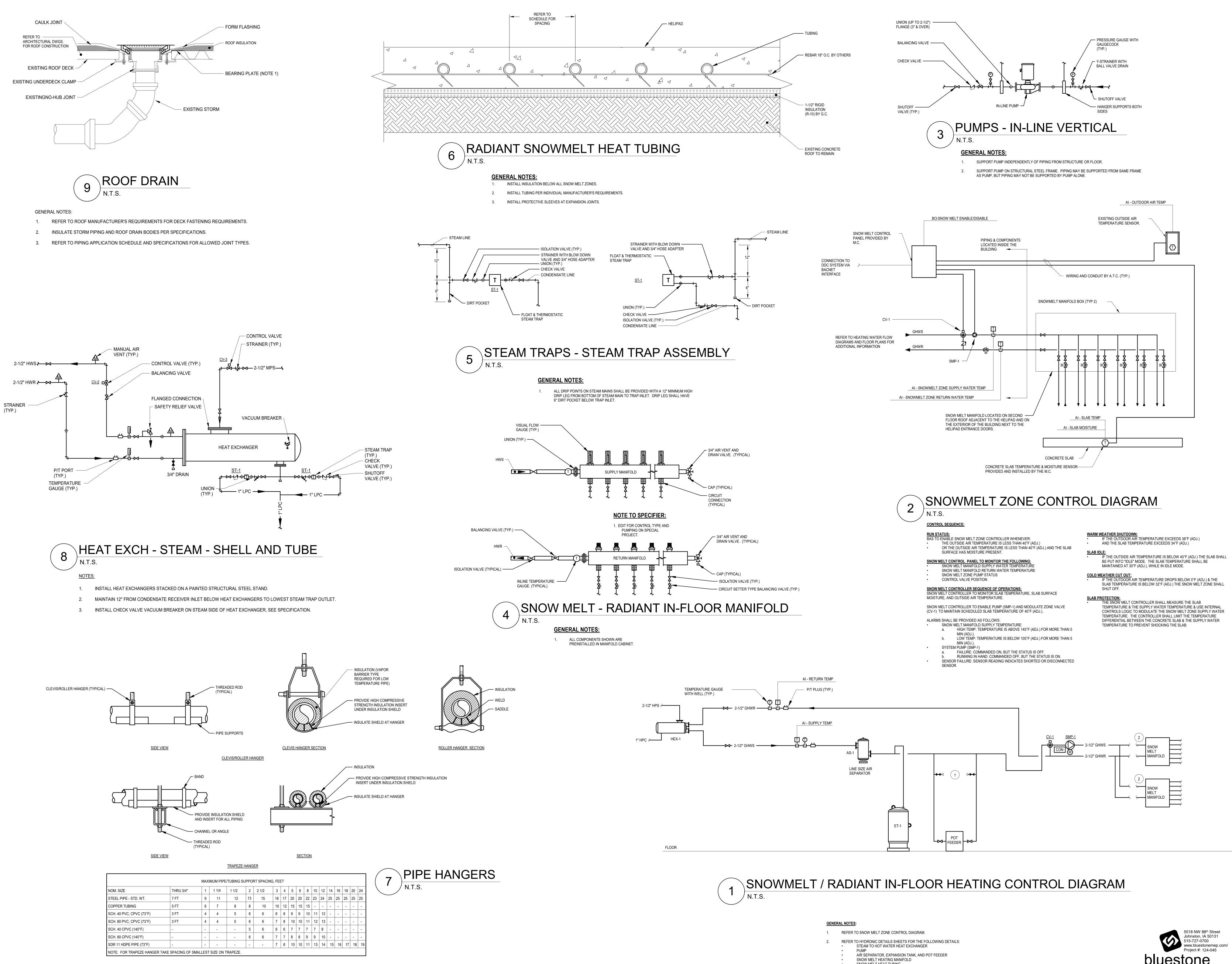


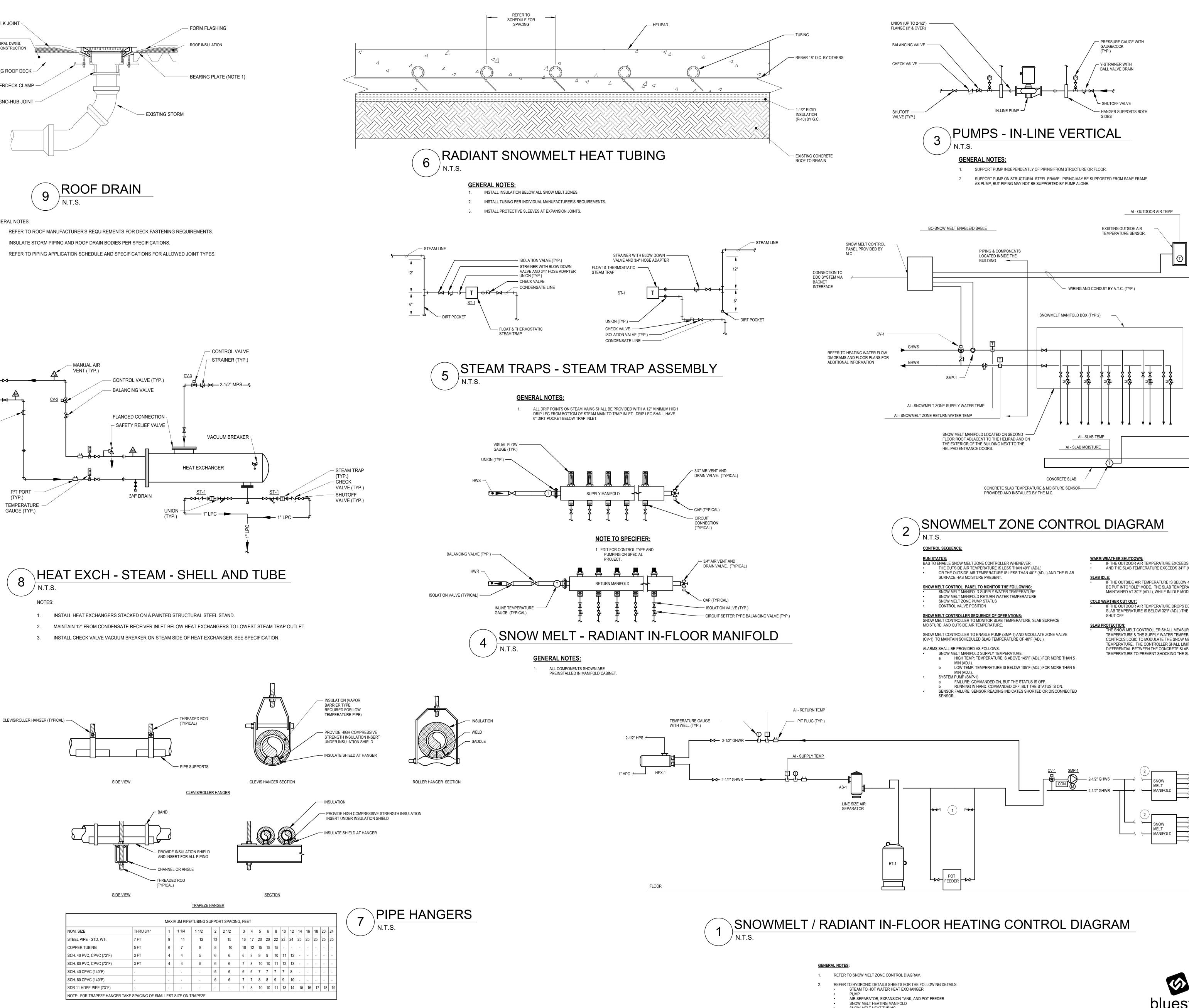


5518 NW 88th Street Johnston, IA 50131 515-727-0700 www.bluestonemep.com/ Project #: 124-045 engineering BLUESTONE ENGINEERING, LLC RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF BLUESTONE ENGINEERING, LLC AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF BLUESTONE ENGINEERING, LLC. © 2024 BLUESTONE ENGINEERING, LLC









SIDE VIEW	

	1	IVIAA		E/TUBING S				= I 	
NOM. SIZE	THRU 3/4"	1	1 1/4	1 1/2	2	2 1/2	3	4	5
STEEL PIPE - STD. WT.	7 FT	9	11	12	13	15	16	17	20
COPPER TUBING	5 FT	6	7	8	8	10	10	12	15
SCH. 40 PVC, CPVC (73°F)	3 FT	4	4	5	6	6	6	8	9
SCH. 80 PVC, CPVC (73°F)	3 FT	4	4	5	6	6	7	8	10
SCH. 40 CPVC (140°F)	-	-	-	-	5	6	6	6	7
SCH. 80 CPVC (140°F)	-	-	-	-	6	6	7	7	8
SDR 11 HDPE PIPE (73°F)	-	-	-	-	-	-	7	8	10

GENERAL NOTES: SEE SPECIFICATIONS FOR HANGER AND INSULATION REQUIREMENTS.

- SNOW MELT HEAT TUBING • KEYED NOTES:
- 1. PROVIDE CONNECTIONS FOR FLUSHING AND CLEANING OF SYSTEM. 2. REFER TO SNOW MELT HEATING MANIFOLD CONTROLS DETAILS FOR ADDITIONAL REQUIREMENTS.

ENGINEERING, LLC. © 2024 BLUESTONE ENGINEERING, LLC

	5518 NW 88 th Street Johnston, IA 50131 515-727-0700 www.bluestonemep.com/ Project #: 124-045
blues	tone
	engineering
INCLUDING COPYRIGHTS, TO THEREON. SAID DRAWING A PROPERTY OF BLUESTONE I USED OR REPRODUCED FOR	LLC RESERVES PROPRIETARY RIGHTS, D THIS DRAWING AND THE DATA SHOWN NND/OR DATA ARE THE EXCLUSIVE ENGINEERING, LLC AND SHALL NOT BE R ANY OTHER PROJECT WITHOUT THE YAL AND PARTICIPATION OF BLUESTONE

OSPITAL	
H YTV	
IE COUI	
BOON	

\Box
∢∟
T
八
С М

INVISION

900 Mulberry Street

515.633.2941

CONSULTANT:

<u>STRUCTURAL</u>

BLUESTONE ENGINEERING

REVISIONS:

Description

OWNER SIGN-OFF:

