ALCONA HEALTH CENTER ALPENA SERVICES

GENERAL NOTES

- THE CONTRACT DOCUMENTS DO NOT ATTEMPT TO DIVIDE AND ASSIGN WORK TO THE SUB-CONTRACTOR(S). VERIFY WITH THE OWNER (CONSTRUCTION MANAGER) ALL ASSIGNMENTS OF WORK, ESPECIALLY THOSE ITEMS WHICH COULD BE ASSIGNED TO VARIOUS/MULTIPLE SUB-CONTRACTORS.
- 2. THE DRAWINGS ARE GRAPHIC AND PICTORIAL PORTIONS OF THE CONTRACT DOCUMENTS SHOWING THE GENERAL DESIGN INTENT AND LOCATION OF THE WORK.
- 3. IN CASE OF DISCREPANCIES, INCONSISTENCIES OR AMBIGUITIES WITHIN THE CONTRACT DOCUMENTS, THE MOST STRINGENT REQUIREMENT SHALL GOVERN UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER OR OWNER IN WRITING. THE TERM "MOST STRINGENT REQUIREMENT" SHALL MEAN THAT WHICH IS THE MORE RIGOROUS OR EXACTING AND THAT WHICH WILL RESULT IN THE BETTER QUALITY AFFECTED PART OF THE WORK.
- 4. EACH CONTRACTOR SHALL INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF HIS PORTION OF THE WORK TO THE EXTENT CONSISTENT WITH THE CONTRACT DOCUMENTS AND REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.
- 5. THE DRAWINGS ARE NOT INTENDED AS DOCUMENTATION OF THE SPECIFIC EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. DO NOT SCALE OR RELY UPON THE DRAWINGS FOR EXISTING CONDITIONS AND MEASUREMENTS THEREOF. EACH CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS, SIZES, PROFILES, ELEVATIONS, QUANTITIES, MATERIALS, ETC., OF ALL EXISTING CONDITIONS AFFECTING HIS PORTION OF THE WORK.
- 6. DETAILS INCLUDED IN THE DRAWINGS ARE INTENDED TO SHOW GENERAL DESIGN INTENT ONLY. THEY ARE NOT INTENDED TO SERVE AS SHOP DRAWINGS OR OTHER FORM OF GUIDE FOR FABRICATION OR INSTALLATION PURPOSES. EACH CONTRACTOR SHALL BE RESPONSIBLE TO ACHIEVE THE COMPLETE AND PROPER ASSEMBLY AND INSTALLATION OF ALL MATERIALS INCLUDED IN HIS PORTION OF THE WORK AND TO PROVIDE SUBMITTALS AS MAY BE REQUIRED FOR ALL FABRICATED ITEMS INCLUDED THEREIN.
- 7. ALL WORK WILL BE DONE BY CONTRACTORS LICENSED IN THE STATE OF MICHIGAN. ALL CONTRACTORS WILL SUPPLY THEIR REQUIRED PERMITS AND SCHEDULE THEIR RESPECTIVE INSPECTIONS.
- 8. ALL WORK MUST BE DONE IN STRICT ACCORDANCE WITH OSHA & MIOSHA.
- 9. CONTRACTORS WILL SUPPLY TEMPORARY JOB SITE OFFICE TRAILERS, TOOL SHEDS, TELEPHONE, ELECTRICAL OUTLETS, LIGHTING, HEATING DEVICES, ETC., AS REQUIRED FOR CONSTRUCTION. OWNER WILL PAY UTILITY COST FOR NORMAL AMOUNTS OF ELECTRICITY AND NATURAL GAS USED DURING CONSTRUCTION. CONTRACTOR WILL NOT USE THE PERMANENT HEATING SYSTEM FOR TEMPORARY HEATING UNLESS APPROVED BY OWNER.
- 10. UPON COMPLETION, CONTRACTOR WILL REMOVE FROM THE PREMISES ALL SURPLUS MATERIAL AND RUBBISH. FINAL CLEANING WILL INCLUDE: CLEAN OR RE-CLEAN ENTIRE WORK TO NORMAL LEVEL FOR "FIRST CLASS" MAINTENANCE/CLEANING OF BUILDING PROJECTS OF A SIMILAR NATURE; REMOVE NON-PERMANENT PROTECTION AND LABELS; POLISH GLASS, CLEAN EXPOSED FIXTURES, TOUCH UP MINOR FINISH DAMAGE, CLEAN OR REPLACE FILTERS OF MECHANICAL SYSTEMS; REMOVE DEBRIS AND BROOM-CLEAN NON-OCCUPIED SPACES; SANITIZE PLUMBING/FOOD SERVICE FACILITIES; CLEAN LIGHT FIXTURES AND REPLACE BURNED OUT OR DIMMED LAMPS; SWEEP AND WASH PAVED AREAS; POLICE YARDS AND GROUNDS; AND PERFORM SIMILAR CLEANUP NEEDED TO PRODUCE A "CLEAN" CONDITION.
- 11. OWNER WILL SUPPLY BUILDER'S RISK INSURANCE ON ALL NEW CONSTRUCTION. OWNER WILL SUBMIT TO CONTRACTOR A CERTIFICATE OF INSURANCE FOR THIS BEFORE START OF CONSTRUCTION.
- 12. CONTRACTOR WILL SUPPLY WORKER'S COMPENSATION INSURANCE, GENERAL LIABILITY INSURANCE, AND AUTOMOTIVE INSURANCE. CONTRACTOR WILL SUBMIT TO OWNER A CERTIFICATE OF INSURANCE FOR THESE ITEMS BEFORE START OF CONSTRUCTION.
- 13. ALL CONTRACTORS WILL CLEAN UP AFTER THEIR WORK, AND DISPOSE OF OFF SITE AT LOCAL LANDFILL. SITE BURNING IS PROHIBITED. CONTRACTOR WILL PERFORM CLEAN UP DAILY TO PREVENT THE ACCUMULATION OF DEBRIS.
- 14. PLUMBING, MECHANICAL, AND ELECTRICAL CODES ARE THE JURISDICTION OF THE STATE OF MICHIGAN CONSTRUCTION CODE, PERMITS AND INSPECTIONS ARE REQUIRED. SEE PLUMBING, MECHANICAL, AND ELECTRICAL PLANS.
- 15. ALL WORK MUST COMPLY WITH THE 2015 STATE OF MICHIGAN BUILDING CODE, PERMITS AND INSPECTIONS ARE REQUIRED.
- 16. SEE SITE PLAN FOR BUILDING LOCATION, PARKING, DRIVES, UTILITIES, BARRIER FREE BUILDING ENTRANCES, OTHER BARRIER FREE DETAILS, ETC. CONSULT WITH CITY FOR ALL SETBACKS, PARKING REQUIREMENTS, DRIVEWAY REQUIREMENTS, LANDSCAPING REQUIREMENTS, ETC.

CODE INFORMATION

- 1. THE PROJECT HAS BEEN REVIEWED ACCO THE 2015 EDITION OF THE INTERNATIONA
- 2. MICHIGAN BUILDING CODE CLASSIFICATION
- 3. MICHIGAN BUILDING CODE TYPE OF CONST
- 4. THE MICHIGAN BUILDING CODE ALLOWABLE ALLOWABLE HEIGHT IS 3 STORIES.
- 5. WIND LOADS: BASIC WIND SPEED 115 MPH EXPOSURE FACTOR C.
- 6. MICHIGAN BUILDING CODE OCCUPANT LOAD
- 7. INSTALL EXIT SIGNS AND LIGHTS, AND MEA CHAPTER 10.
- 8. SUPPLY INTERIOR FINISH AND TRIM PER M
- SCHEDULE. 9. INSTALL LIGHTING AND VENTILATION PER
- 10. BUILDING SURPASSES ENERGY CONSERVAT
- 13 AND THE MICHIGAN UNIFORM ENERGY (11. PLUMBING, MECHANICAL, AND ELECTRICAL
- AND STATE PERMITS ARE REQUIRED.
- 12. ALL WORK AND THE ENTIRE BUILDING MUS AND THE AMERICAN'S WITH DISABILITIES AC
- 13. ALL WORK MUST COMPLY WITH THE STATE DISABILITIES ACT AND THE UNIFORM FEDER
- 14. CONSULT ENGINEERED SITE PLAN AND LOC REQUIREMENTS.
- 15. THE BUILDING SHALL HAVE THE APPROVED PLAINLY VISIBLE FROM THE ROAD FRONTIN WITH THE 2015 MICHIGAN BUILDING CODE, SECTION 505.
- 16. PORTABLE FIRE EXTINGUISHERS SHALL BE DISTANCE.

1209 US 23 NORTH ALPENA, MICHIGAN, 49707

ORDING TO THE 2015 MICHIGAN BUILDING CODE (INCORPORATING AL BUILDING CODE).
OF OCCUPANCY IS BUSINESS USE GROUP "B".
STRUCTION IS UNPROTECTED TYPE "IIIB".
E AREA WITHOUT ALLOWABLE INCREASES IS 19,000 SQ. FT. THE
PH; BUILDING CATEGORY II; IMPORTANCE FACTOR Iw=1.0;
AD IS 64.
EANS OF EGRESS LIGHTING PER MICHIGAN BUILDING CODE
MICHIGAN BUILDING CODE CHAPTER 8 AND THE ROOM FINISH
MICHIGAN BUILDING CODE CHAPTERS 12, 27, 28, AND 29.
TION REQUIREMENTS OF THE MICHIGAN BUILDING CODE, CHAPTER CODE.
CODES ARE THE JURISDICTION OF THE STATE OF MICHIGAN
JST COMPLY WITH THE STATE OF MICHIGAN'S BARRIER FREE LAW ACT.
FE OF MICHIGAN'S BARRIER FREE LAW AND THE AMERICAN'S WITH ERAL ACCESSIBILITY STANDARDS.
OCAL BUILDING OFFICIAL FOR BARRIER FREE PARKING
ED STREET ADDRESS NUMBERS INSTALLED SO THAT THEY ARE ING THE PROPERTY. THE SIGNAGE SHALL BE IN ACCORDANCE E, SECTION 501.2 AND THE 2015 INTERNATIONAL FIRE CODE
E 3A:40B:C, AND WILL BE INSTALLED WITHIN 75' TRAVEL

DRAWING INDEX

TS	TITLE SHEET
C1	SITE TITLE SHEET
C2	SITE LEGEND SHEET
C3	SITE DETAIL SHEET
C4	SITE EXISTING CONDITIONS
	& SESC PLAN
C5	SITE CONSTRUCTION &
	PARKING LAYOUT
C6	SITE PARKING LAYOUT GRADES
Al	FLOOR PLAN
A2	ELEVATIONS
AZ	FOUNDATION PLAN
A4	CASEWORK ELEVATIONS
A5	REFLECTED CEILING PLANS
A6	ROOF FRAMING PLAN
A7	BUILDING SECTIONS
A8	ROOM FINISH, WINDOWS, and

WINDOW SCHEDULES

OWNER'S REPRESENTATIVE: BRUCE DIETZ 100 RIPLEY STREET ALPENA, MICHIGAN 49707 (989) 350-1099

M1	MECHANICAL PLAN
M2	MECHANICAL SCHEDULE & DETAILS
M3	MECHANICAL SPECIFICATIONS
E1	ELECTRICAL LIGHTING PLAN
E2	ELECTRICAL POWER PLAN
E3	ELECTRICAL SITE LIGHTING PLAN
E4	ELECTRICAL SITE LIGHTING PHOTOMETRICS
E5	ELECTRICAL SCHEDULES &
	ONE LINE DRAWING
P1	PLUMBING SANITARY PLAN
P2	PLUMBING PIPING PLAN
P3	PLUMBING SCHEDULE, NOTES & DETAILS

BRUCE DIETZ	100 RIPLEY	ALPENA, MI 49707
		DESI
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	TITLE SHEET	
ALCONA HEALTH CENTER	1209 U.S. 23 NORTH	ALPENA, MICHIGAN 49707
	MAR.	22, 2022 20, 2023
DESIGNER	ser —	2

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

THE CITY OF ALPENA 208 N 1ST STREET ALPENA, MI 49707 CONTACT: STEVE SHULTZ PHONE: 989-354-1730

CHARTER TOWNSHIP OF ALPENA 4385 US23 NORTH ALPENA, MI 49707

ALPENA POWER COMPANY 401 N 9TH AVE ALPENA, MI 49707 CONTACT: JON BULLIS PHONE: 989-358-4949

CHARTER COMMUNICATIONS 3432 M-76 WEST WEST BRANCH, MI 48661 CONTACT: GARY BRIGGS PHONE: 866-874-2389

DTE ENERGY 1250 MICHCON LANE PO BOX 279 KALKASKA, MI 49646 CONTACT: MATTHEW LOGAN PHONE: 231-258-3785

FRONTIER COMMUNICATIONS 3249 FOREST ROAD GAYLORD MI, 49735 CONTACT: DAVE VANCE PHONE: 989-356-8281

MERIT NETWORK 880 TECHNOLOGY DRIVE, SUITE B ANN ARBOR, MI 48408 CONTACT: DUSTIN LAPOINT PHONE: 734-476-6100 SEWER/WATER

SEWER/WATER/STORM

POWER

CABLE

GAS

COMMUNICATIONS

FIBER



INDEX TO SHEETS



TITLE SHEET LEGEND SHEET DETAIL SHEET EXISTING CONDITIONS, REMOVAL, & SESC PLAN CONSTRUCTION, LAYOUT, AND PARKING LAYOUT SHEET GRADING SHEET

BRUCE DIETZ

PLANS OF PROPOSED IMPROVEMENTS US 23 NORTH SITE PLAN DEVELOPMENT SECTION 9, T31N, R8E, CHARTER TOWNSHIP OF ALPENA ALPENA COUNTY, MICHIGAN



		C	COF OTH <u>NOT</u> WH	FOF WIT OF HOL PUE REL OW SOI APF SHA EST PAF	WIT OF HOL PUB THU OF	PRC MAT MIC
	HURON ENGINEERING AND SURVEYING, INC. ORGANIZATION 3205 US-23 SOUTH, ALPENA, MI 49707. ADDRESS	ONTRACT FOR: PARKING LOT CONSTRUCTION, UTILITY CONSTRUCTION, AND SITE DEVELOPMENT. PREPARED UNDER SUPERVISION OF REBECCA E. RIVARD 50497 REGISTERED PROFESSIONAL ENGINEER REGISTRATION NO.	RNERS ENCOUNTERED DURING THE WORK, INCLUDED IN PAYMENT FOR HER ITEMS OF WORK. TES APPLYING TO STANDARD PLANS ERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS, THEY ARE BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN OR SPECIAL TAIL GIVEN BELOW OPPOSITE UNLESS OTHERWISE INDICATED. 3-C UTILITY TRENCHES	DERGROUND UTILITIES R PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE TH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 811 A MINIMUM THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND JDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE BLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. THIS DOES NOT IEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY NERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM. L EROSION MEASURES PROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ALL BE IN PLACE PRIOR TO EARTH DISTURBING ACTIVITIES. PLACE TURF TABLISHMENT ITEMS AS SOON AS POSSIBLE. RCEL CORNER NTRACTOR SHALL PRESERVE AND/OR REPLACE ANY EXISTING PARCEL	R PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMATION H PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 811 A MINIMUM THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND IDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE BLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL IS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE ART OF THE "MISS DIG" ALERT SYSTEM.	<u>GENERAL NOTES</u> EPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE POSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL ERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE HIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD CIFICATIONS FOR CONSTRUCTION.
SHE			TITLE SHEE			
<u>1</u>		HURON JOB NUMBER	DATE	ENGINEER		SCALE
	ENGINEERING & SURVEYING, INC.	21.096	OCTOBER 20, 2021	RIVARD		N/A

WATER & DRAINAGE SYMBOLS	UTILITIES SYMBOLS
WATER & DRAINAGE SYMBOLS Image: Symbol Sym	UTILITIES SYMBOLS POWER POLE ① TELEPHONE POLE ● GUY POLE ● CUY POLE ● CONIFEROUS TREE ● CONIFEROUS TREE
 ∧ DIKE (PROFILES) W.T. m WATER TABLE (PROFILES) ○ POST WATER WELL 	 MAIL BOX FLAG BAR & CAP SECTION CORNER QUARTER SECTION USGS MARKER USGS MARKER CONTROL POINT BEAM G. R. RUN NUMBE T23 BEAM G. R. RUN NUMBE
REAL ESTATE SYMBOLS PROPERTY OWNERSHIP ARROW CONTIGUOUS PROPERTY SYMBOL 123456 PARCEL NUMBER BOX PARCEL LINES	HAZARDOUS OR FLAMMABLE MATERIAL USED WITH UNDERGROUND UTILITY USED WITH FIBER OPTICS LINES PROP 36" PROPOSE EX 12" CMP CP CP CP CP EXISTING

MBOLS	
-------	--

OLE NE POLE LE IGHT POLE NE MANHOLE OWER /E -WALK HOR **D SIGNAL**

NE PEDESTAL/RISER TIC MARKER

JS SYMBOLS

R. RUN NUMBER (EXISTING) R. RUN NUMBER (PROPOSED)

/ITH UNDERGROUND GAS & RICAL LINES

— PROPOSED CULVERT/SEWER

EXISTING CULVERT/SEWER

UTILITY PATTERNS

ELEC	—— Е _х ———	———— Е _х ———————————————————————————————————		ELECTRICAL LINE
GASGAS	—— GAS ——— GAS ——— GAS —	—— GAS ——— GAS ——— GAS ——— G	ias ———	GAS LINE
12" OIL				OIL LINE
TELE				TELEPHONE LINE
WM	W_x W_x	W_x		WATER LINE
CTV				CABLE TV
FO				

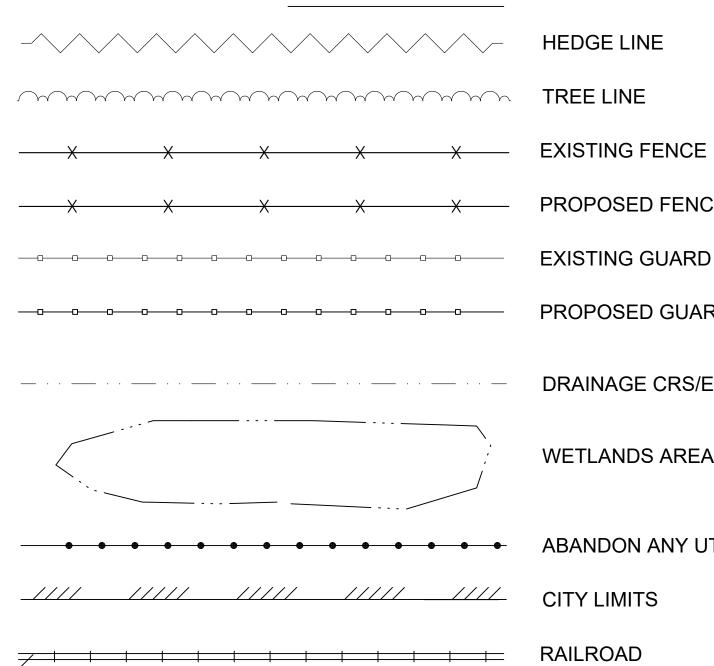
R.O.W. PATTERNS

 X X	 × ×

DIL LINE ELEPHONE LINE VATER LINE ABLE TV FIBER OPTICS POWER TRANSMISSION LINE EX. LIMITED ACCESS R.O.W.

EXISTING R.O.W. PROP LIMITED ACCESS R.O.W. PROP FREE ACCESS R.O.W. SECTION LINE GRADING EASEMENT

TOPO PATTERNS



HEDGE LINE

PROPOSED FENCE

EXISTING GUARD RAIL

PROPOSED GUARD RAIL

DRAINAGE CRS/EDGE OF WATER

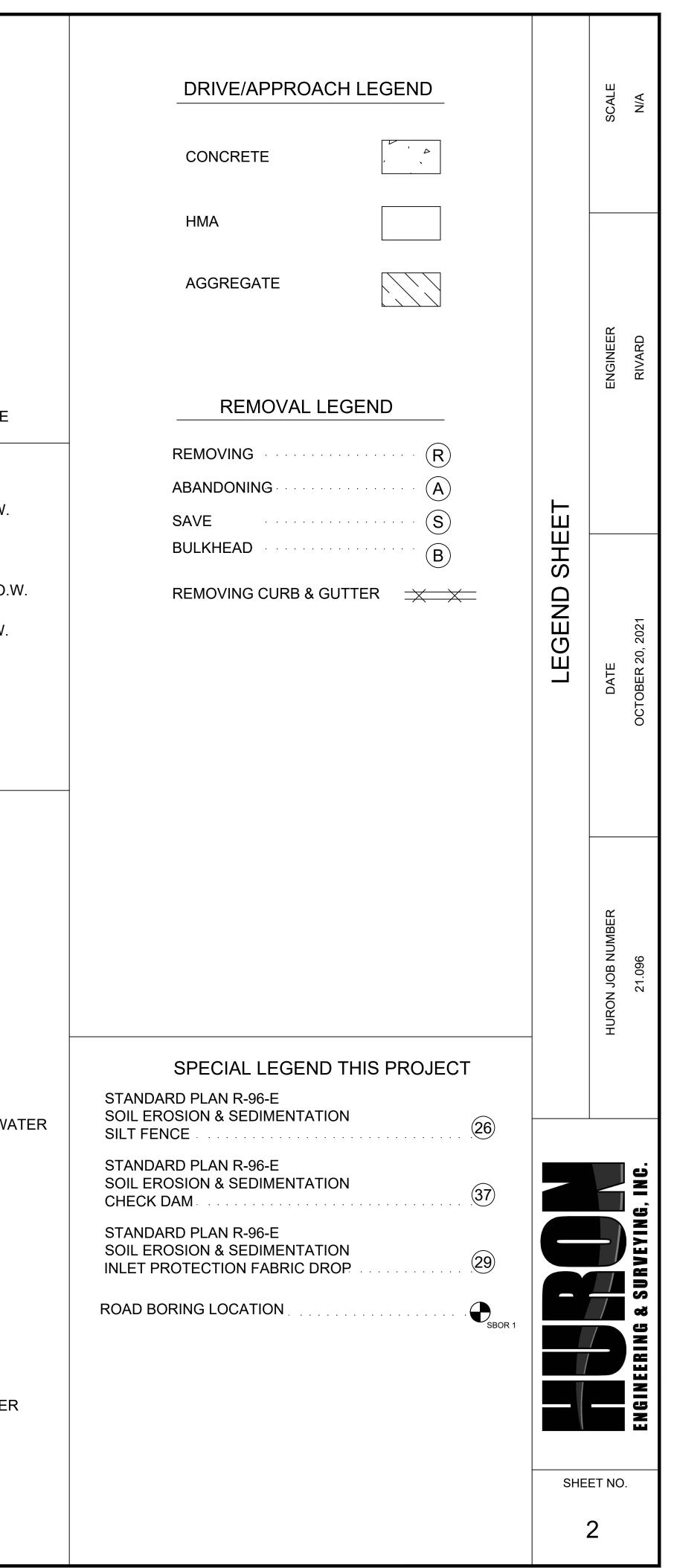
WETLANDS AREA

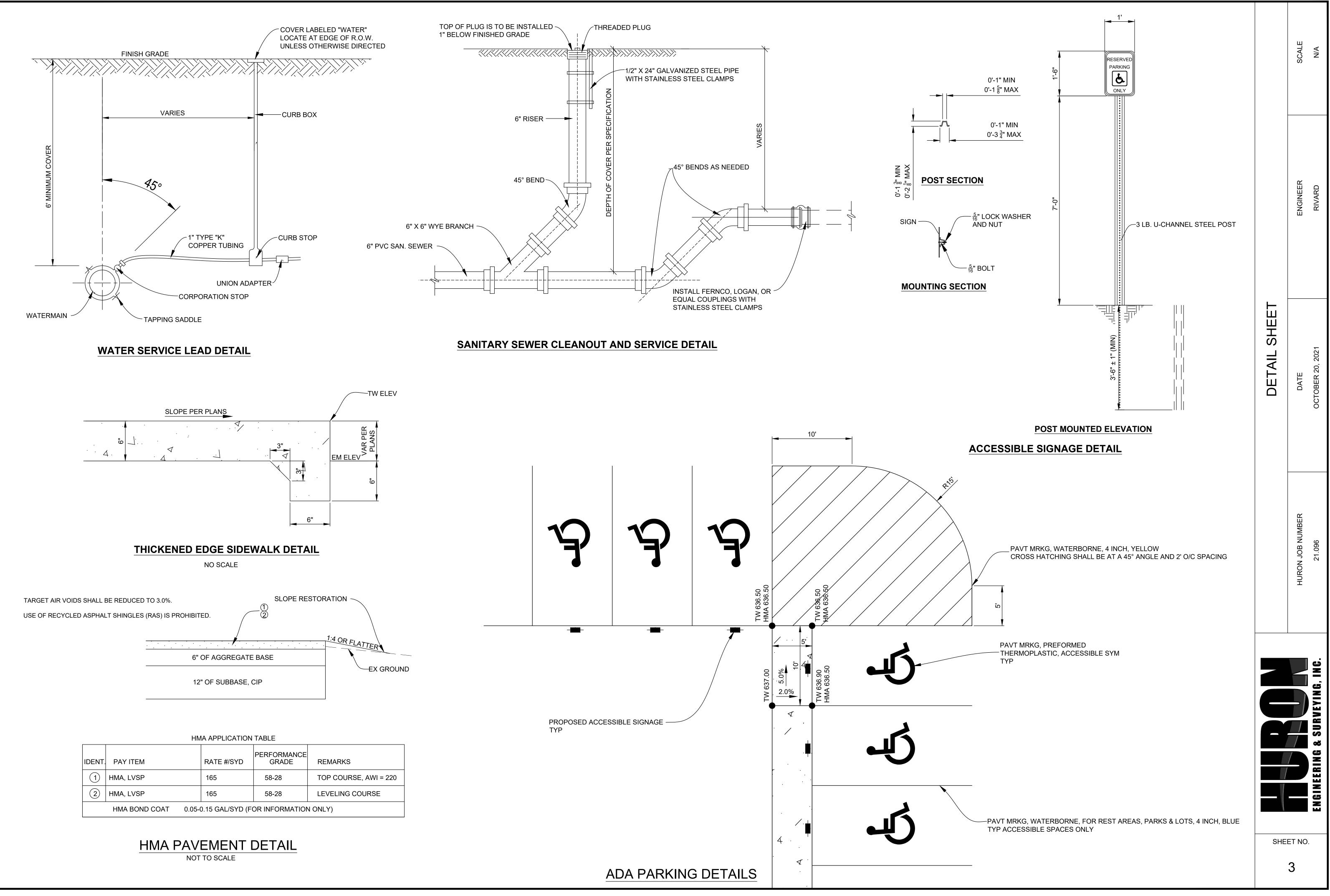
ABANDON ANY UTILITY

RAILROAD

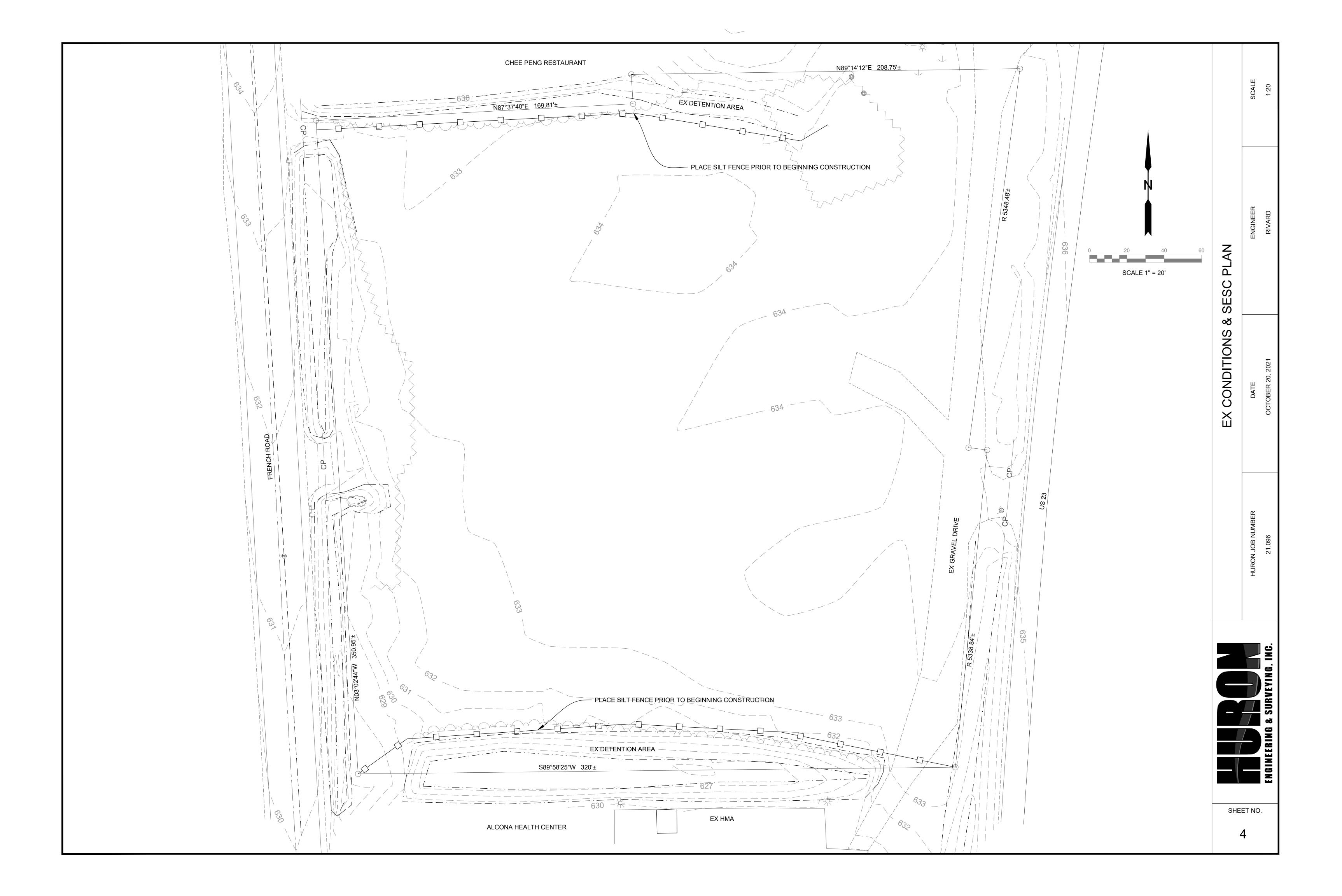
SOUND ABATEMENT WALL CONCRETE MEDIAN BARRIER

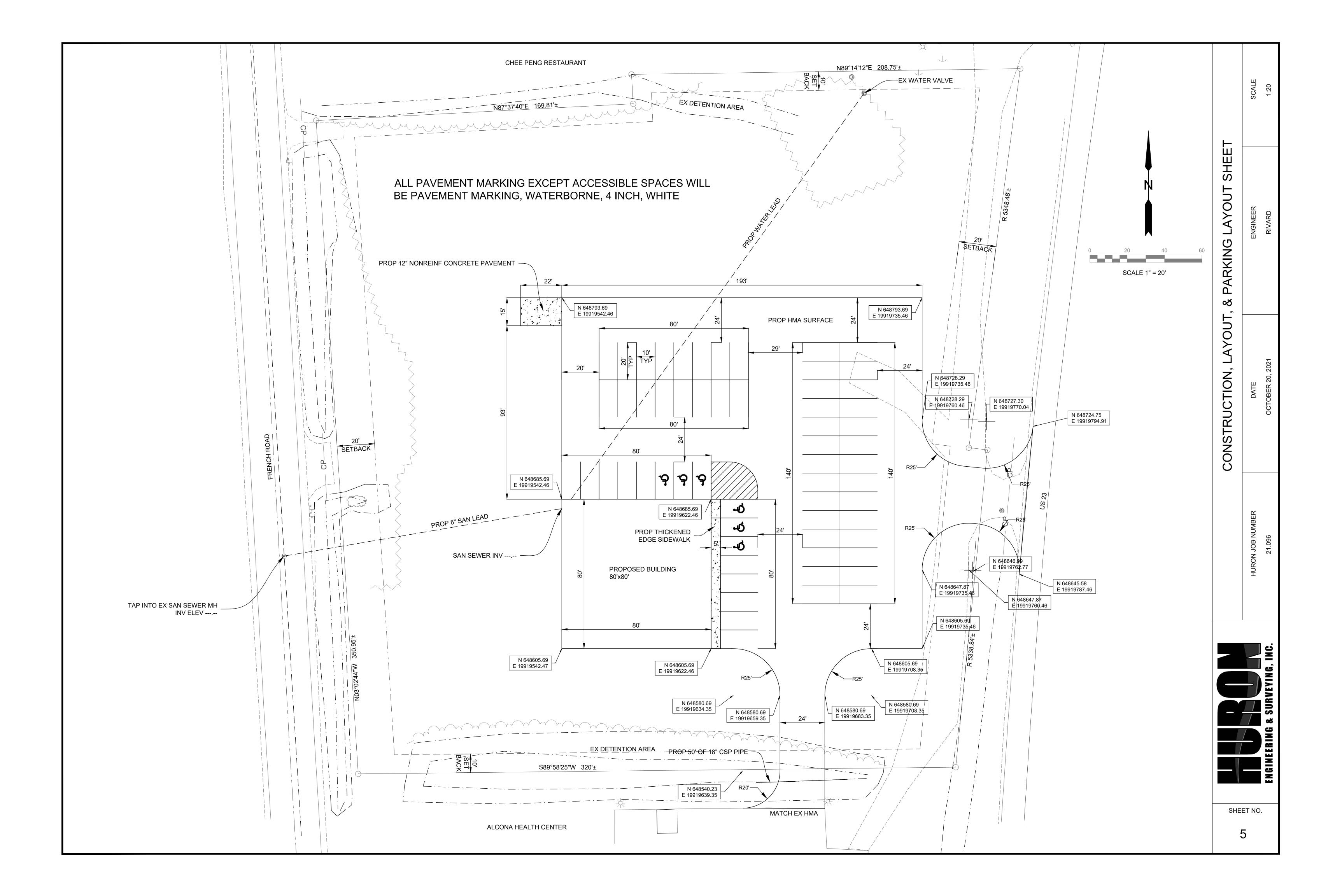
SLOPE STAKE LINE

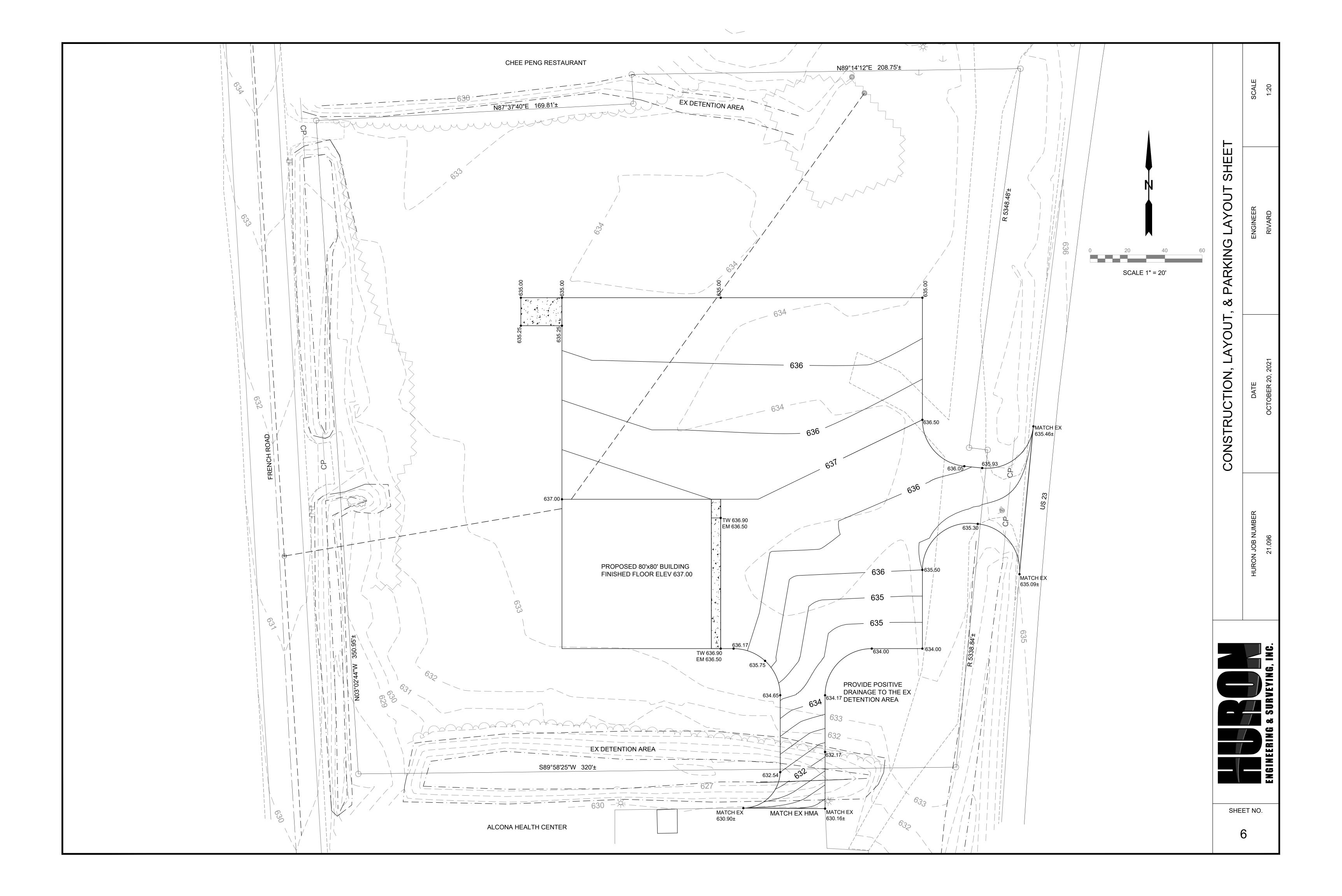




HMA PAVEMENT DETAIL	
NOT TO SCALE	







INTERIOR WALL TYPE	
	8" CMU WITH GYPSUM BOAF ALL EXTERIOR 14¼" WALL TH
	3%" METAL S BOARD EACH INTERIOR WAL OTHERWISE.
	3%" METAL S BOARD EACH INSULATION FI THICKNESS.
	3%" METAL S CHANNEL ON BOARD EACH INSULATION FI THICKNESS.
	3%" METAL S CHANNEL ON BOARD EACH INSULATION FI LEVEL 2, ¾" FROM FLOOR WAITING ROOM
	3%" METAL S CHANNEL AND SIDE, WITH 3½ OF WALL. 5%

H 6" METAL STUD WALL w/ 5/8" DARD AND INSULATION FULL HEIGHT, OR WALLS UNLESS NOTED OTHERWISE THICKNESS

STUD WALL w/ 5/8" GYPSUM + SIDE, 4%" WALL THICKNESS. ALLS ARE TYPE 1 UNLESS NOTED

STUD WALL w/ 5/8" GYPSUM H SIDE, WITH 3½" SOUND FULL HEIGHT OF WALL. 47%" WALL

STUD WALL w/½" RESILIENT N SIDE INDICATED, 5/8" GYPSUM H SIDE, WITH 3½" SOUND FULL HEIGHT OF WALL. 5¾" WALL

STUD WALL w/ m %" resilient SIDE INDICATED, 5/8" GYPSUM H SIDE, WITH 3½" SOUND FULL HEIGHT OF WALL, UL-200 " FIBERGLASS BALLISTIC PANEL R TO 6" ABOVE CEILING ON OM SIDE. 5¾" WALL THICKNESS.

STUD WALL w/ ½" RESILIENT ND 5/8" GYPSUM BOARD ON EACH 3½" SOUND INSULATION FULL HEIGHT ' WALL THICKNESS.

FIRE EXTINGUISHER CABINET

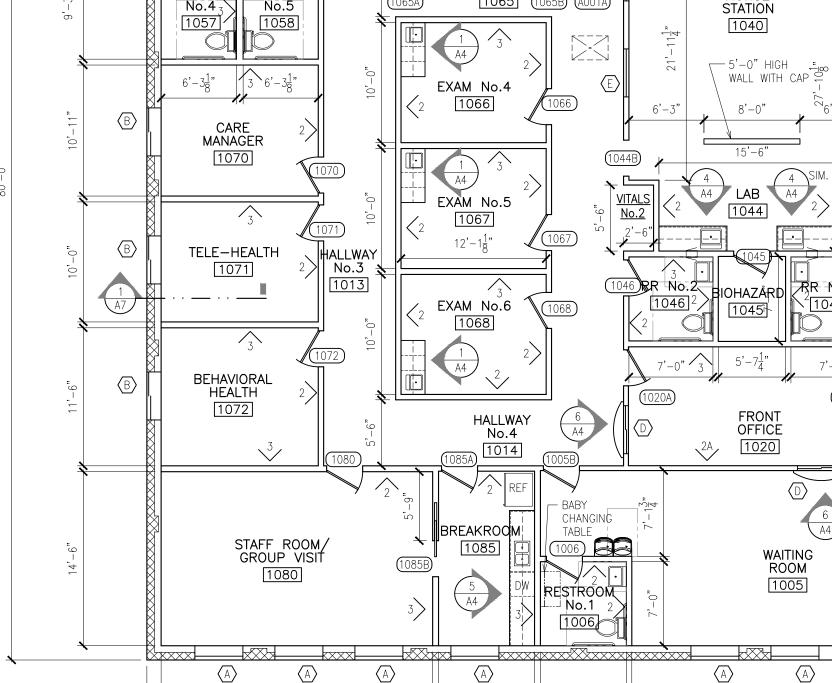
FLOOR PLAN NOTES

- 1. THE THICKNESS OF THE WALLS ARE AS INDICATED ON THE PRINTS.
- 2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD BEFORE THE START OF CONSTRUCTION.
- 3. REFER TO ROOF FRAMING PLAN FOR ATTIC SEPARATION AREAS & ATTIC ACCESS LOCATIONS.
- 4. THE TYPICAL DOOR CORNER DETAIL IS $4\frac{1}{2}$ " ROUGH FRAMING FROM CORNER AND $5\frac{1}{2}$ " TO SWING OF DOOR.
- 5. SOUND CONTROL: INSTALL SOUND INSULATION THE FULL HEIGHT OF WALL WHERE SHOWN ON PLANS AND/OR INDICATED IN THE ROOM FINISH SCHEDULE NOTES. PACK INSULATION BETWEEN DOOR JAMB AND FRAMING. DO NOT INSTALL ELECTRICAL BOXES, REGISTERS, DUCT WORK, ETC., BACK-TO-BACK IN THE SAME STUD CAVITY. ELECTRICAL, MECHANICAL, AND PLUMBING SUBCONTRACTORS WILL LAYOUT THEIR WORK ACCORDINGLY, AND CONSULT WITH THE DESIGNER IN THIS REGARD.
- 6. PROVIDE PLASTIC GROMMETS AT ALL COMPUTER LOCATIONS IN DESK/COUNTER TOPS.
- 7. VERIFY CABINET LAYOUT WITH OWNER BEFORE THE START OF CONSTRUCTION.
- 8. PROVIDE CABINET BLOCKING, DIAGONAL SUPPORTS AND ALL ITEMS NECESSARY FOR A COMPLETE INSTALLATION.
- 9. PROVIDE FILLER STRIP(S) BETWEEN WALL AND CABINETRY, AS REQUIRED. FILLER STRIPS SHALL MATCH CASEWORK IN ALL RESPECTS. SIZE OF FILLERS SHALL BE 2" MAX.
- 10. WHERE RATED WALLS ARE PENETRATED (BY FIRE EXTINGUISHER CABINETS, WATER COOLERS, ELECTRICAL DISTRIBUTION PANELS, ETC.), PROVIDE RECESS OF EQUAL RATING TO THE WALLS.
- BUT ARE NOT NECESSARILY LIMITED TO, ALUMINUM, ZINC, IRON (STRUCTURAL STEEL), TIN, LEAD, AND COPPER.
- NOT SHOWN ON THE ARCHITECTURAL DRAWINGS, BUT THAT MUST BE PROVIDED FOR INTEGRATION OF MECHANICAL AND ELECTRICAL WORK. THESE ITEMS MAY INCLUDE, BUT ARE NOT LIMITED TO HOUSEKEEPING PADS, ACCESS PANELS, MOUNTING DEVICES, BACKBOARDS, BLOCKING, ETC.
- 13. PROVIDE WOOD BLOCKING BETWEEN BOTTOM CHORDS OF WOOD TRUSSES AS REQUIRED TO ANCHOR THE TOP OF PARTITION WALLS WHERE THEY FALL BETWEEN TRUSSES. USE UPLIFT CLIPS, DO NOT ATTACH TRUSSES DIRECTLY TO INTERIOR PARTITION WALLS.
- 14. TYPICALLY INTERIOR DIMENSIONS ARE GIVEN TO THE FINISHED FACE OF THE WALL/PARTITION. DIMENSIONS CORRELATING TO EXTERIOR WALLS ARE TYPICALLY TO THE OUTSIDE FACE OF THE CMU UNLESS NOTED OTHERWISE.
- 15. PROVIDE SOLID BLOCKING BEHIND ALL TOILET ACCESSORIES AND OTHER WALL MOUNTED EQUIPMENT. REFER TO INTERIOR ELEVATIONS, PLANS, AND DETAILS FOR LOCATIONS.
- 16. BARRIER FREE SIGNAGE IS TO INCLUDE FOUR (4) BUILDING COMPLIANCE SIGNS, ONE (1) RESTROOM SIGN FOR EACH BARRIER FREE RESTROOM. CONSULT ENGINEERED SITE PLAN AND LOCAL BUILDING OFFICIAL FOR BARRIER FREE PARKING REQUIREMENTS.
- 17. ALL CONCRETE, MASONRY, AND GYPSUM BOARD CONTROL JOINTS, EXPANSION JOINTS AND SAWCUTS WILL COMPLY WITH ASTM C 94; ACI 301; ACI 318; ACI 530.1; ASCE 6; TMS 602; GA 216; GA 600 AND INDUSTRY STANDARDS.
- 18. PROVIDE FIRE BLOCKING IN ALL NON-INSULATED, COMBUSTIBLE WALL CAVITIES AT SUSPENDED CEILING JUNCTURE, PER MICHIGAN BUILDING CODE, CHAPTER 7.
- 19. FIELD VERIFY ELECTRIC SERVICE LOCATION, WATER SERVICE LOCATION, SANITARY SEWER EXIT LOCATION, FURNACE LOCATION, WATER HEATER LOCATION, GAS METER / REGULATOR LOCATION, ETC. IN FIELD PRIOR TO THE START OF CONSTRUCTION.
- 20. PROVIDE PORTABLE FIRE EXTINGUISHERS IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE AND THE LOCAL FIRE MARSHALL.
- 21. REVENT ALL PLUMBING STACKS AND PENETRATE THE ROOF ON THE BACK ELEVATION, VERIFY WITH OWNER.
- 22. ALL PLUMBING WILL BE IN INTERIOR WALLS, WHERE POSSIBLE.

11. DO NOT ALLOW DISSIMILAR METALS TO COME INTO CONTACT WITH EACH OTHER, DISSIMILAR METALS INCLUDE,

12. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZE, LOCATION AND QUANTITY OF ARCHITECTURAL ITEMS





19'-0"

MECHANICAL & JANITOR CLOSET

1060

(1060)

1055

RESTROOM RESTROOM

No.5

 $22'-7\frac{1}{2}'$

No.4 -

STAFF ENTRY

7'-0"

┝──╒════

_16"×16"/

CMU PIER

1055A)

FLOOR PLAN SCALE: 1/8"=1'-0" FLOOR: 6,400 SF

80'-0"

7'-2"

8'-0"

80'-0"

10'-0"

 $\langle B \rangle$

PROVIDER OFFICE

1053

6'-0"

HALLWAY

No.5

1015

1065 (1065B) (A001A)

11'-6"

SITE MANAGER

1054

 \checkmark

12'-2a'

---- [...

A4 STERILIZATION

(1065A)

 $\langle B \rangle$

15'–11<mark>2</mark>"

PROVIDER OFFICE

1052

20'-6"

NURSE

 $\langle E \rangle | / \langle E \rangle |$

6'-3"

 $\langle B \rangle$

2 >

No.

7' - 0'

(1020

 $\langle B \rangle$

HALLWAY

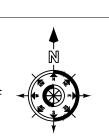
No.2

1012

6'-3"

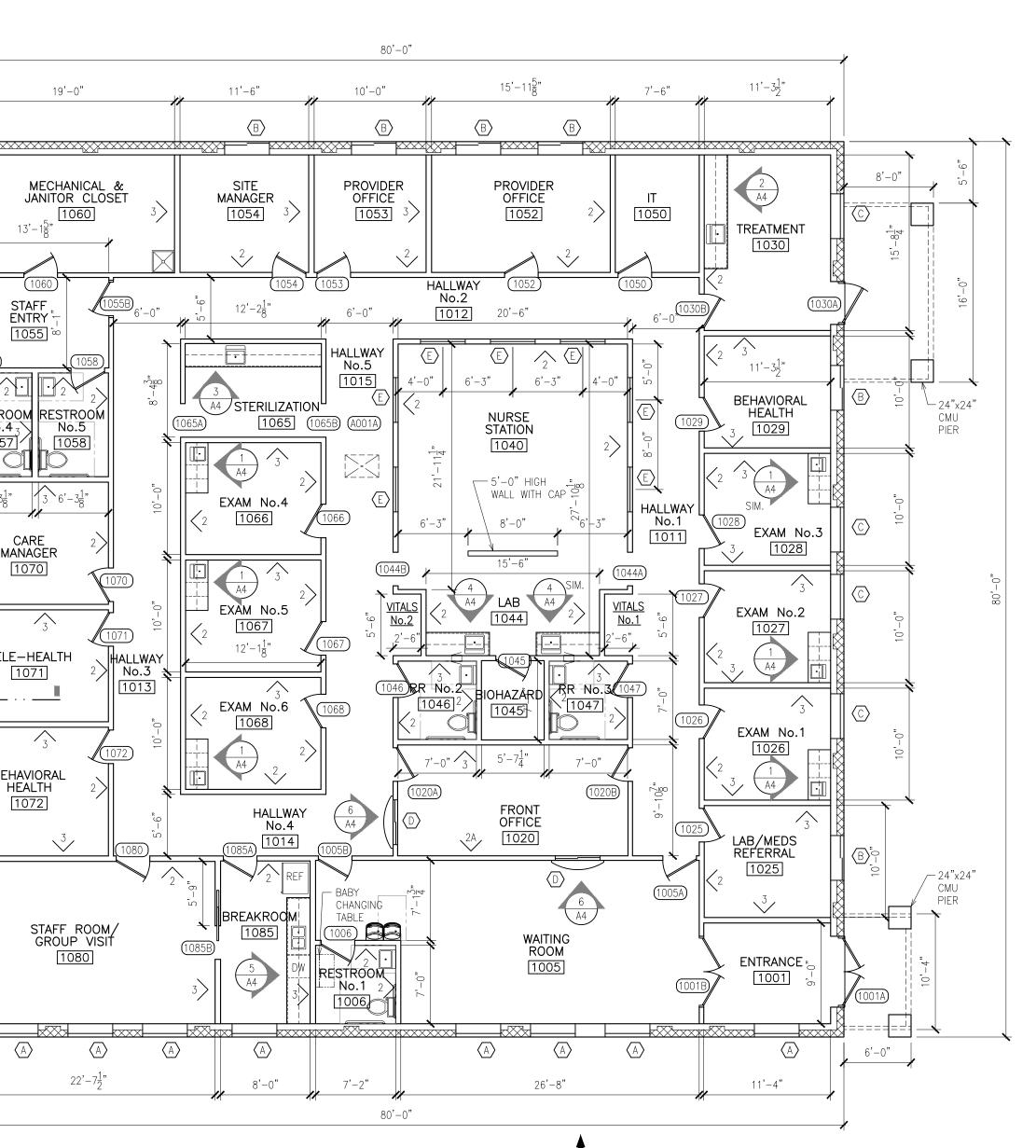
 $\langle E \rangle$

4'_∩'

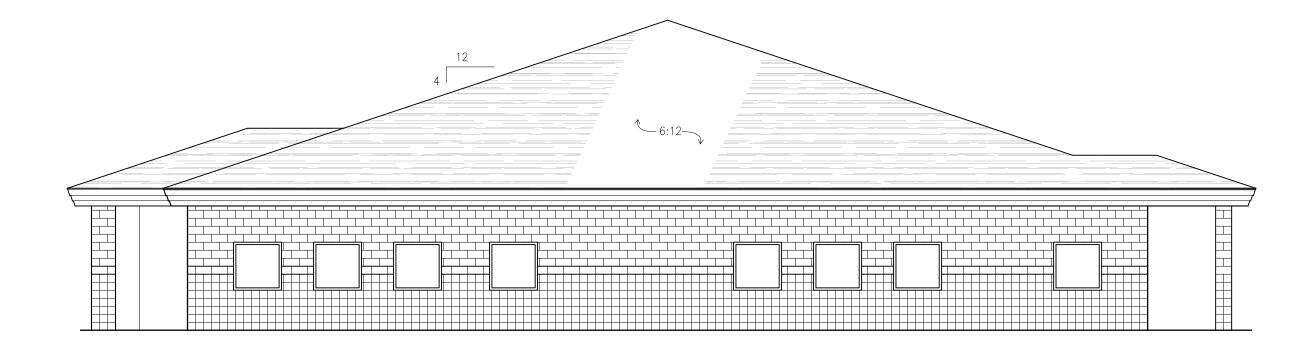


 $\langle A \rangle$

26'-8"

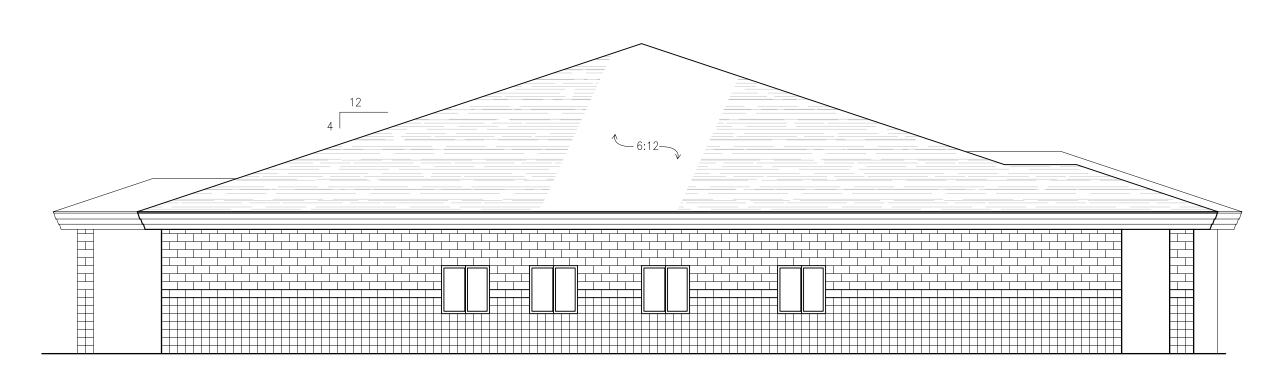


	BRUCE DIETZ	100 RIPLEY	ALPENA, MI 49707
		RDIICE DIFT7	DESIGN • BUILD • COMMERCIAL CONSTRUCTION
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21 Internet and 1		FLOOR PLAN	
	ALCONA HEALTH CENTER	1209 U.S. 23 NORTH	ALPENA, MICHIGAN 49707
	ISSUED - REVIEW BID		22, 2022 20, 202 3
	ENGINEER		
	DESIGNER JOB NUMB SHEET NO	er — 211.0	2



SOUTH ELEVATION

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

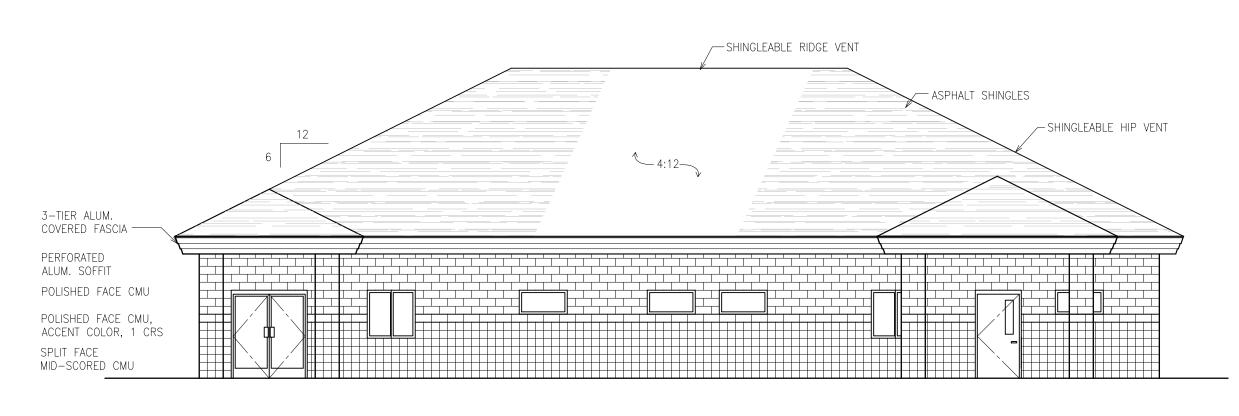


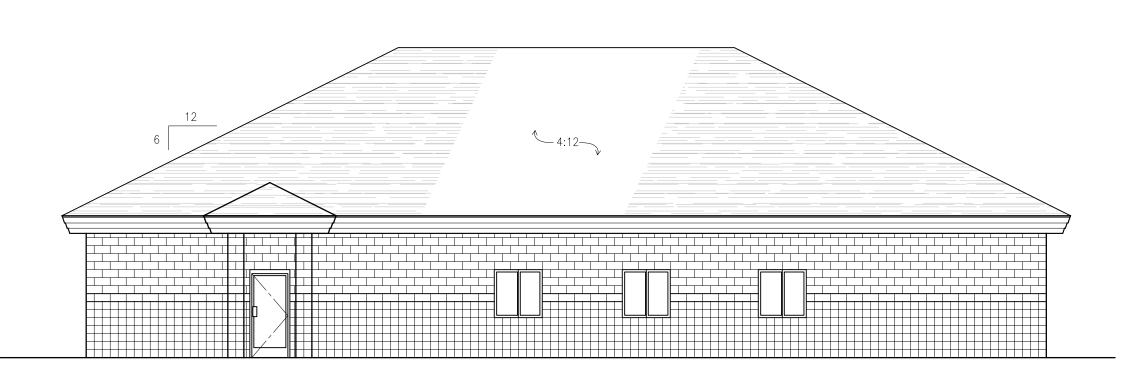
NORTH ELEVATION

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

ELEVATION NOTES

- 1. CONSULT WITH THE PLUMBING CONTRACTOR FOR THE LOCATION OF WATER AND SEWER CONNECTIONS, FIXTURES, VENTS, ETC.
- 2. CONSULT WITH THE MECHANICAL CONTRACTOR FOR THE LOCATION OF THE GAS SERVICE, VENTS, ETC.
- CONSULT WITH THE ELECTRICAL CONTRACTOR FOR THE LOCATION OF THE ELECTRIC SERVICE, FIXTURES, ETC.
- 4. CONSULT WITH THE OWNER FOR ADDITIONAL EXTERIOR ITEMS AND TRIM BEFORE THE START OF CONSTRUCTION.
- 5. VERIFY CMU COLOR AND STYLE AND MORTAR COLOR WITH OWNER.
- 6. ASPHALT SHINGLES ARE CERTAINTEED LANDMARK PLUS, 40 YEAR SHINGLES, VERIFY COLOR
- WITH OWNER. 7. VERIFY ALUMINUM DRIP EDGE COLOR WITH OWNER.
- 8. FASCIA METAL WILL BE RIBBED ALUMINUM, VERIFY COLOR WITH OWNER.
- 9. SOFFIT WILL BE PERFORATED ALUMINUM, VERIFY COLOR WITH OWNER.
- 10. EXPOSED FLASHING WILL BE PVC COATED COILED ALUMINUM STOCK, VERIFY COLOR WITH OWNER.





EAST (US 23) ELEVATION

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

WEST ELEVATION

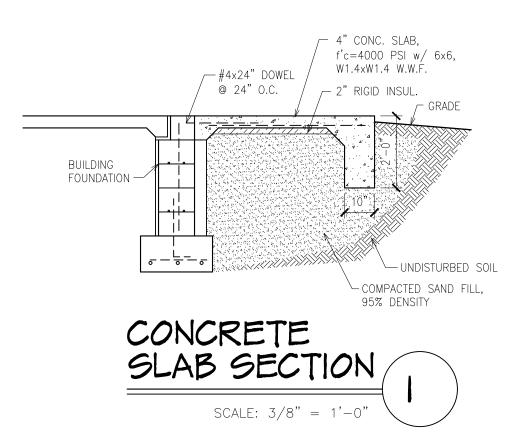
SCALE: 1/8"=1'-0"

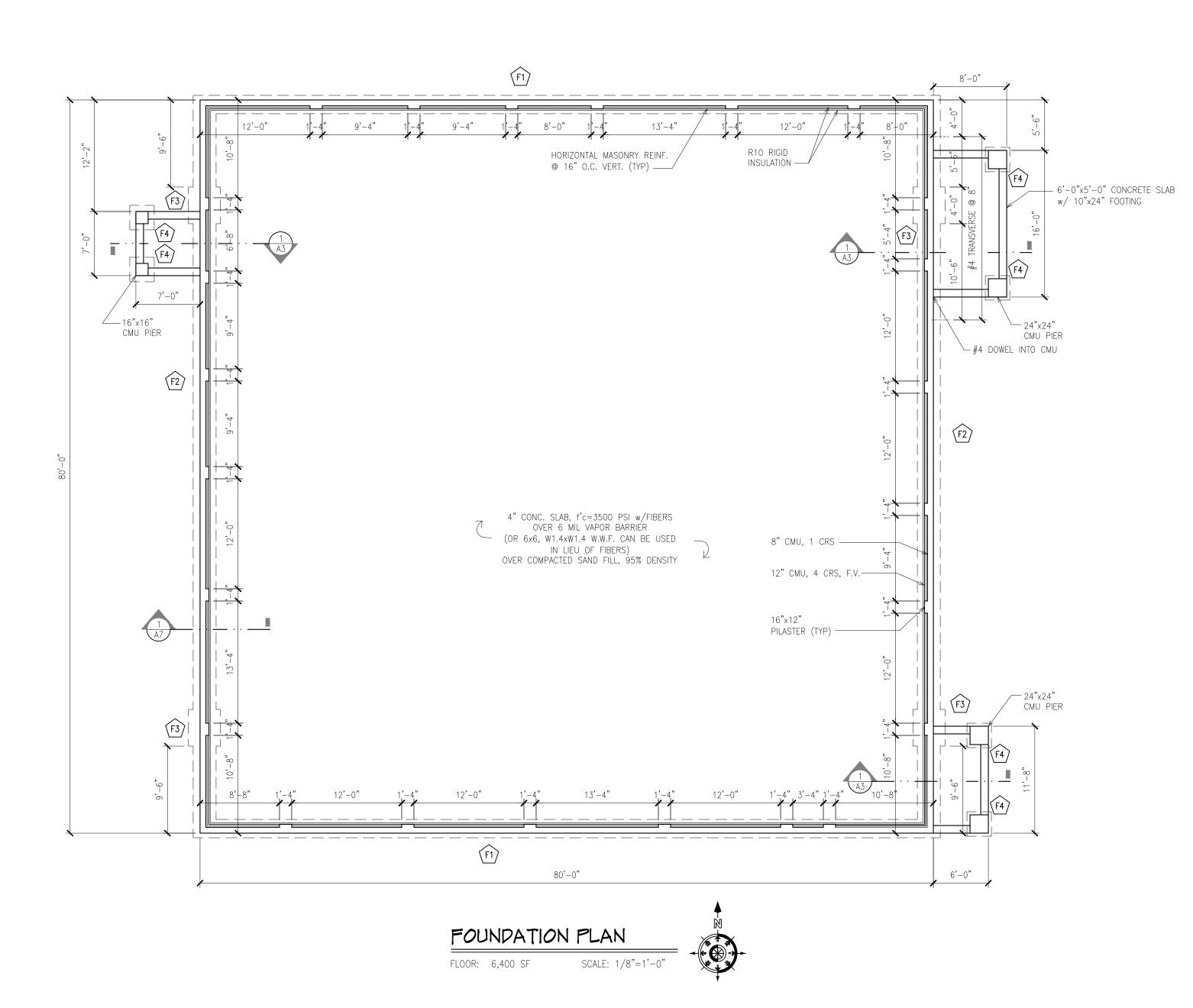
		H21 000					
2 SHEET NO	ENGINEER DESIGNER JOB NUME	ISSUED - REVIEW BID	ALCONA HEALTH CENTER		COPYRIGHI © 2022 THIS DRAWING AND DESIGN ARE THE PROPERTIES OF RED STICK DESIGNUEREMY ANALIR NO		BRUCE DIETZ
A	<		1209 U.S. 23 NORTH	ELEVATIONS	ALTERNATIONS AND/OR TRANSFER OF WORK ARE PERMITTED, UNLESS WRITTED FREMITTED, UNLESS WRITTED FREMISSION IS GRAVIED	RDIICE DIFT7	100 RIPLEY
2		22, 2022 20, 2023	ALPENA, MICHIGAN 49707		BY RED SICK DESIGN/JEREMY ADAIR, VIOLATORS WILL BE PROSECUTED TO THE FULLEST EXTENT OF THE LAW.	DESIGN • BUILD • COMMERCIAL CONSTRUCTION	ALPENA, MI 49707

FOUNDATION NOTES

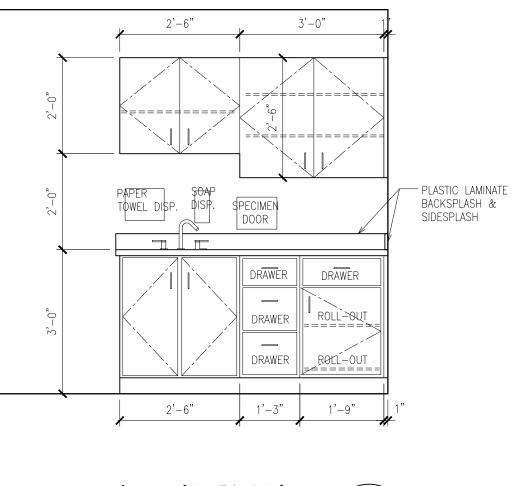
- 1. REQUIRED SOIL-BEARING CAPACITY IS 2500 PSF (SITE WORK CONTRACTOR TO VERIFY).
- 2. DESIGN LOADS: MAIN FLOOR: 100 PSF; WIND LOADS: 20 PSF; ROOF LIVE (GROUND SNOW) LOADS: 50 PSF; PLUS DEAD LOADS AS REQUIRED.
- 3. ALL FOOTINGS ON UNDISTURBED SOIL OR ENGINEERED FILL (CONTRACTOR TO VERIFY).
- 4. PLACE ENGINEERED FILL IN LAYERS NOT EXCEEDING 8" LOOSE THICKNESS. COMPACT TO AT LEAST 95% OF THE MAXIMUM DENSITY PER ASTM D-1557. COMPACTING BY FLOODING IS NOT PERMITTED.
- ALL FOUNDATION CONCRETE WILL BE f'c=3000 PSI; ALL EXTERIOR CONCRETE WILL BE f'c=4000 PSI WITH FIBERGLASS FIBERS OR W.W.F. (AS NOTED) AND AIR ENTRAINED. ALL INTERIOR CONCRETE WILL BE f'c=3500 PSI WITH FIBERGLASS FIBERS OR W.W.F.
- ALL CONTROL JOINTS, EXPANSION JOINTS AND SAWCUTS WILL COMPLY WITH ASTM C 94; ACI 301; ACI 318; ACI 530.1; ASCE 6; TMS 602 AND INDUSTRY STANDARDS.
- AT CONSTRUCTION AND EXPANSION JOINTS, PROVIDE JOINT SEALANTS, JOINT FILLERS, AND OTHER RELATED MATERIAL COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER SERVICE AND APPLICATION CONDITIONS. SEALANTS MUST COMPLY WITH ASTM C920.
- ALL CONCRETE REINFORCING STEEL WILL BE Fy=60,000 PSI. CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60.
- 9. PROVIDE A MINIMUM OF 3" COVER FOR ALL CONCRETE REINFORCING STEEL
- 10. ALL ANCHOR BOLTS WILL BE A307 STEEL.
- 11. CONTRACTOR WILL SEAL ALL CONCRETE SLABS WITH A TYPE I, CLASS B, COMMERCIAL FLOOR CURING AND SEALING AGENT AS SOON AS POSSIBLE AFTER FINISHING.
- 12. CENTER FOOTINGS UNDER WALL LOCATION UNLESS NOTED OTHERWISE.
- 13. ALL CONCRETE WORK WILL BE DONE IN ACCORDANCE WITH ACI BUILDING CODE (318); MANUAL OF STANDARD PRACTICE, FOR DETAILING (315) FOR THE MIXING, FABRICATION, AND PLACEMENT OF CONCRETE, REINFORCING STEEL, AND ACCESSORIES.
- 14. CONTRACTOR WILL INSTALL 6 MIL VAPOR BARRIER UNDER ALL INTERIOR SLABS ON GRADE.
- 15. ALL CONCRETE MASONRY UNITS ARE HOLLOW, GRADE A, AND CONFORM TO ASTM C-145 AND C-90.
 16. ALL MASONRY WALLS WILL BE REINFORCED HORIZONTALLY WITH "DURAWALL" OR EQUAL @ 16" O.C. AND REINFORCED VERTICALLY BY FILLING ONE CORE (FULL HEIGHT OF WALL) WITH 3500 PSI CONCRETE AND ONE #5 REINFORCING BAR CONTINUOUS @ 4'-0" O.C.
- 17. INSTALL SINGLE WYTHE BLOCK FLASH PAN SYSTEM, INSTALL PER MFR.
- 18. ALL MORTAR FOR MASONRY WILL BE TYPE "M".
- 19. ALL MASONRY WORK WILL BE DONE IN ACCORDANCE WITH NCMA AND ACI 530 AND ASCE 5 SPECIFICATIONS.
- 20. PROVIDE COMPLETELY GROUTED UNITS IN MASONRY AND REINFORCING, AND AS NOTED: UNDER ANY CHANGE OF WALL THICKNESS, I.E.: UNDER LINTEL, BEAM BEARING, OR BEARING POINTS; AND AT VERTICAL BAR REINFORCING.
- 21. CONSULT WITH MECHANICAL CONTRACTOR AND ENGINEER ON UNDER FLOOR PLUMBING, MECHANICAL AND ELECTRICAL ITEMS.
- 22. CONSULT WITH ELECTRICAL CONTRACTOR ON GROUNDING ROD CONNECTION TO FOUNDATION.
- 23. CALL MISSDIG, 1-800-482-7171, 72 HOURS (3 WORKING DAYS) BEFORE THE START OF CONSTRUCTION.