Date No

NAME

MEP

RAKER RHODES ENGINEERING

515.633.2942 Fax

Des Moines, Iowa 50309

www.invisionarch.com



PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

Sheet Name: MECHANICAL DETAILS



NOTES: 1. FLOOR MOUNTED UNITS TO BE INSTALLED ON A HOUSEKEEPING PAD. 2. REFER TO DETAILS FOR LOCATION OF VARIOUS SYSTEM COMPONENTS.

EXPAN	ISION .	TANK SCHEDU	ILE															
					CONFIGURATION	GLYC	OL			TANK / SYS	TEM PARAMETE	RS (NOTE 2)				A	IR SEPARATOR	
MAI	RK	MANUFACTURER	MODEL	SYSTEM	(HORIZONTAL OR VERTICAL) (NOTE 1)		%	ASME RATED	SYSTEM TANK TO VOLUME (GAL) VOLUME	IIN SYSTEM PRESSURE (PSI)	MAX SYSTEM PRESSURE (PSI)	RELIEF VALVE SETTING (PSI)	TANK PRE-CHARGE PRESSURE (PSI)	PRV / FILL WATER PRESSURE (PSI)	MARK	MANUFACTURER	MODEL	CONFIGURATION
ET	-1	TACO	CA90-125	SNOW MELT	VERTICAL	PROPYLENE	40	YES	160 23	10	25	30	12	10	AS-1	TACO	4900	2

NOTES: 1. THE TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE ALL NECES EXECUTE ALL SEQUENCES AS INDICATED ON THE DRAWINGS. COORDINAT REQUIREMENTS WITH EQUIPMENT MANUFACTURER(S).		
2. ATC TO CONNECT THE PACKAGED CONTROLS TO THE DDC SYSTEM. 3. CONTROLS SHALL BE PROVIDED BY BASEPOINT BUILDING SOLUTIONS (CI3	i).	
TEMPERATURE CONTROLS RESPONSIBILITY MA	TRIX	
ITEM	PROVIDED BY	INSTALLED BY
THERMOSTATS AND TEMPERATURE SENSORS FOR EQUIPMENT CONTROLLED BY THE DDC SYSTEM	ATC	ATC
THERMOSTATS AND TEMPERATURE SENSORS FOR STAND-ALONE EQUIPMENT.	EQUIP MFR	EC
SENSORS AND METERS REFERENCED IN THE CONTROLS DOCUMENTS	ATC (NOTE 1)	MC
PRESSURE AND TEMPERATURE WELLS	MC	MC
DDC CONTROL VALVES	ATC	MC
SNOW MELT HEATING WATER CONTROL VALVE	MC	MC
VALVE ACTUATORS	ATC	ATC
TEMPERATURE CONTROL WIRING AND CONDUIT	ATC	ATC
INTERFACE FROM PACKAGED EQUIPMENT CONTROLS TO THE DDC	MC	ATC (NOTE 2)