		FOOTING SCHEDULE	
No.	SIZE	REINFORCEMENT	REMARKS
F1	24"x12" CONTINUOUS	(3) #4 CONTINUOUS	
F2	30"x12" CONTINUOUS	(4) #4 CONTINUOUS	
F3	42"x48"x12"	(7) #4 SHORT, (6) #4 LONG	
F4	32"x32"x12"	(4) #4 EA. DIRECTION	











MANUFACTURED CASEWORK NOTES

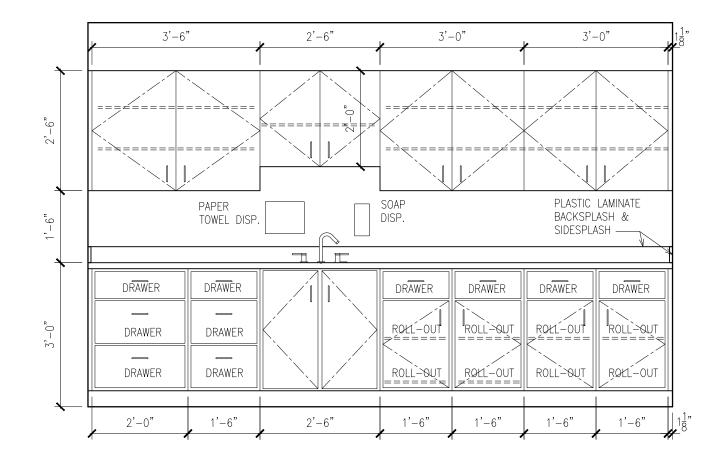
- 1. THE EXPOSED SURFACES OF THE MANUFACTURED CASEWORK WILL BE PLASTIC LAMINATE, COLOR TO BE SELECTED BY THE OWNER FROM THE MANUFACTURER'S STANDARD COLORS. THE INTERIOR OF THE CABINET AND THE DRAWER BOXES WILL BE WHITE MELAMINE FINISH.
- 2. EXPOSED SURFACES OF CABINETS ARE PLASTIC LAMINATE, TO BE SELECTED FROM STANDARD COLORS
- 3. NOMINAL DEPTH OF BASE CABINETS IS 24" AND OF UPPER CABINETS IS 12", UNLESS NOTED OTHERWISE.
- 4. BOTTOMS AND ENDS OF CABINETS, AND SHELVES: $\frac{3}{4}$ " PARTICLEBOARD, PLASTIC LAMINATE FACED ON EXPOSED AND SEMI-EXPOSED SURFACES.
- 5. BACKS OF CABINETS: $\frac{1}{2}$ " PARTICLEBOARD: PLASTIC LAMINATE FACED ON EXPOSED AND SEMI–EXPOSED SURFACES
- 6. DRAWER FRONTS: $rac{3}{4}$ " PARTICLEBOARD, PLASTIC LAMINATE FACED ON BOTH SIDES
- 7. DRAWER SIDES AND BACKS: $\frac{1}{2}$ " PLASTIC LAMINATE FACED PARTICLEBOARD WITH DOVETAIL OR
- 8. DRAWER BOTTOMS: 1/2" PLASTIC LAMINATE FACED PARTICLEBOARD GLUED AND DADOED INTO FRONT,
- SIDES, AND BACK OF DRAWERS 9. FILLER STRIPS: PROVIDE AS NEEDED TO CLOSE SPACES BETWEEN CABINETS AND WALLS. FABRICATE THEM FROM THE SAME MATERIAL AND WITH THE SAME FINISH AS THE CABINETS.
- 10. COUNTERTOP AND BACKSPLASH LAMINATE IS PLASTIC LAMINATE TO BE SELECTED FROM STANDARD
- 11. COMPLY WITH NEMA LD 3 FOR PLASTIC LAMINATE
- 12. COMPLY WITH ASTM D 1037 FOR PLASTIC-LAMINATE SUBSTRATE

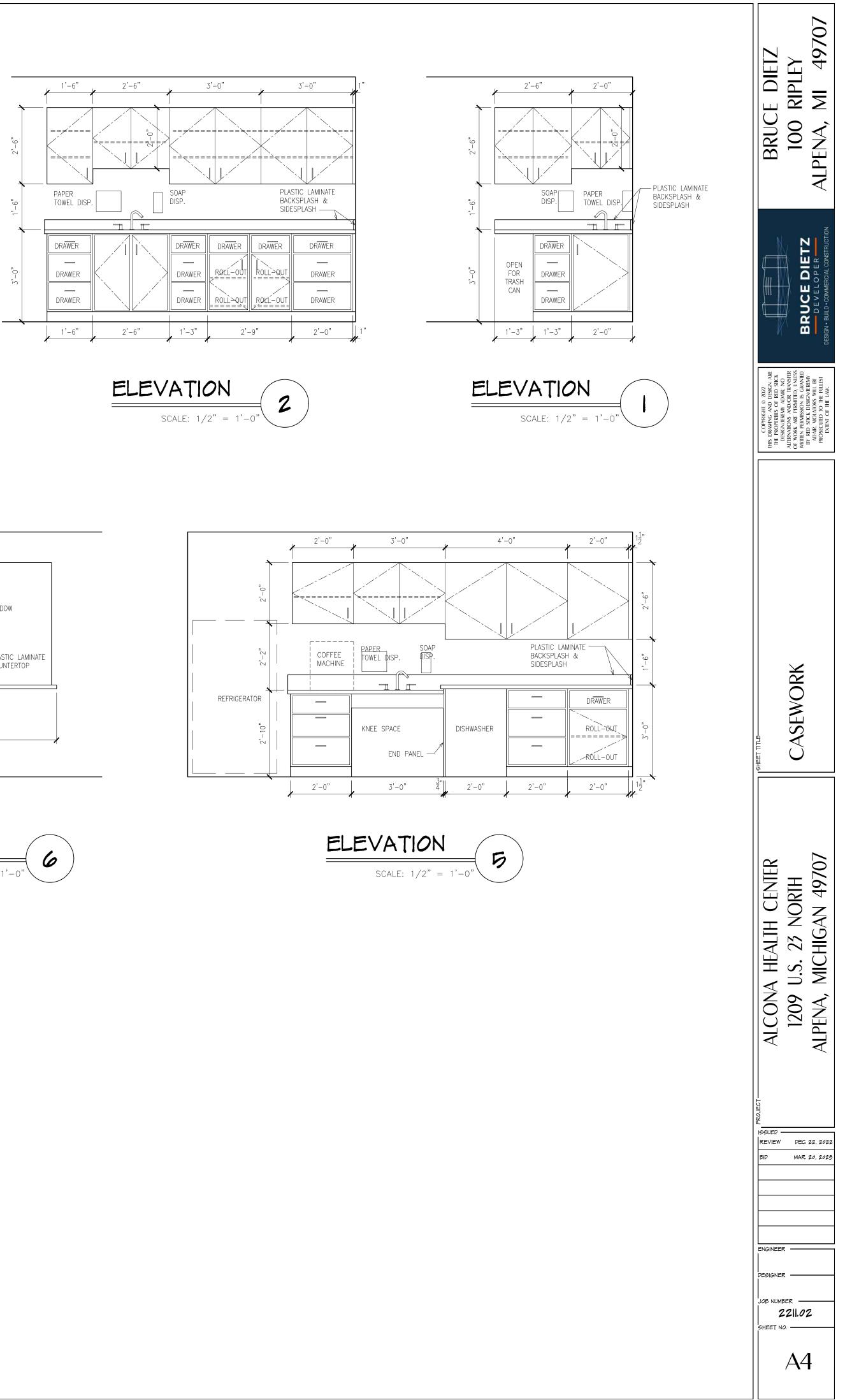
COLORS. CORIAN WILL BE SELECTED FROM COLOR GROUP 1.

13. HARDWARE STYLE WILL BE WIRE PULLS

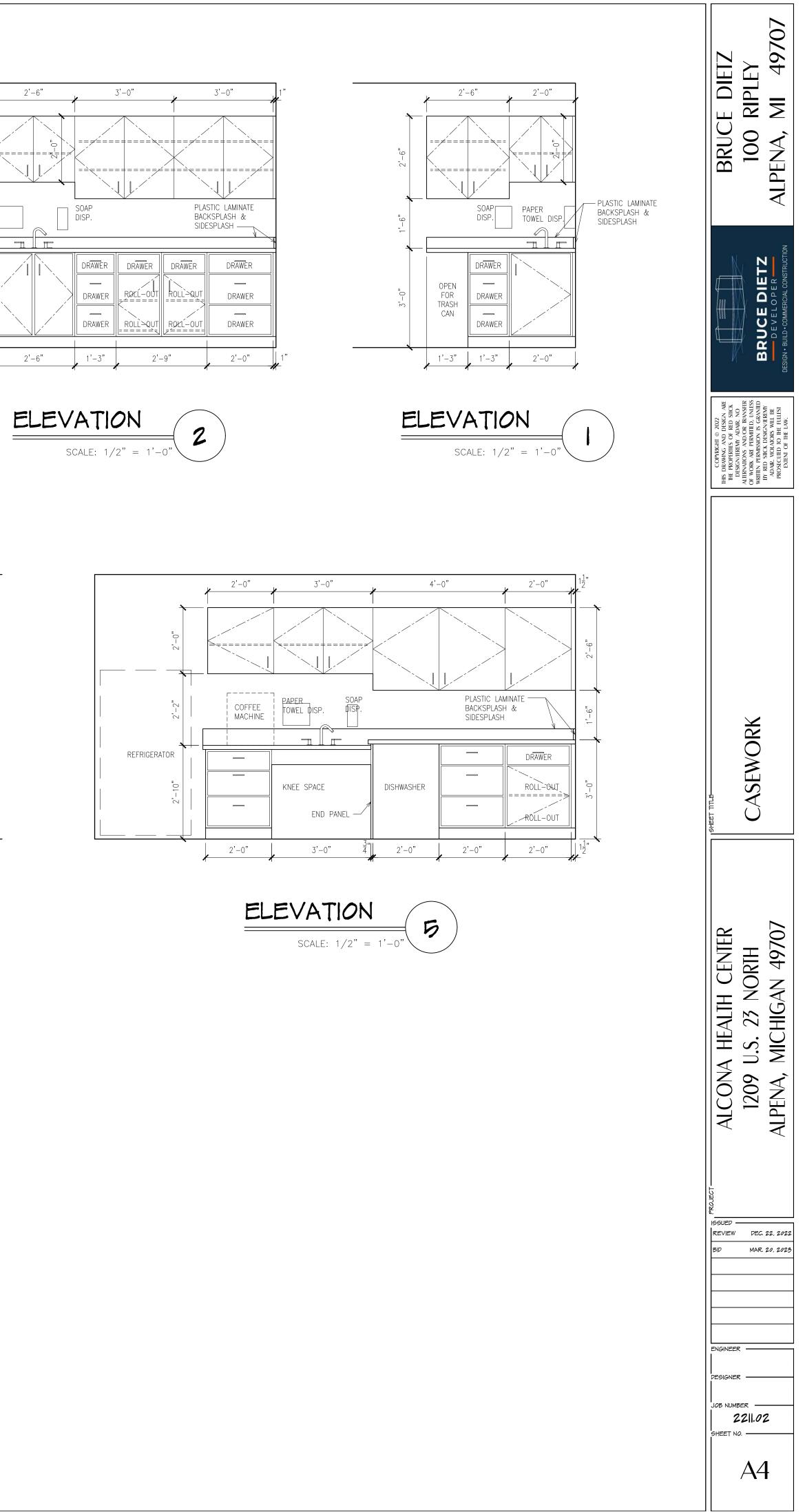
MULTIPLE-DOWEL JOINTS

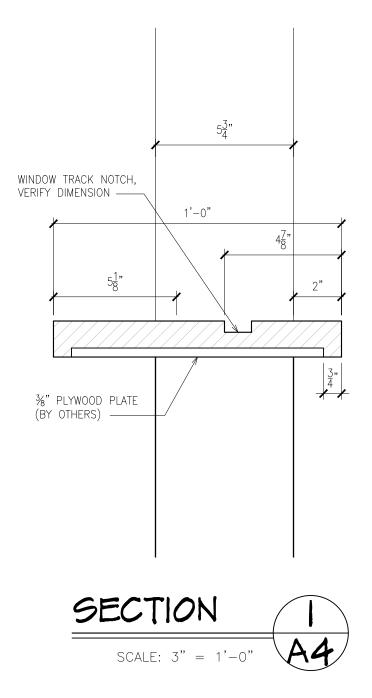
- 14. PROVIDE TWO PULLS FOR DRAWERS MORE THAN 24" WIDE
- 15. PROVIDE HEAVY DUTY, SELF-CLOSING DRAWER SLIDES, DESIGNED TO PREVENT REBOUND WHEN DRAWERS ARE CLOSED, WITH NYLON TIRED, BALL BEARING ROLLERS, AND RATED FOR AT LEAST 100 LBS
- 16. DOOR EDGE BANDING WILL BE 0.5 MM PVC, COUNTERTOP EDGEBANDING WILL BE 3 MM PVC.

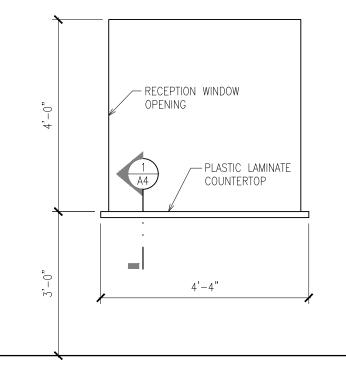
















REFLECTED CEILING PLAN NOTES

- 2. LIGHT FIXTURES WILL NOT BE SUPPORTED BY THE CEILING GRID.
- VERIFY CEILING GRID LAYOUT WITH ELECTRICAL AND LIGHTING CONTRACTOR.

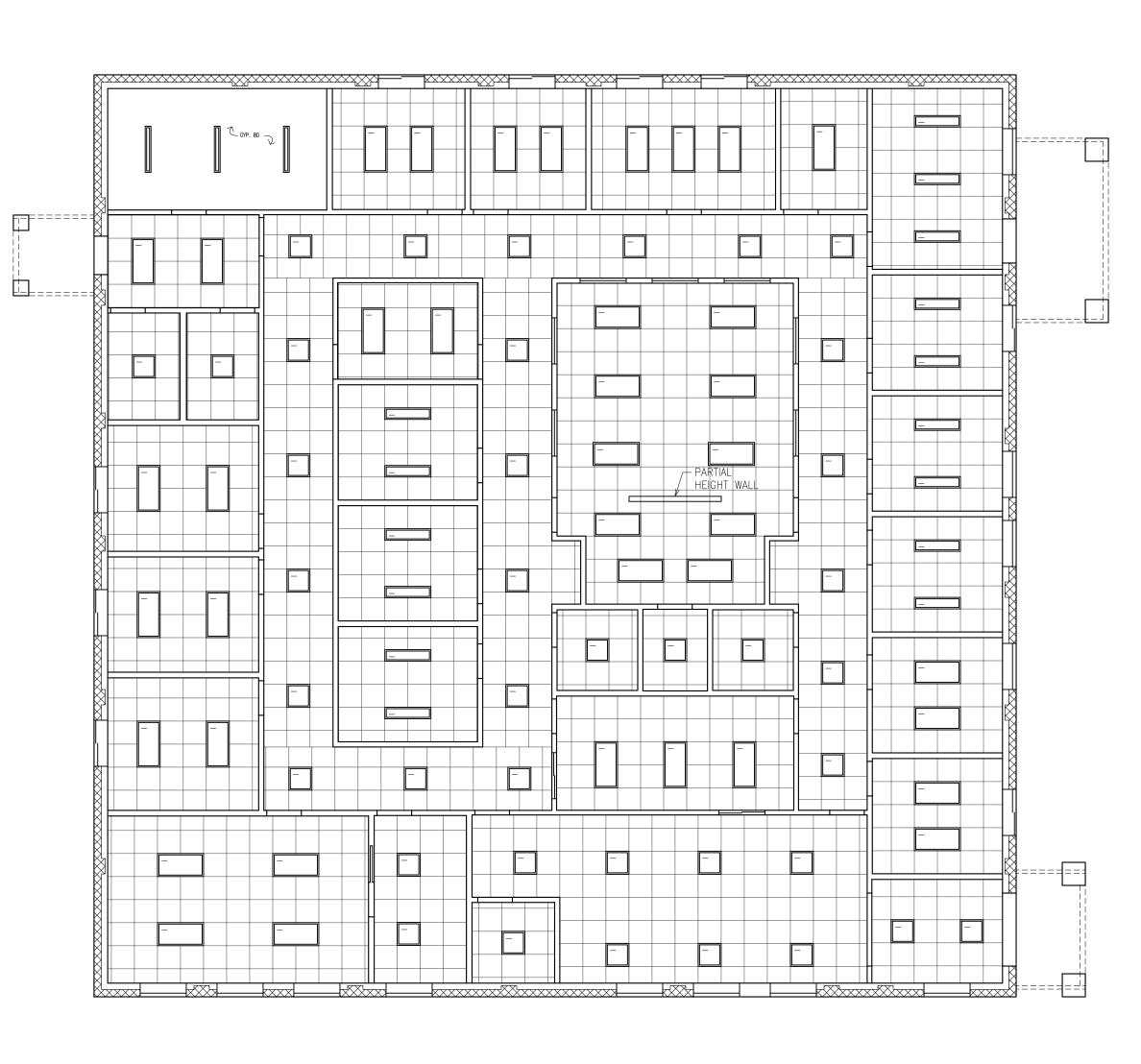
- TIE WIRE PER THE MANUFACTURER'S RECOMMENDATIONS.

1. REFER ELECTRICAL DRAWINGS FOR LIGHT FIXTURE INFORMATION.

4. SUSPENDED CEILING TILE WILL BE USG, RADAR STYLE, 24"x24", WITH SLT TAPERED EDGE. GRID WILL BE WHITE, DIRECT SUSPENSION SYSTEM, WITH INTERMEDIATE DUTY STRUCTURAL CLASSIFICATION.

5. SUSPENDED CEILING GRID WILL BE SUSPENDED WITH LAG SCREWS AND

6. VERIFY ANY WALL SCONCE, UPLIGHTING AND SOFFIT LIGHTING WITH OWNER, BEFORE THE START OF CONSTRUCTION.



REFLECTED CEILING PLAN SCALE: 1/8"=1'-0"



	ALPENA, MI 49/0/
BRUCE DIETZ	DESIGN • BUILD • COMMERCIAL CONSTRUCTION
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REFLECTED CEILING PLAN	
ALCONA HEALTH CENTER 1209 U.S. 23 NORTH	ALPENA, MICHIGAN 49/0/
ISSUED REVIEW DEC. 22 BID MAR. 20	
ENGINEER DESIGNER JOB NUMBER 2211.02 SHEET NO.	

	WALL LINTEL and HE	ADER SCHEDULE
MARK	HEADER	BEARING (EACH END)
HDR1	W6x8.5	8" CMU w/ $\#$ 4 VERTICAL AND FULLY GROUTED
HDR2	(2) L4x3x⅔" LONG LEG UP, BACK TO BACK	8" CMU w/ $\#$ 4 VERTICAL AND FULLY GROUTED

HEADER NOTES

 ALL MASONRY BEAM BEARING POINTS WILL BE FULLY GROUTED WITH #4 VERT. CONTINUOUS REINFORCEMENT.

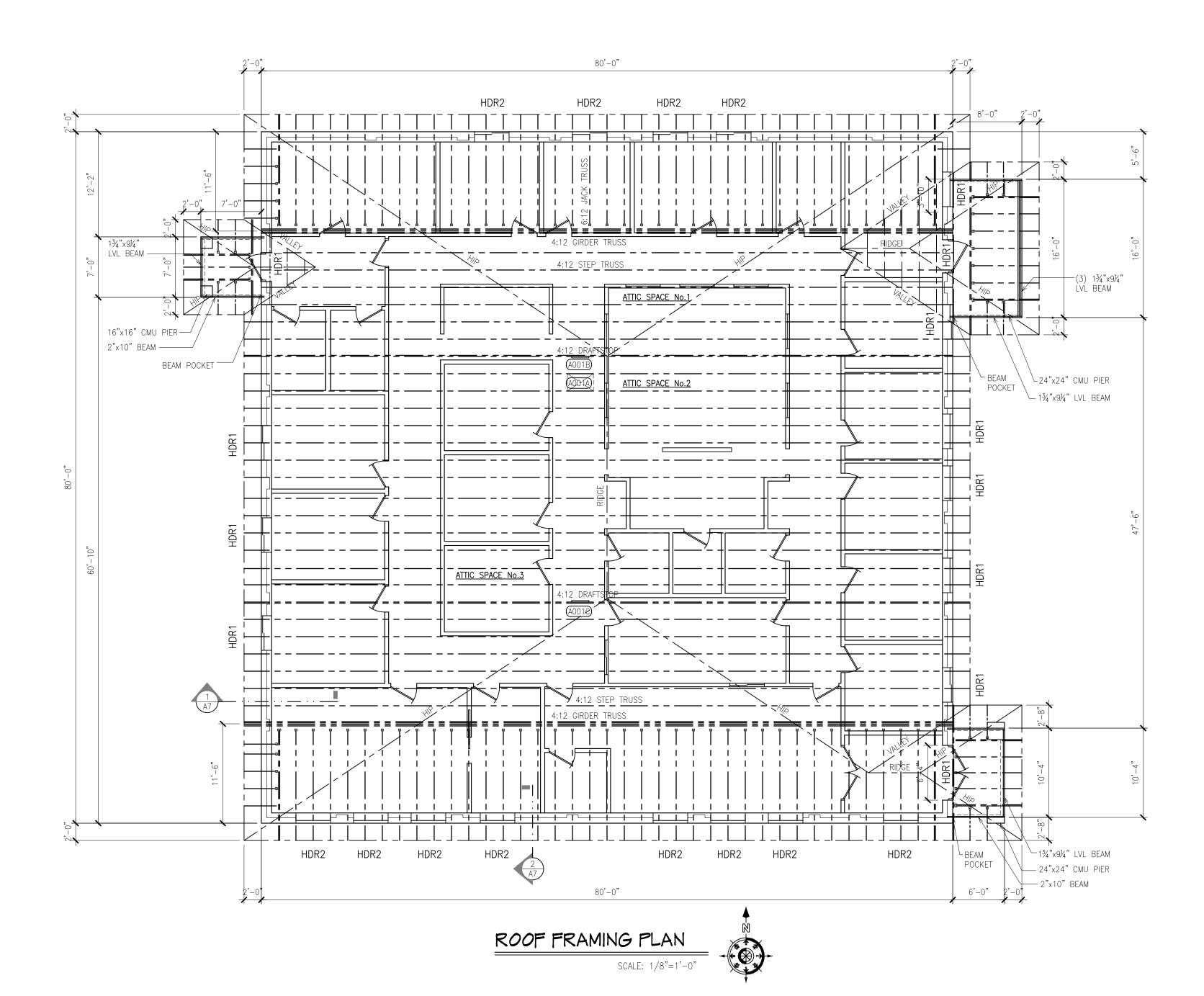
2. ALL STRUCTURAL STEEL WILL BE A36 GRADE.

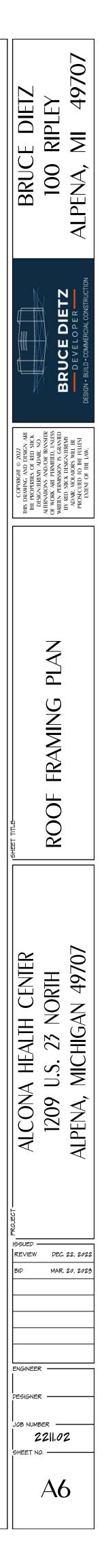
TRUSS NOTES

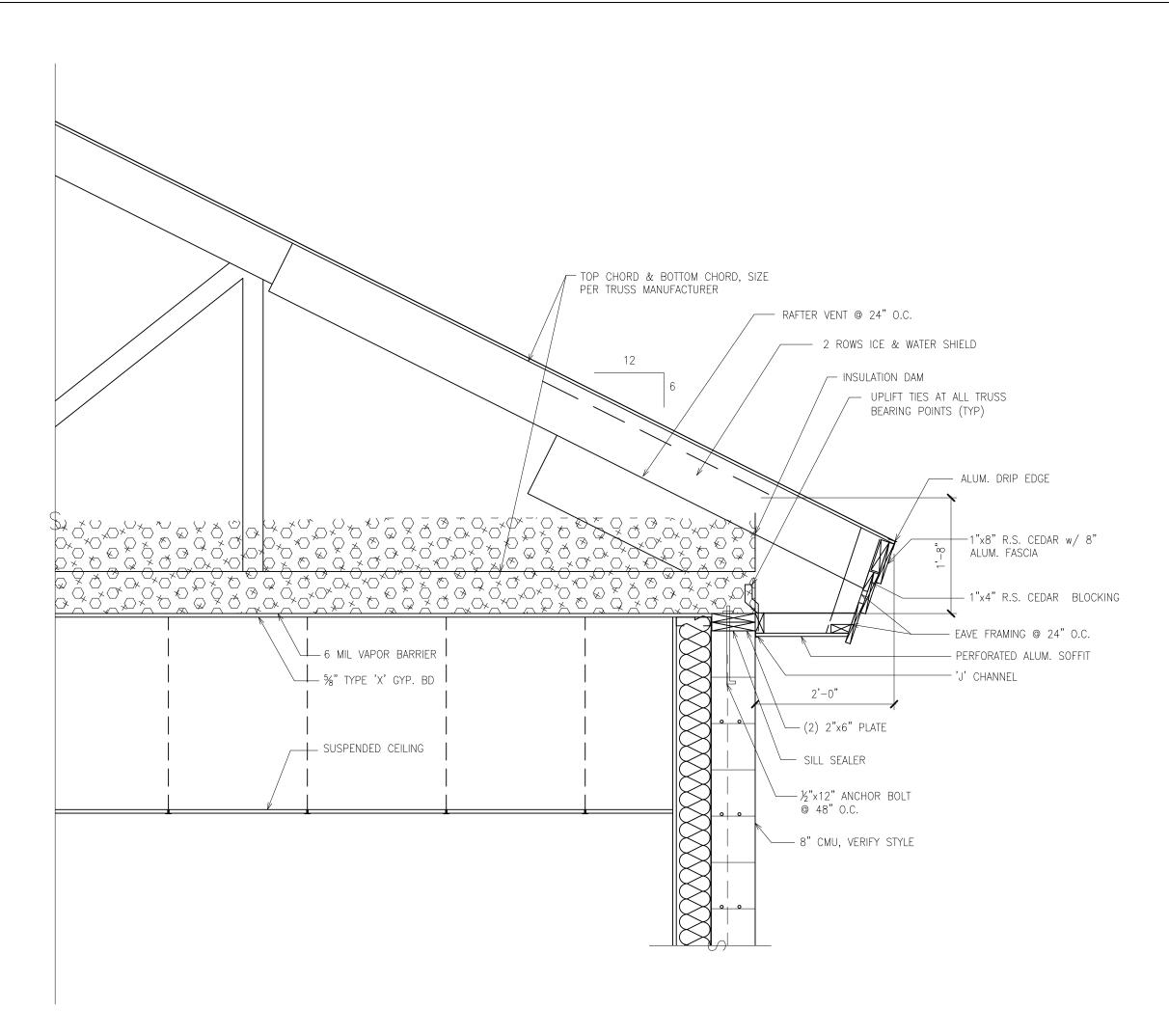
INSTALLATION: INSTALL TRUSSES IN STRICT ACCORDANCE WITH THE TRUSS MANUFACTURER'S INSTRUCTIONS. TRUSS MANUFACTURER TO SUPPLY ALL REQUIRED HANGERS FOR TRUSS INSTALLATION

ROOF FRAMING NOTES

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD BEFORE THE START OF CONSTRUCTION.
- TRUSS UPLIFT BRACKETS WILL BE SIMPSON 2.5A OR EQUAL ON ALL TRUSSES EXCEPT GIRDER TRUSS. GIRDER TRUSS WILL HAVE SIMPSON H8 OR EQUAL ON EACH FACE OF TRUSS.
- 3. THE ATTIC DRAFTSTOP(S) MUST BE CONTINUOUS FROM CEILING TO ROOF SHEATHING WITH NO OPENINGS. INSTALL PER THE MICHIGAN BUILDING CODE. THE ATTIC DRAFTSTOP SHEATHING SHALL BE NOT LESS THAN 1/2" GYPSUM BOARD, 3/8" PLYWOOD OR OTHER MATERIAL AS APPROVED BY THE LOCAL BUILDING OFFICIAL. ALL MATERIALS SHALL BE ADEQUATELY SUPPORTED. ALL JOISTS SHALL HAVE 2"x4" BLOCKING.
- 4. THE ATTIC ACCESS OPENING SHALL BE 22"x36". LOCATE PER PRINTS, FIELD VERIFY.



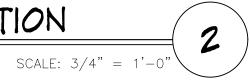


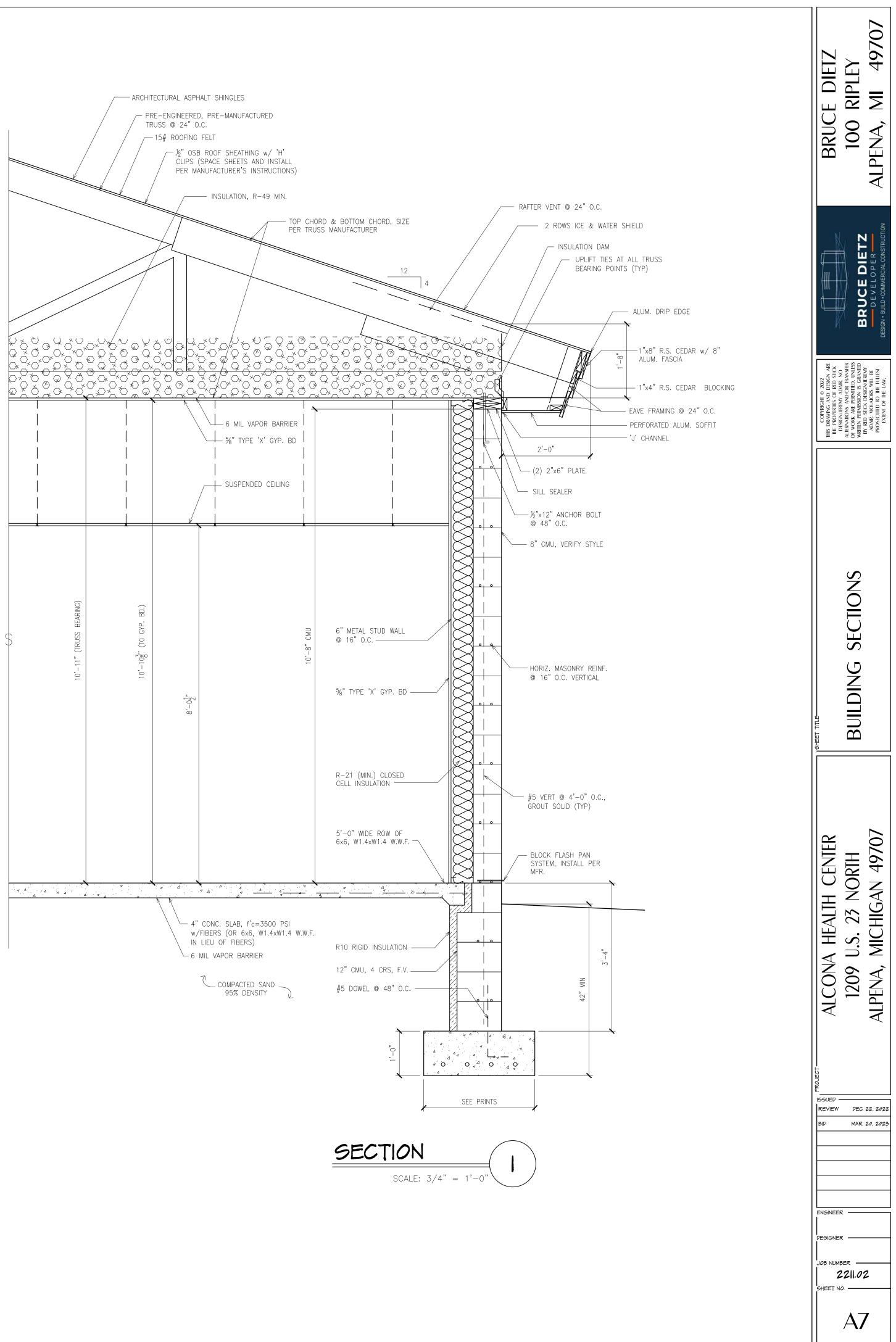




FRAMING NOTES

- 1. ALL FRAMING LUMBER 2"x4" THROUGH 2"x8" WILL BE SPF No. 2 & BETTER; ALL FRAMING LUMBER 2"x10" AND 2"x12" WILL BE HEM-FIR, No. 2 & BETTER. DIMENSIONAL FRAMING MATERIAL SHALL BEAR THE GRADE MARK OF AN APPROVED AGENCY, KILN DRIED. ALL LVL BEAMS AND COLUMNS SHALL BE AS NOTED.
- 2. ALL ENGINEERED LUMBER BEAMS WILL BE ROSEBERG FOREST PRODUCTS RIGIDLAM LVL, 3100 FB, 2.1E BEAMS (OR EQUAL), UNLESS OTHERWISE NOTED.
- 3. INSTALL TRUSS UPLIFT BRACKET PER TRUSS MANUFACTURER AND THE LOCAL BUILDING OFFICIAL.
- 4. SEE HEADER SCHEDULE FOR EXTERIOR BEARING WALLS HEADERS.
- 5. CONTRACTOR WILL INSTALL ALL BLOCKING AND BACKERS AS REQUIRED FOR ALL SURFACE-MOUNTED ITEMS SUCH AS, BUT NOT LIMITED TO: GRAB BARS, LIGHT FIXTURES, MIRRORS, TOILET PAPER HOLDERS, PAPER TOWEL DISPENSERS, TOWEL BARS, CURTAIN RODS, CABINETS, SINKS, COAT RACKS, ETC.
- 6. CONTRACTOR WILL USE JOIST HANGERS, JOIST ANGLES, AND ANY OTHER METAL CONNECTORS AS REQUIRED FOR A COMPLETE JOB. CONTRACTOR WILL USE THE PROPER CONNECTOR WITH AN ADEQUATE LOAD RATING FOR THE PROPER USAGE. INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS WITH THE CORRECT AMOUNT AND TYPE OF FASTENERS.
- 7. CONTRACTOR WILL INSTALL ADEQUATE BLOCKING AND/OR CRIPPLES IN ALL WALLS AND UNDER ALL HEADERS AND BEAMS TO TRANSFER ALL LOADS TO THE FOUNDATION.
- 8. INSTALL FIRESTOPPING (OR FIREBLOCKING) AT ALL INTERCONNECTIONS BETWEEN VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS OVER CABINETS, DROP CEILINGS, COVE CEILINGS, STAIRWAY STRINGERS, AND SIMILAR LOCATIONS.
- 9. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE START OF CONSTRUCTION. 10. REFER TO ROOF FRAMING PLAN FOR ATTIC SEPARATION AREAS & ATTIC ACCESS LOCATIONS.





			ROO	M FINIS	SH SC	HEDUL	E			
			BASE		WA	LLS		CEII	ING	DEMARKE
RM No.	ROOM NAME	FLOOR	BASE	NORTH	EAST	SOUTH	WEST	MAT'L	HT.	- REMARKS
1001	ENTRANCE	MAT	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1002	WAITING	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1006	RESTROOM No.1	VINYL	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	48" FRP AT SINK
1011	HALLWAY No.1	CARP	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1012	HALLWAY No.2	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1013	HALLWAY No.3	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1014	HALLWAY No.4	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1020	FRONT OFFICE	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
125	LAB/MEDS REDERRAL	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1026	EXAM No.1	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1027	EXAM No.2	VINYL	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1028	EXAM No.3	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1029	BEHAVIORAL HEALTH	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1030	TREATMENT	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1040	NURSE STATION	CARP	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1044	LAB	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1045	BIOHAZARD	VINYL	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1046	RESTROOM No.2	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	48" FRP AT SINK
1047	RESTROOM No.3	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	48" FRP AT SINK
1050	IT CLOSET	VINYL	V	GYP/PLY	GYP/PLY	GYP/PLY	GYP/P	SUSP	9'-0"	
1052	PROVIDER OFFICE	CARP	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1053	PROVIDER OFFICE	CARP	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1054	SITE OFFICE	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1055	STAFF ENTRANCE	MAT	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1057	RESTROOM No.2	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	48" FRP AT SINK
1058	RESTROOM No.3	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	48" FRP AT SINK
1060	MECHANICAL & JANITOR CLOSET	CONC	V	GYP/P	GYP/P	GYP/P	GYP/P	GYP/P	12'-2"	48" FRP AT SINK
1065	STERILIZATION	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1066	EXAM No.4	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1067	EXAM No.5	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1068	EXAM No.6	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1070	CARE MANAGER	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1071	TELE-HEALTH	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1072	BEHAVIORAL HEALTH	CARP	V	GYP/P	GY P/P	GYP/P	GYP/P	SUSP	9'-0"	
1080	STAFF ROOM/GROUP VISIT	CARP	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	
1085	BREAKROOM	VINYL	V	GYP/P	GYP/P	GYP/P	GYP/P	SUSP	9'-0"	

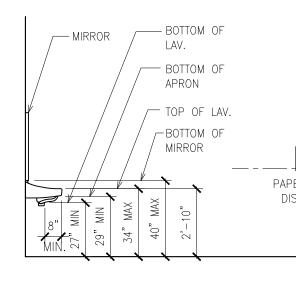
ROOM FINISH NOTES

CEILING, WHICH CAN BE TAPED ONLY.

1. KEY: CARP = CARPET w/ PAD; MAT = FLUFF CORD CARPET TILE; V = 4" VINYL BASE; GB/P = GYPSUM BOARD AND PAINT; SUSP = SUSPENDED ACOUSTICAL TILE CEILING; $PLY/GYP = \frac{3}{4}$ " FIRE RETARDANT PLYWOOD OVER FIRE TAPED GYPSUM BOARD; CONC = CONCRETE w/SEALER.