NOTES:
1. REFER TO VIBRATION ISOLATION SCHEDULE F

PUMP SCHEDULE MARK MANUFACTURER MODEL SMP-

				<u> </u> '			'				L							TOMEN	2. 01	
1	TACO	1900 SERIES INLI	INE - CLOSE COUPLED	SNOW MELT	PROP	40	49.0	52	55.0	2.5	7.6	53	1.3	2	1,760	460	3	NO	EC EC	
SEE S	SPECIFICATION SECTION	ON 230719 FOR COM ICATE INSERTS AT A	PECIFIC PIPING REQUIRE IPLETE INSULATION AND ALL PIPING HANGERS.) JACKETING REQ						D MEETING AST			IN A RETUR	N AIR PLENU	JM.					
ALL F		ED IN CONCRETE SH	ALUMINUM JACKETED. RE																	
	SYSTEM (NOTE 1)	LOC	CATION	WORKING PRESSURE)METER R	EQUIREMEN	TS ANGE (°F)	N	IATERIAL		JOIN	TS		USAGE SIZE RAN		THICKNES		N0
				(PSI)														(IN.)	(NOTES 2, 3)	
<u></u>						- NI 61 1 -				SCH 40	BLACK STEEL.		ADED. FLAN	GED, WELDI	ED.	LESS THAN	l 1-1/2"	1-1/2"		
GLYCC	L HEATING WATER	GEN	NERAL	150	LIQUID	D IN GLAS	S	40	- 260		COPPER		ROOVED, O			1-1/2" AND GF	REATER	2"	FIBERGLASS	
			ELT & RADIANT DED IN CONCRETE							RAD	IANT PEX-AL		RADIANT	PEX-AL		ALL		-	-	
	DL HEATING WATER SNOW MELT)	BETWEEN BUILD	UTION MAINS DING & SNOW MELT FOLD BOX	150		NA		1	NA		BLACK STEEL, COPPER	, THRE/ G	ADED, FLAN ROOVED, O	ged, weldi R Solder	ED,	ALL		2"	PRE INSULATE ELASTOMERIC FO WITH ALUMINIL JACKETING	MAO JM
HIGH	PRESSURE STEAM		NERAL	150		D IN GLASS		40	- 260	501140) BLACK STEEL	т	HREADED, I	FLANGED,		LESS THA	AN 1"	4.5"	FIBERGLASS	
	(30-125#)	GEN		UGI	LIQUIL	J IN GLASS	,	40	- 200	5CH 4U	DLAUN SIEEL		OR WÉL			1" & GREA	ATER	5"	FIBERGLASS	
								10	- 260) BLACK STEEL	т	HREADED, I			LESS THA	AN 4"	2-1/2"	FIBERGLASS	
	GH PRESSURE CONDENSATE		NERAL	150		D IN GLASS	S 1	70					OR WEL							

NOTEO			
NOTES:			
1. REFER TO	D FLOOR PLANS FOR AREAS & LO	CATIONS.	
2. DESIGN B	ASED ON THE FOLLOWING CRITE	ERIA:	
-	140DEG F MEAN WATER TEMP		
-	FLOOR COVERING R-VALUE 0.50		
	40 DEG F FLOOR SURFACE TEMP		
	RE DROP INCLUDES MANIFOLD, SI		
	WITH A POWDER COATED RECES		
5. REFER TO	D FLOOR PLANS NOTING WHERE	TUBE SPACING	SHALL 6 INCHES.
RADIAT	ION SCHEDULE (SNC	OW MELT))
MARK	MANUFACTURER	MODEL	SYSTEM TYPE
SMZ-1	ROTH	X-PERT	RADIANT SNOW MELT
			RADIANT SNOW

CONFIGURATION: 1. AIR SEPARATOR 2. AIR SEPARATOR WITH STRAINER 3. AIR / DIRT SEPARATOR

FOR SPECIFIC EQUIPMENT REQUIREMENTS.

TYPE	SERVICE	GLY	COL	FLOW RATE	PUMP HEAD AT DESIGN (FT.)	PUMP FT. HEAD AT	INLET SIZE	IMPELLER SIZE	MINIMUM					ELECTRIC	AL	
	SERVICE	TYPE		DESIGN (FT.)	0 GPM	(IN.)	(IN.)	%	BHP	HP	RPM	VOLT	PH	EMERGENCY POWER	DISCONNECT BY	
INLINE - CLOSE COUPLED	SNOW MELT	PROP	40	49.0	52	55.0	2.5	7.6	53	1.3	2	1,760	460	3	NO	EC

EAS & LOCATIONS.

NIFOLD, SHUTOFF VALVES, BALANCING VALVE, AND LOOP PIPING. D RECESSED, LOCKABLE CABINET FOR MANIFOLD TO BE INSTALLED

E (SNOW MELT)

URER	MODEL	SYSTEM TYPE	SERVICE	GLYCOL	_	AREA	AVERAGE		SURFACE TEMP	FLOW RATE	EWT (°F)	LWT	TUBE SPACING	TUBE	MAX. LOOP	ESTIMATED NUMBER OF	N
	MODEL	STSTEMITTPE	(NOTE 1)	TYPE	%	(FT ₂)		HEAT OUTPUT	(°F) (NOTE 2)	(GPM)	(')	(°F) (NOTE 2)	(INCHES)	DIAMETER	LENGTH	LOOPS/CIRCUITS	
	X-PERT	RADIANT SNOW MELT	HELIPAD	PROPYLENE	40	2,500	190	475,000	40	41.0	140	110	9	5/8"	300	12	
	X-PERT	RADIANT SNOW MELT	WALKWAY	PROPYLENE	40	500	190	95,000	40	8.0	140	110	9 (NOTE 5)	5/8"	300	3	

GENERAL NOTES: (APPLIES TO ALL VALVE TYPES)

1. REFER TO THE VARIOUS COMPONENT PIPING DIAGRAMS FOR CONFIGURATION OF SYSTEM COMPONENTS AND ADDITIONAL REQUIREMENTS. 2. VALVE MODULATION SPEED TO BE ADJUSTABLE FROM 0 - 120 SEC STROKE TIME TO DAMPEN THE EFFECTS TO THE SYSTEM WHEN THE VALVE MODULATES.

3. ACTUATORS WITH POSITION INDICATOR FEEDBACK TO DDC SYSTEM, INCLUDES % OPEN.

4. MODULATING VALVES SHALL HAVE A LINEAR RELATIONSHIP BETWEEN VALVE POSTION AND FLOW RATE.

NOTES:

1. VALVE SIZE MAY VARY BASED ON PERFORMANCE REQUIREMENTS. SIZE LISTED BELOW IS FOR THE PIPE SIZE THAT THE VALVE WILL BE INSTALLED IN. M.C. TO TRANSITION PIPING AS NECESSARY.