2. ALL CEILINGS WILL RECEIVE 1 LAYER 5/8" TYPE "X" GYPSUM BOARD AT TRUSS BOTTOM CHORD.

- 3. ALL INTERIOR AND EXTERIOR WALLS WILL RECEIVE 5/8" TYPE "X" FIRESHIELD GYPSUM BOARD. GYPSUM BOARD WILL BE FULL HEIGHT ON ALL WALLS. INSTALL PER THE MANUFACTURERS INSTRUCTIONS.
- 4. ALL INTERIOR GYPSUM BOARD WILL BE TAPED AND FINISHED, READY FOR PAINT, EXCEPT FOR AREAS ABOVE SUSPENDED
- 5. ALL INTERIOR GYPSUM BOARD WILL BE PRIMED BY THE PAINTER, THEN SPOTTED AND CHECKED BY THE PAINTER, DRYWALLER,
- AND GENERAL CONTRACTOR BEFORE FINISH PAINT IS APPLIED. 6. WINDOW JAMBS WILL BE GYPSUM BOARD. WINDOW SILLS WILL BE SOLID SURFACE.
- 7. INTERIOR TRIM WILL RECEIVE THREE (3) COATS OF FINISH. FILL ALL NAIL HOLES WITH FILLER TO MATCH FINISH.
- 8. ALL PAINTED GYPSUM BOARD/DRYWALL WILL RECEIVE ONE PRIME COAT AND TWO FINISH COATS.
- 9. HOLLOW METAL FRAMES SHALL BE SHOP PRIMED.
- 10. DOOR AND WINDOW FRAMES WILL RECEIVE THREE (3) COATS OF FINISH.
- 11. ALL RESTROOMS REQUIRE A SIGN ON THE WALL ADJACENT TO THE DOOR PER THE BARRIER FREE CODE OF THE STATE OF MICHIGAN.
- 12. INSTALL 3½" SOUND INSULATION IN ALL WALLS PER THE PRINTS.
- 13. PUBLIC RESTROOM WILL HAVE THE FOLLOWING INSTALLED PER THE STATE OF MICHIGAN BARRIER FREE CODE AND THE
- AMERICAN'S WITH DISABILITIES ACT: 18", 36" & 42" GRAB BARS
 - ONE TOILET PAPER DISPENSER / SHELF
 - ONE SOAP DISPENSER ONE PAPER TOWEL DISPENSER
 - ONE 24"x36" MIRROR ONE CLOTHES HOOK
 - ONE DIAPER CHANGING TABLE (WHERE NOTED ON PLANS)
- 14. INSTALL THE FOLLOWING ACCESSORIES AT ALL SINK LOCATIONS:
 - ONE SOAP DISPENSER ONE PAPER TOWEL DISPENSER
- 15. THERE WILL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
- 16. CEILING HEIGHTS INDICATED ON THE ROOM FINISH SCHEDULE ARE FOR THE LOWEST MAJOR AREA OF CEILINGS IN THE ROOM. REFER TO PLANS, SECTIONS, AND DETAILS WHERE APPLICABLE FOR ADDITIONAL CEILING HEIGHTS WITHIN THE ROOM.
- 17. WHEREVER A FLOOR, WALL, OR CEILING SURFACE OF A ROOM IS SCHEDULED TO BE FINISHED, ALL UNFINISHED ITEMS WITHIN THAT SURFACE (FRAMES, DOORS, TRIM, PANEL COVERS, ETC.) SHALL BE FINISHED, UNLESS INDICATED OTHERWISE. FINISH FOR SUCH ITEMS SHALL BE AS APPLICABLE TO SPECIFIC MATERIAL. DO NOT FINISH PRE-FINISHED ITEMS, UNLESS INDICATED OTHERWISE.
- 18. TRANSITIONS BETWEEN ABUTTING DISSIMILAR MATERIALS SHALL BE SMOOTH AND LEVEL WITHOUT EXPOSED EDGES NOR ABRUPT CHANGES IN ELEVATION. PROVIDE AND INSTALL TRANSITION DEVICES OF AN APPROPRIATE MATERIAL AND PROFILE AS REQUIRED TO ACHIEVE THIS REQUIREMENT. WHEREVER POSSIBLE, LOCATE FLOORING MATERIAL TRANSITIONS BETWEEN ADJACENT ROOMS BENEATH THE DOORWAY(S) IN ITS CLOSED POSITION, UNLESS INDICATED OTHERWISE.
- 19. CEILING BULKHEADS: BOTH HORIZONTAL AND VERTICAL SURFACES SHALL BE FINISHED THE SAME UNLESS INDICATED OTHERWISE.
- 20. ALL COLORS, PATTERNS, AND TEXTURES OF FINISHES SHALL BE AS SELECTED BY THE OWNER.
- 21. FLOOR MATERIAL CHANGES SHALL OCCUR BENEATH DOORS/THRESHOLDS.
- 22. WALL DESCRIPTIONS (INCLUDING WALLS, PARTITIONS, ASSEMBLIES, SEPARATIONS, ENCLOSURES, ETC.) ON THIS DRAWING GENERALLY DESCRIBE THE WALL CONDITIONS. REFER TO PLANS, SECTIONS, AND DETAILS WHERE APPLICABLE FOR WALL DESCRIPTIONS PERTAINING TO RATINGS, SOUND AND AIR CONTROL.
- 23. VERIFY CEILING GRID LAYOUT WITH ELECTRICAL AND LIGHTING CONTRACTOR.
- 24. SUSPENDED CEILINGS ARE PER THE PRINTS. PROVIDE TILE HOLD DOWN CLIPS AS REQUIRED.
- 25. PROVIDE FILLER STRIP(S) BETWEEN WALL AND CABINETRY AS REQUIRED. FILLER STRIPS SHALL MATCH CASEWORK IN ALL RESPECTS. SIZE OF FILLERS SHALL BE 2" MAX.
- 26. ALL CARPET ON FLOORS WILL BE NOT LESS THAN CLASS II, PER THE MICHIGAN BUILDING CODE.
- 27. OFFICE DOORS WILL HAVE A COAT HOOK ON THEM
- 28. OWNER TO VERIFY ALL ROOM FINISHES PRIOR TO THE START OF CONSTRUCTION.
- 29. LOCKER ROOM LOCKERS ARE REPUBLIC STORAGE, 24"x24"x72" SINGLE TIER, COLOR MIDNIGHT BLUE #61.
- 30. PORTABLE FIRE EXTINGUISHERS WILL BE AMEREX, MODEL B402T OR EQUAL, FIRE EXTINGUISHER CABINETS WILL BE LARSON MODEL 2409-R3-FG, ARCHITECTURAL SERIES, ROLLED EDGE, OR EQUAL.



MOUNTING HEIGHT SCHEDULE

SCALE: NONE THE INTENT OF THIS SCHEDULE IS TO ILLUSTRATE THE PROPER MOUNTING HEIGHTS ONLY. THE FIXTURES INDICATED WITHIN THIS SCHEDULE MAY VARY FROM THOSE SPECIFIED OR REQUIRED. REFER TO PLANS, MECHANICAL DRAWINGS, AND/OR PROJECT MANUAL FOR ADDITIONAL INFORMATION.

			WINDOW SCHE	EDULE	
No.	QTY	MANUFACTURER & STYLE	ROUGH OP ENING	HEAD HT	REMARKS
Α	8	QUAKER K200 FIXED SASH	48"x48"	7'-4"	
В	9	QUAKER K200 SLIDING	48"x48"	7'-4"	
С	4	QUAKER K200 FIXED SASH	48"x24"	7'-4"	
D	1	SLIDING RECEPTION WINDOW	48"x48"	7'-0"	LOCKING HARDWARE
E	7	FIXED SASH TRANSON	48"x24"	7'-0"	GYPSUM BOARD JAMBS

WINDOW NOTES

1. ALL EXTERIOR WINDOWS QUAKER K200 SERIES, ALUMINUM FRAMED, AND WILL BE DOUBLE PANE INSULATED LOW E

2. ALL OPERABLE EXTERIOR WINDOWS WILL HAVE STANDARD COLOR FRAMED INSECT SCREENS.

3. WINDOW TREATMENTS WILL BE BY OWNER.

GLASS, WITH STANDARD HARDWARE.

4. VERIFY ALL WINDOWS WITH OWNER PRIOR TO THE START OF CONSTRUCTION.

MOUNT ON LATCH SIDE OF DOOR -SWITCH ✓ DRINKING FOUNTAIN THERMOSTAT FIRF EXTINGUISHER CARINET

- 15. WALL STOPS WILL BE IVES WS33.
- 14. BALL BEARING BUTT HINGES WILL HAVE NON-REMOVABLE PINS FOR EXTERIOR AND PUBLIC INTERIOR EXPOSURE.

HARDWARE KEY: B = 11/2 PAIR BALL BEARING BUTTS; C = HYDRAULIC DOOR CLOSER WITH KEY VALVES FOR BACK

PUSH AND PULL PLATES; EL = ENTRY LEVER LOCKSET; PL = PASSAGE LEVER LOCKSET; PVL = PRIVACY LEVER LOCKSET; W = WEATHERSTRIP, BARRIER FREE THRESHOLD AND SWEEP; PA = POWER ASSISTED OPERATOR; ES =

5. ALL DOORS AND FRAMES THAT RECEIVE DOOR CLOSERS SHALL BE REINFORCED WHERE ATTACHMENT IS MADE.

6. PROVIDE CAULK AT INTERIOR LOCATIONS AND SEALANT AT EXTERIOR LOCATIONS BETWEEN ALL FRAMES AND ADJACENT

8. HOLLOW METAL FRAMES TYPICAL SHOWN FOR DETAILING PURPOSES, ALUMINUM AS OCCURS. HOLLOW METAL SUPPLIER

9. EXTERIOR DOOR FRAMES WILL BE NOT LESS THAN 14 GA; INTERIOR DOOR FRAMES WILL NOT BE LESS THAN 16 GA.,

10. WOOD DOORS SOLID CORE DOORS FOR TRANSPARENT FINISH: PREMIUM GRADE, 5-PLY, PARTICLEBOARD CORE; RED OAK,

ELECTRIC STRIKE WITH KEYPAD; STD = STANDARD HARDWARE; PH = PIVOT HINGE.

2. VERIFY FLOOR FINISH BEFORE INSTALLATION OF DOOR FRAMES.

7. EXTERIOR ALUMINUM FRAME DOORS WILL HAVE 1" INSULATED GLAZING.

TO VERIFY WALL THICKNESS AND THROAT SIZE BEFORE ORDERING.

HOLDING CELL DOOR FRAMES WILL NOT BE LESS THAN 12 GA.

12. LEVERSETS WILL BE MARKS, GRADE II, COMMERCIAL QUALITY LOCKSETS.

13. CLOSERS WILL LCN 1261 OR PDQ 5501BCPA, WITH DOGGING FEATURES AND COVERS.

PLAIN SLICED, EDGING MATCHES FACE; PAIRED MATCHING.

11. ALL GLAZING IN DOORS SHALL BE SAFETY GLAZING.

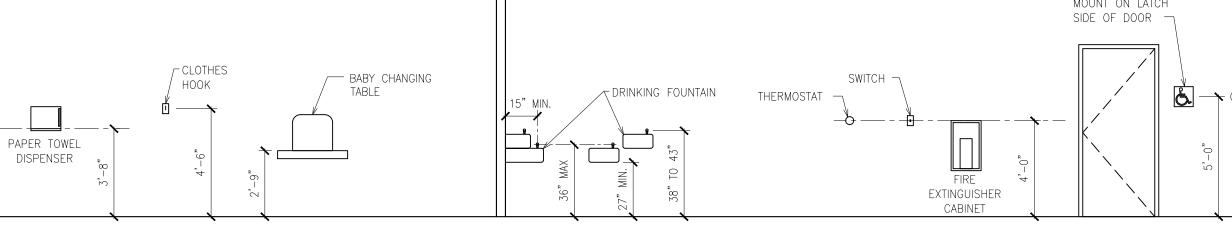
4. COORDINATE THE KEYING OF THE LOCKS WITH THE OWNER.

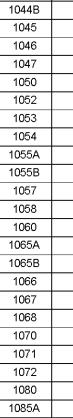
3. VERIFY ALL DOOR HARDWARE WITH OWNER.

CHECK, SPEED, AND LATCHING; DS = WALL-MOUNT OR FLOOR-MOUNT DOOR STOP; LC = LOCK CYLINDER; PP =

DOOR NOTES

MATERIALS.





1085B A001A

A001B A001C

001B

1005A

1005B

1006 1020A 1020B

1025

1026 1027

1028

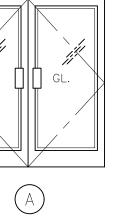
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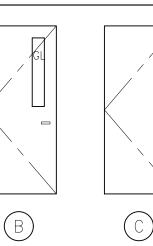
1030A

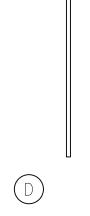
1030B 1044A

			DC	DOR ai	nd FRA	ME SCHEDULI	= -
		DOOR		FRA	ME		
SIZE	MAT'L	TYPE	GLASS	MAT'L	WALL	HARDWARE	REMARKS
(2) 3'-0"x7'-0"	ALUM	А	FULL	ALUM	FV	PH, PP, LC, PA, W	
(2) 3'-0"x7'-0"	ALUM	А	FULL	ALUM	4 7/8"	PH, PP, PA	
3'-0"x7'-0"	WOOD	В	NL	НМ	5 3/4"	B, EL, ES, C	
3'-0"x7'-0"	WOOD	В	NL	НМ	5 3/4"	B, EL, ES, C	
3'-0"x7'-0"	WOOD	С	NONE	HM	5 3/8"	B, PVL, C	
3'-0"x7'-0"	WOOD	В	NL	НМ	4 7/8"	B, EL, C	
3'-0"x7'-0"	WOOD	В	NL	НМ	4 7/8"	B, EL, C	
3'-0"x7'-0"	WOOD	В	ML	НМ	5 3/8"	B, EL, DS	
3'-0"x7'-0"	WOOD	С	NONE	HM	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-6"x7'-0"	STL	В	NL	НМ	FV	B, EL, C, W	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	NONE	D	_	НМ	4 7/8"		JAMBED OPENING
3'-0"x7'-0"	NONE	D	_	НМ	4 7/8"		JAMBED OPENING
3'-0"x7'-0"	WOOD	С	NONE	НМ	4 7/8"	B, STO	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	Е	NONE	НМ	4 7/8"	B, EL, ES	
3'-0"x7'-0"	WOOD	В	NL	HM	5 3/8"	B, EL, DS	
3'-0"x7'-0"	WOOD	В	NL	НМ	5 3/8"	B, EL, DS	
3'-0"x7'-0"	WOOD	В	NL	HM	5 3/8"	B, EL, DS	
3'-0"x7'-0"	ALUM	А	FULL	НМ	FV	PH, ED, LC, ES, C, W	
3'-0"x7'-0"	ALUM	А	FULL	НМ	4 7/8"	PH, ED, C	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PVL, C	
3'-0"x7'-0"	WOOD	С	NONE	HM	5 3/8"	B, PVL, C	
3'-0"x7'-0"	WOOD	С	NONE	НМ	4 7/8"	B, EL, C	
3'-0"x7'-0"	NONE	D	_	HM	4 7/8"		JAMBED OPENING
3'-0"x7'-0"	NONE	D	_	НМ	4 7/8"		JAMBED OPENING
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	С	NONE	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	С	NONE	HM	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	В	NL	HM	5 3/8"	B, EL, DS	
3'-0"x7'-0"	WOOD	В	NL	HM	5 3/8"	B, EL, DS	
3'-0"x7'-0"	WOOD	В	NL	НМ	5 3/8"	B, EL, DS	
3'-0"x7'-0"	WOOD	В	NL	НМ	5 3/8"	B, PL, DS	
3'-0"x7'-0"	WOOD	В	NL	НМ	5 3/8"	B, PL, C	
3'-0"x7'-0"	WOOD	F	NONE	HM	5 7/8"	STD	
22"x36"	STL	_	NONE	STL			BEST ACCESS DOORS BA-PFI-GYP OR EQAUL
22"x36"	STL	-	NONE	STL			BEST ACCESS DOORS BA-PFI-GYP OR EQAUL
22"x36"	STL	-	NONE	STL		STD	BEST ACCESS DOORS BA-PFI-GYP OR EQAUL

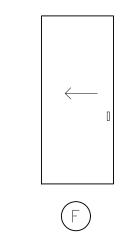
DOOR TYPES

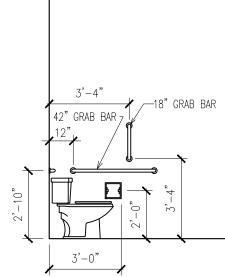


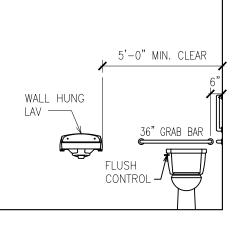


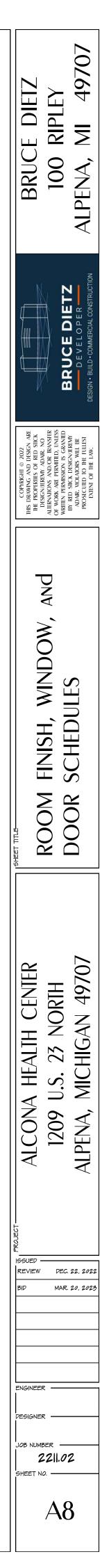


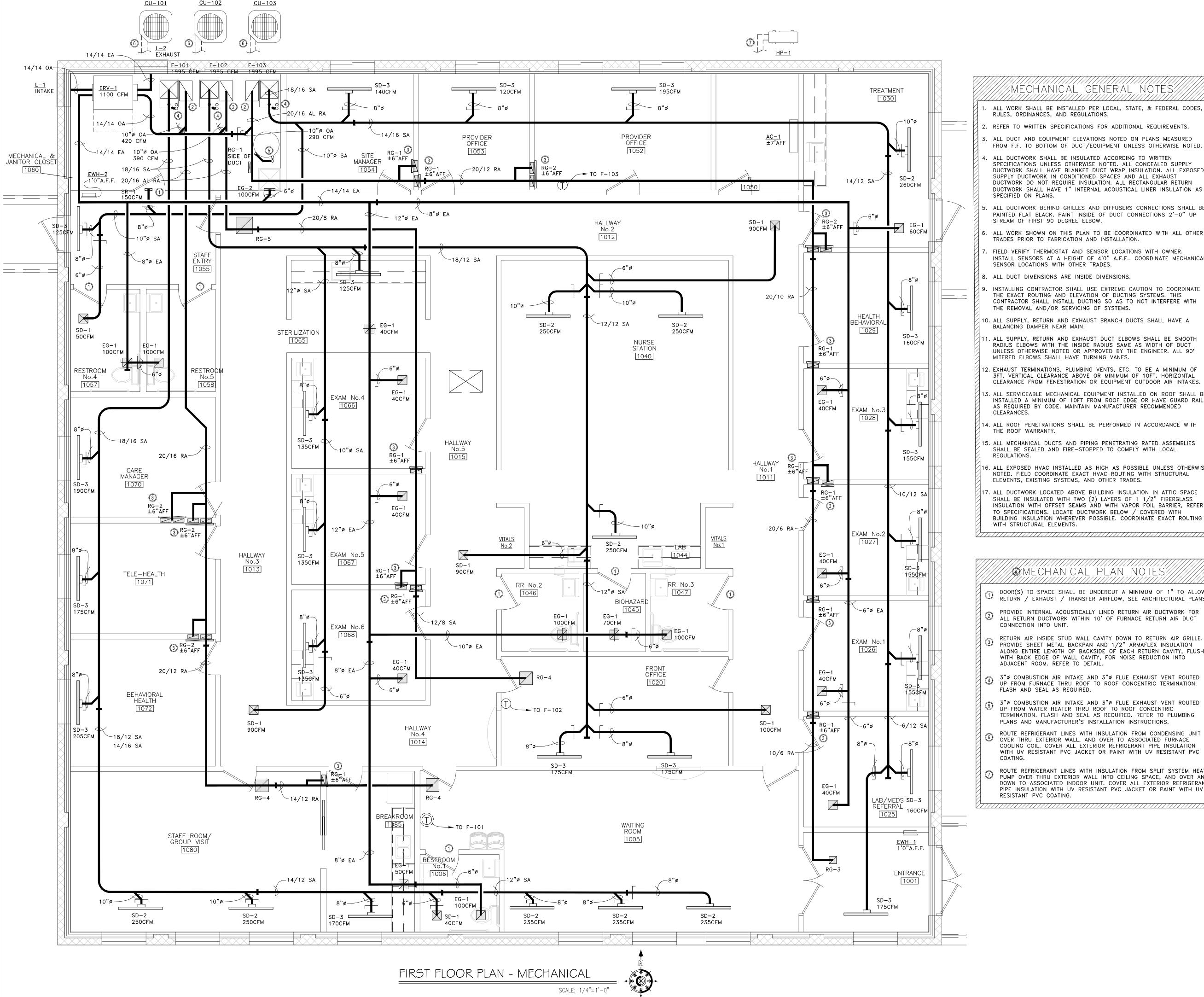
LOUVER











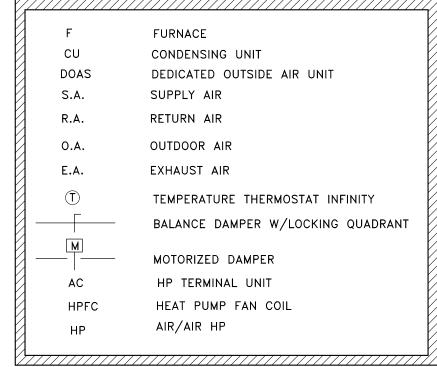
MECHANICAL GENERAL NOTES

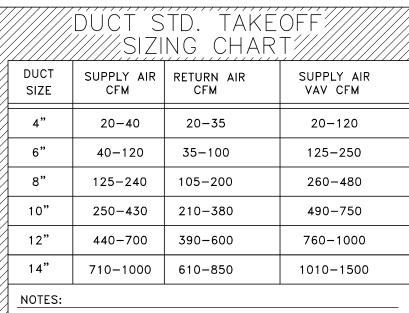
- ALL WORK SHALL BE INSTALLED PER LOCAL, STATE, & FEDERAL CODES,
- ALL DUCT AND EQUIPMENT ELEVATIONS NOTED ON PLANS MEASURED
- ALL DUCTWORK SHALL BE INSULATED ACCORDING TO WRITTEN SPECIFICATIONS UNLESS OTHERWISE NOTED. ALL CONCEALED SUPPLY
- DUCTWORK SHALL HAVE BLANKET DUCT WRAP INSULATION. ALL EXPOSED SUPPLY DUCTWORK IN CONDITIONED SPACES AND ALL EXHAUST DUCTWORK DO NOT REQUIRE INSULATION. ALL RECTANGULAR RETURN DUCTWORK SHALL HAVE 1" INTERNAL ACOUSTICAL LINER INSULATION AS
- ALL DUCTWORK BEHIND GRILLES AND DIFFUSERS CONNECTIONS SHALL BE PAINTED FLAT BLACK. PAINT INSIDE OF DUCT CONNECTIONS 2'-0" UP
- ALL WORK SHOWN ON THIS PLAN TO BE COORDINATED WITH ALL OTHER TRADES PRIOR TO FABRICATION AND INSTALLATION.
- FIELD VERIFY THERMOSTAT AND SENSOR LOCATIONS WITH OWNER. INSTALL SENSORS AT A HEIGHT OF 4'0" A.F.F.. COORDINATE MECHANICAL
- INSTALLING CONTRACTOR SHALL USE EXTREME CAUTION TO COORDINATE THE EXACT ROUTING AND ELEVATION OF DUCTING SYSTEMS. THIS CONTRACTOR SHALL INSTALL DUCTING SO AS TO NOT INTERFERE WITH
- 0. ALL SUPPLY, RETURN AND EXHAUST BRANCH DUCTS SHALL HAVE A
- . ALL SUPPLY, RETURN AND EXHAUST DUCT ELBOWS SHALL BE SMOOTH RADIUS ELBOWS WITH THE INSIDE RADIUS SAME AS WIDTH OF DUCT UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER. ALL 90° MITERED ELBOWS SHALL HAVE TURNING VANES.
- 2. EXHAUST TERMINATIONS, PLUMBING VENTS, ETC. TO BE A MINIMUM OF 3FT. VERTICAL CLEARANCE ABOVE OR MINIMUM OF 10FT. HORIZONTAL CLEARANCE FROM FENESTRATION OR EQUIPMENT OUTDOOR AIR INTAKES. 3. ALL SERVICEABLE MECHANICAL EQUIPMENT INSTALLED ON ROOF SHALL BE INSTALLED A MINIMUM OF 10FT FROM ROOF EDGE OR HAVE GUARD RAIL
- 14. ALL ROOF PENETRATIONS SHALL BE PERFORMED IN ACCORDANCE WITH
- 5. ALL MECHANICAL DUCTS AND PIPING PENETRATING RATED ASSEMBLIES
- 16. ALL EXPOSED HVAC INSTALLED AS HIGH AS POSSIBLE UNLESS OTHERWISE NOTED. FIELD COORDINATE EXACT HVAC ROUTING WITH STRUCTURAL ELEMENTS, EXISTING SYSTEMS, AND OTHER TRADES.
- 7. ALL DUCTWORK LOCATED ABOVE BUILDING INSULATION IN ATTIC SPACE SHALL BE INSULATED WITH TWO (2) LAYERS OF 1 1/2" FIBERGLASS INSULATION WITH OFFSET SEAMS AND WITH VAPOR FOIL BARRIER, REFER TO SPECIFICATIONS. LOCATE DUCTWORK BELOW / COVERED WITH BUILDING INSULATION WHEREVER POSSIBLE. COORDINATE EXACT ROUTING

MECHANICAL PLAN NOTES

- DOOR(S) TO SPACE SHALL BE UNDERCUT A MINIMUM OF 1" TO ALLOW RETURN / EXHAUST / TRANSFER AIRFLOW, SEE ARCHITECTURAL PLANS.
- PROVIDE INTERNAL ACOUSTICALLY LINED RETURN AIR DUCTWORK FOR ALL RETURN DUCTWORK WITHIN 10' OF FURNACE RETURN AIR DUCT
- RETURN AIR INSIDE STUD WALL CAVITY DOWN TO RETURN AIR GRILLE. PROVIDE SHEET METAL BACKPAN AND 1/2" ARMAFLEX INSULATION ALONG ENTIRE LENGTH OF BACKSIDE OF EACH RETURN CAVITY, FLUSH WITH BACK EDGE OF WALL CAVITY, FOR NOISE REDUCTION INTO
- 3"
 COMBUSTION AIR INTAKE AND 3"
 FLUE EXHAUST VENT ROUTED UP FROM FURNACE THRU ROOF TO ROOF CONCENTRIC TERMINATION.
- 5 3"¢ COMBUSTION AIR INTAKE AND 3"¢ FLUE EXHAUST VENT ROUTED UP FROM WATER HEATER THRU ROOF TO ROOF CONCENTRIC TERMINATION. FLASH AND SEAL AS REQUIRED. REFER TO PLUMBING PLANS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ROUTE REFRIGERANT LINES WITH INSULATION FROM CONDENSING UNIT OVER THRU EXTERIOR WALL, AND OVER TO ASSOCIATED FURNACE COOLING COIL. COVER ALL EXTERIOR REFRIGERANT PIPE INSULATION WITH UV RESISTANT PVC JACKET OR PAINT WITH UV RESISTANT PVC
- ROUTE REFRIGERANT LINES WITH INSULATION FROM SPLIT SYSTEM HEAT PUMP OVER THRU EXTERIOR WALL INTO CEILING SPACE, AND OVER AND DOWN TO ASSOCIATED INDOOR UNIT. COVER ALL EXTERIOR REFRIGERANT PIPE INSULATION WITH UV RESISTANT PVC JACKET OR PAINT WITH UV

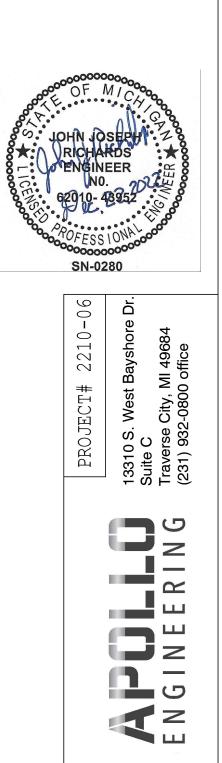
MECHANICAL LEGEND





1. FLOWS ARE SIZED USING 0.1"WC/100' FOR S.A.

- 2. FLOWS ARE SIZED USING 0.07"WC/100' FOR R.A. 3. TAKE OFFS TO HAVE PROPER RELIEF FOR PROPER FLOW. AS PER SMACNA STANDARDS.
- 4. VAV TAKE OFFS SIZED AT NOMINAL 1300FPM.
- 5. IF SIZING NOT GIVEN ON PLAN USE CHART.





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						F	Ī	J	R	\mathbb{N}	1	A	ł	С	E	-		(S	$\mathbf{\hat{s}}($	2	┝	+ [-)	L	Π		_	/					
/			/					/	/	//	/				/	/			/		//		//	/	/	/			/							/

V																
	MARK	MANUF.	MODEL No.	TYPE	HTG.MBH INPUT		NOMINAL CLG.MBH	СҒМ	SPEEDS	O.A.CFM	ESP	VOLTAGE	H.P.	MIN. CIR. AMPACITY	MAX. FUSE SIZE	REMARK
	F-101	CARRIER	59MN7A080V21-20	UP FLOW	100.0	97.0	60.0	1995	VARIABLE	220	0.5"	120V/1ø	1.0	19.1	20A	SEE NOT
	F-102	CARRIER	59MN7A080V21-20	UP FLOW	100.0	97.0	60.0	1995	VARIABLE	220	0.5"	120V/1ø	1.0	19.1	20A	SEE NOT
	F-103	CARRIER	59MN7A080V21-20	UP FLOW	100.0	97.0	60.0	1995	VARIABLE	220	0.5"	120V/1ø	1.0	19.1	20A	SEE NOT

NOTES:

1. BASED ON CARRIER. 2. FURNACES SHALL RUN CONTINUOUSLY DURING BUILDING OCCUPIED TIMES. UNIT TO DELIVER NOT LESS THAN 15% CFM LESS THEN STATED VALUES.

3. VERIFY RA CONNECTIONS TO FURNACE IN AGREEMENT WITH MANUFACTURES RECOMMENDATION

4. PROVIDE ALL FURNACES WITH VERTICAL CONCENTRIC VENT KIT, SIZE AND ROUTE VENTING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. 5. PROVIDE ALL FURNACES WITH 7-DAY PROGRAMMABLE THERMOSTAT. ALL SYSTEM CONTROLS SHALL BE EQUAL TO CARRIER INFINITY.

6. PIPE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. PROVIDE ALL FURNACES WITH CONDENSATE PUMP EQUAL TO LITTLE GIANT #VCMX-20UL IF REQUIRED.

7. PROVIDE ALL FURNACES WITH FACTORY PROVIDED, FIELD INSTALLED 2" FILTER BOX WITH MIN. MERV-8 FILTERS. 8. UNITS TO HAVE GPS AIR CLEANER INSTALLED, REFER TO FURNACE DETAIL.

9. FURNACE SUPPLY MINIMUM AIRFLOW LEVEL SHALL BE 50% OF SCHEDULED CFM. FURNACE SHALL MAINTAIN MINIMUM MIXED AIR TEMPERATURE INTO FURNACE OF 60°F.

			///////////////////////////////////////	//////	///////	///////////////////////////////////////				
			NDENS	ING ////////////////////////////////////	UNIT	SCHE)ULE//			
	····· ·		NOMINAL			EL	ECTRICAL			
MARK	UNIT SERVED	MODEL No.	CLG. CAP	SEER	REFRIG.	VOLTAGE	МСА	моср	WEIGHT	REMARKS
CU-101	F-101	24VNA060A0030	5 TONS	20.0	R-410A	208V/1ø	35.0	50A	324	SEE NOTES
CU-102	F-102	24VNA060A0030	5 TONS	20.0	R-410A	208V/1ø	35.0	50A	324	SEE NOTES
CU-103	F-103	24VNA060A0030	5 TONS	20.0	R-410A	208V/1ø	35.0	50A	324	SEE NOTES
		1								

<u>NOTES:</u> 1. BASED ON CARRIER. AAON IS EQUAL.

2. UNITS SHALL HAVE VARIABLE-SPEED COOLING.

3. UNITS SHALL BE INSTALLED ON 4" CONCRETE PAD, LEVEL IN ALL DIRECTIONS, BY ARCHITECTURAL TRADE.

4. PROVIDE FURNACES WITH MATCHED COOLING COIL. ROUTE REFRIGERANT LINES FROM OUTDOOR UNIT TO ASSOCIATED FURNACE,

LINES SIZED AND CONFIGURED PER MANUFACTURER'S RECOMMENDATIONS FOR PROPER OIL RETURN. 5. ALL SYSTEM CONTROLS SHALL BE EQUAL TO CARRIER INFINITY.

		ENE		RE(Dove 	.//////	VENTIL,	ator ////////////////////////////////////	SCHEDU	JLE	
MARK	MANUF.	MODEL No.	OUTDO CFM	OR AIR E.S.P.	EXHAU: CFM	ST AIR E.S.P.	MOTOR HP (EA.)	VOLTAGE	MIN. CIR. AMPACITY	MAX. FUSE SIZE	REMARKS
ERV-1	RENEWAIRE	HE1.5JINH	1100	0.5"	1100	0.9"	1.0	208V/1ø	7.7	15A	SEE NOTES

NOTES:

1. BASED ON RENEWAIRE.

2. UNIT SHALL INCLUDE FACTORY ECM MOTORS, NON-FUSED DISCONNECT SWITCH, FACTORY MER 8 - 2" PLEATED FILTERS.

3. UNIT SHALL RUN CONTINUOUSLY DURING BUILDING OCCUPIED TIMES AS DETERMINED BY TIME CLOCK EQUAL TO RENEWAIRE TC7D-E.

4. UNIT SHALL BE PROVIDED WITH FACTORY BACKDRAFT DAMPER IN BOTH AIRSTREAMS.

5. UNIT SHALL BE INSTALLED FROM STRUCTURE ABOVE WITH ISOLATORS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

6. PROVIDE AND INSTALL UNIT WITH DUCT AND ACCESS DOOR CONFIGURATION AS SHOWN ON PLANS.

WALL LOUVER SCHEDULE

ł	/ <u>////////////////////////////////////</u>		<u> </u>	<u> </u>					
	MARK	MODEL No.	UNIT SERVED	TYPE	CFM	SIZE W x H	FREE AREA	PD	REMARKS
	L-1	ELF6375DX	ERV-1	INTAKE	1100	36"X 18"	1.97 SQFT	.05"	SEE NOTES
	L-2	ELF6375DX	ERV-1	EXHAUST	1100	36" X 18"	1.97 SQFT	.04"	SEE NOTES
ł	NOTES		•			•			•

NOTES:

. BASED ON RUSKIN

2. PROVIDE FLANGE, BIRD SCREEN, AND BAKED ENAMEL FINISH. 3. LOUVER SHALL HAVE A FACTORY APPLIED FINISH IN COLOR AS SELECTED BY ARCHITECT.

		SPLIT SYS	TEM O	JTDOOF	r unit	SCHE	DULE			
	SPACE SERVED	MODEL No.	NOMINAL CLG. CAP.	NOMINAL HTG. CAP.	EL VOLTAGE	ECTRICAL MCA	МОСР	SEER	WEIGHT	REMARKS
HP-1	IT ROOM	TRUZA0121KA70(N/B)A	12.0 MBH	18.0 MBH	208V/1ø	11.0	15	21.0	93	SEE NOTES

1. BASED ON TRANE/MITSUBISHI. OTHERS MAY BE BID AS VOLUNTARY ALT.

2. UNIT SHALL BE PROVIDED WITH WIND BAFFLES FOR LOW AMBIENT OPERATION.

3. UNIT SHALL BE INSTALLED ON 4" CONCRETE PAD, LEVEL IN ALL DIRECTIONS, BY ARCHITECTURAL TRADE.

4. REFRIGERANT LINES SIZED AND CONFIGURED PER MANUFACTURER'S RECOMMENDATIONS FOR PROPER OIL RETURN. REFRIGERANT PIPING

SHALL NOT EXCEED RECOMMENDED MAXIMUM LENGTH.

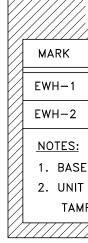
			NOMINAL	NOMINAL		ELECTRI	ICAL		
MARK	UNIT SERVED	MODEL No.	CLG. CAP.	HTG. CAP.	TYPE	VOLTAGE	MCA	WEIGHT	REMARKS
AC-1	HP-1	TPKA0A0121LA00A	12.0 MBH	18.0 MBH	WALL	DC24V	1.0	28	SEE NOTES

3. PROVIDE LOCKING BASE FOR WALL MOUNTED THERMOSTAT.

4. WALL MOUNTED INDOOR UNIT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATION.

5. PIPE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. PROVIDE CONDENSATE PUMP FOR EACH INDOOR UNIT EQUAL TO LITTLE GIANT

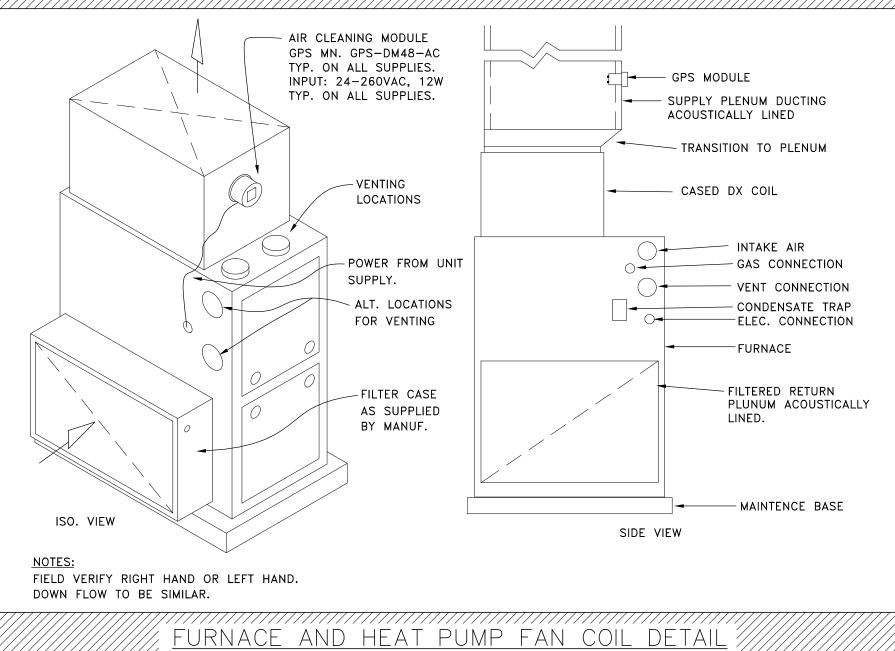
#VCMX-20UL. CONDENSATE PUMP SHALL BE 240V/10 SUCH THAT POWER CAN BE PROVIDED THRU INDOOR A/C UNIT.