VALVE SCHEDULE

			SYSTEM SERVED		RVED	VALVE SIZI	NG (NOTE 1)			VALVE TYPE			BAL
MARK	EQUIPMENT SERVED	EQUIPMENT DESCRIPTION		TING TER	OTEAM	PIPE SIZE	CDM	2-WAY OR	TWO POSITION OR	FAIL POSITION	SPRING RETURN	PRESSURE INDEPENDENT	V (MAN
			SUP	RET	STEAM	PIPE SIZE	GPM	3-WAY	MODULATING	N.O. / N.C. / LAST POSITION	YES OR NO	YES OR NO	AUT
CV-1	SMP-1	SNOW MELT SYSTEM	x			2.5	49	3-WAY	MODULATING	L.P.	NO	NO	MA
CV-2	HX-1	HX-1 HEAT EXCHANGER (SHELL & TUBE				2.5	49	2-WAY	TWO POSITION	N.C.	YES	NO	MA
CV-3	HX-1	HEAT EXCHANGER (SHELL & TUBE)			x	2.5	-	2-WAY	TWO POSITION	N.C.	YES	NO	MA

NOTES: 1. CAPACITY LISTED IS FOR EACH TRAP AND INCLUDES SAFETY FACTOR.

2. SIZE LISTED IS FOR PIPING CONNECTIONS. 3 CONTRACTOR TO FIELD VERIFY TRAP CONFIGURATION FOR EACH LOCATION. PROVIDE WITH STANDARD OR INLINE PIPING CONNECTIONS AS NECESSARY.

4. PROVIDE WITH INTERNAL CHECK VALVE AND THERMIC VENT BUCKET FOR APPLICATIONS OF LESS THAN 130 PSI. FOR HIGHER PRESSURES, THERMIC VENT BUCKET MAY BE OMITTED.

STEAM TR	AP SCHEDU	LE	

NOTES:

SMCP-1

					CONSE	RUCTION			0175		PERFORMANCE	Ξ
MARK	MANUFACTURER	MODEL	SERVICE	TYPE	BODY	INTERNALS	VACUUM BREAKER	SAFETY FACTOR	SIZE (NOTE 2)	CAPACITY (LB/HR) (NOTE 1)	INLET PRESSURE (PSI)	I
ST-1	ARMSTRONG	A-SERIES	SNOW MELT (HEX-1)	FLOAT & THERMOSTATIC	CAST IRON	STAINLESS STEEL	YES	3	1"	2200	50	

1. ALL CONTROL CABINETS IN WET OR DAMP LOCATIONS TO BE NEMA 3 RATED.

MISCELI	LANEOUS MECHANIC	AL EQUIPMEN	NT SCHEDULE							
							SYN	/BOL		
MARK	MANUFACTURER	MODEL	DESCRIPTION	SERVICE	VOLT	PH	MOCP	DISCO		
					VOLT	FN	NUCF	BY		

SMC SNOW MELT CONTROLLER SNOW MELT HEAT TIMER NOTES:

2. PROVIDE 2.5" TUBE STEEL SUPPORT STRUCTURE WITH CRADLES FOR HEAT EXCHANGER.
1. STEAM PRESSURE INDICATED IS THE PRESSURE AVAILABLE DOWNSTREAM OF THE CONTROL VALVE.

HEAT EXCHANGER SCHEDULE - STEAM TO WATER											
					STEAM		WATER				
MA	RK	MANUFACTURER	MODEL	SERVICE	CAPACITY (LB/HR)	STEAM PRESSURE (PSIG) (NOTE 1)	GPM	MAX. W.P.D. (FT. HEAD)	EWT (°F)	LWT (°F)	HEATING SURFACE (FT2)
HE	X-1	TACO	E06208-s	SNOW MELT	810	50	49	1	110	140	19.3

	G MATERIAL LIS	ST			
FIXTURE	MANUFACTURER (NOTE 1)	DESCRIPTION	AREA SERVED	NOTES	blu
<u>RD-1</u>	ZURN Z-150	FIXTURE: SQUARE TOP PROM-DECK DRAIN - GRATE ONLY, SQUARE TOP FLUSH TO DECK, HEAVY DUTY, HEEL-PROOF, ROTATABLE FRAM & SEDIMENT BUCKET, 14"X14" GRATE. PROVIDE EXTENSIONS AS REQUIRED TO ACCOMMODATE NEW HELIPAD SLAB THICKNESS.	HELIPAD		BLUESTON INCLUDING THEREON.

N	SIZE		NOTES
	2.5		
			NOTES
ŝ	STARTER BY		NOTES
	EC		1

JBE IETER	MAX. LOOP LENGTH	NUME	MATED BER OF CIRCUITS		IAX. PRESS DROP (FT HEAL (NOTE 3	D)	NOTES
5/8" 300 5/8" 300			12 3		20 5		
CESSAF	RY.						
	SPRING RETURN ES OR NO	INDEPE	SURE ENDENT	√ (MAI	ANCING /ALVE NUAL OR OMATIC)	NC	DTES
	NO	N	10	MANUAL			
	YES	N	NO		MANUAL		
	YES	N	NO		MANUAL		
(L (N)	PACITY B/HR) OTE 1) 2200	PERF	SI)		AX PRESSU RATING (PSI) 125	RE	NOTES
		SYM	BOL				
VOLT	PH	MOCP -	BY	DISCC	NNECT		NOTES
120	1	20	EC	NON-FUSED)	1
VATER							
	EWT (°F)	LWT (°F)	HEAT SURF (F1	ACE	FOULING FACTOR		IOTES
	110	140	19	.3	0.00025		2
		la I.	S	Jo 5' w	518 NW 88 [#] ohnston, IA 15-727-070(ww.bluestor roject #: 124	50131) iemep.c	om/

stone engineering BLUESTONE ENGINEERING, LLC RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF BLUESTONE ENGINEERING, LLC AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF BLUESTONE ENGINEERING, LLC. © 2024 BLUESTONE ENGINEERING, LLC



900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

revisions:		
Description	Date	No
OWNER SIGN-OFF:		
DATE		NAME

 \square HELIPA Т \bigcirc В

9 1015 UNION ST. BOONE, IA 50036

PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

sheet name: MECHANICAL SCHEDULES



	GENERAL ELECTRICAL SYMBOLS
C.M.	CONSTRUCTION MANAGER
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING/PIPING CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
A.T.C.	AUTOMATIC TEMPERATURE CONTROLS CONTRACTOR
G.C.	GENERAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
EQUIPMENT	SCHEDULED EQUIPMENT (UNDERLINED)
EQUIPMENT	NON-SCHEDULED EQUIPMENT
X_EQUIPMENT	EXISTING EQUIPMENT (X_PREFIX)
А	6" ABOVE COUNTER OR BACKSPLASH TO CENTERLINE OF DEVICE
М	INSTALL DEVICE IN MILLWORK
XX	LOCATION-SPECIFIC MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTERLINE OF DEVICE
Н	INSTALL DEVICE HORIZONTALLY
В	BLACK DEVICE COLOR WITH BLACK UNBREAKABLE THERMOPLASTIC COVER PLATE
1	USED BETWEEN TWO OR MORE SUBSCRIPTS
#	SECTION VIEW, TOP REPRESENTS DETAIL NUMBER, BOTTOM REPRESENTS SHEET NUMBER
#	ENLARGED VIEW, TOP REPRESENTS VIEW NUMBER, BOTTOM REPRESENTS SHEET NUMBER