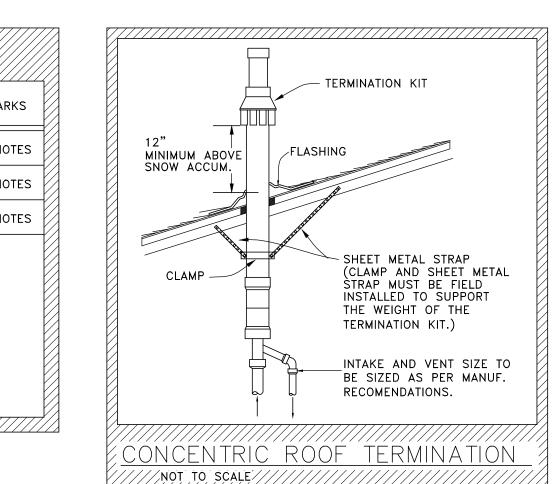


/ /_	//////	
	MARK	MODEL N
	SD-1	TDC
	SD-2	FLI-10
1	SD-3	FLI-10
	SR-1	300FL
	RG-1	355FL
1	RG-2	355FL
	RG-3	8F
	RG-4	8F
	RG-5	8F
1	EG-1	50F
	EG-2	355FL
	NOTES:	
Λ	I. BASEL) ON TITU:

MODEL N

2.	REVIEW
3.	FLOWB/
	PROVID
4.	ALL SU
5.	PROVID
6.	ALL VIS
7.	CONTRA
8.	BRANCH
9.	PROVID
///	
	3. 4. 5. 6. 7. 8.





FIECTRIC WALL HEATER SCHEDLIE/////

/	eleuiri		ALL F		, SUN	IEDULE <i>'////////////////////////////////////</i>
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	MODEL No.	KW	MBH	VOLTAGE	AMPS	REMARKS
	FRA-4024	3.0	10.2	208V/1ø	14.5	SEE NOTES
	FRA-1512	1.5	5.1	120V/1ø	12.5	SEE NOTES

I. BASED ON BERKO. OTHERS MAY BE BID AS VOLUNTARY ALT. 2. UNIT SHALL BE PROVIDED WITH INTEGRAL THERMOSTAT, INTEGRAL DISCONNECT, TAMPER-PROOF FRONT COVER, AND SEMI-RECESSED MOUNTING FRAME.

	DIFF	FUSER / GRILI	_E SCH	HEDU	LE
/// 10.	CFM	SIZE	BALANCING DAMPER	COLOR	REMARKS
	40-100	9"x9", 6"ø NECK	NO	WHITE	BORDER TYPE 1, SEE NO
	235-260	48"LG, 1"SLT, 2-SLOT	YES	WHITE	BORDER TYPE 66, SEE N
	120-205	48"LG, 1"SLT, 1-SLOT	YES	WHITE	BORDER TYPE 66, SEE N
	150	8"X6"	YES	WHITE	BORDER TYPE 1
	120-725	14"~6"	NO	WHITE	

355FL	120-325	14"×6"	NO	WHITE	BORDER TYPE 1	
355FL	120-325	30"×6"	NO	WHITE	BORDER TYPE 1	
8F	175	8"x8"	NO	WHITE	BORDER TYPE 1	
8F	500-745	14"X14"	NO	WHITE	BORDER TYPE 1	
8F	1245	18"X18"	NO	WHITE	BORDER TYPE 1	///////////////////////////////////////
50F	40-100	8"x8"	YES	WHITE	BORDER TYPE 1	///////////////////////////////////////
355FL	100	6"×6"	NO	WHITE	BORDER TYPE 1	

1. BASED ON TITUS. (DISCOVAIR, PRICE OR KRUGER MAY BE BID EQUALS.)

COLOR W/ARCHITECT BEFORE ORDERING. BAR DIFFUSORS TO BE SUPPLIED WITH INSULATED PLENUM, END CAPS AND HANGER CLIPS.

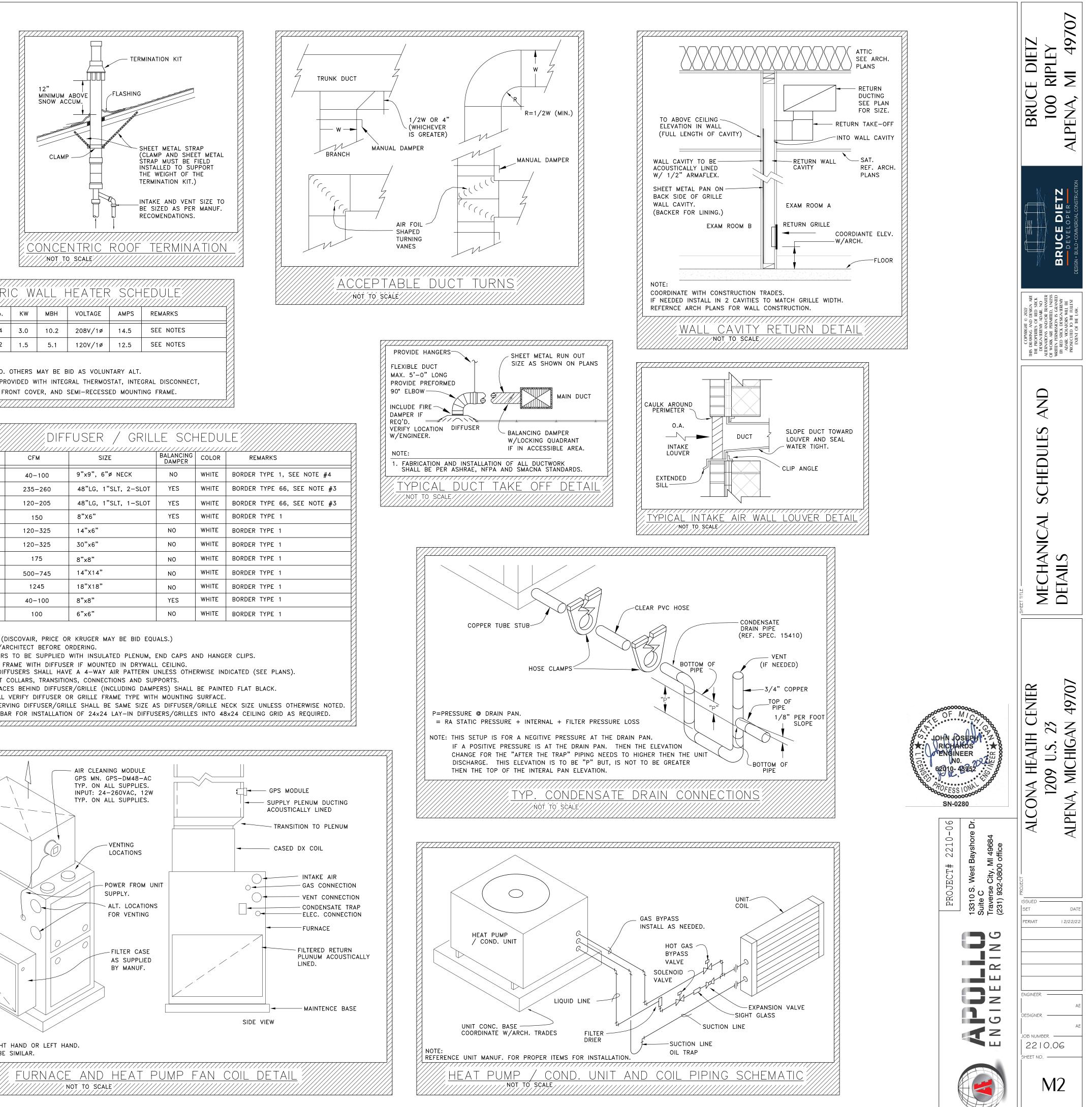
DE PLASTER FRAME WITH DIFFUSER IF MOUNTED IN DRYWALL CEILING.

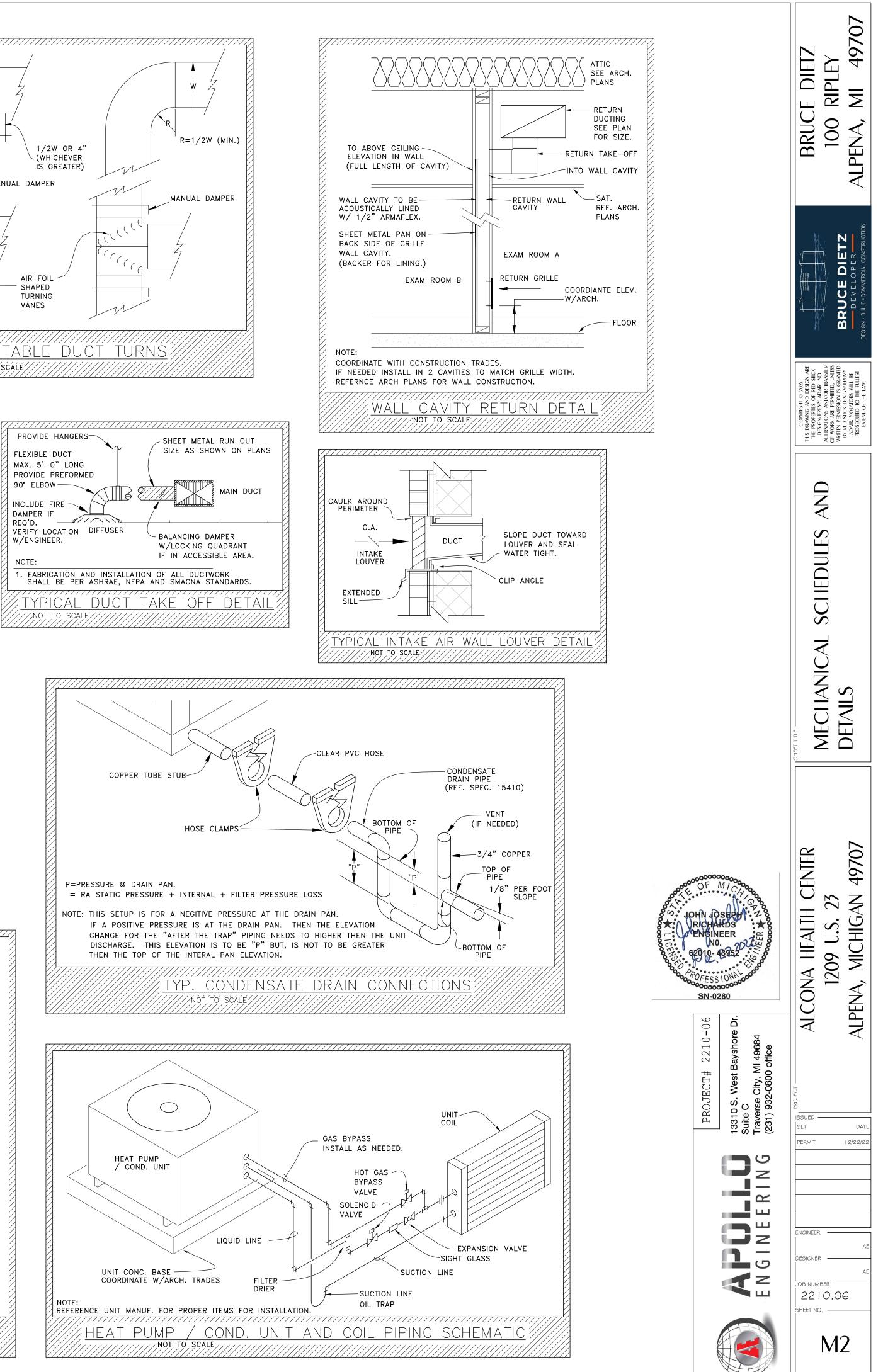
UPPLY AIR DIFFUSERS SHALL HAVE A 4-WAY AIR PATTERN UNLESS OTHERWISE INDICATED (SEE PLANS).

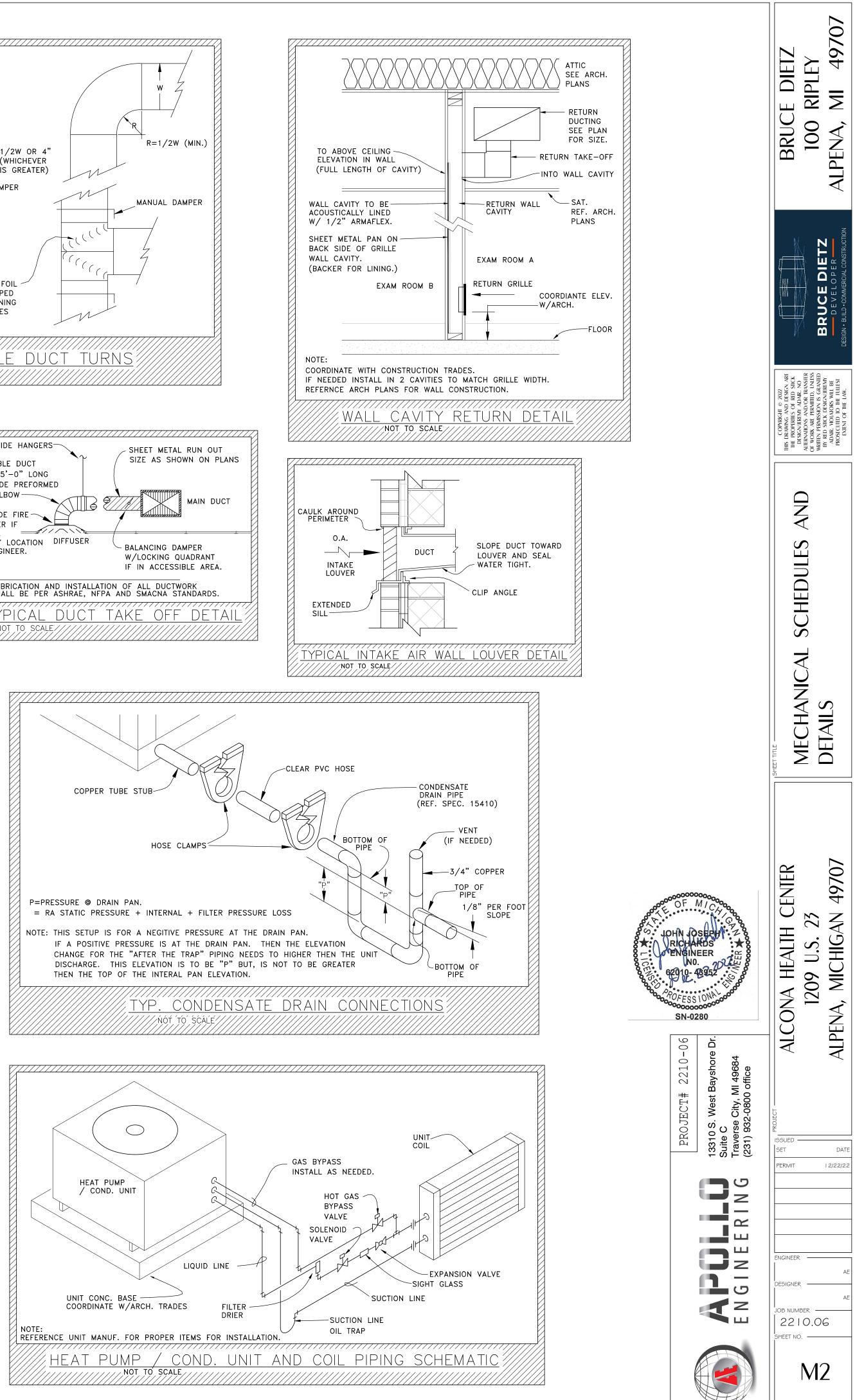
DE ALL DUCT COLLARS, TRANSITIONS, CONNECTIONS AND SUPPORTS. ISIBLE SURFACES BEHIND DIFFUSER/GRILLE (INCLUDING DAMPERS) SHALL BE PAINTED FLAT BLACK.

ACTOR SHALL VERIFY DIFFUSER OR GRILLE FRAME TYPE WITH MOUNTING SURFACE.

CH DUCTS SERVING DIFFUSER/GRILLE SHALL BE SAME SIZE AS DIFFUSER/GRILLE NECK SIZE UNLESS OTHERWISE NOTED. DE EXTRA T'BAR FOR INSTALLATION OF 24×24 LAY–IN DIFFUSERS/GRILLES INTO 48×24 CEILING GRID AS REQUIRED.







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or mode mode mode mode mode mode mode mode	 Brain shall terminate at floor drain with minimum of 12² air gap and in area not subject to flooding or freezing. chemicity size, togeth drain pan under all backflow preventers installed above cellings, pipe 3/4⁴ copper line from drain pan to nearest floor drain or mop sink. Pan shall be installed a more service search back togeth of gap and back to pressure gauges with adjustable pointer, gauge cocks, and shock reducing snubber. Each gauge shall be labeled to indicate units in pressure shall be selected to give approximately two (2) times pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PSI). Install at following locations in pressure shall be selected to give approximately two (2) times pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PSI). Install at following locations or as indicated on print. All nearing pumps' inlets and outlets. Old water supply at meter outlet or connecting point where cold water supply for new addition connects to old line (if in exposed location). At each heating return line balancing valve that occurs in return main where two or more heat users return water to it. At all three ports of 3-way valves. At other the theating colls. At other theat and outlet. Internal and installation of ductwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a interference, notify the frigures. Include on pressure openings in dictaver to the maximum indepert the adjuor on pressure and operating and maintenance activities. Include on the dref where required to accommodate thermometers and controlers. Provide plot tube openings where required for testing of systems, complete with metal against all tables. Include oneings in dictaver kiner pressure ductaver kin strap or cancel. Include oneings in dictaver kiner pressure ductaver kiner the a
a description of the description of	preventer size: Depth of draing pany hall be 1-1/2". Journey 11 Journey 11 Jo
 A construction of the state is during the state is du	 August: Provide 4-1/2⁴ face glass, aluminum body pressure gauges with adjustable pointer, gauge cocks, and shock reducing snubber. Each gauge range 0 to 30 PS1.) Install at following local pressure shall be selected to give approximately two (2) times pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PS1.) Install at following local pressure shall be selected to give approximately two (2) times pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PS1.) Install at following local pressure shall be selected to give approximately two (2) times pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PS1.) Install at following local pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PS1.) Install at following local pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PS1.) Install at following local pressure that gauge will encounter constantly. (Example: 15 PSI steam gauge range 0 to 30 PS1.) Install at following local pressure that gauge will be installed on waters ide and sets on the two of more heat sets return water to it. 4. Water meter inlet and outlet. 4. At all three ports of 3-way valves. 4. At all three ports of 3-way valves. 4. It is and oudlet of hot water heating colis. 4. It is and outlet inlet and outlet. 4. It is and outlet inlet and outlet. 4. Deferring proceeding with flahrication and installation of ductwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a gause are provided in installed to thorwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a gause are inspinee. 6. Orived coursel, with Refere poeming are provided in installed to the towork with to refere towate the strang or gause are in
 a determine the set of the set	 1. All kesting pumps' inlets and outlets. 2. All domestic hot water pumps' inlets and outlets. 3. Cold water supply at meter outlet or connecting point where cold water supply for new addition connects to old line (if in exposed location). 4. Water meter inlet and outlet. 9. Externater: Thermometers shall be installed on water side and sets on that they do not restrict or obstruct fluid flow. Install at following locations or as indicated on prints. 1. At ach heating return line balancing valve that occurs in return main where too or more heat users return water to it. 1. At all three ports of 3-way valves. 1. At domestic hot water takis supply and return pipes, near pump. 1. At inlet and outlet of hot water heating colls. 1. At inlet and outlet. Provide prints: A domestic hot water heating colls. 1. At long restruct on provide time prints, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a rise installence, notify the Engineer. 1. Include opinings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal or against air leakage. Where openings are provided in installated ductwork, inspect the contract documents. 2. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. 3. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. 4. During construction provide temporary document by 1 feed polyethylene on open ductwork to prevent construction duat from extering ductwork system. 3. During construction provide temporary document of these open duct only in accessible areas where a celling is installed. Hold in place with strap or dan activities. 4. During construction provide temporary document of allow
 A. A. A	 Cold water supply at meter outlet or connecting point where cold water supply for new addition connects to old line (if in exposed location). Water meter inlet and outlet. Intermometers: Thermometers shall be installed on water side and set so that they do not restrict or obstruct fluid flow. Install at following locations or as indicated on prints. At each heating return line balancing value that occurs in return main where two or more heat users return water to it. At all three ports of 3-way valves. At init three ports of 3-way valves. At init and outlet of the water thas supply and return pipes, near pump. At linet and outlet of the water theating colls. At botter inite and outlet. Determine I for proceeding with florington and installation of ductwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a gain at installed. Where openings are provided in insulated ductwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a gain at installation. There openings are provided in insulated ductwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a gain at installate. Where openings are provided in insulated ductwork, install insulation internal inside a metal ring. Concet diffusers or truffer boots to low pressure ducts with 5 feet maximum length of fixelibe duct only in accessible areas where a celling is installed. Hold in place with strap or clant. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system. During construction provide
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 A signature due to the spin prior and a base due to t	 At each heating return line balancing valve that occurs in return main where two or more heat users return water to it. At all three ports of 3-way valves. At domestic hot water task supply and return pipes, near pump. At domestic hot water task supply and return pipes, near pump. At linet and outlet of hot water heating colls. At boller inter and outlet of hot water heating colls. At boller inter and outlet. DOUTOTONE A Exercision 1. Eafore proceeding with flabrication and installation of ductwork, inspect the contract documents, site conditions and truss shop drawings and determine that the location of work does a rituateffence, notify the Engineer. 1. Fording contractive where required to accommodate thermometers and controllers. Provide pilot tube openings in ductwork where required to accommodate ductwork, inspect the contract documents. 2. Connect diffusers or truffer boots to low pressure ducts with 5 feet maximum length of fixelibe duct only in accessible areas where a celling is installed. Hold in place with strap or dan and inguing construction provide temporary dosures of metal or tage oppletylyhene on open ductwork to prevent construction dust from entering ductwork system. 3. Under ductwork, structure, etc. can be seen behind gilles, registers, diffusers, etc. apply flat black paint to all visual surfaces. 4. External in the ductwork is a requirements for Class 1 air duct materials, or UL 181.
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A control of the second	 A. General: Interference, notity the Engineer. In provide openings in ductwork where required to accommodate thermometers and controllers. Provide plot tube openings where required for testing of systems, complete with metal or against air testage. Where openings are provided in insulated ductwork, instal insulation material inside a metal ing. Locate ducts with sufficient space around equipment to allow onmail operating and maintenance activities. Locate ducts with sufficient space around equipment to allow onmail operating and maintenance activities. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system. Where ductwork, structure, etc. can be seen behind grilles, registers, diffusers, etc. apply flat black plain to all visual surfaces. Ductwork: Locater ducts with sufficient space conforming to requirements for Class 1 air duct materials, or UL 181.
ytem expet where specified longer for special equipment. Contractor hall secure such warranty from all Supplers or the Contractor will assume the warranty and issue an Insurance Policy to the owner. tecessing and the basis of the Contractor as determined by ArchitectTanianess. The Contractor hall meets and please around equipment is and the contractor of planes. Is provide organized is a distance of against are basis and technolog system in opinion of Enginees. Is provide organized is a distance of against are basis and technolog system is opinion of Enginees. Is provide organized is a distance of against are basis and technolog system is opinion of Enginees. Is provide tempoly and the owners of the commissioning agent (CA) shall be completed in a timely manor. Is provide sequences of the commissioning agent (CA) shall be completed in a timely manor. Is provide sequences of the commissioning agent (CA) shall be completed in a timely manor. Is provide sequences of the commissioning agent (CA) shall be completed in a timely manor. Is provide sequences of the commissioning agent (CA) shall be completed in a timely manor. Is center at the completed as required in construction documents. In center at the completed as required in construction documents. In center at the completed as required in to the commissioning agent (CA) shall be completed in a timely manor. Is center at the completed as required in to the completed in a timely manor. Is center at the completed as required in the completed in a timely manor. Is center at the completed as required in the completed as req	Interference, notify the Engineer. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal caganita the testage. Interference, notify the Engineer. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. Connect diffusers or troffer boots to low pressure ducts with 5 feet maximum length of flexible duct only in accessible areas where a ceiling is installed. Hold in place with strap or dan During construction provide temporary dosures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system. Where ductwork, structure, etc. can be seen behind grilles, registers, diffusers, etc. apply flat black paint to all visual surfaces. Ductwork: Ductwork: Concorduatible or conforming to requirements for Class 1 air duct materials, or UL 181.
apincador shall make all necessary alterations, repairs, algustments, and replacements during guarantee periods as directed by Architect/Engineer to comply with Drawings and Specifications at no cost to Owner. The Contractor half repeat is a since since since of Engineer. In a contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statisticity system in spinion of Engineer. Is contractor shall make all necessary to give statistic systems in spinion of Engineer. Is contractor shall make all necessary to give statistic systems in spinion of Engineer. Is contractor shall make all necessary to give statistic systems in spinion of Engineer. Is contractor shall make all necessary to give statistic for the contractor of pinion at the shall be pinice stat	against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring. 3. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. 4. Connect diffusers or troffer boots to low pressure ducts with 5 feet maximum length of flexible duct only in accessible areas where a ceiling is installed. Hold in place with strap or clan 5. During construction provide temporary closures of metal or taged polyethylene on open ductwork to prevent construction dust from entering ductwork system. 6. Where ductwork, structure, etc. can be seen behind grilles, registers, diffusers, etc. apply flat black paint to all visual surfaces. 8. <u>Ductworks:</u> 1. Centeral: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.
applacements made under guarantee shall bear further one year guarantee from date of acceptance of replace on replacement. 4. Connect diffusers or torffer tools on tore of tools on tore of tools on tore of tools on too	 Connect diffusiers or troffer boots to low pressure ducts with 5 feet maximum length of flexible duct only in accessible areas where a ceiling is installed. Hold in place with strap or clan During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system. Where ductwork, structure, etc. can be seen behind grilles, registers, diffusers, etc. apply flat black paint to all visual surfaces. <u>Ductwork</u>: General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.
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Ill peorts, training, and TAB services shall be completed as required in construction documents. <th< td=""><td>B. <u>Ductwork:</u> I. General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.</td></th<>	B. <u>Ductwork:</u> I. General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.
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MECHANICAL MATERIALS AND METHODS	 Steel Rectangular Ducts; ASTM A525 or ASTM A527 or astmanged steel share read share re
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LELL TED WORK 6. Stailless Steil Ducts: ASTM A167, type 304. Lection 15000 - Mechanical General Provisions 0.00 SUPPORTS AND ANCHORS VORKMANNET 6. General: Furnish and Install all necessary per Install work in accord and with barstice of trade. Install work in accord and with barstice of trade. 9. Buchtwards: Support and hanges for ductwark. Conditionup Engineers Handbook Ducts 36' v. 12 Install work in accord and cuttor of priping and ductwork straight and true with no unnecessary offees and parallel with walls, beams, floors, or ceilings. 1. Provide for expansion and contraction of piping at bands or risers. Install piping so as to be free from pockets due to sagging. I. Provide for expansion and contraction of piping at bands or risers. 1. Stail necessary per	 Round Spiral Ducts: ASTM A-527-71, galvanized steel, spiral locking seam equal to United McGill Uni-Seal. For underslab ductwork, use United McGill Uni-Coat. Internal Insulated Round Spiral Ducts: ASTM A-527-71, galvanized steel, spiral locking seam equal to United McGill Uni-Rib k-27.
WORKMANSHIP A. General: Furnish and instal all necessary pipe I Install work in accordance with best practice of trade. B. <u>Ductwork</u> : Supports and hangers for ductwork. Install new piping and ductwork straight and true with no unnecessary offsets and parallel with walls, beans, floors, or ceilings. Install new piping as as to be completely drainable. Provide drain cocks and capped hose adapters at all low points in piping system. Conditionup Engineers Handboords straight and true with no unnecessary offsets and parallel with walls, beans, floors, or ceilings. Is that all new piping so as to be completely drainable. Provide drain cocks and capped hose adapters at all low points in piping system. Conditionup Engineers Handboords straight and true with no unnecessary of form supports away if the provise of the spansion and contraction of piping at bends or risers. Install piping so as to be free from pockets due to sagging. I. vertical Pipings:	6. Stainless Steel Ducts: ASTM A167, type 304.
Install new piping and ductivork straight and true with no unnecessary offsets and parallel with walls, beams, floors, or ceilings. Install new piping and ductivork straight and true with no unnecessary offsets and parallel with walls, beams, floors, or ceilings. Install new piping so as to be completely drainable. Provide drain cocks and capped hose adapters at all low points in piping system. Type + That and true with no unnecessary offsets and parallel with walls, beams, floors, or ceilings. Install new piping so as to be completely drainable. Provide drain cocks and capped hose adapters at all low points in piping system. Type + That and true with no unnecessary offsets and parallel with walls, beams, floors, or ceilings. Those that and contraction of piping at bends or risers. Install piping so as to be free from pockets due to sagging.	1.08 SUPPORTS AND ANCHORS A General: Furnish and install all necessary pipe hangers, rollers, and duct hangers required for all systems. Hanger rod shall be all-thread carbon steel type. Rod shall conform to ASA B
Install new piping so as to be completely drainable. Provide drain cocks and capped hose adapters at all low points in piping system. Type ''' Hanges'' First two piping so as to be completely drainable. Provide for expansion and contraction of piping at bands or risers. Install piping so as to be free from pockets due to sagging.	B. <u>Ductwork</u> : Supports and hangers for ductwork and appurtenances shall conform to Manual of Sheet Metal and Air Conditioning Contractors Association, Inc. and latest edition of Americ Conditioning Engineers Handbook Ducts 36 ⁺ x 12 ⁺ , or equivalent, and larger, shall be supported by trapeze type hangers.
1. Vertical Piping:	C. <u>Dise Nancess</u> : First two piping supports away from new mechanical equipment supporting 1 st diameter pipe or larger shall be isolated from structure by means of vibration and noise is Type ¹ t ¹ flangers. Floor mounted piping shall be isolated with Type ⁵ S Spring Nounts for first two supports. Flexible members shall be incorporated in piping adjacent to all reciprocatir copper lines, lookate coper lines, lookated lines, lookate coper
Where no elevation is indicated, piping and ducts suspended above and/or below ceilings shall be hung as high as possible.	 Vertical Piping: a. Wall mounted support spacing shall be on not more than 12' centers. Wall support shall be electro-galvanized pipe clamp with at least 12' of electro-galvanized 1-5/8' x 1-5/8' 12
. No piping shall be installed in a manner which will interfere with necessary passage or head room, with operation of any doors or windows, with ductwork, lay-in ceiling panels, lighting outlets or fixtures, or Owner's equipment.	 a. Wall mounted support spacing shall be on not more than 12° centers. Wall support shall be electro-galvanized pipe clamp with at least 12° of electro-galvanized 1-5/8° 12 at least two 1/47 Ramset plated threaded fastners with 1° or more wall penetration. b. Vertical pipes through floors shall be supported at each floor. Support shall consist of riser clamp. In addition to clamp, attach 1/2° dia. by 1/2° long stud to pipe just above clamp.

Coordinate with work of other trades. Piping shall not be supported from ductwork or piping of other trades.