SYMBOL	DESCRIPTION
(LSIG)	ELECTRONIC TRIP CIRCUIT BREAKER (LONG TIME, SHORT TIME, INST, GROUND FAULT)
(LSI)	ELECTRONIC TRIP CIRCUIT BREAKER (LONG TIME, SHORT TIME, INST)
(LSIA)	ELECTRONIC TRIP CIRCUIT BREAKER (LONG TIME, SHORT TIME, INST, GROUND FAULT ALARM)
(HL)	HANDLE LOCK
(SD)	DENOTES SERVICE DISCONNECT
(ST)	120V SHUNT TRIP OPERATOR
(G)	GROUND FAULT CIRCUIT INTERRUPTER
(E)	EXISTING BREAKER IN EXISTING PANEL
(N)	NEW BREAKER IN EXISTING PANEL
(NE)	NEW BREAKER, EXTEND EXISTING LOAD
(A)	ARC FLASH
	r
	GENERAL ELECTRICAL SYMBOLS
@ <i>/</i> /	CONNECTION TO MECHANICAL EQUIPMENT
JJ	ELECTRICAL CONNCTION TO MISC EQUIPMENT
EPO #	EMERGENCY STOP PUSH BUTTON. REFER TO SCHEDULE FOR ADDITIONAL INFORMATION.
DPM	DIGITAL POWER METER, LCD DISPLAY, MONITORING OF VOLTAGE, CURRENT, POWER, PF, FREQUENCY, MIN/MAX AND AVERAGE VALUES, AND ENERGY
	PANELBOARD - SEE SCHEDULES FOR MORE INFORMATION
T UTIL	UTILITY TRANSFORMER - PROVIDED BY UTILITY
	SWITCHBOARD - SEE SCHEDULES FOR MORE INFORMATION
T	TRANSFORMER - SEE SCHEDULES FOR MORE INFORMATION
<mark>⊏</mark> т DS-XXX A/B/C	DISCONNECT SWITCH, HEAVY DUTY, SIZE INDICATED ON PLANS (A/B/C) WHERE A = RATING IN AMPS, B = NUMBER OF POLES, C = NEMA RATING (E.G. 1 = NEMA 1), XXX = NAME OF LOAD SERVED

 $\overline{\mathbb{M}}$

POWER METER

SCHEDULE GENERAL NOTES

GE	NERAL LIGHTING SYMBOLS				
SYMBOL	DESCRIPTION				
\bigotimes	DOUBLE FACED EXIT SIGN				
\bigotimes	SINGLE FACED EXIT SIGN				
\mathbb{N}	RECESSED ARCHITECTURAL TROFFER				
o	RECESSED DOWNLIGHT				
¥	EMERGENCY FIXTURE				
⊶	POLE MOUNTED SITE FIXTURE				
	POLE MOUNTED SITE FIXTURE				
	INDUSTRIAL FIXTURE				
0	SURFACE OR PENDANT LINEAR FIXTURE				
0	SURFACE OR PENDANT CIRCULAR FIXTURE				
	WALL MOUNTED FIXTURE				
Q	WALL SCONCE				
	HIGH BAY				
GE	ENERAL SWITCH SYMBOLS				
SYMBOL	DESCRIPTION				
\$	SWITCH, REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION.				
D#	REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION				

GE	GENERAL POWER SYMBOLS					
SYMBOL	DESCRIPTION					
Ø	DUPLEX RECEPTACLE, NEMA 5-20R, EMERGENCY POWER					
Φ	DUPLEX RECEPTACLE, REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION.					
$\odot_{_{\rm CR}}$	CORD REEL					
⊙ _{cd}	CORD DROP					
#	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R					
Φ	SIMPLEX RECEPTACLE, NEMA 5-20R					
Ф	SPECIAL RECEPTACLE					
۲	RECESSED FLOOR BOX OR POKE-THRU					
+	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, EMERGENCY POWER					

REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION

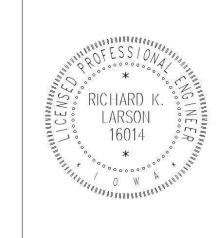
REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION

(#

U# |

1.	REFER TO SPECIFICATION SECTION 260502 FOR ADDITIONAL DEMOLITION INFORMATION.
2.	REMOVE POWER, LIGHTING, CONTROL, AND COMMUNICATIONS DEVICES SHOWN, UNLESS NOTED OTHERWISE. REMOVE ALL UNUSED CONDUIT, RACEWAYS, WIRING, JUNCTION BOXES, DISCONNECTS, HANGERS AND ACCESSORIES COMPLETELY BACK TO THE SOURCE.
3.	MAKE PROVISIONS AND BACK-FEED OR RE-CIRCUIT ANY ITEMS THAT ARE EXISTING TO REMAIN WHICH ARE AFFECTED BY DEMOLITION.
4.	RELOCATE CONDUITS AS REQUIRED TO ACCOMMODATE PIPING MODIFICATIONS ASSOCIATED WITH THE REMODELING.
5.	INVESTIGATION OF EXISTING POWER AND LIGHTING SYSTEMS WILL BE REQUIRED BY THE E.C. AS PART OF THE BIDDING PROCESS TO DETERMINE THE FULL EXTENT OF DEMOLITION WORK REQUIRED. THE E.C. SHALL BE RESPONSIBLE FOR REMOVAL OF SOME PORTIONS OF POWER AND LIGHTING SYSTEMS NOT EXPLICITLY SHOWN ON THESE DRAWINGS, BUT ARE REQUIRED FOR THIS PROJECT. COORDINATE WITH THE GENERAL CONTRACTOR, OWNER, AND ENGINEER TO DETERMINE WHICH PORTIONS OF EXISTING SYSTEMS MUST REMAIN ACTIVE AND WHICH PORTIONS MUST BE REMOVED.
6.	E.C. SHALL FIELD VERIFY ACTUAL LOCATION AND SIZES OF EXISTING CONDUIT, WIRING, AND EQUIPMENT.
7.	PATCH AND REPAIR ALL FLOOR, WALL, AND CEILING OPENINGS DUE TO DEMOLITION WHICH WILL NOT BE REUSED. COORDINATE WORK WITH THE FINISH CONTRACTORS.
8.	PROTECT ALL WALLS, CEILINGS, FLOORS, LIGHTS, AND OTHER FINISHED SURFACES THAT ARE NOT SCHEDULED FOR DEMOLITION. IF DAMAGED, THE RESPONSIBLE CONTRACTOR SHALL REPAIR TO MATCH EXISTING CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
9.	ALL SALVAGE SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER TO A LOCATION ON SITE AS DESIGNATED BY THE OWNER. IN THE EVENT THE OWNER DOES NOT WANT TO RETAIN THE SALVAGE MATERIAL, THE MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OR RECYCLED BY THE CONTRACTOR.
	GENERAL ELECTRICAL NOTES
1.	ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH N.E.C., LOCAL, AND ALL OTHER APPLICABLE CODES.
2.	INSTALLATION OF EQUIPMENT SHALL BE IN ACCORDANCE WITH CURRENT STANDARDS AND SPECIFICATIONS APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ). PLACE ALL CABLE/WIRING IN CONDUIT OR RACEWAY UNLESS NOTED OTHERWISE. DO NOT LIE ON, OR SUPPORT CABLE FROM, CEILING DEVICES, PIPING OR DUCTWORK. PROVIDE NEW WIRING FOR ALL BRANCH CIRCUITS AND FEEDERS.
3.	FEEDERS ON DRAWINGS ARE SCHEMATIC ONLY. CONDUIT RUNS SHALL COMPLY WITH CONDUIT SPECIFICATIONS AND CONTAIN BENDS THAT ARE NOT GREATER THAN 90 DEGREES. CONDUITS ABOVE GRADE SHALL BE RUN PARALLEL TO OR PERPENDICULAR WITH BUILDING LINES AND STRUCTURE.
4.	CIRCUIT WIRING FOR THE EMERGENCY SYSTEM SHALL BE INSTALLED IN SEPARATE CONDUIT/RACEWAY AND BE KEPT ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND EQUIPMENT PER THE N.E.C.
5.	ALL FEEDER AND BRANCH CIRCUITS TO PANELS, MOTORS, LIGHTS, RECEPTACLES, GENERAL DISTRIBUTION, ETC. SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR SIZED ACCORDING TO THE N.E.C. THE CONDUIT SYSTEM SHALL NOT BE CONSIDERED AN ACCEPTABLE GROUND.
6.	REFER TO MECHANICAL EQUIPMENT SCHEDULES FOR DETAILED INFORMATION ON EQUIPMENT, DISCONNECTS, AND CONTROLS. E.C. SHALL PROVIDE ITEMS AS NOTED ON THE MECHANICAL SCHEDULES.
7.	RELOCATE EXISTING CONDUITS, WIRING, AND BOXES AS REQUIRED FOR INSTALLATION OF MECHANICAL EQUIPMENT AND PIPING.
8.	SURFACE-MOUNTED CONDUITS AND/OR RACEWAYS IN NEW CONSTRUCTION OF FINISHED AREAS ARE NOT ACCEPTABLE. CONDUIT MUST BE INSTALLED CONCEALED AND ROUGH-INS MOUNTED FLUSH IN THESE AREAS.
9.	ALL WIRING AND FEEDER SIZES ON DRAWINGS ARE SIZED FOR COPPER WIRING UNLESS SPECIFICALLY NOTED OTHERWISE.
	EQUIPMENT/DEVICE HOME RUN KEY
1.	BRANCH CIRCUIT WIRING SHALL BE #12AWG UNLESS NOTED OTHERWISE ON THE PLAN OR IN THE SCHEDULES.
2.	AS A MINIMUM USE 10 AWG CONDUCTOR FOR 20 AMPERE, 120 VOLT BRANCH CIRCUIT HOME RUNS LONGER THAN 100 FEET AND 277 VOLT BRANCH CIRCUIT HOME RUNS LONGER THAN 200 FEET.
3.	REFER TO SPECIFICATION SECTION 260519 FOR ADDITIONAL REQUIREMENTS.
	EQUIPMENT GROUNDING CONDUCTOR
	NEUTRAL CONDUCTOR (LONG LINE)
	NEW WORK BY THE E.C. (DARK SOLID LINE) NEW UNDERGROUND WORK BY THE E.C. (DARK DASHED LINE)
	WORK BY OTHERS AND/OR EXISTING (LIGHT SOLID LINE)
	DEMO WORK BY THE E.C. (DARK DASHED LINE)

DEMOLITION NOTES



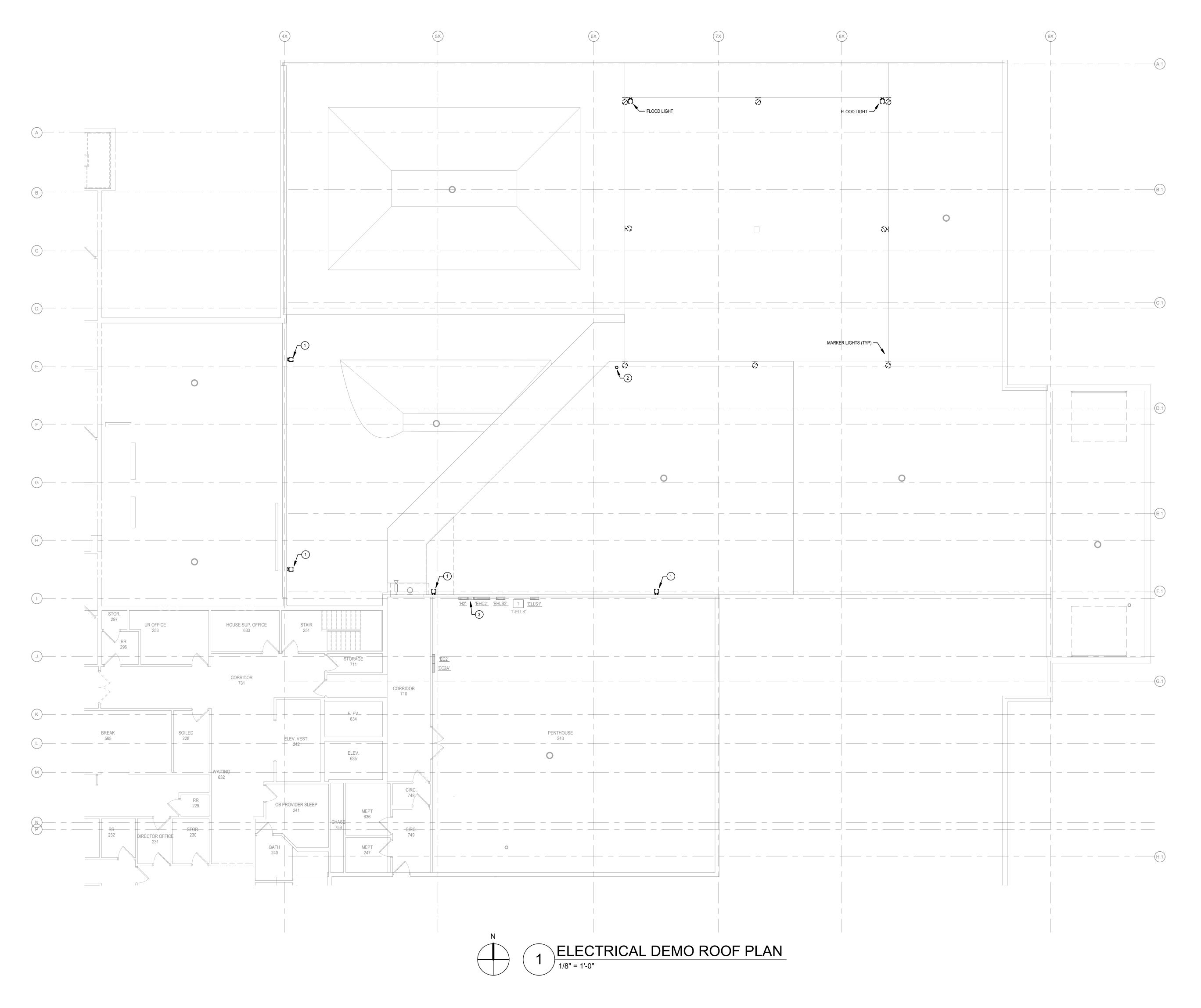
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. All pro-6/13/24 Date Signatur e