enters whi 5/8" rod. by gan with 7/8" rod.	2-04 FLASHING A. Metal Flashing: 26 gauge galvanized steel. B. Flexible Flashing: 47 mil thick sheet compatible with roofing. C. Caps: Steel, 22 gauge minimum; 16 gauge at fire resistant elements. 2-05 Steeves for Pipes Through Non_fire Rated Beams, Walls, Footings, and Floors: Form with steel pipe or 18 gauge galvanized steel. B. Sleeves for Pipes Through Fire Rated and Fire Resistave Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed. C. Sleeves for Round Ductwork: Form with galvanized steel. B. Sleeves for Rectangular Ductwork: Form with galvanized steel or wood.
Add structure Add structure <td< td=""><td>C. Caps: Steel, 22 gauge minimum; 16 gauge at fire resistant elements. 2.05 <u>SLEEVES</u> A. Sleeves for Pipes Through Non, fire Rated Beams, Walls, Footings, and Floors: Form with steel pipe or 18 gauge galvanized steel. B. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed. C. Sleeves for Round Ductwork: Form with galvanized steel. D. Sleeves for Rectangular Ductwork: Form with galvanized steel or wood.</td></td<>	C. Caps: Steel, 22 gauge minimum; 16 gauge at fire resistant elements. 2.05 <u>SLEEVES</u> A. Sleeves for Pipes Through Non, fire Rated Beams, Walls, Footings, and Floors: Form with steel pipe or 18 gauge galvanized steel. B. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed. C. Sleeves for Round Ductwork: Form with galvanized steel. D. Sleeves for Rectangular Ductwork: Form with galvanized steel or wood.
Joinly at panel joints, with two "C" clamps, and two rock, and two clevis hangers so that joist is symmetrically loaded. Line sizes 1-1/2" and smaller may be hung with only one hanger. Altachment: Crimell #ST maleable iron "C" clamp (2" pipe and smaller) with lock nut and retainage clips. Grinnell #229 and #252 (2-1/2" pipe and larger) attach to either upper or lower flange as field require with one hanger. Is and Purinis (for piping under 4" only): Grinnell #142 1/2" diameter lag screws with bolt thread head of black steel. Length shall penetrate not less than two-thirds of member depth. Use welded eye rods such #270 black steel of rod diameter specified above. Use 3/8" diameter lag screws for piping 1-1/2" and smaller. Is clamped piping from the building structure using one of the following methods: To " Only: Thatal Grinnell #342 1/2" diameter lag screws for piping 1-1/2" and smaller. In Larger: Install uni-struit (trappec) anchored to the top side of the roof trass bottom chord and then suspend down to a trappez bar and/or a devis hanger. In Larger: Install uni-struit (trappec) anchored to the top side of the roof trass bottom chord and then suspend down to a trappez bar and/or a devis hanger. In Larger: Thatal uni-struit (trappec) anchored to the top side of the roof trass bottom chord and then suspend down to a trappez bar and/or a devis hanger. In Larger: Thatal uni-struit (trappec) anchored to the top side of the roof trass bottom chord and then suspend down to a trappez bar and/or a devis hanger. Is appresent that a structure of plank. Is prefabricated ourb pipe support. Unit shall be built of not less than 18 gauge galvanized steel and constructed for use on the specific roof type for this project. Support Si cated otherwise on Drawings, nod-mounted equipment shalls et on prefabricated equipment support rails shall be of monolithic construction, 18 gauge galvanized steel, continuous mitred and research, intergation to for the possible additional requirements. I didutes: I pipe sa requ	A. Sleeves for Pipes Through Non_fire Rated Beams, Walls, Footings, and Floors: Form with steel pipe or 18 gauge galvanized steel. B. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed. C. Sleeves for Round Ductwork: Form with galvanized steel. D. Sleeves for Rectangular Ductwork: Form with galvanized steel or wood.
require with one hanger. Is and Purlins (for piping under 4' <u>add</u>): Grinnel #142 1/2' diameter lag screws with bolt thread head of block steel. Length shall penetrate not less than two-thirds of member depth. Use welded eye nods such #287 block steel or diameter spectred above. Use 3/8' diameter lag screws with bolt thread head of block steel. Length shall penetrate not less than two-thirds of member depth. Use welded eye nods such as Grinnel #287 black ted for advancer spectred above. Use 3/8' diameter lag screws with bolt thread head of block steel. Length shall penetrate not less than two-thirds of member depth. Use welded eye nods such as Grinnel #287 black ted for advancer spectred above. Use 3/8' diameter lag screws with bolt thread head of block steel. Length shall penetrate not less than two-thirds of member depth. Use welded eye nods such as Grinnel #287 black ted faunter spectred above. Use 3/8' diameter lag screws with bolt thread head of block steel. Length shall penetrate not less than two-thirds of member depth. Use welded eye nods such as Grinnel #287 black ted faunter spectred back. Use 3/8' diameter lag screws for piping 1-1/2' and smaller. and Langer: Install Uni-struct (trapeze) anchored to the top side of the roof trues bottom chord and then suspend down to a trapeze bar and/or a devis hanger. Ind Macon y Surfaces: Attachment to prease correct construction shale be yee series. Attachment to prease correct construction shale be yeed for for dipassing through plants in on joins and with plate not less than is three diameter of roof as preface. The plant screws and than set three abands of an disease galvanized steel and constructed for use on the specific roof type for this project. specific screws and submeter above abese additional requirements. and plants sector specified and/or where indicated in Contract Documents. Anchors shall project rais support rails shall be of monolithic construction, 18 gauge galvanized steel, continuous mitred and prepes as required and/or where indicated in Con	C. Sleeves for Round Ductwork: Form with galvanized steel. D. Sleeves for Rectangular Ductwork: Form with galvanized steel or wood.
ses: Suspend piping from the building structure using one of the following methods: *** 2* Output: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: statistication of the structure using one of the following methods: *** 2* Output: ************************************	
J dameter specified above. Use 3/8" diameter lap screws for piping 1-1/2" and smaller. In diarger: Install uni-strut (trapeze) anchored to the top side of the roof truss bottom chored to may bottom to a trapeze bar and/or a devis hanger. Install uni-strut (trapeze) anchored to the top side of the roof truss bottom chored to may bottom to a trapeze bar and/or a devis hanger. Mesony Surfaces of Jank. Install uni-strut (trapeze) anchored to the top side of the roof truss bottom chored to experise or opassing through plank on joints and with plate not less than six times diameter of rood key less of rood passing through plank on joints and with plate not less than six times diameter of rood key less of the superiod course terms of the specific roof type for this project. Install uni-strut (trapeze) anchored to the top side of the roof terms diameter of rood key less of rood passing through plank on joints and with plate not less than six times diameter of rood key less of rood room the specific roof type for this project. Install uni-strut (trapeze) anchored to the on prelabricated courser support rails shall be of monolithic construction, 18 gauge galvanized steel, continuous mitred and mere sense, integral base plate, factory installed 2 × 4 wood mailer, and 18 gauge galvanized steel counter-flashing. Install uni-strut (trapeze) and the specific roof deck and project minimum of 8" above top surface of roof, or as specified on drawings, and at least one foot beyond edge of equipment support rails be as forked too that support rails be additional requirements. Install uni-strut (trapeze) and/or where indicated in Contract Documents. Anchors shall properly distribute expansion and shall be securely attached to unand-drawings, one attaffaction of Architect's Field true. Instel edge and guiding cylinder pipe alignment guides and lise two to guide expanding pipe to move freely from anchor points to expansion joints, loops, or bends. Guides shall be of same re a expansion joints and loops). Pipe alignment guides shall s	E. Fire Stopping Insulation: Glass fiber, type, foam or cement type to be equal or greater than rating of structure being penetrated.
serds, expansion sleves, and Ramet or Hitle faisteners. Attachment to precast concrete construction shall be by use of rod passing through plank on joints and with plate not less than six times diameter of rod k plan run of too synthese of plank. size prefabricated curb pipe support. Unit shall be built of not less than 18 gauge galvanized steel and constructed for use on the specific roof type for this project. quipment Supports: cated otherwise on Drawings, root-mounted equipment shall set on prefabricated equipment support rails. Support rails shall be of monolithic construction, 18 gauge galvanized steel, continuous mitred and mere semas, integral base plate, factory installed 2 x 4 wood nailer, and 18 gauge galvanized steel counter-Hashing. Light shall be solected to that support rails base ron metal or concrete roof deck and project minimum of 8" above top surface of roof, or as specified on drawings, and at least one floot beyond edge of equipment ports. See Drawing 5 ro possible additional requirements. I Giudies: pipes as required and/or where indicated in Contract Documents. Anchors shall properly distribute expansion and shall be securely attached to tast support rails bas and receiver's field trive. Insteel sideler and guiding cylinder pipe alignment guides on all piping in all areas. Pipe alignment guides shall be spaced as required according to manufacturer's design criteria and recommendations (minimum des on each side of expansion joints and loops). Pipe alignment guides shall serve to guide expanding pipe to move freely from anchor points to expansion joints, loops, or bends. Guides shall be of same rer as expansion joints.	F. Caulix: Acrylic sealant. 206 <u>FAREICATION</u> A. Size seleves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
iquipment Supports: cated otherwise on Drawings, not-mounted equipment shall set on prefabricated equipment support rails. Support rails shall be of monolithic construction, 18 gauge galvanized steel, continuous mitred and me seams, imegral base plate, factory mathed 2 x 4 wood mainer, and 18 gauge galvanized steel counter-flashing. sight shall be selected so that support rails base on metal or concrete roof deck and project minimum of 9" above top surface of roof, or as specified on drawings, and at least one foot beyond edge of equipment ports. See Drawings for possible additional requirements. uf Guides: pipes as required and/or where indicated in Contract Documents. Anchors shall properly distribute expansion and shall be securely attached to supporting construction to satisfaction of Architect's Field two. microbial side and juding cylinder join plating plate plating in all areas. Pipe alignment guides shall be spaced as required according to manufacturer's design ortiferia and recommendations (minimum tes on each side of expansion joints and loops). Pipe alignment guides shall serve to guide expanding pipe to move freely from anchor points to expansion joints, loops, or bends. Guides shall be of same rer as expansion joints.	B. Design hangers without disengagement of supported pipe.
mer seams, integral base plate, factory installed 2 x 4 wood nailer, and 18 gauge galvalized steel counter-flashing. sight shall be selected so that support rails bear on metal or concrete roof deck and project minimum of 8° above top surface of roof, or as specified on drawings, and at least one foot beyond edge of equipment ports. See Drawings for possible additional requirements. si diudes: pipes as required and/or where indicated in Contract Documents. Anchors shall properly distribute expansion and shall be securely attached to supporting construction to satisfaction of Architect's Field true. mi-steel splider and guiding cylinder pipe alignment guides on all piping in all areas. Pipe alignment guides shall be spaced as required according to manufacturer's design ortheria and recommendations (minimum les on each side of expansion joints and loops). Pipe alignment guides shall serve to guide expanding pipe to move freely from anchor points to expansion joints, loops, or bends. Guides shall be of same rer as explaid and selected to provide specified flow rate at specified pressure difference. If pumps installed contop provide both design conditions of flow rate and pressure difference, make any or all changes to design conditions at no additional cost to Owner. This change may include, but is not necessarily limited to the following: change intopies (change entor gains) change entor gains. Change entor gains change entore	C. Provide copper plated hangers and supports for copper plping. 207 FINISH
ports. See Drawings for possible additional requirements. id Guides: pipes as required and/or where indicated in Contract Documents. Anchors shall properly distribute expansion and shall be securely attached to supporting construction to satisfaction of Architect's Field two. Includes shall be spaced as required according to main pipe alignment guides shall be spaced as required according to manufacturer's design offerer and recommendations (minimum less on each de of expansion joints and loops). Fipe alignment guides shall serve to guide expanding the to manufacture points to expansion joints, is shall be start and selected to provide specified flow rate at specified pressure difference. If pumps installed cannot provide both design conditions of flow rate and pressure differences, make any or all changes to design conditions to additional cord owner. This change many include, builts in concessarily integrit than the provide both design conditions of flow rate and pressure difference, to be in the size of a specified pressure difference.	A. Prime coat or factory galvanize exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed. PART 3 EXECUTION
pipes as required and/or where indicated in Contract Documents. Anchors shall properly distribute expansion and shall be securely attached to supporting construction to satisfaction of Architect's Field trive. The instead splice and guiding cylinder pipe alignment guides on all ppipe in all areas. Pipe alignment guides shall be spaced as required according to manufacturer's design criteria and recommendations (minimum fee on each side of expansion joints and loops). Pipe alignment guides shall serve to guide expanding pipe to move freely from anchor points to expansion joints, loops, or bends. Guides shall be of same rer as expansion joints. Ishall be staced and selected to provide specified flow rate at specified preseve difference. If pumps installed cannot provide both design conditions of flow rate and pressure differences, make any or all changes to design conditions to additional cost Owner. This change many include, but is not necessarily limited to the following: change impelies tax change motor state. Ordinane tothor serve is a specified presevent of the specified presevent of the reservent of the specified presevent is in the specified presevent preservent of the reservent of the reservent of the preservent of the reservent of the reservent of the reservence. The reservence is a specified preservence is a specified preservence.	3.01 INSERTS A. Provide inserts for placement in concrete formwork.
tes on each side of expansion joints and loops). Pipe alignment guides shall serve to guide expanding pipe to move freely from anchor points to expansion joints, loops, or bends. Guides shall be of same rer as expansion joints.	B. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams. C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
e design conditions at no additional cost to Owner. This change may include, but is not necessarily limited to the following; change impeller size, change motor size, or change entire pump. If motor size is	D. Where concrete slabs form finished ceiling, provide inserts to be flush with slab surface. E. Where inserts are omitted, drill through concrete slab from below and provide thru-boit with recessed square steel plate and nut flush with top of slab.
e design conditions at no additional cost to Owner. This change may include, but is not necessarily limited to the following; change impeller size, change motor size, or change entire pump. If motor size is	3.02 PIPE HANGERS AND SUPPORTS A. Support horizontal piping as follows:
s to pumps shall be same size as pump connection or larger with reducing fittings installed as close as possible to pump connection.	PIPE SIZE MAX_HANGER SPACING HANGER DIAMETER 1/2 thru 1_1/4 inch 6'_6" 3/8"
k valves shall be same size as line size. r at least 7 pipe diameters from pump suction. (When used instead of suction diffuser.)	1_1/2 thru 2 inch 10°,0° 3/8° 2_1/2 thru 3 inch 10°,0° 1/2° 4 thru 5 inch 10°,0° 5/8° 8 thru 12 inch 14°,0° 7/8°
ponted by other means than pump connections. Piping shall be properly supported before connections are made. In suction piping; horizontal piping shall pitch up to pump.	PVC (All Sizes) 6'_0' 3/8' C.L.Bell and Spigot (or No-Hub) 5'-0" 1/2" and at Joints
ar account party in account party and party and party party in a second party of the second party in a second party of the sec	D. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work. E. Place a hanger within 12 inches of each horizontal elbow.
manung und vrise cleanterous zumge- stall jumps of size, type and capacity as indicated. complete with motors, pump base, couplers, seals, tapped gauge openings, etc. for complete assembly. In-line pumps may be installed without flex conditions.	 For a mining of main a mining of cash induction cash. F. Use hangers with 1_1/2 inch minimum vertical adjustment. G. Support horizontal cast from pipe adjacent to each hub, with 5 feet maximum spacing between hangers.
e comprese with mours, pump uses, coopiers, seas, append gauge openings, etc. for comprese assentary. In-rine pumps may be instanted windou trex commons. e installed, aligned, and started in accordance with manufacturer's recommendations. Pump suction sizes shall not be less than those indicated in Schedule. Pumps shall be selected for and designed for quiet	H. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.
shall meet NEMA Standards and shall be capable of operating at rated load with voltage variation of plus or minus 10%, rated frequency variation of plus or minus 5%, or combined variation of 10% without	Where several papes can be installed in parallel and at same elevation, provide multiple or trapeze hangers. Support riser piping independently of connected horizontal piping. Support riser piping independently of connected horizontal piping.
rs shall be selected for type of service involved and shall be selected at minimum of 15% above required rating of equipment served. Provide "quiet rated" motors where required.	3.03 EQUIPMENT BASES AND SUPPORTS A. Provide equipment bases of concrete type specified by architect or on drawings.
T GUARDS All open drives on fans, pumps, compressors, and other similar drives shall be provided with guards in accordance with MIOSHA and all safety and construction codes.	B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment. C. Construct support of steel members. Brace and fasten with flanges bolted to structure.
mpressors, fans, and equipment with sheave and pulley drives shall be provided with guards in accordance with MIOSHA and all safety and construction codes. E: Direct motor coupling drives shall be provided with guards. Guards shall be extended to include shafts.	D. Provide rigid anchors for pipes after vibration isolation components are installed. 3.04 FLASHING
g: Equipment with extended shafts for dual bearings shall be provided with guards to cover entire shaft. nent: Equipment designed for walk-in service shall be provided with guards.	 Provide flexible flashing and metal counter flashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs. Flash vent and soil pipes projecting 3 inches minimum above finished roof surface with lead worked one inch minimum into hub, 8 inches minimum clear on sides with 24 x 24 inches sheet size. For pipe through outside win flanges beck into wall and cask, metal outer flash and seal.
shall be constructed of extra heavy gauge metal, formed to fit over protected items and securely fastened to equipment or floor. Provisions shall be made for access at test openings and allowance for motor ards shall allow for ample clearance of pulley, drives, and couplings. Guards shall be prime coated and finished in ename! to match their respective equipment.	flanges back into wall and cauk, metal counter flash and seal. C. Flash floor drains in floors with topping over finished areas with lead, 10 inches clear on sides with minimum 36 x 36 inch sheet size. Fasten flashing to drain clamp device. D. Seal floor, shower, and mog sink drains waterfulk to adjacent materials.
9: Steel access doors and frames, factory-fabricated and assembled, complete with attachment devices and fasteners for installation. Joints and seams shall be continuously welded steel, with welds ground smooth Jacent surfaces.	E. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms, installed in accordance with manufacture's instructions for sound control.
ie steel, with a 1-inch wide exposed perimeter flange. In masonry, ceramic tile, or wood paneling: 1-inch wide exposed perimeter flange and adjustable metal masonry anchors.	F. Provide curbs for mechanical roof installations 14 inches minimum high above roofing surface (or as indicated on drawings). Flexible sheet flash and counter flash with sheet metal; seal watertight. 3.05 Excerves
allboard or plaster; perforsted flanges with wallboard bead. aster applications; galvanized expanded metal lath and exposed casing bead, welded to perimeter of frame.	 A. Set sleeves in position in formwork. Provide reinforcing around sleeves. B. Extend sleeves through floors one inch above finished floor level. Caulk sleeves full depth and provide floor plate.
2gg: 14-gage sheet steel, with concealed spring hinges or concealed continuous plano hinge set to open 175 degrees; factory-applied prime paint. Its: Insulated flush panel doors, with continuous plano hinge and self-closing mechanism.	C. Where plping or ductwork penetrates floor, ceiling, or wall, dose off space between pipe or duct and adjacent work with fire stopping insulation and caulk air tight. Provide dose fitting metal collar or escutcheon covers at l of penetration. D. Install drow plated steel escutcheons at finished surfaces.
es: Flush, screwdriver-operated cam locks. DENTIFICATION (also refer to Spec. 15.190)	END OF SECTION
tem components shall be identified to allow proper operation and maintenance.	SECTION 15.260 THERMAL INSULATION PART 1 - GENERAL
cased copy of same in mechanical room.	1.01 WORK INCLUDED A. Piping insulation, jackets and accessories.
with stendi labeler (1-1/2* characters), this includes flow arrows. where they are exposed, at change of piping direction, and every 50 feet at long straight runs.	A. Puping insulation, Jackets and accessories. B. Ductwork insulation, Jackets and Ining. C. Equipment insulation and covering.
dentifications: All pipe covering, insulation work, and piping installed, except concealed or metal and aluminum foil jacketed work, shall be painted to match room/structure finish. OUND, VIBRATION, AND SEISHIC CONTROL	C. Equipment insulation and covering. 1.02 <u>QUALITY ASSURANCE</u> A. Application company specializing in piping insulation application with three years minimum experience.
mechanical system shall be installed to provide quiet and vibration free environment in occupied spaces. Contractor shall replace or repair equipment and/or provide additional sound and vibration control like/clinginger deems system or its components do not meet design criteria for sound and vibration.	B. Insulation materials shall be 100% asbestos free.
l equipment over 1 horsepower, unless otherwise noted, shall be isolated from structure by means of resilient vibration and noise isolators supplied by single manufacturer. Where isolator type and required not shown or tabulated, equipment shall be isolated in accordance with latest version of ASHAE Systems Handbook. Isolator manufacturer's submittal shall include complete design for supplementary bases,	1.03 <u>SUBNITALS</u> A. Submit product data for approval.
fesign data on isolators, including outside diameter, free, operating, and solid heights of springs, free and operating heights of neoprene, or fiberglass isolators. Refer to Section 1.07.	B. Include product description, list of materials and thickness for each service or equipment scheduled, and locations. Provide manufacturers installation instructions. PART 2 - PRODUCTS
tion and Expansion Compensation: Furnish and install all vibration isolators, flexible connections, expansion joints, and expansion loops required to reduce noise transmissions and stress on equipment an	2.01 ACCEPTABLE MANUFACTURERS A. Owens Corning, Manville, Armstrong, Certain Teed, Knauf or substitutions under provisions of Section 15000.
: Floating slabs, fans, compressors, and all motor driven equipment subject to noise transmission.	2.02 MATERIALS A. Type A: Fiberglass pipe insulation equal to Owens Corning Fiberglass ASI/SSI-II Pipe Insulation with a "k" value of 0.25 @ 75 F, ASTM CS47, Class 1, including vapor barrier.
2: Selection to be made in conjunction with equipment manufacturers to assure workable system. infis:	Vapor Relarder Jacket: White kraft paper reinforced with glass fiber yarn and bonded to aluminum foil, secure with self sealing longitudinal laps and butt strips or jacket with outward clinch expanding staples coated with v barrier mastic as needed. B. Type E: Closed-Cell, Elastomeric foam rubber insulation equal to Armstrong AP Armaflex. (Pipe and/or sheet insulation in accordance with ASTM C-534; with a K value not to exceed. 27 @ 75 F), max flame spread 25, m
Install piping for adequate movement without stress or damage. Provide sufficient expansion loops, changes in direction and within stress limits of ASME code. Where deflection cannot be employed to absorb and contraction expansion joints should be employed. The period provide and guided in compliance with recommendations of manufacturer of expansion joint. Refer to Paragraph 1.06.C.4.g for anchors and guides.	b. Type in CodeCredit, Leasting to the induced instantion equal to Amazing AP Amazing AP Amazing and the induced instantion of the induced and the induced
nections:	D. Type D: Flexible duct insulation equal to Owens Corning all service duct wap type 100 with a maximum thermal conductivity of .27 @ 75 F, and FRK vapor barrier facing ASTM CSS3, Type 1, Class B-4. E. Type E: Acoustical duct liner equal to Owens Corning Aeroflex duct liner type 150 with a maximum thermal conductivity of .28 @ 75 F. Ductwork dimensions indicated are inside dimensions required for air flow. For applic
All equipment subject to vibration and noise transmission shall be provided with flexible connections. <u>ora:</u> Braided steel or bronze.	involving indoor air quality concerns, use Armstrongs self-adhering, non-fibrous, Armaflex duct liner (3/4* thick). F. Type F: Rigid foam glass with PR wrap. - 1-1/27 thickness to 02 7 pip edia.
valided steel or bronze. When using the Victaulic pipeline system, three Victaulic Style 75 or 77 flexible couplings may be used in lieu of a flex connector. See Victaulic TS-5000 for details. rections to Air Moving Equipment: Neoprene coated flame-proof fabric minimum 2 ⁺ side.	- 2* thickness above 2* pipe dia. G. Type G: Semi-rigid Iberglass board insulation, factory jacketed with a laminated Kraft aluminum foil All Service Jacket (ASJ) vapor barrier. Maximum thermal conductivity of 0.27 @ 75 F. Insulation shall be equal to Ower Corring pipe and tank insulation.
Ul new rotating equipment shall be factory balanced, both statically and dynamically. If any equipment is determined by Architect/Engineer to be unbalanced after installation, equipment shall be electronically inced according to balancing criteria as set forth in latest Systems Edition of ASHRAE Handbook. Before and after readings shall be submitted in writing for Architect/Engineer's review.	H. Field Applied Jackets 1. PVC Plastic: One piece molded type fitting covers and Jacketing material, gloss white.
	a. Connections: Tacks, pressure sensitive color matching vinyl tape.
L CONTROL - PIPING	 Aluminum Jacket: 0.016 inch thick sheet finish, with longitudinal slip joints and 2 inch laps, die shaped fitting covers with factory applied moisture barrier. Stainless Steel Jacket: Type 304 stainless steel, 0.010 inch.
ations of buried piping outside the building to ensure not less than minimum cover by code.	 Hydrous Calcium Silicate meeting ASTM C 533, Type 1; rigid molded pipe; asbestos-free color coded throughout material thickness. K Value: 0.42 at 300 F Mean Temperature as tested in accordance with ASTM C 335.
rt elevations, slopes for drainage to 1/8° per foot, one percent minimum. Maintain gradients. with stems upright or horizontal, not inverted.	2. Maximum Service Temperature: 1200 F. 3. Non-combustible as determined by test following ASTM E 136.
downstream of valves and at equipment or apparatus connections.	 Tie Wire: 16 gage stainless steel with twisted ends on maximum 12 inch centers. PART 3 - EXECUTION
ppers at all pipe/wall stud intersections (both sides). Nail stoppers to be equal to Simpson "Strong-Tie" Model "NS". o individual piping system specification sections for testing specifications. If testing specifications are not given in individual section, test piping system as follows:	3.01 PREPARATION A. Install materials after piping or ductwork has been tested and approved. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics and insulation cements.
vrary equipment for testing, including pump and gages. Test piping system before insulation is installed wherever feasible, and remove control devices before testing. Test each section of each piping system , but do not use piping system valves to isolate sections where test pressure exceeds valve pressure rating. Fill each section with water and pressurize for indicated pressure and time.	3.02 INSTALLATION A. Install materials in accordance with manufacturer's instructions, building codes and industry standards.
est period is 2 hours. piping system at 150% of operating pressure indicated, but not less than 25 psi test pressure. at hest section for leakage at end of test period. Test fails if leakage is observed or if pressure drop exceeds 5% of test pressure.	B. Continue insulation with vapor barrier through penetrations. C. <u>Exterior insulated piping</u> shall be jacketed with .016° aluminum jacket, banded on 18° centers and sealed watertight with mastic. Sealing not required if Type B insulation (elastomeric foam) is installed per manufacturers
e of each test and results in a log which shall be turned over to Architect/Engineer at completion of Project.	instructions (entire insulation system is air/water tight, vapor barrier). Equal to PDM "Full Metal Gel" D. All fittings and valves shall be insulated with corresponding pipe insulation. Domestic hot water line valves, mechanized fittings and joints (i.e., unions, etc.) may be uninsulated if they are concealed in walls or above cellir
systems sections which fail required piping test, by disassembly and re-installation, using new materials to extent required to overcome leakage. Do not use chemicals, stop-lead compounds, mastics, or other air methods.	E. Unions and flanges on insulated cold water piping shall be insulated, but on other systems shall not be insulated. Terminate insulation neatly at each side of union and/or flange with insulating cement, so unions and flange be taken apart without disturbing insulation. F. Rijd baard insulation shall be impaded over Mechanical fasteners, (SMACNA fastener standard), on 12 in. x 18 in. centers. Use a minimum of two rows of fasteners per side.
Domestic Water Piping System: ng work, verify system is complete, flushed, and clean.	G. Flexible insulation shall be firmly adhered to ducts with full coverage of fire retardant adhesive. For flexible insulation on ducts 24 inches or more in width, use both adhesive and mechanical fasteners on the bottom of the prevent possible sagging. Mechanical fasteners and spacing shall be as specified for rigid board insulation.
vater to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or aid (hydrochionc). tant - free chiorine in liquid, powder, tablet, or gas form - throughout system to obtain 50 to 80 mg/L residual.	H. Acoustical duct line shall be adhered to the sheet metal with 100% coverage of adhesive, and all exposed leading edges and all transverse joints coated with adhesive. Duct liner shall also be secured using mechanical fa which shall compress the liner sufficiently to hold it firmly in place. Cover exterior insultated rectanged aducts with 0.05° thick aluminum jacket secured watertight with mechanical fasteners, bands or screws.
om oudets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets. fectant in system for 24 hours.	 Cover exterior insulated rectanguae todats wat duty tink assimilarit pavet secure water uppt wat inscientes, bains of socers. Cover exterior insulated round duts with olis* thick aluminum jacket with moisture barrier. 3.3 <u>Insulation Schedult</u>
cant residual tests less than 25 mg/L, repeat treatment. ant from system until residual equal to that of incoming water or 1.0 mg/L.	Set Surger Size Insulation type & Thickness Heating Hot Watter UP 11600 L-1/2* Type A, 14 or type A, 34*
no sconer than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C601.	HEATING HOT WATER UP THUN 1-1/2" TYPE A, 1' or TYPE B, 12" HEATING HOT WATER OVER 1-1/2" TYPE A, 1-1/2" or TYPE B, DOMESTIC HOT WATER UP THRUI 1-1/2" TYPE A, 1' or TYPE B, 1/2"
CONTROL - DUCTWORK	DOMESTIC HOT WATER UP THML 1-1/2* TYPE A, 1° or TYPE B, 1/2* DOMESTIC HOT WATER OVER 1-1/2* TYPE A, 1°-1/2* or TYPE B, 3/4* DOMESTIC COLO WATER ALL SIZES TYPE A, 1° or TYPE B, 1/2*
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated.	DOMESTIC COLD WATER ALL SIZES TYPE A, 1° or TYPE B, 1/2° STORM ALL SIZES TYPE A, 1° or TYPE B, 1/2° ROOP DRAINS ALL SIZES TYPE B, 1/2°
	ROOF DRAINS ALL SIZES TYPE A, 1° or 1° PVE B, 1/2° REFRIG. LINES THRU 4" TYPE B, LINE TEMP + 10F or LOWER - 1°; LINE TEMP + 10F or HIGHER - 3/4"
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required perimeter mounting angles, sleeves, breakaway duct connections, art springs, beamings, and hings. re-setting of fire dampers to authorities having jurisdiction and Owner's representative.	
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required perimeter mounting angles, sleeves, breakaway duct connections, are setting of fire dampers to authorities having jurisdiction and Owner's representative.	BURIED PDM "FULL METAL GEL" CONDENSATE PIPING ALL SIZES TYPE A, 1" OR TYPE B, 3/4"
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, and starspins, beamings, and hings. Part dampers on exhaust ducts nearesit to outside and where indicated. e connections immediately adjacent to equipment in ducts associated with fans and motorized equipment. et for all diffuser/grilles in any celling structure with a non-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to celling tile. Individing all seams, joints, fastener penetrations and connections, shall be effectively sealed in accordance with SMACIA Seal Class A requirements, and leak tested with total allowable leakage from high and ure (4° W.C. or grequired valuet of access does (1) penetro matics cealent shall with (4° W.C. or greater) ducts not access does (1) penetro matics cealent shall with (4° W.C. or greater) ducts not access does (1) penetro matics cealent shall with (4° W.C. or greater) ducts not access does (1) penetro matics cealent shall	BURIED PDM "FULL METAL GEL"
Ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, attra strainsb, beatings, builtings, and hingse. Ire-setting of fire dampers to authorities having jurisdiction and Owner's representative. Fard dampers on exhaust fans or exhaust ducts nearest to outside and where indicated. e connections immediately adjacent to equipment in ducts associated with fans and motorized equipment. If for all diffuser/grilles in any ceiling structure with a non-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to ceiling tile. Including all seams, joints, fastener penetrations and connections, shall be effectively sealed in accordance with SMACNA Seal Class A requirements, and leak tested with total allowable leakage from high and ure (4" W.C. or greater ducts no to exceed one (1) percent of the total system design antifore rate. Joint sealaints shall have fire and smoke hazard rating as tested by ASTM D-2202. Exterior mastic sealant shall ass 500 hours (QU). Sealants shall allow comply with XSTM foreazithus at mander (271 and 0220). upon request shall be able to properly document an established record of experience and success in the specialized formulation of duct sealants; claston, elastons that advess.	BURED POM "FULL METAL GEL" CONDENSATE PIPING ALL SIZES TYPE A, 1° OR TYPE B, 3/4° ALL ROUND OUTSIDE AIR (MAKE-UP & COMBUSTOR) & RELIEF
Ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, and storings, bearings, builtings, and hings. If dampers on exhaust fans or exhaust ducts nearest to outside and where indicated. Is connections immediately adjacent to equipment in ducts associated with fans and motorized equipment. It for all diffuser/grilles in any celling structure with an on-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to celling tile. Indicated all semance just celling structure with a non-exposed-to-view support system. System is to support diffuser/grille and smoke hazed rating as tested by ASTM D-2022. Exterior mastic shall pass 500 hours QVV. Sealants shall also comply with ASTM freeze(haw standard C731 and D2202. upon request shall be able to properly document an established record or experience and success in the specialized formulation of duct sealants, elastomeric tapes, and adhesives. Integril be able to properly document an established record or experience and success in the specialized formulation of duct sealants, elastomeric tapes, and adhesives.	BURED PDM "FULL METAL GE." CONDENSATE PIPING ALL SIZES TYPE A, 1° OR TYPE B, 3/4" ALL ROUND OUTSIDE ALL SIZES TYPE D, 2" or TYPE B, 3/4" AR DUCTS ALL SIZES TYPE D, 2" or TYPE B, 3/4" ALL ROUND ARLIEF ARL COMBUSTORIA RELIEF ARL SIZES TYPE D, 2" or TYPE B, 3/4" ALL RELEF AIR DUCTS ALL SIZES TYPE C, 1-1/2" or TYPE B, 3/4"
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Improve or combination fre and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, and stepping, building, and hings. Install with required permeter mounting angles, sleeves, breakaway duct connections, and stepping, building, and hings. Install with required permeter mounting angles, sleeves, breakaway duct connections, and the provide the second permeter mounting angles, sleeves, breakaway duct connections, and stepping building and hings. Install diffuser/grilles in any celling structure with an and-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to celling tile. Including al seems, prince, failure predictions of the total lystem design afritow meta, builts salar based fragments, and lake tested with total allowable leakage from high and up (* W.C. or preserve) ducts not to exceed one (1) percent of the total lystem design afritow meta, builts salarits shall have free and smoke hazard rating as tested by ASTM D-2202. Exterior mastic sealant shall pass 500 hours QW. Sealants shall also comply with ASTM freeze/thaw standard C731 and D2202. Unon request shall be able to properly ducument an established record or experiment ascuess in the specialized formulation of duct sealants, elastomeric tapes, and adhexives. Instrume: Aff Safecoat Dynoflex, United Duct Sealer (Mater based Uni-Mastic 181): Hours Due and disconset abandoned metanical materials and equipment indicated to be removed and no indicated to be asved or indicated or indicated to be removed, that portion of the demontry of disconset abandoned metanical materials and equipment indicated to be removed and no indicated to be anyoted or indicated or indicated to be removed, that portio	BURED PON "FULL NETAL GE." CONDENSATE PIPING ALL SIZES TYPE A, 1° OR TYPE B, 3/4" ALR ROUAD OUTSIDE ARR (MARE-UP B CORNISTION) & RELIEF AR DUCTS ALL SIZES TYPE D, 2" or TYPE B, 3/4" ALR ROUAD OUTSIDE ALL SIZES ALL SIZES TYPE C, 1-1/2" or TYPE B, 3/4" DUTSIDE AIR (MARE-UP B CORNISTION) & RELIEF AIR DUCTS ALL SIZES TYPE C, 1-1/2" or TYPE B, 3/4" DUTSIDE TORISTION & RELIEF AIR DUCTS ALL SIZES TYPE C, 1-1/2" or TYPE B, 3/4" SPINAL SUPPLY AIR SPINAL SUPPLY AIR SPINAL SUPPLY AIR
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, ter-setting of fire dampers to authorities having jurisdiction and Owner's representative. rati dampers on exhaust fans or exhaust ducts nearest to outside and where indicated. e connections immediately adjacent to equipment in ducts associated with fans and motorized equipment. It for ail diffuser/grilles in any ceiling structure with a non-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to ceiling tile. Including all seams, joints, fastener penetrations and connections, shall be effectively sealed in accordance with SMACNA Seal Class A requirements, and leak tested with total allowable leakage from high and are (4 [®] W.C. or greater) ducts not to exceed one (1) percent of the total system design ariffor <i>rate.</i> Joint sealants shall have fire and smoke hazard rating as tested by ASTM D-2202. Exterior mastic sealant shall aps 300 hours (0). Sealants shall all comply with SMACMA Class of three and smoke hazard rating as tested by ASTM D-2202. Exterior mastic sealant shall aps 300 hours (0). Sealants shall all comply with Markin total allowable leakage from high and true (4 [®] W.C. or greater) ducta not to exceed one (1) percent of the total system design ariffor <i>rate.</i> Joint sealants shall have fire and smoke hazard rating as tested by ASTM D-2202. Exterior mastic sealant shall aps 300 hours (0). Sealants shall allowed before pressure testing is begun. Any additional paint or conform to manufacturer's specifications. Inclumer: AME Safecoat Dynoflex, United Duct Sealer (Water based Uni-Mastic 181). EXERCENTIONE	BURED PON "FULL NETAL GE." CONDENSATE PIPING ALL SIZES TYPE A, 1° OR TYPE B, 3/4° ALL ROUND OUTSIDE ALL SIZES TYPE D, 2° or TYPE B, 3/4° ALL ROUND ARELIPP A ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° ALL ROUND ARELIPP A ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° POINT ARE DUCTS ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° POINT ARE DUCTS ALL SIZES TYPE D, 2°, or TYPE B, 3/4° POINT ARE DUCTS ALL SIZES TYPE D, 2°, or TYPE B, 3/4° POINT ARE DUCTS ALL SIZES TYPE D, 2°, or TYPE B, 3/4°
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. ingress or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, and stargering, beakings, builtings, and hings. In dampers on exhaust flans or exhaust ducts nearest to outside and where indicated. e control nois immediately adjacent to equipment in ducts associated with flans and motorized equipment. If or all diffuser/grilles in any celling structure with an on-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to celling tile. Including all seams, joints, fastener penetrations and connections, shall be effectively sealed in accordance with SMACMA Seal Class A requirements, and leak tosted with total allowable leakage from high and ure (4° NC. or greater) ducts not to exceed one (1) percent of the total system design atifion rate. Joint sealants shall have fire and smoke hazard rating as tested by ASTM D-2202. Exterior matcic sealant shall apps 500 hours (7). Sealands shall also comply with ASTM freezibities waturductor's recommendations of cure time shall be followed before pressure testing is begun. Any additional paint or conform to manufacture's specifications. Inducting and disconent abadomed mechanical materials and equipment indicated to be removed and or indicated to be removed, that portion of the cal systems are to be disconnected, taken down, removed from Owner's property and properly disposed of by the Contractor. Returner: AF Safeccat Dynoflex, United Duct Sealer (Water based Uni-Mastic 13): Contraction in manufacture's specification.	BURED POM "FULL METAL GE." CONDENSATE PIPING ALL SIZES TYPE A, 1° OR TYPE B, 3/4" AIL ROUND OUTSIDE AIR (MAKE-UP B COMBUSTION) & RELIEF ALL SIZES TYPE D, 2" or TYPE B, 3/4" AIL ROUND OUTSIDE AIR DOUTSIDE AIR (MAKE-UP B COMBUSTION) & ALL SIZES TYPE C, 1-1/2" or TYPE B, 3/4" RELIEF AIR DOUTS ALL SIZES TYPE C, 1-1/2" or TYPE B, 3/4" SPIRAL SUPPLY AIR DUCTS ALL SIZES TYPE D, 2", or TYPE B, 3/4" SPIRAL SUPPLY AID RETURN AIR TYPE D, 2", or TYPE B, 3/4" SUPPLY AID RETURN AIR RETURN AIR COMBUSTION AIL SIZES TYPE D, 2", or TYPE B, 3/4" DUCTS ALL SIZES TYPE D, 2", or TYPE B, 3/4" DUCTS ALL SIZES TYPE D, 2", or TYPE B, 3/4" DUCTS ALL SIZES TYPE D, 2", or TYPE B, 3/4"
ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Impers or combination fire and smoke dampers at locations where ducts and outlets pass through fire rated components. Install with required permeter mounting angles, sleeves, breakaway duct connections, attast springs, beaulings, and hings. Ter-setting of fire dampers to authorities having jurisdiction and Owner's representative. Tard dampers on exhaust dans or exhaust ducts nearest to outside and where indicated. e connections immediately adjacent to equipment in ducts associated with finas and motorized equipment. et or all diffuser/grilles in any celling structure with a non-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to celling tile. Individing all same, joints, fastener paretrations and connections, shall be effectively setted in accordance with SMACIA Seal Class A requirements, and lake tested with total allowable leakage from high and urg (* W.C. or greater) ducts not tested on (2) percent deletion and edge) and/or materials shall have fire and snoke hazard rating as tested with total allowable leakage from high and urg (* W.C. Settere) ducts not tested on (2) percent deletion allowable classing from high and urg (* W.C. Settere) ducts not testered) on (2) percent deletion allowable classing from high and pass 500 hours QW. Sealants shall also comply with ASTM freeze/thaw standard C731 and D2202. Unon request shall be able to properly document an established record of experience and success in the specialized formulation of duct sealants, elastomer is tapes, and adheives. Haitime: MF Safecoat Dynoflex, United Duct Sealer (Mater based Uni+Mastic 181): EXEMINE: A MF Safecoat Dynoflex, united materials and equipment indicated to be removed and not indicated to be removed. Where noted or indicated to the removed, that portion of the cal systems are t	BURED POW FULL METAL GE* CONDENSATE PIPING ALL SIZES TYPE A, 1° OR TYPE B, 3/4° ALR (WAKE-UP & CORNESTION) & RELIEF ALL SIZES TYPE D, 2° or TYPE B, 3/4° ALR DUCTS ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° DUTSIDE AIR (WAKE-UP & CORNESTION) & RELIEF AIR DUCTS ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° SPIRAL SUPPLY AIR DUCTS ALL SIZES TYPE C, 2°, or TYPE B, 3/4° SPIRAL SUPPLY AIR DUCTS ALL SIZES TYPE D, 2°, or TYPE B, 3/4°
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ing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated. Indicates points, business, and banges. The setting of fire dampers to authorities having jurisdiction and Owner's representative. That dampers on exhaust finas or exhaust ducts nearest to outside and where indicated. It or all diffuser/grilles in any celling structure with a non-exposed-to-view support system. System is to support diffuser/grille and associated ductwork without adding weight to celling tile. Indicating all seams, joints, fastener penetrations and concritons, shall be effectively sealed in accordance with SMACM Seal Cass A requirements, and leak tested with total allowable leakage from high and ure (4° W.C. or grieder) ducts not exceed one (1) percent of the total system states shall have fire and snock hazard rating as tested by ASTM D-2202. Exterior mastic sealent shall appeared bucks not exceed one (1) percent of the total system states shall have fire and snock hazard rating as tested by ASTM D-2202. Exterior mastic sealent shall builts with be suitably cleaned and prepared, and sealent applied in strict accordance with manufacturer's recommendations for cure time shall be followed before pressure testing is begin. Any additional paint or conform to manufacturer's specifications. Inducting all disconnect abandoned mechanical materials and equipment indicated to be removed and not indicated to be removed, that portion of the all systems are to be disconnect databounde mechanical materials and equipment indicated to be removed and not indicated to be removed and shavaged, and deliver materials and equipment to the location designated or indicated be removed and nuclear over to the owner, that portion of the existing mechanical systems are to be disconnected, taken down, armoved fire no where shall be fore or restring while and the cleaned of removed and investes shall be touch-up painted or restrater and e	BURED FOR "FULL METAL GE" CONDENSATE PIPING ALL SIZES TYFE A, 1° OR TYPE B, 3/4° ALR (MAKE-UP & COMUSTION) & RELIEF ALL SIZES TYFE D, 2° or TYPE B, 3/4° ALR DUCTS ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° COMUSTION) & RELIEF ALL SIZES TYPE C, 1-1/2° or TYPE B, 3/4° RELIEF AIR DUCTS ALL SIZES TYPE D, 2°, or TYPE B, 3/4° SPIRAL SUPPLY AND DUCTS ALL SIZES TYPE D, 2°, or TYPE B, 3/4° SUPURY AND RETURN NATION SUPURY AND RETURN NATION RETURN NATION ALL SIZES TYPE D, 2°, or TYPE B, 3/4° ALL SIZES TYPE D, 2°, or TYPE B, 3/4° ALL SIZES TYPE D, 2°, or TYPE B, 3/4° RETURN NATION DUCTS ALL SIZES SUPURY AND RETURN NATION RETURN NATION ALL SIZES TYPE D, 2°, or TYPE B, 3/4° ALL SIZES TYPE D, 2°, or TYPE B, 3/4° ALL SIZES TYPE D, 2°, or TYPE B, 3/4° RETURN NATION RETURN NATION ALL SIZES TYPE D, 2° or TYPE B, 3/4° RETURN NATION NAT ALL SIZES
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E. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook. F. Wall Support for Pipe Sizes to 4 Inches and Over: Welded steel bracket and wrought steel clamp; adjustable steel yoke and cast iron roll for hot pipe sizes 6 inches and over. G. Vertical Support: Steel riser clamp.