Richard K. Larson License number 16014 My license renewal date is December 31, 2025. Pages or sheets covered by this seal: E-Sheets



PLANNING ARCHITECTURE INTERIORS 900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com CONSULTANT: structural RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING **REVISIONS:** Description Date No. _____ _____ _____ . _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ OWNER SIGN-OFF: DATE NAME _____ 1015 UNION ST. BOONE, IA 50036 Ā \square BCH HELIPA H NTγ IE COU PROJECT NO: 24003 DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS Sheet Name: ELECTRICAL COVER SHEET SHEET: E0.0 Copyright C 2024

5518 NW 88th Street Johnston, IA 50131 515-727-0700 www.bluestonemep.com/ Project #: 124-045 engineering BLUESTONE ENGINEERING, LLC RESERVES PROPRIETARY RIGHTS, INCLUDING COPYRIGHTS, TO THIS DRAWING AND THE DATA SHOWN THEREON. SAID DRAWING AND/OR DATA ARE THE EXCLUSIVE PROPERTY OF BLUESTONE ENGINEERING, LLC AND SHALL NOT BE USED OR REPRODUCED FOR ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN APPROVAL AND PARTICIPATION OF BLUESTONE ENGINEERING, LLC. © 2024 BLUESTONE ENGINEERING, LLC



EET RESPONSIBILITY:Author 6/13/2024 10:41:45 AM Autodesk Docs://24003_BCH_Helipad/124-045-MEP-23-JK360.n

KEYED NOTES:

- 1. MAINTAIN WIRING FOR NEW LIGHTING CONNECTIONS, E.C. TO INVESTIGATE AND REPAIR WIRING AND/OR CONTROLS FOR FUNCTION OF NEW FIXTURES (EXISTING LIGHTS ARE WIRED, BUT NOT OPERATING).
- E.C. TO MAINTAIN LB CONDUIT FITTING ON ROOF, UTILIZE EXISTING WIRING FROM THE FLOOR BELOW TO SERVE NEW LIGHTING. REMOVE ALL CONDUIT AND WIRING ON ROOFTOP AFTER LB FITTING.
- 3. EXISTING LIGHTING RELAY CONTROL BOX THAT SERVES THE CURRENT HELIPAD LIGHTING, WINDSOCK LIGHTING AND ADDITIONAL EXTERIOR LIGHTING. RELAY CONTROL BOX AND CIRCUITING SHALL REMAIN AND WILL BE USED TO SERVE THE NEW LIGHTING.



R WIRING JT NOT LOOR TER LB



900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com

CONSULTANT: <u>STRUCTURAL</u> RAKER RHODES ENGINEERING <u>MEP</u> BLUESTONE ENGINEERING

REVISIONS: Description Date No.

OWNER SIGN-OFF:

NAME

DONE COUNTY HOSPITAL

 \square HELIPAI BCH

1015 UNION ST. BOONE, IA 50036

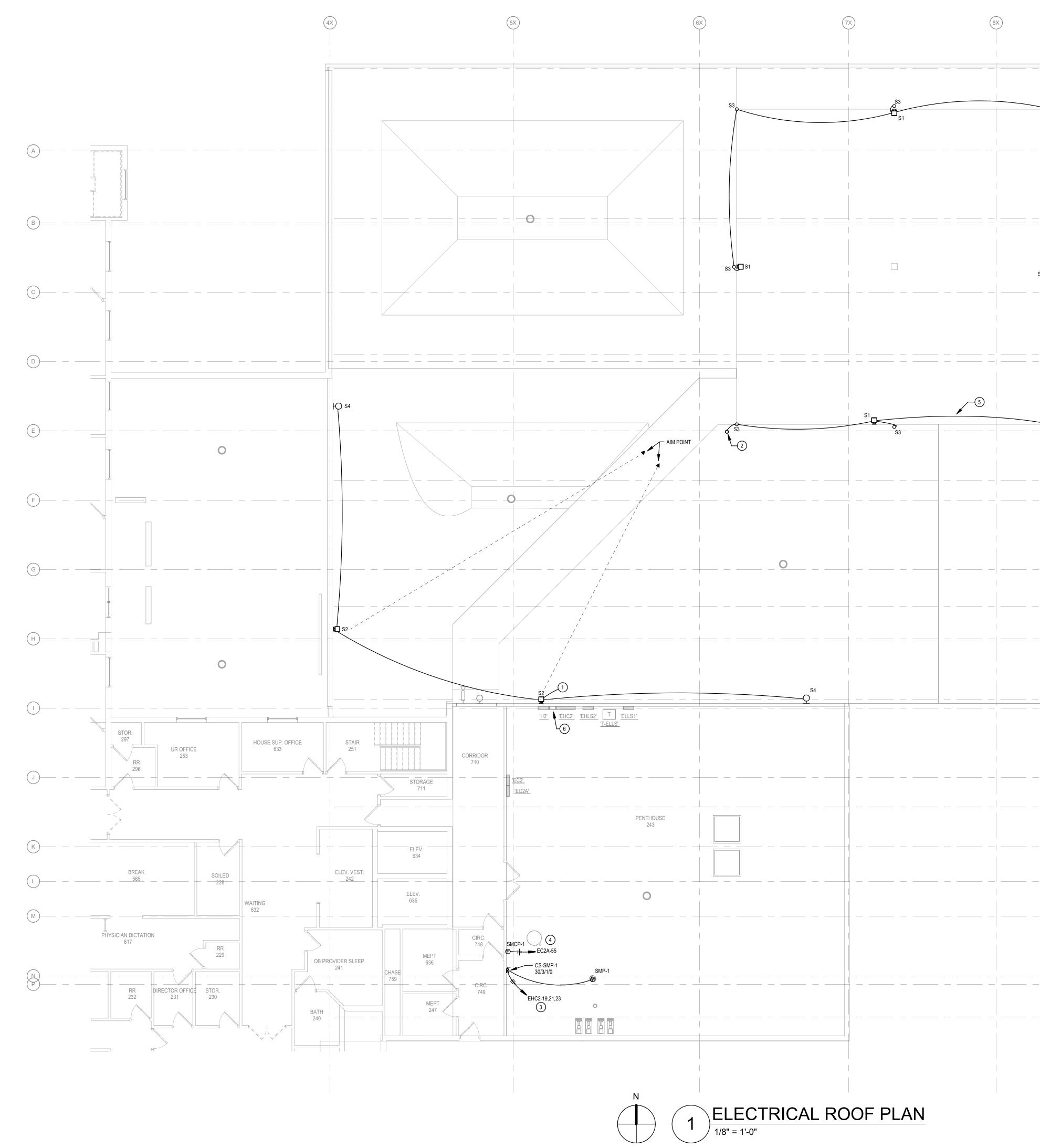
PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