H. Floor Support for Pipe Sizes to 4 Inches and all Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support. I. Floor Support for Hot Pipe Sizes 6 Inches and Over: Adjustable cast iron roll and stand, steel screws, and concrete pier or steel support. J. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

K. Shield for Insulated Piping 2 Inches and Smaller: 18 gauge galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

L. Shield for Insulated Piping 2-1/2 Inches and Larger (Except Cold Water Piping): Pipe covering protective saddles. M. Shields for Insulated Cold Water Piping 2-1/2 Inches and Larger: Hard block non-conducting saddles in 90 segments, 12 " minimum length, block thickness same as insulation thickness. 2.02 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end, or continuous threaded.

b. Unoccupied Mode

3.02 Split System

1. Normal Operation Mode

a. Occupied Mode

All Rooftop Units shall be variable air volume units.
 All Rooftop Units shall be provided with programmable zone sensor located in associated zone for each unit.

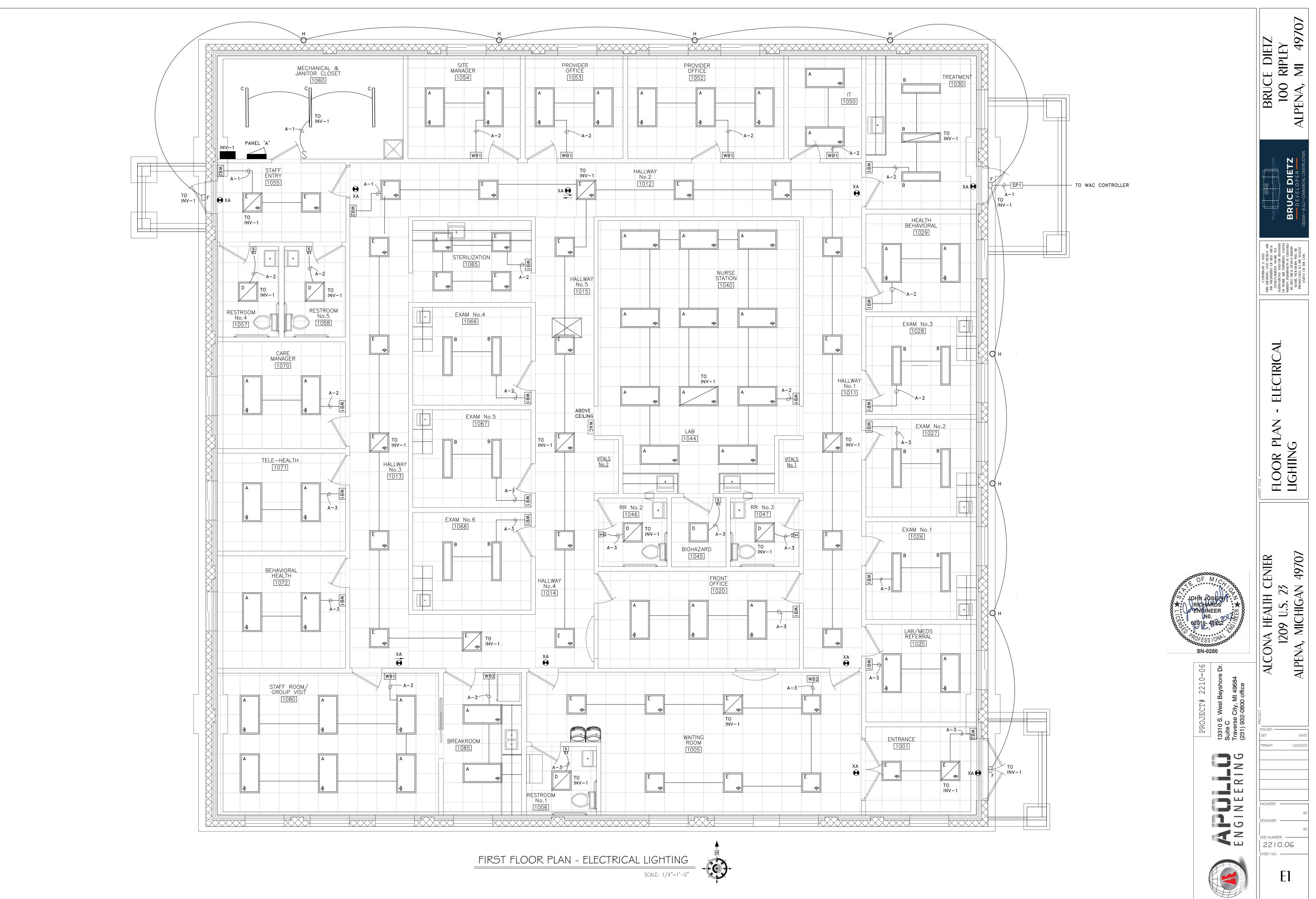
Heating - When the space temperature drops to the heating setpoint of 72 deg F (adj.), the unit shall cycle as necessary to maintain the space temperature at setpoint. Cooling - When the space temperature rises to the cooling setpoint of 70 deg F (adj.), the unit shall cycle as necessary to maintain the space temperature at setpoint.

When indexed to the Unoccupied Mode from the individual thermostats each Furnace shall operate to control the space temperature to the unoccupied heating and cooling setpoints. The supply fan shall operate only when the unit is actively heating or cooling.

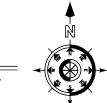
Heating - When the space temperature drops below the unoccupied heating setpoint of 65 deg F, the RTU heating stages shall cycle as necessary to maintain the space temperature at setpoint. The Energy Recovery Ventilation linit shall not be operating and the outside air supply will be zero.
 Mechanical Cooling - When the space temperature index to the space temperature index to the space temperature at setpoint.

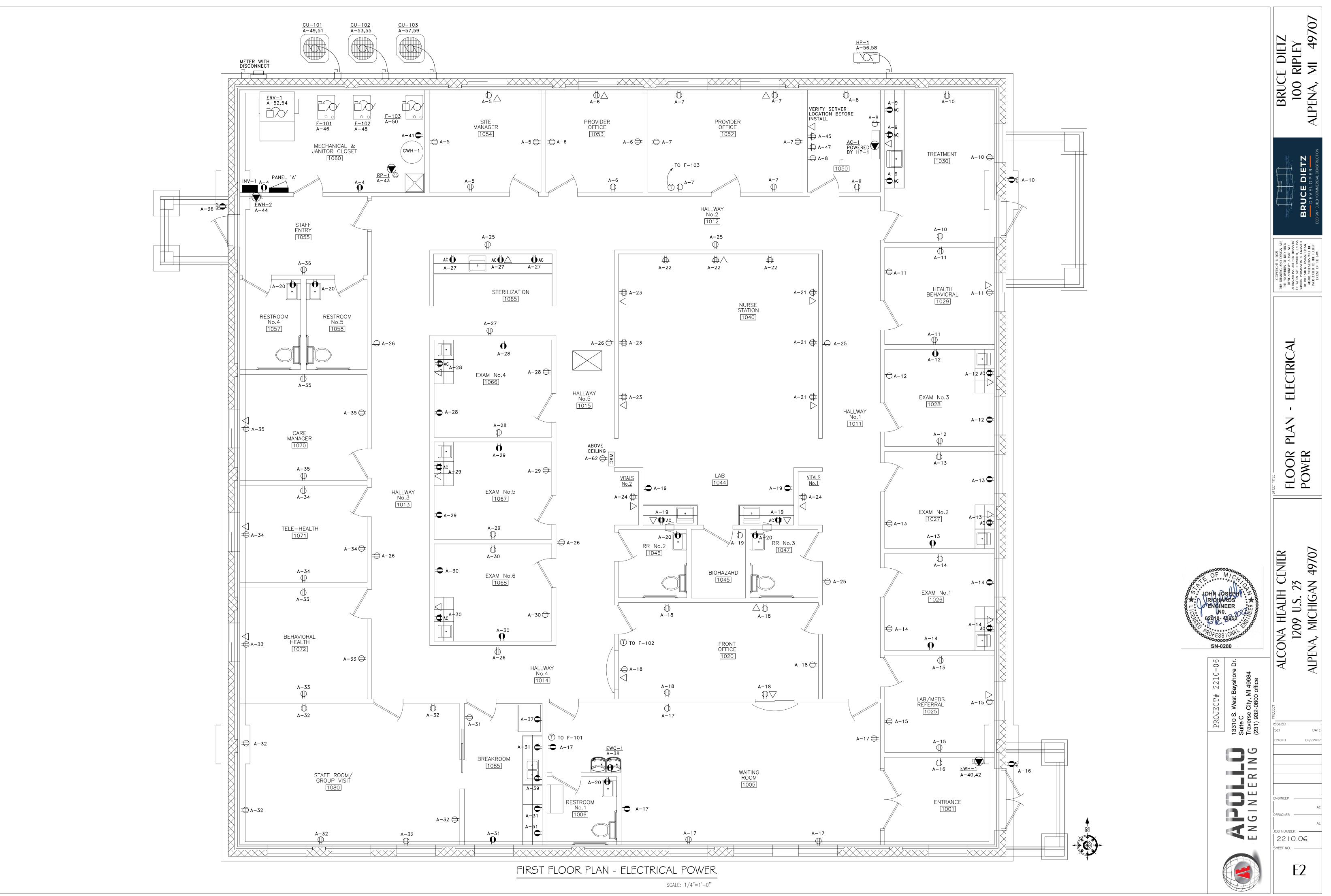
3.03 Energy Recovery Ventilation Unit 1. Unit shall run continuously during building occupied times as determined by digital time clock equal to Renewaire TC7D-E.		
END OF SECTION SECTION 15.990 Testing, Adjusting and Balancing		
PART 1 - GENERAL 1.01 <u>SCOPE OF WORK</u>		
 A. The M.C. shall contract with an independent testing, adjusting, and balancing (TAB) agency to test, adjust, and balance the HVAC systems. This contractor shall perform TAB work solely and exclusively as their primary source of business. B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting, and balancing the HVAC and Hydronic systems, as described in these specifications and/or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. 		$\parallel_{\square} \mathbb{Z} \ge \parallel$
uramings. Serves sine include Cirecking equipments periorinance; laking ut specified intessurements, and recording and reporting uteresults. C. The items requiring testing, adjusting, and balancing are described in detail in section 1.06 and generally include the following: AIR SYSTEMS: Air Moving Equipment		
Exhaust Fans Zone Branch and Main Ducts Diffusers, Registers and Grilles		∑ O ∠
1.02 RELATED SECTIONS A. Section 15.000 - Mechanical General Provisions. B. Section 15.050 - Basic Mechanical Materials and Methods.		
C. Section 15.985 - Sequence of Operations 1.03 DEFINITIONS. REFERENCES, STANDARDS A. The following is a list of standards that this work shall be performed and submitted in accordance with. It is the responsibility of this contractor to adhere to the more stringent specifications of these different standards to meet the		
requirements this section. B. AABC National Standards for Total System Balance (2002 Edition) C. ASHRAE_ 1989 Systems Handbook: Chapter 37, Testing, Adjusting and Balancing.		
D. SMACNA HVAC Systems Teiting, Adjusting & Balancing (Third Edition - August, 2002) E. TABB-Testing, Adjusting, and Balancing Bureau (Current Edition)		
F. NEBB _ Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems (1998, Sixth Edition). 1.04 <u>ALLOWANCES</u> A. Installation is included as part of this Section and is to be included in the Contract Sum.		N
1.05 BALANCING AGENCY QUALIFICATIONS A. An impartial, independent Test & Balancing Company will provide the TAB services required for this project. This contractor shall specialize in performing TAB work solely and exclusively as their primary source of business. This		
Company shall have performed TAB work on projects similar in size and scope and shall be prepared to provide documented proof of such as requested by the engineer, architect and owner. B. Agency Qualifications: The TAB Company shall be a current and certified member of a Test & Balance institution that offers comprehensive training and certification of its members or they shall be a TAB company specializing in this type of work with a minimum of 5 years documented work experience. The TABB company shall be prepared to submit records of experience in the field of air and hydronic system balancing or any other data as requested by the Engineer.		
C. Final Approval: Note that the Owner, Architect, and Engineer shall select and make the FINAL APPROVAL of the TABB Contractor for this project. D. Procedures and Agenda: The TAB Company shall submit the TAB procedures and agenda proposed to be used.		
 E. Sample Forms: The TAB Company shall submit sample forms, which shall include the minimum data required as set forth in these specifications. F. Provide bound reports with a cover page, letter size, manuals, complete with index page and/or tabs. 1.06 SUBMITTALS 		
A. Submit name of independent adjusting and balancing agency for approval, see Specification Section 15000, B. Submit test reports as a submittal under provisions of Section 15000.		
 1.07 TAB PREPARATION AND COORDINATION A. It will be necessary for the TABS Companies responsibility to initiate this continuing coordination with the Mechanical Contractor on a critical path network. It is the TABS Companies responsibility to initiate this continuing coordination to determine this schedule for fund testing and balancing services and periodic inspections required during construction. 		m ż
B. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided by the Mechanical Contractor or General Contractor to the TAB Company no later than 60 days prior to the start of TAB work. This information shall include but not necessarily limited to the following: Project drawings and specification. 		
Approved construction revisions pertaining to the HVAC systems. Approved submittal data on HVAC and Hydronic equipment and systems to be installed by the mechanical contractor.		
4. Approved HVAC shop drawings. 1.08 <u>MECHANICAL CONTRACTOR RESPONSIBILITES</u>		2 SN ARE SICK NO NO SICK ANSFER ANSFER ANDED REMY EEM
A. The Mechanical Contractor shall complete the installation and start-up of all HVAC systems to ensure they are working properly and shall perform all other items as described hereinafter to assist the TABB Company in performing the testing and balancing of the HVAC and Hydronic systems. B. Air Distribution Systems:		© 202 D DESIC D DESIC D DESIC ADAIR. MOR TR MITED, N N IS SIGN/EF RS WILL THE FUL THE FUL
 Verify installation for conformity to design, manufacturer guidelines and industry standards. Terminate all exhaust ducts, and pressure test them for leakage, as required by the specifications. Ensure that all volume, splitter, extractor and fire dampers are properly located, functional and open. Volume dampers found to be non-functional or obstructed for proper adjustment shall be repaired/replaced by this 		COPYRIGHI © 2022 THIS DRAWING AND DESIGN ARE THE PROPERIES OF RED STICK DESIGN/DERMY ADAR. NO ALTERVATIONS AND/OR TRANSFER DF WORK ARE PREMITED. UNLESS WRITEN PERMISSION IS GRAVIED BY RED STICK DESIGN/DREMY ADAR. WOLATORS WILL BE PROSECUED TO THE FULLEST EXTENT OF THE LAW.
 Ensure that all volume, splitter, extractor and fire dampers are properly located, functional and open. Volume dampers found to be non-functional or obstructed for proper adjustment shall be repaired/replaced by this mechanical contractor. Dampers serving outside, return, and relief air shall provide for tight closure and full opening, with smooth free operation. All volume damper handles and manual locking quadrants shall be freely visible and exposed for identification and use. These devices found to be covered over by duct installation shall require the mechanical contractor and/or the insulation contractor to survey <u>all</u> of the installed volume dampers and correct such measures at no additional cost to the owner. 		COP E PROPI DRAWI E PROPI DESIGN J NORK A MORK A NORK A DAIR V OSECU U OSECU U
5. Verify that all supply, return, exhaust and transfer grilles, registers, diffusers and high pressure terminal units are <u>open</u> and installed for proper operation. 6. Ensure that all HVAC units and associated apparatus, such as heating and cooling coil line penetrations, filter sections, mixing box sections, access doors etc., are blanked and/or sealed to eliminate excessive bypass or leakage of air.		IHIS IHIC ALIE BY MRI V PR
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9. Insure that all HVAC units have newly installed and clean air filters prior to commencing with the air balance. 1.10 <u>REPORTS</u>		
A. Final TAB Report - The TAB Company shall submit the final TAB report for review by the engineer. All outlets, devices, hvAC equipment, etc. shall be identified, along with a numbering system corresponding to report unit identification. The TAB company shall submit an Project Performance Cartification and Guaranty, assuring that the project systems were tested, adjusted, and balanced in accordance with the project specifications.		\sim
1. Title Page 2. Air Moving Equipment: a. Location		
b. Manufacturer c. Model d. Serial Number e. Ar frow, specifica and actual		
 Return air flow, specified and actual Outside air flow, specified and actual Total static pressure and external static pressure, specified and actual Total static pressure and external static pressure drop, specified and actual Inter pressure 		I I
 k. Discharge pressure Fan and motor RFM, design and actual m. Sheave size, manufacturers model number. n. Bet size, manufacturer and center distance from motor shaft to fan shaft. 		
3. Exhaust Fan Data: a. Location b. Manufacture c. Model d. Air flow, specified and actual		CIFIC
e. Total static pressure (total external), specified and actual f. Inite pressure 9. Discharge pressure h. Fan and motor RPM, design and actual		
I. Shewe size, manufacturers model number. J. Belt size, manufacturer and center distance from motor shaft to fan shaft. Return Air/Outside Air Data: A. Identification/location		l d
b. Design combined air flow c. Actual combined air flow d. Design return air flow e. Actual return air flow f. Design outside air flow		
9. Actual outside air flow 6. Excite Morars 8. Manufacture 8. Manufacture 8. Manufacture 9. Manufacture		
c. Phase, voltage, amperage; nameplate, actual. d. RPM, nameplate and actual e. Service factor f. Starter size, ration, haster elements		
g. Motor sheave size, manufacturer number, number of turns open-actual. 7. Duct Traverse: a. System zone/branch b. Duct size		
C. Area d. Design flow description f. Test air flow d. Test air flow 0. Duct static pressure		
h. Air temperature 8. AP Distribution Test Sheet: a. Air terminal number b. Room number/location		
C. Terminal type_manufactures model number d. Terminal asz-duct/collar connection size. a. Area factor if flow hodd is not used b. Area factor if flow hodd is not used 0. Test (float) velocity/ary volume		
1.11 DEFICIENCIES A. Any deficiencies in the installation or performance of a system or component observed by the TAB Company shall be brought to the attention of the construction manager or his on site representative.		
B. The work necessary to correct items on the deficiency listing shall be performed and verified by the affected contractor before the TAB Company returns to retest. Unresolved deficiencies shall be noted in the final report. PART 2 - EXECUTION 2.01 GENERAL		<u>0</u>
— The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting, and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with standards set forth in section 1.03 B. Equiverse stratus, includent manual dame outdrant positions, manual valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.		
C. All information necessary to complete a proper TAB project and report shall be per the standards in section 1.03, unless otherwise noted. The descriptions for work required, as listed in this section, are a guide to the minimum information needed.		
3.02 EXAMINATION A. Before commencing work, verify that systems are complete and operable. Ensure the following: 1. Equipment is operable and in a safe and normal condition.		
2. Temperature control systems are installed complete and operable. 3. Proper thermal overload protection is in place for electrical equipment.		
4. Final filters are clean and in place. If required, install temporary media in addition to final filters. 5. Duct systems are clean of debris. 6. Correct fan rotation.		07 R
7. Fire and volume dampers are in place and open. 8. Coll fins have been cleaned and combed.		III 01
9. Access doors are closed and duct end caps are in place. 10. Air outlets are installed and connected.	0F M / C/00	4 (EV
11. Duct system leakage has been minimized. B. Report any defects or deficiencies noted during performance of services to the Engineer. C. Promptly report abnormal conditions in mechanical systems or conditions which prevent system balance.		N 23
D. If, for design reasons, system cannot be properly balanced, report as soon as observed. E. Beginning of work means acceptance of existing conditions.	SS JOHN JOSEPH Z S	H , H
3.03 PREPARATION A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Engineer to facilitate spot checks during testing. B. Provide additional balancing devices as required.	8 - ENGINEER	
 Provide adductional additional prevides in required. 3-04 INSTALLATION TOLERANCES A dytus air handling systems to plus or minus 10 percent for supply systems and plus or minus 10 percent for return and exhaust systems from figures indicated. 	62010-48952	
3.05 ADJUSTING A. Adjust work under provisions of Section 15000.		$ \leq \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} $
B. Recorded data shall represent actually measured, or observed condition. C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops. D. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.	POFESSIONA OF	
E. Leave systems in proper working order, replacing belt guards, dosing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings. F. At final inspection, recheck random selections of data recorded in report. Becheck points or areas as selected and witnessed by the Owner.	SN-0280	
3.06 AIR SYSTEM PROCEDURE A. General: 1. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities.	D 6 Dr.	
August aff nationally and distribution systems to provide requires or designs supply, return, and exhibits aff quantities, and quantities measurements in ducts by Pitch-the traverse of entire cross sectional area of duct. Make air quantities at all inlets and outlets.		
 Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise. Use volume control devices to regulate air quantities only to extent that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters. 	2210- Bayshore Al 49684 office	
 Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation. Provide system schematic with required and actual air quantities recorded at each outlet or inlet. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters. 		
9. Adjust outside air, return air, and exhaust dampers for design conditions. 10. Where modulating dampers are provided, take measurements and balance at extreme conditions. Balance variable volume systems at maximum air flow rate, full cooling, and at minimum air flow rate, full heating.	ЕСТ# West Vest City, r	ECT -
 Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches positive static pressure near the building entries. Specific: The TAB Company shall perform the following TAB procedures in accordance with the following: 	333 88 3 37	PROJECT
 a. Current and Voltage - Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor. b. Ptot-Tube Traverse - Perform a Pitot-tube traverse of main supply and return ducts, as applicable to obtain total CFM. c. Outside Air - Test and adjust the outside air on applicable equipment using a Pitot-tube traverse. If a traverse is not practical, use the mixed-air temperature method if the inside and outside temperature difference is at least 20 degrees F, or use the difference between Pitot-tube traverses. If the traverse is it traverse is not practical, use the mixed-air temperature method if the inside and outside temperature difference is at least 20 degrees F, or use the difference between Pitot-tube traverses. If a traverse is not practical, use the mixed-air temperature method if the inside and outside temperature difference is at least 20 degrees F, or use the difference between Pitot-tube traverses. If a traverse is not practical, use the mixed-air temperature method and exception that the practical traverse is not practical. d. Static Pressure - Test and record system static profile de each supply and return air ducts. 	PR(13310 Suite ((231)	ISSUED
For Exhaust Fans; a. Fan Speeds – Test and adjust fan RPM to achieve maximum or design CFM. b. Current and Votlage – Test and record motor votlage and amperage, and compare data with the nameplate limits to ensure motor is not in or above the service factor.		PERMIT I 2/22/22
 C. Pitot-Tube Traverse - Perform a Pitot-tube traverse of main exhaust duts to obtain total CFM. e. Static Pressure - Test and record system static profile of each exhaust fan. <u>For Zone, Branch and Main Ducts:</u> a. Adjust ducts to within Geign CFM requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely 	G	
open. <u>For Diffusers Registers, and Grilles:</u> a. Tolerances - Test, adjust, and balance each diffuser, grille, and register to within 10% of design requirements. Minimize drafts, b. Identification - Identify the type, location, and size of each grille, diffuser, and register. This information shall be recorded on air outlet data sheets.		
 bentimutation - usering the type, location, and size of each grine, dimiser, and register. This information shall be recorded on an outer data sneets. For Colis: Air Temperature - Once air flows are set to acceptable limits, take differential pressure readings across coils and take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coll. Dry bulb temperature shall be taken on the entering and leaving side of each cooling coll. 		
END OF SECTION		
		ENGINEERAE
		DESIGNER
		AE
		JOB NUMBER
		2210.06

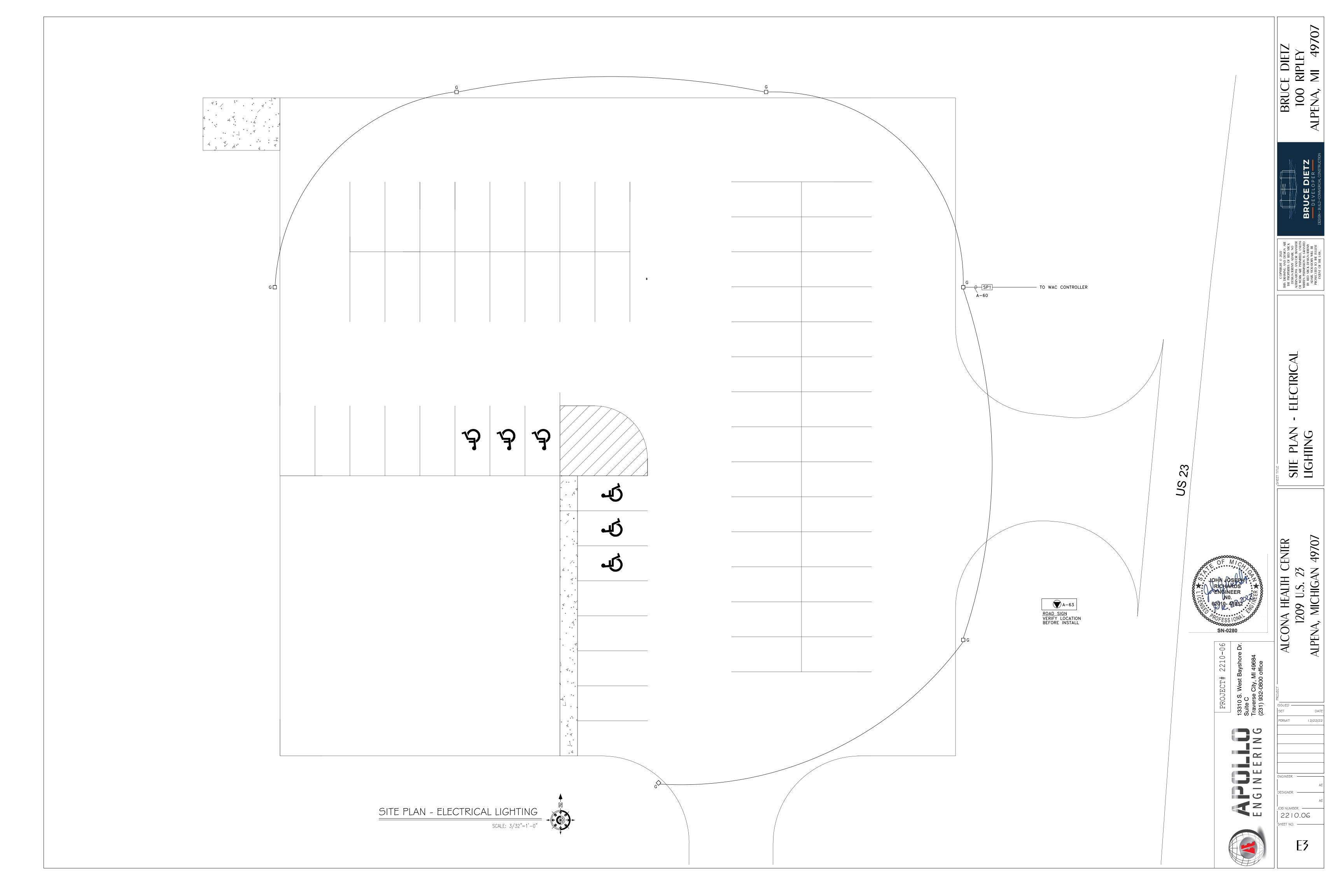
M3











+1.2	+ ^{1,9}	+ ^{3.0}	+4.0	+ ^{4.6}	+5	5.4	+6.9	+7.4	+6.7	+ ^{5.2}	+4.3	+4.2	+4.2	+4.2	+ ^{5.0}	+6.5	+ ^{7.3}	+ ^{6.9}	+ ^{5.5}	+4.6	+4.0	+ ^{3.3}	+2.2	+ ^{1.2}	+0.9	+0.7	+ ^{0.5}	+0.5	+ ^{0.4}	+ ^{0.4} /	+0.3	
	, + ^{2.5} , /	4.4 	+ ^{5.6}	+ ^{6.3}	+7	7.0	+ ^{8,2}	□ + ^{8.0}	+7.7	+ ^{6.6}	+ ^{6.0}	+5.9	+ ^{5,9}	+5.9	+6.4	+7.6		+ ^{8.1}	+ ^{7,0}	+ ^{6,4}	+ ^{5.6}	+4.7	+ ^{3.2}	+ ^{1.4}	+ ^{1.0}	+ ^{0.8}	+ ^{0,6}	+0.5	+0.5	+0.4	+ ^{0.4}	
	° ^ X	·	+6.2	+6.7	+7	7.2	+ ^{7,9}	+ ^{8.0}	+7.3	+ ^{6.2}	+ ^{5.6}	+ ^{5,4}	+ ^{5,4}	+ ^{5.6}	+ ^{6.0}	+7.1	+ ^{7.7}	+ ^{7.6}	+ ^{7.1}	+ ^{6.6}	+ ^{6.1}	+ ^{5.5}	+ ^{3,9}	+ ^{1.7}	+ ^{1.1}	+ ^{0.9}	+ ^{0.7}	+ ^{0.6}	+ ^{0.5}	+0.4	+ ^{0.4}	
+ ^{1.7}	+ ^{2.8}	+5.9	+6.7	+7.0	+7	7.2	+6.8	+6.3	+5.8	+5.4	+5.0	+4.8	+4.8	+ ^{5.0}	+5.3	+5.6	+6.0	6.4	+6.8		+ ^{6.6}	+ ^{6.2}	+4.4	+ ^{1.8}	+ ^{1.3}	+ ^{1.0}	+ ^{0.8}	+ ^{0.6}	+0.5	+0.4	+ ^{0.4}	
+2.0	+ ^{3.3}	+6.4	+ ^{7.1}	+7.0	+6	6.5	+5.5	+4.7	+4.3	+ ^{4.0}	+4.0	+4.0	+4.1	+4.1	+4.0	+4.1	+4,4	5.0		+6.7	+ ^{6.9}	+ ^{6.8}	+5.3	+2.3	+ ^{1.4}	+ ^{1.0}	+0.8	+ ^{0.6}	+ ^{0.5}	0.4	+0.4	
+2.2	+4.7	+7.3	+7.7	+6.8		5.6	+4.3	+3.4	+2,9	+2.7	+2.7	++	+4.8	+ ^{5.5}	+2.9	+2.8	+3.1	3.8	+4.9		+7.4	+7.7	+6.5	+ ^{3.0}	+ ^{1.5}	+ ^{1.0}	+ ^{0,8}	+ ^{0.6}	+ ^{0.5}	+0.5	+ ^{0.4}	
+2.2	+ ^{5.4}	⋳ <mark>⊣</mark> 7.0	+ ^{7.6}	+6.5	+4	4.9	+3.5	+2.6	+2.0	+1.7	+1.6	+1.6	+3.7	+ ^{5.1}	+ ^{1.7}	+1.9	+2.3	3.0	+4.2	+ ^{5.7}	+7.4	+7.4	□ + ^{6.9}	+ ^{3.4}	+ ^{1.4}	+ ^{1.0}	+ ^{0.8}	+ ^{0.6}	+ ^{0.5}	+0.5	+ ^{0.4}	
+ ^{1.8}	+ ^{4.2}	+6.6	+ ^{6.8}	+ ^{5,7}	+ ⁴	4.4	, + ^{3.0}	+2.0	 + ^{1,4}	+ ^{1.1}	+ ^{1.0}	+1.0	+ ^{0.9}	+ ^{1.0}	+ ^{1.0}	+1.3	1 .8	2.6	+3.8	5 .3	+ ^{6,6}	+7.1	+ ^{6.0}	+2.7	+ ^{1.3}	+ ^{0.9}	+ ^{0.7}	+ ^{0.6}	+ ^{0.5}	+0.5	+ ^{0.4}	
+ ^{1.3}	+2.4	+5.0	+ ^{5.4}	+4.8	+3	3.9	+2.6	+1.7	+ ^{1.1}	+ ^{0.8}	+ ^{0.7}	+0.7	+ ^{0.7}	+ ^{0.7}	+0.7	+1.0	<u>1.6</u>	2.4	+3.6	4.8	+ ^{5.5}	+ ^{5.7}	+4.5	+ ^{1.7}	+ ^{1.0}	+ ^{0.8}	+ ^{0,6}	+0.6	+ ^{0.5}	+ ^{0.4}	+0.4	
+ ^{0.9}	+ ^{1.6}	+4.2	+4.3	+3,9	+3	3.3	+2.3	+ ^{1.5}	+0.9	+ ^{0.6}	+0.7	+ ^{0,6}	+0.6	+ ^{0.6}	+0.6	+0.9	1.5	2.4	+3.4	4 .3	+4.8	+ ^{5.1}	+3,6	+ ^{1.1}	+ ^{0.8}	+0.7	+ ^{0.6}	+0.5	+0.5	+0.4	+0.4	
+0.7	+ ^{1.3}	+ ^{3.3}	+ ^{3.5}	+3.2	+2	2.7	+2.1	+1.4	A +0.9		A ^{+0.7}	+0.7	+0.6	+ ^{0.6}	+0.7	+0.9	1 .4	2.3	3 .3	4.0	+4.5	+4.7	+ ^{3,3}	+1.0	+0.6	+0.6	+0.5	+0.5	+0.5	+0.4	+0.4	
+ ^{0.5}	+ ^{1.0}	+2.4	+ ^{3.0}	+2.7	+	2.3	+1.8	+1.3	+1.0	+0.7	+0.9	+0,8	+0.8	+0.7	+0.7	+0.9		2.3	+3.3		+4.3	4.5 +	+ ^{3.1}	+0.8	+ ^{0.6}	+0.5	+0.5	+0.5	53 ⁺	+0.4	+0.4	
+ ^{0.3}	+ ^{0.7}	+1.3	Statis	stics							/ •• • • • • • •	+1.0	5 + ^{1.0}	+ ^{0.9}	+0.8	+0.9		2.3	+3.3	+ ^{4.0}	+4,4	4.7 +	+ ^{3,3}	+ ^{1.0}	+ ^{0.6}	+0.6	+0.5	0.5	S _0.5	+0.4	+0.4	
+ ^{0.3}	+ ^{0.5}	+0.8	Descri Parking	iption S g Lot	Symbol +	Avg 2.7 fc	Max 8.2 f	x Min fc 0.2 f		Min Avg/ :1 13.5		+1.3	5 + ^{1.3}	+ ^{1.2}	+ ^{1.0}	+1.1	-1.5 +	2.4	+3.4	4 .3	+4.7	+ ^{5.0}	+ ^{3.6}	+1.1	+0.7	+0.6	+0.5	+0.5	+0.5	+0.4	+0.4	
+ ^{0.3}	+ ^{0.4}	+0.5									, /. 4 .	+ ^{1.7}	5 + ^{1.9}	+ ^{1.7}	+1.5	+1.4	+ ^{1,7}	2.4	+3.5	4.7 +	-5.3 +	_5.5 +	+4.3	+ ^{1.6}	+ ^{0,9}	+0.7	+0.6	+0.5	-0.5 +	+0.4	+0.4	
+0.3	+ ^{0.3}	+0.4									* * 4 * * *** * ***	+2.3	+ ^{2,5}	+2.5	+2.1	+1.9	+2.0	2.5	+ ^{3.6}	+5.0	+6.3	+6.8	-5.7 +	+2.4	+ ^{1.1}	+0.8	+0.6	+0.5	+0.5	+0.4	+0.4	OF MICHARDS
+0.2	+0.3	+0.3									° 4° °°° °°	+ ^{3.1}	+ ^{3,3}	+ ^{3.4}	+ ^{3.0}	+2.5		2.8	+ ^{3.7}	+ ^{5,2}	+ ^{6.8}	+ ^{6.9}	_ + ^{6.4}	+ ^{3.0}	+ ^{1.2}	+0.8	+0.6	+0.5	+0.5	+0.4	+0.4	62010-43952 0 0 0 0 0 0 0 0 0 0 0 0 0
+0.2	+ ^{0.3}	+0.3									°°°°,	+4.0	+4.1	+4.4	+4.1	+ ^{3.4}	+ ^{3.0}	3.2	+ ^{3.9}	+5.1	+6.4	+ ^{6.8}	+ ^{5.9}	+ ^{2.5}	+ ^{1.1}	+0.8	+ ^{0.6}	+0.5	+0.5	+0.4	+0.4	2210-06 Bayshore Dr. 1149684 offlice
+0.2	+0.2	+0.2									.4 -1 	+ ^{4,4}	+ ^{5.1}	+ ^{5.5}	+ ^{5.3}	+4.5	+ ^{3.8}	+ ^{3.6}	+4,1	4.9 +	+ ^{5,3}	+ ^{5.6}	+4.4	+ ^{1.6}	+ ^{1.0}	+0.7	+ ^{0,6}	+ ^{0.5}	+0.4	+ ^{0.4}	+ ^{0.4}	ECT⋕ 2210 West Bayshol City, MI 49684
+0.2	+ ^{0.3}	+0.2									° ⊄ .° ⊄ .4	+ ^{3.5}	+ ^{5,7}	+ ^{6.7}	+ ^{6,7}	+ ^{5.5}	+4.7	+4.3	+4.3	+4.5	+4.6	+4.7	+ ^{3.4}	+ ^{1.0}	+0.7	+0.6	+ ^{0,5}	+ ^{0.5}	+0.4	+ ^{0.4}	+ ^{0.3}	PROJ 13310 S. Suite C Traverse (231) 93
+0.2	+ ^{0.3}	+ ^{0.3}	+0.3	+ ^{0.3}	+0	0.3	+ ^{0.3}	+0.3	+0.4	+ ^{0.6}	+ ^{1.0}	+2.2	+5.7	6.5 ¢	+ ^{6.9}	+ ^{6.0}	+ ^{5.1}	+4.7	+4.4	4.2	+4.0	+4.0	+ ^{2.8}	+0.9	+ ^{0,6}	+0.5	+0.5	+ ^{0.4}	+ ^{0.4}	+ ^{0.4}	+0.3	
+0.2	+ ^{0.3}	+ ^{0.3}	+0.3	+ ^{0.3}	+0	0.3	+ ^{0.3}	+0.4	+0.4	+ ^{0.6}	+ ^{0,9}	+ ^{1.6}	+ ^{3,6}	+ ^{6.0}	+6.3	+5.7	+4.9	+4.6	+4.2	+ ^{3.8}	+ ^{3.5}	+ ^{3.2}	+2.2	+0.7	+0.5	+0.5	+0.4	+0.4	+ ^{0.4}	+0.3	+0.3	
+0.2	+0.2	+0.3	+0.3	+0.3	+0	0.3	+0.3	+0.4	+0.4	+0.6	+0.8	+ ^{1.2}	+ ^{1.8}	+ ^{2.7}	+4.1	+ ^{5.1}	+49	+4.2	+ ^{3.7}	+3.3	+ ^{3,0}	+ ^{2.6}	+ ^{1.8}	+0.9	+0.5	+0.4	+ ^{0.4}	+0.4	+ ^{0.3}	+0.3	+0.3	
									=	BITE PLA	N - PHC	SCALE: 3/1	RICS (32"=1'-0"																			