sheet name: ELECTRICAL DEMO ROOF PLAN







GENERAL ELECTRICAL SCHEDULE					
SYMBOL	DESCRIPTION	MANUFACTURER			
\odot	CONNECTION TO MECHANICAL EQUIPMENT	MOTOR/EQUIPMENT FURNISHED AND INSTALLED BY M.C.			
J J	ELECTRICAL CONNECTION TO MISC. EQUIPMENT	EQUIPMENT FURNISHED AND INSTALLED BY OTHERS			
CS-XXX A/B/C/D	COMBINATION DISCONNECT STARTER CONTAINING FUSED DISCONNECT SWITCH AND NON-REVERSING NEMA STARTER (MINIMUM SIZE 0), 480V 3-PHASE, XXX = NAME OF LOAD SERVED, HAND-OFF-AUTO AND RED "RUN" PILOT LIGHT IN DOOR, A = FDS RATING IN AMPS, B = FDS NUMBER OF POLES, C = NEMA RATING, D = STARTER SIZE, COORDINATE CONTROL VOLTAGE WITH M.C.	SQUARE D CLASS 8538 SIEMENS CUTLER-HAMMER GENERAL ELECTRIC			

S4

	(Xe)	
S3		—(A.1)
S1 S3		—(B.1)
		—(C.1)
		(D.1)
		—(E.1)
		—(F.1)
		—(G.1)
		—(H. 1)

LUMINAIRE SCHEDULE									
′PE	DESCRIPTION	MANUFACTURER	MODEL	WATTS	LIGHT SOURCE	POWER SUPPLY	MOUNTING	VOLT	ACCEPTABLE MANUFACTURERS
51	LOW PROFILE HELIPAD PERIMETER FLOOD LIGHT, YELLOW FINISH, SURFACE MOUNTED, MINIMUM 4500 LUMENS, EXTERNAL JUNCTION BOX, FULL VISOR, TRUNNION MOUNT, WET LOCATION RATED	POINT LIGHTING	PSF-53063-6	32 W	LED	DRIVER	SURFACE	120 V	
52	FLOOD LIGHT, MINIMUM 3500 DELIVERED LUMENS, 60 DEGREE FLOOD DISTRIBUTION, CUTOFF VISOR, UL WET LOCATION AND IP67 RATED, BLACK FINISH, AIM AT WALKWAY AS SHOWN ON DRAWINGS, KUNCKLE ARM MOUNT WITH SURFACE BASE MOUNT TO ALLOW 360 DEGREES OF ROTATION, MATCH MOUNTING LOCATION OF EXISTING FIXTURES	FC OUTDOOR LIGHTING	FCF1106	36 W	LED	DRIVER	WALL	120 V	SPAULDING, MCGRAW-EDISON, VISIONAIRE, CREE, LIGMAN, KIM
53	HELIPAD PERIMETER LIGHT, GREEN LIGHTING WITH SUPPLEMENTAL IR LEDS FOR NIGHT VISION OPERATION, WET LOCATION LISTED, MINIMUM OPERATING TEMPEARTURES OF -40 F., UTILIZE INTEGRAL JUNCTION BOX, PROVIDE ALL REQUIRED HARDWARE FOR INSTALLATION	POINT LIGHTING	PEL LED V5	5 W	LED	DRIVER	SURFACE	120 V	
54	EXTERIOR WALL PACK, MINIMUM 3500 DELIVERED LUMENS, IESNA TYPE IV DISTRIBUTION, ALUMINIUM CONSTRUCTION, UL WET LOCATION LISTED, BLACK FINISH, MATCH MOUNTING LOCATION OF EXISTING FIXTURES, DLC LISTED	BEACON	TRV	27 W	LED	DRIVER	WALL	120 V	GARDCO, SPAULDING, MCGRAW-EDISON, VISIONAIRE, LITHONIA, CREE, LIGMAN, KIM

KEYED NOTES:

- 1. CONNECT NEW EXTERIOR WALL LIGHTS TO EXISTING WIRING AND CONTROLS. ENSURE ALL FIXTURES ARE OPERATIONAL.
- 2. UTILIZE EXISTING CONDUIT THROUGH ROOF FOR NEW WIRING TO HELIPAD LIGHTING. EXTEND EXISTING WIRING FOR THE NEW LIGHTING. RE-SEAL CONDUIT AS NEEDED. 3. CONNECT TO SPARE 20A/3P BREAKER IN PANEL EHC2 IN PENTHOUSE MECHANICAL ROOM.
- 4. CONNECT TO PANEL EC2A IN PENTHOUSE ROOM. PROVIDE NEW 20A/1P SQUARE D BREAKER IN NQOD PANELBOARD.
- MOUNT CONDUIT ON OUTSIDE FACE OF NEW HELIPAD SLAB. CONDUIT SHALL BE IMC WITH FITTINGS AS REQUIRED FOR THE LIGHTING LAYOUT SHOWN. 5.
- EXISTING LIGHTING RELAY CONTROL BOX THAT SERVES THE HELIPAD LIGHTING, WINDSOCK LIGHTING AND ADDITIONAL EXTERIOR LIGHTING. RELAY CONTROL BOX AND CIRCUITING SHALL REMAIN AND WILL BE USED TO SERVE THE NEW LIGHTING.. 6.





900 Mulberry Street Des Moines, Iowa 50309 515.633.2941 515.633.2942 Fax www.invisionarch.com

CONSULTANT: STRUCTURAL RAKER RHODES ENGINEERING MEP BLUESTONE ENGINEERING

REVISIONS: Description Date No.

OWNER SIGN-OFF:

NAME

BCH HELIPAD

1015 UNION ST. BOONE, IA 50036

PROJECT NO: 24003

DATE: 14 JUNE 2024 SHEET SET: CONSTRUCTION DOCUMENTS

Sheet Name: ELECTRICAL ROOF PLAN