CIR	AMP/ POLES		DESCRIPTION	LOAD	LOAD		DESCRIPTION	AMP/ POLES	
<u>NO.</u> 1	20/1	LIGHTS (STAF	FF ENTRY, HALLWAYS, EXT)		A 1244	LIGHTS	(NORTH LIGHTS)		NC
3	20/1	LIGHTS	(SOUTH LIGHTS)		B 720	RECEPTACLES	(MECH RM 1060)		
5	20/1	RECEPTACLES	(SITE MGR 1054)	720	¢ 720	RECEPTACLES	(PROVIDER OFFICE 1053)	· · ·	
7	20/1	RECEPTACLES	(PROVIDER OFFICE 1052)		A 720	RECEPTACLES	(IT RM 1050)		
9	20/1	RECEPTACLES	(TREATMENT 1030)	720	B 720	RECEPTACLES	(TREATMENT 1030, EXT)		-
11	20/1	RECEPTACLES	(BEHAVIOR HEALTH 1029)	720	C 1080	RECEPTACLES	(EXAM RM 3)	· · ·	
13	20/1	RECEPTACLES	(EXAM RM 2)		A 1080	RECEPTACLES	(EXAM RM 1)		1
15	20/1	RECEPTACLES	(REFERRAL 1025)		B 360	RECEPTACLES	(ENTRANCE 1001, EXT)		1
17	20/1	RECEPTACLES	(WAITING RM 1005)		C 1080	RECEPTACLES	(FRONT OFFICE 1020)	<u> </u>	1
19	20/1	RECEPTACLES	(LAB 1044)		A 900	RECEPTACLES	(RESTROOMS)		2
21	20/1	RECEPTACLES	(NURSE STATION 1040)		B 1080	RECEPTACLES	(NURSE STATION 1040)		2
23	20/1	RECEPTACLES	(NURSE STATION 1040)		¢ 720	RECEPTACLES	(VITALS 1 AND 2)		2
25	20/1	RECEPTACLE	(HALLS 1, 2)	720	A 900	RECEPTACLES	(HALLS 3, 4, 5)		2
27	20/1	RECEPTACLES	(STERILIZATION 1065)	720	B 1080	RECEPTACLES	(EXAM RM 4)		2
29	20/1	RECEPTACLES	(EXAM RM 5)	1080	¢ 1080	RECEPTACLES	(EXAM RM 6)	20/1	3
31	20/1	RECEPTACLES	(BREAK RM 1085)	900	A 1260	RECEPTACLES	(STAFF/GROUP 1080)	20/1	3
33	20/1	RECEPTACLES (BEHAVIORAL HEALTH 1072)	720	B 720	RECEPTACLES	(TELE-HEALTH 1071)	20/1	3
35	20/1	RECEPTACLES	(CARE MGR 1070)	720	¢ 360	RECEPTACLES	(STAFF ENTRY 1055, EXT)	20/1	3
37	20/1	REFRIGERATOR	(BREAK RM 1085)	780	A 370	EWC-1	(WAITING RM 1005)	20/1	3
39	20/1	DW-1	(BREAK RM 1085)	370	B 1508	EWH-1		20/2	4
41	15/1	GWH-1	(MECH RM 1060)	1440	C 1508		(ENTRANCE 1001)	20/2	
43	20/1	RP-1	(MECH RM 1060)	93	A 1500	EWH-2	(WAITING RM 1005)	20/1	4
45	20/1	SERVER	(IT RM 1050)	500	B 1920	F-101	(MECH RM 1060)	20/1	4
47	20/1	SERVER	(IT RM 1050)	500	C 1920	F-102	(MECH RM 1060)	20/1	4
49	50/2	CU-101	(EXTERIOR)	3640	A 1920	F-103	(MECH RM 1060)	20/1	Ę
51	30/2		(EXTERIOR)	3640	B 801	ERV-1	(MECH RM 1060)	15/2	5
53	50/2	CU-102	(EXTERIOR)	3640	C 801			13/2	5
55	50/2	00-102	(EXTERIOR)	3640	A 1144	HP-1	(EXTERIOR)	15/2	5
57	50/2	CU-103	(EXTERIOR)	3640	B 1144				5
59	50/2	00-103	(EXTERIOR)	3640	C 1350	PARKING LIGHT	S (EXTERIOR)	20/1	6
61	20/1	INV-1	(MECH RM 1060)	441	A 8	WAC	(STAFF ENTRY 1055, EXT)		6
63	20/1	ROAD SIGN	(EXTERIOR)	300	в	SPARE		20/1	6
65	20/1	SPARE			¢	SPARE		20/1	6
67	20/1	SPARE			A	SPARE		20/1	6
69	20/1	SPARE			B	SPACE			7
71		SPACE			¢	SPACE			

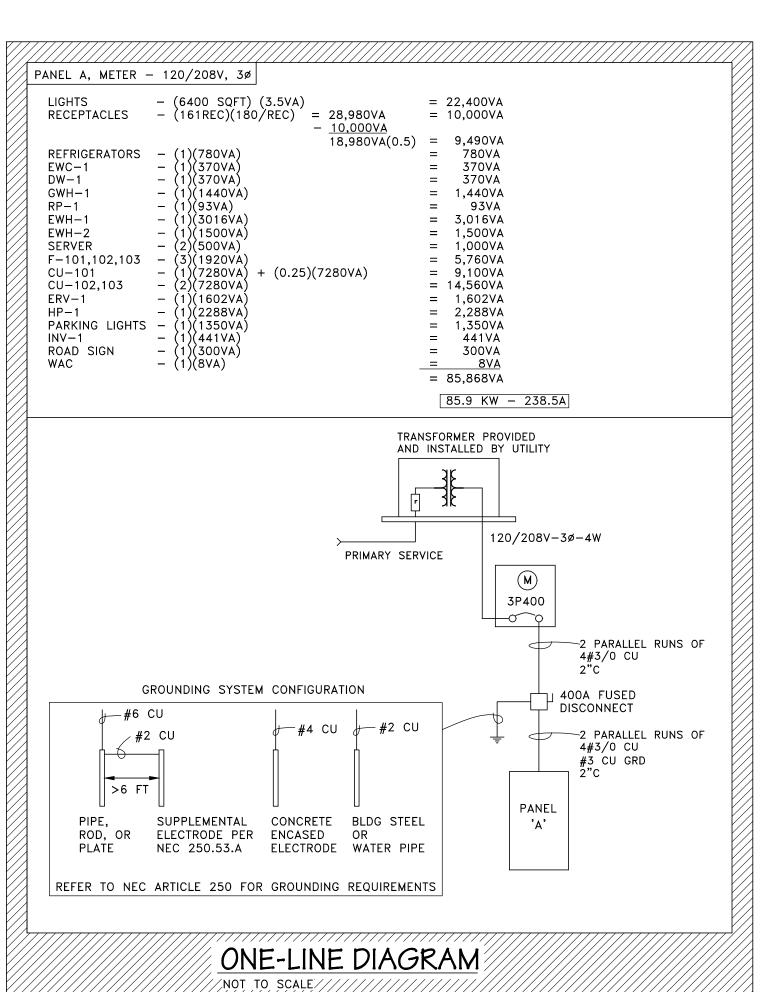
ELECTRICAL NOTES

- PRIOR TO SUBMITTING A PROPOSAL, BIDDER SHALL HAVE VISITED THE CONSTRUCTION SITE. HE SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS
- ELECTRICAL WORK SHALL COMPLY WITH THE LATEST ENFORCEABLE EDITION OF THE N.E.C., LOCAL AND STATE CODES, ORDINANCES, REGULATIONS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), AND ADA GUIDELINES WITH THE LOCAL CODE AUTHORITIES HAVING JURISDICTION.
- ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL EES, INCLUDING COSTS ASSESSED BY THE ELECTRIC UTILITY COMPANIES, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK. AT THE COMPLETION OF ELECTRICAL WORK, THE ELECTRICAL CONTRACTOR SHALL FURNISH THE OWNER WITH ALL CERTIFICATES OF FINAL INSPECTION AND APPROVALS.
- 4. ELECTRICAL MATERIALS SHALL BE NEW, AND BEAR THE "UL" LABEL
- BRANCH CIRCUIT WIRE FOR LIGHTING, RECEPTACLE AND SMALL POWER SHALL BE COPPER, RATED 75 DEGREES C, MINIMUM SIZE #12 AWG, AND BE TYPE "THHN", AND BE INSTALLED IN EMT. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. FEEDERS AND SECONDARY SERVICE NOTED OR REQUIRED BT CODE. FEEDERS AND SECONDART SERVICE CONDUCTORS SHALL BE STRANDED COPPER WITH 600 VOLT INSULATION, RATED 90 DEGREES C, TYPE "THHN", AND BE INSTALLED IN EMT OR PVC CONDUIT, MINIMUM SIZE 1/2" UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE DELIVERED TO PROJECT IN UNBROKEN AND UNDAMAGED CARTONS AND
- FUSES SHALL BE "UL" LISTED, DUAL AS MANUFACTURED BY BUSMAN CO., OR APPROVED EQUAL (200,000 ERIC).
- 7. PLATES FOR SWITCHES AND RECEPTACLES SHALL BE PLASTIC. COLOR TO BE WHITE.
- PANELS ARE TO BE RATED 120/208V, 3 PHASE, 4W, WITH PLUG TYPE BRANCH CIRCUIT BREAKERS RATED A MINIMUM 10,000 A.I.C. EXT'G PANELS TO HAVE NEW TYPE WRITTEN PANEL SCHEDULE AND PLASTIC ENGRAVED NAME PLATES.
- ELECTRICAL CONTRACTOR SHALL VERIFY EXACT ELECTRIC UTILITY COMPANIES SERVICE POINTS AND PRIMARY SERVICE CONDUIT, ROUTING, AND SIZE WITH UTILITY COMPANY SERVICE PLANNERS PRIOR TO BEGINNING WORK.
- 10. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER HIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER. SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AT NO EXPENSE
- 11. ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATIONS OF HIS EQUIPMENT AND WORK WITH OTHER BUILDING TRADES TO AVOID ANY INTERFERENCE'S BETWEEN HIS WORK AND THE WORK OF OTHER BUILDING TRADES. IF ANY DISCREPANCIES OCCUR, CONSULT WITH THE ARCHITECT AND/OR OWNER BEFORE CONTINUING.
- 12. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES,
- 13. THE ELECTRICAL CONTRACTOR SHALL PERIODICALLY REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE ELECTRICAL INSTALLATION. UPON COMPLETION OF THE PROJECT, HE SHALL DISPOSE OF ALL DEBRIS AND RUBBISH AND SHALL LEAVE ALL AREAS CLEAN. THE INTERIORS OF ALL CABINETS, PULL BOXES, AND EQUIPMENT ENCLOSURES SHALL BE FREE OF ANY DEBRIS. 14. UNDERGROUND CONDUIT TO BE SCHEDULE 40 PVC.
- 15. ELECTRICAL JOINTS WILL BE PERMITTED ONLY IN JUNCTION AND OUTLET BOXES. ALL JOINTS SHALL BE FIRMLY BONDED TOGETHER AND TAPED OR SHALL BE MADE WITH MECHANICAL CONNECTORS.
- 16. ELECTRICAL CONTRACTOR TO VERIFY ALL EXT'G ITEMS TO REMAIN AND RECONNECT/RELOCATE NEW CIRCUITS INDICATED IN THE PANEL SCHEULE AS REQ'D TO ENERGIZE THE COMPLETE BUILDING AS INTENDED.
- 17. PATIENT CARE SPACE (SPACE WITHIN A HEALTH CARE FACILITY WHERE PATIENTS ARE INTENDED TO BE EXAMINED OR TREATED) ARE TO COMPLY WITH NEC "SECTION 517", WITH SPECIAL ATTENTION TO THE FOLLOWING SECTIONS.
 - 517.13 GROUNDING OF RECEPTACLES AND FIXED ELECTRICAL EQUIPMENT IN PATIENT CARE AREAS. 517.14 PANELBOARD BONDING.
- NOTE: ALL PATIENT CARE SPACES AT THIS FACILITY ARE INTENDED TO BE "BASIC CARE SPACES".
- 18. ALL EQUIPMENT IS TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.

TYPE	BRAND	MODEL #
A	METALUX	24CZ-LD5-45-UNV-L835
В	METALUX	14CZ-LD5-39-UNV-L835
С	METALUX	4SNLED-LD5-46SL-LN-UN
D	METALUX	22CZ-LD5-29-UNV-L835
E	METALUX	22CZ-LD5-44-UNV-L835
F	LUMARK	XTOR1B-W
G	MCGRAW-EDISON	GLEON-SA4C-740-U-T3-
н	PORTFOLIO	6LDC109040D010M LGSKT
XA	SURELITES	APC7R

EATON WAVELINX BILL OF MATERIALS
WB1 – EATON W2L-RL-* WALL BOX CONTROLLER (VERIFY COLOR WITH OWNER)
WB2 - EATON W1L-* WALL BOX CONTROLLER (VERIFY COLOR WITH OWNER)
WAC – EATON WAC2-POE WIRELESS AREA CONTROLLER.
SP1 - EATON WSP-MV-010 SWITCH PACK
WIRELESS CONNECTION - ALL LIGHTING CONNECTIONS ARE SHOWN FOR WIRELESS GROUPING ONLY.
 SUPPLIER TO PROVIDE INITIAL PROGRAMING AND TRAINING FOR WAVELINK SYSTEM (CONTACT CRITES TIDEY (231) 941-8686)

		IN	IVERTER SO	CHEDU	LE	
TYPE	BRAND	MODEL	MOUNTING TYPE	POWER	INPUT VOLTAGE	OUTPUT VOLTAGE
INV-1	MYERS	LV-3-R1	WALL	441 VA	120 V	120 V



	ELECTRICAL :	
SYMBOL	DESCRIPTION	NOTES
S	SINGLE POLE STYLE SWITCH	MOUNT @
X	2'x2' FIXTURE, TYPE X	SEE LIGHT
X	EMERGENCY LIGHTING FIXTURE	SEE LIGHTI
● [×]	EXIT SIGN, TYPE X	SEE LIGHTI
10 S	GREENGATE ONW-P-1001-MV-X	WALLBOX
\bigcirc	DUPLEX OUTLET - 20 AMP	MOUNT @
\mathbf{O}	DUPLEX OUTLET - GROUND FAULT	MOUNT @
WP M	DUPLEX OUTLET - WEATHER PROOF COVER	MOUNT @
\bigoplus	QUADPLEX OUTLET - 20 AMP	MOUNT @
\bigcirc	SPECIAL PURPOSE OUTLET, AS NOTED	REFER TO
\wedge	MOTOR, AS SPECIFIED	REFERENCE
\Box	FUSED DISCONNECT	REFER TO (VFD IS BI
	LIGHTING/BRANCH CIRCUIT PANELS	REFER TO
\bigtriangledown	DATA OUTLETS	MOUNT @ PROVIDE S COORDINA
Ţ	MECHANICAL THERMOSTAT	PROVIDE (
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				ELECTR	IC WAI	LL HEATER
MARK	MODEL No.	ĸw	МВН	VOLTAGE	AMPS	REMARKS
EWH-1	FRA-4024	3.0	10.2	208V/1ø	14.5	SEE NOTES
EWH-2	FRA-1512	1.5	5.1	120V/1ø	12.5	SEE NOTES
NOTES:						·

1. BASED ON BERKO. OTHERS MAY BE BID AS VOLUNTARY ALT.

2. UNIT SHALL BE PROVIDED WITH INTEGRAL THERMOSTAT, INTEGRAL DISCONNECT, TAMPER-PROOF FRONT COVER, AND SEMI-RECESSED MOUNTING FRAME.

LIGHTING FIXTURE SCHEDULE									
	MOUNTING TYPE	LAMP	TOTAL FIXTURE POWER	VOLTAGE	NOTES:				
5-CD1-U-WAA	RECESSED	4558LM/3500K/LED	35.7W	UNV	WAVELINX WIRELESS SENSOR				
5-CD1-U-WAA	RECESSED	4035LM/3500K/LED	35.7W	UNV	WAVELINX WIRELESS SENSOR				
UNV-L835-CD1-U	SURFACE	4708LM/3500K/LED	34.6W	UNV	-				
5-CD1-U	RECESSED	2838LM/3500K/LED	20.9W	UNV	-				
5-CD1-U-WAA	RECESSED	4348LM/3500K/LED	32.8W	UNV	WAVELINX WIRELESS SENSOR				
	SURFACE	1396LM/4000K/LED	12.0W	UNV	-				
-BZ	PARKING	31307LM/4000K/LED	225.0W	UNV	RPSQ-25-4-11-AB-D1-CB POLE				
T6IP66	RECESSED EXTERIOR	1000LM/4000K/LED	10.0W	UNV	EXTERIOR EAVE FIXTURE				
	EXIT LIGHT	(1) LED	1.4W	120V	_				

WIRE SIZE REQUIREMENTS										
	NOTE: BASED ON A MAXIMUM OF 6-VOLT DROP (5%) ON 120V CIRCUITS. WIRES FOR RUNS OVER 100'-0" SHALL BE DETERMINED ON THIS A MAXIMUM OF A 5% DROP ALLOWED.									
BRANCH CIRCUIT AMPS										
AMPS	50'	60'	70'	80'	90'	100'	110'	120'	130'	
15	#12	#12	#12	#12	#12	#12	# 10	# 10	#10	
20	#12	#12 #12 #12 #10 #10 #10 #10 #10 #8								
30	# 10	# 10	#10	#10	#8	#8	#8	# 8	#6	
						//////				

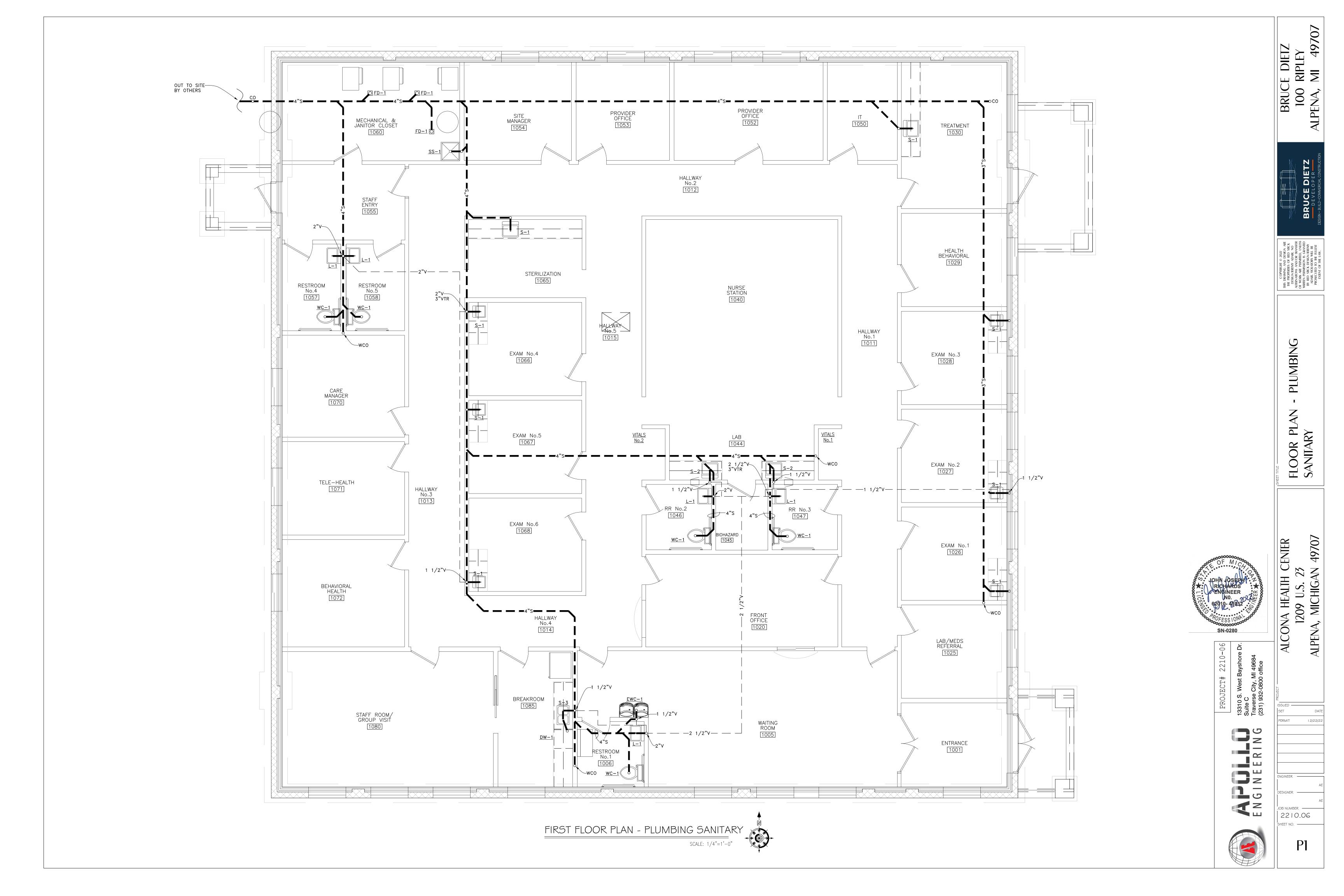
)L LEGEND 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED ITING FIXTURE SCHEDULE FOR TYPES ITING FIXTURE SCHEDULE FOR TYPES ITING FIXTURE SCHEDULE FOR TYPES MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED

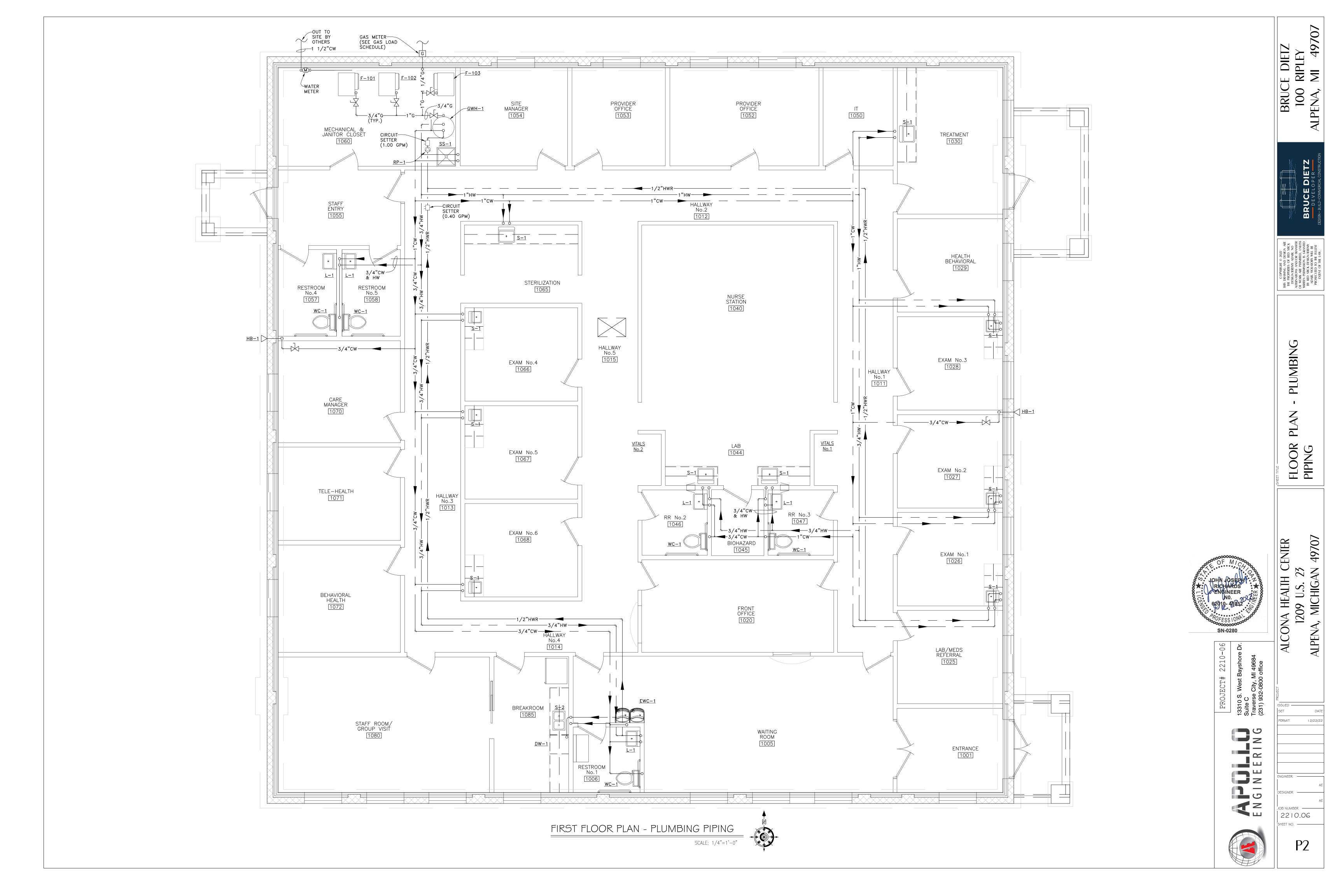
- 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
- 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
- SHOP DRAWINGS FOR CONNECTION REQUIREMENTS
- ICE SPECIFICATIONS FOR REQUIREMENTS

- O GENERAL ELECTRICAL NOTES AND ONE-LINE DIAGRAM. BEING SUPPLIED WITH UNIT FOR ROOTOPS OR BY CONT. CONTRACTOR) GENERAL ELECTRICAL NOTES AND ONE-LINE DIAGRAM.
- 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED, EC TO SINGLE GANG BOX WITH 1"C STUBBED ABOVE CEILING SPACE ATE LOCATION, QUANTITY, AND HEIGHT W/ OWNER/TECH. CONSULTANT CONDUIT AND BACKBOX

ER SCHEDULE







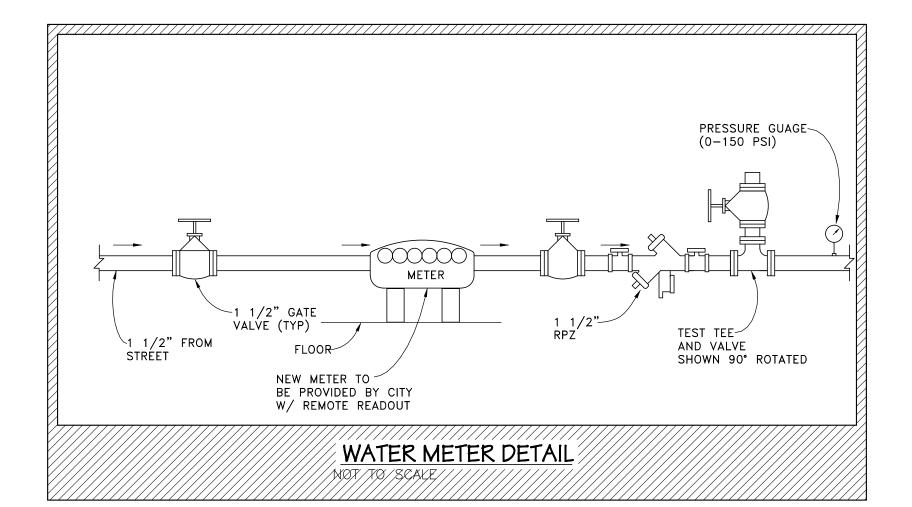
	PLUMBING FIXTURE SCHEDULE							
MARK	FIXTURE	MANU.	MODEL	SAN.	НОТ	COLD	REMARKS	
WC-1	WATER CLOSET	AM. STD.	2467.100	3"	_	1"	W/ OLSONITE #95 SEATE, 17" HIGH	
L-1	LAVITORY	AM. STD.	0355.027	1 1/2"	1/2"	1/2"	W/ DELTA FAUCET #501	
S-1	SINK	ELKAY	BLR-150C	1 1/2"	1/2"	1/2"	COMBINATION INCLUDES FAUCET	
S-2	SINK	ELKAY	LRAD221955	1 1/2"	1/2"	1/2"	W/ T & S BRASS #B-0892-01 FAUCET	
S-3	SINK	ELKAY	LR2519	1 1/2"	1/2"	1/2"	W/ ELKAY #LK100CR FAUCET	
EWC-1	ELECTRIC WATER COOLER	ELKAY	EZSTLG8SC	1 1/2"	_	1/2"	-	
GWH-1	GAS WATER HEATER	AO SMITH	BTH-120	-	_	1/2"	100 GAL., 120,000 BTU/HR	
FD-1	FLOOR DRAIN	ZURN	ZN-415-5B	3"	-	-	W/ TYPE 'B' ROUND STRAINER, SEE NOTE #6	
SS-1	SERVICE SINK	FLORESTONE	MSR2424	3"	1/2"	1/2"	W/MR-370, MR-371, & MR-372	
HB-1	HOSE BIB	WOODFORD	MODEL 67	-	_	3/4"	FREEZLESS W/ VACUUM BREAKER	
DW-1	DISHWASHER	BY OTHERS	-	1 1/2"	1/2"	1/2"	_	
NOTES:	I							

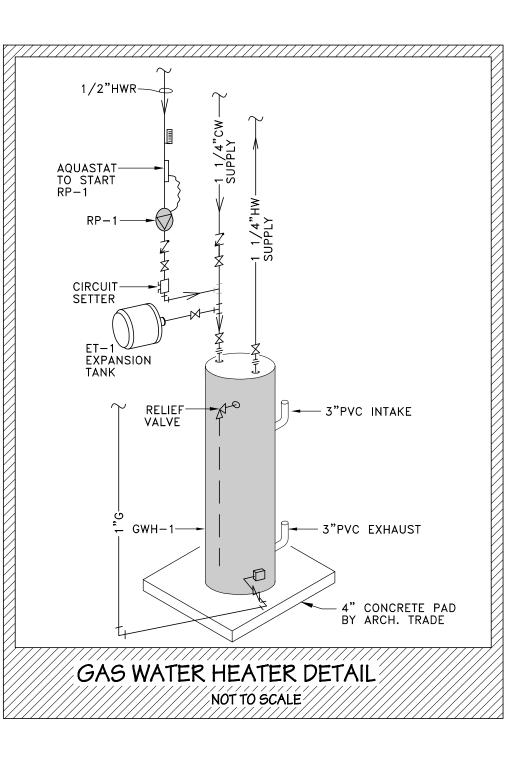
1. SEE ARCHITECTURAL DRAWINGS FOR ALL ROUGH-IN LOCATIONS OF PLUMBING FIXTURES. 2. WC-1 TO CONFORM TO ADA REQUIREMENTS.

3. VERIFY COLOR WITH ARCHITECT BEFORE ORDERING.

4. INSULATE ALL EXPOSED SANITARY AND DOMESTIC HOT AND COLD WATER PIPING TO LAVATORIES. 5. PROVIDE A POWERS 480 MIXING VALVE AT EACH LAV.

6. PROVIDE A SURE SEAL MODEL #SS2009 TRAP SEAL AT EACH FLOOR DRAIN





Gi	AS LOAD SCHEDULE	
MARK	EQUIPMENT	GAS LOAD
F-101	FURNACE	100,000 BTU/HR
F-102	FURNACE	100,000 BTU/HR
F-103	FURNACE	100,000 BTU/HR
GWH-1	GAS WATER HEATER	120,000 BTU/HR
TOTAL	GAS LOAD	420,000 BTU/HR
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PLUMBING LE	
s — s — s	SANITARY SEWER
	FORCED SANITARY
· · · · · · · · · · · · · · · · · · ·	SANITARY VENT
cw	COLD WATER LINE
HW	HOT WATER LINE
——————————————————————————————————————	HOT WATER RETURN
G	
<u> </u>	BALL VALVE



GENERAL NOTES

ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.

2. EACH CONTRACTOR SHALL BE THOROUGHLY KNOWLEDGEABLE OF REGULATIONS GOVERNING HIS PRODUCT AND SERVICE AND SHALL ASSUME RESPONSIBILITY OF INSTALLATION IN ACCORDANCE WITH THOSE REGULATIONS.

CONTRACTORS TO VERIFY ALL DIMENSIONS RELATIVE TO THEIR SPECIFIC WORK AND SHALL BE THOROUGHLY FAMILIAR WITH EXISTING CONDITIONS PRIOR TO INITIATING THEIR WORK. DISCREPANCIES SHALL BE REPORTED TO THE GENERAL CONTRACTOR OR TO HIS ON-SITE REPRESENTATIVE.

FAILURE TO DETECT INFERIOR WORK, OR WORK NOT IN ACCORDANCE WITH THESE CONSTRUCTION DOCUMENTS, SHALL NOT BE CONSTRUED AS ACCEPTABLE OF SUCH WORK.

ANY PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES FOR MECHANICAL OR PLUMBING SYSTEMS, ETC. SHALL BE FIRE-STOPPED AND DRAFT-STOPPED WITH NON-COMBUSTIBLE MATERIALS PER CODE REQUIREMENTS TO MAINTAIN STRUCTURAL AND FIRE RESISTIVE INTEGRITY.

DRAWINGS ARE DIAGRAMMATIC ONLY, FIELD VERIFY EXISTING CONDITIONS. PRIOR TO SUBMITTING A PROPOSAL, BIDDER SHALL HAVE VISITED THE CONSTRUCTION SITE. HE SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OF NEGLIGENCE ON HIS PART.

PLUMBING CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES, INCLUDING COSTS ASSESSED BY THE MECHANICAL UTILITY COMPANIES, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK. AT THE COMPLETION OF PLUMBING WORK, THE PLUMBING CONTRACTOR SHALL FURNISH THE OWNER WITH ALL CERTIFICATES OF FINAL INSPECTION AND APPROVALS.

9. PLUMBING CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER HIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER. SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AT NO EXPENSE TO THE OWNER.

10. PLUMBING CONTRACTOR SHALL COORDINATE LOCATIONS OF HIS EQUIPMENT AND WORK WITH OTHER BUILDING TRADES TO AVOID ANY INTERFERENCE'S BETWEEN HIS WORK AND OTHER BUILDING TRADES. IF ANY DISCREPANCIES OCCUR, CONSULT WITH THE GENERAL CONTRACTOR OR HIS ON-SITE REPRESENTATIVE.

11. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF MECHANICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC. AS REQUIRED.

12. THE CONTRACTOR SHALL EMPLOY QUALIFIED AND EXPERIENCED WORKMEN FOR THIS WORK.

13. THE PLUMBING CONTRACTOR SHALL PERIODICALLY REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE MECHANICAL INSTALLATION. UPON COMPLETION OF THE PROJECT, HE SHALL DISPOSE OF ALL DEBRIS AND RUBBISH AND SHALL LEAVE ALL AREAS CLEAN.

PLUMBING CONSTRUCTION NOTES

<u>GENERAL</u>

1. REFERENCE ARCHITECTURAL DRAWINGS FOR ALL ROUGH-IN DIMENSIONS, BOTH FIXTURES AND WALLS.

2. ALL VALVES SHALL BE ACCESSIBLE. 3. WATER HAMMER ARRESTORS SHALL BE INSTALLED AND SHALL BE.

ACCESSIBLE. 4. PLUMBING CONTRACTOR TO EXTEND WATER AND SANITARY LINES AND

MAKE UTILITY CONNECTIONS. SPECIFICATIONS

1. PLUMBING DESIGN PER THE LATEST MICHIGAN PLUMBING CODES.



NOTE \sim CHEDULES / - SC 49707

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